

PLANNING AND NATURAL SYSTEMS

ATTACHMENT A

**GREATER TAREE LOCAL ENVIRONMENTAL
PLAN 2010 - GENERAL AMENDMENT
PACKAGE 4**

STRATEGIC MEETING

14 FEBRUARY 2018

Planning Proposal

Amendment to Greater Taree Local Environmental Plan 2010

Package 4

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Table of contents

1	INTRODUCTION	5
2	OBJECTIVES AND OUTCOMES	5
3	EXPLANATION OF PROVISIONS	5
3.1	General amendments:	6
3.1.1	G1 - Essential Services	6
3.1.2	G2 - Events Permitted Without Development Consent	6
3.1.3	G3 - Changes to boundaries	7
3.1.4	G4 - Zone Objective Changes.....	8
3.1.5	G5 - Dual Occupancies (detached) on rural land.....	8
3.1.6	G6 - Primary Production (RU1) zone changes	9
3.1.7	G7 - Enabling a kiosk/take away food and drink premises in Enterprise Corridor zone	9
3.1.8	G8 - Bulky Goods in Light Industry (IN2).....	9
3.1.9	G9 - Rural Industries in Light Industry (IN2)	10
3.1.10	G10 - Function Centre in Public Recreation (RE1)	12
3.1.11	G11 - Heritage Conservation Area floor space ratio.....	12
3.1.12	G12 - Dams in rural zones.....	12
3.1.13	G13 – Subdivision of lots with split zones in the Village zone.....	19
3.2	Site specific amendments:	19
4	JUSTIFICATION	23
4.1	Need for the planning proposal	23
4.1.1	Is the planning proposal a result of any strategic study/report?	23
4.2	Relationship to strategic planning framework.....	23
4.2.1	Is the planning proposal consistent with the applicable regional strategy?	23
4.2.2	Is the planning proposal consistent with Council’s Community Plan?	25
4.2.3	Is the planning proposal consistent with State Environmental Planning Policies?	26
4.2.4	Is the planning proposal consistent with Ministerial Directions (117 Directions)?	27
4.3	Environmental, social and economic impacts.....	28
4.3.1	Are there any critical habitats, threatened species, populations or ecological communities, or their habitats adversely affected?	28
4.3.2	Are there any other likely environmental effects and how are they to be managed?	28
4.3.3	How has the planning proposal adequately addressed any social/economic effects?	29
4.4	State and Commonwealth interests	29
4.4.1	Is there adequate public infrastructure for the planning proposal?	29
4.4.2	What are the views of State and Commonwealth public authorities?	29
5	MAPPING	30

6	COMMUNITY CONSULTATION	30
7	PROJECT TIMELINE.....	32
	ATTACHMENT A - SITE SPECIFIC AMENDMENTS	33
	ATTACHMENT B – SEPP ASSESSMENT MATRIX	73
	ATTACHMENT C – SECTION 117 DIRECTIONS ASSESSMENT MATRIX	80
	ATTACHMENT D – SUMMARY OF LEP 2010 AMENDMENTS	87
	ATTACHMENT E – TECHNICAL STUDIES FOR 202 BUSHLAND DRIVE, TAREE (NSW RAILCORP SITE)	
	ATTACHMENT F - GATEWAY DETERMINATION	
	ATTACHMENT G - JOHNS RIVER (SITE B) SUPPORTING ACOUSTIC AND TRAFFIC REPORTS	
	ATTACHMENT H - STATE AGENCY CONSULTATION	
	ATTACHMENT I – COMMUNITY CONSULTATION SUMMARY	

1 Introduction

In June 2010 the *Greater Taree Local Environmental Plan 2010 (LEP 2010)* was made. This planning proposal forms part of the fourth package of administrative amendments being undertaken to improve the application of LEP 2010. It details the proposed amendments and provides justification for these changes.

Please note that the proposed amendments will apply to the *Greater Taree Local Environmental Plan 2010* only, which covers the Manning region of the MidCoast Council.

The planning proposal was presented to the former Greater Taree City Council Ordinary Meeting in December 2015. In May 2016, the MidCoast Council was proclaimed merging Greater Taree City, Great Lakes and Gloucester Councils. While three LEPs apply over the MidCoast Council area, some harmonisation of these LEPs has occurred. After consultation with the Department of Planning and Environment, changes were made to this planning proposal to remove or change some of the proposed amendments to be consistent with planning across the MidCoast Council and to address the priorities of the Council. These changes were endorsed at the MidCoast Council Ordinary Meeting in December 2016.

This planning proposal includes a diverse range of general amendments to zones, subdivision provisions and site specific zone changes to improve the application of LEP 2010.

The proposed amendments were developed from:

- a review of a number of NSW LEPs
- a register of LEP 2010 potential amendments that has been added to as issues arose
- internal workshops with Council officers
- the community who have identified inconsistencies in the LEP provisions.

Each of these amendments are addressed in detail in the planning proposal.

2 Objectives and outcomes

The key objective of this planning proposal is to improve the application of LEP 2010, by:

- providing clear and succinct planning provisions
- ensuring consistency of zones in terms of surrounding and existing land-uses
- ensuring the provisions are up-to-date and relevant
- harmonizing the LEP provisions with the Gloucester LEP 2010 and Great Lakes LEP 2014 to provide a consistent approach where possible across the MidCoast Council area.

The overall outcome of the proposed amendments will be a more robust LEP that better reflects the intended use of land in the Manning region of the MidCoast Council.

3 Explanation of provisions

The planning proposal contains two different types of LEP amendments:

- general amendments that are changes to provisions in LEP 2010 that can apply to the whole Manning region
- site specific amendments that apply to one location. These are typically zone changes that can result in changes to other provisions for a site (eg. floor space ratio and height). In addition, these amendments include changes to the heritage listing of properties and the inclusion of a site on the Land Reservation Acquisition map and Additional Permitted Uses map.

Details on each group of amendments are outlined below.

3.1 General amendments:

General amendments are not specific to a site, they apply to all development covered by LEP 2010, for example, the uses permitted in a zone or rules for how development should be considered. All of these changes are generally consistent with the *Standard Instrument (Local Environmental Plans) Order 2006* (the template for all Local Environmental Plans in NSW).

3.1.1 G1 - Essential Services

A local clause is commonly used in NSW LEPs to ensure that development has adequate services available for the supply of water and electricity, disposal of sewage, stormwater drainage and access to roads.

It is proposed to amend Part 7 of LEP 2010 to include clause 7.11 - Essential Services as follows:

- (1) *Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements have been made to make them available when required:*
 - (a) *the supply of water,*
 - (b) *the supply of electricity,*
 - (c) *the disposal and management of sewage,*
 - (d) *stormwater drainage,*
 - (e) *suitable road access.*

3.1.2 G2 - Events Permitted Without Development Consent

Currently LEP 2010 (clause 2.8) requires development consent for the temporary use of land. This means that any market or event on parks or road reserves needs to apply for a number of approvals (consent, event application, road closures) which can be time consuming and costly. These applications also require similar information and processes.

The aim of this amendment is to streamline the approval process by allowing the temporary use of public reserves and roads for exhibitions, markets, meetings, concerts or events. Council's event application then provides the process for ensuring that all aspects of the event are considered.

It is proposed to amend Part 7 of LEP 2010 to include clause 7.12 - Events Permitted Without Development Consent as follows:

- (1) *The objective of this clause is to provide for the temporary use of public reserves and public roads for temporary events.*
- (2) *Despite any other provision of this Plan, development (including any associated temporary structures) for the purpose of a temporary event may be carried out on a public reserve or public road without development consent.*

Note. *Other approvals may be required, and must be obtained, under other Acts, including the Local Government Act 1993, the Roads Act 1993 and the Crown Lands Act 1989.*

- (3) *State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007 – Part 2 Erection of temporary structures, does not apply to development to which this clause applies.*
- (4) *In this clause:*

public reserve *has the same meaning as in the Local Government Act 1993.*

temporary event *means an exhibition, market, meeting, concert or other event that is open to the public for which land is used for a period of not more than 52 days (whether or not consecutive) in any period of 12 months.*

3.1.3 G3 - Changes to boundaries

Currently there are no provisions in LEP 2010 to enable changes to the boundaries of rural or environmental lots where the lot size is less than 40 ha. Council frequently receives requests for changes to boundaries for a range of reasons including improving the viability of agricultural lots, access, and accounting for natural features such as creeks and steep land. The proposed clause has been adopted by a number of NSW rural councils to enable minor boundary changes to occur where the lots are below the minimum lot size.

It is proposed to amend Part 4 of LEP 2010 to include clause 4.1C - Changes to boundaries of land in certain rural, residential and environmental protection zones as follows:

- (1) *The objective of this clause is to facilitate changes to boundaries between lots where one or more resultant lots do not meet the minimum lot size but the objectives of the relevant zone can be achieved.*
- (2) *This clause applies to land in the following zones:*
 - (a) *Zone RU1 Primary Production,*
 - (b) *Zone RU3 Forestry,*
 - (c) *Zone RU4 Primary Production Small Lots,*
 - (d) *Zone RU5 Village,*
 - (e) *Zone R5 Large Lot Residential,*
 - (f) *Zone E2 Environmental Conservation,*
 - (g) *Zone E3 Environmental Management,*
 - (h) *Zone E4 Environmental Living*
- (3) *Despite clause 4.1 (3), development consent may be granted to subdivide land by way of changing the boundary between adjoining lots where one or more resultant lots do not meet the minimum lot size shown on the Lot Size Map in relation to that land if the consent authority is satisfied that:*
 - (a) *the subdivision will not create additional lots or the opportunity for additional dwellings, and*
 - (b) *the number of dwellings or opportunities for dwellings on each lot after subdivision will remain the same as before the subdivisions, and*
 - (c) *the potential for land use conflict will not be increased as a result of the subdivision, and*
 - (d) *if the land is in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots or Zone RU3 Forestry – the subdivision will not have a significant adverse effect on the agricultural viability of the land, and*
 - (e) *if the land is in Zone E2 Environmental Conservation, Zone E3 Environmental Management or E4 Environmental Living - the subdivision will result in the continued protection and long-term maintenance of the land.*
- (4) *Before determining a development application for the subdivision of land under this clause, the consent authority must consider the following:*
 - (a) *the existing uses and approved uses of other land in the vicinity of the subdivision,*
 - (b) *whether or not the subdivision is likely to have a significant impact on land uses that are likely to be preferred and the predominant land uses in the vicinity of the development,*
 - (c) *whether or not the subdivision is likely to be incompatible with land use on any adjoining land,*
 - (d) *whether or not the subdivision is appropriate having regard to the natural and physical constraints affecting the land,*
 - (e) *whether or not the subdivision is likely to have a significant adverse impact on the environmental values of the land.*
- (5) *This clause does not apply:*
 - (a) *in relation to the subdivision of individual lots in a strata plan or community title scheme, or*
 - (b) *if the subdivision would create a lot that could itself be subdivided in accordance with clause 4.1.*
- (6) *Despite clause 4.2A, development consent may be granted for the erection of a dwelling house on land that, immediately before the adjustment of its boundaries under this clause, was a lot on which the erection of a dwelling house was permissible.*

3.1.4 G4 - Zone Objective Changes

A comparative review of LEPs across NSW identified improvements that could be made to the zone objectives to more accurately reflect the intended use of land. An additional objective is proposed for the Primary Production (RU1), Village (RU5) and Local Centre (B2) zones to provide more clarity for the intent of the zone. It is proposed to amend the zone objectives as follows:

- include in Primary Production (RU1) zone objectives:
To secure a future for agriculture in the area by minimising the fragmentation of rural land and loss of potential agricultural productivity
- include in Village (RU5) zone objectives
To minimise conflict between land uses within the zone and land uses within adjoining zones
- include in Local Centre (B2) zone objectives
To ensure quality of design of buildings and public spaces to achieve a locality that is safe and accessible

3.1.5 G5 - Dual Occupancies (detached) on rural land

Currently dual occupancies (attached) are permitted with consent in the Primary Production (RU1) zone. Given these buildings are attached, the resultant built form can be very large buildings that are not in keeping with the rural nature of the zone. To address this impact, a number of rural councils have permitted dual occupancies (detached) with development consent where the rural use of the land is not impacted (eg. separation distance, access and rural amenity).

It is proposed to remove the word (attached) from the dual occupancies definition in the permitted with consent land use table in the Primary Production zone, and amend Part 4 of LEP 2010 to include clause 4.2C - *Erection of dual occupancies (detached) in Zone RU1* as follows:

- (1) *The objectives of this clause are as follows:*
 - (a) *to ensure that development is compatible with the primary production potential, rural character and environmental capabilities of the land,*
 - (b) *to ensure that consent is only granted to development for the purposes of dual occupancies (detached) if issues such as access, siting, land suitability and potential impacts are addressed,*
 - (c) *to only permit dual occupancies in Zone RU1 Primary Production if a dwelling house is also permitted on that land*
 - (d) *to provide alternate accommodation for rural families and workers*
- (2) *Development consent must not be granted to development for the purpose of a dual occupancy (detached) on land in Zone RU1 Primary Production unless the consent authority is satisfied that:*
 - (a) *the development will not impair the use of the land for agriculture or rural industries, and*
 - (b) *each dwelling will use the same vehicular access to and from a public road, and*
 - (c) *any dwellings will be situated within 100 metres of each other, and*
 - (d) *the land is physically suitable for the development, and*
 - (e) *the land is capable of accommodating the on-site disposal and management of sewage for the development, and*
 - (f) *the development will not have an adverse impact on the scenic amenity or character of the rural environment.*
- (3) *Development consent must not be granted to development for the purposes of a dual occupancy (detached) on land in Zone RU1 Primary Production unless development consent for the erection of a dwelling house on that land may be granted in accordance with clause 4.2A.*

In conjunction with this amendment, rural workers' dwelling are proposed to be removed as a permitted with consent use in the RU1 - Primary Production zone, given a dual occupancy (detached) could now be used for this purpose. This will be achieved by removing "rural workers' dwelling" as a "permitted with consent" use in the Primary Production (RU1) zone.

3.1.6 G6 - Primary Production (RU1) zone changes

A number of enquiries for uses in the Primary Production (RU1) zone were received where a use was prohibited, but it was logical to be established in the zone given they are consistent with the zone objectives. A comparative review of LEP's across NSW identified the restrictive nature of our Primary Production (RU1) zone. While the Primary Production zone covers 66% of the Manning Valley, the number of permitted with consent uses are restricted. It was also found that many of the prohibited uses are currently operating in the rural area (being approved under previous LEPs), and positively contribute to the rural nature of the zone.

In addition, it was proposed that "funeral homes" be prohibited in the zone as they are a more urban use. Funeral homes are more appropriately located in towns in the business and residential zones

It is proposed to amend the Primary Production (RU1) zone in LEP 2010 to:

- include the following as additional "permitted with consent" uses:

boat launching ramps, boat sheds, camping grounds, charter and tourism boating facilities, community facilities, jetties, marinas, markets, mooring pens, moorings, plant nurseries, recreation areas, recreation facilities (outdoor), sewerage systems, timber yards, veterinary hospitals, waste or resource management facilities, water recreation structures, water supply systems, wharf or boating facilities

- remove "funeral homes" as "permitted with consent".

3.1.7 G7 - Enabling a kiosk/take away food and drink premises in Enterprise Corridor zone

Enquiries have been received regarding the possibility of providing venues for the sale of food, light refreshments and other small convenience items to local workers in the Enterprise Corridor (B6) zone. Currently a kiosk and take away food and drink premises are prohibited uses in the zone (included in the group term "Retail Premises"). Some of these locations are located a distance from existing centres and have no access to food outlets. This means workers requiring lunch have to travel a distance to access a food outlet.

A kiosk and take away food and drink premises are considered compatible uses in an Enterprise Corridor zone to service the workers in the area. It is proposed to amend LEP 2010 to include "kiosk" and "take away food and drink premises" as "permitted with consent" in the Enterprise Corridor (B6) zone.

3.1.8 G8 - Bulky Goods in Light Industry (IN2)

Prior to LEP 2010 (under LEP 1995), bulky goods premises were permitted with consent in any zone as the LEP was a merit based plan. Typically bulky goods premises were located in the industrial zones due to the large lot size required. Also, given a large amount of our Light Industrial zoned land was close to the Taree town centre (Whitbread and Muldoon St), much of this land was developed as bulky good premises.

While some clustering occurred around Mill Close, Taree (which was included in the Business Development zone in LEP 2010) other sites were dispersed throughout the Light Industrial zoned land. This has caused a number of problems when extensions are needed or the business closed, leaving a purpose-built bulky goods premises vacant. We have had numerous occasions where bulky goods premises have wanted to utilise an existing vacant building in the Light Industrial zone only to find the use is prohibited.

Currently bulky goods premises are permitted in the Local Centre (B2), Commercial Core (B3), Mixed Use (B4), Business Development (B5) and Enterprise Corridor (B6) zones. The table to the right provides an estimate of the availability of vacant land in these zones for bulky goods premises.

Zone	Potential land (ha)	Est lots
Business Development	26.9	34
Enterprise Corridor	0.4	3
TOTAL	27.3	37

While there are areas of land that have the potential to be developed for bulky goods premises, it needs to be noted that:

- much of the Business Development zone land is removed from the town centre. Even with major attractors like Bunnings and Masters (now closed), they have not expanded since the estate was opened (10+ or 4 years respectively)
- the Enterprise Corridor land is located along the former Pacific Highway. In Victoria Street many of the lots are smaller (requiring consolidation) and have flood issues. Land along Manning River Drive (south) has been almost fully developed
- given the high land costs and smaller lot sizes in the Commercial Core, Local Centre and Mixed Use zones, it is not expected that bulky goods premises would locate in these areas.

While there is a good supply of vacant land available for bulky goods premises, the high start up costs (eg. building construction, services, access and parking) can be prohibitive. Given the economic climate in our region, businesses often do not have the capital to build new premises in the Business Development zone and are instead seeking to lease or purchase an existing building. There are numerous vacant buildings in the Light Industrial zone that can meet these needs, some of which were originally developed as bulky goods premises.

In 2016, a land use survey was undertaken in the Whitbread/Muldoon Street area as part of the draft Manning Valley Local Strategy. This location has the largest concentration of Light Industrial zoned land. As seen by Figure 1, this location has a wide range of uses. A large proportion of the sites are identified as being retail uses, many of which were bulky goods premises.

In the long term, further investigations into the appropriate zone for this area will be undertaken. In the short term, it is proposed to enable the bulky goods premises as “permitted with consent” to provide appropriate uses for the vacant premises.

Other parcels of Light Industrial zone land are located along Bushland Drive adjoining or in close proximity to Bunnings. The land south of Bushland Drive has the potential to expand on the existing bulky goods uses, while land to the north of Bushland Drive is likely to continue to develop in the more traditional light or service industries.

This proposal is consistent with a number of regional councils including Byron Shire, Cootamundra Shire, Lismore City, Palerang, Shellharbour City, Parkes Shire, Shoalhaven City, Queanbeyan City, Great Lakes and Upper Hunter.

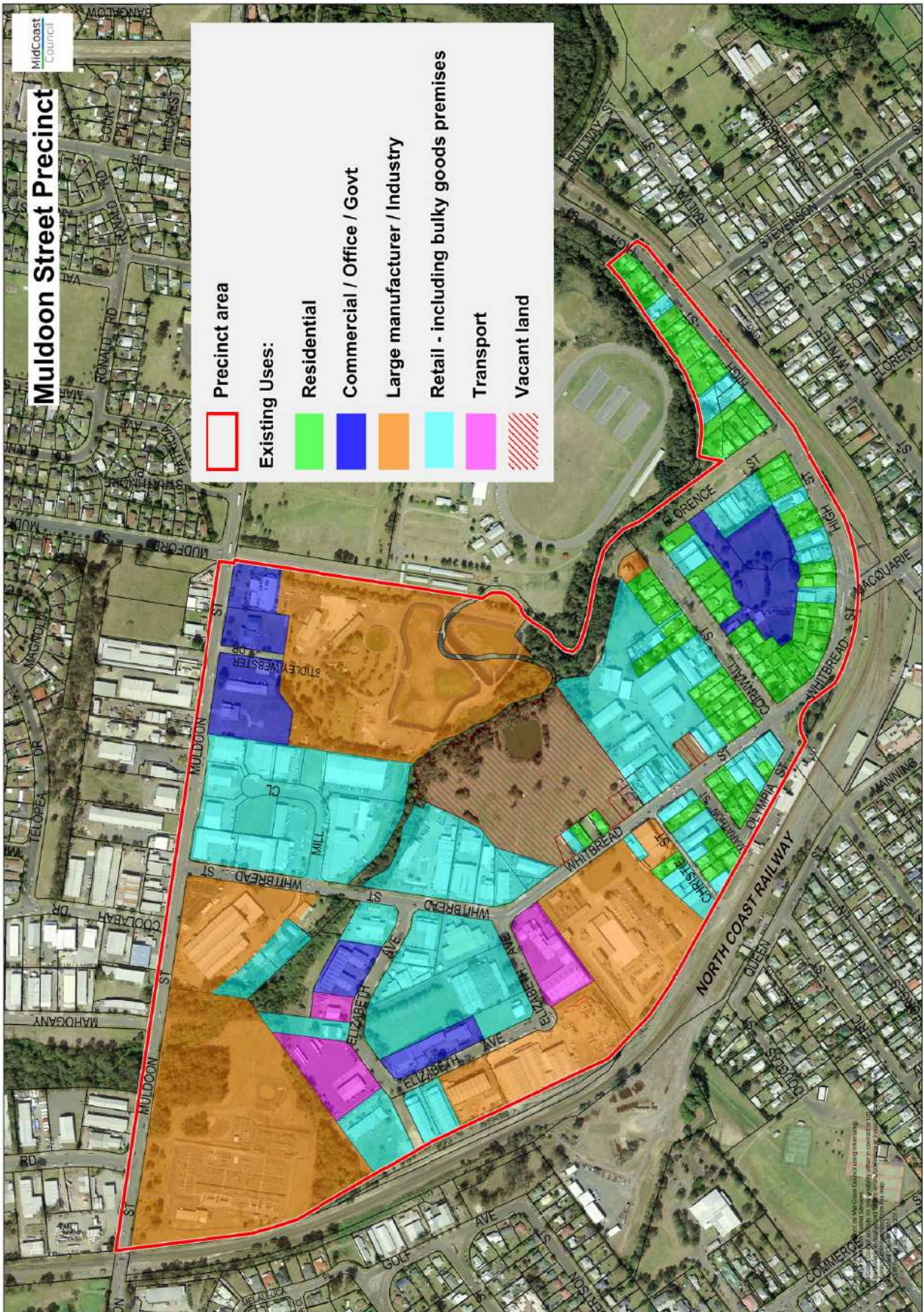
In addition, with the formation of the MidCoast Council we are seeking to apply consistent measures across the three current LEPs. This amendment is consistent with the bulky goods provisions in the Great Lakes LEP 2014 (Gloucester LEP 2010 does not use this zone).

It is proposed to amend LEP 2010 to include “bulky goods premises” as “permitted with consent” in the Light Industrial (IN2) zone.

3.1.9 G9 - Rural Industries in Light Industry (IN2)

Currently rural industries are both a “permitted with consent” and a “prohibited” use in the Light Industrial (IN2) zone, which is attributed to a drafting error when LEP 2010 was made. It is proposed to clearly show rural industries as an appropriate use in this zone. It is proposed to amend LEP 2010 to remove “rural industries” as “prohibited” in the Light Industrial (IN2) zone.

Figure 1 – Muldoon Street precinct



3.1.10 G10 - Function Centre in recreation zones

In 2014, Council reviewed the uses “permitted with consent” in the Public Recreation (RE1) zone to better reflect the types of uses that currently exist in our parks and what we intend to have in the future. Since this amendment, we have identified that function centres should also be a “permitted with consent use” in both the Public (RE1) and Private (RE2) Recreational zones. Function centres are a common feature in the recreation zones associated with sporting clubs (e.g. golf course, leagues clubs) and are consistent with the intent of the zones.

It is proposed to amend LEP 2010 to include “function centre” as “permitted with consent” in the Public Recreation (RE1) and Private Recreation (RE2) zone.

3.1.11 G11 - Heritage Conservation Area floor space ratio

A review of our heritage provisions identified that the floor space ratio (FSR) that applies to land in a Heritage Conservation Area is 0.45, which is less than that applied to surrounding residential (0.6) and business (0.8+) zones outside the Heritage Conservation Area.

Heritage Conservation Areas identify heritage values that need to be considered when developing a site, but should not limit the FSR to that below what is typically expected in the zone. It is intended that the FSR be amended to be consistent with that applied to the relevant zone. This proposed change aims to ensure that owners of buildings in heritage conservation areas are not disadvantaged in terms of the FSR compared to properties outside of the conservation area.

There are six Heritage Conservation Areas in LEP 2010. The maps (beginning over the page) show the location of the conservation area (as hatched), the existing floor space ratio that applies to each area and the proposed floor space area. These maps clearly show that a floor space ratio of 0.45 (blue) has been applied to these areas.

As shown on the maps, it is proposed to amend LEP 2010 to ensure the FSR in the Heritage Conservation Areas is consistent with the FSR applied to the relevant zone as follows:

- no FSR for the Village (RU5) and Public Recreation (RE1) zone
- 0.6 FSR for the General Residential (R1) zone
- 0.85 FSR for the Local Centre (B2) zone
- 1 FSR for the Enterprise Corridor (B6) zone
- 2 FSR for the Commercial Core (B3) zone

3.1.12 G12 - Dams in rural zones

Dams are defined as a “water storage facility” in LEP 2010 and are included in the grouped term “water supply system”. A review of dams in rural zones identified that the use is currently prohibited in circumstances where the use exceeds the requirements in the Exempt Development clause in Schedule 2 of LEP 2010.

It is proposed to make a “water supply system” permitted with consent in the Forestry (RU3), Primary Production Small Lots (RU4), Village (RU5) and Large Lot Residential (R5) zones. Amendments proposed in section 3.1.6 of this planning proposal address this issue for the Primary Production (RU1) zone.

Albert Street Taree Heritage Conservation Area

Existing Heritage Conservation area FSR
- 0.45



Proposed Heritage Conservation area FSR
- 0.6 for R1 area and 2 for B3 area



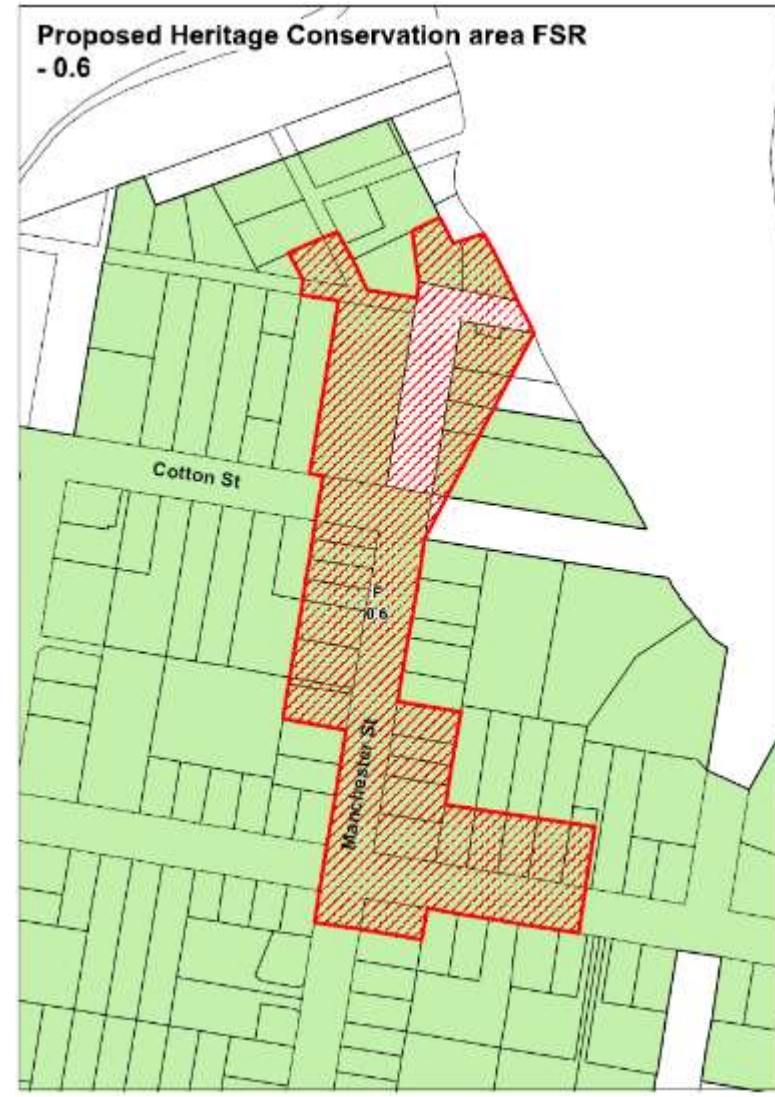
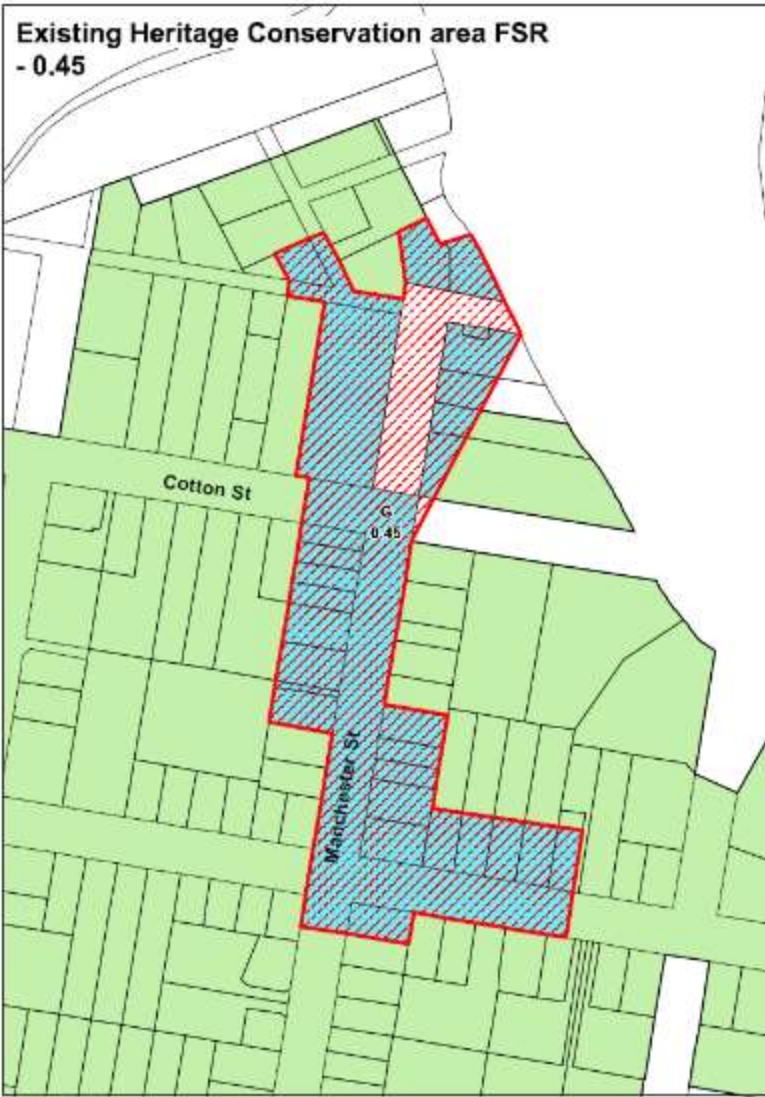
Cooperbrook Heritage Conservation Area



Taree Park Heritage Conservation Area



Tinonee Heritage Conservation Area



Taree West Heritage Conservation Area



Wingham Heritage Conservation Area



3.1.13 G13 – Subdivision of lots with split zones in the Village zone

Clause 4.1B *Exceptions to minimum subdivision lots sizes for certain split zones* in LEP 2010 enables sites in a residential, business or industrial zone which are split with a rural or environmental zone to be subdivided. Without this clause the 40ha minimum lot size of the rural or environmental zones restricts the subdivision of the part of the site included in the residential, business or industrial zone.

This clause does not apply to land included in the Village (RU5) zone split with a rural or environmental zone, as the Village zone is considered a rural zone. There are a number of sites in the Village zone which have split zones with an environmental or rural zone, which are unable to be subdivided given the minimum lot size of 40ha. A minor amendment to clause 4.1B is proposed to enable the provision to be applied to the Village zone.

It is proposed to amend Clause 4.1B(2)(a) and (3)(a)(i) to include reference to land in a Village zone as follows:

4.1B Exceptions to minimum subdivision lots sizes for certain split zones

- (1) *The objectives of this clause are as follows:*
 - (a) *to provide for the subdivision of lots that are within more than one zone but cannot be subdivided under clause 4.1,*
 - (b) *to ensure that the subdivision occurs in a manner that promotes suitable land uses and development.*
- (2) *This clause applies to each lot (an original lot) that contains:*
 - (a) *land in a residential, business, village or industrial zone, and*
 - (b) *land in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots, Zone E2 Environmental Conservation or Zone E3 Environmental Management.*
- (3) *Despite clause 4.1, development consent may be granted to subdivide an original lot to create other lots (the resulting lots) if:*
 - (a) *one of the resulting lots will contain:*
 - (i) *land in a residential, business, village or industrial zone that has an area that is not less than the minimum size shown on the [Lot Size Map](#) in relation to that land, and*
 - (ii) *all of the land in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots, Zone E2 Environmental Conservation or Zone E3 Environmental Management that was in the original lot, and*
 - (b) *all other resulting lots will contain land that has an area that is not less than the minimum size shown on the [Lot Size Map](#) in relation to that land.*

3.2 Site specific amendments:

Seventeen sites were identified that warranted LEP changes which are grouped as follows:

- Environmental – these sites involve minor changes to the environmental zone to either reflect that the land now forms part of a National Park estate or changes to the cadastre boundary
- Village – minor changes to reflect how the villages have developed at Coopernook and Johns River
- Existing uses – changing the zone to reflect where uses are well-established and have operated for over 20 years
- Heritage – to correctly identify heritage items identified in LEP 2010
- Open space changes – minor changes to identify where land is not intended to be used for public open space
- Land acquisition – to identify land to be acquired for future use as a road and as part of the National Park estate.

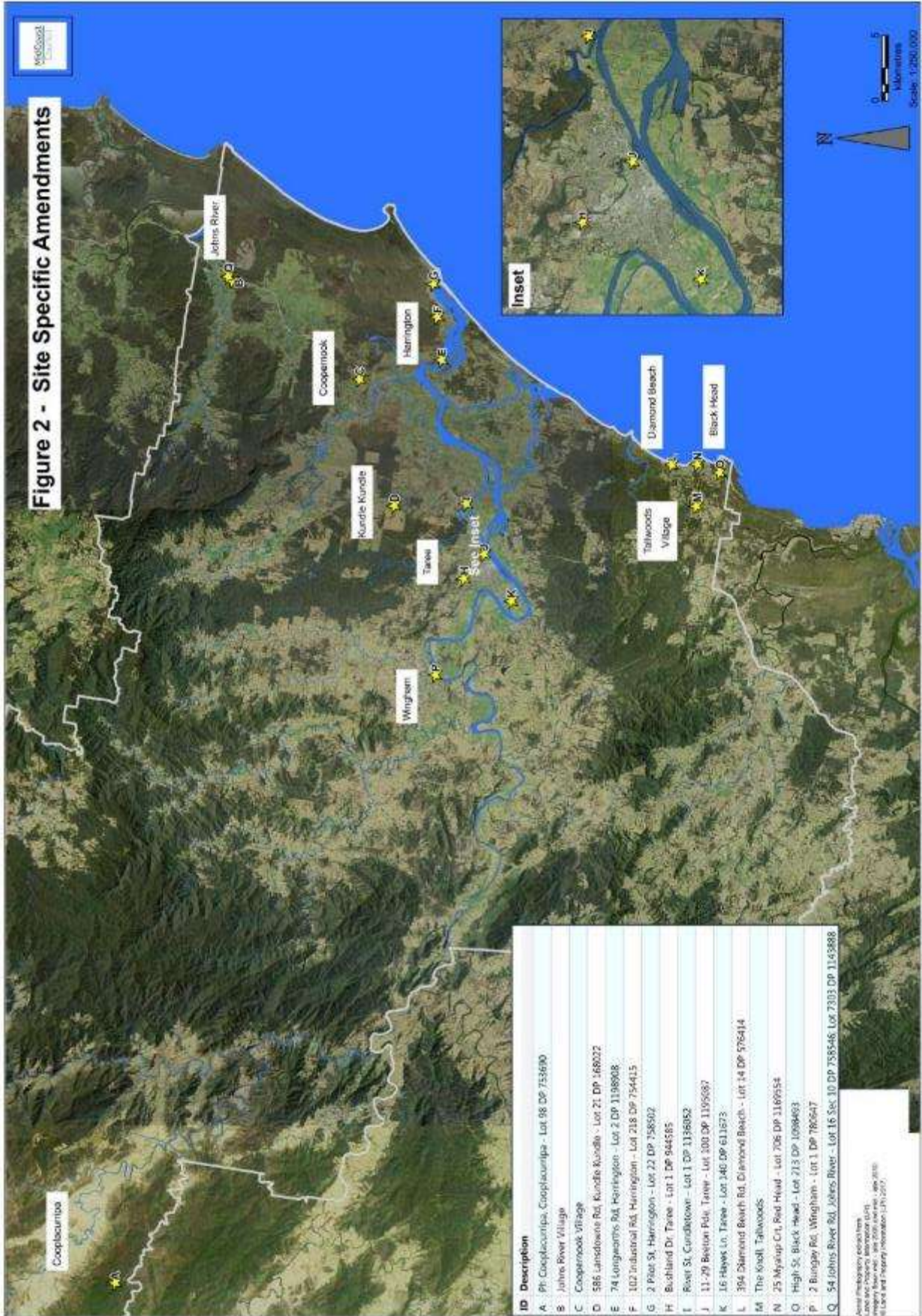
Table 1 provides a summary of each site specific change, which is explained in detail in Attachment A. The location of each of these sites is shown in Figure 2.

Table 1 - Summary of site specific amendments

	Site	Property description	Existing LEP provision	Proposed LEP change
Environmental				
A	Lot 98 Ph Cooplacurripa, Cooplacurripa	Lot 98 DP 753690	Forestry (RU3)	Include the site in the National Parks and Reserves (E1) zone to reflect the change in ownership of the site (owned by National Parks and Wildlife Service)
E	74 Longworths Rd, Harrington	Lot 2 DP 1198908	Environmental Conservation (E2), Primary Production (RU1), Recreational Waterways (W2)	Amend the zone boundaries to align with the cadastral property boundary. Amend the lot size map to align with the cadastral property boundary.
Village				
B	Johns River Rd, Johns River	Lot 284 DP 879623 and Lot 1 DP 308795 and parts of Lot 85 DP 1109105 and Lot 283 DP 879623,	Primary Production (RU1)	Include the sites in Village (RU5) zone to reflect current use as part of a village built form. Amend the lot size and height of buildings to reflect the Village zone
C	Coopernook Village	Lot 119 DP 260733, Lot 127 DP 812015, Lot 24-25 DP 829139, Lot 36 DP 4865	Primary Production (RU1) and Village (RU5)	Amend the zone boundary to reflect the <i>Manning River Flood Study 2016</i> . Amend the lot size and height of building map to reflect the Village zone with the exception of part of the site at 30 High Street which fronts the street. This part shall have a minimum lot size of 900m ² to enable a better subdivision outcome
Existing use				
D	586 Lansdowne Rd, Kundle	Lot 21 DP 168022	Primary Production (RU1)	Include part of the site which has an established industrial use in the General Industry (IN1) zone. Include the remainder of the lot in the Environmental Conservation (E2) zone to reflect the vegetation on the site. Amend the lot size map to apply a minimum lot size of 40 ha to the land in the E2 Environmental Conservation zone.
H	202 Bushland Dr, Taree	Lot 1 DP 1228883	Infrastructure (SP2) and General Residential (R1)	Include eastern environmental corridor in Environmental Conservation (E2) zone and the remaining lot area in the Light Industrial (IN2). These amendments reflect the current use of the land and the environmental corridor. Amend the lot size map to reflect the Environmental Conservation zone
L	394 Diamond Beach Rd, Diamond Beach	Lot 14 DP 576414	Primary Production (RU1)	Removed as per by the Gateway determination (Attachment F)
Heritage				
K	16 Hayes Ln, Taree	Lot 140 DP 611673	Heritage Item	Amend the property description for this heritage item

	Site	Property description	Existing LEP provision	Proposed LEP change
P	2 Bungay Rd, Wingham	Lot 1 DP 780647	Heritage Item	Amend the property description for this heritage item
Q	Community Hall Johns River	Lot 7303, DP 1143888 and Lot 16, Section 10, DP 758546	Heritage Item	Amend the property description for this heritage item
Open space				
G	2 Pilot St, Harrington	Lot 22 DP 758502	Public Recreation (RE1)	Include the land in the Neighbourhood Centre (B1) zone to reflect the use of the land. Amend the building height and floor space ratio to reflect the Neighbourhood Centre zone
J	11-29 Beeton Pde, Taree	Part of Lot 100 DP 1195087	Light Industrial (IN2), Private Recreation (RE2) and Public Recreation (RE1)	Include the Public Recreation (RE1) portion of the site in the Private Recreation (RE2) zone to reflect the private ownership of the site
M	The Knoll, Tallwoods Village	Lot 33,34,35 and 36 DP 879612	General Residential (R1) and Private Recreation (RE2)	Include the lots in the General Residential (R1) zone to reflect its current use. Amend the lot size, height of building and floor space ratio to reflect the zone of the land.
N	25 Myalup Crt, Red Head	Lot 706 DP 1169554	Public Recreation (RE1) and General Residential (R1)	Amend the Public Recreation (RE1) and the General Residential (R1) zones on this lot to reflect the intended use. Amend the lot size, height of building and floor space ratio to reflect the zones of the land.
O	High St, Black Head	Lot 213 DP 1098493	Public Recreation (RE1), General Residential (R1) and Primary Production (RU1).	Amend the Public Recreation (RE1) zone land to include in the General Residential (R1) zone to reflect the intended use. Amend the lot size, height of building and floor space ratio to reflect the General Residential zone
Land acquisition				
F	102 Industrial Rd and Lot 193 Glacken St, Harrington	Part of Lot 218 DP 754415, Part of Lot 193 DP 754415 and Lot 2 DP 510738	National Parks and Nature Reserves (E1), Environmental Conservation (E2) and Primary Production (RU1)	Include the part of the lots currently in the National Parks and Nature Reserves (E1) zone in the Environmental Conservation (E2) zone to reflect the use and ownership of the land. Amend clause 5.1(2) of LEP 2010 to include this zone change in the list of the type of land shown on the Map and the Authority of the State. Amend the lot size to reflect the Environmental Conservation zone
I	River St, Cundletown	Lot 1 DP 1136052	General Residential (R1)	Include this site on the Land Acquisition Layer map as it forms part of the Cundletown Bypass

Figure 2 - Site Specific Amendments



ID	Description
A	PH Cooperstown, Cooperstown - Lot 88 DP 753690
B	John's River Village
C	Cooperbrook Village
D	586 Lansdowne Rd, Kuntle Kuntle - Lot 21 DP 168022
E	74 Longwatts Rd, Harrington - Lot 2 DP 1198908
F	102 Industrial Rd, Harrington - Lot 218 DP 754415
G	2 Platt St, Harrington - Lot 22 DP 758392
H	Bushland Dr, Tawee - Lot 1 DP 944585
I	Royal St, Cundestown - Lot 1 DP 1136052
J	11-29 Beaton Rd, Tawee - Lot 100 DP 1195087
K	16 Hayes Ln, Tawee - Lot 140 DP 611673
L	394 Diamond Beach Rd, Diamond Beach - Lot 14 DP 576114
M	The Knoll, Tailwoods
N	25 Myrup Ct, Red Head - Lot 706 DP 1169554
O	High St, Black Head - Lot 213 DP 1098493
P	2 Bungay Rd, Wingham - Lot 1 DP 780647
Q	54 John's River Rd, John's River - Lot 16 Sec 10 DP 758546; Lot 7303 DP 1145888

All site boundaries are shown in red.
 Land use designations are shown in blue.
 Property boundaries are shown in black.
 Scale and map projection: UTM, Zone 18N, Datum: WGS 84

4 Justification

4.1 Need for the planning proposal

The following justifies the need for the planning proposal.

4.1.1 Is the planning proposal a result of any strategic study/report?

The proposed amendments were developed from:

- a review of a number of NSW LEPs
- a register of LEP 2010 potential amendments that has been added to as issues arose
- internal workshops with Council officers
- the community who have identified inconsistencies between the LEP provisions and the current or intended use of land.

4.1.2 Is the planning proposal the best means of achieving the objectives/outcomes?

The issues arose when implementing LEP 2010 and require amendments to rectify the situation.

4.2 Relationship to strategic planning framework

4.2.1 Is the planning proposal consistent with the applicable regional strategy?

The key directions relevant to this planning proposal are outlined below and are generally consistent with the *Hunter Regional Plan 2036*:

- **Direction 10 – Protect and enhance agricultural productivity**

Action 10.1 aims to protect lands that can accommodate agricultural enterprises. The general provisions aimed at achieving this direction are:

- G3 - boundary adjustments which ensure there is no adverse impact on the agricultural viability of the land
- G4 – inclusion of a new objective in the Primary Production (RU1) zone
- G5 - detached dual occupancies which requires consideration of the primary production potential of the land
- G6 - changes to uses in the Primary Production zone to enable uses where consistent with the zone objectives.



There are four site specific amendments (A, B, D and E) that involve removing sites (or part) from the Primary Production (RU1) zone. These changes are proposed to reflect the existing use of the site, the ownership of the land or involve minor zone changes to reflect the cadastre. These amendments are generally consistent with the intent for the land identified in planning strategies or adjoin land identified in strategies or are minor in nature. An assessment of the rural values for these sites is provided in Attachment B and C.

- **Direction 13 – Plan for greater land use compatibility**

Action 13.3 requires planning controls be amended to deliver greater certainty of land use.

The following general amendments will provide greater certainty:

- G8 which makes bulky goods premises a permitted with consent use in the Light Industrial (IN2) zone will provide a consistent approach with the *Great Lakes LEP 2014*
- G11 which provides a floor space ratio in heritage conservation areas consistent with that applied to the zone outside of the conservation areas. This will ensure that developments in these conservation areas are not subject to unnecessary constraints
- G13 which will enable the subdivision of sites that have a Village zone split with an environmental or rural zone.

The site specific amendments are aimed at changing the zone or enabling uses to reflect how the land has been used. By making these changes, the LEP provides more certainty with regard to the intended use of the land.

- ***Direction 14 – Protect and connect natural areas***

Many of the actions in Direction 14 aim to protect land with important ecological values. The following site specific amendments involve including sites in environmental zones to protect ecological values:

- A at Lot 98 Ph Cooplacurripa
- D at 586 Lansdowne Rd, Kundle
- F at 102 Industrial Rd and Lot 193 Glacken St, Harrington
- H at 202 and Lot 1 Bushland Dr, Taree.

An assessment of these outcomes is provided in Attachment C.

- ***Direction 16 – Increase resilience to hazards and climate change***

Many of the actions in Direction 16 aim to ensure hazards are considered in our future plans. Site specific amendment E at 74 Longworths Rd, Harrington proposes a zone change to reflect the coastal hazards by including part of the site in Environmental Conservation (E2) zone:

All of the site specific amendments have been considered in terms of risks such as bushfire, flooding, contaminated land and acid sulfate soils and were considered minor. If further development of these sites was proposed, a development application would be lodged and assessed to address any potential hazards.

- ***Direction 19 – Identify and protect the region’s heritage***

Protecting the regions heritage is an important element of this Direction. General amendment G11 proposes changes to the floor space ratio for heritage conservation areas to ensure they do not disadvantage landowners in the conservation areas.

Site specific amendments K, P and Q propose to correctly identify heritage items in the Manning Valley.

- ***Direction 21 – Create a compact settlement***

Action 21.4 proposes that a well-planned, functional and compact settlement pattern be achieved and not encroach sensitive uses or lands subject to hazards.

Many of the site specific amendments involve changing the zone of the land to reflect the current use and are included in zones that are consistent with surrounding zones. The settlement pattern has been considered when determining the appropriate zone for these sites, being:

- B at Johns River Rd, Johns River which aims to consolidate the village
- D at 586 Lansdowne Rd, Kundle Kundle which acknowledges the current industrial use to the south of the Brimbin employment lands
- G at 2 Pilot St, Harrington which reflects the use of the land as a hall within the Harrington centre
- H at 202 and Lot 1 Bushland Dr, Taree which acknowledges the previous industrial use of the land by the NSW Rail Corp and extends the adjoining industrial zone over this site. This will allow the continued use of the site for industrial activities
- sites J, M, N and O which are minor zone changes to reflect the use or ownership of the land.

All of the site specific amendments have been considered in terms of risks such as bushfire, flooding, contaminated land and acid sulfate soils and were considered minor. If further development of these sites was proposed, a development application would be lodged and assessed to address any potential hazards.

- **Direction 24 – Protect the economic functions of employment land**

Actions for this Direction require the protection of employment lands and consideration of their location to minimise conflicts with residential uses.

General amendment G8 proposes to make bulky goods premises a permitted with consent use in the Light Industrial (IN2) zone to provide a consistent approach with the *Great Lakes LEP 2014*. This amendment will enable uses established under the previous LEP to continue to operate and expand in the Light Industrial precincts that are close to the Taree town centre.

The following site specific amendments aim to protect the employment lands and have minimal conflict with surrounding residential uses:

- D at 586 Lansdowne Rd, Kundle Kundle which acknowledges the current industrial use to the south of the Brimbin employment lands
- G at 2 Pilot St, Harrington which reflects the use of the land as a hall within the Harrington centre
- H at 202 and Lot 1 Bushland Dr, Taree which acknowledges the industrial use of the land by the NSW Rail Corp (intended to be sold for private industrial uses) and provides a buffer to residential areas to the east
- J at 11-29 Beeton Pde, Taree which will be included in the Private Recreation (RE2) zone to reflect the private ownership of the land

- **Direction 25 – Monitor housing and employment supply and demand**

This direction requires land supply and demand to be monitored. The site specific amendments aim to reflect the current use of the land and will improve the accuracy of data for both housing and employment lands in the Manning Valley.

4.2.2 Is the planning proposal consistent with Council's Community Plan?

The planning proposal was assessed against the *Manning Valley Community Plan 2010-2030* and was considered consistent with a number of key strategies as shown in Table 2.

Table 2 - Manning Valley Community Plan Assessment

Community Plan Strategy	Amendments
6. Maintain a strategic land-use planning framework that will establish a clear balance between development and conservation, and accommodate economic investment and lifestyle change demands	<p>Given the amendments are of a minor nature and are 'fine tuning' the LEP, they are consistent with this strategy. Many of the general amendments have been identified through a review of NSW LEPs and will resolve a number of issues that arose from the adoption of the standard LEP in 2010. In addition, some amendments will assist to harmonise the LEP with both the Great Lakes and Gloucester LEPs.</p> <p>The site specific amendments aim to change the zone or requirements of a site based on their current use, while having consideration of environmental, economic and social values</p>
17. Ensure adequate provision of appropriately zoned land that is suitable for the needs of all economic sectors of the local community	<p>Changes to the employment lands aim to recognise the existing use of the land and are consistent with the planning intent for the location. Key amendments include:</p> <ul style="list-style-type: none"> • D at 586 Lansdowne Rd, Kundle Kundle to reflect the industrial use of the land for over 30 years • H at 202 Bushland Dr, Taree to reflect the previous industrial use of the land for over 30 years. <p>General amendment G8 to enable bulky goods premises as permitted with consent in the Light Industrial (IN2) zone is aimed at providing a consistent approach with the Great Lakes LEP 2014.</p>

Community Plan Strategy	Amendments
<p>21. Housing - ensure a wide choice of housing style and locations, with consideration of accessibility, adaptability and affordability</p>	<p>The following general amendments are aimed at providing the efficient use of land and housing choice:</p> <ul style="list-style-type: none"> • G5 - enabling detached dual occupancies on rural land will ensure the rural amenity of the land is maintained • G11 - changing the floor space ratio in Heritage Conservation Areas to ensure development standards are consistent with adjoining properties. <p>The following site specific amendments generally reflect the existing use or ownership of the land and propose an adjustment or addition to residential zones:</p> <ul style="list-style-type: none"> • B - Johns River Rd, Johns River, where it is proposed to change the zone of this site from rural to a village zone to reflect its current use • C - West St, Coopernook, where the minimum lot size will be changed to be consistent with the Village zone boundary. These sites are currently serviced by both water and sewer • M - The Knoll, Tallwoods Village, where the residential zone boundary is being applied to reflect the residential lot boundaries • N - 25 Myalup Crt, Red Head, where the extent of land included in the General Residential zone has been increased • O - Lot 213 High St, Black Head. The change proposed for this site reflects the private ownership of the land and increase the area of residential land on the site.
<p>30. Heritage - ensure that our heritage is valued, preserved, conserved and interpreted</p>	<p>General amendment G11 involves changing the floor space ratio in Heritage Conservation Areas to ensure development standards are consistent with adjoining properties. This change will ensure property owners within heritage conservation areas are not disadvantaged.</p> <p>Site specific amendments that apply directly to heritage conservation involve correcting property details in LEP 2010 at:</p> <ul style="list-style-type: none"> • K - 16 Hayes Lne, Taree • P - 2 Bungay Rd, Wingham • Q - Community Hall at Johns River
<p>7. Maintain and enhance biodiversity, in accordance with the principles of ecologically sustainable development</p>	<p>Environmental zone amendments are proposed to reflect and protect the environmental values of the property at:</p> <ul style="list-style-type: none"> • A - Lot 98 Ph Cooplacurripa, Cooplacurripa • D - 586 Lansdowne Rd, Kundle Kundle • E - 74 Longworths Rd, Harrington • F - Lot 102 Industrial Rd and Lot 193 Glacken St, Harrington • H - 202 and Lot 1 Bushland Dr, Taree

4.2.3 Is the planning proposal consistent with State Environmental Planning Policies?

The planning proposal is generally consistent with the relevant state environmental planning policies (SEPPs). Attachment B demonstrates this consistency through:

- a matrix which identifies which SEPPs are applicable to the planning proposal
- an assessment of the relevant amendments in the planning proposal against the requirements of the SEPP.

The key SEPP assessments related primarily to the site specific amendments. The general amendments had the potential to trigger many of the SEPPs, as the proposed LEP clause could apply to a site that had important values (eg coastal protection, contaminated land or koalas). The SEPP assessment in these cases demonstrated how the values of the land would be considered if a future development application was lodged.

The key SEPPs assessed for consistency included:

- SEPP14 - Coastal Wetlands
- SEPP44 – Koala Habitat Protection
- SEPP55 – Remediation of Land
- SEPP71 – Coastal Protection
- SEPP (Rural Lands 2008)

4.2.4 Is the planning proposal consistent with Ministerial Directions (117 Directions)?

The planning proposal is generally consistent with the relevant 117 Directions. Attachment C demonstrates this consistency through:

- a matrix which identifies which 117 Directions are applicable to the planning proposal
- an assessment of the relevant amendments in the planning proposal against the requirements of the 117 Directions.

The key 117 Direction assessments related primarily to the site specific amendments. The general amendments had the potential to trigger many of the 117 Directions, as the proposed LEP clause could apply to a site that had important values (eg coastal protection, contaminated land or heritage). The 117 Direction assessment in these cases demonstrated how the values of the land would be considered if a future development application was lodged. Table 3 provides a summary of this assessment.

Table 3 – Summary of 117 Directions Assessment

117 Direction	General Amendments	Site Specific Amendments
1.1 Business and industrial zones	Consistent	Amendments D, G and H are inconsistent but of minor significance given they are generally supported by the former <i>Mid North Coast Regional Plan 2006-2031</i>
1.2 Rural zones	Consistent	Amendments B and D are inconsistent but of minor significance given they are generally supported by the former <i>Mid North Coast Regional Plan 2006-2031</i> Amendments A and E are inconsistent but of minor significance given they involve minor zone changes
1.3 Mining, Petroleum, Extractive Industries	To be determined after consultation with relevant State Department	The Department of Primary Industry (Landuse and Minerals) advised that the planning proposal is consistent
1.5 Rural lands	Consistent	Consistent
2.1 Environmental protection zones	Inconsistent but of minor significance given LEP 2010 provisions would be considered in future development applications	Amendments A, E, F, D and H are consistent
2.2 Coastal protection	Consistent	Amendments E, F, G, I, J, K, M, N and O are consistent
Heritage conservation	Inconsistent but of minor significance given LEP 2010 provisions would be considered in future development applications	Consistent
3.1 Residential zones	Consistent	Amendments B, C, M, N and O are consistent

117 Direction	General Amendments	Site Specific Amendments
3.4 Integrating land use and transport	Consistent	Amendments B, C, D, G, H, M, N and O are consistent
4.1 Acid sulphate soils	Inconsistent but of minor significance given LEP 2010 provisions would be considered in future development applications	Amendments C, E, F, G, I, J, K, O, P and Q are inconsistent but of minor significance given they generally reflect the existing use of the land and LEP 2010 provisions would be considered in future development applications
4.3 Flood prone land	Inconsistent but of minor significance given LEP 2010 provisions would be considered in future development applications	Amendments C, J and F are inconsistent but of minor significance given they generally reflect the existing use of the land and LEP 2010 provisions would be considered in any future development application Amendments E and K are inconsistent but of minor significance given they are minor changes and do not result in the intensification of development on the land
4.4 Bushfire protection	Inconsistent but of minor significance given any future development application over bush fire prone sites would be subject to a bushfire assessment	NSW Rural Fire Services reviewed the planning proposal and requested an amendment to G2. This change will be referred to DPE for consideration
5.10 Implementation of Regional Plans	Consistent	Consistent
6.2 Reserving Land for Public Purposes	Not applicable	Amendments F, G, I, J, N, O involve the reduction of land in recreation zones , which have been approved by the Department of Planning and Environment

4.3 Environmental, social and economic impacts

4.3.1 Are there any critical habitats, threatened species, populations or ecological communities, or their habitats adversely affected?

The general amendments apply to development in the whole Manning Valley region. There is the potential that these amendments may enable an application to be lodged for a use in an important ecological habitat. However, the merits of the application would be assessed at the development application stage. Any ecological or environmental issues would be addressed at that time.

With regard to the site specific amendments, a number of sites have ecological values and have been included in zones that offer greater environmental protection. These sites are:

- A at Lot 98 Ph Cooplacurripa, Cooplacurripa
- D at 586 Lansdowne Rd, Kundle
- E at 74 Longsworth Rd, Harrington
- F at 102 Industrial Rd and Lot 193 Glacken St, Harrington
- H at 202 and Lot 1 Bushland Dr, Taree.

4.3.2 Are there any other likely environmental effects and how are they to be managed?

The general amendments apply to development in the whole Manning Valley region. There is the potential that these changes may enable an application to be lodged for a use that has potential environmental effects. However, the merits of the application, including environmental effects would be assessed at the development application stage.

The site specific amendments generally reflect the use, values or ownership of the site and are consistent with the planning intent for the location. Assessment of the site specific amendments against site constraints such as land contamination, acid sulphate soils, flooding, bushfire and coastal protection have been considered in Attachment B and C and are considered as minor. In addition, any future development of the sites would consider any likely impacts through the development assessment process.

4.3.3 How has the planning proposal adequately addressed any social/economic effects?

The general amendments apply to development in the whole Manning Valley region. There is the potential that these changes may enable an application to be lodged for a use that may have a social or economic impact. However, the merits of the application would be assessed at the development application stage. Any social or economic impacts would be addressed at that time.

The site specific amendments generally reflect the use, values or ownership of the site and are consistent with the planning intent for the location. Assessment of the site specific amendments against economic, residential, heritage and Aboriginal cultural considerations have been considered in Attachment C and are considered as minor. In addition, any future development of the sites would consider any likely impacts through the development assessment process

4.4 State and Commonwealth interests

4.4.1 Is there adequate public infrastructure for the planning proposal?

Given the planning proposal contains minor amendments or reflects the current use of the land; there is no expected impact on public infrastructure.

4.4.2 What are the views of State and Commonwealth public authorities?

The following consultation was undertaken in accordance with the Gateway determination (Attachment F). Comments provided by the State agencies are provided in Attachment H.

Agency	Comments	Response
Department of Primary Industries (Minerals and Petroleum)	No objection to the proposed amendments with regard to 117 Direction 1.3 – Mining, petroleum production and extractive industries	No changes required
Department of Primary Industries (Agriculture) (DPI)	Regarding general amendments G3, G4, G5, G6, G9 and G12 – concerns were raised with regard to: <ul style="list-style-type: none"> G5 - detached dual occupancies on rural lands. Given this provision is permitted in a number of LEPs across NSW including those in MidCoast Council area, we are seeking the advice of DPE G6 - enabling more uses permitted with consent in the RU1 zone. Changes were made consistent with DPIs request 	G5 – changes requested by DPI are opposed and will be referred to DPE for consideration G6 – the changes have been made
NSW Rural Fire Service (RFS)	Regarding 117 Direction 4.4 – Bushfire protection. Site specific amendments D and H required additional information and were then supported by RFS. G2 – events permitted without consent were opposed unless Council included a provision that “Nothing in this clause permits development for the purpose of overnight accommodation”. In addition a request was made that the Sect 68 approvals under the Local Government Act require a bushfire risk assessment	G2 – changes requested by RFS are opposed and will be referred to DPE for consideration

Agency	Comments	Response
Office of Environment and Heritage (OEH) and National Parks and Wildlife Services (NPWS)	Regarding site specific amendments B, F and H. No objections were made, but specific environmental qualities of sites B and H were identified for consideration with any future development applications. OEH responded regarding site F on behalf on NPWS	No changes required
Roads and Maritime Services (RMS)	Regarding to site specific amendment B at Johns River Rd, Johns River and I at River Street Cundletown.	No comments provided. Requests sent on 19 October, 21 and 27 November 2017

Amendments proposed by the State agencies have been incorporated into this planning proposal, with the exception of the following which will be referred to the Department of Planning and Environment for consideration:

- G2 – RFS have requested changes to the clause permitting events without consent which are considered onerous
- G5 – DPI do not support this amendment relating to permitting detached dual occupancies in the Primary Production zone

5 Mapping

Attachment A provide maps, aerials and photographs for each site where there are proposed mapping changes. Attachment D provides a summary of the changes to be made to LEP 2010. The LEP maps will be developed after the Gateway determination.

6 Community consultation

Community consultation was undertaken from 19 October till 17 November 2017. The following was undertaken to inform the community of these changes:

- advertisement in the Manning River Times, Great Lakes Advocate and Wingham Chronicle on 18 and 25 October, and the 1, 8 and 15 November 2017
- a media release on 24 October 2017 resulting in television news and newspaper reports
- letters sent to all affected landowners and their neighbours
- making the planning proposal available on Council’s website, in the Taree and Forster Administration Buildings, and Taree, Harrington, Wingham, Old Bar and Hallidays Point Libraries
- local planning consultants were directly advised of the proposed amendments and invited to discuss any concerns they may have.

The community consultation involved letters sent to over 400 landowners who were either directly affected by the proposed amendments or were neighbours to these changes. Over 40 public enquiries were received and 15 submissions were lodged, 5 of which supported one of the proposed amendments.

The summary of the submissions received are in Attachment I. A number of changes were made to the planning proposal as a result of the submissions, which are outlined below.

<p>Amendment G3 – changes to boundaries</p> <p>A minor change was suggested by a consultant to clearly indicate that dwelling entitlements would not decrease when there was a change to boundaries in the rural and environmental zones. While this was addressed in the clause, it was agreed that including a new provision in the proposed clause would provide more certainty.</p> <p>As a result, the following provision was included in the changes to boundaries clause: <i>(6) Despite clause 4.2A, development consent may be granted for the erection of a dwelling house on land that, immediately before the adjustment of its boundaries under this clause, was a lot on which the erection of a dwelling house was permissible.</i></p>
<p>Site specific amendment C – West St, Coopernook</p> <p>The new owner of one of the affected properties identified the difficulty in achieving a practical subdivision layout for 30 High Street, Coopernook. It was agreed that by reducing the minimum lot size for that part of the site fronting High Street in the Village zone to 900m², it would result in an improved subdivision layout. Given the sites are connected to sewer, this minor change to the lot size was considered acceptable.</p> <p>As a result, the minimum lot size for the part of 30 High Street, Coopernook in the Village zone, fronting High Street was reduced to 900m².</p>
<p>Site specific amendment D – 586 Lansdowne Rd, Kundle Kundle</p> <p>The landowner was concerned that the zone boundary did not reflect the extent of land used for industrial purposes. An inspection of the site was undertaken with a GPS to more accurately record the extent of the industrial use of the site to refine the proposed General Industrial zone boundary. In addition, the office at the front of the site and fenced off area were also included in the General Industrial zone. The changes were agreed to by both Council environmental and planning officers and the landowner.</p> <p>As a result, the proposed zone boundary for the General Industrial zone was amended to better reflect the industrial use of the land.</p>
<p>Site specific amendment F – 102 Industrial Rd and Lot 193 Glacken St, Harrington</p> <p>The owner objected to a reference in the planning proposal that “the landowner requested Council change the zone of part of their site”. A representative of the firm verbally requested this investigation a number of years ago, on at least two occasions. Given the submission it is proposed to amend the text in the planning proposal to remove reference to the landowner requesting the change.</p> <p>The owner requested that the land be included in a Primary Production (RU1) zone rather than the Environmental Conservation (E2) zone. The Environmental Conservation zone is considered appropriate given the site contains a number of significant vegetation communities including Coastal Dune Dry Sclerophyll Forest and Coastal Heath Swamp which provide habitat for a range of threatened species including migratory bird species. Parts of the site have also been mapped as SEPP 14 Coastal Wetlands and form part of the Harrington-Old Bar Regional Corridor. The environmental significance of the site is also demonstrated by the identification of this site as a future acquisition site by National Parks.</p> <p>Given the environmental significance of this site, the Primary Production zone suggested by the landowner would not be appropriate. It is recommended that the Environmental Conservation zone is appropriate for this site.</p> <p>As a result, the text in the planning proposal was changed to remove reference to the landowner requesting the change and explain further the environmental significance of the site.</p>
<p>Site specific amendment N – 25 Myalup Court, Red Head</p> <p>A mapping error was identified with regard to the maximum building height in the General Residential (R1) zone. In the Seascape development the height is restricted to 8m. While the text in the planning proposal referred to this height limit, the maps incorrectly showed 8.5m.</p> <p>As a result, the maximum building height maps were amended to correctly show 8m.</p>

The planning proposal was amended to include the above changes.

7 Project timeline

The following outlines the project timeline for the planning proposal.

Task	Responsibility	Timeframe	Date (approx.)
Planning proposal considered by Council	MidCoast Council		December 2015 December 2016
Lodge planning proposal for Gateway determination	MidCoast Council		January 2017
Gateway determination	Minister for Planning and Environment		July 2017
Public and State agency consultation	MidCoast Council	4 weeks	October- November 2017
Planning proposal reported to Council	MidCoast Council	6 weeks	February 2018
Making of Local Environmental Plan	Minister for Planning and Environmental	12 weeks	May 2018

Attachment A - Site specific amendments

Site A: Lot 98 Ph Cooplacurripa, Cooplacurripa

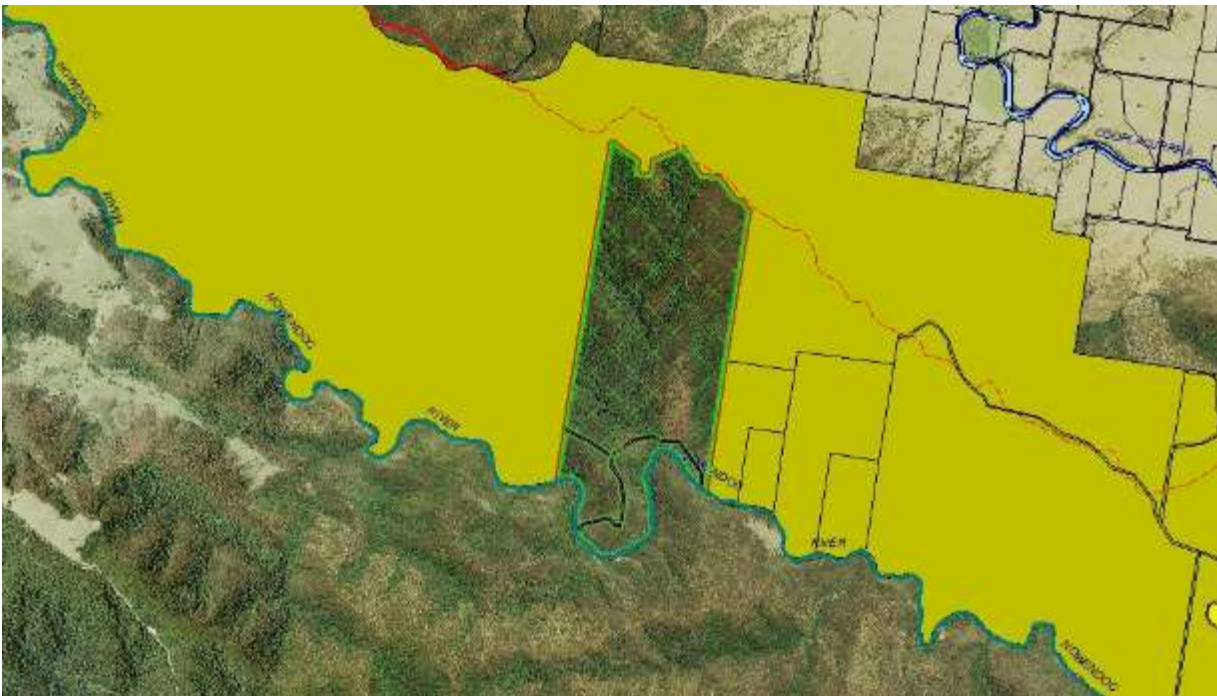
Property description:

Lot 98 DP 753690

Area: 445.15 ha

Background:

This site is located in the western region of the former Greater Taree City Council. It backs onto the Nowendoc River and as seen by the map (below) it is surrounded by Barakee National Park (shown in green).

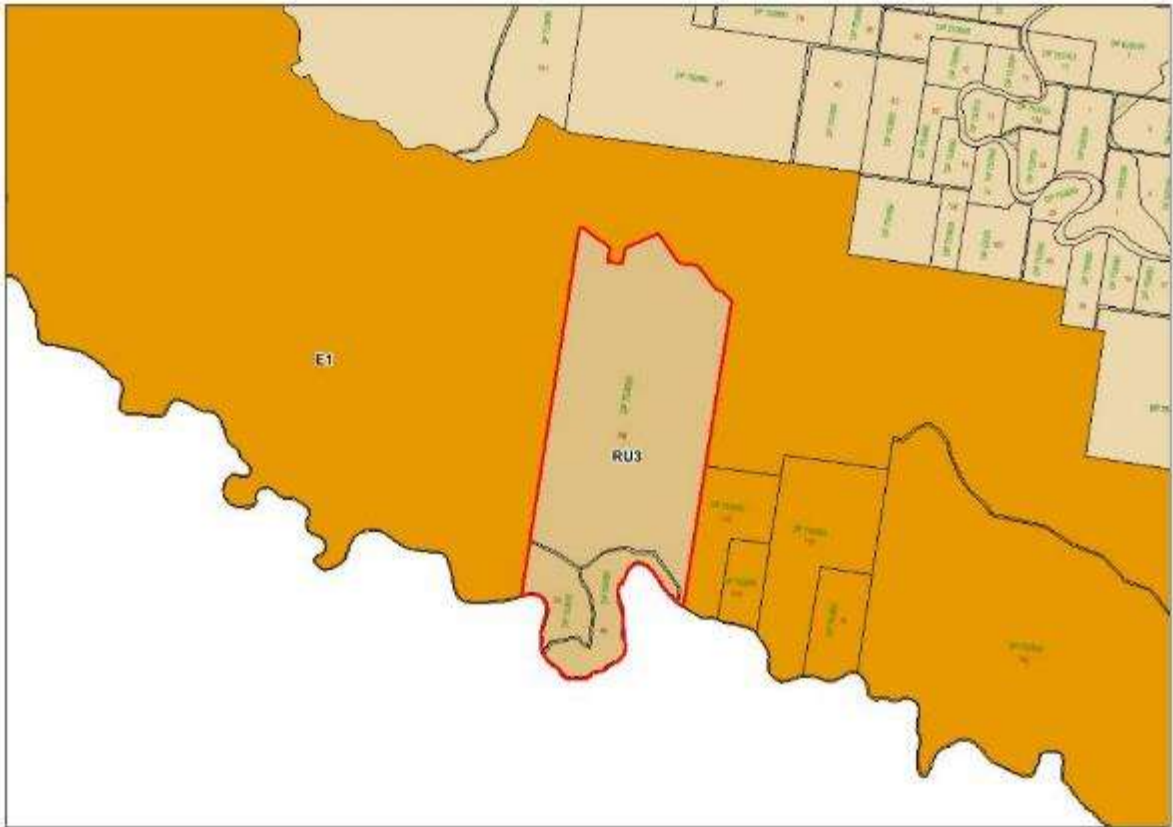


This land is included in the Forestry (RU3) zone. National Parks and Wildlife Services purchased the property and requested that the zone be changed to National Parks and Reserves (E1) to reflect the ownership and use of the land.

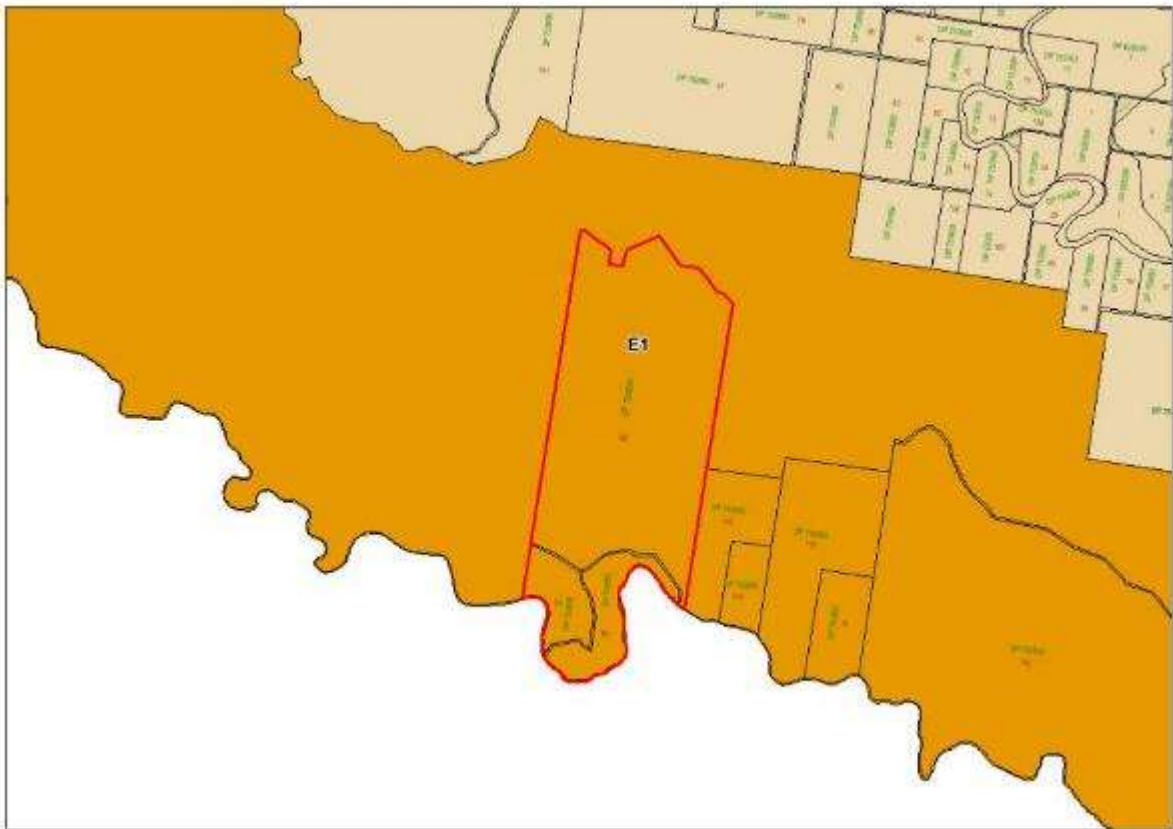
Proposed amendment:

Amend LEP 2010 maps as follows.

Existing zone: Forestry (RU3) (brown)



Proposed zone: National Parks and Reserves (E1) (orange)



Site B: 24-30 Johns River Road, Johns River

Property description:

Lot 85 DP 1109105, Lot 283 DP 879623 and part of Lot 284 DP 879623 and Lot 1 DP 308795

Background:

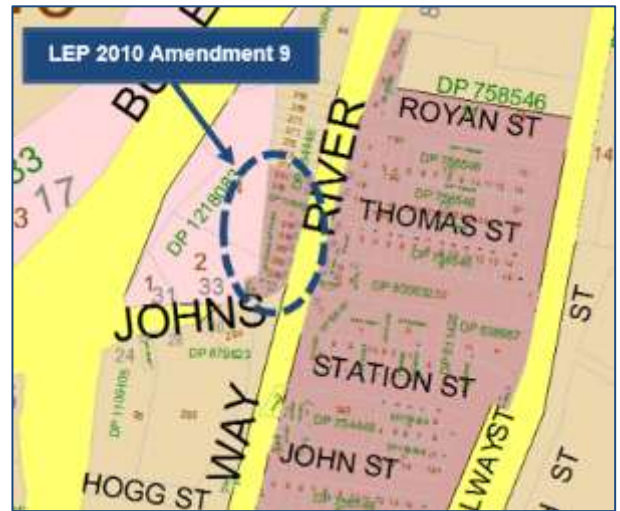
Johns River village was originally separated by the Pacific Highway, but was bypassed in 2010 and the road renamed Johns River Road.

During a review in 2013, it was noted that land to the east of Johns River Road was included in the Village (RU5) zone and land to the west in the Primary Production (RU1) zone, even though the lot sizes and uses reflected that of the village.

LEP 2010 Amendment 9 changed the sites to the west of Johns River Road to be included in the Village zone (refer right). During community consultation for Amendment 9, a submission was received from an owner identifying additional sites (shown in red to the right) where the tavern and houses are located.

An investigation was undertaken and concluded that:

- the tavern and three houses have operated from the site for a number of years, which resulted in the land not being used for rural purposes
- the rear of the site contains good vegetation that contributes to a vegetation corridor through southern Johns River, which is to be retained in the Primary Production zone. Given this vegetation, the site is bushfire prone. Any future development applications would need to address the bushfire constraints of the site
- there is no evidence of contamination of the site. Historically, contaminating uses like the petrol station were located on the eastern side of the Pacific Highway (prior to the bypass), away from this site. Being so close to the village, it is unlikely that rural activities such as cattle dipping occurred on the site
- the site is not subject to flooding or acid sulphate soils
- Johns River is not connected to sewer. To ensure sufficient area is provided for on-site waste disposal a minimum lot size of 1.5 ha will apply to the land being included in the Village zone
- this site is a logical extension of the Growth Area for Johns River (as identified in the *Mid North Coast Regional Strategy 2006-2036*)
- given the site adjoins the Pacific Highway, noise is an important consideration for future residential development. The three lots closest to the Pacific Highway currently are occupied by existing dwellings. A minimum lot size of 1.5 ha will be applied to the land to be included in the Village zone, which means that no further subdivision can occur. Residential intensification would only be achieved through an application for a dual occupancy or secondary dwelling. Dual occupancies are currently permitted with consent in the existing Primary Production zone. As a result, the extent of residential intensification that could be applied for is the same for both the Village and Primary Production zone. Any development application for dual occupancies would have to address amenity issues including the impact of noise. It is more likely that non-residential uses would be proposed on this site which would support the existing village. Attachment G provides an acoustic assessment for this location.
- the site adjoins an exit ramp from the Pacific Highway. Any future development would have to demonstrate that the use does not impact on traffic movements from the highway.



Attachment G provides a traffic assessment for a previous application for a service station on the tavern site. This assessment demonstrated that access could be adequately provided in this location for a use that would generate significant traffic.

It is proposed that the whole of 26 and 30 Johns River Rd and front of 24 and 28 Johns River Road (shown in red on the aerial above) with an area of 2.26 ha be included in the Village (RU5) zone. The maximum building height will be changed to be consistent to the provisions applied to the Village zone. The minimum lot size will be changed to 1.5 ha given the sites are not connected to sewer and on-site waste disposal will need to be provided. The rear of 24 and 28 Johns River Road will remain in the Primary Production (RU1) zone. The owners consent to this proposed change.

Given the site will be have two zones it is important to have provisions in LEP 2010 that enable subdivision for lots with split zones. General amendment G13 proposes a minor amendment to clause 4.1B to enable the subdivision of land included in the Village zone split with a rural or environmental zone.

Proposed amendment:

Amend LEP 2010 as follows.

Mapping changes:

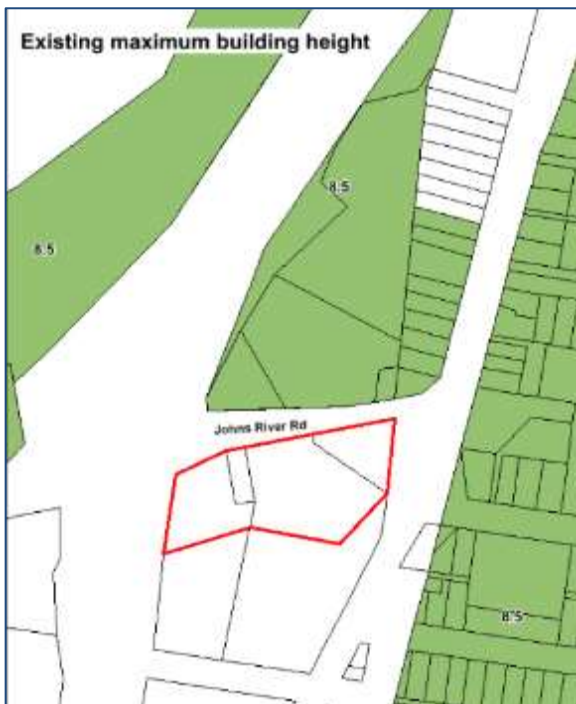
Existing zone: Primary Production (RU1) (brown)



Proposed zone: Village (RU5) (pink)



Existing maximum building height: N/A



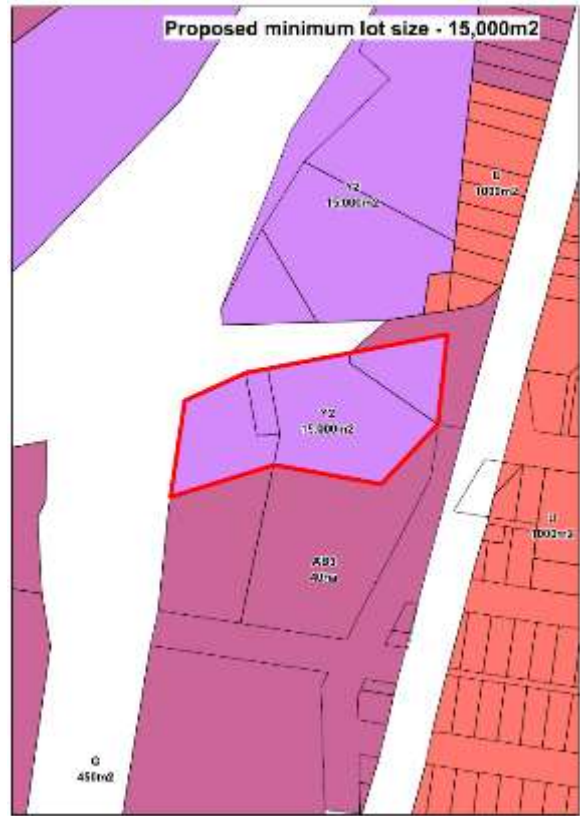
Proposed maximum building height: 8.5m



Existing minimum lot size: 40 ha



Proposed minimum lot size: 15,000m²



Site C: West Street, Coopernook

Property Description:

Lot 119 DP 260733, Lot 127 DP 812015, Lot 24-25 DP 829139, Lot 36 DP 4865 (shown with a red outline on the map below)

Background:

When LEP 1995 was converted into the LEP 2010 there were concerns about how to apply the new zones in the Coopernook village. The outcome was that the land subject to flooding remained in the Primary Production (RU1) zone (light brown) and the remainder of Coopernook village was included in the Village (RU5) zone (light pink) as shown in the zone map below.



To maintain dwelling entitlements along West Street, an array of minimum lot sizes was applied (see map over the page). The majority of the lots in the village had a 1,000m² minimum lot size applied (shown in red), consistent with a traditional ¼ acre lot.

The larger lots fronting High and Petrie Streets (being Lot 119 DP 260733, Lot 127 DP 812015, Lots 24-25 DP829139) were restricted by a 15,000m² and 8,000m² minimum lot size respectively (shown in shades of purple on the map over the page). These lot sizes do not reflect the constraints of the land and in some cases unnecessarily restricted the lots. An owner approached Council to investigate this situation.

It is proposed to apply the minimum lot size of 1,000m² to land included in the Village zone to ensure a consistent application of the lot size. The exception is the site at 30 High Street where the land fronting High Street will have a minimum lot size of 900m² to enable a more appropriate subdivision layout.

Cooperbrook is connected to sewer, making these minimum lot sizes achievable. In addition, the zone boundary was based on the flooding information available in 2010. *The Manning River Flood Study 2016* provides new flood data for this area as shown to the right. It is proposed to change the zone boundary and height of building to reflect the new flood line.

Given the site will have two zones it is important to have provisions in LEP 2010 that enable subdivision for lots with split zones. General amendment G13 proposes a minor amendment to clause 4.1B to enable the subdivision of land included in the Village zone split with a rural or environmental zone.

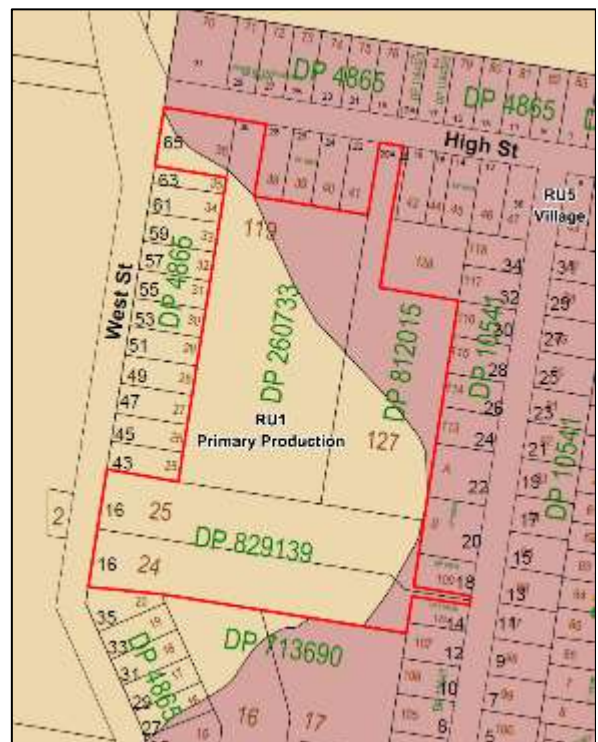
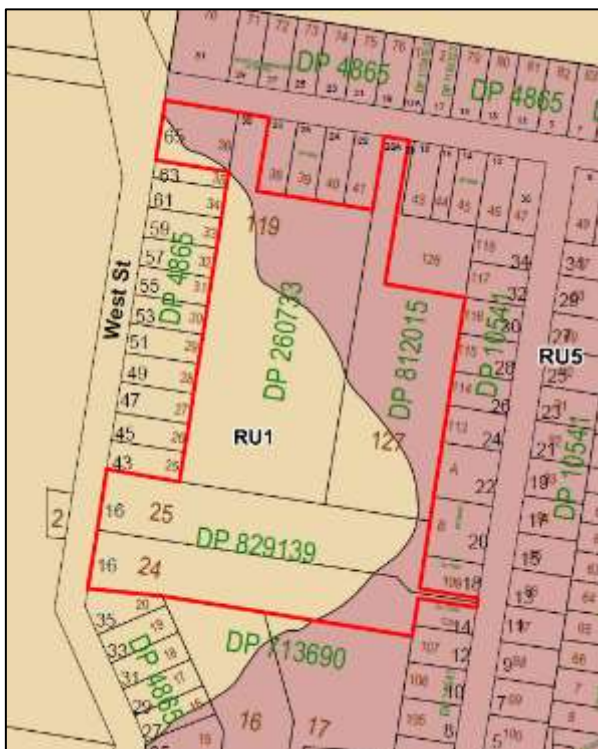


Proposed amendment:
Amend LEP 2010 as follows.

Mapping changes:

Existing zone: Primary Production (RU1) and Village (RU5) zone

Proposed zone: Primary Production (RU1) and Village (RU5) zone



Existing minimum lot size: various



Existing height of building: 8.5m

Proposed minimum lot size: 40ha, 900m² and 1,000m² applied to sites outlined in red



Proposed height of building: 8.5m



Site D: 586 Lansdowne Road, Kundle Kundle

Property Description:

Lot 21 DP 168022

Area: 54.66ha

Background:

In the 1980s an engineering business was established on the site to fabricate railway products (refer map to right). The site has continued to be used for industrial activities.

Under the previous LEP the use was lawfully established. However, LEP 2010 lists the use as prohibited in the Primary Production (RU1) zone. This has led to difficulties when extensions have been proposed and new uses have been proposed.



An investigation was undertaken and concluded that:

- the site adjoins and contributes to the employment lands at Brimbin and generally supports the growth areas identified for Brimbin in the *Mid North Coast Regional Plan 2006-2031*
- the vegetation on the site contributes to an important regional wildlife corridor from the Dawson River, through Brimbin to Lansdowne River (as indicated to the right)
- the site is identified as contaminated land and relevant provisions are in place when considering future development of the site
- given the extent of vegetation, the site is bushfire prone and relevant provisions are in place when considering future development of the site



It is proposed to include the footprint of the existing industrial use in the General Industrial (IN1) zone to reflect the established use of the site (9.54ha). This zone is in keeping with the location of the industrial land proposed for Brimbin to the north of this site. The remainder of the site will be included in the Environmental Conservation (E2) zone to reflect the environmental values of the land that link National Parks and Nature Reserves to the west and north-east of the site (45.12ha).

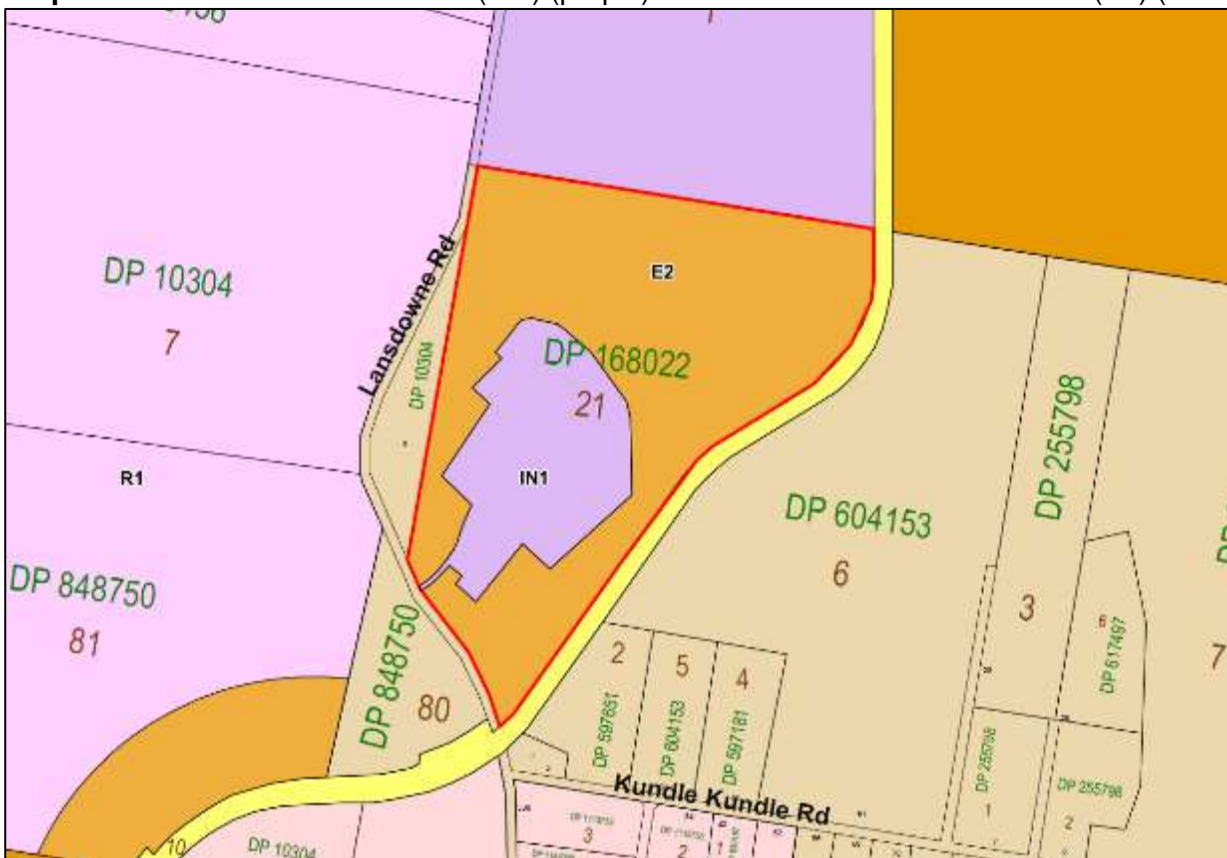
Proposed amendment:

Amend LEP 2010 maps as follows.

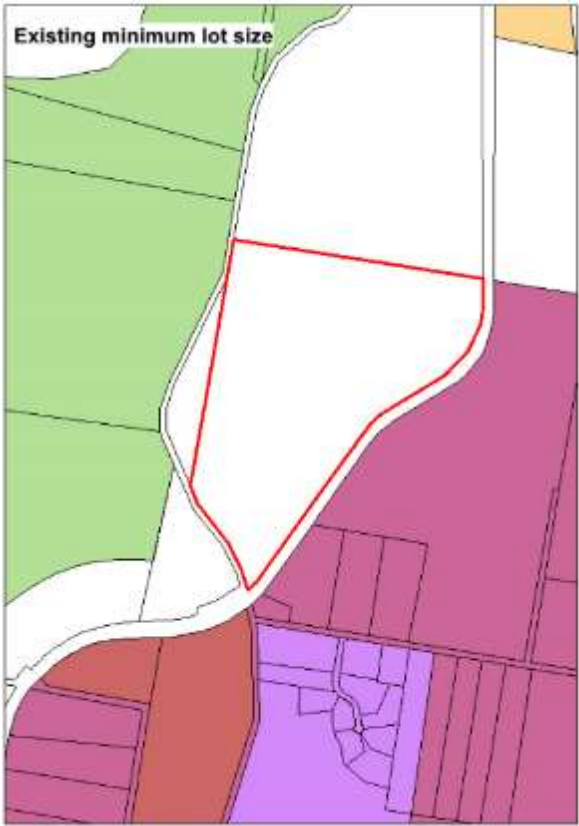
Existing zone: Primary Production (RU1) (brown)



Proposed zone: General industrial (IN1) (purple) and Environmental Conservation (E2) (orange)



Existing minimum lot size: N/A



Proposed minimum lot size: 40 ha for Environmental Conservation (E2) zone and N/A for General Industrial (IN1) zone



Site E: 74 Longworths Road, Harrington

Property Description:
Lot 2 DP 1198908

Background:
Land Property Information has produced more accurate cadastral boundaries for this site. As a result, the zone boundaries no longer align with the cadastral boundary. This amendment proposes to adjust the zone boundary to align with the cadastral property boundary.

Proposed amendment:
Amend LEP 2010 as follows.



Existing zone: Environmental Conservation (E2) (orange), Primary Production (RU1) (brown), Recreational Waterways (W2) (blue)



Proposed zone: Environmental Conservation (E2) (orange), Primary Production (RU1) (brown), Recreational Waterways (W2) (blue)



Existing lot size:



Proposed Lot Size



Site F: 102 Industrial Road and Lot 193 Glacken Street Harrington

Property Description:

Lot 218 DP 754415, Lot 193 DP 754415, Lot 2 DP 510738,

Background:

Part of this site is currently included in the National Parks and Nature Reserve (E1) zone. The National Parks and Nature Reserve zone was applied to this site in LEP 2010 as a direct transition from the former LEP 1995 - 8(b) National Parks and Nature Reserves Proposed zone.

Given the site is privately owned, it is proposed to change the National Parks and Nature Reserve zone to Environmental Conservation to reflect the private ownership of the land and the environmental qualities of the site.

The Environmental Conservation zone is considered appropriate given the site contains a number of significant vegetation communities including Coastal Dune Dry Sclerophyll Forest and Coastal Heath Swamp which provide habitat for a range of threatened species including migratory bird species. Parts of the site have also been mapped as SEPP 14 Coastal Wetlands and form part of the Harrington-Old Bar Regional Corridor. The environmental significance of the site is also demonstrated by the identification of this site as a future acquisition site by National Parks.

The intent of National Parks to purchase this land for the future expansion of the Crowdy Bay National Park is clearly indicated in yellow on Land Reservation Acquisition (LRA) map (to the right). This clearly shows which parts of the sites that the zone change will be applied to.

Given the change to the zone of the land, clause 5.1(2) of LEP 2010 that triggers the acquisition needs to be amended to reflect this change of zone.

Proposed amendment:

Amend LEP 2010 as follows.

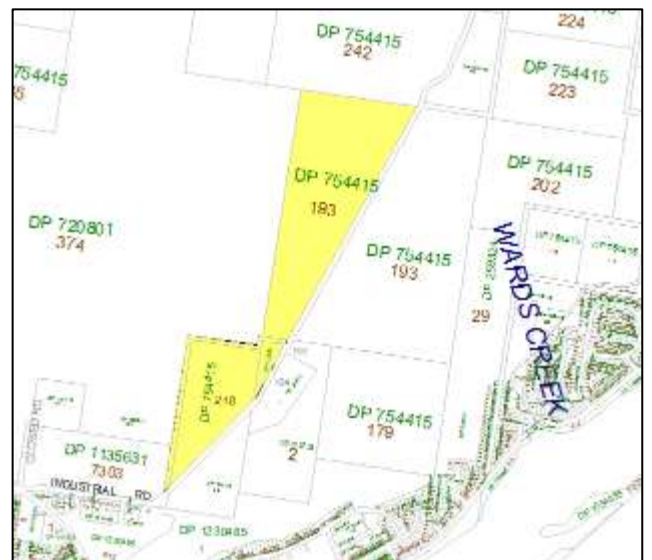
Amend clause 5.1(2) to include the following in the table

Type of land on the Map

Zone E2 Environmental Conservation and marked "National Park"

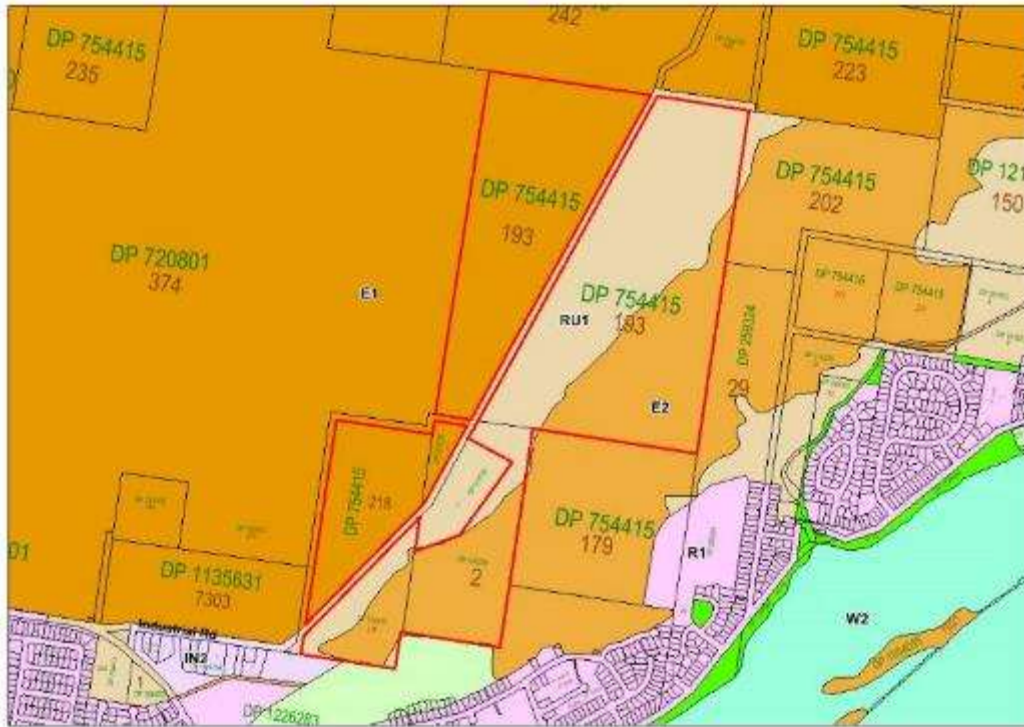
Authority of the State

Minister administering the National Parks and Wildlife Act 1974

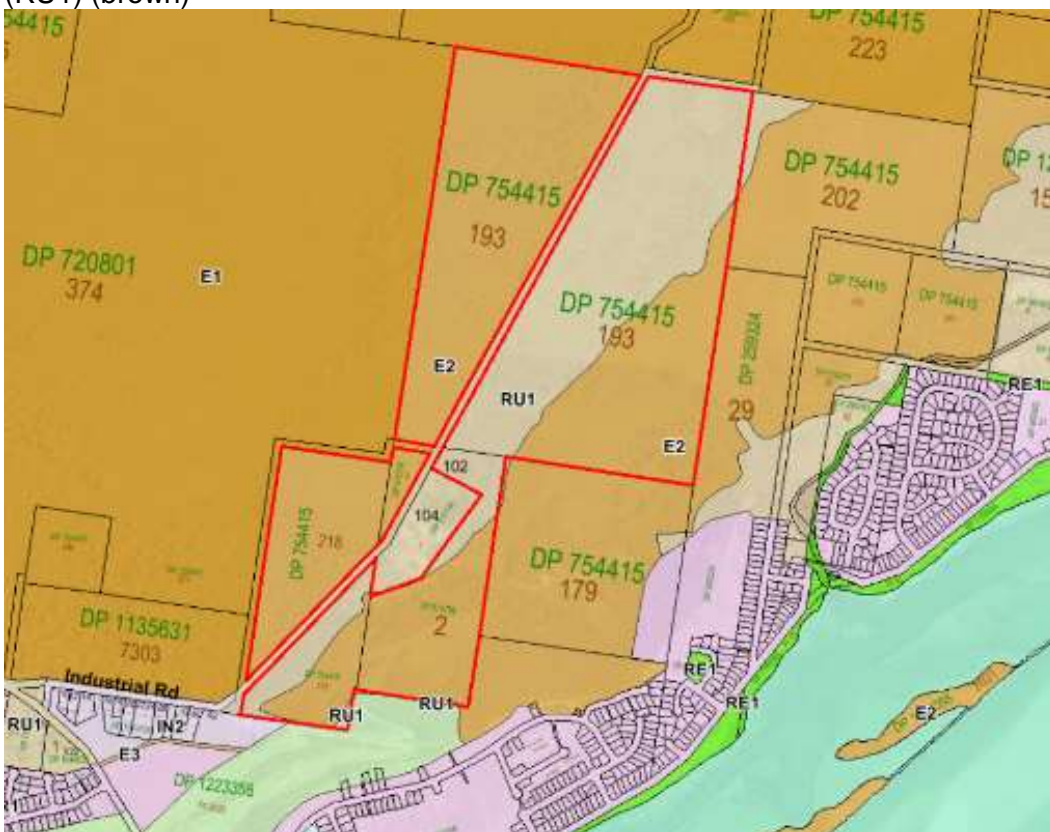


Mapping changes:

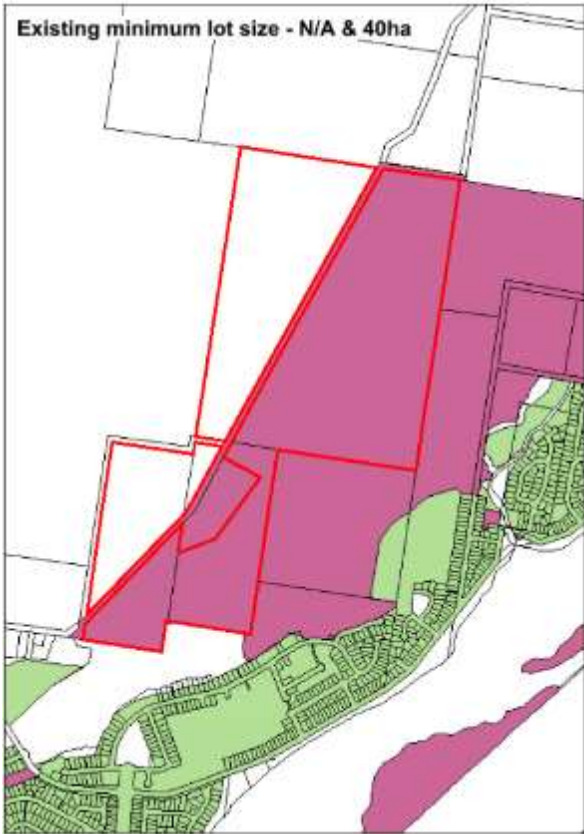
Existing zone: National Parks and Nature Reserves (E1) (orange) and Primary Production (RU1) (brown)



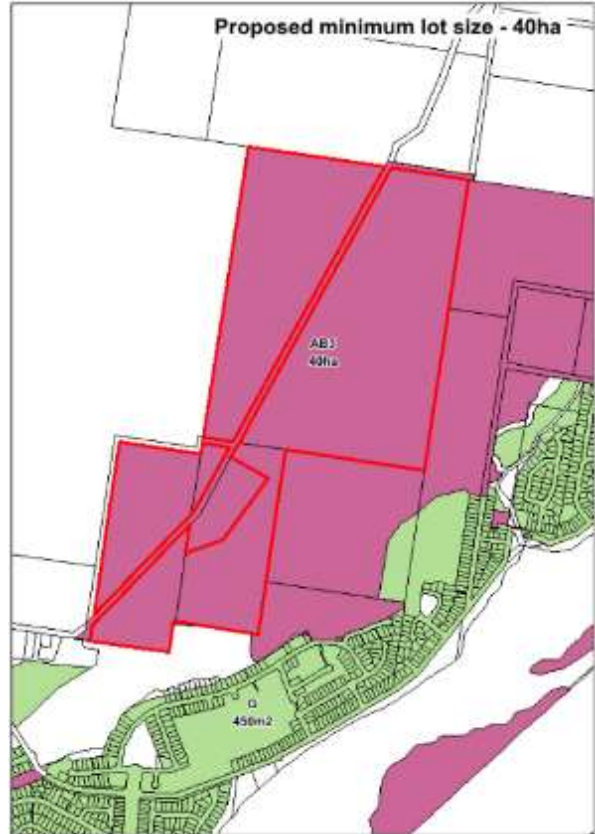
Proposed zone: Environmental Conservation (E2) (light orange) and Primary Production (RU1) (brown)



Existing Minimum Lot Size: N/A and 40 ha



Proposed Minimum Lot Size: 40 ha



Site G: 2 Pilot Street, Harrington

Property Description:

Lot 22 DP 758502

Area: 170.73 m2

Background:

This lot forms part of the Harrington Memorial Hall site providing access and parking for the hall. The land is Crown Land maintained by a hall committee.

This lot is included in the Public Recreation (RE1) zone, while the remainder of the hall is included in the Neighbourhood Centre (B1) zone (refer to zone map below).

Investigations found that LEP 1995 identified this site as “Arterial Road”. When the zones were transitioned into

LEP 2010 the site was included in the Public Recreation (RE1) zone. This zone was applied as:

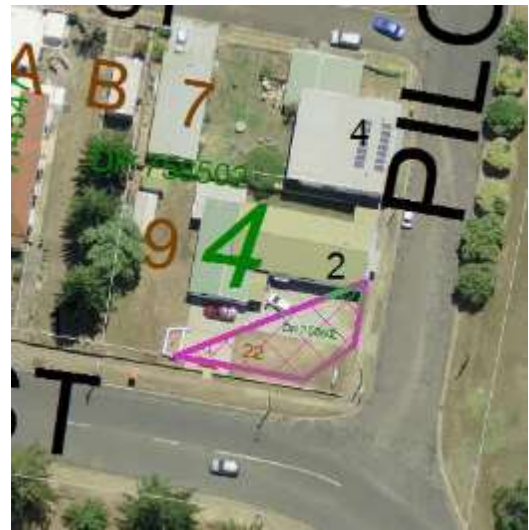
- the site had a road designation in LEP 1995, and
- all roads were given a zone, which was usually the zone of the adjoining land. In this case the Public Recreation zone was applied to both Beach Street and Pilot Street given they adjoined the Pilot Hill and Harrington foreshore parks respectively.

This site is not intended to be purchased by Council for the purpose of a road or park and is not included on the Land Reservation Acquisition map. As a result, it is proposed that the site be included in the Neighbourhood Centre zone to be consistent with the use of the site being the Harrington Community Hall.

Proposed amendment:

Amend LEP 2010 as follows.

Existing zone: Public Recreation (RE1) (green)



Proposed zone: Neighbourhood Centre (B1) (blue)



Existing height of building: N/A



Proposed height of building: 8.5m



Existing floor space ratio: N/A



Proposed floor space ratio: 0.85



Site H: 202 Bushland Drive, Taree



Property Description:

Lot 1 DP 1228883 (shown with red outline)
Area: 8.5 ha

Background:

This site has operated as a rail facility for over 30 years and is currently for sale. Railcorp NSW have requested that the Special Purpose - Infrastructure (SP2) zone be changed to reflect the likely continued industrial use of the site.

A range of studies were undertaken by consultants and assessed by Council. These studies are provided in Attachment E. The following was considered for this site:

- an ecological survey undertaken by GHD identified that the preferred koala food tree species comprised greater than 15%, however there was no evidence of koalas at the site. The vegetation along the eastern portion of the site (formerly Lot 1 DP 944585) contributes to an environmental corridor and was required to be included in the Environmental Conservation (E2) zone. This corridor also contributes to the existing buffer provided for the residential area to the east of the site
- GHD prepared an assessment of the extent of contamination of the site. The report concluded that there is low potential for contamination to exist in the soils and that the site is suitable for either ongoing commercial or industrial land use
- the use has operated from the site for over 30 years, resulting in the infrastructure being well established for this site. Given the proximity of the residential to the east, a Light Industrial (IN2) zone was considered appropriate. This zone change will enable the continued use of the employment lands and support adjoining employment lands to the west, south and north. This site is located in the Growth Area for Taree (as identified in *the Mid North Coast Regional Strategy 2006-2036*)
- the small portion of General Residential (R1) zoned land located along Bushland Drive will be included in the Light Industrial (IN2) zone.

It is proposed to include the environmental corridor along the eastern portion of the site in the Environmental Conservation (E2) zone and the remainder of the site in the Light Industrial (IN2) zone.

Proposed amendment:

Amend LEP 2010 maps as follows.

Existing zone: Infrastructure (SP2) – Public Utility Undertaking (yellow) and General Residential (R1) (pink)



Proposed zone: Light Industrial (IN2) (purple) and Environmental Conservation (E2) (orange)



Existing minimum lot size: N/A

Proposed minimum lot size: 40 ha for Environmental Conservation (E2) and N/A for Light Industrial (IN2)



Site I: Lot 1 River Street, Cundletown

Property Description:

Lot 1 DP 1136052

Area: 539.7m²

Background:

The Land Reservation Acquisition (LRA) Map (right) shows land earmarked for acquisition (shown as yellow) for the Cundletown Bypass. This bypass was originally proposed by NSW Roads and Maritime Services (RMS) for the Pacific Highway. After the Taree bypass was completed in the late 1990s, Council determined that there was still a need for the Cundletown Bypass for the new town of Brimbin, and retained the need for future acquisition.

The subject site (pink outline on aerial) is required for the Cundletown Bypass for a roundabout at the intersection of the western end of the bypass with Main Street. However, this site was not included on the LRA map. This error may have been made given the land was already in RMS ownership.

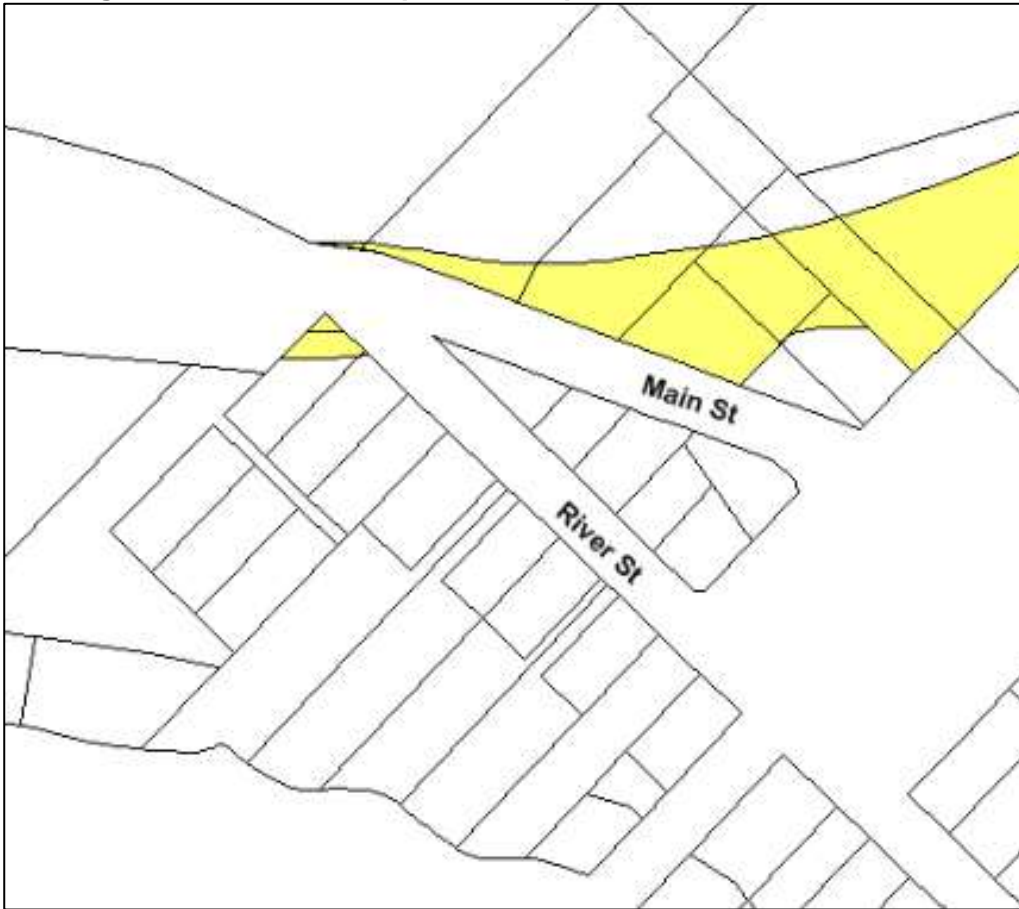
Recently, RMS placed this vacant site on the market for sale. Without the Land Reservation Acquisition layer in place over the site, there was no indication that the future road widening could potentially take up the whole site. While the sale of the site has been withdrawn, it is important to ensure the constraints over the site are easily identified for future purchasers of the land. This amendment proposes to include the site on the Land Reservation Acquisition Map.

Proposed amendment:

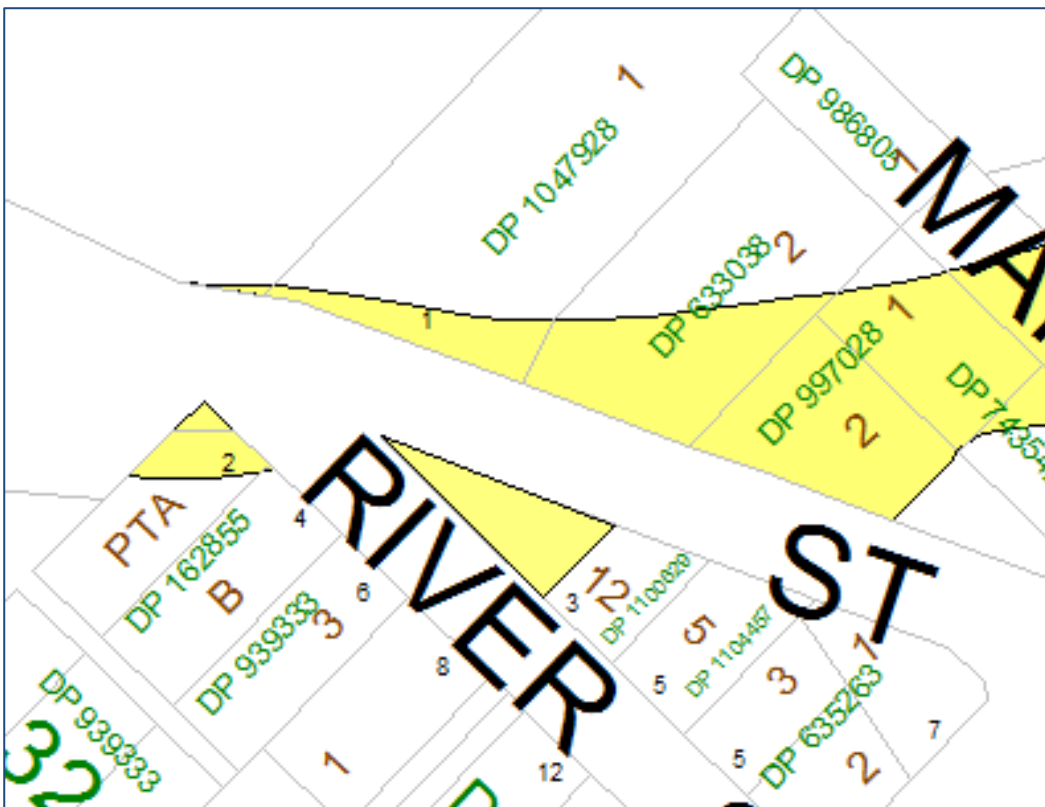
Amend LEP 2010 maps as follows.



Existing land reservation acquisition map



Proposed land reservation acquisition map



Site J: 11-29 Beeton Parade, Taree

Property Description:

Lot 100 DP 1195087

Area: 2.88 ha

Background:

This site was previously used as a bowling club (established in 1954). This club closed down and was sold for use as a restaurant. The site is currently for sale and there have been enquiries as to why part of the site is included the Public Recreation (RE1) zone.

Historically, sites along creeks that were subject to flooding were included in an open spaces zone as there were no environmental zones available at that time. In LEP 1995 this part of the site was in the Open Space Recreation (6A) zone, along with much of the flood affected land along Browns Creek. The site transitioned to the Public Recreation (RE1) zone in LEP 2010.

The recent *Manning River Flood Study 2016* provides the most recent flood maps for this area. The map to the right indicates that the site is affected by flood planning level 3 (1% AEP (100 year average recurrence interval) with 2100 sea level rise plus 0.5m freeboard).

This site has remained in private ownership and Council has no intention of purchasing the land for open space. The site is not identified on the Land Reservation Acquisition Map or any open space plans.

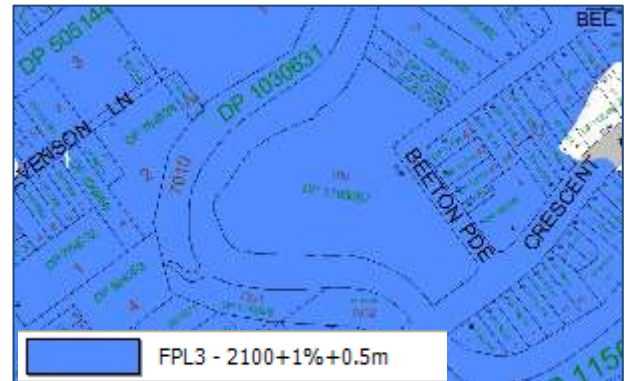
Given the remainder of the property is zoned Private Recreation (RE2) and is subject to flooding constraints (refer map to right), it is appropriate to apply the Private Recreation zone to this part of the site. The building height, floor space ratio and lot size requirements remain unchanged.

This amendment is proposed to provide clarity that the land is not intended for public open space.

A review of similar sites along Browns Creek will be undertaken in a future amendment package to improve consistency of LEP 2010

Proposed amendment:

Amend LEP 2010 maps as follows.



Existing zone: Light Industrial (IN2) (purple), Private Recreation (RE2) (light green), Public Recreation (RE1) (dark green)



Proposed zone: Light Industrial (IN2) (purple) and Private Recreation (RE2) (light green)



Site K: 16 Hayes Lane, Taree

Property description:

Lot 140, DP 611673

Background:

It was identified that the DP for heritage item I190 has been recorded incorrectly in LEP 2010. It is proposed to change the DP to the correct description being DP 611673.

Proposed amendment:

Amend heritage item I190 in Part 1 of Schedule 5 – Environmental Heritage to record the correct DP being DP 611673.



Site L: Diamond Beach Resort, 394 Diamond Beach Road, Diamond Beach

Property Description:

Lot 14 DP 576414 (shown with red outline)

Area: 2.18ha



Background:

This site is on the edge of the urban area at Diamond Beach and is included in the Primary Production (RU1) zone. However, the site has been used as a motel for over 20 years. The owner approached Council to change the zone of the property to reflect the current use and be consistent with other tourist facilities in north Diamond Beach.

Further investigations with the Department of Planning and Environment identified that an additional zone needed to be applied to the site. The Environmental Management (E3) needed to be applied to a portion of land along the western boundary of the site where mature melaleucas were present. Given the Council resolution did not include this requirement this site specific amendment was removed from consideration in the planning proposal (as per the Gateway determination).

No LEP 2010 changes are proposed for this site.

Site M: 23 - 26 The Knoll, Tallwoods Village

Property Description:

Lot 33 - 36 DP 879612 (shown with red outline)



Background:

Investigations revealed that four residential lots in the Tallwoods village have a portion of Private Recreation (RE2) zone over the rear of the lot, which adjoins the Tallwoods Golf Course. This mapping error has occurred from the subdivision layout not aligning with the zone boundary. Each lot should be located wholly within the General Residential (R1) zone to reflect the current use.

This amendment proposes to adjust the above mentioned lots to be included entirely in the General Residential (R1) zone. Changes to the floor space ratio, height of buildings and minimum lot size maps are required as a consequence of the zone change.

Proposed amendment:

Amend LEP 2010 maps as follows.

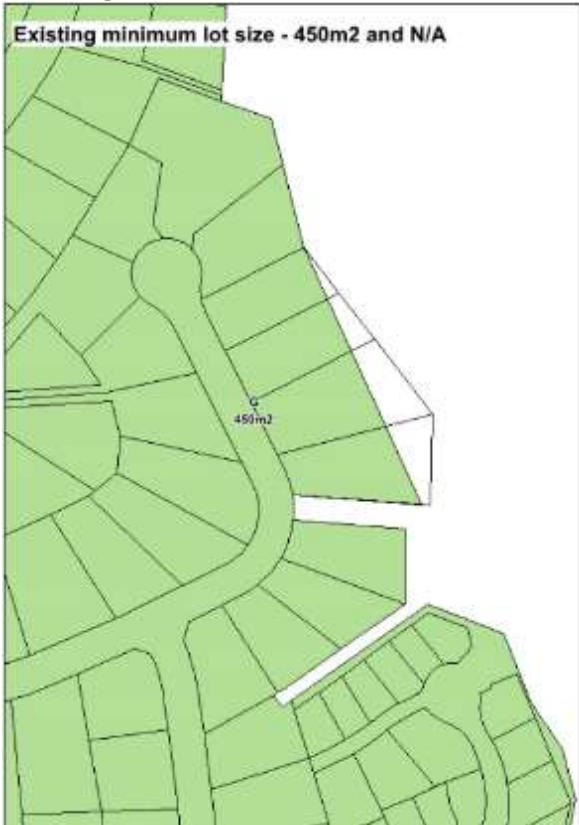
Existing zone: General Residential (R1) (pink) and Private Recreation (RE2) (green)



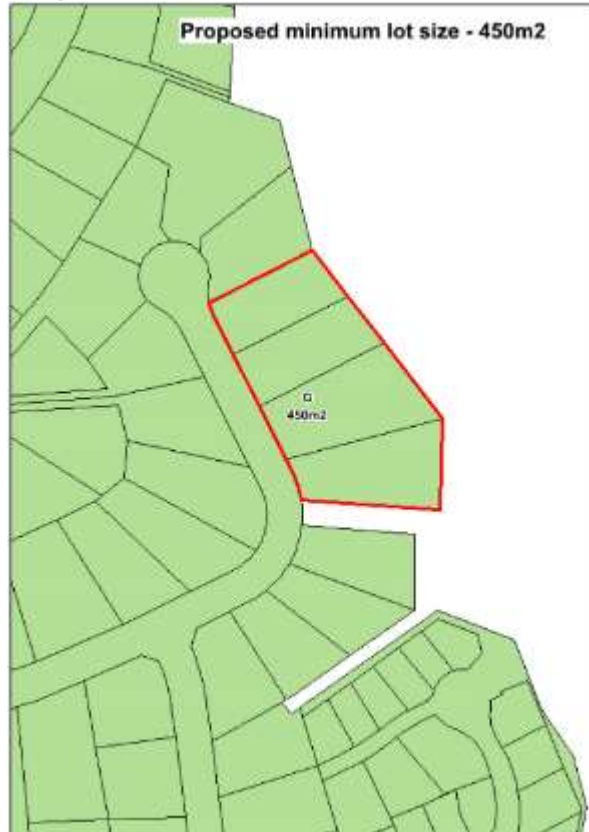
Proposed zone: General Residential (R1) (pink)



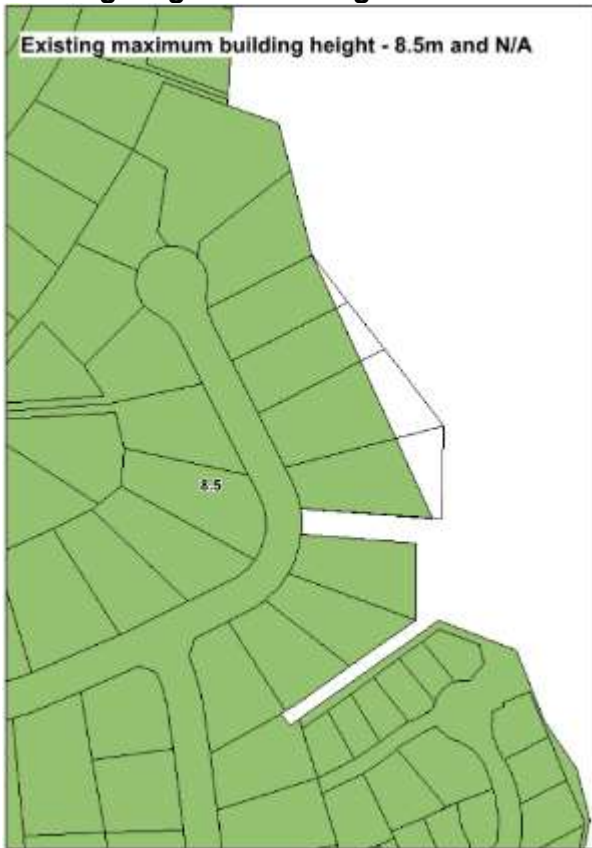
Existing minimum lot size: 450m2 and N/A



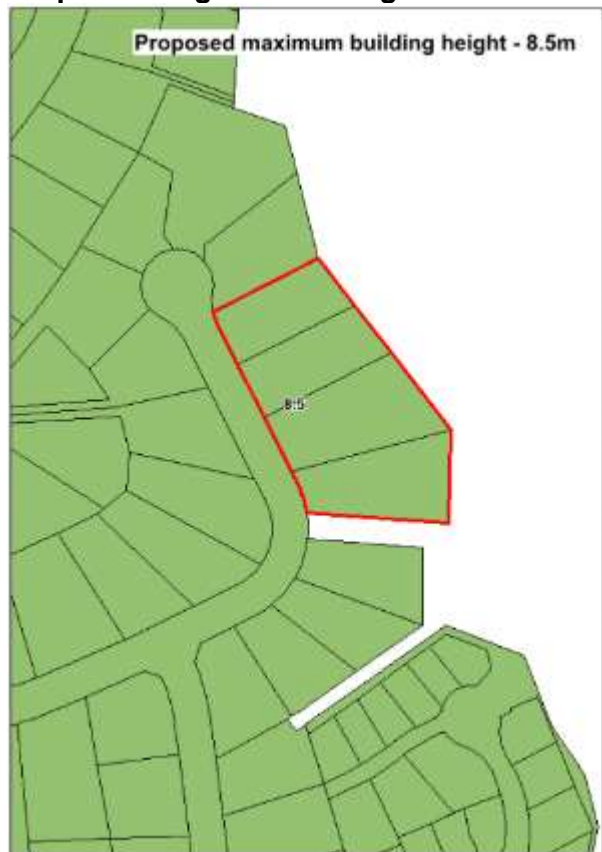
Proposed minimum lot size: 450m2



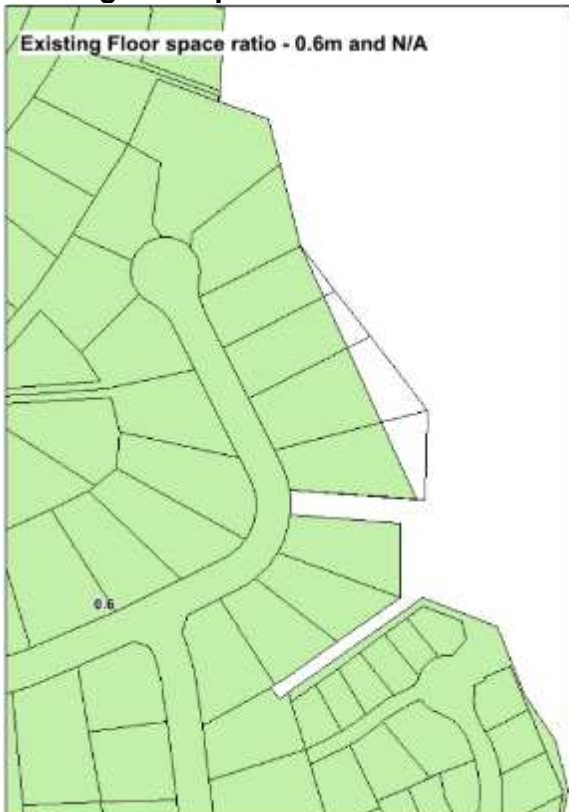
Existing height of building: 8.5m and N/A



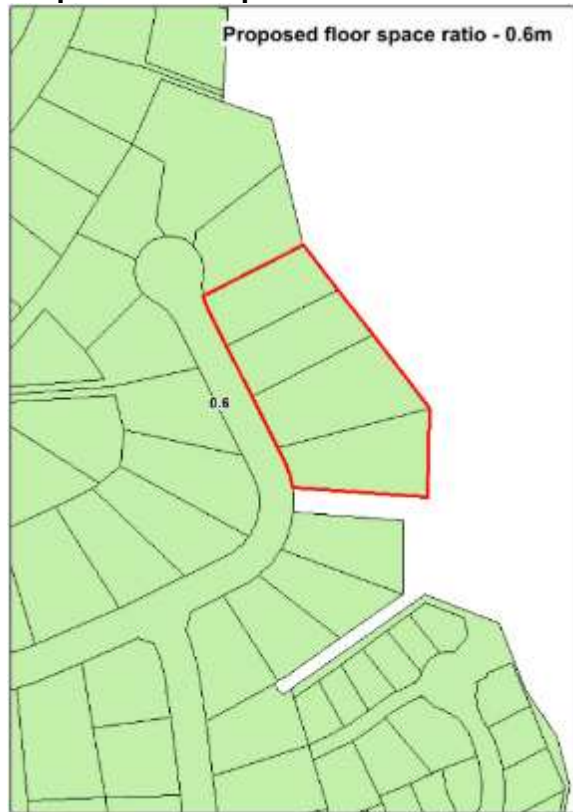
Proposed height of building: 8.5m



Existing floor space ratio: 0.6 and N/A



Proposed floor space ratio: 0.6



Site N: 25 Myalup Court, Red Head

Property Description:

Lot 706 DP 1169554

Area: 1,659m²

Background:

This land formed part of the Seascope development. At the time of rezoning, the open space zone was applied over part of Lot 706 DP 1169554 to enable driveway access to a public car park on the adjoining eastern land.

Since the rezoning was undertaken an assessment was taken of the open space needs in this location. It was decided that there is no need for a public car park on the adjoining site given the park is mainly used by residents and there is sufficient on-road parking available. As a result, the provision of a 6m wide pedestrian access was considered sufficient for this site, so as to permit vehicle access to the site for Parks and Landcare vehicles to maintain the adjoining park.



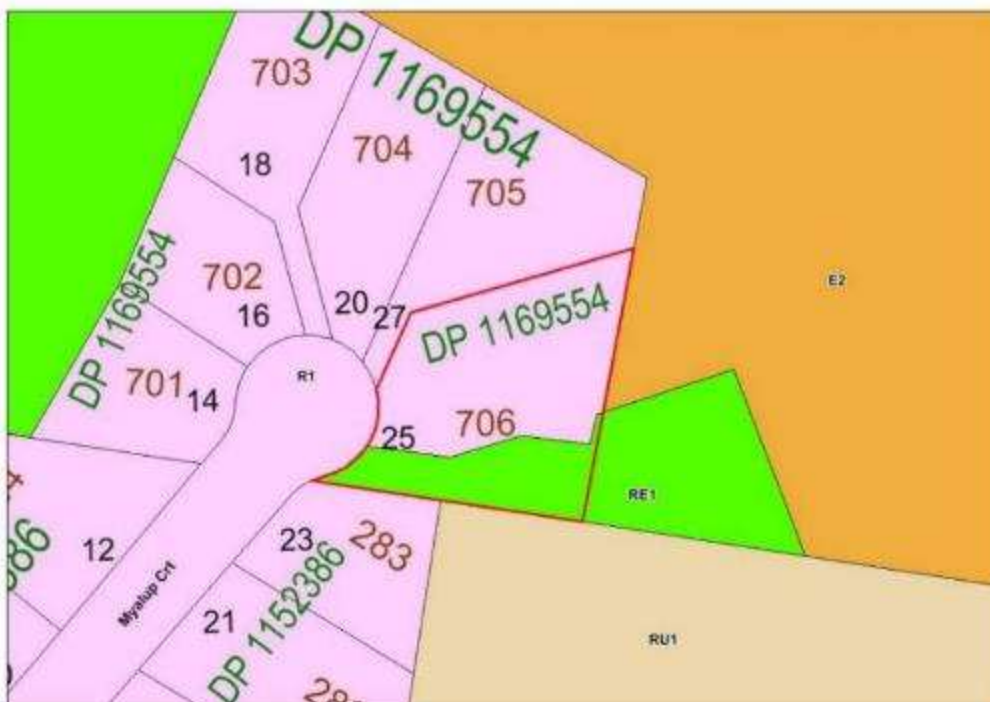
To reflect this change, the width of land included in the Public Recreation zone is to be reduced to 6m wide (refer proposed zone map over the page). This will enable residents to access the headland and connect to the open space network to the north and south of the site.

This land has remained in private ownership. Discussions will be undertaken with the landowner to determine the appropriate process for the transfer of this land to Council.

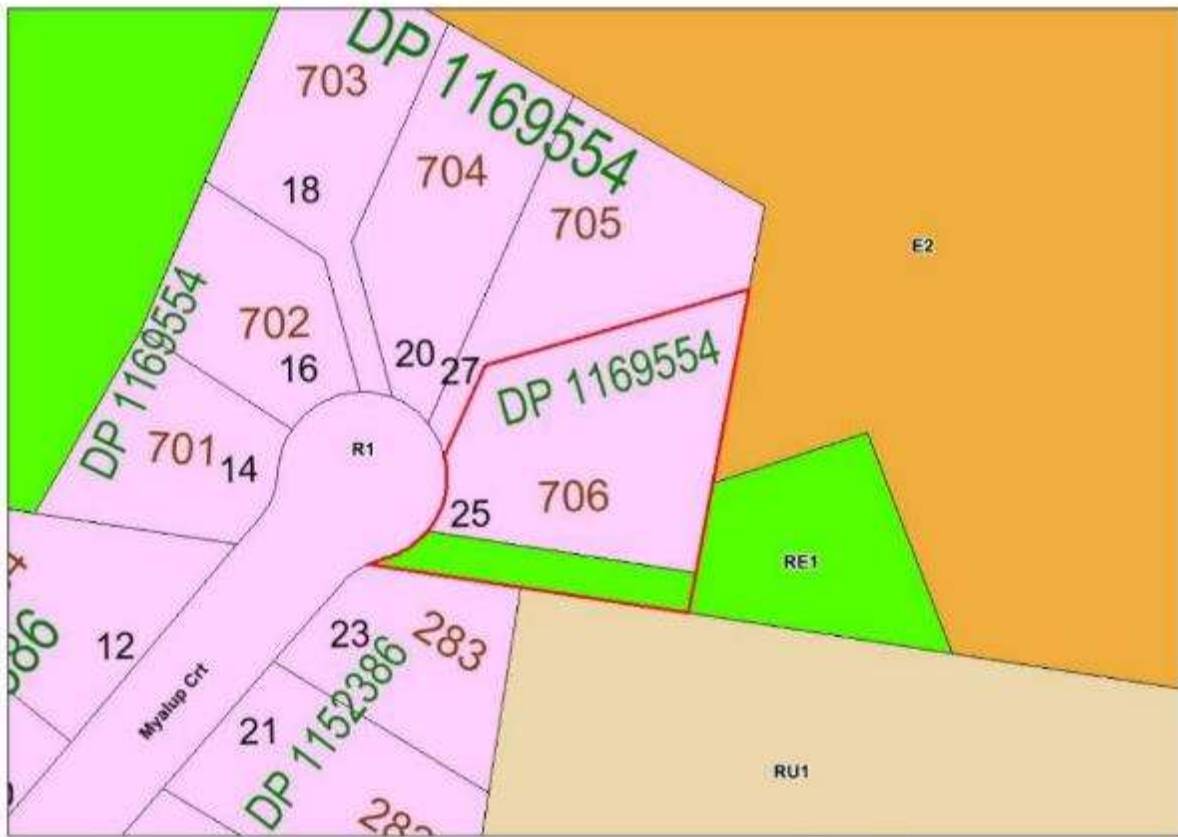
Proposed amendment:

Amend LEP 2010 maps as follows.

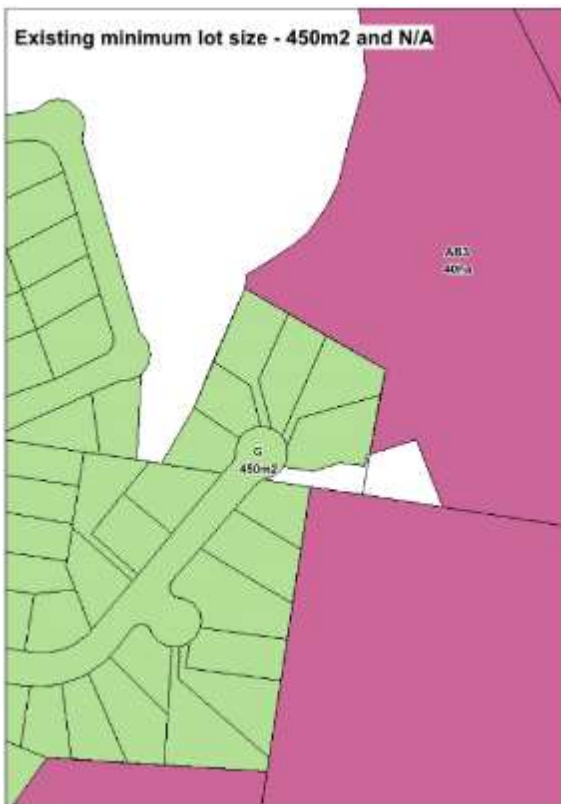
Existing zone: Public Recreation (RE1) (green) and General Residential (R1) (pink)



Proposed zone: Public Recreation (RE1) (green) and General Residential (R1) zone (pink)



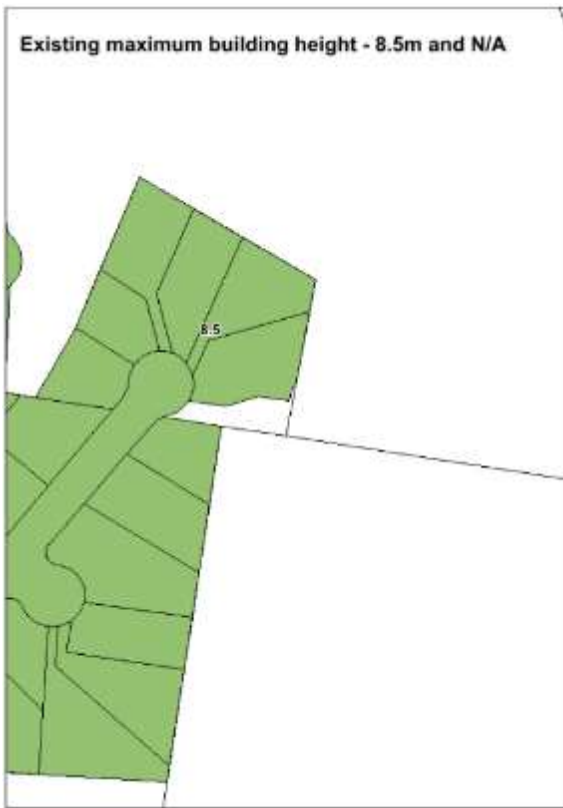
Existing minimum lot size: 450m² and N/A



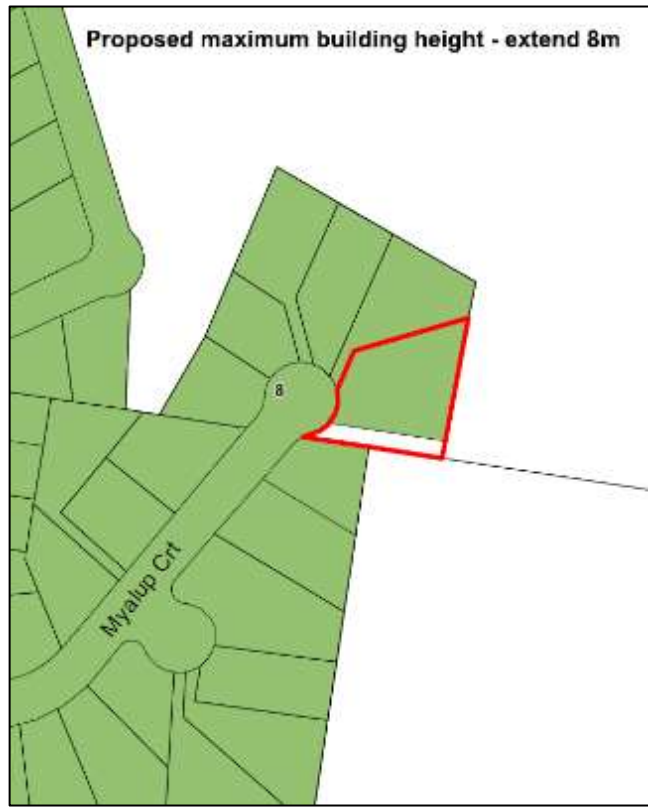
Proposed minimum lots size: extend 450m² over increased R1 zone



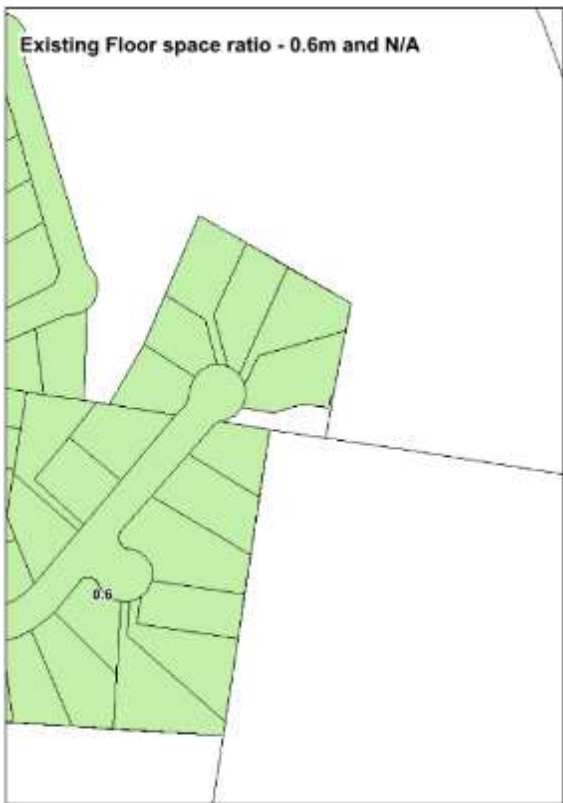
Existing height of building: 8m and N/A



Proposed height of building: extend 8m over increased R1 zone



Existing floor space ratio: 0.6 and N/A



Proposed floor space ratio: extend 0.6 over increased R1 zone



Site O: Lot 213 High Street, Black Head

Property Description:

Lot 213 DP 1098493

Area: 3.254 ha

Background:

Part of this lot is included in the Public Recreation (RE1) zone and contains detention basins for the Halliday Shores development. This site is privately owned and Council has no intention to purchase the land for open space. This site is not identified on the Land Reservation Acquisition map or any open space plans.

The amendment proposes to include this part of the lot in the General Residential (R1) zone to reflect the use and private ownership of the site.



This amendment is proposed to provide clarity that the land is not intended for public open space.

Proposed amendment:

Amend LEP 2010 maps as follows.

Existing zone: Public Recreation (RE1) (green), General Residential (R1) (pink) and Primary Production (RU1) (brown)



Proposed zone: General Residential (R1) (pink) and Primary Production (RU1) (brown)



Existing minimum lot size: 450m² and 40 ha and N/A

Proposed minimum lot size: extend 450m² over extended R1 zone, 40ha remains



Existing height of building: 8.5m and N/A



Proposed height of building: 8.5m extends over extended R1 zone



Existing floor space ratio: 0.6 and N/A



Proposed floor space ratio: extend 0.6 over extended R1 zone



Site P: 2 Bungay Road Wingham

Property description:
Lot 1 DP 780647

Background:

It has been identified that the property description for heritage item I249 has been recorded incorrectly in LEP 2010 as Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546. It is proposed to change the property description to Lot 1 DP 780647.

Proposed amendment:

Amend heritage item I249 in Part 1 of Schedule 5 – Environmental Heritage to record the correct property description being Lot 1 DP 780647



Site Q: Community Hall Johns River

Property description:

Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546

Background:

Council was advised that the DP for heritage item I299 has been recorded incorrectly in LEP 2010 as Lot 16, Section 5, DP 758546. It is proposed to change the property description to Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546

Proposed amendment:

Amend heritage item I299 in Part 1 of Schedule 5 – Environmental Heritage to record the correct property description being Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546



Attachment B – SEPP assessment matrix

S		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13
	General amendments:													
1	G1 - Essential services													
1	G2 - Events permitted without development consent	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1	G3 - Changes to boundaries													
2	G4 - Zone objective changes													
2	G5 - Dual Occupancies (detached) on rural land	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	G6 - Primary Production (RU1) zone changes													
3	G7 - Enabling a kiosk/take away food and drink premises in the Enterprise Corridor (B6)													
3	G8 - Bulky Goods in Light Industrial (IN2)													
4	G9 - Rural Industries in Light Industrial (IN2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	G10 - Function Centre in Public Recreation (RE1)													
5	G11 - Heritage Conservation Area floor space ratio													
5	G12 - Dams in rural zones	ment Plans												
5	G13 - Subdivision of lots with split zones in the Village zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6														
6	✓ Identifies which 117 Direction applies													
	65. Design Quality of Residential Apartment Development													
	70. Affordable Housing (Revised Schemes)													
	71. Coastal Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Affordable Rental Housing 2009													
	Building Sustainability Index: BASIX 2004													
	Exempt and Complying Development Codes 2008	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Housing for Seniors or People with a Disability 2004													
	Infrastructure 2007	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Integration and Repeals 2016													
	Mining, Petroleum Production and Extractive Industries 2007													
	Miscellaneous Consent Provisions 2007													
	Rural Lands 2008			✓	✓	✓	✓						✓	
	State and Regional Development 2011													
	State Significant Precincts 2005													
	Urban Renewal 2010													

General amendments:	
G1 - Essential services	
G2 - Events permitted without development consent	
G3 - Changes to boundaries	
G4 - Zone objective changes	
G5 - Dual Occupancies (detached) on rural land	
G6 - Primary Production (RU1) zone changes	
G7 - Enabling a kiosk/take away food and drink premises in the Enterprise Corridor (B6)	
G8 - Bulky Goods in Light Industrial (IN2)	
G9 - Rural Industries in Light Industrial (IN2)	
G10 - Function Centre in Public Recreation (RE1)	
G11 - Heritage Conservation Area floor space ratio	
G12 - Dams in rural zones	
G13 - Subdivision of lots with split zones in the Village zone	
✓ Identifies which SEPP applies	

SEPP's - Site Specific Amendments	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1. Development Standards																	
14. Coastal Wetlands					✓	✓											
19. Bushland in Urban Areas																	
21. Caravan parks																	
26. Littoral Rainforests																	
30. Intensive Agriculture																	
33. Hazardous and Offensive Development																	
36. Manufactured Home Estates																	
44. Koala Habitat Protection	✓			✓	✓	✓		✓									
50. Canal Estate Development																	
52. Farm Dams and Other Works in Land and Water Management Plans																	
55. Remediation of Land	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
62. Sustainable Aquaculture																	
64. Advertising and Signage																	
65. Design Quality of Residential Apartment Development																	
70. Affordable Housing (Revised Schemes)																	
71. Coastal Protection					✓	✓	✓		✓	✓	✓	-		✓	✓		
Affordable Rental Housing 2009																	
Building Sustainability Index: BASIX 2004																	
Exempt and Complying Development Codes 2008	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Housing for Seniors or People with a Disability 2004																	
Infrastructure 2007	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Integration and Reveals 2016																	
Mining, Petroleum Production and Extractive Industries 2007																	
Miscellaneous Consent Provisions 2007																	
Rural Lands 2008	✓	✓		✓	✓							-					
State and Regional Development 2011																	
State Significant Precincts 2005																	
Urban Renewal 2010																	

Site specific amendments:

- A – Lot 98 Ph Cooplacurripa, Cooplacurripa
- B – Johns River Rd, Johns River
- C – Cooperook Village
- D – 586 Lansdowne Rd, Kundle Kundle
- E – 74 Longworths Rd, Harrington
- F – 102 Industrial Rd and Lot 193 Glacken St, Harrington
- G – 2 Pilot St, Harrington
- H – 202 Bushland Dr, Taree
- I – River St, Cundletown
- J – 11-29 Beeton Pde, Taree
- K – 16 Hayes Ln, Taree
- L – 394 Diamond Beach Rd, Diamond Beach
- M – The Knoll, Tallwoods Village
- N – 25 Myalup Crt, Red Head
- O - High St, Black Head
- P – 2 Bungay Rd, Wingham
- Q – Community Hall Johns River

✓ Identifies which SEPP applies

State Environmental Planning Policy (SEPP)	General Amendments	Site Specific Amendments
<p>SEPP 14 - Coastal Wetlands</p> <p>The aim of this policy is to ensure that the coastal wetlands are preserved and protected. The coastal wetlands have been mapped and included in environmental zones.</p>	<p>All of the general amendments have the potential to apply where there is new development of a site with or adjoining coastal wetlands.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land, the proposed clauses makes reference to ensuring that the environmental values (including coastal wetlands) are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged the SEPP 14 provisions will be considered to ensure consistency with this SEPP.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>The following sites contain coastal wetlands and involve minor zone changes:</p> <ul style="list-style-type: none"> E located at 74 Longworths Rd, Harrington to reflect minor changes in the cadastre F located at 102 Industrial Rd and Lot 193 Glacken St, Harrington to reflect the private ownership and the environmental values of the land <p>These sites will remain or be included in the Environmental Conservation (E2) zone to protect these coastal wetlands and are consistent with the SEPP.</p>
<p>SEPP 26 – Littoral rainforests</p> <p>The aim of this policy is to protect littoral rainforest areas.</p>	<p>All of the general amendments have the potential to apply where there is new development of a site with or adjoining littoral rainforests.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land the proposed clauses makes reference to ensuring that the environmental values are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged the SEPP 26 provisions will be considered to ensure consistency with this SEPP.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>Not applicable</p>
<p>SEPP 44 – Koala Habitat Protection</p> <p>The aim of this policy is to encourage the conservation and management of areas of koala habitat to ensure the current distribution of koalas is maintained.</p>	<p>All of the general amendments have the potential to apply where there is new development of a site with or adjoining koala habitat.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land the proposed clauses makes reference to ensuring that the environmental values (including koala habitats) are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged the SEPP 44 provisions will be considered to ensure consistency with this SEPP. Council's vegetation mapping assists with the identification of these sites.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>The site specific amendments have been reviewed with regard to “encouraging the inclusion of areas of core koala habitat in environmental protection zones” (Aim 3(c) of the SEPP).</p> <p>Sites A, E and F involve the retention of environmental zones over the site and are minor in nature and consistent with the SEPP.</p> <p>Sites D and H involved a more extensive assessment against the SEPP:</p> <ul style="list-style-type: none"> D is located at 586 Lansdowne Rd, Kundle – this site forms part of an important regional wildlife corridor from the Dawson River, through Brimbin to the Lansdowne River. The proposed zone change is to include the current industrial activity of the site in the General Industry zone and include the remainder of the site in the Environmental Conservation (E2) zone to protect the environmental values of the site. Given the clearing of the land and general industry use, the land to be included in the industrial zone does not form part of a koala habitat. For the remainder of the site, the presence of koalas has not been confirmed. However, the application of the proposed environmental zone provides a greater level of protection and is consistent with the aims of the SEPP. If a future development application is submitted for this site, an assessment would be required to determine if the site was core koala habitat and, if so, a plan of management be lodged in accordance with Part 3 of the SEPP H is located at 202 1 Bushland Dr Taree – an ecological survey (contained in Attachment E) identified that the preferred koala food tree species comprised greater than 15%, however there was no evidence of koalas at the site. This means the site is considered to be potential koala habitat and as a result, SEPP 44 does not require any additional assessment <p>Based on this assessment the change of zone for the above two sites is consistent with the SEPP.</p>
<p>SEPP 55 – Remediation of land</p> <p>This policy aims to promote the remediation of contaminated land to reduce the risk of harm to human health.</p>	<p>All of the general amendments have the potential to apply where there is new development of a site which may be contaminated.</p> <p>The extent of impact will depend on both the site and the use proposed. When a development application is lodged the SEPP 55 provisions will be considered to ensure consistency with clause 7 of the SEPP.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>Two sites were identified as contaminated land on Council's mapping and property system, being:</p> <ul style="list-style-type: none"> D is located at 586 Lansdowne Rd, Kundle – this site was developed for the manufacture of train wheels and axles. The General Industry zone is proposed over the footprint of the existing operations, with the remainder of the site included in the Environmental Conservation zone. The proposed industrial zone is suitable for this site given it better reflects the use of the land and the potential level of contamination. However, the General Industrial zone does permit with consent the establishment of educational and child care facilities. Given the site is identified as contaminated land on Council's mapping system (and on Section 149 Property Certificates), any future development applications for these purposes would have to consider the extent of contamination with regard to the proposed use and remediation, if required, in accordance with clause 7 of the SEPP. As such, site D is considered consistent with the SEPP as the proposed zone better reflects the use of the site, the contamination of the land is acknowledged on Council mapping systems and measures are in place to ensure remediation is considered for future development applications.

State Environmental Planning Policy (SEPP)	General Amendments	Site Specific Amendments																					
		<p>• H is located at 202 and Lot 1 Bushland Dr Taree – this site was used by Railcorp NSW for the making and storage of rail sleepers. GHD were engaged by Railcorp to undertake an assessment of the extent of contamination of the site (refer Attachment E). The report concluded that there is low potential for contamination to exist in the soils and that the site is suitable for either ongoing commercial or industrial land use. This assessment demonstrates consistency with the SEPP.</p> <p>The following site specific amendments involve changing the zone of the land to a zone that has the potential to enable residential, educational and recreational uses, or child care or hospital on the land. Each of these sites are <u>not identified</u> as contaminated on Council's mapping system. There is incomplete knowledge for each of these sites. Site inspections provided no evidence of contamination. The following table explains the proposed LEP change and provides an assessment of the likelihood of contamination of the site. In each case, the potential for contamination was considered unlikely and as a result these changes are consistent with the SEPP.</p> <table border="1"> <thead> <tr> <th>Site</th> <th>Proposed LEP zone change</th> <th>Assessment of potential contamination</th> </tr> </thead> <tbody> <tr> <td>B - Johns River</td> <td>Primary Production (RU1) to Village (RU5) zone to reflect the current village uses being a dwelling and tavern</td> <td>The tavern and dwelling have been established on these sites for a number of years. Historically, contaminating uses like the petrol station were located on the eastern side of the previous Pacific Highway, away from this site. Being so close to the village, it is unlikely that rural activities such as cattle dipping occurred on the site. The potential for contamination is unlikely</td> </tr> <tr> <td>G - 2 Pilot St, Harrington</td> <td>Public Recreation (RE1) to Neighbourhood Centre (B1) zone to reflect the use of the site for a community hall</td> <td>This site forms part of the original Harrington town centre. It provides access and parking for the community hall which has been established on the site for over 60 years. It is Crown Land and is likely to continue as a hall into the future. The potential for contamination is unlikely</td> </tr> <tr> <td>J - 11-29 Beeton Pde, Taree</td> <td>Public Recreation (RE1) to Private Recreation (RE2) to reflect the intent that the site is to remain in private ownership</td> <td>This site was established as a bowling club in 1954 and operated till the early 2000s. The site was then used as a restaurant. The potential for contamination is unlikely</td> </tr> <tr> <td>M - The Knoll, Tallwoods</td> <td>Private Recreation (RE2) to General Residential (R1) to reflect the subdivision layout</td> <td>This amendment aims to align the zones with the subdivision layout. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely</td> </tr> <tr> <td>N - 25 Myalup Crt, Red Head</td> <td>Public Recreation (RE1) to General Residential (R1) to reflect the proposed recreational use of the land</td> <td>This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely</td> </tr> <tr> <td>O - Lot 213 High St, Black Head</td> <td>Public Recreation (RE1) to General Residential (R1) to reflect the intended use of the land</td> <td>This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely</td> </tr> </tbody> </table> <p>The remaining site specific amendments involved environmental zone changes (A, E), heritage (K, P, Q), land acquisition (F, I) or a lot size change in the Cooperbrook village (C). These were minor in nature and consistent with the SEPP.</p>	Site	Proposed LEP zone change	Assessment of potential contamination	B - Johns River	Primary Production (RU1) to Village (RU5) zone to reflect the current village uses being a dwelling and tavern	The tavern and dwelling have been established on these sites for a number of years. Historically, contaminating uses like the petrol station were located on the eastern side of the previous Pacific Highway, away from this site. Being so close to the village, it is unlikely that rural activities such as cattle dipping occurred on the site. The potential for contamination is unlikely	G - 2 Pilot St, Harrington	Public Recreation (RE1) to Neighbourhood Centre (B1) zone to reflect the use of the site for a community hall	This site forms part of the original Harrington town centre. It provides access and parking for the community hall which has been established on the site for over 60 years. It is Crown Land and is likely to continue as a hall into the future. The potential for contamination is unlikely	J - 11-29 Beeton Pde, Taree	Public Recreation (RE1) to Private Recreation (RE2) to reflect the intent that the site is to remain in private ownership	This site was established as a bowling club in 1954 and operated till the early 2000s. The site was then used as a restaurant. The potential for contamination is unlikely	M - The Knoll, Tallwoods	Private Recreation (RE2) to General Residential (R1) to reflect the subdivision layout	This amendment aims to align the zones with the subdivision layout. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely	N - 25 Myalup Crt, Red Head	Public Recreation (RE1) to General Residential (R1) to reflect the proposed recreational use of the land	This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely	O - Lot 213 High St, Black Head	Public Recreation (RE1) to General Residential (R1) to reflect the intended use of the land	This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely
Site	Proposed LEP zone change	Assessment of potential contamination																					
B - Johns River	Primary Production (RU1) to Village (RU5) zone to reflect the current village uses being a dwelling and tavern	The tavern and dwelling have been established on these sites for a number of years. Historically, contaminating uses like the petrol station were located on the eastern side of the previous Pacific Highway, away from this site. Being so close to the village, it is unlikely that rural activities such as cattle dipping occurred on the site. The potential for contamination is unlikely																					
G - 2 Pilot St, Harrington	Public Recreation (RE1) to Neighbourhood Centre (B1) zone to reflect the use of the site for a community hall	This site forms part of the original Harrington town centre. It provides access and parking for the community hall which has been established on the site for over 60 years. It is Crown Land and is likely to continue as a hall into the future. The potential for contamination is unlikely																					
J - 11-29 Beeton Pde, Taree	Public Recreation (RE1) to Private Recreation (RE2) to reflect the intent that the site is to remain in private ownership	This site was established as a bowling club in 1954 and operated till the early 2000s. The site was then used as a restaurant. The potential for contamination is unlikely																					
M - The Knoll, Tallwoods	Private Recreation (RE2) to General Residential (R1) to reflect the subdivision layout	This amendment aims to align the zones with the subdivision layout. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely																					
N - 25 Myalup Crt, Red Head	Public Recreation (RE1) to General Residential (R1) to reflect the proposed recreational use of the land	This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely																					
O - Lot 213 High St, Black Head	Public Recreation (RE1) to General Residential (R1) to reflect the intended use of the land	This amendment increases the extent of the residential zone. Land contamination would have been considered at the time that this estate was rezoned. The potential for contamination is unlikely																					
<p>SEPP 71 - Coastal Protection</p> <p>This policy aims to ensure a consistent and strategic approach to coastal planning and management.</p>	<p>All of the general amendments have the potential to enable new development/works in the coastal zone.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land, the proposed clauses makes reference to ensuring that the environmental values (including coastal management) are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged Clause 5.5 - Development within the coastal zone in LEP 2010 will be applied to ensure consistency with this direction. In addition, the Greater Taree DCP is being amended to apply the coastal requirements and should be implemented prior to this planning proposal being made.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>The following site specific amendments are located within the coastal zone, being:</p> <ul style="list-style-type: none"> • E - 74 Longworths Rd, Harrington • F - Lot 102 Industrial Rd and Lot 193 Glacken St, Harrington • G - 2 Pilot St, Harrington • I - Lot 1 River St, Cundletown • J - 11-29 Beeton Pde, Taree • K - 16 Hayes Ln, Taree • N - 25 Myalup Crt, Red Head • O - Lot 213 High St, Black Head <p>These amendments are aimed at reflecting the current use of the land and not intensifying development. Any future development of these sites would require assessment against clause 5.5 of LEP 2010 which would ensure coastal requirements are achieved in future development applications. These amendments are minor in nature and are consistent with the SEPP.</p>																					

State Environmental Planning Policy (SEPP)	General Amendments	Site Specific Amendments
<p>SEPP (Rural Lands) 2008</p> <p>The policy identifies principles for planning and subdivision in rural areas to assist in the proper management, development and protection of rural lands, ensuring the ongoing viability of agriculture and to reduce land use conflicts.</p>	<p>The following general amendments propose changes to rural lands to enable:</p> <ul style="list-style-type: none"> G3 - changes to boundaries G4 – a new zone objective for the Primary Production zone G5 - detached dual occupancies G6 - being the addition of a range of additional uses in the Primary Production (RU1) zone G12 - dams in rural zones G13 - subdivision of lots with split zones in the Village zone <p>These amendments are consistent with the rural planning and rural subdivision principles as shown in Table B1 and B2 below, and are therefore consistent with the SEPP.</p>	<p>There are five site specific amendments where a rural zone is being changed to reflect the current use as outlined below:</p> <ul style="list-style-type: none"> A - Lot 98 Ph Cooplacurripa, Cooplacurripa B - Johns River Rd, Johns River D - 586 Lansdowne Rd, Kundle E - 74 Longworths Rd, Harrington <p>These amendments are consistent with the rural planning and rural subdivision principles as shown in Table B1 and B2 below, and are therefore consistent with the SEPP.</p>
<p>SEPP (Infrastructure) 2007</p> <p>This policy aims to facilitate the effective delivery of infrastructure across the State.</p>	<p>The planning proposal involves minor changes to LEP provisions which have minimal impact on infrastructure.</p> <p>As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>The site specific amendments involve minor changes to zones with minimal impact on infrastructure.</p> <p>Site specific amendment H at 202 Bushland Dr, Taree is owned by Railcorp NSW and is proposed to be rezoned to assist with the sale of the land. The proposed Light Industry zone is consistent with the industrial activities that were undertaken on the site. This amendment is consistent with Aim 2(c) of the policy being the efficient development, redevelopment or disposal of surplus government owned land.</p> <p>As a result, the site specific amendments are considered to be consistent with the SEPP</p>
<p>SEPP (Exempt and Complying Development Codes) 2008</p> <p>The policy identifies certain types of development which can be undertaken as exempt or complying development if certain requirements are met.</p>	<p>The planning proposal involves minor changes to LEP provisions. As a result, the general amendments are considered to be consistent with the SEPP</p>	<p>These codes have been considered for the site specific amendments where there is a zone change proposed to ensure that there are no conflicts arising from future potential exempt or complying uses. Given the zone changes reflect the existing use of the land, the sites are currently operating in a manner consistent with the proposed zone.</p> <p>As a result, the site specific amendments are considered to be consistent with the SEPP</p>

Table B1- Assessment of the Rural Planning Principles

Rural Planning Principle	No.	Response	Consistent
(a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas	G3	Enabling minor boundary changes will assist with the operation of rural lands. Rural producers will be able to purchase parts of nearby properties to expand their farms	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	Detached dual occupancies will ensure that the rural character is maintained, while the proposed clause will ensure productivity of the land is maintained	Yes
	G6	The inclusion of additional uses in the Primary Production zone will enable a range of supporting uses. In addition, “funeral homes” will be prohibited in the zone as it is an urban use; and “intensive plant agriculture” will be “permitted with consent” to ensure any potential impacts are considered	Yes
	G12	Enabling “dams” as “permitted with consent” will ensure access to water for stock is maintained while addressing any potential impacts of the dam	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands	Yes
	A/B/D/E	Existing uses are established on these sites. The change of the zone will not impact on the rural productivity of the land	Yes
(b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State	G3	Enabling minor boundary changes will assist in providing lots suitable to undertake rural activities and be responsive to the changing needs of the rural activities	Yes
	G4	N/A	-
	G5	Enabling detached dual occupancies will assist in maintaining the rural character and operation of the rural land	Yes
	G6	The inclusion of additional uses within the Primary Production (RU1) zone will enable a range of supporting uses that will address the changing needs of agriculture	Yes
	G12	Enabling “dams” as “permitted with consent” will ensure access to water for stock is maintained while addressing any potential impacts of the dam	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands	Yes
A/B/D/E	Sites A/B/D have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands and remove the potential for conflict between uses. Part of site E has an established rural use which will not be impact by the proposed adjustment to zone and cadastre boundaries.	Yes	
(c) recognition of the significance of rural land	G3	N/A	-
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes

Rural Planning Principle	No.	Response	Consistent
uses to the State and rural communities, including the social and economic benefits of rural land use and development	G5	N/A	-
	G6	N/A	-
	G12	N/A	-
	G13	N/A	-
	A/B/D/E	Many of these sites have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands	Yes
(d) in planning for rural lands, to balance the social, economic and environmental interests of the community	G3	Enabling minor boundary changes will assist with the operation of rural lands. Rural producers will be able to purchase parts of nearby properties to expand their farming activities	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	Enabling detached dual occupancies will assist in maintaining the rural character, environmental features and operation of the rural land	Yes
	G6	A review of uses permitted within the Primary Production (RU1) zone identified that the LEP was restrictive compared to other regional LEPs. This can limit the economic, social and environmental outcomes achieved in this zone. As a result, the range of uses has been expanded and refined	Yes
	G12	Enabling "dams" as "permitted with consent" will ensure access to water for stock is maintained while addressing any potential impacts of the dam	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the development of land in the Village zone	Yes
	A/B/D/E	Sites A/B/D have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands and remove the potential for conflict between uses. Site E involves the readjustment of the zone boundary to be consistent with the cadastre boundary	Yes
(e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land	G3	The provision enabling minor boundary changes includes requirements to ensure that the environmental values are maintained	Yes
	G4	N/A	-
	G5	Enabling dual occupancies (detached) on rural lands includes provisions to ensure that the environmental values are maintained	Yes
	G6	Environmental provisions are in place in LEP 2010 and DCP 2010 to assess the additional uses proposed in the Primary Production zone	Yes
	G12	Environmental considerations are in place in LEP 2010 and DCP 2010 to consider when assessing a "dam" in the rural zones	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands	Yes
	A/B/D/E	The proposed zone changes for D involves the inclusion of part of the sites in the Environmental Conservation (E2) zone to protect the environmental values of the sites. The proposed changes to site A from Forestry (RU3) zone to National Parks and Nature Reserves (E1) reflects the ownership and use of the land.	Yes
(f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities	G3	Enabling minor boundary changes will assist with the operation of rural lands. Rural producers will be able to purchase parts of nearby properties to expand their farms	Yes
	G4	N/A	-
	G5	Enabling detached dual occupancies in rural zones will ensure this type of housing is provided while maintaining the rural character and operation of the lands	Yes
	G6	The inclusion of additional uses within the Primary Production (RU1) zone will enable a range of supporting uses that will assist rural communities	Yes
	G12	N/A	-
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the development of land in the Village zone	Yes
	A/B/D/E	N/A	-
(g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing	G3	Enabling minor boundary changes will assist with the operation of rural lands. It is not to increase the number of dwellings permitted as a result of the boundary change	Yes
	G4	N/A	-
	G5	Provisions to enable detached dual occupancies in rural zones will consider the provision of services and infrastructure	Yes
	G6	Including additional uses in the Primary Production (RU1) zone will involve the assessment of services and infrastructure through the development application process	Yes
	G12	N/A	-
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the suitable development of land in the Village zone	Yes
	A/B/D/E	The proposed zone changes relate to existing uses and are not expected to impact on services and infrastructure	Yes
(h) ensuring consistency with any applicable regional strategy of the Department of Planning	G3 – G6, G12-G13 A/B/D/E	Section 4.2.1 outlines how the Planning Proposal is consistent with the <i>Hunter Regional Plan 2036</i> .	Yes

Tables B2 Assessment of the Rural Subdivision Principles

Rural Subdivision Principle	No.	Response	Consistent
a) the minimisation of rural land fragmentation	G3	Enabling minor boundary changes will assist with the operation of rural lands. It is not to increase the number of dwellings permitted as a result of the boundary change	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	N/A	-
	G6	N/A	-
	G12	N/A	-
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the suitable development of land in the Village zone	Yes
	A/B/D/E	N/A	-
(b) the minimisation of rural land use conflicts, particularly between residential land uses and other rural land uses	G3	Enabling minor boundary changes will assist in providing lots suitable to undertake rural activities and have the potential to reduce some rural land use conflicts	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	Enabling detached dual occupancies in rural zones will ensure this type of housing is provided while maintaining the rural character and operation of the lands	Yes
	G6	The assessment of impacts of these additional uses on surrounding rural and residential uses will be considered through the development application process	Yes
	G12	N/A	-
	G13	N/A	-
	A/B/D/E	Sites A/B/D have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands and remove the potential for conflict between uses	Yes
(c) the consideration of the nature of existing agricultural holdings and the existing and planned future supply of rural residential land when considering lot sizes for rural lands	G3	Enabling minor boundary changes will assist with the operation of rural lands. Consideration is given to the nature of the existing farming activities and environmental constraints	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	N/A	-
	G6	N/A	-
	G12	N/A	-
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the development of land in the Village zone	Yes
	A/B/D/E	N/A	-
(d) the consideration of the natural and physical constraints and opportunities of land	G3	The provision enabling minor boundary changes includes requirements to ensure that the rural activities, features and environmental values are maintained	Yes
	G4	The new zone objective reinforces the importance of minimising the fragmentation of rural land	Yes
	G5	Enabling dual occupancies (detached) on rural lands includes provisions to ensure that the rural and environmental values are maintained	Yes
	G6	The assessment of impacts of these additional uses on surrounding rural and residential uses will be considered through the development application process	Yes
	G12	Environmental considerations are in place in LEP 2010 and DCP 2010 to consider when assessing a "dam" in the rural zones	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the suitable development of land in the Village zone	Yes
	A/B/D/E	Sites A/B/D have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands and remove the potential for conflict between uses	Yes
e) ensuring that planning for dwelling opportunities takes account of those constraints	G3	The provision enabling minor boundary changes includes requirements to ensure that the rural activities, features and environmental values are maintained	Yes
	G4	N/A	-
	G5	Enabling dual occupancies (detached) on rural lands includes provisions to ensure that the rural and environmental values are maintained	Yes
	G6	The assessment of impacts of these additional uses on surrounding rural and residential uses will be considered through the development application process	Yes
	G12	Environmental considerations are in place in LEP 2010 and DCP 2010 to consider when assessing a "dam" in the rural zones	Yes
	G13	Enabling this subdivision in the Village zone will not impact on the productivity of agricultural lands, but will enable the suitable development of land in the Village zone	Yes
	A/B/D/E	Sites A/B/D have established uses which are not rural in nature. By changing to an appropriate zone, it will clearly define rural lands and remove the potential for conflict between uses	Yes

Attachment C – Section 117 Directions assessment matrix

S117 Directions – General amendments	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13
1.1 Business and Industrial Zones			✓				✓	✓	✓		✓		
1.2 Rural Zones			✓	✓	✓	✓						✓	✓
1.3 Mining, Petroleum Production, Extractive Industries	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.4 Oyster Aquaculture													
1.5 Rural Lands	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.1 Environmental Protection Zones	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.2 Coastal Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.3 Heritage Conservation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.4 Recreational Vehicle Areas													
3.1 Residential Zones	✓		✓		✓						✓		
3.2 Caravan Parks and Manufactured Home Estates													
3.3 Home Occupations													
3.4 Integrating Land Use and Transport								✓					
3.5 Development Near Licensed Aerodromes													
3.6 Shooting Ranges													
4.1 Acid Sulfate Soils	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.2 Mine Subsidence and Unstable Land	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.3 Flood Prone Land	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.4 Planning for Bushfire Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.1 Implementation of Regional Strategies													
5.2 Sydney Drinking Water Catchments													
5.3 Farmland of State/Regional Significance on Far North Coast													
5.4 Commercial/retail development - Pacific Highway, North Coast													
5.8 Second Sydney Airport: Badgerys Creek													
5.9 North West Rail Link corridor Strategy													
5.10 Implementation of Regional Plans			✓		✓	✓		✓			✓		✓
6.1 Approval and Referral Requirements													
6.2 Reserving Land for Public Purposes													
6.3 Site Specific Provisions													
7.1 Implementation of a Plan for Growing Sydney													
7.2 Implementation of Greater Macarthur Land Release Investigation													

General amendments:

- G1 - Essential services
- G2 - Events permitted without development consent
- G3 - Changes to boundaries
- G4 - Zone objective changes
- G5 - Dual Occupancies (detached) on rural land
- G6 - Primary Production (RU1) zone changes
- G7 - Enabling a kiosk/take away food and drink premises in the Enterprise Corridor (B6)
- G8 - Bulky Goods in Light Industrial (IN2)
- G9 - Rural Industries in Light Industrial (IN2)
- G10 - Function Centre in Public Recreation (RE1)
- G11 - Heritage Conservation Area floor space ratio
- G12 - Dams in rural zones
- G13 - Subdivision of lots with split zones in the Village zone

✓ Identifies which 117 Direction applies

S117 Directions – Site specific amendments	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1.1 Business and Industrial Zones				✓			✓	✓									
1.2 Rural Zones	✓	✓		✓	✓							-					
1.3 Mining, Petroleum Production, Extractive Industries	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
1.4 Oyster Aquaculture																	
1.5 Rural Lands	✓	✓		✓	✓							-					
2.1 Environmental Protection Zones	✓			✓	✓	✓		✓				-					
2.2 Coastal Protection					✓	✓	✓		✓	✓	✓	-		✓	✓		
2.3 Heritage Conservation											✓					✓	✓
2.4 Recreational Vehicle Areas																	
3.1 Residential Zones		✓	✓										✓	✓	✓	✓	
3.2 Caravan Parks and Manufactured Home Estates																	
3.3 Home Occupations																	
3.4 Integrating Land Use and Transport		✓	✓	✓			✓	✓				-	✓	✓	✓		
3.5 Development Near Licensed Aerodromes																	
3.6 Shooting Ranges																	
4.1 Acid Sulfate Soils			✓		✓	✓	✓		✓	✓	✓	-			✓	✓	✓
4.2 Mine Subsidence and Unstable Land																	
4.3 Flood Prone Land			✓		✓	✓				✓	✓						
4.4 Planning for Bushfire Protection	✓	✓		✓	✓	✓		✓		✓		-			✓		✓
5.1 Implementation of Regional Strategies																	
5.2 Sydney Drinking Water Catchments																	
5.3 Farmland of State/Regional Significance on Far North Coast																	
5.4 Commercial/retail development - Pacific Highway, North Coast																	
5.8 Second Sydney Airport: Badgerys Creek																	
5.9 North West Rail Link corridor Strategy																	
5.10 Implementation of Regional Plans	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
6.1 Approval and Referral Requirements																	
6.2 Reserving Land for Public Purposes						✓	✓		✓	✓				✓	✓		
6.3 Site Specific Provisions																	
7.1 Implementation of a Plan for Growing Sydney																	
7.2 Implementation of Greater Macarthur Land Release Investigation																	

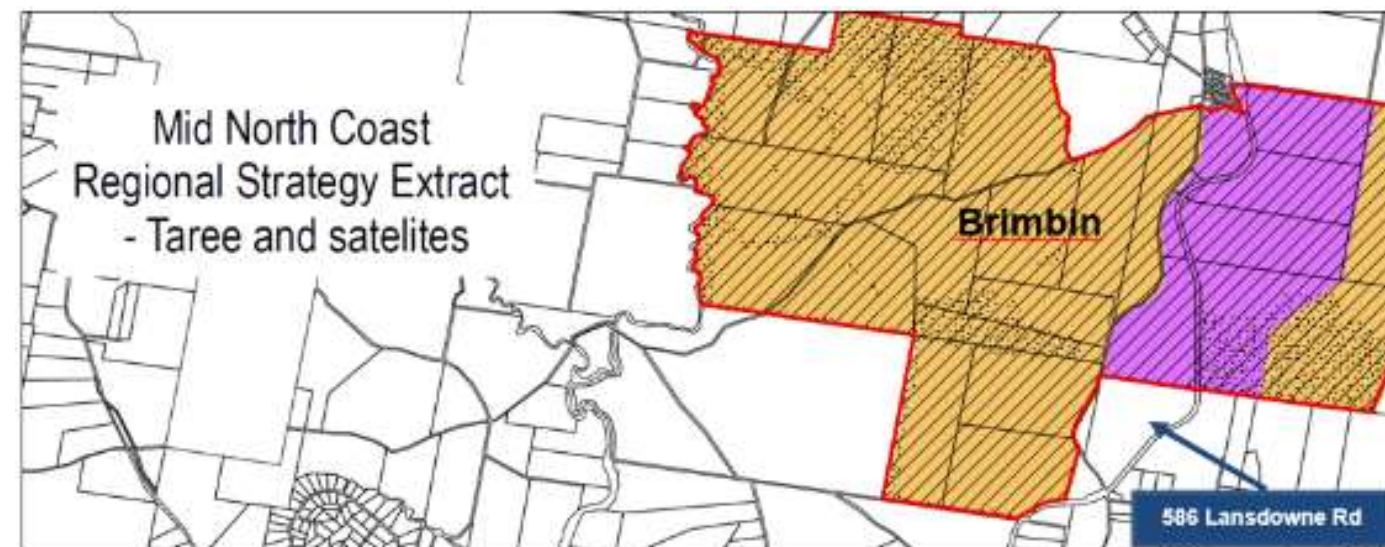
Site specific amendments:

- A – Lot 98 Ph Cooplacurripa, Cooplacurripa
- B – Johns River Rd, Johns River
- C – Coopernook Village
- D – 586 Lansdowne Rd, Kundle Kundle
- E – 74 Longworths Rd, Harrington
- F – 102 Industrial Rd and Lot 193 Glacken St, Harrington
- G – 2 Pilot St, Harrington
- H – 202 Bushland Dr, Taree
- I – River St, Cundletown
- J – 11-29 Beeton Pde, Taree
- K – 16 Hayes Ln, Taree
- L – 394 Diamond Beach Rd, Diamond Beach
- M – The Knoll, Tallwoods Village
- N – 25 Myalup Crt, Red Head
- O - High St, Black Head
- P – 2 Bungay Rd, Wingham
- Q – Community Hall Johns River

✓ Identifies which 117 Direction applies

Table C1 - Assessment of Ministerial Directions

General Amendment	Site Specific Amendment
<p>1.1 Business and Industrial zones</p>	
<p>The general amendments that apply to the employment lands include:</p> <ul style="list-style-type: none"> • G3 - a new objective for the Local Centre zone to ensure good quality design and access • G7 and G9 - enable increased uses in employment zones consistent with the intent of the zone • G8 - enables bulky goods premises in the Light Industrial zone to provide consistency with the Great lakes LEP 2014 • G11 - changes to the floor space ratio in heritage conservation areas to be consistent with properties that are outside of the heritage conservation area. <p>Each of these general amendments are consistent with the objectives of the direction as they retain employment locations and do not reduce the area for employment or industrial uses.</p> <p>These amendments are considered to be consistent with the direction.</p>	<p>The following site specific amendments involve including sites in employment zones:</p> <ul style="list-style-type: none"> • D - part of the site at 586 Lansdowne Rd, Kundle will be included in the General Industry (IN1) zone to reflect the industrial use of the land for over 30 years. This site was established as a major industrial use in the 1980s when the use was permitted in the rural zone. <p>The success of this site provided the justification for the development of the employment lands directly to the north of this site in the new town of Brimbin. These employment lands at Brimbin were identified in the <i>Mid North Coast Regional Plan 2006-2031</i> (shown in purple to the right) and rezoned in 2015.</p> <p>This amendment is inconsistent with the direction, but considered of minor significance as it supports and adjoins the major employment lands proposed at Brimbin</p> <ul style="list-style-type: none"> • G - 2 Pilot St, Harrington will be included in the Neighbourhood Centre zone. This land was incorrectly zoned public recreation. The land provides access and parking for the hall on the adjoining property which forms part of the employment lands at Harrington. This amendment is inconsistent with the direction, but considered of minor significance as it supports and adjoins the Harrington employment lands and lies within the Growth Area for Harrington (as identified in the <i>Mid North Coast Regional Strategy 2006-2036</i>) • H - 202 and Lot 1 Bushland Dr, Taree will be included in the Light Industry zone to recognise the previous railway use of the land. This amendment is inconsistent with the direction, but considered of minor significance as the change of zone from SP2 to Light Industry enables the continued use of the employment lands, supports adjoining employment lands and lies within the Growth Area for Taree (as identified in the <i>Mid North Coast Regional Strategy 2006-2036</i>)
<p>1.2 Rural zones</p>	
<p>The following amendments propose changes to rural lands:</p> <ul style="list-style-type: none"> • G3 - minor boundary changes while not increasing the number of dwelling entitlements • G4 - a more refined zone objective • G5 - detached dual occupancies where the rural character and operations are maintained. These provisions do not increase the number of dual occupancies permitted, but instead enable a built form in keeping with the rural character • G6 - a range of additional uses in the Primary Production (RU1) zone that are consistent with the zone intent, many of which currently operate within the zone (approved under LEP 1995). When assessing these uses consideration will need to be given to the objectives of the zone aimed at protecting rural activities. In addition “funeral homes” are proposed to be prohibited in the Primary Production (RU1) zone as it is an urban use and “intensive plant agriculture” as permitted with consent to ensure any impacts are considered for this type of agriculture • G12 - dams in rural areas. • G13 - enabling subdivision in the Village zone where split zones <p>These general amendments are consistent with this direction (clause 1.2(4)(b)) in terms of not containing provisions that will increase the permissible density of land within a rural zone.</p>	<p>There are five locations where the Primary Production (RU1) zone is being changed to reflect the current use of the site as outlined below:</p> <ul style="list-style-type: none"> • A - Lot 98 Ph Cooplacurripa, Cooplacurripa. This site is being included in the National Parks and Reserves (E1) zone to reflect the change in ownership of the site which was purchased by National Parks and Wildlife Services to be included in Barakee National Park. This amendment is inconsistent with the direction, but considered of minor significance as it supports the protection of lands with important environmental values • B - Johns River Rd, Johns River. This site is a logical extension of the Growth Area for Johns River (as identified in the <i>Mid North Coast Regional Strategy 2006-2036</i>), particularly given the bypass of the Pacific Highway around Johns River is complete. These sites form the entry to the village and have been used for residential and a tavern for a number of years. This amendment is inconsistent with the direction, but considered of minor significance as it supports and adjoins the Growth Area for Johns River (as identified in the <i>Mid North Coast Regional Strategy 2006-2036</i>) • D - 586 Lansdowne Rd, Kundle. As mentioned in Direction 1.1, this site adjoins the significant employment lands identified in the <i>Mid North Coast Regional Plan 2006-2031</i> and was the catalyst for the development of these employment lands. This amendment provides a logical extension of these employment lands. <p>This amendment is inconsistent with the direction, but considered of minor significance as it supports and adjoins the major employment lands proposed at Brimbin as identified in the <i>Mid North Coast Regional Plan 2006-2031</i></p> <ul style="list-style-type: none"> • E - 74 Longworths Rd, Harrington involves a minor zone change to have it align with the cadastre. This amendment is inconsistent with the direction, but considered of minor significance



General Amendment	Site Specific Amendment
1.3 Mining, Petroleum Production and Extractive Industries	
<p>This direction ensures that the future extraction of State/regionally significant reserves of coal, minerals, petroleum and extractive materials are not compromised.</p> <p>All of the general amendments have the potential to enable development near reserves. The Department of Primary Industries raised no concerns with the amendments</p>	<p>There are no mines/quarries or any state/regionally significant resources identified in proximity to the site specific amendments.</p> <p>The Department of Primary Industries raised no concerns with the amendments</p>
1.5 Rural Lands	
<p>The following general amendments propose changes to rural and environmental lands to enable:</p> <ul style="list-style-type: none"> G3 - changes to boundaries G4 - a new zone objective for the Primary Production zone G5 - detached dual occupancies G6 - being the addition of a range of additional uses in the Primary Production (RU1) zone G12 - dams in rural zones G13 - enabling subdivision in the Village zone where split zones <p>These amendments are consistent with the rural planning and rural subdivision principles as shown in Table B2 and B3. As a result, these amendments are consistent with this direction.</p>	<p>There are five site specific amendments where a rural or environmental protection zone is being changed to reflect the current use as outlined below:</p> <ul style="list-style-type: none"> A - Lot 98 Ph Cooplacurripa, Cooplacurripa B - Johns River Rd, Johns River D - 586 Lansdowne Rd, Kundle E - 74 Longworths Rd, Harrington <p>These amendments are consistent with the rural planning and rural subdivision principles as shown in Table B2 and B3 below, and are therefore consistent with this direction.</p>
2.1 Environment Protection Zones	
<p>All of the general amendments have the potential to apply where there is new development of a site which is environmentally sensitive.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land; the proposed clauses makes reference to ensuring that the environmental values are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged the environmental values of the site will be considered to ensure consistency with this direction.</p> <p>As a result, the general amendments are considered to be inconsistent with the direction, but considered of minor significance as the development application process has sufficient measures to ensure the environmental values of a property are considered.</p>	<p>The following site specific amendments involve minor zone changes that continue to protect the environmental values of the site:</p> <ul style="list-style-type: none"> A - Lot 98 Ph Cooplacurripa, Cooplacurripa E - 74 Longworths Rd, Harrington F - Lot 102 Industrial Rd and Lot 193 Glacken St, Harrington <p>The following site specific amendments involved an environmental assessment to determine the appropriate application of environmental zones to protect the environmental values of the site:</p> <ul style="list-style-type: none"> D - 586 Lansdowne Rd, Kundle. The General Industry zone is proposed over the footprint of the existing operations, with the remainder of the site to be included in the Environmental Conservation (E2) zone to maintain an important regional wildlife corridor from the Dawson River, through Brimbin to Lansdowne River (as indicated to the right) H - 202 and Lot 1 Bushland Dr, Taree. An ecological assessment was undertaken by GHD (Attachment E) and it was recommended that an environmental corridor be maintained along the eastern edge of the site. This land is to be included in the Environmental Conservation (E2) zone <p>These site specific amendments are consistent with the direction (clause 2.1(4)) in that they facilitate the protection and conservation of environmentally sensitive areas.</p>
2.2 Coastal Protection	
<p>All of the general amendments have the potential to enable new development/works in the coastal zone.</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land, the proposed clauses makes reference to ensuring that the environmental values (including coastal management) are maintained.</p> <p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged Clause 5.5 - Development within the coastal zone in LEP 2010 will be applied to ensure consistency with this direction. In addition, the Greater Taree DCP 2010 is being amended to apply the coastal requirements and should be implemented prior to this planning proposal being made.</p>	<p>The following site specific amendments are located within the coastal protection area, being:</p> <ul style="list-style-type: none"> E - 74 Longworths Rd, Harrington F - Lot 102 Industrial Rd and Lot 193 Glacken St, Harrington G - 2 Pilot St, Harrington I - Lot 1 River St, Cundletown J - 11-29 Beeton Pde, Taree K - 16 Hayes Ln, Taree N - 25 Myalup Crt, Red Head O - Lot 213 High St, Black Head



General Amendment	Site Specific Amendment
As a result, the general amendments are considered to be consistent with the direction as the development application process has sufficient measures to ensure the coastal protection measures are considered.	The above site specific amendments are consistent with this direction given they are reflecting the current use of the land. Any future development of these sites would require assessment against clause 5.5 of LEP 2010 which would ensure coastal requirements are achieved in future development applications.
2.3 Heritage Conservation	
<p>All of the general amendments have the potential to enable new development/works in the areas of heritage conservation or Aboriginal objects or places. The extent of impact will depend on both the site and the use proposed. When a development application is lodged clause 5.10 – Heritage conservation in LEP 2010 will be applied to ensure consistency with this direction.</p> <p>G11 - changing the floor space ratio in Heritage Conservation Areas will ensure development standards are consistent with adjoining properties. This change will ensure property owners within heritage conservation areas are not disadvantaged</p> <p>These general amendments are considered inconsistent with this direction and are of minor significance.</p>	<p>Site specific amendments that apply directly to heritage conservation are:</p> <ul style="list-style-type: none"> • K - 16 Hayes Lne, Taree • P - 2 Bungay Rd, Wingham • Q - Community Hall at Johns River <p>Each of these amendments involve correcting the property details in LEP 2010. These amendments are consistent with the direction.</p> <p>Apart from the above, all of the site specific amendments have been assessed and are not listed in Schedule 5 – Environmental Heritage of LEP 2010.</p> <p>With regard to Aboriginal cultural values, the site specific amendments could potentially be subject to Aboriginal objects, places or landscapes. The proposed amendments are aimed at reflecting the current use of the land. If future development of these sites is proposed, a development application would be lodged and clause 5.10 – Heritage conservation in LEP 2010 will be applied to ensure consistency with this direction. These amendments are consistent with the direction.</p>
3.1 Residential Zones	
<p>The general amendments that directly apply to this direction are:</p> <ul style="list-style-type: none"> • G1 - ensuring essential services such as water, sewer, road and telecommunications service are available for residential development. This amendment is consistent with clause 3.1(5)(a) of the direction as it ensures adequate services are provided for residential development • G3 - enabling minor boundary changes for certain zones. This amendment is consistent with clause 3.1(4) and (5) of the direction as it ensures the efficient use of land and services and has adequate services • G5 - enabling detached dual occupancies on rural land. This amendment is consistent with clause 3.1(4) and (5) of the direction as it ensures the efficient use of land and services and has adequate services • G11 - changing the floor space ratio in Heritage Conservation Areas to ensure development standards are consistent with adjoining properties. This amendment is consistent with clause 3.1(4) as it broadens the choice of housing in these locations and encourages the efficient use of land <p>These general amendments are considered consistent with this direction.</p>	<p>The site specific amendments that make an adjustment or addition to residential zones include:</p> <ul style="list-style-type: none"> • B - Johns River Rd, Johns River, where it is proposed to change the zone of this site from rural to a village zone to reflect its current use • C - West St, Coopernook, where the minimum lot size will be changed to be consistent with the Village zone boundary. These sites are currently serviced by both water and sewer • M - The Knoll, Tallwoods Village, where the residential zone boundary is being applied to reflect the residential lot boundaries • N - 25 Myalup Crt, Red Head, where the extent of land included in the General Residential zone has been increased. The park requirement for this lot has been reduced to a 6 metre access way to the rear park • O - Lot 213 High St, Black Head. The change proposed for this site reflects the private ownership of the land. It will increase the area of general residential land on the site. <p>The proposed amendments are considered consistent with this direction given they continue to provide housing diversity and make efficient use of existing infrastructure and services.</p>
3.4 Integrating Land Use and Transport	
<p>G8 – proposes to enable Bulky Goods Premises in the Light Industrial (IN2) zone. This amendment is considered to be consistent with this direction given the amendment reinforces the urban footprint, permits the continuance of an existing employment activity and corrects planning anomalies</p>	<p>The following site specific amendments involve changes to zones applying over urban lands:</p> <ul style="list-style-type: none"> • B - Johns River Rd, Johns River • C - West St, Coopernook • D - 586 Lansdowne Rd, Kundle Kundle • G - 2 Pilot St, Harrington • H - 202 and Lot 1 Bushland Dr, Taree • M - The Knoll, Tallwoods Village • N - 25 Myalup Crt, Red Head • O - Lot 213 High St, Black Head. <p>These amendments are considered to be consistent with this direction given the amendments either reinforce the urban footprint, permits the continuance of an existing employment activity, reflects ownership or corrects planning anomalies</p>
4.1 Acid Sulfate Soils	
<p>All of the general amendments have the potential to enable new development/works in locations that have acid sulphate soils (ASS).</p> <p>In the case of G3 - changes to boundaries and G5 - dual occupancies (detached) on rural land, the proposed clauses makes reference to ensuring that the environmental values (including ASS) are maintained.</p>	<p>The following site specific amendments are subject to acid sulfate soils:</p> <ul style="list-style-type: none"> • C - West St, Coopernook • E - 74 Longworths Rd, Harrington • F - 102 Industrial Rd and Lot 193 Glacken St, Harrington • G - 2 Pilot St, Harrington

General Amendment	Site Specific Amendment
<p>For the remaining general amendments, the extent of impact will depend on both the site and the use proposed. When a development application is lodged clause 7.1 – Acid sulfate soils in LEP 2010 will be applied to ensure consistency with this direction</p> <p>As a result, the general amendments are considered to be inconsistent with the direction but of minor significance given LEP 2010 provisions would be considered in any future development application.</p>	<ul style="list-style-type: none"> • I - Lot 1 River St, Cundletown • J - 11-29 Beeton Pde, Taree • K - 16 Hayes Ln, Taree • O - Lot 213 High St, Black Head • P - 2 Bungay Rd, Wingham • Q - Community Hall Johns River <p>The proposed amendments either reflect the existing uses on the site, the values of the land or amend a minor zone error. If any future development is to occur on these sites the development application will need to address clause 7.1 – Acid sulfate soils in LEP 2010 to ensure consistency with this direction.</p> <p>As a result, the site specific amendments are considered to be inconsistent with the direction but of minor significance given they generally reflect the existing use of the land and LEP 2010 provisions would be considered in any future development application.</p>
4.3 Flood Prone Land	
<p>All of the general amendments have the potential to enable new development/works in flood prone areas. The extent of impact will depend on both the site and the use proposed. When a development application is lodged clause 7.2 – Flood planning in LEP 2010 will be applied to ensure consistency with this direction. These general amendments are considered consistent with this direction.</p> <p>As a result, the general amendments are considered to be inconsistent with the direction but of minor significance given LEP 2010 provisions would be considered in any future development application.</p>	<p>The following site specific amendments are flood prone land and have the potential to enable some development intensification:</p> <ul style="list-style-type: none"> • C - West St, Coopernook - the standard minimum lot size of 1000m² for villages will be applied over the Village zone. The Village zone boundary previously followed the flood prone land boundary. The <i>Manning River Flood Study 2016</i> resulted in minor changes to the flood line (refer Attachment A – Site C for flood mapping). As a result, a small portion of the flood prone land will be subject to the reduced minimum lot size of 1000m² • J - 11-29 Beeton Pde, Taree - the change from “public” to “private” recreation does enable two new uses that are permitted with consent being pubs and registered clubs • F - 102 Industrial Rd and Lot 193 Glacken St, Harrington - the change of zone from National Parks and Nature Reserves (E1) to the Environmental Conservation (E2) zone will enable a range of additional uses such as dwelling houses, eco-tourist facility and environmental facilities. <p>These site specific amendments are considered to be inconsistent with the direction but of minor significance given they generally reflect the existing use of the land and any future development application would need to address clause 7.2 – Flood planning in LEP 2010 to ensure consistency with this direction.</p> <p>The following site specific amendments involve changes that do not increase the intensity of development over the land, being</p> <ul style="list-style-type: none"> • E - 74 Longworths Rd, Harrington where the zones are being changed to reflect the cadastre • K - 6 Hayes Lne, Taree to correctly identify the heritage item. <p>These site specific amendments are considered to be inconsistent with the direction but of minor significance given they are minor changes and do not result in the intensification of development on the land.</p>
4.4 Bushfire Protection	
<p>All of the general amendments have the potential to enable new development/works in bushfire areas. The extent of impact will depend on both the site and the use proposed. When a development application is lodged the site will be assessed against the bushfire risk and referred to NSW Rural Fire Services.</p> <p>These amendments are considered inconsistent with the direction but of minor significance given any future development application over bush fire prone sites would be subject to a bushfire assessment.</p> <p>The Rural Fire Service objected to G2 and suggested changes to the clause. These amendments have been referred to the Department of Planning and Environment for a determination on whether the changes are relevant or consistently applied in LEPs.</p>	<p>There are nine sites which are mapped bushfire prone being:</p> <ul style="list-style-type: none"> • A - Lot 98 Ph Cooplacurripa, Cooplacurripa • B - 24-30 Johns River Rd, Johns River • D - 586 Lansdowne Rd, Kundle Kundle • E - 74 Longworths Rd, Harrington • F - 102 Industrial Rd and Lot 193 Glacken St, Harrington • H - 202 and Lot 1 Bushland Dr, Taree • J -11-29 Beeton Pde, Taree • O - Lot 213 High St, Black Head • Q - Community Hall Johns River <p>The proposed zone changes either reflect the existing uses on the site, the values of the land or amend a minor zone error. Any future development of these sites would require a development approval which would be referred to NSW Rural Fire Services. The Rural Fire Service raised no objection to these amendments.</p>
5.1 Implementation of Regional Strategies	
<p>As outlined in section 4.2.1, the planning proposal is consistent with the <i>Hunter Regional Plan 2036</i></p>	<p>As outlined in section 4.2.1, the planning proposal is consistent with the <i>Hunter Regional Plan 2036</i></p>
5.10 Implementation of Regional Plans	
<p>As outlined in section 4.2.1, the planning proposal is consistent with the <i>Hunter Regional Plan 2036</i>. The planning proposal achieves the overall intent of the plan; and does not undermine the achievement of its vision, land use strategy, goals, directions or actions</p>	<p>As outlined in section 4.2.1, the planning proposal is consistent with the <i>Hunter Regional Plan 2036</i>. As such, the planning proposal achieves the overall intent of the Regional Plan and does not undermine the achievement of its vision, land use strategy, goals, directions or actions</p>

General Amendment	Site Specific Amendment
6.2 Reserving Land for Public Purposes	
Not applicable	<p>The following site specific amendments involve reducing existing zoned land for public purposes by:</p> <ul style="list-style-type: none"> • changing the Public Recreation (RE1) zone to reflect the ownership of the land. All sites are privately owned, have not been identified as a future public reserve and Council has no intention to purchase these sites in the future. The sites are: <ul style="list-style-type: none"> - G at 2 Pilot St, Harrington. In LEP 1995 the site was identified as “Arterial Road”. When the zones were transitioned into LEP 2010 the site was included in the Public Recreation (RE1) as all roads were given a zone which was generally the zone of the adjoining land. In this case the Public Recreation zone was applied to both Beach Street and Pilot Street given they adjoined the Pilot Hill and Harrington foreshore parks respectively. - J at 11-29 Beeton Pde, Taree. Historically, sites along creeks that were subject to flooding were included in an open spaces zone as there were no environmental zones available at that time. In LEP 1995 this part of the site was included in the Open Space Recreation (6A) zone along with much of the flood affected land along Browns Creek. The site transitioned to the Public Recreation (RE1) zone in LEP 2010 - O at Lot 213 High St, Black Head. Part of this lot is included in the Public Recreation (RE1) zone and contains detention basins for the Halliday Shores development, which is located on the remainder of the site. There is no intention for this land to be purchased and used for park purposes • reducing the area of land included in the Public Recreation (RE1) zone at site N (25 Myalup Court, Red Head) as the purpose of the land has changed. Originally the land was to be used for a car park and access and is now only required for pedestrian access and a driveway for maintenance vehicles only. Adequate parking can be provided in surrounding streets. This land is to be dedicated to Council under agreement with the landowner • changing the National Parks and Nature Reserve (E1) zone over site F (102 Industrial Rd and Lot 193 Glacken St, Harrington) to Environmental Conservation (E2) as the land is privately owned. The site is currently identified on the Land Reservation Acquisition (LRA) map for expansion of the Crowdy Bay National Park. When the site is acquired the zone would be again changed to the National Parks and Nature Reserve (E1) zone <p>Site specific amendment I (1 River St, Cundletown) aims to reserve land for the Cundletown Bypass which passes through this site, on the Land Reservation Acquisition Map. This will ensure future landowners are aware of this requirement.</p> <p>To be consistent with Clause 6.2(4) of this direction, approval was provided by the Department of Planning and Environment.</p>

Attachment D – Summary of LEP 2010 Amendments

Amendment	Location	Proposed LEP Change
G1 - Essential services		<p>Amend Part 7 of LEP 2010 to include clause 7.11 - Essential Services as follows:</p> <ol style="list-style-type: none"> (1) <i>Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements have been made to make them available when required:</i> <ol style="list-style-type: none"> (a) <i>the supply of water,</i> (b) <i>the supply of electricity,</i> (c) <i>the disposal and management of sewage,</i> (d) <i>stormwater drainage,</i> (e) <i>suitable road access.</i>
G2 - Events permitted without development consent		<p>Amend Part 7 of LEP 2010 to include clause 7.12 - Events Permitted Without Development Consent as follows:</p> <ol style="list-style-type: none"> (1) <i>The objective of this clause is to provide for the temporary use of public reserves and public roads for temporary events.</i> (2) <i>Despite any other provision of this Plan, development (including any associated temporary structures) for the purpose of a temporary event may be carried out on a public reserve or public road without development consent.</i> <p>Note. <i>Other approvals may be required, and must be obtained, under other Acts, including the Local Government Act 1993, the Roads Act 1993 and the Crown Lands Act 1989.</i></p> <ol style="list-style-type: none"> (3) <i>State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007 – Part 2 Erection of temporary structures, does not apply to development to which this clause applies.</i> (4) <i>In this clause:</i> <p>public reserve <i>has the same meaning as in the Local Government Act 1993.</i></p> <p>temporary event <i>means an exhibition, market, meeting, concert or other event that is open to the public for which land is used for a period of not more than 52 days (whether or not consecutive) in any period of 12 months.</i></p>
G3 - Changes to boundaries		<p>Amend Part 4 of LEP 2010 to include clause 4.1C - Changes to boundaries of land in certain rural, residential and environmental protection zones as follows:</p> <ol style="list-style-type: none"> (1) <i>The objective of this clause is to facilitate changes to boundaries between lots where one or more resultant lots do not meet the minimum lot size but the objectives of the relevant zone can be achieved.</i> (2) <i>This clause applies to land in the following zones:</i> <ol style="list-style-type: none"> (a) <i>Zone RU1 Primary Production,</i> (b) <i>Zone RU3 Forestry,</i> (c) <i>Zone RU4 Primary Production Small Lots,</i> (d) <i>Zone RU5 Village,</i> (e) <i>Zone R5 Large Lot Residential,</i> (f) <i>Zone E2 Environmental Conservation,</i> (g) <i>Zone E3 Environmental Management,</i> (h) <i>Zone E4 Environmental Living</i> (3) <i>Despite clause 4.1 (3), development consent may be granted to subdivide land by way of changing the boundary between adjoining lots where one or more resultant lots do not meet the minimum lot size shown on the <u>Lot Size Map</u> in relation to that land if the consent authority is satisfied that:</i> <ol style="list-style-type: none"> (a) <i>the subdivision will not create additional lots or the opportunity for additional dwellings, and</i> (b) <i>the number of dwellings or opportunities for dwellings on each lot after subdivision will remain the same as before the subdivisions, and</i> (c) <i>the potential for land use conflict will not be increased as a result of the subdivision, and</i> (d) <i>if the land is in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots or Zone RU3 Forestry – the subdivision will not have a significant adverse effect on the agricultural viability of the land, and</i> (e) <i>if the land is in Zone E2 Environmental Conservation, Zone E3 Environmental Management or E4 Environmental Living - the subdivision will result in the continued protection and long-term maintenance of the land.</i> (4) <i>Before determining a development application for the subdivision of land under this clause, the consent authority must consider the following:</i> <ol style="list-style-type: none"> (a) <i>the existing uses and approved uses of other land in the vicinity of the subdivision,</i> (b) <i>whether or not the subdivision is likely to have a significant impact on land uses that are likely to be preferred and the predominant land uses in the vicinity of the development,</i> (c) <i>whether or not the subdivision is likely to be incompatible with land use on any adjoining land,</i> (d) <i>whether or not the subdivision is appropriate having regard to the natural and physical constraints affecting the land,</i> (e) <i>whether or not the subdivision is likely to have a significant adverse impact on the environmental values of the land.</i> (5) <i>This clause does not apply:</i> <ol style="list-style-type: none"> (a) <i>in relation to the subdivision of individual lots in a strata plan or community title scheme, or</i> (b) <i>if the subdivision would create a lot that could itself be subdivided in accordance with clause 4.1.</i>

Amendment	Location	Proposed LEP Change
G4 - Zone objective changes		<p>Amend the zone objectives as follows:</p> <ul style="list-style-type: none"> include in Primary Production (RU1) zone objectives: <i>To secure a future for agriculture in the area by minimising the fragmentation of rural land and loss of potential agricultural productivity</i> include in Village (RU5) zone objectives <i>To minimise conflict between land uses within the zone and land uses within adjoining zones</i> include in Local Centre (B2) zone objectives <i>To ensure quality of design of buildings and public spaces to achieve a locality that is safe and accessible</i>
G5 - Dual Occupancies (detached) on rural land		<p>Amend Part 4 of LEP 2010 to include clause 4.2C - Erection of dual occupancies (detached) in Zone RU1 as follows:</p> <p>(1) <i>The objectives of this clause are as follows:</i></p> <p>(a) <i>to ensure that development is compatible with the primary production potential, rural character and environmental capabilities of the land,</i></p> <p>(b) <i>to ensure that consent is only granted to development for the purposes of dual occupancies (detached) if issues such as access, siting, land suitability and potential impacts are addressed,</i></p> <p>(c) <i>to only permit dual occupancies in Zone RU1 Primary Production if a dwelling house is also permitted on that land</i></p> <p>(d) <i>to provide alternate accommodation for rural families and workers</i></p> <p>(2) <i>Development consent must not be granted to development for the purpose of a dual occupancy (detached) on land in Zone RU1 Primary Production unless the consent authority is satisfied that:</i></p> <p>(a) <i>the development will not impair the use of the land for agriculture or rural industries, and</i></p> <p>(b) <i>each dwelling will use the same vehicular access to and from a public road, and</i></p> <p>(c) <i>any dwellings will be situated within 100 metres of each other, and</i></p> <p>(d) <i>the land is physically suitable for the development, and</i></p> <p>(e) <i>the land is capable of accommodating the on-site disposal and management of sewage for the development, and</i></p> <p>(f) <i>the development will not have an adverse impact on the scenic amenity or character of the rural environment.</i></p> <p>(3) <i>Development consent must not be granted to development for the purposes of a dual occupancy (detached) on land in Zone RU1 Primary Production unless development consent for the erection of a dwelling house on that land may be granted in accordance with clause 4.2A.</i></p> <p>Remove “rural workers’ dwelling” as a “permitted with consent” use in the Primary Production (RU1) zone and permit dual occupancies (detached) by altering the definition in the “permitted with consent” in the Primary Production (RU1) zone from “Dual occupancies (attached)” to “Dual occupancies” i.e. removing the word “(attached)”</p>
G6 - Primary Production (RU1) zone changes		<p>Amend the Primary Production (RU1) zone in LEP 2010 to:</p> <ul style="list-style-type: none"> include the following as “permitted with consent”: <i>boat launching ramps, boat sheds, camping grounds, charter and tourism boating facilities, community facilities, depots, educational establishments, function centres, industrial training facilities, information and education facilities, intensive plant agriculture, jetties, marinas, markets, mooring pens, moorings, plant nurseries, public administration buildings, recreation areas, recreation facilities (major), recreation facilities (outdoor), registered clubs, restaurants or cafes, sewerage systems, timber yards, veterinary hospitals, waste or resource management facilities, water recreation structures, water supply systems, wharf or boating facilities</i> remove “funeral homes” as “permitted with consent” remove “intensive plant agriculture” as “permitted without consent”
G7 - Enabling a kiosk/take away food in Enterprise Corridor (B6)		Amend LEP 2010 to include “kiosk” and “take away food and drink premises” as “permitted with consent” in the Enterprise Corridor (B6) zone
G8 - Bulky Goods in Light Industrial (IN2)		Amend LEP 2010 to include “bulky goods premises” as “permitted with consent” in the Light Industrial (IN2) zone
G9 - Rural Industries in Light Industrial (IN2)		Amend LEP 2010 to remove “rural industries” as “prohibited” in the Light Industrial (IN2) zone
G10 - Function Centre in Public Recreation (RE1)		Amend LEP 2010 to include “function centre” as “permitted with consent” in the Public Recreation (RE1) and Private Recreation (RE2) zone.
G11 - Heritage Conservation Area floor space ratio	All Heritage Conservation Areas	Amend the following floor space ratio maps in the Heritage Conservation Areas to be consistent with the floor space ratio applied in the relevant adjacent zone 3350_COM_FSR_014B_040_20140120 3350_COM_FSR_015G_010_20140120 3350_COM_FSR_011A_040_20140120 3350_COM_FSR_010C_010_20140120
G12 - Dams in rural zones		Amend LEP 2010 to enable a “water supply system” as permitted with consent in the Forestry (RU3) Primary Production Small Lots (RU4), Village (RU5) and Large Lot Residential (R5) zones
G13 - Subdivision of lots with split zones in the Village zone		Amend Part 4.1(2)(a) and (3)(a)(i) to include “village” in LEP 2010 as follows:

Amendment	Location	Proposed LEP Change				
		<p>4.1B Exceptions to minimum subdivision lots sizes for certain split zones</p> <p>(1) <i>The objectives of this clause are as follows:</i></p> <p>(a) <i>to provide for the subdivision of lots that are within more than one zone but cannot be subdivided under clause 4.1,</i></p> <p>(b) <i>to ensure that the subdivision occurs in a manner that promotes suitable land uses and development.</i></p> <p>(2) <i>This clause applies to each lot (an original lot) that contains:</i></p> <p>(a) <i>land in a residential, business, village or industrial zone, and</i></p> <p>(b) <i>land in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots, Zone E2 Environmental Conservation or Zone E3 Environmental Management.</i></p> <p>(3) <i>Despite clause 4.1, development consent may be granted to subdivide an original lot to create other lots (the resulting lots) if:</i></p> <p>(a) <i>one of the resulting lots will contain:</i></p> <p>(i) <i>land in a residential, business, village or industrial zone that has an area that is not less than the minimum size shown on the Lot Size Map in relation to that land, and</i></p> <p>(ii) <i>all of the land in Zone RU1 Primary Production, Zone RU4 Primary Production Small Lots, Zone E2 Environmental Conservation or Zone E3 Environmental Management that was in the original lot, and</i></p> <p>(b) <i>all other resulting lots will contain land that has an area that is not less than the minimum size shown on the Lot Size Map in relation to that land</i></p>				
A: Cooplacurripa	Lot 98 DP 753690	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_002_080_20100517 - amend the zone of this site to be National Parks and Nature Reserves (E1) zone</p>				
B: Johns River	Lot 284 DP 879623 and Lot 1 DP 308795 and part of Lot 85 DP 1109105 and Lot 283 DP 879623	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_014_080_20161027 - amend zone map to include indicated land in the Village zone (RU5).</p> <p>3350_COM_LSZ_014_080_20161116 - amend lot size map to show the proposed Village zone land with a minimum lot size of 15,000m²</p> <p>3350_COM_HOB_014_080_20161116 - amend height of building map to include a height of building restriction of 8.5m on the land in the proposed Village zone.</p>				
C: Cooperook	Lot 119 DP 260733, Lot 127 DP 812015, Lot 25 and 24 DP 829139, Lot 36 DP 4865.	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_014B_040_20161206 – amend zone map to include indicated land in the Village zone (RU5).</p> <p>3350_COM_LSZ_014B_040_20161206 - amend lot size map to show the sites in the village zone with a minimum lot size of 900m² and 1000m²</p> <p>3350_COM_HOB_014B_040_20161206 - amend to height of building map to apply a maximum building height of 8.5 to the sites in the Village zone.</p>				
D: Lansdowne Road, Kundle	Lot 21 DP 168022	<p>Amend LEP 2010 as follows:</p> <p>3350_COM_LZN_014A_040_20151015 - amend zone map to include the area outlined in red on the map as General Industry (IN1), and include the residual land in the Environmental Conservation (E2) zone.</p> <p>3350_COM_LSZ_014A_040_20151015 - amend the lot size map to apply a minimum lot size of 40 ha to the land in the Environmental Conservation (E2) zone</p>				
E: Longworths Road, Harrington	Lot 2 DP 1198908	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_014B_040_20161206 and 3350_COM_LZN_015C_040_20140114 - amend the zone to follow the cadastre boundary for the lot.</p> <p>3350_COM_LSZ_014B_040_20161206 and 3350_COM_LSZ_015C_040_20110310 - amend the lot size map to follow the cadastre boundary for the lot.</p>				
F: Industrial Road and Glaken Street, Harrington	part of lots Lot 218 and 193 DP 754415, Lot 2 DP 510738	<p>Amend clause 5.1(2) to include the following in the table</p> <table border="0"> <tr> <td style="text-align: center;">Type of land on the Map</td> <td style="text-align: center;">Authority of the State</td> </tr> <tr> <td style="text-align: center;">Zone E2 Environmental Conservation and marked "National Park"</td> <td style="text-align: center;">Minister administering the <i>National Parks and Wildlife Act 1974</i></td> </tr> </table> <p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_014B_040_20161206 - amend the zone map to show the National Parks and Nature Reserve (E1) zoned land as Environmental Conservation (E2)</p> <p>3350_COM_LSZ_014B_040_20161206 - amend the lot size map to apply a minimum lot size of 40 ha to the portion of the site changing to Environmental Conservation (E2)</p>	Type of land on the Map	Authority of the State	Zone E2 Environmental Conservation and marked "National Park"	Minister administering the <i>National Parks and Wildlife Act 1974</i>
Type of land on the Map	Authority of the State					
Zone E2 Environmental Conservation and marked "National Park"	Minister administering the <i>National Parks and Wildlife Act 1974</i>					
G: 2 Pilot Street, Harrington	Lot 22 DP 758502	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_014B_040_20161206 - amend the zone map to include the site in the Neighbourhood Centre (B1) zone</p> <p>3350_COM_HOB_014B_040_20161206 - amend the height of building map to apply a 8.5m maximum building height to the lot</p> <p>3350_COM_FSR_014B_040_20140120 - amend the floor space ratio map to apply a floor space ratio of 0.85 to the lot</p>				
H: Bushland Drive, Taree (Railcorp)	Lot 1 DP 1228883	<p>Amend LEP 2010 maps as follows:</p> <p>3350_COM_LZN_015E_020_20140114 - amend the zone map to include the environmental corridor along the eastern portion of the site in the Environmental Conservation (E2) zone and the remainder of the site in the Light Industrial (IN2) zone</p> <p>3350_COM_LSZ_015E_020_20130529 - amend the lot size map to apply a minimum lot size of 40ha to the Environmental Conservation (E2) portion of the site</p>				

Amendment	Location	Proposed LEP Change
I: River Street, Cundletown	Lot 1 DP 1136052	Amend LEP 2010 maps as follows: 3350_COM_LRA_015A_040_20100517 - amend the land acquisition map to include this site
J: Beeton Parade, Taree	Lot 100 DP 1195087	Amend LEP 2010 maps as follows: 3350_COM_LZN_015G_010_20131216 - amend the zone map to include the land currently zoned Public Recreation (RE1) as Private Recreation (RE2). The Light Industrial IN2 zone will remain over the existing portion of the site
K: Hayes Lane, Taree	Lot 140, DP 611673	Amend heritage item I190 in Part 1 of Schedule 5 – Environmental Heritage to record the correct DP being DP 611673.
M: The Knoll, Tallwoods Village	Lots 33, 34, 35 and 36 DP 879612	Amend LEP 2010 maps as follows: 3350_COM_LZN_015B_040_20121213 - amend the zone map to include the lots in the General Residential (R1) zone 3350_COM_LSZ_015B_040_20121213 - amend the lot size map to apply a Lot Size of 450m ² to the land included in the General Residential zone 3350_COM_FSR_015B_040_20140120 - amend the floor space ratio map to apply a Floor Space Ratio of 0.6 to the land included in the General Residential zone 3350_COM_HOB_015B_040_20121213 - amend the height of building map to apply a Height of Building of 8.5m to the land included in the General Residential zone
N: Myalup Court, Red Head	Lot 706 DP 1169554	Amend LEP 2010 maps as follows: 3350_COM_LZN_015B_040_20121213 - amend zone map to reduce the extent of the Public Recreation (RE1) zone over the site to being 6m wide on the southern boundary 3350_COM_LSZ_015B_040_20121213 - amend the lot size map to apply the lot size of 450m ² to the land included in the General Residential (R1) zone 3350_COM_FSR_015B_040_20140120 - amend the floor space ratio map to apply a Floor Space Ratio of 0.6 to the land included in the General Residential zone 3350_COM_HOB_015B_040_20121213 - amend the height of building map to apply a Height of Building of 8.0m to the land included in the General Residential zone
O: High Street, Black Head	Lot 213 DP 1098493	Amend LEP 2010 maps as follows: 3350_COM_LZN_016A_040_20140707 - amend the zone map to remove the Public Recreation (RE1) zone and include it in the General Residential (R1) zone. The Primary Production (RU1) zone land is to remain unchanged 3350_COM_LSZ_016A_040_20140115 - amend the lot size map to include a Lot Size of 450m ² over the land included General Residential zone 3350_COM_FSR_016A_040_20140120 - amend the floor space ratio map to include a Floor Space Ratio of 0.6 over the land included General Residential zone 3350_COM_HOB_016A_040_20140515 - amend the height of building map to include a Height of Building of 8.5m over the land included General Residential zone
P: Bungay Rd, Wingham	Lot 1 DP 780647	Amend heritage item I249 in Part 1 of Schedule 5 – Environmental Heritage to record the correct property description being Lot 1 DP 780647
Q: Community Hall, Johns River	Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546	Amend heritage item I299 in Part 1 of Schedule 5 – Environmental Heritage to record the correct property description being Lot 7303 DP 1143888 and Lot 16, Section 10, DP 758546



Attachment E - Rail Corp Contaminated and Ecological Reports

Rail Corporation of NSW

Boradze Depot: Bushland Drive, Taree NSW

Combined Site Investigation

22 November 2012

Executive Summary

GHD Pty Ltd (GHD) was commissioned by Rail Corporation New South Wales (RailCorp) to provide environmental consultancy services comprising a Combined Preliminary and Detailed Site Investigation (CSI) of “Boradze Depot” located on Bushland Drive, Taree NSW (the site).

As part of its commitment to ensuring that the contamination status (both nature and extent) of sites under consideration for sale is known, RailCorp identified the need for a CSI to be prepared for the site.

The objectives of this CSI are to describe, document and assess the history of the site and the nature and extent of existing (if any) contamination at the site to determine the suitability of the site for on-going commercial/industrial land use as well as redevelopment to residential land.

In preparing this CSI GHD undertook the following:

- Review of the site history and environmental setting
- Development of a Conceptual Site Model
- Completion of an investigation in general accordance with an approved Sampling, Analysis and Quality Plan, comprising 19 test pits and 27 hand auger locations and associated laboratory analysis
- Preparation of this CSI report which includes a survey drawing showing key locations, an assessment of the risk/impact of any identified contamination sources, and a conclusion on the suitability of the site for potential change in land use.

In accordance with the objectives detailed in Section 1.2 and subject to the limitations in Section 14, the following is concluded:

- The subsurface conditions across the operational portion of the site have been observed to comprise gravelly fill overlying clays. Non-operational portions of the site generally comprised clay.
- No soil samples returned results exceeding the HIL guidelines for either Residential or Commercial/Industrial HILs.
- Phytotoxicity is not considered to be limiting to potential future redevelopment.
- Overall there is a low potential for contamination to exist in the soils on the site.

On the basis of the above, GHD considers that the site is suitable for either on-going commercial/industrial land use or redevelopment to residential land use if required.

Should any areas of suspected contamination be identified during site operations or redevelopment, further assessment should be carried out by an appropriately experienced environmental consultant.

Table of contents

1.	Introduction	1
2.	Scope of work	2
3.	Site identification	3
4.	Site history	4
5.	Environmental setting	7
6.	Sampling and analysis plan	9
7.	Field quality control	14
8.	Laboratory programme	15
9.	QA/QC data quality assessment	16
10.	Basis for assessment criteria	21
11.	Adopted criteria	23
12.	Subsurface conditions	24
13.	Results of investigation	25
14.	Conclusions and recommendations	27
15.	Limitations	28

Table index

Table 1 – Site identification summary	3
Table 2 – Review of historical aerial photographs	4
Table 3 – Review of historical land titles	5
Table 4 – Review of existing groundwater data	7
Table 5 – Sampling pattern	12
Table 6 – Sampling strategy	13
Table 7 – Field QC sample analysis	14
Table 8 – Field QC assessment	16
Table 9 – Laboratory QC assessment	17
Table 10 – Overall sampling and analysis methodology assessment	18
Table 11 – Adopted Soil Criteria	23
Table 12 – Summarised soil conditions	24
Table 13 – Summarised soil analysis results: Residential criteria & PBILs	25
Table 14 – Summarised soil analysis results: Commercial / Industrial	26

Appendices

Appendix A Figures

Appendix B Section 149 Certificate

Appendix C Historical Aerial Photos

Appendix D Historical Land Titles

Appendix E WorkCover Search

Appendix F NSW OEH Searches

Appendix G Calibration Certificate

Appendix H Laboratory Analysis and COC

Appendix I Borelogs

Appendix J Photographs

1. Introduction

GHD Pty Ltd (GHD) was commissioned by Rail Corporation New South Wales (RailCorp) to provide environmental consultancy services comprising a Combined Preliminary and Detailed Site Investigation (CSI) of “Boradze Depot” located on Bushland Drive, Taree NSW (the site).

1.1 Background

As part of its commitment to ensuring that the contamination status (both nature and extent) of sites under consideration for sale is known, RailCorp identified the need for a CSI to be prepared for the site.

The site has an area of approximately 72,000 m² of which approximately 40% is cleared (operational portion of the site) with the only hardstand on the site present immediately surrounding the buildings. The site has four buildings of various uses with the majority of the operational portion of the site utilised for storage of raw timber and sleepers in various stages of preparation.

A site location plan is provided as **Figure 1 – Appendix A**.

1.2 Objectives

The objectives of this CSI are to:

- ▶ Describe the site (including boundaries and title descriptions)
- ▶ Document the site history
- ▶ Identify potential on and off-site sources of contamination
- ▶ Assess and describe the nature and extent of contamination at the site to allow potential future divestment
- ▶ Assess the risk posed by identified contamination within the context of the site
- ▶ Assess the suitability of the site for on-going commercial/industrial land use as well as redevelopment to residential land

2. Scope of work

The scope of works in preparing this CSI comprised the following:

- ▶ Identification of the site, including location, geographical coordinates, address, track kilometrage, area, boundaries, zoning and title descriptions
- ▶ Undertaking a review of site history to facilitate an assessment of potential sources of contamination
- ▶ Assessing the requirements for, and obtaining permits, approvals and licences required for fieldworks (including Council, Roads and Maritime Services (RMS) and Heritage Office)
- ▶ Preparation and submission of site safety and environmental documentation for field works
- ▶ Completion of underground service searches for non-rail infrastructure
- ▶ Attendance at a Site Meeting to perform a joint review of safety and environmental risks/issues and a detailed inspection of the site to assist with development of the Conceptual Site Model (CSM)
- ▶ Development of a CSM with information gathered from the data review and site inspection to design the sampling and analytical program
- ▶ Preparation and submission of a Sampling, Analysis and Quality Plan (SAQP) for the works and completion of the investigation in accordance with the approved SAQP
- ▶ Carrying out a survey of the site and production of a survey drawing showing the location of site boundaries, site features and all sample locations
- ▶ Assessment of the risk/impact of any identified contamination sources within the context of the site and the CSM
- ▶ Providing conclusions as to whether or not the site is suitable for commercial/industrial land use as well as a potential future use of residential, or if not, provision of recommendations to enable the site to be made suitable for such use
- ▶ Preparation of a CSI report

3. Site identification

Table 1 – Site identification summary

Information	Details	
Site address	Bushland Drive, Taree NSW (close to intersection of Bushland Drive and Grey Gum Road)	
Site area	~72,000 m ²	
Lot and DP	Lot 2 DP 577979	
Geographic Coordinates (centre of site)	MGA Zone 56	Easting: 447906 Northing: 6471347
Kilometrage	Downside – 376.78 km	
Zoning	SP2 Rail Infrastructure Facilities	
Local Government Area	Greater Taree City Council	

A site location plan is provided as **Figure 1 in Appendix A**.

3.1 General site description and land use

GHD undertook a site walkover on 20 September 2012 and noted the following:

- ▶ The site was described as having been developed circa 1977
- ▶ The developed portion of the site appears to have been subjected to minor cut-and-fill
- ▶ With the exception of the current and former structure pads, the site was unsealed
- ▶ The site comprises a single storey brick site office and amenities building with adjacent covered lean-to areas for machinery usage and storage. Additionally, three corrugated iron sheds were present at the site
- ▶ Access was provided to all site buildings. No significant environmental issues were noted associated with the buildings
- ▶ Concrete pads identified to the rear of the main building were associated with a former incinerator decommissioned in approximately 1995
- ▶ Discussions with multiple long term staff about whether timber has ever been treated on site revealed no known occurrences
- ▶ With the exception of the southwestern corner of the site, the non-operational areas of the site were heavily vegetated. Minor quantities of pesticide are understood to be sprayed on the developed portion of the site to minimise weed growth
- ▶ Fuel storage was previously undertaken in one small shed (now discontinued). Minor staining was observed within the bunding found under the building
- ▶ Two ephemeral drainage channels were noted on the site. One is located behind the main buildings and runs in a northeasterly direction parallel to the access road, while the other enters the site from the northern boundary and travels across the site in a southeasterly direction. The drainage lines merge on site, before transporting flow off site and eventually via open and piped networks into Browns Creek and the Manning River (both subject to tidal influences)
- ▶ Along the southern boundary of the site is the active railway line which heads east to Taree station and west to Wingham station

4. Site history

GHD undertook a review of historical data for the site. The following sections outline the results of the site history review.

4.1 Local Council

The council documents reviewed as part of this site history review included the heritage register, Section 149(2) and (5) certificates, planning information, Local Environmental Plan (LEPs), zoning and permissible land use.

The s149 certificate is presented in **Appendix B**. In relation to matters arising under the Contaminated Land Management Act 1997, the S149 Certificates states:

- The land is not declared significantly contaminated land.
- The land is not subject to a management order.
- The land is not the subject of an approved voluntary management proposal.
- The land is not subject to an ongoing maintenance order.
- The land is not the subject of a site audit statement.

4.2 Historical Aerial Photographs

Table 2 – Review of historical aerial photographs

Details	Observations
1954 Black and white	The 1954 photograph shows the site was sparsely vegetated and there were no structures on the site. The site was surrounded by other agricultural properties and some small residences on adjacent properties.
1969 Black and white	The site appeared to have had vegetation removed towards the northwest portion of the site. Surrounding land use appeared predominately unchanged since the 1954 image, with only minor road infrastructure present towards the northwest lot boundary.
1979 Black and white	The site was developed since the 1969 image. The southeastern portion of the site had been cleared, with an access road running from the southern boundary off the main road to a northern area of the site within a vegetated area. Minor infrastructure was present off the main road to the south, comprising three separate houses or sheds. Although image quality is poor, the site appeared to have groups of timber placed within the cleared area. The surrounding area appeared similar to the 1969 image, with further road developments in the lot to the east of the site and additional residential developments further from the site boundary to the southwest.
1981 Black and white	Site development appeared similar to the 1979 aerial photograph. The materials that were present appear unmoved from 1981 to present. Surrounding land use changes included residential infrastructure development further southeast of the site.
1989 Black and white	No obvious changes to the site were apparent since the 1981 image. Further infrastructure development was present to south of the site. The development appeared to be possible commercial buildings.

Details	Observations
1996 Colour	No obvious changes to the site were apparent since the 1989 image. Due to better aerial image quality, a number of additional smaller structures were observed along the southern boundary of the site, possibly used for storage or sheds. Surrounding land use had not significantly changed since the 1989 image, with only minor residential developments built directly to the east of the site boundary and further vegetation removal.
2003 Colour	No significant changes to the site were evident since the 1996 image. The residential developments from the 1996 review had expanded to the north and to the south.

Copies of aerial photos are presented in full in **Appendix C**.

4.3 Historical Land Titles

A historical title search was carried out on 24 September 2012. Title information was obtained from Advance Legal Search. The title deeds identify the name of the owner, and in the case of a private individual, the occupation of the owner which may provide more information on past site usage. Results of the historical title search are presented in full in **Appendix D**.

Table 3 – Review of historical land titles

Date	Details
2005 – to date	Rail Corporation New South Wales
2001 – 2005	Rail Infrastructure Corporation
2000 – 2001	Rail Services Australia
2000 – 2000	Public Transport Commission of New South Wales (Lot 2 DP 577979 – CTVol 13080 Fol 118)
1976 – 2000	Public Transport Commission of New South Wales (Lot 2 DP 7922 – Area 42 Acres 3 Roods – CTVol 2850 Fol 125)
1952 – 1976	Rex Allingham Stitt, milk vendor Dorothy Jean Stitt
1921 – 1952	Effie Lillian Ralph, wife of grazier
1918 – 1921	Thomas Walter Poole, labourer (Part Portion 1 Parish Taree – Area 2516 Acres 3 Roods 20 Perches – CTVol 2304 Fol 143)
1912 – 1918	Alexander Pendleton Stewart, bank manager Diana Mary Flett, spinster Charles Fisk, accountant (Part Portion 1 Parish Taree – Area 2516 Acres 3 Roods 20 Perches – CTVol 1895 Fol 176)
1908 – 1912	Alexander Pendleton Stewart, bank manager Diana Mary Flett, spinster Charles Fisk, accountant

4.4 WorkCover search

A dangerous goods search was undertaken with WorkCover NSW in September 2012. The Stored Chemical Information Database and the microfiche records held by WorkCover NSW did not identify any records pertaining to the site. A copy of the WorkCover correspondence is provided in **Appendix E**.

4.5 Office of Environment and Heritage

GHD reviewed datasets maintained by the Office of Environment and Heritage (OEH) including notices under the CLM Act, POEO Environment Protection License Register, environmental incidents and State Heritage Register. Results are presented in **Appendix F** where applicable and summarised below.

- ▶ **Contaminated Land Record of Notices** – A site will be on the Contaminated Land: Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the Contaminated Land Management Act 1997. GHD undertook a search of the register on 26 September 2012. The search did not return any records in the database for the site or the surrounding area.
- ▶ **POEO Environment Protection License Register** – GHD undertook a search of the register on 26 September 2012. The search did not return any records in the database for the site. For the GTCC LGA, there are three current and five formerly licensed sites. The nearest record was a formerly licensed site, located 1.5 kilometres downgradient of the site.
- ▶ **List of NSW contaminated sites notified to EPA** – The sites appearing on the OEH "List of NSW contaminated sites notified to the EPA" indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review information before it can make a determination as to whether the site warrants regulation. GHD undertook a search of the listing on 3 October 2012. The search did not return any records in the listing for the site. The nearest of the eight records listed within Taree, was a former Mobil depot located on the corner of Muldoon Street and Grey Gum Road, approximately 600 metres downgradient of the site. All listings for Taree relate to contamination originating from service stations.
- ▶ **State Heritage Register** - GHD undertook a search of the register on 3 October 2012. The search did not return any records in the database for the site.

4.6 Summary of previous reports

As stated in the tender documentation provided to GHD, no previous contaminated land investigations have been completed at the site. However, a brief Preliminary Environmental Review was completed in 1996 and a RailCorp site inspection was undertaken on 22 August 2012 which concluded that site operations had the potential for contamination.

5. Environmental setting

5.1 Surrounding land use

Land immediately adjacent to the site consists of the following:

- North: Bushland Drive and rural-residential properties
- East: Inactive rail, vegetated lot, Grey Gum Road and a small industrial precinct
- South: Railway corridor prior to golf course
- West: Bulky goods retail precinct

5.2 Topography and drainage

The site is approximately 20 m Australian Height Datum (mAHD). The topography across the site appears to be minor natural undulations with a dip towards the southeast. The developed portion of the site, located in the central southern portion of the site, appears to be of cut and fill construction.

5.3 Site and boundary condition

The site and buildings appeared in good condition with no obvious signs of dilapidation or stressed vegetation. The boundaries of the site appeared in good condition with no obvious signs of contamination on surrounding properties.

5.4 Hydrology and surface water

The Manning River is approximately 1.6 km southwest of the site. Two un-named drainage channels transverse the site before merging and transporting flows in a southeasterly direction to Browns Creek and the Manning River.

5.5 Geology

According to the Hastings 1:250,000 *Geological Series Sheet SH 56-14* the site appears to be underlain by *Giro Beds* dating from the Upper Carboniferous which are described as pebbly mudstone, mudstone, mudstone conglomerate, siltstone, shale and sandstone.

5.6 Hydrogeology

As stated above, the site is underlain by Upper Carboniferous mudstone, siltstone, shale and sandstone. GHD conducted a review of existing groundwater bore records using the NSW Water Information Database. The search was conducted to identify registered groundwater bores in close proximity to the site and to record information such as use and standing water level. Five groundwater bores were located within 2 km of the site and are detailed below.

Table 4 – Review of existing groundwater data

Bore ID	Purpose	Depth (m)	Standing Water Level	Drillers Log
GW200246	Monitoring Bore	9.0	Not Recorded	Material recorded as clay from the surface to 9.0 m, underlain by weathered orange/grey sandstone.

Bore ID	Purpose	Depth (m)	Standing Water Level	Drillers Log
GW200250	Monitoring Bore	9.0	Not Recorded	Fill material to 0.2 m, underlain by sandy clay to a depth of 1.0 m. Grey/brown weathered sandstone is recorded below the sandy clay.
GW200259	Monitoring Bore	8.05	5.90	Gravel at the surface, underlain by silty clay to a depth of 1.40 m, underlain by weathered sandstone.
GW304193	Domestic Bore	46.50	15.00	Topsoil and tan clay to 0.50 m, underlain by weathered basalt to a total depth of 46.5 m, becoming harder with depth.
GW201767	Monitoring Bore	11.80	0.40	Surface fill material underlain by orange/brown clay to 0.36 m, underlain by igneous rock with moist clay intrusions.

The nearest monitoring bore (MW200246) is located approximately 250 m southeast of the site and the standing groundwater level was not recorded at this location. The geological units encountered include clay (0.9 m thick) and weathered sandstone (8.1 m thick).

5.7 Acid Sulphate Soils

The Greater Taree Local Environmental Plan 2010 map indicates that there are no known acid sulphate soils at the site.

5.8 Preliminary conceptual site model

The site has a history of industrial/commercial usage associated with the processing and storage of timber. The site walkover undertaken by GHD indicated that there is the potential of contamination by:

- ▶ Heavy metals
- ▶ Total petroleum hydrocarbons (TPH)
- ▶ Benzene, toluene, ethylbenzene , xylene (BTEX)
- ▶ Polycyclic aromatic hydrocarbons (PAH)
- ▶ Organo-chlorine pesticides (OCP)
- ▶ Asbestos

These contaminants may present a risk to current or future site users and persons undertaking construction/maintenance works. Based on this possibility of contamination, GHD considers that there could be potential for the following pathways to exist for current and future site users and construction/maintenance personnel in areas of uncapped / accessible soil:

- ▶ Ingestion of potentially contaminated soils or dust
- ▶ Indoor and outdoor inhalation of potentially contaminated dust or vapour
- ▶ Dermal contact with potentially contaminated soil or dust

There are not considered to be any significant or sensitive ecological receptors on or directly adjacent to the site. The potential for contaminant migration in groundwater to off-site receptors is considered low due to the anticipated depth to groundwater and distance to off-site receptors.

Based upon the potential source-pathway-receptor linkages identified above, it was considered necessary to undertake an intrusive investigation on the site.

6. Sampling and analysis plan

GHD prepared the following documents prior to field works being undertaken. These documents, which were endorsed by RailCorp, respectively outlined the safety, quality and environmental management practices required of the project:

- ▶ *Job HSE Plan – P2 (B)* (GHD Reference: 21/21881)
- ▶ *Sampling and Analysis Quality Plan* (GHD Reference: 21/21881/2621)
- ▶ *Environmental Management Plan* (GHD Reference: 21/21881/184278)

6.1 Workplace Health and Safety

GHD developed a site specific HSE Plan for the site investigation works as part of the overall commitment to provide a healthy and safe working environment for staff and contractors. All work employed appropriate personal protective equipment (PPE).

The HSE plan included a job safety and environment analysis (JSEA) detailing the step by step procedures of all aspects of the works and associated hazards and control measures to be implemented. The HSE plan was read by all GHD personnel and subcontractors and feedback and discussion provided prior to the works commencing. GHD was also inducted onto the site by a representative from RailCorp. A site specific pre-start safety assessment was conducted each morning before commencing works.

GHD also completed a site inspection prior to on-site intrusive works to finalise the proposed borehole locations, which included the following:

- ▶ Accessibility of each location was checked by GHD's site representative.
- ▶ Inspection of dial before you dig plans was complemented by services clearance undertaken by a professional underground services locator to further reduce the risk of intersecting subsurface services during the intrusive works. .

6.2 Data Quality Objectives

6.2.1 Overview

Data quality objectives as outlined in the NSW DEC *Guidelines for the NSW Site Auditor Scheme* (2nd edition, 2006) are required for all investigation programs. The Data Quality Objective (DQO) process will be applied to the investigation programme, as described below, to ensure that data collection activities are appropriate and achieved the project objectives.

The DQO process involves seven steps as follows:

- ▶ Step 1: The problem
- ▶ Step 2: Identify the decision
- ▶ Step 3: Identify inputs to the decision
- ▶ Step 4: Define the study boundaries
- ▶ Step 5: Develop a decision rule
- ▶ Step 6: Specify limits on decision errors
- ▶ Step 7: Optimise the design for obtaining data

The seven DQO steps for this project are defined as follows:

6.2.2 Step 1: The Problem

The site has a history of light industrial land usage which may have caused contamination to the underlying soil (metals, TPH, BTEX, PAH, OCP and asbestos).

6.2.3 Step 2: Identify the Decisions

The decisions to be made based on the investigation findings are:

- ▶ What is the nature and extent of contamination at the site?
- ▶ What is the risk posed by contamination identified at the site?
- ▶ Is the site suitable in its current condition for on-going industrial land use as well as potential future residential land use?
- ▶ Does any further investigation or assessment need to be made?

6.2.4 Step 3: Identify Inputs to the Decision

The CSI sampling program has been designed to provide sufficient information to allow a sound scientific and statistical evaluation of the questions set out above. This will be achieved by:

- ▶ Visual inspection of site areas and soils
- ▶ Collection of soil samples to provide sound site coverage and statistically valid data sets upon which to base subsequent decisions
- ▶ Comparing the soil analytical data to applicable guidelines to evaluate the potential for contamination to adversely impact upon human health and / or environmental receptors.

6.2.5 Step 4: Define the Study Boundaries

The boundaries of the study area were identified by RailCorp. With respect to physical boundaries, the lateral boundaries of the investigation areas are as defined on **Figure 1**. The vertical investigation boundary is defined as 1.5 m bgl which is the maximum depth of the proposed test pits.

6.2.6 Step 5: Develop a Decision Rule

The decision rule is:

- ▶ If the concentrations of contaminants are below the adopted investigation levels, and the data is of acceptable quality, then the site is suitable for its proposed end use
- ▶ If the concentrations of contaminants are above the adopted investigation levels, and the data is of acceptable quality, then the site is not suitable for its proposed end use and further investigation and/or assessment may be required

6.2.7 Step 6: Specify Limits on Decision Errors

With regard to the CSI, two primary decision error-types may occur due to uncertainties or limitations in the project data set:

- ▶ A sample/area may be deemed to pass the nominated criteria, when in fact it does not. This may occur if contamination is 'missed' due to limitations in the sampling plan, or if the project analytical data set is unreliable
- ▶ A sample/area may be deemed to fail the nominated criteria, when in fact it does not. This may occur if the project analytical data set is unreliable, due to inappropriate sampling, sample handling, or analytical procedures

To minimise the potential for the decision errors above, a statistical evaluation of the data (including calculation of upper confidence limits) will be carried out where required.

In order to further evaluate the adequacy of the data, data quality indicators (DQIs) have been established for completeness, comparability, representativeness, precision and accuracy. The DQIs for sampling techniques and laboratory analysis of collected samples identifies the acceptable level of error for this investigation. The data quality objectives will be assessed by reference to data quality indicators as follows:

- ▶ **Data Representativeness** - expresses the degree which sample data accurately and precisely represents a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples in an appropriate pattern across the site, and by using an adequate number of sample locations to characterise the site. Consistent and repeatable sampling techniques and methods are utilised throughout the sampling.
- ▶ **Completeness** - defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study. If there is insufficient valid data, then additional data are required to be collected.
- ▶ **Comparability** - is a qualitative parameter expressing the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples and ensuring analysing laboratories use consistent analysis techniques and reporting methods.
- ▶ **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the data is assessed by calculating the Relative Percent Difference (RPD) between duplicate sample pairs.

$$RPD(\%) = \frac{|C_o - C_d|}{C_o + C_d} \times 200$$

Where C_o = Analyte concentration of the original sample
 C_d = Analyte concentration of the duplicate sample

GHD adopts a nominal acceptance criterion of $\pm 30\%$ RPD for field duplicates and splits for inorganics and a nominal acceptance criterion of $\pm 50\%$ RPD for field duplicates and splits for organics. However, it is noted that this will not always be achieved, particularly in heterogeneous soil or fill materials, or at low analyte concentrations.

- ▶ **Accuracy** - measures the bias in a measurement system. Accuracy can be undermined by such factors as field contamination of samples, poor preservation of samples, poor sample preparation techniques and poor selection of analytical techniques by the analysing laboratory. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes, laboratory blanks and analyses against reference standards. The nominal “acceptance limits” on laboratory control samples are defined as follows:
 - **Laboratory spikes** – 70-130% recovery for metals / inorganics and 60-140% for organics
 - **Laboratory duplicates** – If contaminant concentration is less than 10 times the PQL: no RPD limit. If concentration 10 to 20 times the PQL: 0% to 50% RPD. If greater than 20 times the PQL: 0% to 20% RPD.
 - **Laboratory Surrogates** (Organics only) – 60 - 140% recovery.
 - **Laboratory blanks** - <PQL.

6.2.8 Step 7: Optimise the Design for Obtaining Data

This was achieved by developing an SAQP, which was reviewed by the client and refined as necessary by evaluating field observations and analytical results.

6.3 Sampling and Analysis Program

The following section provides details of the sampling and analysis programme that was developed to address the objectives and the scope of works for the project. The works were undertaken in accordance with the RailCorp endorsed SAQP. However, it should be noted additional hand-auger boreholes were undertaken within the operational portion of the site following approval from RailCorp.

6.3.1 Sampling locations and details

Soil sampling works were undertaken between 8-12 and 29-30 October 2012 and were supervised by an environmental consultant from GHD. The sampling pattern undertaken by GHD as part of this CSI is described below.

Table 5 – Sampling pattern

Area	Approx. size	No. of sample locations	Description
Operational portion of the site	~30,000 m ²	19 test pits to a maximum depth of 1.5 m 21 hand auger boreholes to a maximum project depth of 0.5 m	Grid based sample pattern (where able to be completed) based upon services and access. This sampling pattern should detect a hot spot of a diameter of 32.4 m or greater in this portion of the site with 95% confidence
Undeveloped portion of the site	~42,000 m ²	6 hand auger boreholes to a maximum depth of 0.5 m	Random sample pattern.

Refer to **Figure 2 Appendix A** for site layout diagram showing sample locations.

6.3.2 Sampling methodology and field screening

All fieldwork was undertaken in general accordance with GHD's Standard Field Operating Procedures (SOP). The following procedures were followed for all sampling work:

- ▶ New disposable nitrile gloves were used for the collection of each sample
- ▶ Sample containers were labelled with an individual identification number, sampling date and the sampler's initials
- ▶ Samples were stored in an ice filled container for transport to the project analytical laboratory with chain of custody documentation
- ▶ Samples were submitted to the project laboratory to enable sufficient time for extraction and analysis within holding times specified in Schedule B(3) of NEPM (1999)
- ▶ All sampling equipment was thoroughly cleaned between each sample location, using a mixture of phosphate free detergent and potable water
- ▶ All field observations, including equipment calibration and screening data, was recorded in field log books

Soil samples were collected at the intervals as detailed on the borehole logs and soils were described in general accordance with the Unified Soil Classification System (USCS), with features such as seepage, discolouration, staining, odours and other indications of contamination being noted.

All samples were screened in the field using a hand held photo-ionisation detector (PID). A PID was used to measure volatile organic concentrations in ambient air and is useful as a preliminary 'check' for the possible presence of volatile contaminants such as BTEX and light fraction TPH species. The results of the PID screen are provided on the logs and calibration certificate for the PID are provided in **Appendix G**.

A visual assessment was made of all samples for the potential presence of asbestos in fill material on the site; observations are provided (as appropriate) on the borehole logs.

6.3.3 Sampling strategy and analytical methods

Table 6 - Sampling strategy

Analyte	Test Pits		Hand Auger	Total
	Fill	Natural		
Metals	19	18	29	66
TPH	19	18	29	66
BTEX	19	18	6	43
PAH	19	18	6	43
OCP	19	18	6	43
Asbestos	19	18	29	66

7. Field quality control

All fieldwork was conducted in general accordance with GHD's Field SOP, aimed at collecting all environmental samples using a set of uniform and systematic methods, as required by GHD's Quality Assurance system. As detailed in the GHD SAQP, field quality control procedures used during the project comprised the collection and analysis of the following:

- ▶ **Blind Duplicates:** Comprise a single sample that is divided into two separate sampling containers. Both samples were sent anonymously to the primary laboratory. Blind duplicates provide an indication of the analytical precision of the laboratory, but are inherently influenced by other factors such as sampling techniques and sample media heterogeneity.
- ▶ **Split Duplicates:** Comprise a single sample that is divided into two separate sampling containers and was sent to two different laboratories. These samples provided a check on the analytical performance of the laboratory.
- ▶ **Rinsate Blank:** These samples provide a check to detect if field sample preparation apparatus were cleaned properly.

Duplicates were assessed by calculating the Relative Percentage Difference (RPD) between the primary and duplicate samples, and the results are discussed in Section 0.

Table 7 – Field QC sample analysis

QC Sample Type	Primary Sample	Duplicate Sample	Analysis
Blind (intra-lab) Duplicates	TP-03-0.5	QA-01	Metals, TPH, BTEX, PAH, OCP, Asbestos
	TP19-0.5	QA-03	Metals, TPH, BTEX, PAH, OCP, Asbestos
	AH-18-0.25	QA-04	Metals, TPH, Asbestos
	AH-23-0.2	QA-05	Metals, TPH, Asbestos
	AH-24-0.4	QA-06	Metals, TPH, Asbestos
Split (inter-lab) Duplicates	TP-06-0.5	QA-02	TPH, Metals, Asbestos
Rinsate Blanks	RB-01	-	Metals, TPH, BTEX, PAH, OCP
	RB-02	-	Metals, TPH, BTEX, PAH, OCP
	RB-03	-	TPH, Metals
	RB-04	-	TPH, Metals

8. Laboratory programme

8.1 Laboratory Information

The primary laboratory was Envirolab Services (Sydney) and the secondary laboratory was ALS (Sydney) whom adopted their internal procedures and NATA accredited methods in accordance with their quality assurance system. The practical quantitation limit (PQL) on all analyses was suitable to allow comparison with the adopted site criteria.

8.2 Laboratory QA/QC

Laboratory quality control procedures used during the project included:

- ▶ **Laboratory Duplicate Samples:** The analytical laboratory collects duplicate sub samples from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result.
- ▶ **Spiked Samples:** An authentic field sample is 'spiked' by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples will be analysed for each batch where samples are analysed for organic chemicals of concern.
- ▶ **Certified Reference Standards:** A reference standard of known (certified) concentration is analysed along with a batch of samples. The Certified Reference Standard (CRS) or Laboratory Control Spike provides an indication of the analytical accuracy and the precision of the test method and is used for inorganic analyses.
- ▶ **Surrogate Standard / Spikes:** These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate Standard/Spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.
- ▶ **Method Blank:** Usually an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample.

The individual testing laboratory conducted an assessment of the laboratory QC program, internally; however, the results were also independently reviewed and assessed by GHD.

Laboratory duplicate samples should return RPDs within the NEPM acceptance criteria of $\pm 30\%$. Percent recovery is used to assess spiked samples and surrogate standards. Percent recovery; although dependent on the type of analyte tested, concentrations of analytes and sample matrix; should normally range from about 70-130%. Method (laboratory) blanks should return analyte concentrations as 'not detected'.

Copies of laboratory QA/QC documentation can be provided upon request.

9. QA/QC data quality assessment

9.1 Field QC assessment

The evaluation of the QA/QC procedures relevant to the site investigation works at the site has been conducted with reference to Appendix V of the NSW EPA *Guidelines for the NSW Site Auditor Scheme (2nd edition)*.

Table 8 – Field QC assessment

QA/QC Assessment	Comment
QA/QC program includes replicate samples	A total of 68 primary soil samples were analysed as part of the investigation. Six duplicate soil samples (including five intra-lab and one inter-lab duplicates) were analysed, this equates to a rate of 9% of the primary soil samples analysed during this investigation.
All relevant media assessed	Soil samples were collected as part of the site investigation; and duplicates were collected appropriately.
Appropriateness of sampling strategy	<p>The sampling strategy devised for the investigation was as follows:</p> <ul style="list-style-type: none"> ▶ Grid-based in the operational portion of the site with judgemental sampling around buildings where required ▶ Random in the non-operational portion of the site <p>This was considered appropriate to assess the site.</p> <p>Based on the size of the operational portion of the site (~30,000 m²), the completion of 40 soil sampling locations complies with the <i>NSW EPA Sampling Design Guidelines (1995)</i> (40 locations for a 30,000 m² site) minimum number of sampling locations required to detect a hotspot of 32.4 m with 95% confidence. As a result of this sampling density, an approximate sampling grid of 30 m x 30 m has been achieved.</p> <p>Based on no identified historical site usage in the non-operational portion of the site, a reduced sampling density was considered to be adequate for the purpose of this investigation.</p>
Sample collection, handling and transportation procedures	The sampling protocols adopted across the site during the site investigation have been summarised above. Four rinsate blanks were analysed during this investigation to assess cross contamination during sampling.
Sampling is representative of site conditions	The site investigation was undertaken using test pits and hand augered boreholes. Soil samples were taken in accordance with the protocols detailed above, and were collected through the soil profile (from both fill and natural strata). The investigation provided a horizontal and vertical spatial assessment of the soils across the site.
Field QA/QC plan	Soil samples were placed into ice filled coolers and submitted to a NATA accredited laboratory under chain of custody procedures. The sample receipt notifications and laboratory transcripts indicated that the samples were received at cool temperatures. Samples were analysed within the appropriate holding times. The report includes copies of the chain of

QA/QC Assessment	Comment
	custody forms, sample receipt notification identifying the samples collected, the requested analytes and the date of collection in Appendix H .

9.2 Laboratory QC assessment

The following table provides an overview of the laboratory QA/QC quality controls.

Table 9 – Laboratory QC assessment

QA/QC Assessment	Comment
Appropriate methodologies used for sample analyses	<p>All laboratory transcripts were NATA stamped and signed by a NATA signatory. The primary laboratory used in this investigation was:</p> <ul style="list-style-type: none"> ▶ Envirolab Services - NATA Registration No. 2901. <p>The Secondary Laboratory used in this investigation was:</p> <ul style="list-style-type: none"> ▶ ALS – NATA Registration No. 825. <p>Statistical data presented in the laboratory QA/QC reports were considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.</p>
Appropriate PQLs	All soil results were reported with PQLs below the site investigation levels.
Laboratory QA/QC plan	<p>Copies of signed chain of custody forms were presented in Appendix H of the report. All soil samples were received and analysed within the specified laboratory holding times.</p> <p>The analytical methods used are documented on the laboratory reports (Appendix H).</p> <p>Laboratory quality control samples included laboratory control samples, internal duplicates, matrix spike and matrix spike duplicates and method blanks. The types of QA/QC samples analysed by the laboratory for the documented samples were considered appropriate to assess the precision and accuracy of the laboratory methods used.</p> <p>The statistical data presented in the laboratory QA/QC reports is generally considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.</p> <p>Copies of the laboratory QA/QC reports are provided in Appendix H.</p>

9.3 Overall QA/QC assessment

Table 10 provides a summary of the DQIs in regards of the CSI undertaken.

Table 10 – Overall sampling and analysis methodology assessment

Field Considerations	Laboratory Considerations
Precision requirements	
SOPs appropriate and complied with.	Analysis of laboratory and inter-laboratory duplicates, field duplicates.
Precision comments	
Field methodologies for the collection of samples are provided above.	<p>Field precision was documented through the collection of duplicate samples. Duplicate samples were collected at a rate of 9%.</p> <p>The results of the comparison of the split and blind duplicate analyses are provided in Table 2. A total of 5 exceedences (from 151 calculations) of the nominal acceptance criterion of $\pm 50\%$ RPD for inorganics were observed. These are considered to have resulted from the low levels of contaminant concentrations detected in samples</p> <p>Although the combined frequency of duplicate sampling was marginally less than 10%, given that the vast majority of RPDs were within acceptance limits, the level of precision is considered to be suitable for the purposes of this investigation.</p>
Accuracy requirements	
SOPs appropriate and were complied with.	Analysis of method blanks, matrix spikes, matrix spike duplicates, surrogate spikes, reference materials, laboratory control samples and laboratory prepared spikes.
Accuracy comments	
The report details the field methodologies used to collect the soil samples.	<p>Rinsate blanks were prepared and analysed during sampling. Two results above laboratory detection limits of copper were observed in the 134 rinsate analytes. As no criteria exceedence of copper was observed on the site, these two detections are considered minor.</p> <p>The types of QA/QC samples analysed by the laboratories were consistent with the SAQP requirements. Statistical data presented in the QA/QC section of the laboratory reports were considered adequate in demonstrating the accuracy of the methods used to analyse field samples.</p>

Field Considerations	Laboratory Considerations
Representativeness requirements	
Appropriate media sampled according to SAQP. All media identified in SAQP sampled.	All samples analysed according to SAQP
Representativeness comments	
The number, type, locations/ depths of samples collected were undertaken in accordance with the scope of works specified in the SAQP. This is also deemed appropriate for the site size.	The sampling and analysis protocols are detailed above and were as the SAQP. All samples were analysed by a NATA accredited laboratory, and the contaminants of concern were selected based on the site history and previous findings.
Comparability requirements	
The same SOPs were used on each occasion and an experienced sampler. Impacts of climatic conditions on sample integrity. Same types of samples collected.	Appropriate sampling analytical methods used. Appropriate sample PQLs used to report analyte concentrations. Same laboratories used to analyse sample Same units used to report analyte concentrations
Comparability comments	
The same SOPs and an experienced sampler were used on each occasion. Impacts of climatic conditions on sample integrity were avoided. Same types of samples were collected.	The sample analytical methods used by the contracted laboratory were considered appropriate in measuring the concentrations of the targeted contaminants. The PQLs reported by the contracted laboratory were similar for the chemicals of interest and were below the nominated site assessment criteria. All primary samples were analysed by ELS with the duplicates analysed by ALS and the same units used to report analyte concentrations. TPH and metals were analysed as part of the inter-lab duplicate, with 100% of the RPDs within acceptance criteria. Both analysis laboratories are NATA accredited for the analyses undertaken and results for all soil samples were reported in mg/kg on a dry weight basis
Completeness requirements	
All critical locations sampled. All samples collected (from grid and at depth). SOPs appropriate and complied with. Experienced sampler. Documentation correct.	All critical samples analysed. All analytes analysed according to SAQP. Appropriate methods and PQLs. Sample documentation complete. Sample holding times complied with.

Field Considerations	Laboratory Considerations
Completeness comments	
<p>All critical locations were sampled and all samples collected (from grid and at depth).</p> <p>SOPs were appropriate and complied with.</p> <p>Experienced sampler was used and documentation correct.</p>	<p>All critical samples were analysed according to SAQP and all analytes analysed according to SAQP.</p> <p>Appropriate methods and PQLs were used, sample holding times complied with and sample documentation was complete.</p>

10. Basis for assessment criteria

10.1 Relevant guidelines

The framework for the contamination assessment made herein, was developed in accordance with guidelines “made or approved”, by the Office of Environment and Heritage (OEH), under Section 105 of the *Contaminated Land Management Act, 1997*. These guidelines include, but are not limited to the following:

- ▶ NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites*
- ▶ NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*
- ▶ NEPM (1999) *National Environment Protection (Assessment of Site Contamination) Measure*, National Environment Protection Council (NEPC)
- ▶ NSW DEC (2006) *Contaminated Sites: Guidelines for NSW Site Auditor Scheme*
- ▶ NSW DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*
- ▶ NSW EPA (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*

10.2 Assessment criteria

The assessment criteria against which the project analytical data is compared have been taken from those guidelines made or approved by the NSW OEH inclusive of the EPA.

10.2.1 Health based criteria

Health-based soil Investigation Levels (HILs) are provided for a range of different exposure settings, which are based on the nature of the use(s) for which the land is currently used and/or it's approved/proposed use(s).

Given that the site is currently commercial/industrial but will potentially be rezoned to include residential land use, this assessment is based on dual exposure settings:

- ▶ A (residential with gardens and accessible soil) herein referred as (HIL(A))
- ▶ F (commercial / industrial) herein referred as (HIL(F))

It should be noted that residential use includes children's day care centres, preschools and primary schools, or town houses or villas (home-grown produce contributing less than 10% fruit and vegetable intake; no poultry), as published in the NSW EPA (2nd Edition - 2006), *Guidelines for the NSW Site Auditor Scheme*.

10.2.2 Provisional phytotoxicity based investigation levels

Provisional Phytotoxicity Based Investigation Levels (PBILs) relate to the potential uptake of contaminants that may result in adverse, phytotoxic impacts on sensitive plant species. PBILs are only available for certain metals.

The PBILs have significant limitations because phytotoxicity depends on soil and species parameters in ways that are not fully understood. They are intended for use as a screening guide only and may be assumed to apply to sand loam soils, or soils of a closely similar texture, for pH 6-8.

10.2.3 Statistical evaluation of data

As no exceedence of the site HILs was noted on the site, no statistical evaluation of the data was undertaken.

When comparing specific layers or bodies of material against the HIL criteria, the data set is separated to ensure that only materials of similar composition are included for comparison. For example, when calculating the 95% UCL_{avg} (Upper Confidence Limit of the arithmetic average contaminant concentration) for a particular contaminant concentration in a given volume of material for the purposes of comparison against the relevant site criteria, only the data for the samples collected for that particular material is used in the calculation. This is known as a homogenous sample population.

According to NEPM, mean concentrations can be compared to the HIL criteria and represent acceptable concentrations of parameter assuming the following:

- ▶ The calculated 95% UCL_{avg} concentration does not exceed the respective criteria
- ▶ No single concentration within the data set exceeds 250% of the respective criteria for each parameter
- ▶ The standard deviation of the data set must not to exceed 50% of the respective criteria for each parameter

11. Adopted criteria

The following table provides a summary of the adopted criteria used to assess soil contamination levels at the site.

Table 11 – Adopted Soil Criteria

Parameter	Soil (mg/kg)		
	Residential (accessible soil) ^a	Commercial / Industrial ^b	PBIL ^c
Arsenic	100	500	20
Cadmium	20	100	3
Chromium (VI)	100	500	1
Copper	1,000	5,000	100
Lead	300	1,500	600
Mercury (inorganic)	15	75	1
Nickel	600	3,000	60
Zinc	7,000	35,000	200
TPH C6-C9	65 ^d		-
TPH >C10-C36	1,000 ^d		-
Benzene	1 ^d		-
Toluene	130 ^d		-
Ethylbenzene	50 ^d		-
Xylene	25 ^d		-
Total PAH	20	100	-
Benzo(a)pyrene	1	5	-
Naphthalene	-	-	-
OCP:			
Aldrin and Dieldrin	10	50	-
Chlordane	50	250	-
DDT + DDD + DDE	200	1,000	-
Heptachlor	10	50	-
Asbestos	Absent		-

a) HIL (A) – residential with accessible soil (2006)

b) HIL (F) – commercial/industrial (2006)

c) NSW EPA – PBIL (2006)

d) NSW EPA - Guidelines for Assessing Service Station Sites (1994)

12. Subsurface conditions

This section presents the results of field observations. Borehole logs are presented in **Appendix I** and a selection of photographs taken throughout the project are provided in **Appendix J**.

The following table provides a summary of the subsurface conditions recorded across the site. The subsurface conditions are generally consistent with the published geological map.

Table 12 – Summarised soil conditions

Strata	Average depth to top	Average thickness
Surficial fill – generally used for levelling	0.0 m	0.3 m
Clay and sandy clay	0.3 m	1.2 m

12.1 Refusals and obstructions

No excavator refusal was observed within any of the test pits excavated. The target depth (maximum 1.5 m) was reached at all test pit locations.

Hand auger refusal on gravels was encountered regularly at average depth of 0.3 m on the operational portions of the site. This was considered to be due to the compacted nature of the fill material.

12.2 Visual and olfactory contamination

No visual contamination was noted. An organic decomposition odour was noted within three test-pits at approximate depths of 0.5 m.

12.3 Discussion on subsurface conditions

Fill material is present across the operational portions of the site and was observed to range in thickness between 0.2 and 0.5 m where the full thickness was determined. Underlying the majority of fill deposits natural clay was encountered.

Groundwater was not encountered in the excavations undertaken on site for this investigation.

13. Results of investigation

13.1 General

Soil analytical results have been compared to the site investigation levels referenced above, and have been used to assess potential risks to identified receptors such as future commercial/industrial site users and residents if the site is to be redeveloped. **Tables A to C**, provide a comparison of the analytical data with the adopted criteria.

13.2 Soil analysis results

Fill and natural soil samples were analysed for a range of chemical contaminants as well as asbestos. The following tables provide a summary of the analytical results.

Table 13 – Summarised soil analysis results: Residential criteria & PBILs

Contaminant	No >PQL	Min Result	Max Result	PBIL	No >PBIL	HIL-A	No. >HIL
Arsenic	25	<4	9	20	0	100	0
Cadmium	0	<0.5	<0.5	3	0	20	0
Chromium	66	2	42	1	66	100	0
Copper	66	1	34	100	0	1,000	0
Lead	66	5	57	600	0	300	0
Mercury	1	<0.1	0.1	1	0	15	0
Nickel	66	1	19	60	0	600	0
Zinc	66	7	130	200	0	7,000	0
TPH (C ₆₋₉)	0	<25	<25	-	-	65	0
TPH (C ₁₀₋₃₆)	0	<250	<250	-	-	1,000	0
Benzene	0	<0.2	<0.2	-	-	1	0
Toluene	0	<0.5	<0.5	-	-	130	0
Ethylbenzene	0	<1	<1	-	-	50	0
Xylene	0	<3	<3	-	-	25	0
Benzo (a) Pyrene	0	<0.05	<0.05	-	-	1	0
Total PAH	0	<1.5	<1.5	-	-	20	0
Aldrin + Dieldrin	0	<0.2	<0.2	-	-	10	0
Chlordane	0	<0.2	<0.2	-	-	50	0
DDT + DDD + DDE	0	<0.3	<0.3	-	-	200	0
Heptachlor	0	<0.1	<0.1	-	-	10	0
Asbestos	0	Absent	Absent	-	-	Absent	0

Table 14 – Summarised soil analysis results: Commercial / Industrial

Contaminant	No >PQL	Min Result	Max Result	HIL-F	No. >HIL
Arsenic	27	<4	9	500	0
Cadmium	0	<0.5	<0.5	100	0
Chromium	71	2	42	500	0
Copper	69	1	34	5,000	0
Lead	71	5	57	1,500	0
Mercury	1	<0.1	0.1	75	0
Nickel	70	1	19	3,000	0
Zinc	71	5	130	35,000	0
Benzo (a) Pyrene	0	<0.05	<0.05	5	0
Total PAH	0	<1.5	<1.5	100	0
Aldrin + Dieldrin	0	<0.2	<0.2	50	0
Chlordane	0	<0.2	<0.2	250	0
DDT + DDD + DDE	0	<0.3	<0.3	1,000	0
Heptachlor	0	<0.1	<0.1	50	0
Asbestos	0	Absent	Absent	Absent	0

13.3 Site characterisation

No samples analysed exceeded the adopted criteria for either Residential or Commercial/Industrial HILs. No further statistical evaluation was therefore considered to be necessary.

All soil samples analysed exceeded the adopted PBIL for chromium, including those taken in undisturbed and heavily vegetated areas which indicates that background concentrations of this metal are likely to be above the PBIL. It should also be noted that the PBIL for chromium VI has conservatively been adopted, and that there is no evidence that a significant proportion of the total chromium recorded in soils at the site is likely to be in the hexavalent form. In this context, given that the chromium III PBIL is 400 mg/kg which is well above the maximum recorded concentration of total chromium, phytotoxicity is not considered to be limiting to future site redevelopment.

14. Conclusions and recommendations

14.1 Conclusions

In accordance with the objectives detailed in Section 1.2, the decisions to be made as a result of the study (Section 6.2.3) and subject to the limitations in Section 14, the following is concluded:

- The subsurface conditions across the operational portion of the site have been observed to comprise fill overlying clays. Non-operational portions of the site generally comprised clay.
- No soil samples returned results exceeding the HIL guidelines for either Residential or Commercial/Industrial HILs.
- Phytotoxicity is not considered to be limiting to potential future redevelopment.
- Overall there is a low potential for contamination to exist in the soils on the site.

On the basis of the above, GHD considers that the site is suitable for either on-going commercial/industrial land use or redevelopment to residential land use if required.

14.2 Recommendations

Should any areas of suspected contamination be identified during site operations or redevelopment, further assessment should be carried out by an appropriately experienced environmental consultant.

15. Limitations

This Combined Site Investigation (“CSI”) Report for Boradze Depot, Bushland Drive, Taree NSW:

- 1. has been prepared by GHD Pty Ltd (“GHD”) for Rail Corporation of NSW;*
- 2. may only be used and relied on by Rail Corporation of NSW;*
- 3. must not be copied to, used by, or relied on by any person other than Rail Corporation of NSW without the prior written consent of GHD and subject always to the next paragraph;*
- 4. may only be used for the purpose as stated within the CSI (and must not be used for any other purpose).*

If Rail Corporation of NSW wishes to provide this Report to a third party recipient to use and rely upon, then GHD’s prior written consent will be required. Before this Report is released to the third party recipient, the third party recipient will be required to execute a GHD prepared deed poll under which the recipient agrees:

- to acknowledge that the basis on which this Report may be relied upon is consistent with the principles in this section of the Report; and*
- to the maximum extent permitted by law, GHD shall not have, and the recipient forever releases GHD from, any liability to the recipient for loss or damage howsoever in connection with, arising from or in respect of this Report whether such liability arises in contract, or tort (including negligence).*

GHD and its servants, employees and officers otherwise expressly disclaim responsibility to any person other than Rail Corporation of NSW arising from or in connection with this Report.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the Report are excluded unless they are expressly stated to apply in this Report.

The services undertaken by GHD in connection with preparing this Report:

- were limited to those specifically detailed in section 2 of this Report and GHD proposal 21/09129/11/183624 dated 6 September 2012, and*
- were undertaken in accordance with current profession practice and by reference to relevant environmental regulatory authority and industry standards, guidelines and assessment criteria in existence as at the date of this Report.*

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD when undertaking the services mentioned above and preparing the Report (“Assumptions”), as specified throughout this Report.

GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with any of the Assumptions being incorrect.

Subject to the paragraphs in this section of the Report, the opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the time of preparation of this Report and are relevant until such times as the site conditions or relevant legislations changes, at which time, GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with those opinions, conclusions and any recommendations.”

GHD has prepared this Report on the basis of information provided by Rail Corporation of NSW and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked (“Unverified Information”) beyond the agreed scope of work.

GHD expressly disclaims responsibility in connection with the Unverified Information, including (but not limited to) errors in, or omissions from, the Report, which were caused or contributed to by errors in, or omissions from, the Unverified Information.”

The opinions, conclusions and any recommendations in this Report are based on information obtained from, and testing undertaken at or in connection with, specific sampling points and may not fully represent the conditions that may be encountered across the site at other than these locations. Site conditions at other parts of the site may be different from the site conditions found at the specific sampling points.

Investigations undertaken in respect of this Report were constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this Report.

GHD has considered and/or tested for only those chemicals specifically referred to in this Report and makes no statement or representation as to the existence (or otherwise) of any other chemicals.

Site conditions (including any the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD expressly disclaims responsibility:

- *arising from, or in connection with, any change to the site conditions; and*
- *to update this Report if the site conditions change.*

Except as otherwise expressly stated in this Report GHD makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials (“ACM”) on the site. If fill material has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or material from such buildings disposed of on the site, the site may contain asbestos or ACM.

Subsurface conditions can vary across a particular site and cannot be exhaustively defined by the investigations carried out prior to this Report. As a result, it is unlikely that the results and estimations expressed or used to compile this Report will represent conditions at any location other than the specific points of sampling. A site that appears to be unaffected by contamination at the time of the Report may later, due to natural causes or human intervention, become contaminated.

Except as otherwise expressly stated in this Report, GHD makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

These Disclaimers should be read in conjunction with the entire Report and no excerpts are taken to be representative of the findings of this Report.

EQI	Metals								BTEX & MAH								TPH								OC Pesticides												
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzene	BTEX (Sum of Total) - Calc	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylenes (Sum of Total) - Calc	C10 - C36 (Sum of Total) - Calc	C15 - C28 Fraction	C29 - C36 Fraction	C6 - C 9 Fraction	TRH C10-C14 Fraction after Silica Cleanup	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin - Calc	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT + DDD + DDE - Calc	Dieldrin	Endosulfan I	Endosulfan II			
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
	4	0.5	1	1	1	0.1	1	1	0.2			0.5	2	1			100	100	10	50	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	NEPM 1999 EL		20	3	1	100	600	1	60	200																											
	HIL A - Residential		100	20	100	1000	300	15	600	7000																								200			
	HIL E - Commercial/Industrial		200	40	200	2000	600	30	600	14000																											

Field ID	Depth	Date	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzene	BTEX (Sum of Total) - Calc	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylenes (Sum of Total) - Calc	C10 - C36 (Sum of Total) - Calc	C15 - C28 Fraction	C29 - C36 Fraction	C6 - C 9 Fraction	TRH C10-C14 Fraction after Silica Cleanup	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin - Calc	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT + DDD + DDE - Calc	Dieldrin	Endosulfan I	Endosulfan II			
AH01	0.1	8/10/2012	8	<0.5	15	18	57	<0.1	11	130	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
TP15	0.1	9/10/2012	<4	<0.5	7	9	9	<0.1	4	29	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

	Metals								BTEX & MAH								TPH								OC Pesticides									
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzene	BTEX (Sum of Total) - Calc	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylenes (Sum of Total) - Calc	C10 - C36 (Sum of Total) - Calc	C15 - C28 Fraction	C29 - C36 Fraction	C6 - C 9 Fraction	TRH C10-C14 Fraction after Silica Cleanup	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin - Calc	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT + DDD + DDE - Calc	Dieldrin	Endosulfan I	Endosulfan II
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	4	0.5	1	1	1	0.1	1	1	0.2	1	0.5	2	1			100	100	10	50	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1
NEPM 1999 EIL	20	3	1	100	600	1	60	200																										
HIL A - Residential	100	20	100	1000	300	15	600	7000															10							200				
HIL E - Commercial/Industrial	200	40	200	2000	600	30	600	14000															20						400					

Field_ID	Depth	Date	6	<0.5	11	23	10	<0.1	7	37	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1								
TP15	0.5	9/10/2012																																																					
TP16	0.1	9/10/2012	<4	<0.5	7	16	12	<0.1	5	43	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
TP16	1.5	9/10/2012	<4	<0.5	7	9	7	<0.1	3	18	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
TP17	0.1	9/10/2012	4	<0.5	6	7	11	<0.1	3	27	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					
TP17	0.5	9/10/2012	<4	<0.5	7	1	13	<0.1	2	7	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					
TP18	0.1	9/10/2012	9	<0.5	8	8	13	<0.1	3	19	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
TP18	1.5	9/10/2012	<4	<0.5	7	1	7	<0.1	1	7	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
TP19	0.1	9/10/2012	<4	<0.5	9	11	13	<0.1	4	23	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
TP19	0.5	9/10/2012	6	<0.5	10	13	14	<0.1	5	28	<0.2	<4.7	<1	<0.5	<2	<1	<1	<200	<100	<100	<25	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

											PAH										Phenols	Asbestos				
	Endosulfan sulphate	Erdrin	Erdrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	OCPs (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(e,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of Total) - Calc	Phenanthrene	Pyrene	Benzo(b)&(k)fluoranthene	Asbestos fibres
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
NEPM 1999 EIL																										
HIL A - Residential					10								1									20				
HIL E - Commercial/Industrial					20								2									40				

Field_ID	Depth	Date	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP15	0.5	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP16	0.1	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP16	1.5	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP17	0.1	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP17	0.5	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP18	0.1	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP18	1.5	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP19	0.1	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0
TP19	0.5	9/10/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.35	<0.1	<0.1	<0.2	0

Field Duplicates (soil)
Filter: SDG in('81010';80070')

SDG Field_ID	80070 TP03	80070 QA01	RPD	80070 TP19	80070 QA03	RPD	81010 AH19	81010 QA04	RPD	81010 AH18	81010 QA05	RPD	81010 AH24	81010 QA06	RPD	80070 TP06	Interlab_D QA-02	RPD			
Sampled_Date-Time	9/10/2012	9/10/2012		9/10/2012	9/10/2012		29/10/2012	29/10/2012		29/10/2012	29/10/2012		29/10/2012	29/10/2012		9/10/2012	9/10/2012				
Chem_Group	ChemName	Units	EQL																		
Asbestos	Asbestos fibres	-		0.0	0.0	0	0.0	0.0	0												
BTEX & MAH	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0												
	Ethylbenzene	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0												
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0												
	Xylene (m & p)	mg/kg	2	<2.0	<2.0	0	<2.0	<2.0	0												
	Xylene (o)	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0												
Inorganics	Moisture	%	0.1 (Primary): 1 (Interlab)	24.0	24.0	0	11.0	9.7	13	24.0	11.0	74	11.0	8.6	24	11.0	8.1	30	23.0	23.3	1
Metals	Arsenic	mg/kg	4 (Primary): 5 (Interlab)	<4.0	<4.0	0	6.0	4.0	40	6.0	<4.0	40	<4.0	<4.0	0	5.0	5.0	0	9.0	7.0	25
	Cadmium	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0
	Chromium (III+VI)	mg/kg	1 (Primary): 2 (Interlab)	4.0	3.0	29	10.0	9.0	11	12.0	9.0	29	8.0	8.0	0	10.0	9.0	11	16.0	13.0	21
	Copper	mg/kg	1 (Primary): 5 (Interlab)	11.0	10.0	10	13.0	19.0	38	13.0	24.0	59	21.0	20.0	5	7.0	9.0	25	5.0	6.0	18
	Lead	mg/kg	1 (Primary): 5 (Interlab)	6.0	5.0	18	14.0	10.0	33	10.0	7.0	35	7.0	13.0	60	17.0	20.0	16	18.0	14.0	25
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	1 (Primary): 2 (Interlab)	2.0	2.0	0	5.0	6.0	18	4.0	7.0	55	7.0	6.0	15	3.0	4.0	29	3.0	3.0	0
	Zinc	mg/kg	1 (Primary): 5 (Interlab)	19.0	15.0	24	28.0	37.0	28	18.0	38.0	71	36.0	53.0	38	46.0	85.0	60	13.0	13.0	0
OC Pesticides	4,4-DDE	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	a-BHC	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Aldrin	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	b-BHC	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Chlordane (cis)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Chlordane (trans)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	d-BHC	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	DDD	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	DDT	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Dieldrin	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Endosulfan I	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Endosulfan II	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Endrin	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	g-BHC (Lindane)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Heptachlor	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Hexachlorobenzene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Methoxychlor	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
PAH	Acenaphthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Benz(a)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Benzo(a) pyrene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0												
	Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Chrysene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Dibenz(a,h)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Fluoranthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Naphthalene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Phenanthrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
	Pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0												
Phenols	Benzo(b)&(k)fluoranthene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0												
TPH	C15 - C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	C29 - C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
	C6 - C 9 Fraction	mg/kg	25 (Primary): 10 (Interlab)	<25.0	<25.0	0	<25.0	<25.0	0	<25.0	<25.0	0	<25.0	<25.0	0	<25.0	<25.0	0	<25.0	<10.0	0
	TRH C10-C14 Fraction (Silica Cleanup)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0			

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Blanks (water)

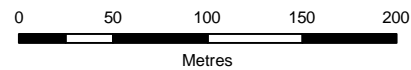
Filter: SDG in('81010','80070')

SDG	80070	80070	81010	81010
Field_ID	RB-01	RB-02	RB-03	RB-04
Sampled_Date-Time	8/10/2012	9/10/2012		
Sample_Type	Rinsate	Rinsate	Rinsate	Rinsate

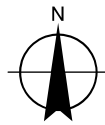
Chem_Group	ChemName	Units	EQL				
BTEX & MAH	Benzene	µg/L	1	<1	<1	<1	<1
	Ethylbenzene	µg/L	1	<1	<1	<1	<1
	Toluene	µg/L	1	<1	<1	<1	<1
	Xylene (o)	µg/L	1	<1	<1	<1	<1
Metals	Arsenic (Filtered)	mg/l	0.05	<0.05	<0.05	<0.05	<0.05
	Cadmium (Filtered)	mg/l	0.01	<0.01	<0.01	<0.01	<0.01
	Chromium (III+VI) (Filtered)	mg/l	0.01	<0.01	<0.01	<0.01	<0.01
	Copper (Filtered)	mg/l	0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Filtered)	mg/l	0.03	<0.03	<0.03	<0.03	<0.03
	Mercury (Filtered)	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Nickel (Filtered)	mg/l	0.02	<0.02	<0.02	<0.02	<0.02
	Zinc (Filtered)	mg/l	0.02	<0.02	<0.02	0.05	0.04
OC Pesticides	4,4-DDE	µg/L	0.2	<0.2	<0.2		
	a-BHC	µg/L	0.2	<0.2	<0.2		
	Aldrin	µg/L	0.2	<0.2	<0.2		
	b-BHC	µg/L	0.2	<0.2	<0.2		
	Chlordane (cis)	µg/L	0.2	<0.2	<0.2		
	Chlordane (trans)	µg/L	0.2	<0.2	<0.2		
	d-BHC	µg/L	0.2	<0.2	<0.2		
	DDD	µg/L	0.2	<0.2	<0.2		
	DDT	µg/L	0.2	<0.2	<0.2		
	Dieldrin	µg/L	0.2	<0.2	<0.2		
	Endosulfan I	µg/L	0.2	<0.2	<0.2		
	Endosulfan II	µg/L	0.2	<0.2	<0.2		
	Endosulfan sulphate	µg/L	0.2	<0.2	<0.2		
	Endrin	µg/L	0.2	<0.2	<0.2		
	Endrin aldehyde	µg/L	0.2	<0.2	<0.2		
	g-BHC (Lindane)	µg/L	0.2	<0.2	<0.2		
	Heptachlor	µg/L	0.2	<0.2	<0.2		
	Heptachlor epoxide	µg/L	0.2	<0.2	<0.2		
	Hexachlorobenzene	µg/L	0.2	<0.2	<0.2		
	Methoxychlor	µg/L	0.2	<0.2	<0.2		
PAH	Acenaphthene	µg/L	1	<1	<1		
	Acenaphthylene	µg/L	1	<1	<1		
	Anthracene	µg/L	1	<1	<1		
	Benz(a)anthracene	µg/L	1	<1	<1		
	Benzo(a) pyrene	µg/L	1	<1	<1		
	Benzo(g,h,i)perylene	µg/L	1	<1	<1		
	Chrysene	µg/L	1	<1	<1		
	Dibenz(a,h)anthracene	µg/L	1	<1	<1		
	Fluoranthene	µg/L	1	<1	<1		
	Fluorene	µg/L	1	<1	<1		
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1		
	Naphthalene	µg/L	1	<1	<1		
	Phenanthrene	µg/L	1	<1	<1		
	Pyrene	µg/L	1	<1	<1		
Phenols	Benzo(b)&(k)fluoranthene	µg/L	2	<2	<2		
TPH	C15 - C28 Fraction	mg/l	0.1	<0.1	<0.1	<0.1	<0.1
	C29 - C36 Fraction	mg/l	0.1	<0.1	<0.1	<0.1	<0.1
	C6 - C 9 Fraction	mg/l	0.01	<0.01	<0.01	<0.01	<0.01
	TRH C10-C14 Fraction after Silica Cleanup	mg/l	0.05	<0.05	<0.05	<0.05	<0.05

Appendices

Appendix A Figures



Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55



LEGEND

Site Boundary (Approximate)



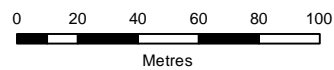
CLIENTS | PEOPLE | PERFORMANCE

Rail Corporation NSW
Environmental Site Assessment
Bushland Drive and Grey Gum Road, Taree, NSW

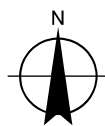
Job Number	21-21881
Revision	A
Date	16 Oct 2012

Site Location Plan

Figure 1



Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia (GDA)
 Grid: Map Grid of Australia 1994, Zone 55



LEGEND

- Site Boundary (Approximate)
- + Hand Auger Location
- + Test Pit Location



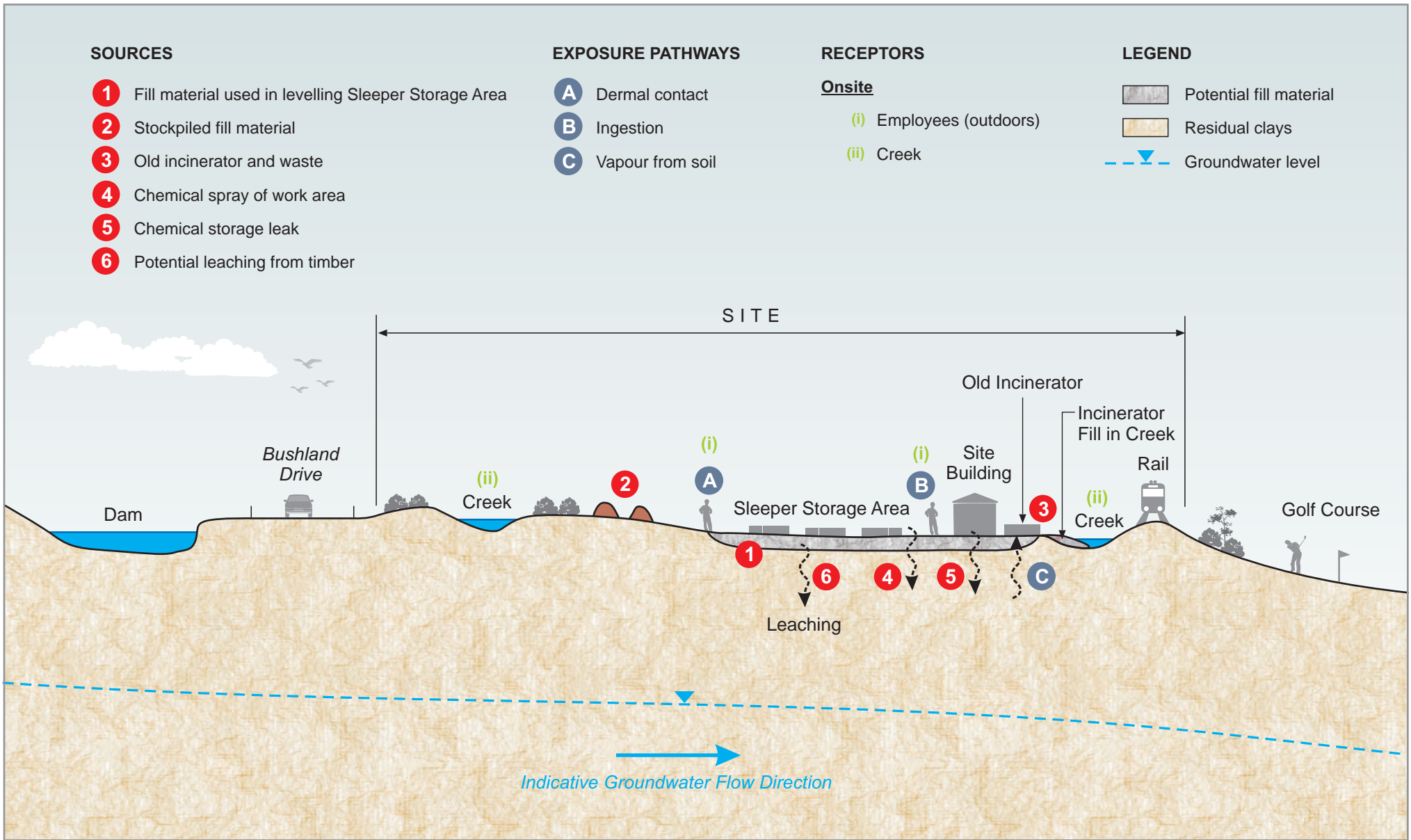
CLIENTS | PEOPLE | PERFORMANCE

Rail Corporation NSW
 Environmental Site Assessment
 Bushland Drive and Grey Gum Road, Taree, NSW

Job Number	21-21881
Revision	A
Date	13 Nov 2012

Soil Sampling Locations

Figure 2



Conceptual Schematic Only
Not to Scale



Rail Corporation NSW
Environmental Site Assessment
Bushland Drive, Taree, NSW

Job Number	21-21881
Revision	A
Date	Oct 2012

Preliminary Conceptual Site Model

Figure 3

Appendix B Section 149 Certificate

Certificate under Section 149

Environmental Planning & Assessment Act 1979

Property Key	2447	Cert No:	20130476
Ref:	21-21881	Page No:	1
Date:	24 September 2012	Debtor/Receipt No:	476908

GHD Pty Ltd
Level 15 133 Castlereagh St
SYDNEY NSW 2000

Property Description: Lot 2 Bushland Drive, Taree NSW 2430
Lot 2 DP 577979

Information Provided Pursuant to Section 149(2) of the Act

This certificate contains information that Council is aware of through its records and environmental plans, along with data supplied by the State Government and other external agencies. The details contained in this certificate are limited to that required by section 149(2) of the Environmental Planning and Assessment Act 1979 and Regulations 2000.

The accuracy and currency of details provided by agencies external to Council have not been verified by Greater Taree City Council and should be verified by the applicant.

1 Names of Relevant Planning Instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans(s):

Greater Taree Local Environmental Plan 2010 applies to the carrying out of development on the land.

State Environmental Planning Policies:

State Environmental Planning Policy No 1 – Development Standards
State Environmental Planning Policy No 4 – Development Without Consent and Miscellaneous Exempt and Complying Development
State Environmental Planning Policy No 6 – Number of Storeys in a Building
State Environmental Planning Policy No 15 – Rural Landsharing Communities
State Environmental Planning Policy No 21 – Caravan Parks
State Environmental Planning Policy No 22 – Shops and Commercial Premises
State Environmental Planning Policy No 26 – Littoral Rainforests
State Environmental Planning Policy No 30 – Intensive Agriculture

State Environmental Planning Policy No 32 – Urban Consolidation (Redevelopment of Urban Land)
State Environmental Planning Policy No 33 – Hazardous and Offensive Development
State Environmental Planning Policy No 36 – Manufactured Home Estates
State Environmental Planning Policy No 44 – Koala Habitat Protection
State Environmental Planning Policy No 50 – Canal Estate Development
State Environmental Planning Policy No 55 – Remediation of Land
State Environmental Planning Policy No 60 – Exempt and Complying Development
State Environmental Planning Policy No 62 – Sustainable Aquaculture
State Environmental Planning Policy No 64 – Advertising and Signage
State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy No 71 – Coastal Protection
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Major Development) 2005
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Rural Lands) 2008
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Temporary Structures) 2007
State Environmental Planning Policy (Urban Renewal) 2010

- (2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

There are NO proposed environmental planning instruments that apply to the carrying out of development on the land.

- (3) The name of each development control plan that applies to the carrying out of development on the land.

Development Control Plan 2010 applies to the carrying out of development on the land.

2 Zoning and Land Use under Relevant LEPs

- (a) the identity of the zone/s applying to the land:

SP2 Infrastructure

- (b) the purposes for which Greater Taree Local Environmental Plan 2010 provides that development may be carried out within the zone without the need for development consent,

See Part 2 (Permitted or Prohibited Development), Part 3 (Exempt & Complying Development) and Schedule 2 (Exempt Development) of the Greater Taree Local Environmental Plan 2010,

- (c) the purposes for which Greater Taree Local Environmental Plan 2010 provides that development may not be carried out within the zone except with development consent,

See Part 2 (Permitted or Prohibited Development), Part 3, (Exempt & Complying Development), Schedule 1 (Additional Permitted Uses) and Schedule 3 (Complying Development) of the Greater Taree Local Environment Plan 2010,

- (d) the purposes for which Greater Taree Local Environment Plan 2010 provides that development is prohibited within the zone,

See Part 2 (Prohibited Development) of the Greater Taree Local Environment Plan 2010.

- (e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling house on the land and, if so, the minimum land dimensions so fixed,

There are NO development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

- (f) whether the land includes or comprises critical habitat,

The land DOES NOT comprise critical habitat.

- (g) whether the land is in a conservation area (however described),

The land is NOT in a conservation area.

- (h) whether an item of environmental heritage (however described) is situated on the land.

There are NO items of environmental heritage situated on the land.

2A Zoning and Land Use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Not applicable.

3 Complying Development

- (1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

- (2) If complying development may not be carried out on that land because of the provisions of clauses 1.17A (c) and (d) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, the reasons why it may not be carried out under that clause.

Rural Housing Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Rural Housing Code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

General Housing Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, General Housing Code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

General Development Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, General Development code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

Housing Internal Alterations Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Housing Alterations Code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

General Commercial and Industrial Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Commercial and Industrial code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

Subdivision Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Subdivision code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean

that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

Demolition Code

- (1) Complying development under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Demolition Code **may** be carried out on the land.

Disclaimer: This certificate only addresses matters raised in Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

4 Coastal Protection

Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the NSW Department of Services, Technology and Administration.

The land IS NOT covered by any notice received by Council from the Department of Services, Technology and Administration stating that the land is affected by Section 38 or 39 of the Coastal Protection Act, 1979.

4A Certain Information Relating to Beaches and Coasts

- (1) In relation to a coastal council – whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to emergency coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

No order has been made on the land (or on public land adjacent to that land) under Part 4D of the Coastal Protection Act 1979.

- (2) In relation to a coastal council:
- (a) whether the council has been notified under section 55X of the Coastal Protection Act 1979 that emergency coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

Council HAS NOT been notified under section 55X of the Coastal Protection Act 1979 that emergency coastal protection works have been placed on the land (or on public land adjacent to that land).

- (b) if works have been so placed – whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

Not applicable

- (3) In relation to a coastal council – such information (if any) as is required by the regulations under section 56B of the Coastal Protection Act 1979 to be included in the planning certificate and of which the council has been notified pursuant to those regulations.

There is no information relevant to the land as required by the regulations under section 56B of the Coastal Protection Act 1979.

4B Annual Charges under Local Government Act 1993 for Coastal Protection Services that Relate to Existing Coastal Protection Works

In relation to a coastal council – whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

The owner (or any previous owner) of the land HAS NOT consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

5 Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

The land IS NOT within a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Compensation Act, 1961*.

6 Road Widening and Road Realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) Any environmental planning instrument, or
- (c) Any resolution of the council.

The land IS NOT affected by any road widening or road realignment under either Division 2 of Part 3 of the Roads Act 1993; any environmental planning instrument; or any resolution of Council.

7 Council and other Public Authority Policies on Hazard Risk Restrictions

Whether or not the land is affected by a policy:

- (a) adopted by council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

The land IS NOT affected by a policy adopted by Council that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

The land IS NOT affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in the planning certificates issued by the Council, that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk.

7A Flood Related Development Controls Information

- (1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) IS NOT subject to flood related development controls.

- (2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

Development on the land or part of the land for any other purpose IS NOT subject to flood related development controls.

- (3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8 Land Reserved for Acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

Greater Taree LEP 2010 DOES NOT make provision for the acquisition of the land by a public authority as referred to in S27 of the Act.

9 Contributions Plans

The name of each contributions plan applying to the land.

The Greater Taree Section 94 Contributions Plan 2001 applies to this land.

The Greater Taree Section 94 Contributions Plan 1992 for Stormwater Drainage applies to this land.

The Taree Section 94 Contributions Plan 2001 applies to this land.

9A Biodiversity Certified Land

If the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).

The land IS NOT biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).

10 Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Director-General of the Department of Environment, Climate Change and Water).

The land IS NOT subject to a biobanking agreement under Part 7A of the Threatened Species Conservation 1995.

11 Bushfire Prone Land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

The land or part thereof IS shown as bushfire prone land on the map marked 'Greater Taree LGA - Bushfire Prone Land Map', endorsed by the NSW Rural Fire Service.

12 Property Vegetation Plans

If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

A property vegetation plan under the Native Vegetation Act 2003 DOES NOT apply to the land.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Part 3A of the Environmental Planning and Assessment Act 1979 has been repealed.

15 Site Compatibility Certificates and Conditions for Seniors Housing

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include

- (i) the period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department of Planning, and
- (b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

There is NO current site compatibility certificate (seniors housing) of which Council is aware, in respect of proposed development on the land.

16 Site Compatibility Certificates for Infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department of Planning.

There is NO valid site compatibility certificate (infrastructure), of which Council is aware, in respect of proposed development on the land.

17 Site Compatibility Certificates and Conditions for Affordable Rental Housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department of Planning.
- (2) A statement setting out any terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

There is NO current site compatibility certificate (affordable rental housing), of which Council is aware, in respect of proposed development on the land.

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) that the land (or part of the land) to which the certificate relates is significantly contaminated land within the meaning of that Act,

The land to which the certificate relates IS NOT significantly contaminated land within the meaning of that Act.

- (b) that land to which the certificate relates is subject to a management order within the meaning of that Act,

The land to which the certificate relates IS NOT subject to a management order within the meaning of that Act.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act,

The land to which the certificate relates IS NOT the subject of an approved voluntary management proposal within the meaning of that Act.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act,

The land to which the certificate relates IS NOT subject to an ongoing maintenance order within the meaning of that Act.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that ACT.

The land to which the certificate relates IS NOT the subject of a site audit statement within the meaning of that Act.

Note. Section 26 of the *Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009* provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

Council HAS NOT been provided with a copy of any exemption under section 23 or authorisation under section 24 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 that apply to the land.

Information Provided Pursuant to Section 149(5) of the Act

Section 149(6) of the EP&A Act states that Council shall not incur any liability in respect of any advice provided in good faith pursuant to section 149(5) of the EP&A Act.

- (1) Council's records indicate that the land has a history which could have involved the use of contaminants on the site or could have been used for an activity potentially causing contamination.

For further information, please contact the Customer Service Department (02) 6592 5399

Appendix C Historical Aerial Photos



CLIENTS | PEOPLE | PERFORMANCE

Aerial Photographs (1)



1954



1969

Approximate Site Location



CLIENTS | PEOPLE | PERFORMANCE

Aerial Photographs (2)



1979



1981

Approximate Site Location



CLIENTS | PEOPLE | PERFORMANCE

Aerial Photographs (3)



1989



1996

Approximate Site Location



CLIENTS | PEOPLE | PERFORMANCE

Aerial Photographs (4)



2003

Approximate Site Location

Appendix D Historical Land Titles

ADVANCE LEGAL SEARCHERS PTY LIMITED

(ACN 147 943 842)
ABN 82 147 943 842

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

24th September, 2012

GHD Pty Ltd
Level 15, 133 Castlereagh Street,
SYDNEY NSW 2000

Attention: Ellen Swanson

**RE: Bushland Drive
Taree
Reference No. 2121881**

Current Search

Folio Identifier 2/577979 (attached)
DP 577979 (plan attached)
Dated 20th September, 2012
Registered Proprietor:
RAIL CORPORATION NEW SOUTH WALES

Title Tree

Lot 2 DP 577979

Folio Identifier 2/577979

Certificate of Title Volume 13080 Folio 125

Certificate of Title Volume 2850 Folio 125

Certificate of Title Volume 2304 Folio 143

Certificate of Title Volume 1895 Folio 176

Summary of Proprietor(s)

Lot 2 DP 577979

Year	Proprietor
------	------------

	(Lot 2 DP 577979)
2005 – todote	Rail Corporation New South Wales
2001 – 2005	Rail Infrastructure Corporation
2000 – 2001	Rail Services Australia
2000 – 2000	Public Transport Commission of New South Wales
	(Lot 2 DP 577979 – CTVol 13080 Fol 118)
1976 – 2000	Public Transport Commission of New South Wales
	(Lot 2 DP 7922 – Area 42 Acres 3 Roods – CTVol 2850 Fol 125)
1952 – 1976	Rex Allingham Stitt, milk vendor Dorothy Jean Stitt
1921 – 1952	Effie Lillian Ralph, wife of grazier
1918 – 1921	Thomas Walter Poole, labourer
	(Part Portion 1 Parish Taree – Area 2516 Acres 3 Roods 20 Perches – CTVol 2304 Fol 143)
1912 – 1918	Alexander Pendleton Stewart, bank manager Diana Mary Flett, spinster Charles Fisk, accountant
	(Part Portion 1 Parish Taree – Area 2516 Acres 3 Roods 20 Perches – CTVol 1895 Fol 176)
1908 – 1912	Alexander Pendleton Stewart, bank manager Diana Mary Flett, spinster Charles Fisk, accountant

Appendix E WorkCover Search



WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D12/142509
Your Ref: Terry Nham

03 October 2012

Attention: Terry Nham
GHD Pty Ltd
Level 15,
133 Castlereagh Street
SYDNEY NSW 2000

Dear Ms Nham,

RE SITE: Corner Bushland Drive & Grey Gum Road Taree

I refer to your site search request received by WorkCover NSW on 24 September 2012 requesting information on licences to keep dangerous goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover NSW has not located any records pertaining to the above mentioned premises.

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Diana Hayes
Senior Licensing Officer
Dangerous Goods Team

Appendix F NSW OEH Searches

Rate
this
siteEnvironment
& HeritageYou are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

Search results

Your search for: LGA: Greater Taree City Council

[Search Again](#)[Refine Search](#)

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.

The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).

Contamination at the site may be being managed under the [planning process](#).

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

More information about particular sites may be available from:

The [POEO public register](#)

The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the [POEO public register](#)

26 September 2012

Appendix G Calibration Certificate

RENTALS

Equipment Report - MINIRAE 2000 PID

This PID has been performance checked / calibrated* as follows:

Calibration	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	0.0 ppm	<input checked="" type="checkbox"/>		
Span – Isobutylene	98.0 ppm	97.4 ppm	<input checked="" type="checkbox"/>		
Set Alarm limits to	High	100 ppm	Low	50 ppm	
Operations Check					
<input checked="" type="checkbox"/>	Performance Check (pump, lamp, sensor & battery voltage check)				
<input checked="" type="checkbox"/>	Battery Charged	<input checked="" type="checkbox"/>	Filters Check	<input checked="" type="checkbox"/>	Spare battery Voltage (5.5v minimum) 6 V
<input checked="" type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)		Tag No:.....	Valid to:.....	
<input checked="" type="checkbox"/>	Bump test / Date: 25/09/2012				

* Calibration gas traceability information is available upon request.

This PID has been performance checked / calibrated* as follows:

Date: 25/09/2012 Checked by: MILENKO

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	MiniRae 2000 PID / Operational Check, plus Battery Voltage @ <u>5.3</u> V
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lamp Voltage @ <u>10.6</u> V Compound Set to: <u>ISOBUTYLENE</u> Cfactor: <u>1</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Protective yellow rubber boot
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inlet probe (attached to PID)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare water trap filter(s) Qty <u>1</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Charger 240V to 12V 500mA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instruction Manual behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide Sheet behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Battery Compartment with batteries
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inline Moisture trap Filter Guide Laminated
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Calibration regulator & tubing (optional)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials MS

Quote Reference	<u>31988</u>	Condition on return
Customer Ref		
Equipment ID	<u>PID MIN2AC</u>	
Equipment serial no.	<u>110 900 698</u>	
Return Date	<u>1 1</u>	
Return Time		

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Fax: (Free Call) 1800 675 123		Email: RentalsAU@Thermofisher.com	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5087	Brisbane Branch Unit 2/5 Ross St Newstead 4006	Perth Branch 121 Beringarra Ave Malaga WA 6090	

RENTALS

Equipment Report - MINIRAE 2000 PID

This PID has been performance checked / calibrated* as follows:

Calibration	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	0.0 ppm	<input checked="" type="checkbox"/>		
Span – Isobutylene	98.0 ppm	99.6 ppm	<input checked="" type="checkbox"/>		
Set Alarm limits to	High	100 ppm	Low	50	ppm
Operations Check					
<input checked="" type="checkbox"/>	Performance Check (pump, lamp, sensor & battery voltage check)				
<input checked="" type="checkbox"/>	Battery Charged	<input checked="" type="checkbox"/>	Filters Check	<input checked="" type="checkbox"/>	Spare battery Voltage (5.5v minimum) 6 V
<input checked="" type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)	Tag No:.....	Valid to:.....		
<input checked="" type="checkbox"/>	Bump test / Date: 25/10/2012				

* Calibration gas traceability information is available upon request.

This PID has been performance checked / calibrated* as follows:

Date: 25/10/2012 Checked by: MILENKO

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	MiniRae 2000 PID / Operational Check, plus Battery Voltage @ 5.3V
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lamp Voltage @ 10.6 V Compound Set to: ISOBUTYLENE factor: 1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Protective yellow rubber boot
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inlet probe (attached to PID)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare water trap filter(s) Qty 1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Charger 240V to 12V 500mA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instruction Manual behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide Sheet behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Battery Compartment with batteries
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inline Moisture trap Filter Guide Laminated
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Calibration regulator & tubing (optional)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials MS

Quote Reference	32473	Condition on return
Customer Ref		
Equipment ID	PID MINSR	
Equipment serial no.	110007362	
Return Date	1 1	
Return Time		

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295	Fax: (Free Call) 1800 675 123	Email: RentalsAU@Thermofisher.com
Melbourne Branch 5 Caribbean Drive, Scoresby 3179	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstead 4006
Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Perth Branch 121 Beringarra Ave Malaga WA 6090	

Appendix H Laboratory Analysis and COC

CERTIFICATE OF ANALYSIS

80070

Client:

GHD Pty Ltd
57 Herbert St
Artarmon
NSW 2064

Attention: Nick Passlow

Sample log in details:

Your Reference: **2121881, Boradze Dept CSI**
No. of samples: 60 Soils 2 Waters
Date samples received / completed instructions received 11/10/2012 / 11/10/2012

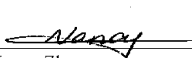
Analysis Details:


Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

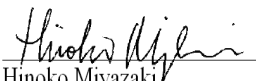
Report Details:

Date results requested by: / Issue Date: 18/10/12 / 18/10/12
Date of Preliminary Report: Not issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**


Results Approved By:


Nancy Zhang
Chemist


Rhian Morgan
Reporting Supervisor


Hinoko Miyazaki
Chemist


Lulu Guo
Approved Signatory


Jeremy Faircloth
Chemist

vTRH & BTEX in Soil	UNITS	80070-1	80070-2	80070-3	80070-4	80070-5
Our Reference:	-----	AH01	AH02	AH03	AH04	AH05
Your Reference	-----	0.1	0.4	0.3	0.4	0.5
Depth		8/10/2012	8/10/2012	8/10/2012	8/10/2012	8/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	95	104	94	99

vTRH & BTEX in Soil	UNITS	80070-6	80070-7	80070-9	80070-10	80070-12
Our Reference:	-----	AH06	TP01	TP01	TP02	TP02
Your Reference	-----	0.5	0.1	1.5	0.1	1.0
Depth		8/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	60	99	104	90	88

vTRH & BTEX in Soil	UNITS	80070-13	80070-14	80070-15	80070-17	80070-18
Our Reference:	-----	TP03	TP03	TP04	TP04	TP05
Your Reference	-----	0.1	0.5	0.1	1.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	87	81	84	96

vTRH & BTEX in Soil	UNITS	80070-19	80070-20	80070-21	80070-22	80070-23
Our Reference:	-----	TP05	TP06	TP06	TP07	TP07
Your Reference	-----	0.5	0.1	0.5	0.1	0.5
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	95	83	102	91

vTRH & BTEX in Soil	UNITS	80070-25	80070-26	80070-28	80070-29	80070-31
Our Reference:	-----	TP08	TP08	TP09	TP09	TP10
Your Reference	-----	0.1	0.5	0.1	0.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	96	97	81	97

vTRH & BTEX in Soil	UNITS	80070-33	80070-34	80070-36	80070-37	80070-39
Our Reference:	-----	TP10	TP11	TP11	TP12	TP12
Your Reference	-----	1.5	0.1	1.5	0.1	1.0
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	97	99	96	96

vTRH & BTEX in Soil	UNITS	80070-41	80070-42	80070-44	80070-45	80070-46
Our Reference:	-----	TP13	TP13	TP14	TP14	TP15
Your Reference	-----	0.1	0.5	0.1	0.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	85	92	91	98

vTRH & BTEX in Soil	UNITS	80070-47	80070-48	80070-50	80070-51	80070-52
Our Reference:	-----	TP15	TP16	TP16	TP17	TP17
Your Reference	-----	0.5	0.1	1.5	0.1	0.5
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	100	103	110	107

vTRH & BTEX in Soil	UNITS	80070-54	80070-56	80070-57	80070-58	80070-59
Our Reference:	-----	TP18	TP18	TP19	TP19	QA01
Your Reference	-----	0.1	1.5	0.1	0.5	-
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	13/10/2012	13/10/2012	13/10/2012	13/10/2012	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	109	112	108	109	109

vTRH&BTEX in Soil		
Our Reference:	UNITS	80070-60
Your Reference	-----	QA03
Depth	-----	-
Date Sampled		9/10/2012
Type of sample		Soil
Date extracted	-	12/10/2012
Date analysed	-	13/10/2012
vTRHC ₆ - C ₉	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	101

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-1	80070-2	80070-3	80070-4	80070-5
Your Reference	-----	AH01	AH02	AH03	AH04	AH05
Depth	-----	0.1	0.4	0.3	0.4	0.5
Date Sampled		8/10/2012	8/10/2012	8/10/2012	8/10/2012	8/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	101	98	99	98	98

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-6	80070-7	80070-9	80070-10	80070-12
Your Reference	-----	AH06	TP01	TP01	TP02	TP02
Depth	-----	0.5	0.1	1.5	0.1	1.0
Date Sampled		8/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	98	98	97	101	115

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-13	80070-14	80070-15	80070-17	80070-18
Your Reference	-----	TP03	TP03	TP04	TP04	TP05
Depth	-----	0.1	0.5	0.1	1.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	93	91	93	92

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-19	80070-20	80070-21	80070-22	80070-23
Your Reference	-----	TP05	TP06	TP06	TP07	TP07
Depth	-----	0.5	0.1	0.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	91	91	95	92	91

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-25	80070-26	80070-28	80070-29	80070-31
Your Reference	-----	TP08	TP08	TP09	TP09	TP10
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	95	89	94	89

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-33	80070-34	80070-36	80070-37	80070-39
Your Reference	-----	TP10	TP11	TP11	TP12	TP12
Depth	-----	1.5	0.1	1.5	0.1	1.0
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	94	92	109	125

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-41	80070-42	80070-44	80070-45	80070-46
Your Reference	-----	TP13	TP13	TP14	TP14	TP15
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	90	90	92	91

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	80070-47	80070-48	80070-50	80070-51	80070-52
Your Reference	-----	TP15	TP16	TP16	TP17	TP17
Depth	-----	0.5	0.1	1.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	120	96	96	92	105

sTRH in Soil (C10-C36)	UNITS	80070-54	80070-56	80070-57	80070-58	80070-59
Our Reference:	-----	TP18	TP18	TP19	TP19	QA01
Your Reference	-----	0.1	1.5	0.1	0.5	-
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	14/10/2012	14/10/2012	14/10/2012	14/10/2012	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	97	96	96	95	96

sTRH in Soil (C10-C36)	UNITS	80070-60
Our Reference:	-----	QA03
Your Reference	-----	-
Depth		9/10/2012
Date Sampled		Soil
Type of sample		
Date extracted	-	12/10/2012
Date analysed	-	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100
Surrogate o-Terphenyl	%	97

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-1 AH01 0.1 8/10/2012 Soil	80070-2 AH02 0.4 8/10/2012 Soil	80070-3 AH03 0.3 8/10/2012 Soil	80070-4 AH04 0.4 8/10/2012 Soil	80070-5 AH05 0.5 8/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	105	95	98	95	90

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-6 AH06 0.5 8/10/2012 Soil	80070-7 TP01 0.1 9/10/2012 Soil	80070-9 TP01 1.5 9/10/2012 Soil	80070-10 TP02 0.1 9/10/2012 Soil	80070-12 TP02 1.0 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	95	91	70	95	92

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-13 TP03 0.1 9/10/2012 Soil	80070-14 TP03 0.5 9/10/2012 Soil	80070-15 TP04 0.1 9/10/2012 Soil	80070-17 TP04 1.5 9/10/2012 Soil	80070-18 TP05 0.1 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	101	85	87	88	79

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-19 TP05 0.5 9/10/2012 Soil	80070-20 TP06 0.1 9/10/2012 Soil	80070-21 TP06 0.5 9/10/2012 Soil	80070-22 TP07 0.1 9/10/2012 Soil	80070-23 TP07 0.5 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	68	83	79	85	77

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-25 TP08 0.1 9/10/2012 Soil	80070-26 TP08 0.5 9/10/2012 Soil	80070-28 TP09 0.1 9/10/2012 Soil	80070-29 TP09 0.5 9/10/2012 Soil	80070-31 TP10 0.1 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	83	80	78	91	82

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-33 TP10 1.5 9/10/2012 Soil	80070-34 TP11 0.1 9/10/2012 Soil	80070-36 TP11 1.5 9/10/2012 Soil	80070-37 TP12 0.1 9/10/2012 Soil	80070-39 TP12 1.0 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	85	85	82	97	97

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-41 TP13 0.1 9/10/2012 Soil	80070-42 TP13 0.5 9/10/2012 Soil	80070-44 TP14 0.1 9/10/2012 Soil	80070-45 TP14 0.5 9/10/2012 Soil	80070-46 TP15 0.1 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	94	97	94	95	97

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-47 TP15 0.5 9/10/2012 Soil	80070-48 TP16 0.1 9/10/2012 Soil	80070-50 TP16 1.5 9/10/2012 Soil	80070-51 TP17 0.1 9/10/2012 Soil	80070-52 TP17 0.5 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	99	98	96	88	99

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-54 TP18 0.1 9/10/2012 Soil	80070-56 TP18 1.5 9/10/2012 Soil	80070-57 TP19 0.1 9/10/2012 Soil	80070-58 TP19 0.5 9/10/2012 Soil	80070-59 QA01 - 9/10/2012 Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	93	95	95	94	95

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-60 QA03 - 9/10/2012 Soil
Date extracted	-	12/10/2012
Date analysed	-	15/10/2012
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d14	%	95

Organochlorine Pesticides in soil		80070-1	80070-2	80070-3	80070-4	80070-5
Our Reference:	UNITS	AH01	AH02	AH03	AH04	AH05
Your Reference	-----					
Depth	-----	0.1	0.4	0.3	0.4	0.5
Date Sampled		8/10/2012	8/10/2012	8/10/2012	8/10/2012	8/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	91	90	91	92

Organochlorine Pesticides in soil		80070-6	80070-7	80070-9	80070-10	80070-12
Our Reference:	UNITS	AH06	TP01	TP01	TP02	TP02
Your Reference	-----					
Depth	-----	0.5	0.1	1.5	0.1	1.0
Date Sampled		8/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	90	91	91	90

Organochlorine Pesticides in soil	UNITS	80070-13	80070-14	80070-15	80070-17	80070-18
Our Reference:	-----	TP03	TP03	TP04	TP04	TP05
Your Reference	-----	0.1	0.5	0.1	1.5	0.1
Depth						
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	85	83	86	85

Organochlorine Pesticides in soil		80070-19	80070-20	80070-21	80070-22	80070-23
Our Reference:	UNITS	TP05	TP06	TP06	TP07	TP07
Your Reference	-----					
Depth	-----	0.5	0.1	0.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	85	86	83	82

Organochlorine Pesticides in soil		80070-25	80070-26	80070-28	80070-29	80070-31
Our Reference:	UNITS	80070-25	80070-26	80070-28	80070-29	80070-31
Your Reference	-----	TP08	TP08	TP09	TP09	TP10
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	84	83	87	81

Organochlorine Pesticides in soil		80070-33	80070-34	80070-36	80070-37	80070-39
Our Reference:	UNITS	TP10	TP11	TP11	TP12	TP12
Your Reference	-----					
Depth	-----	1.5	0.1	1.5	0.1	1.0
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	87	83	86	86

Organochlorine Pesticides in soil		80070-41	80070-42	80070-44	80070-45	80070-46
Our Reference:	UNITS	80070-41	80070-42	80070-44	80070-45	80070-46
Your Reference	-----	TP13	TP13	TP14	TP14	TP15
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	85	83	85	85

Organochlorine Pesticides in soil		80070-47	80070-48	80070-50	80070-51	80070-52
Our Reference:	UNITS	80070-47	80070-48	80070-50	80070-51	80070-52
Your Reference	-----	TP15	TP16	TP16	TP17	TP17
Depth	-----	0.5	0.1	1.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	95	95	94	93

Organochlorine Pesticides in soil		80070-54	80070-56	80070-57	80070-58	80070-59
Our Reference:	UNITS	80070-54	80070-56	80070-57	80070-58	80070-59
Your Reference	-----	TP18	TP18	TP19	TP19	QA01
Depth	-----	0.1	1.5	0.1	0.5	-
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	91	94	93	96

Organochlorine Pesticides in soil	UNITS	80070-60
Our Reference:	-----	QA03
Your Reference	-----	-
Depth		9/10/2012
Date Sampled		Soil
Type of sample		
Date extracted	-	12/10/2012
Date analysed	-	12/10/2012
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	101

Acid Extractable metals in soil	UNITS	80070-1	80070-2	80070-3	80070-4	80070-5
Our Reference:	-----	AH01	AH02	AH03	AH04	AH05
Your Reference	-----	0.1	0.4	0.3	0.4	0.5
Depth		8/10/2012	8/10/2012	8/10/2012	8/10/2012	8/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	8	<4	<4	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	15	13	8	11	12
Copper	mg/kg	18	7	5	13	34
Lead	mg/kg	57	13	12	10	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	4	3	4	8
Zinc	mg/kg	130	15	15	26	54

Acid Extractable metals in soil	UNITS	80070-6	80070-7	80070-9	80070-10	80070-12
Our Reference:	-----	AH06	TP01	TP01	TP02	TP02
Your Reference	-----	0.5	0.1	1.5	0.1	1.0
Depth		8/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	4	<4	5	<4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	11	7	10	7	8
Copper	mg/kg	4	9	4	13	20
Lead	mg/kg	10	12	11	14	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	3	2	4	6
Zinc	mg/kg	22	36	8	53	81

Acid Extractable metals in soil	UNITS	80070-13	80070-14	80070-15	80070-17	80070-18
Our Reference:	-----	TP03	TP03	TP04	TP04	TP05
Your Reference	-----	0.1	0.5	0.1	1.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	7	4	5	2	17
Copper	mg/kg	11	11	23	15	22
Lead	mg/kg	12	6	9	13	8
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	4	2	10	4	6
Zinc	mg/kg	36	19	58	54	51

Acid Extractable metals in soil	UNITS	80070-19	80070-20	80070-21	80070-22	80070-23
Our Reference:	-----	TP05	TP06	TP06	TP07	TP07
Your Reference	-----	0.5	0.1	0.5	0.1	0.5
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	<4	<4	9	<4	9
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	7	6	16	4	15
Copper	mg/kg	19	7	5	12	3
Lead	mg/kg	5	11	18	9	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	3	3	5	2
Zinc	mg/kg	42	59	13	35	7

Acid Extractable metals in soil	UNITS	80070-25	80070-26	80070-28	80070-29	80070-31
Our Reference:	-----	TP08	TP08	TP09	TP09	TP10
Your Reference	-----	0.1	0.5	0.1	0.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	<4	8	4	4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	8	13	7	9	6
Copper	mg/kg	16	5	17	5	27
Lead	mg/kg	9	19	12	14	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	2	6	3	7
Zinc	mg/kg	40	9	51	8	49

Acid Extractable metals in soil	UNITS	80070-33	80070-34	80070-36	80070-37	80070-39
Our Reference:	-----	TP10	TP11	TP11	TP12	TP12
Your Reference	-----	1.5	0.1	1.5	0.1	1.0
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	5	6	5	4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	11	9	14	6	9
Copper	mg/kg	22	20	17	27	23
Lead	mg/kg	10	13	11	9	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	6	6	9	6
Zinc	mg/kg	42	55	27	60	32

Acid Extractable metals in soil	UNITS	80070-41	80070-42	80070-44	80070-45	80070-46
Our Reference:	-----	TP13	TP13	TP14	TP14	TP15
Your Reference	-----	0.1	0.5	0.1	0.5	0.1
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	4	<4	<4	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	7	13	6	7	7
Copper	mg/kg	23	13	6	14	9
Lead	mg/kg	10	9	9	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	5	3	5	4
Zinc	mg/kg	39	21	25	42	29

Acid Extractable metals in soil	UNITS	80070-47	80070-48	80070-50	80070-51	80070-52
Our Reference:	-----	TP15	TP16	TP16	TP17	TP17
Your Reference	-----	0.5	0.1	1.5	0.1	0.5
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	6	<4	<4	4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	11	7	7	6	7
Copper	mg/kg	23	16	9	7	1
Lead	mg/kg	10	12	7	11	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	5	3	3	2
Zinc	mg/kg	37	43	18	27	7

Acid Extractable metals in soil	UNITS	80070-54	80070-56	80070-57	80070-58	80070-59
Our Reference:	-----	TP18	TP18	TP19	TP19	QA01
Your Reference	-----	0.1	1.5	0.1	0.5	-
Depth		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Arsenic	mg/kg	9	<4	<4	6	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	8	7	9	10	3
Copper	mg/kg	8	1	11	13	10
Lead	mg/kg	13	7	13	14	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	1	4	5	2
Zinc	mg/kg	19	7	23	28	15

Acid Extractable metals in soil		
Our Reference:	UNITS	80070-60
Your Reference	-----	QA03
Depth	-----	-
Date Sampled		9/10/2012
Type of sample		Soil
Date digested	-	12/10/2012
Date analysed	-	12/10/2012
Arsenic	mg/kg	4
Cadmium	mg/kg	<0.5
Chromium	mg/kg	9
Copper	mg/kg	19
Lead	mg/kg	10
Mercury	mg/kg	<0.1
Nickel	mg/kg	6
Zinc	mg/kg	37

Moisture						
Our Reference:	UNITS	80070-1	80070-2	80070-3	80070-4	80070-5
Your Reference	-----	AH01	AH02	AH03	AH04	AH05
Depth	-----	0.1	0.4	0.3	0.4	0.5
Date Sampled		8/10/2012	8/10/2012	8/10/2012	8/10/2012	8/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	13	30	9.5	27	12

Moisture						
Our Reference:	UNITS	80070-6	80070-7	80070-9	80070-10	80070-12
Your Reference	-----	AH06	TP01	TP01	TP02	TP02
Depth	-----	0.5	0.1	1.5	0.1	1.0
Date Sampled		8/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	26	8.7	27	20	24

Moisture						
Our Reference:	UNITS	80070-13	80070-14	80070-15	80070-17	80070-18
Your Reference	-----	TP03	TP03	TP04	TP04	TP05
Depth	-----	0.1	0.5	0.1	1.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	20	24	20	28	6.5

Moisture						
Our Reference:	UNITS	80070-19	80070-20	80070-21	80070-22	80070-23
Your Reference	-----	TP05	TP06	TP06	TP07	TP07
Depth	-----	0.5	0.1	0.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	6.8	7.2	23	15	16

Moisture						
Our Reference:	UNITS	80070-25	80070-26	80070-28	80070-29	80070-31
Your Reference	-----	TP08	TP08	TP09	TP09	TP10
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	21	19	8.2	19	6.1

Moisture						
Our Reference:	UNITS	80070-33	80070-34	80070-36	80070-37	80070-39
Your Reference	-----	TP10	TP11	TP11	TP12	TP12
Depth	-----	1.5	0.1	1.5	0.1	1.0
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	18	7.8	21	14	19

Moisture						
Our Reference:	UNITS	80070-41	80070-42	80070-44	80070-45	80070-46
Your Reference	-----	TP13	TP13	TP14	TP14	TP15
Depth	-----	0.1	0.5	0.1	0.5	0.1
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	12	33	7.7	8.5	20

Moisture						
Our Reference:	UNITS	80070-47	80070-48	80070-50	80070-51	80070-52
Your Reference	-----	TP15	TP16	TP16	TP17	TP17
Depth	-----	0.5	0.1	1.5	0.1	0.5
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	17	4.3	17	5.7	16

Moisture						
Our Reference:	UNITS	80070-54	80070-56	80070-57	80070-58	80070-59
Your Reference	-----	TP18	TP18	TP19	TP19	QA01
Depth	-----	0.1	1.5	0.1	0.5	-
Date Sampled		9/10/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/10/2012	12/10/2012	12/10/2012	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012	15/10/2012	15/10/2012	15/10/2012
Moisture	%	10	20	14	11	24

Moisture		
Our Reference:	UNITS	80070-60
Your Reference	-----	QA03
Depth	-----	-
Date Sampled		9/10/2012
Type of sample		Soil
Date prepared	-	12/10/2012
Date analysed	-	15/10/2012
Moisture	%	9.7

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-1 AH01 0.1 8/10/2012 Soil	80070-2 AH02 0.4 8/10/2012 Soil	80070-3 AH03 0.3 8/10/2012 Soil	80070-4 AH04 0.4 8/10/2012 Soil	80070-5 AH05 0.5 8/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 25g	Approx 25g	Approx 30g	Approx 25g	Approx 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained clay soil	Brown fine-grained soil & rocks	Beige fine-grained clay soil	Mustard-brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-6 AH06 0.5 8/10/2012 Soil	80070-7 TP01 0.1 9/10/2012 Soil	80070-9 TP01 1.5 9/10/2012 Soil	80070-10 TP02 0.1 9/10/2012 Soil	80070-12 TP02 1.0 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 30g	Approx 40g	Approx 30g	Approx 45g	Approx 35g
Sample Description	-	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-13 TP03 0.1 9/10/2012 Soil	80070-14 TP03 0.5 9/10/2012 Soil	80070-15 TP04 0.1 9/10/2012 Soil	80070-17 TP04 1.5 9/10/2012 Soil	80070-18 TP05 0.1 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 40g	Approx 30g	Approx 35g	Approx 30g	Approx 40g
Sample Description	-	Brown fine-grained soil & rocks	Beige fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Off-white fine-grained clay soil & rocks	Beige fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-19 TP05 0.5 9/10/2012 Soil	80070-20 TP06 0.1 9/10/2012 Soil	80070-21 TP06 0.5 9/10/2012 Soil	80070-22 TP07 0.1 9/10/2012 Soil	80070-23 TP07 0.5 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 35g	Approx 40g	Approx 30g	Approx 35g	Approx 35g
Sample Description	-	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Grey fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Grey fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-25 TP08 0.1 9/10/2012 Soil	80070-26 TP08 0.5 9/10/2012 Soil	80070-28 TP09 0.1 9/10/2012 Soil	80070-29 TP09 0.5 9/10/2012 Soil	80070-31 TP10 0.1 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 40g	Approx 25g	Approx 30g	Approx 35g	Approx 40g
Sample Description	-	Brown fine-grained clay soil & rocks	Dark grey fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Grey fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-33 TP10 1.5 9/10/2012 Soil	80070-34 TP11 0.1 9/10/2012 Soil	80070-36 TP11 1.5 9/10/2012 Soil	80070-37 TP12 0.1 9/10/2012 Soil	80070-39 TP12 1.0 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 40g	Approx 40g	Approx 30g	Approx 40g	Approx 35g
Sample Description	-	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-41 TP13 0.1 9/10/2012 Soil	80070-42 TP13 0.5 9/10/2012 Soil	80070-44 TP14 0.1 9/10/2012 Soil	80070-45 TP14 0.5 9/10/2012 Soil	80070-46 TP15 0.1 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 30g	Approx 20g	Approx 35g	Approx 30g	Approx 45g
Sample Description	-	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Beige fine-grained clay soil & rocks	Beige fine-grained clay soil & rocks	Beige fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-47 TP15 0.5 9/10/2012 Soil	80070-48 TP16 0.1 9/10/2012 Soil	80070-50 TP16 1.5 9/10/2012 Soil	80070-51 TP17 0.1 9/10/2012 Soil	80070-52 TP17 0.5 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 30g	Approx 45g	Approx 25g	Approx 35g	Approx 40g
Sample Description	-	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Beige fine-grained soil & rocks	Grey fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-54 TP18 0.1 9/10/2012 Soil	80070-56 TP18 1.5 9/10/2012 Soil	80070-57 TP19 0.1 9/10/2012 Soil	80070-58 TP19 0.5 9/10/2012 Soil	80070-59 QA01 - 9/10/2012 Soil
Date analysed	-	17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Sample mass tested	g	Approx 40g	Approx 35g	Approx 30g	Approx 40g	Approx 35g
Sample Description	-	Brown fine-grained soil, rocks & bitumen	Brown fine-grained clay soil & rocks	Grey fine-grained clay soil & rocks	Beige fine-grained clay soil & rocks	Grey fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-60 QA03 - 9/10/2012 Soil
Date analysed	-	17/10/2012
Sample mass tested	g	Approx 35g
Sample Description	-	Light brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected

vTRH & BTEX in Water			
Our Reference:	UNITS	80070-61	80070-62
Your Reference	-----	RB-01	RB-02
Depth	-----	-	-
Date Sampled		8/10/2012	9/10/2012
Type of sample		Water	Water
Date extracted	-	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012
TRHC ₆ - C ₉	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	108	108
Surrogate toluene-d8	%	97	97
Surrogate 4-BFB	%	92	94

sTRH in Water (C10-C36)			
Our Reference:	UNITS	80070-61	80070-62
Your Reference	-----	RB-01	RB-02
Depth	-----	-	-
Date Sampled		8/10/2012	9/10/2012
Type of sample		Water	Water
Date extracted	-	16/10/2012	12/10/2012
Date analysed	-	17/10/2012	13/10/2012
TRHC ₁₀ - C ₁₄	µg/L	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100
Surrogate o-Terphenyl	%	110	133

PAHs in Water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-61 RB-01 - 8/10/2012 Water	80070-62 RB-02 - 9/10/2012 Water
Date extracted	-	12/10/2012	12/10/2012
Date analysed	-	15/10/2012	15/10/2012
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Surrogate p-Terphenyl-d14	%	107	108

OCP in water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	80070-61 RB-01 - 8/10/2012 Water	80070-62 RB-02 - 9/10/2012 Water
Date extracted	-	16/10/2012	12/10/2012
Date analysed	-	16/10/2012	12/10/2012
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Surrogate TCMX	%	82	90

Metals in Water - Dissolved			
Our Reference:	UNITS	80070-61	80070-62
Your Reference	-----	RB-01	RB-02
Depth	-----	-	-
Date Sampled		8/10/2012	9/10/2012
Type of sample		Water	Water
Date digested	-	12/10/2012	12/10/2012
Date analysed	-	12/10/2012	12/10/2012
Arsenic - Dissolved	mg/L	<0.05	<0.05
Cadmium - Dissolved	mg/L	<0.01	<0.01
Chromium - Dissolved	mg/L	<0.01	<0.01
Copper - Dissolved	mg/L	<0.01	<0.01
Lead - Dissolved	mg/L	<0.03	<0.03
Mercury - Dissolved	mg/L	<0.0005	<0.0005
Nickel - Dissolved	mg/L	<0.02	<0.02
Zinc - Dissolved	mg/L	<0.02	<0.02

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH & BTEX in Soil						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	80070-1	12/10/2012 12/10/2012	LCS-3	12/10/2012
Date analysed	-			13/10/2012	80070-1	13/10/2012 13/10/2012	LCS-3	13/10/2012
vTRHC ₆ - C ₉	mg/kg	25	Org-016	<25	80070-1	<25 <25	LCS-3	73%
Benzene	mg/kg	0.2	Org-016	<0.2	80070-1	<0.2 <0.2	LCS-3	69%
Toluene	mg/kg	0.5	Org-016	<0.5	80070-1	<0.5 <0.5	LCS-3	73%
Ethylbenzene	mg/kg	1	Org-016	<1	80070-1	<1 <1	LCS-3	73%
m+p-xylene	mg/kg	2	Org-016	<2	80070-1	<2 <2	LCS-3	75%
o-Xylene	mg/kg	1	Org-016	<1	80070-1	<1 <1	LCS-3	68%
Surrogate aaa-Trifluorotoluene	%		Org-016	90	80070-1	93 88 RPD: 6	LCS-3	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTRH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	80070-1	12/10/2012 12/10/2012	LCS-3	12/10/2012
Date analysed	-			14/10/2012	80070-1	14/10/2012 14/10/2012	LCS-3	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	80070-1	<50 <50	LCS-3	113%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	80070-1	<100 <100	LCS-3	103%
TRHC ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	80070-1	<100 <100	LCS-3	87%
Surrogate o-Terphenyl	%		Org-003	95	80070-1	101 97 RPD: 4	LCS-3	110%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	80070-1	12/10/2012 12/10/2012	LCS-3	12/10/2012
Date analysed	-			15/10/2012	80070-1	15/10/2012 15/10/2012	LCS-3	15/10/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	113%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	97%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	108%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	109%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	LCS-3	107%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	80070-1	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	80070-1	<0.05 <0.05	LCS-3	116%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	80070-1	105 103 RPD: 2	LCS-3	130%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	80070-1	12/10/2012 12/10/2012	LCS-3	12/10/2012
Date analysed	-			12/10/2012	80070-1	12/10/2012 12/10/2012	LCS-3	12/10/2012
HCB	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	96%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	101%
Heptachlor	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	96%
delta-BHC	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	108%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	105%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	95%
Dieldrin	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	116%
Endrin	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	130%
pp-DDD	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	114%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	LCS-3	114%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	80070-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	85	80070-1	90 91 RPD: 1	LCS-3	84%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			[NT]	80070-1	12/10/2012 12/10/2012	LCS-1	12/10/2012
Date analysed	-			[NT]	80070-1	12/10/2012 12/10/2012	LCS-1	12/10/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	80070-1	8 8 RPD: 0	LCS-1	105%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	80070-1	<0.5 <0.5	LCS-1	112%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	80070-1	15 11 RPD: 31	LCS-1	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	80070-1	18 18 RPD: 0	LCS-1	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	80070-1	57 71 RPD: 22	LCS-1	108%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	80070-1	<0.1 <0.1	LCS-1	107%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	80070-1	11 9 RPD: 20	LCS-1	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	80070-1	130 130 RPD: 0	LCS-1	109%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Asbestos ID - soils								
Date analysed	-			[NT]				
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH & BTEX in Water						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
Date analysed	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	107%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	109%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	111%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	108%
Surrogate Dibromofluoromethane	%		Org-016	104	[NT]	[NT]	LCS-W1	104%
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	LCS-W1	97%
Surrogate 4-BFB	%		Org-016	92	[NT]	[NT]	LCS-W1	98%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTRH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
Date analysed	-			13/10/2012	[NT]	[NT]	LCS-W1	13/10/2012
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	109%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	130%
TRHC ₂₈ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	111%
Surrogate o-Terphenyl	%		Org-003	106	[NT]	[NT]	LCS-W1	120%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
Date analysed	-			15/10/2012	[NT]	[NT]	LCS-W1	15/10/2012
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	97%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	96%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	98%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	101%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	96%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	98%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	88%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d ₁₄	%		Org-012 subset	110	[NT]	[NT]	LCS-W1	138%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OCP in water						Base II Duplicate II %RPD		
Date extracted	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
Date analysed	-			12/10/2012	[NT]	[NT]	LCS-W1	12/10/2012
HCB	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	124%
gamma-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	120%
Heptachlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	129%
delta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	133%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	135%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	120%
Dieldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	129%
Endrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	126%
pp-DDD	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	121%
Endosulfan II	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	136%
Methoxychlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	94	[NT]	[NT]	LCS-W1	114%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in Water - Dissolved						Base Duplicate %RPD		
Date digested	-			12/10/2012	80070-61	12/10/2012 12/10/2012	LCS-W3	12/10/2012
Date analysed	-			12/10/2012	80070-61	12/10/2012 12/10/2012	LCS-W3	12/10/2012
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	80070-61	<0.05 [N/T]	LCS-W3	98%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	80070-61	<0.01 [N/T]	LCS-W3	97%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	80070-61	<0.01 [N/T]	LCS-W3	99%
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	80070-61	<0.01 [N/T]	LCS-W3	102%
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	80070-61	<0.03 [N/T]	LCS-W3	100%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	80070-61	<0.0005 <0.0005	LCS-W3	92%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	80070-61	<0.02 [N/T]	LCS-W3	99%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	80070-61	<0.02 [N/T]	LCS-W3	98%

QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
vTRH & BTEX in Soil			Base + Duplicate + %RPD		
Date extracted	-	80070-13	12/10/2012 12/10/2012	LCS-4	12/10/2012
Date analysed	-	80070-13	13/10/2012 13/10/2012	LCS-4	13/10/2012
vTRHC ₆ - C ₉	mg/kg	80070-13	<25 <25	LCS-4	113%
Benzene	mg/kg	80070-13	<0.2 <0.2	LCS-4	107%
Toluene	mg/kg	80070-13	<0.5 <0.5	LCS-4	113%
Ethylbenzene	mg/kg	80070-13	<1 <1	LCS-4	113%
m+p-xylene	mg/kg	80070-13	<2 <2	LCS-4	115%
o-Xylene	mg/kg	80070-13	<1 <1	LCS-4	107%
Surrogate aaa-Trifluorotoluene	%	80070-13	84 91 RPD: 8	LCS-4	95%

QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
sTRH in Soil (C10-C36)			Base + Duplicate + %RPD		
Date extracted	-	80070-13	12/10/2012 12/10/2012	LCS-4	12/10/2012
Date analysed	-	80070-13	14/10/2012 14/10/2012	LCS-4	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	80070-13	<50 <50	LCS-4	120%
TRHC ₁₅ - C ₂₈	mg/kg	80070-13	<100 <100	LCS-4	108%
TRHC ₂₉ - C ₃₆	mg/kg	80070-13	<100 <100	LCS-4	87%
Surrogate o-Terphenyl	%	80070-13	100 91 RPD: 9	LCS-4	97%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-13	12/10/2012 12/10/2012	LCS-4	12/10/2012
Date analysed	-	80070-13	15/10/2012 15/10/2012	LCS-4	15/10/2012
Naphthalene	mg/kg	80070-13	<0.1 <0.1	LCS-4	91%
Acenaphthylene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	80070-13	<0.1 <0.1	LCS-4	63%
Phenanthrene	mg/kg	80070-13	<0.1 <0.1	LCS-4	94%
Anthracene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	80070-13	<0.1 <0.1	LCS-4	96%
Pyrene	mg/kg	80070-13	<0.1 <0.1	LCS-4	94%
Benzo(a)anthracene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	80070-13	<0.1 <0.1	LCS-4	90%
Benzo(b+k)fluoranthene	mg/kg	80070-13	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	80070-13	<0.05 <0.05	LCS-4	86%
Indeno(1,2,3-c,d)pyrene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	80070-13	101 93 RPD: 8	LCS-4	106%
QUALITYCONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-13	12/10/2012 12/10/2012	LCS-4	12/10/2012
Date analysed	-	80070-13	12/10/2012 12/10/2012	LCS-4	12/10/2012
HCB	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	80070-13	<0.1 <0.1	LCS-4	102%
gamma-BHC	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	80070-13	<0.1 <0.1	LCS-4	102%
Heptachlor	mg/kg	80070-13	<0.1 <0.1	LCS-4	105%
delta-BHC	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	80070-13	<0.1 <0.1	LCS-4	112%
Heptachlor Epoxide	mg/kg	80070-13	<0.1 <0.1	LCS-4	115%
gamma-Chlordane	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	80070-13	<0.1 <0.1	LCS-4	103%
Dieldrin	mg/kg	80070-13	<0.1 <0.1	LCS-4	99%
Endrin	mg/kg	80070-13	<0.1 <0.1	LCS-4	101%
pp-DDD	mg/kg	80070-13	<0.1 <0.1	LCS-4	104%
Endosulfan II	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Endosulfan Sulphate	mg/kg	80070-13	<0.1 <0.1	LCS-4	119%
Methoxychlor	mg/kg	80070-13	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	80070-13	91 84 RPD: 8	LCS-4	84%
QUALITYCONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	80070-13	12/10/2012 12/10/2012	LCS-2	12/10/2012
Date analysed	-	80070-13	12/10/2012 12/10/2012	LCS-2	12/10/2012
Arsenic	mg/kg	80070-13	<4 4	LCS-2	104%
Cadmium	mg/kg	80070-13	<0.5 <0.5	LCS-2	111%
Chromium	mg/kg	80070-13	7 8 RPD: 13	LCS-2	104%
Copper	mg/kg	80070-13	11 13 RPD: 17	LCS-2	101%
Lead	mg/kg	80070-13	12 12 RPD: 0	LCS-2	108%
Mercury	mg/kg	80070-13	<0.1 <0.1	LCS-2	110%
Nickel	mg/kg	80070-13	4 5 RPD: 22	LCS-2	105%
Zinc	mg/kg	80070-13	36 43 RPD: 18	LCS-2	109%
QUALITYCONTROL Metals in Water - Dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	80070-62	15/10/2012
Date analysed	-	[NT]	[NT]	80070-62	15/10/2012
Arsenic - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Cadmium - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Chromium - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Copper - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Lead - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Mercury - Dissolved	mg/L	[NT]	[NT]	80070-62	92%
Nickel - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Zinc - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
QUALITYCONTROL vTRH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-23	12/10/2012 12/10/2012	LCS-5	12/10/2012
Date analysed	-	80070-23	13/10/2012 13/10/2012	LCS-5	13/10/2012
vTRHC ₆ - C ₉	mg/kg	80070-23	<25 <25	LCS-5	115%
Benzene	mg/kg	80070-23	<0.2 <0.2	LCS-5	107%
Toluene	mg/kg	80070-23	<0.5 <0.5	LCS-5	116%
Ethylbenzene	mg/kg	80070-23	<1 <1	LCS-5	115%
m+p-xylene	mg/kg	80070-23	<2 <2	LCS-5	119%
o-Xylene	mg/kg	80070-23	<1 <1	LCS-5	110%
Surrogate aaa- Trifluorotoluene	%	80070-23	91 94 RPD: 3	LCS-5	90%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-23	12/10/2012 12/10/2012	LCS-5	12/10/2012
Date analysed	-	80070-23	14/10/2012 14/10/2012	LCS-5	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	80070-23	<50 <50	LCS-5	103%
TRHC ₁₅ - C ₂₈	mg/kg	80070-23	<100 <100	LCS-5	105%
TRHC ₂₈ - C ₃₆	mg/kg	80070-23	<100 <100	LCS-5	94%
Surrogate o-Terphenyl	%	80070-23	91 91 RPD: 0	LCS-5	107%
QUALITYCONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-23	12/10/2012 12/10/2012	LCS-5	12/10/2012
Date analysed	-	80070-23	15/10/2012 15/10/2012	LCS-5	14/10/2012
Naphthalene	mg/kg	80070-23	<0.1 <0.1	LCS-5	94%
Acenaphthylene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	80070-23	<0.1 <0.1	LCS-5	93%
Phenanthrene	mg/kg	80070-23	<0.1 <0.1	LCS-5	93%
Anthracene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	80070-23	<0.1 <0.1	LCS-5	93%
Pyrene	mg/kg	80070-23	<0.1 <0.1	LCS-5	99%
Benzo(a)anthracene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	80070-23	<0.1 <0.1	LCS-5	89%
Benzo(b+k)fluoranthene	mg/kg	80070-23	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	80070-23	<0.05 <0.05	LCS-5	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d ₁₄	%	80070-23	77 88 RPD: 13	LCS-5	98%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-23	12/10/2012 12/10/2012	LCS-5	12/10/2012
Date analysed	-	80070-23	12/10/2012 12/10/2012	LCS-5	12/10/2012
HCB	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	80070-23	<0.1 <0.1	LCS-5	109%
gamma-BHC	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	80070-23	<0.1 <0.1	LCS-5	102%
Heptachlor	mg/kg	80070-23	<0.1 <0.1	LCS-5	93%
delta-BHC	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	80070-23	<0.1 <0.1	LCS-5	118%
Heptachlor Epoxide	mg/kg	80070-23	<0.1 <0.1	LCS-5	118%
gamma-Chlordane	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	80070-23	<0.1 <0.1	LCS-5	105%
Dieldrin	mg/kg	80070-23	<0.1 <0.1	LCS-5	124%
Endrin	mg/kg	80070-23	<0.1 <0.1	LCS-5	119%
pp-DDD	mg/kg	80070-23	<0.1 <0.1	LCS-5	103%
Endosulfan II	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	80070-23	<0.1 <0.1	LCS-5	118%
Methoxychlor	mg/kg	80070-23	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	80070-23	82 84 RPD: 2	LCS-5	91%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	80070-23	12/10/2012 12/10/2012	LCS-3	12/10/2012
Date analysed	-	80070-23	12/10/2012 12/10/2012	LCS-3	12/10/2012
Arsenic	mg/kg	80070-23	9 7 RPD: 25	LCS-3	104%
Cadmium	mg/kg	80070-23	<0.5 <0.5	LCS-3	108%
Chromium	mg/kg	80070-23	15 12 RPD: 22	LCS-3	103%
Copper	mg/kg	80070-23	3 3 RPD: 0	LCS-3	102%
Lead	mg/kg	80070-23	19 17 RPD: 11	LCS-3	105%
Mercury	mg/kg	80070-23	<0.1 <0.1	LCS-3	110%
Nickel	mg/kg	80070-23	2 2 RPD: 0	LCS-3	103%
Zinc	mg/kg	80070-23	7 5 RPD: 33	LCS-3	105%
QUALITYCONTROL vTRH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Date analysed	-	80070-39	13/10/2012 13/10/2012	80070-2	13/10/2012
vTRHC ₆ - C ₉	mg/kg	80070-39	<25 <25	80070-2	92%
Benzene	mg/kg	80070-39	<0.2 <0.2	80070-2	87%
Toluene	mg/kg	80070-39	<0.5 <0.5	80070-2	92%
Ethylbenzene	mg/kg	80070-39	<1 <1	80070-2	92%
m+p-xylene	mg/kg	80070-39	<2 <2	80070-2	94%
o-Xylene	mg/kg	80070-39	<1 <1	80070-2	87%
Surrogate aaa- Trifluorotoluene	%	80070-39	96 94 RPD: 2	80070-2	90%
QUALITYCONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Date analysed	-	80070-39	14/10/2012 14/10/2012	80070-2	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	80070-39	<50 <50	80070-2	117%
TRHC ₁₅ - C ₂₈	mg/kg	80070-39	<100 <100	80070-2	109%
TRHC ₂₉ - C ₃₆	mg/kg	80070-39	<100 <100	80070-2	89%
Surrogate o-Terphenyl	%	80070-39	125 94 RPD: 28	80070-2	102%
QUALITYCONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Date analysed	-	80070-39	15/10/2012 15/10/2012	80070-2	15/10/2012
Naphthalene	mg/kg	80070-39	<0.1 <0.1	80070-2	98%
Acenaphthylene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	80070-39	<0.1 <0.1	80070-2	90%
Phenanthrene	mg/kg	80070-39	<0.1 <0.1	80070-2	91%
Anthracene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	80070-39	<0.1 <0.1	80070-2	92%

Client Reference: 2121881, Boradze Dept CSI

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	80070-39	<0.1 <0.1	80070-2	99%
Benzo(a)anthracene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	80070-39	<0.1 <0.1	80070-2	87%
Benzo(b+k)fluoranthene	mg/kg	80070-39	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	80070-39	<0.05 <0.05	80070-2	96%
Indeno(1,2,3-c,d)pyrene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%	80070-39	97 97 RPD: 0	80070-2	99%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Date analysed	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
HCB	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	80070-39	<0.1 <0.1	80070-2	98%
gamma-BHC	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	80070-39	<0.1 <0.1	80070-2	102%
Heptachlor	mg/kg	80070-39	<0.1 <0.1	80070-2	97%
delta-BHC	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	80070-39	<0.1 <0.1	80070-2	112%
Heptachlor Epoxide	mg/kg	80070-39	<0.1 <0.1	80070-2	108%
gamma-Chlordane	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	80070-39	<0.1 <0.1	80070-2	103%
Dieldrin	mg/kg	80070-39	<0.1 <0.1	80070-2	124%
Endrin	mg/kg	80070-39	<0.1 <0.1	80070-2	129%
pp-DDD	mg/kg	80070-39	<0.1 <0.1	80070-2	105%
Endosulfan II	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	80070-39	<0.1 <0.1	80070-2	115%
Methoxychlor	mg/kg	80070-39	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	80070-39	86 86 RPD: 0	80070-2	83%

Client Reference: 2121881, Boradze Dept CSI

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Date analysed	-	80070-39	12/10/2012 12/10/2012	80070-2	12/10/2012
Arsenic	mg/kg	80070-39	5 6 RPD: 18	80070-2	80%
Cadmium	mg/kg	80070-39	<0.5 <0.5	80070-2	93%
Chromium	mg/kg	80070-39	9 12 RPD: 29	80070-2	91%
Copper	mg/kg	80070-39	23 21 RPD: 9	80070-2	100%
Lead	mg/kg	80070-39	10 12 RPD: 18	80070-2	88%
Mercury	mg/kg	80070-39	<0.1 <0.1	80070-2	123%
Nickel	mg/kg	80070-39	6 6 RPD: 0	80070-2	87%
Zinc	mg/kg	80070-39	32 32 RPD: 0	80070-2	93%
QUALITY CONTROL vTRH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Date analysed	-	80070-52	13/10/2012 13/10/2012	80070-25	13/10/2012
vTRHC ₆ - C ₉	mg/kg	80070-52	<25 <25	80070-25	97%
Benzene	mg/kg	80070-52	<0.2 <0.2	80070-25	93%
Toluene	mg/kg	80070-52	<0.5 <0.5	80070-25	98%
Ethylbenzene	mg/kg	80070-52	<1 <1	80070-25	97%
m+p-xylene	mg/kg	80070-52	<2 <2	80070-25	99%
o-Xylene	mg/kg	80070-52	<1 <1	80070-25	92%
Surrogate aaa-Trifluorotoluene	%	80070-52	107 103 RPD: 4	80070-25	93%
QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Date analysed	-	80070-52	14/10/2012 14/10/2012	80070-25	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	80070-52	<50 <50	80070-25	114%
TRHC ₁₅ - C ₂₈	mg/kg	80070-52	<100 <100	80070-25	103%
TRHC ₂₉ - C ₃₆	mg/kg	80070-52	<100 <100	80070-25	83%
Surrogate o-Terphenyl	%	80070-52	105 93 RPD: 12	80070-25	96%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Date analysed	-	80070-52	15/10/2012 15/10/2012	80070-25	15/10/2012
Naphthalene	mg/kg	80070-52	<0.1 <0.1	80070-25	88%
Acenaphthylene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	80070-52	<0.1 <0.1	80070-25	73%
Phenanthrene	mg/kg	80070-52	<0.1 <0.1	80070-25	93%
Anthracene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	80070-52	<0.1 <0.1	80070-25	88%

Client Reference: 2121881, Boradze Dept CSI

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	80070-52	<0.1 <0.1	80070-25	96%
Benzo(a)anthracene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	80070-52	<0.1 <0.1	80070-25	90%
Benzo(b+k)fluoranthene	mg/kg	80070-52	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	80070-52	<0.05 <0.05	80070-25	84%
Indeno(1,2,3-c,d)pyrene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%	80070-52	99 93 RPD: 6	80070-25	92%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Date analysed	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
HCB	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	80070-52	<0.1 <0.1	80070-25	95%
gamma-BHC	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	80070-52	<0.1 <0.1	80070-25	104%
Heptachlor	mg/kg	80070-52	<0.1 <0.1	80070-25	93%
delta-BHC	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	80070-52	<0.1 <0.1	80070-25	105%
Heptachlor Epoxide	mg/kg	80070-52	<0.1 <0.1	80070-25	101%
gamma-Chlordane	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	80070-52	<0.1 <0.1	80070-25	105%
Dieldrin	mg/kg	80070-52	<0.1 <0.1	80070-25	127%
Endrin	mg/kg	80070-52	<0.1 <0.1	80070-25	122%
pp-DDD	mg/kg	80070-52	<0.1 <0.1	80070-25	107%
Endosulfan II	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	80070-52	<0.1 <0.1	80070-25	122%
Methoxychlor	mg/kg	80070-52	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	80070-52	93 90 RPD: 3	80070-25	86%

Client Reference: 2121881, Boradze Dept CSI

QUALITYCONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Date analysed	-	80070-52	12/10/2012 12/10/2012	80070-25	12/10/2012
Arsenic	mg/kg	80070-52	<4 <4	80070-25	95%
Cadmium	mg/kg	80070-52	<0.5 <0.5	80070-25	98%
Chromium	mg/kg	80070-52	7 7 RPD: 0	80070-25	90%
Copper	mg/kg	80070-52	1 2 RPD: 67	80070-25	88%
Lead	mg/kg	80070-52	13 13 RPD: 0	80070-25	93%
Mercury	mg/kg	80070-52	<0.1 <0.1	80070-25	107%
Nickel	mg/kg	80070-52	2 2 RPD: 0	80070-25	90%
Zinc	mg/kg	80070-52	7 7 RPD: 0	80070-25	79%
QUALITYCONTROL vTRH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	80070-54	12/10/2012
Date analysed	-	[NT]	[NT]	80070-54	13/10/2012
vTRHC ₆ - C ₉	mg/kg	[NT]	[NT]	80070-54	103%
Benzene	mg/kg	[NT]	[NT]	80070-54	97%
Toluene	mg/kg	[NT]	[NT]	80070-54	104%
Ethylbenzene	mg/kg	[NT]	[NT]	80070-54	104%
m+p-xylene	mg/kg	[NT]	[NT]	80070-54	106%
o-Xylene	mg/kg	[NT]	[NT]	80070-54	98%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	80070-54	108%
QUALITYCONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	80070-54	12/10/2012
Date analysed	-	[NT]	[NT]	80070-54	14/10/2012
TRHC ₁₀ - C ₁₄	mg/kg	[NT]	[NT]	80070-54	100%
TRHC ₁₅ - C ₂₈	mg/kg	[NT]	[NT]	80070-54	105%
TRHC ₂₉ - C ₃₆	mg/kg	[NT]	[NT]	80070-54	88%
Surrogate o-Terphenyl	%	[NT]	[NT]	80070-54	113%
QUALITYCONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	80070-54	12/10/2012
Date analysed	-	[NT]	[NT]	80070-54	14/10/2012
Naphthalene	mg/kg	[NT]	[NT]	80070-54	90%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	80070-54	93%
Phenanthrene	mg/kg	[NT]	[NT]	80070-54	90%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	80070-54	88%

Client Reference: 2121881, Boradze Dept CSI

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	[NT]	[NT]	80070-54	93%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	80070-54	86%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	80070-54	98%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl- d14	%	[NT]	[NT]	80070-54	94%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	80070-54	12/10/2012
Date analysed	-	[NT]	[NT]	80070-54	12/10/2012
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	80070-54	108%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	80070-54	104%
Heptachlor	mg/kg	[NT]	[NT]	80070-54	98%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	80070-54	118%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	80070-54	119%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	80070-54	106%
Dieldrin	mg/kg	[NT]	[NT]	80070-54	126%
Endrin	mg/kg	[NT]	[NT]	80070-54	124%
pp-DDD	mg/kg	[NT]	[NT]	80070-54	105%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	80070-54	120%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	80070-54	89%

Client Reference: 2121881, Boradze Dept CSI

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	80070-54	12/10/2012
Date analysed	-	[NT]	[NT]	80070-54	12/10/2012
Arsenic	mg/kg	[NT]	[NT]	80070-54	79%
Cadmium	mg/kg	[NT]	[NT]	80070-54	82%
Chromium	mg/kg	[NT]	[NT]	80070-54	86%
Copper	mg/kg	[NT]	[NT]	80070-54	100%
Lead	mg/kg	[NT]	[NT]	80070-54	79%
Mercury	mg/kg	[NT]	[NT]	80070-54	114%
Nickel	mg/kg	[NT]	[NT]	80070-54	79%
Zinc	mg/kg	[NT]	[NT]	80070-54	83%

Report Comments:

Asbestos:

A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Some samples are below the recommended volume of 40-50g (50mL) as per AS4964-2004, due to insufficient sample volume remained subsequent to all other tests carried out.

Asbestos ID was analysed by Approved Identifier: Lulu Guo
Asbestos ID was authorised by Approved Signatory: Lulu Guo

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.



CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port Macquarie		Telephone: (02) 4979 9999		Fax: (02) 4979 9988	
Project No. <u>2121881</u>	Phone No. <u>02 6586 8720</u>	Sent to Lab: <u>EnviroLab</u>		Date Required: <u>Standard</u>	
Project Name <u>Boradze Depot CSI</u>	Fax No. <u>02 6586 8701</u>	Address: <u>12 Ashley Street</u>		Date Submitted: <u>10/10/2012</u>	
Project Manager <u>Nick Passlow</u>	Address <u>nick.passlow@ghd.com</u>	<u>Chatswood</u>		Attention: <u>Sample receipt</u>	Page <u>1</u> of <u>4</u>
Site Supervisor <u>Amylia Fletcher</u>	<u>amylia.fletcher@ghd.com</u>	Fax: <u>99106299</u>	Phone: <u>99106200</u>		

SAMPLE No.	Date Sampled	No. of Containers	Container Type/Size	MATRIX					PRESERVATION			ANALYSIS REQUIRED			COMMENTS
				Water	Soil	Chill	Acid	Other	Combo 3a (TPH/BTEX/PAH/8 Metals/Asbestos)	OC	Combo 3	OC			
1	AH01-0.1	1	100ml jar		X	X				X	X				<div style="text-align: right;"> <p>EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200</p> <p>Job No: <u>80070</u></p> <p>Date Received: <u>11/10</u></p> <p>Time Received: <u>10:00</u></p> <p>Received by: <u>[Signature]</u></p> <p>Temp: <u>Cool/Ambient</u></p> <p>Cooling: <u>Ice Pack</u></p> <p>Security: <u>Intact/Broken/None</u></p> </div>
2	AH02-0.4	1	"		X	X				X	X				
3	AH03-0.3	1	"		X	X				X	X				
4	AH04-0.4	1	"		X	X				X	X				
5	AH05-0.5	1	"		X	X				X	X				
6	AH06-0.5	1	"		X	X				X	X				
7	TP01-0.1	1	"		X	X				X	X				
8	TP01-0.5	1	"		X	X								Please hold	
9	TP01-1.5	1	"		X	X				X	X				
10	TP02-0.1	1	"		X	X				X	X			Please hold	
11	TP02-0.5	1	"		X	X									
12	TP02-1.0	1	"		X	X				X	X				
13	TP03-0.1	1	"		X	X				X	X				
14	TP03-0.5	1	"		X	X				X	X				
15	TP04-0.1	1	"		X	X				X	X				
16	TP04-0.5	1	"		X	X								Please hold	
17	TP04-1.5	1	"		X	X				X	X				
18	TP05-0.1	1	"		X	X				X	X				
19	TP05-0.5	1	"		X	X				X	X				
20	TP06-0.1	1	"		X	X				X	X				

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	10/10/2012	12.00pm	<u>[Signature]</u>	<u>Sophie ELS</u>	EnviroLab	11/10/2012	10:00	<u>[Signature]</u>
RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed

It is the responsibility of the receiver to verify that the number of samples and their identifying samples numbers correspond to those listed on this form

PLEASE FAXED COMPLETED FORM TO GHD PROJECT MANAGER ON RECEIPT



CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port macquarie		Telephone: (02) 4979 9999		Fax: (02) 4979 9966	
Project No. <u>2121881</u>	Phone No. <u>02 6586 8720</u>	Sent to Lab: <u>EnviroLab</u>		Date Required: <u>Standard</u>	
Project Name <u>Boradze Depot CSI</u>	Fax No. <u>02 6586 8701</u>	Address: <u>12 Ashley Street</u>		Date Submitted: <u>10/10/2012</u>	
Project Manager <u>Nick Passlow</u>	Address <u>nick.passlow@ghd.com</u>	<u>Chatswood</u>		Attention: <u>Sample receipt</u>	
Site Supervisor <u>Amylia Fletcher</u>	<u>amylia.fletcher@ghd.com</u>	Fax: <u>99106299</u>		Phone: <u>99106200</u>	
			Page <u>2</u> of <u>4</u>		

SAMPLE No.	Date Sampled	No. of Containers	Container Type /Size	MATRIX			PRESERVATION			ANALYSIS REQUIRED				COMMENTS
				Water	Soil	Chill	Acid	Other	Combo 3a (TPH/BTEX/PAH/8 Metals/Asbestos)	OC	Combo 3	OC		
21 TP06-0.5	9-Oct	1	100ml jar		X	X				X	X			
22 TP07-0.1	9-Oct	1	"		X	X				X	X			
23 TP07-0.5	9-Oct	1	"		X	X				X	X			
24 TP07-1.5	9-Oct	1	"		X	X								Please hold
25 TP08-0.1	9-Oct	1	"		X	X				X	X			
26 TP08-0.5	9-Oct	1	"		X	X				X	X			
27 TP08-1.5	9-Oct	1	"		X	X								Please hold
28 TP09-0.1	9-Oct	1	"		X	X				X	X			
29 TP09-0.5	9-Oct	1	"		X	X				X	X			
30 TP09-1.5	9-Oct	1	"		X	X								Please hold
31 TP10-0.1	9-Oct	1	"		X	X				X	X			
32 TP10-0.5	9-Oct	1	"		X	X								Please hold
33 TP10-1.5	9-Oct	1	"		X	X				X	X			
34 TP11-0.1	9-Oct	1	"		X	X				X	X			
35 TP11-0.5	9-Oct	1	"		X	X								Please hold
36 TP11-1.5	9-Oct	1	"		X	X				X	X			
37 TP12-0.1	9-Oct	1	"		X	X				X	X			
38 TP12-0.5	9-Oct	1	"		X	X								Please hold
39 TP12-1.0	9-Oct	1	"		X	X				X	X			
40 TP12-1.5	9-Oct	1	"		X	X								Please hold

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	10/10/2012	12.00pm	<i>AF</i>	<i>Sophie</i>	<i>AS</i>	11/10/10:00		<i>SJS</i>
RELINQUISHED BY					RECEIVED BY				

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CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port macquarie		Telephone: (02) 4979 9999		Fax: (02) 4979 9988	
Project No. <u>2121881</u>	Phone No. <u>02 6586 8720</u>	Sent to Lab: <u>EnviroLab</u>		Date Required: <u>Standard</u>	
Project Name <u>Boradze Depot CSI</u>	Fax No. <u>02 6586 8701</u>	Address: <u>12 Ashley Street</u>		Date Submitted: <u>10/10/2012</u>	
Project Manager <u>Nick Passlow</u>	Address <u>nick.passlow@ghd.com</u>	<u>Chatswood</u>		Attention: <u>Sample receipt</u>	Page <u>3</u> of <u>4</u>
Site Supervisor <u>Amylia Fletcher</u>	<u>amyli.fletcher@ghd.com</u>	Fax: <u>99106299</u>	Phone: <u>99106200</u>		

SAMPLE No.	Date Sampled	No. of Containers	Container Type /Size	MATRIX		PRESERVATION			Combo 3a (TPH/BTEX/PAH/B Metals/Asbestos)	ANALYSIS REQUIRED			COMMENTS
				Water	Soil	Chill	Acid	Other		OC	Combo 3	OC	
41 TP13-0.1	9-Oct	1	100ml jar		X	X			X	X			
42 TP13-0.5	9-Oct	1	"		X	X			X	X			
43 TP13-1.0	9-Oct	1	"		X	X							Please hold
44 TP14-0.1	9-Oct	1	"		X	X			X	X			
45 TP14-0.5	9-Oct	1	"		X	X			X	X			
46 TP15-0.1	9-Oct	1	"		X	X			X	X			
47 TP15-0.5	9-Oct	1	"		X	X			X	X			
48 TP16-0.1	9-Oct	1	"		X	X			X	X			
49 TP16-0.5	9-Oct	1	"		X	X							Please hold
50 TP16-1.5	9-Oct	1	"		X	X			X	X			
51 TP17-0.1	9-Oct	1	"		X	X			X	X			
52 TP17-0.5	9-Oct	1	"		X	X			X	X			
53 TP17-1.5	9-Oct	1	"		X	X							Please hold
54 TP18-0.1	9-Oct	1	"		X	X			X	X			
55 TP18-0.5	9-Oct	1	"		X	X							Please hold
56 TP18-1.5	9-Oct	1	"		X	X			X	X			
57 TP19-0.1	9-Oct	1	"		X	X			X	X			
58 TP19-0.5	9-Oct	1	"		X	X			X	X			
59 QA-01	9-Oct	1	"		X	X			X	X			
60 QA-02	9-Oct	1	"		X	X			X	X			PLEASE SEND TO ALS FOR INTER

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	10/10/2012	12.00pm	<i>AF</i>	<i>Sophie</i>	<i>ELS</i>	11/10	10:00	<i>[Signature]</i>
RELINQUISHED BY					RECEIVED BY				

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CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port Macquarie		Telephone: (02) 4979 9999		Fax: (02) 4979 9988	
Project No. <u>2121881</u>	Phone No. <u>02 6586 8720</u>	Sent to Lab: <u>EnviroLab</u>		Date Required: <u>Standard</u>	
Project Name <u>Boradze Depot CSI</u>	Fax No. <u>02 6586 8701</u>	Address: <u>12 Ashley Street</u>		Date Submitted: <u>10/10/2012</u>	
Project Manager <u>Nick Passlow</u>	Address <u>nick.passlow@ghd.com</u>	<u>Chatswood</u>		Attention: <u>Sample receipt</u>	
Site Supervisor <u>Amylia Fletcher</u>	<u>amylia.fletcher@ghd.com</u>	Fax: <u>99106299</u>		Phone: <u>99106200</u>	
				Page <u>4</u> of <u>4</u>	

SAMPLE No.	Date Sampled	No. of Containers	Container Type / Size	MATRIX		PRESERVATION			ANALYSIS REQUIRED			COMMENTS	
				Water	Soil	Chill	Acid	Other	Combo 3a (TPH/BTEX/PAH/8 Metals/Asbestos)	OC	Combo 3		OC
60 QA-03	9-Oct	1	100ml jar		X	X			X	X			
61 RB-01	8-Oct	4	lastic/glas	X		X	X			X	X		
62 RB-02	9-Oct	4	lastic/glas	X		X	X			X	X		

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	10/10/2012	12.00pm	<i>AF</i>	<i>Sophie</i>	<i>ELG</i>	<i>11/10</i>	<i>10:00</i>	<i>BTJ</i>
RELINQUISHED BY					RECEIVED BY				

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CERTIFICATE OF ANALYSIS

81010

Client:

GHD Pty Ltd (Port Macquarie)

Level 1, 62 Clarence St
Port Macquarie
NSW 2444

Attention: Nick Passlow, Amylia Fletcher

Sample log in details:

Your Reference: **2121881, Boradze Depot CSI**
No. of samples: 25 soils, 2 waters
Date samples received / completed instructions received 01/11/12 / 01/11/12


Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

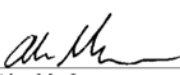
Date results requested by: / Issue Date: 8/11/12 / 8/11/12
Date of Preliminary Report: Not issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**


Results Approved By:


Rhian Morgan
Reporting Supervisor


Hinoko Miyazaki
Chemist


Lulu Guo
Approved Signatory


Alex MacLean
Chemist


Jeremy Faircloth
Chemist

TRH in Soil (C6-C9) Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-1 AH07 - Soil	81010-2 AH08 - Soil	81010-3 AH09 - Soil	81010-4 AH10 - Soil	81010-5 AH11 - Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	06/11/2012	06/11/2012	06/11/2012	06/11/2012	06/11/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Surrogate aaa-Trifluorotoluene	%	100	104	106	102	107

TRH in Soil (C6-C9) Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-6 AH12 - Soil	81010-7 AH13 - Soil	81010-8 AH14 - Soil	81010-9 AH15 - Soil	81010-10 AH16 - Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	06/11/2012	06/11/2012	06/11/2012	06/11/2012	06/11/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Surrogate aaa-Trifluorotoluene	%	108	109	105	109	109

TRH in Soil (C6-C9) Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-11 AH17 - Soil	81010-12 AH18 - Soil	81010-13 AH19 - Soil	81010-14 AH20 - Soil	81010-15 AH21 - Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	06/11/2012	06/11/2012	06/11/2012	06/11/2012	06/11/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Surrogate aaa-Trifluorotoluene	%	104	100	99	104	101

TRH in Soil (C6-C9) Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-16 AH22 - Soil	81010-17 AH23 - Soil	81010-18 AH24 0.1 Soil	81010-19 AH24 0.4 Soil	81010-20 AH25 - Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	06/11/2012	06/11/2012	06/11/2012	06/11/2012	06/11/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Surrogate aaa-Trifluorotoluene	%	108	108	98	96	104

TRH in Soil (C6-C9) Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-21 AH26 - Soil	81010-22 AH27 - Soil	81010-23 QA03 - Soil	81010-24 QA05 - Soil	81010-27 Q406 - Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	06/11/2012	06/11/2012	06/11/2012	06/11/2012	06/11/2012
vTRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Surrogate aaa-Trifluorotoluene	%	109	116	117	116	104

sTRH in Soil (C10-C36)	UNITS	81010-1	81010-2	81010-3	81010-4	81010-5
Our Reference:	-----	AH07	AH08	AH09	AH10	AH11
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	90	90	89	89

sTRH in Soil (C10-C36)	UNITS	81010-6	81010-7	81010-8	81010-9	81010-10
Our Reference:	-----	AH12	AH13	AH14	AH15	AH16
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	91	89	89	90

sTRH in Soil (C10-C36)	UNITS	81010-11	81010-12	81010-13	81010-14	81010-15
Our Reference:	-----	AH17	AH18	AH19	AH20	AH21
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	89	90	91	89

sTRH in Soil (C10-C36)	UNITS	81010-16	81010-17	81010-18	81010-19	81010-20
Our Reference:	-----	AH22	AH23	AH24	AH24	AH25
Your Reference	-----	-	-	0.1	0.4	-
Depth	-----	-	-	0.1	0.4	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	92	91	90	92

sTRH in Soil (C10-C36)	UNITS	81010-21	81010-22	81010-23	81010-24	81010-27
Our Reference:	-----	AH26	AH27	QA03	QA05	Q406
Your Reference	-----	-	-	-	-	-
Depth						
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	91	90	90	90

Acid Extractable metals in soil	UNITS	81010-1	81010-2	81010-3	81010-4	81010-5
Our Reference:	-----	AH07	AH08	AH09	AH10	AH11
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	7	9	11	11	8
Copper	mg/kg	11	25	17	27	12
Lead	mg/kg	13	10	10	9	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	6	7	9	4
Zinc	mg/kg	48	48	42	54	37

Acid Extractable metals in soil	UNITS	81010-6	81010-7	81010-8	81010-9	81010-10
Our Reference:	-----	AH12	AH13	AH14	AH15	AH16
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Arsenic	mg/kg	4	<4	<4	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	10	42	6	7	7
Copper	mg/kg	21	17	32	28	11
Lead	mg/kg	13	9	8	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	19	9	6	4
Zinc	mg/kg	47	41	55	54	32

Acid Extractable metals in soil	UNITS	81010-11	81010-12	81010-13	81010-14	81010-15
Our Reference:	-----	AH17	AH18	AH19	AH20	AH21
Your Reference	-----	-	-	-	-	-
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Arsenic	mg/kg	<4	<4	6	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	6	8	12	7	10
Copper	mg/kg	21	21	13	22	23
Lead	mg/kg	10	7	10	11	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	7	4	7	6
Zinc	mg/kg	42	36	18	46	32

Acid Extractable metals in soil		81010-16	81010-17	81010-18	81010-19	81010-20
Our Reference:	UNITS	AH22	AH23	AH24	AH24	AH25
Your Reference	-----	-	-	0.1	0.4	-
Depth	-----	Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Arsenic	mg/kg	<4	<4	<4	5	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	7	9	11	10	5
Copper	mg/kg	29	23	9	7	27
Lead	mg/kg	10	13	11	17	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	6	4	3	6
Zinc	mg/kg	58	51	23	46	49

Acid Extractable metals in soil		81010-21	81010-22	81010-23	81010-24	81010-27
Our Reference:	UNITS	AH26	AH27	QA03	QA05	Q406
Your Reference	-----	-	-	-	-	-
Depth	-----	Soil	Soil	Soil	Soil	Soil
Type of sample						
Date digested	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Date analysed	-	05/11/2012	05/11/2012	05/11/2012	05/11/2012	05/11/2012
Arsenic	mg/kg	6	5	<4	<4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	10	9	9	8	9
Copper	mg/kg	5	25	24	20	9
Lead	mg/kg	21	14	7	13	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	7	7	6	4
Zinc	mg/kg	26	53	38	53	85

Moisture						
Our Reference:	UNITS	81010-1	81010-2	81010-3	81010-4	81010-5
Your Reference	-----	AH07	AH08	AH09	AH10	AH11
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/11/12	05/11/12	05/11/12	05/11/12	05/11/12
Date analysed	-	06/11/12	06/11/12	06/11/12	06/11/12	06/11/12
Moisture	%	1.5	5.3	4.4	7.1	4.0

Moisture						
Our Reference:	UNITS	81010-6	81010-7	81010-8	81010-9	81010-10
Your Reference	-----	AH12	AH13	AH14	AH15	AH16
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/11/12	05/11/12	05/11/12	05/11/12	05/11/12
Date analysed	-	06/11/12	06/11/12	06/11/12	06/11/12	06/11/12
Moisture	%	6.4	5.1	5.1	4.9	3.3

Moisture						
Our Reference:	UNITS	81010-11	81010-12	81010-13	81010-14	81010-15
Your Reference	-----	AH17	AH18	AH19	AH20	AH21
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/11/12	05/11/12	05/11/12	05/11/12	05/11/12
Date analysed	-	06/11/12	06/11/12	06/11/12	06/11/12	06/11/12
Moisture	%	4.8	11	24	10	14

Moisture						
Our Reference:	UNITS	81010-16	81010-17	81010-18	81010-19	81010-20
Your Reference	-----	AH22	AH23	AH24	AH24	AH25
Depth	-----	-	-	0.1	0.4	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/11/12	05/11/12	05/11/12	05/11/12	05/11/12
Date analysed	-	06/11/12	06/11/12	06/11/12	06/11/12	06/11/12
Moisture	%	6.0	11	19	11	4.8

Moisture						
Our Reference:	UNITS	81010-21	81010-22	81010-23	81010-24	81010-27
Your Reference	-----	AH26	AH27	QA03	QA05	Q406
Depth	-----	-	-	-	-	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	05/11/12	05/11/12	05/11/12	05/11/12	05/11/12
Date analysed	-	06/11/12	06/11/12	06/11/12	06/11/12	06/11/12
Moisture	%	12	7.1	11	8.6	8.1

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-1 AH07 - Soil	81010-2 AH08 - Soil	81010-3 AH09 - Soil	81010-4 AH10 - Soil	81010-5 AH11 - Soil
Date analysed	-	6/11/2012	6/11/2012	6/11/2012	6/11/2012	6/11/2012
Sample mass tested	g	Approx 55g	Approx 40g	Approx 80g	Approx 75g	Approx 70g
Sample Description	-	Brown fine-grained soil, rocks & debris	Brown fine-grained soil & rocks	Brown fine-grained sandy soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-6 AH12 - Soil	81010-7 AH13 - Soil	81010-8 AH14 - Soil	81010-9 AH15 - Soil	81010-10 AH16 - Soil
Date analysed	-	6/11/2012	6/11/2012	6/11/2012	6/11/2012	6/11/2012
Sample mass tested	g	Approx 65g	Approx 50g	Approx 90g	Approx 75g	Approx 65g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-11 AH17 - Soil	81010-12 AH18 - Soil	81010-13 AH19 - Soil	81010-14 AH20 - Soil	81010-15 AH21 - Soil
Date analysed	-	6/11/2012	6/11/2012	6/11/2012	6/11/2012	6/11/2012
Sample mass tested	g	Approx 65g	Approx 70g	Approx 80g	Approx 70g	Approx 55g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-16 AH22 - Soil	81010-17 AH23 - Soil	81010-18 AH24 0.1 Soil	81010-19 AH24 0.4 Soil	81010-20 AH25 - Soil
Date analysed	-	6/11/2012	6/11/2012	6/11/2012	6/11/2012	6/11/2012
Sample mass tested	g	Approx 65g	Approx 45g	Approx 35g	Approx 35g	Approx 80g
Sample Description	-	Brown fine-grained sandy soil & rocks	Brown fine-grained clay soil & rocks	Brown fine-grained clay soil & rocks	Dark brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	81010-21 AH26 - Soil	81010-22 AH27 - Soil
Date analysed	-	6/11/2012	6/11/2012
Sample mass tested	g	Approx 55g	Approx 45g
Sample Description	-	Dark brown fine-grained soil & rocks	Brown fine-grained clay soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected

vTRH & BTEX in Water	UNITS	81010-25	81010-26
Our Reference:	-----	RB-03	RB-04
Your Reference	-----	-	-
Depth			
Type of sample		water	water
Date extracted	-	02/11/2012	02/11/2012
Date analysed	-	02/11/2012	02/11/2012
TRHC ₆ - C ₉	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	104	105
Surrogate toluene-d8	%	101	101
Surrogate 4-BFB	%	96	96

sTRH in Water (C10-C36)	UNITS	81010-25	81010-26
Our Reference:	-----	RB-03	RB-04
Your Reference	-----	-	-
Depth			
Type of sample		water	water
Date extracted	-	02/11/2012	02/11/2012
Date analysed	-	02/11/2012	02/11/2012
TRHC ₁₀ - C ₁₄	µg/L	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100
Surrogate o-Terphenyl	%	100	93

Metals in Water - Dissolved	UNITS	81010-25	81010-26
Our Reference:	-----	RB-03	RB-04
Your Reference	-----	-	-
Depth			
Type of sample		water	water
Date digested	-	05/11/2012	05/11/2012
Date analysed	-	07/11/2012	07/11/2012
Arsenic - Dissolved	mg/L	<0.05	<0.05
Cadmium - Dissolved	mg/L	<0.01	<0.01
Chromium - Dissolved	mg/L	<0.01	<0.01
Copper - Dissolved	mg/L	<0.01	<0.01
Lead - Dissolved	mg/L	<0.03	<0.03
Mercury - Dissolved	mg/L	<0.0005	<0.0005
Nickel - Dissolved	mg/L	<0.02	<0.02
Zinc - Dissolved	mg/L	0.05	0.04

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Client Reference: 2121881, Boradze Depot CSI

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
TRH in Soil (C6-C9)						Base II Duplicate II %RPD		
Date extracted	-			05/11/2012	81010-1	05/11/2012 05/11/2012	LCS-8	05/11/2012
Date analysed	-			06/11/2012	81010-1	06/11/2012 06/11/2012	LCS-8	06/11/2012
vTRHC ₆ - C ₉	mg/kg	25	Org-016	<25	81010-1	<25 <25	LCS-8	111%
Surrogate aaa-Trifluorotoluene	%		Org-016	113	81010-1	100 104 RPD: 4	LCS-8	116%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTRH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			05/11/2012	81010-1	05/11/2012 05/11/2012	LCS-7	05/11/2012
Date analysed	-			05/11/2012	81010-1	05/11/2012 05/11/2012	LCS-7	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	81010-1	<50 <50	LCS-7	79%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	81010-1	<100 <100	LCS-7	97%
TRHC ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	81010-1	<100 <100	LCS-7	92%
Surrogate o-Terphenyl	%		Org-003	105	81010-1	92 91 RPD: 1	LCS-7	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			05/11/2012	81010-1	05/11/2012 05/11/2012	LCS-1	05/11/2012
Date analysed	-			05/11/2012	81010-1	05/11/2012 05/11/2012	LCS-1	05/11/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	81010-1	<4 <4	LCS-1	94%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	81010-1	<0.5 <0.5	LCS-1	93%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	81010-1	7 6 RPD: 15	LCS-1	97%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	81010-1	11 9 RPD: 20	LCS-1	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	81010-1	13 11 RPD: 17	LCS-1	92%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	81010-1	<0.1 <0.1	LCS-1	96%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	81010-1	3 3 RPD: 0	LCS-1	95%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	81010-1	48 42 RPD: 13	LCS-1	93%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank				
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank				
Date analysed	-			[NT]				
QUALITY CONTROL vTRH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/11/2012	[NT]	[NT]	LCS-W1	02/11/2012
Date analysed	-			02/11/2012	[NT]	[NT]	LCS-W1	02/11/2012
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	104%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	105%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	105%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
Surrogate Dibromofluoromethane	%		Org-016	102	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	LCS-W1	102%
QUALITY CONTROL sTRH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/11/2012	[NT]	[NT]	LCS-W1	02/11/2012
Date analysed	-			02/11/2012	[NT]	[NT]	LCS-W1	02/11/2012
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	80%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	108%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	108%
Surrogate o-Terphenyl	%		Org-003	95	[NT]	[NT]	LCS-W1	125%
QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			[NT]	[NT]	[NT]	LCS-W1	05/11/2012
Date analysed	-			[NT]	[NT]	[NT]	LCS-W1	05/11/2012
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	101%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	92%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	102%
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	104%

Client Reference: 2121881, Boradze Depot CSI

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in Water - Dissolved						Base II Duplicate II %RPD		
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	99%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	92%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	102%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	101%
QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery			
TRH in Soil (C6-C9)			Base + Duplicate + %RPD					
Date extracted	-	81010-11	05/11/2012 05/11/2012	LCS-7	05/11/2012			
Date analysed	-	81010-11	06/11/2012 06/11/2012	LCS-7	06/11/2012			
vTRHC ₆ - C ₉	mg/kg	81010-11	<25 <25	LCS-7	109%			
Surrogate aaa-Trifluorotoluene	%	81010-11	104 101 RPD: 3	LCS-7	108%			
QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery			
sTRH in Soil (C10-C36)			Base + Duplicate + %RPD					
Date extracted	-	81010-11	05/11/2012 05/11/2012	LCS-8	05/11/2012			
Date analysed	-	81010-11	05/11/2012 05/11/2012	LCS-8	05/11/2012			
TRHC ₁₀ - C ₁₄	mg/kg	81010-11	<50 <50	LCS-8	80%			
TRHC ₁₅ - C ₂₈	mg/kg	81010-11	<100 <100	LCS-8	97%			
TRHC ₂₉ - C ₃₆	mg/kg	81010-11	<100 <100	LCS-8	92%			
Surrogate o-Terphenyl	%	81010-11	89 88 RPD: 1	LCS-8	100%			
QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery			
Acid Extractable metals in soil			Base + Duplicate + %RPD					
Date digested	-	81010-11	05/11/2012 05/11/2012	LCS-2	05/11/2012			
Date analysed	-	81010-11	05/11/2012 05/11/2012	LCS-2	05/11/2012			
Arsenic	mg/kg	81010-11	<4 <4	LCS-2	95%			
Cadmium	mg/kg	81010-11	<0.5 <0.5	LCS-2	94%			
Chromium	mg/kg	81010-11	6 5 RPD: 18	LCS-2	97%			
Copper	mg/kg	81010-11	21 22 RPD: 5	LCS-2	101%			
Lead	mg/kg	81010-11	10 7 RPD: 35	LCS-2	93%			
Mercury	mg/kg	81010-11	<0.1 <0.1	LCS-2	89%			
Nickel	mg/kg	81010-11	6 6 RPD: 0	LCS-2	96%			
Zinc	mg/kg	81010-11	42 39 RPD: 7	LCS-2	94%			

Client Reference: 2121881, Boradze Depot CSI

QUALITY CONTROL TRH in Soil (C6-C9)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	81010-21	05/11/2012 05/11/2012	81010-2	05/11/2012
Date analysed	-	81010-21	06/11/2012 06/11/2012	81010-2	06/11/2012
vTRHC ₆ - C ₉	mg/kg	81010-21	<25 <25	81010-2	103%
Surrogate aaa- Trifluorotoluene	%	81010-21	109 115 RPD: 5	81010-2	106%
QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	81010-21	05/11/2012 05/11/2012	81010-2	05/11/2012
Date analysed	-	81010-21	05/11/2012 05/11/2012	81010-2	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	81010-21	<50 <50	81010-2	98%
TRHC ₁₅ - C ₂₈	mg/kg	81010-21	<100 <100	81010-2	95%
TRHC ₂₉ - C ₃₆	mg/kg	81010-21	<100 <100	81010-2	87%
Surrogate o-Terphenyl	%	81010-21	89 89 RPD: 0	81010-2	101%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	81010-21	05/11/2012 05/11/2012	81010-2	05/11/2012
Date analysed	-	81010-21	05/11/2012 05/11/2012	81010-2	05/11/2012
Arsenic	mg/kg	81010-21	6 8 RPD: 29	81010-2	80%
Cadmium	mg/kg	81010-21	<0.5 <0.5	81010-2	74%
Chromium	mg/kg	81010-21	10 10 RPD: 0	81010-2	84%
Copper	mg/kg	81010-21	5 4 RPD: 22	81010-2	87%
Lead	mg/kg	81010-21	21 19 RPD: 10	81010-2	77%
Mercury	mg/kg	81010-21	<0.1 <0.1	81010-2	96%
Nickel	mg/kg	81010-21	3 2 RPD: 40	81010-2	74%
Zinc	mg/kg	81010-21	26 20 RPD: 26	81010-2	#
QUALITY CONTROL TRH in Soil (C6-C9)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	81010-22	05/11/2012
Date analysed	-	[NT]	[NT]	81010-22	06/11/2012
vTRHC ₆ - C ₉	mg/kg	[NT]	[NT]	81010-22	103%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	81010-22	114%
QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	81010-22	05/11/2012
Date analysed	-	[NT]	[NT]	81010-22	05/11/2012
TRHC ₁₀ - C ₁₄	mg/kg	[NT]	[NT]	81010-22	79%
TRHC ₁₅ - C ₂₈	mg/kg	[NT]	[NT]	81010-22	96%
TRHC ₂₉ - C ₃₆	mg/kg	[NT]	[NT]	81010-22	87%
Surrogate o-Terphenyl	%	[NT]	[NT]	81010-22	99%

Client Reference: 2121881, Boradze Depot CSI

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	81010-22	05/11/2012
Date analysed	-	[NT]	[NT]	81010-22	05/11/2012
Arsenic	mg/kg	[NT]	[NT]	81010-22	75%
Cadmium	mg/kg	[NT]	[NT]	81010-22	75%
Chromium	mg/kg	[NT]	[NT]	81010-22	82%
Copper	mg/kg	[NT]	[NT]	81010-22	106%
Lead	mg/kg	[NT]	[NT]	81010-22	72%
Mercury	mg/kg	[NT]	[NT]	81010-22	107%
Nickel	mg/kg	[NT]	[NT]	81010-22	77%
Zinc	mg/kg	[NT]	[NT]	81010-22	76%

Report Comments:

Asbestos:

81010-2, 18 and 19: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.

81010-5, 6, 8, 10, 11, 14, 16, 17, 20, 21 and 22: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures.

We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Metals:# Percent recovery is not possible to report due to the homogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier: Paul Ching

Asbestos ID was authorised by Approved Signatory: Lulu Guo

INS: Insufficient sample for this test

PQL: Practical Quantitation Limit

NT: Not tested

NA: Test not required

RPD: Relative Percent Difference

NA: Test not required

<: Less than

>: Greater than

LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.


Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.



CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port Macquarie		Telephone: (02) 4979 9999		Fax: (02) 4979 9988	
Project No. <u>2121881</u>	Phone No. <u>02 6586 8720</u>	Sent to Lab: <u>EnviroLab</u>		Date Required: <u>Standard</u>	
Project Name <u>Boradze Depot CSI</u>	Fax No. <u>02 6586 8701</u>	Address: <u>12 Ashley Street</u>		Date Submitted: <u>31/10/2012</u>	
Project Manager <u>Nick Passlow</u>	Address <u>nick.passlow@ghd.com</u>	<u>Chatswood</u>		Attention: <u>Sample receipt</u>	Page <u>1</u> of <u>2</u>
Site Supervisor <u>Amylia Fletcher</u>	<u>amylia.fletcher@ghd.com</u>	Fax: <u>99106299</u>	Phone: <u>99106200</u>		

SAMPLE No.	Date Sampled	No. of Containers	Container Type /Size	MATRIX		PRESERVATION			ANALYSIS REQUIRED		COMMENTS
				Water	Soil	Chill	Acid	Other	Combo 3a (TPH/BTEX/PAH/8 Metals/Asbestos)	OC	
1) AH07	Oct	2	100ml jar +bag		X	X					
2) AH08	Oct	2	"		X	X					
3) AH09	Oct	2	"		X	X					
4) AH10	Oct	2	"		X	X					
5) AH11	Oct	2	"		X	X					
6) AH12	Oct	2	"		X	X					
7) AH13	Oct	2	"		X	X					
8) AH14	Oct	2	"		X	X					
9) AH15	Oct	2	"		X	X					
10) AH16	Oct	2	"		X	X					
11) AH17	Oct	2	"		X	X					
12) AH18	Oct	2	"		X	X					
13) AH19	Oct	2	"		X	X					
14) AH20	Oct	2	"		X	X					
15) AH21	Oct	2	"		X	X					
16) AH21	Oct	2	"		X	X					
17) AH23	Oct	2	"		X	X					
18) AH24 - 0.7	Oct	2	"		X	X					
19) AH24 - 0.4	Oct	2	"		X	X					
20) AH25	Oct	2	"		X	X					


EnviroLab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 8200
 Job No: 81010
 Date Received: 1/11/12
 Time Received: 9:30
 Received by: PT
 Temp: 20/Ambient
 Cooling: Ice/coolpack
 Security: IAGS/Braker/None

Analyses to be advised.

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	31/10/2012	12.00pm	<i>AF</i>	Prabirtha	ELS	1/11/12	9:30	PT
RELINQUISHED BY					RECEIVED BY				

It is the responsibility of the receiver to verify that the number of samples and their identifying samples numbers correspond to those listed on this form



CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

GHD Pty Ltd, 16 Clarence Street Port Macquarie
 Project No. 2121881
 Project Name Boradze Depot CSI
 Project Manager Nick Passlow
 Site Supervisor Amylia Fletcher

Phone No. 02 6586 8720
 Fax No. 02 6586 8701
 Address nick.passlow@ghd.com
amylia.fletcher@ghd.com

Telephone: (02) 4979 9989
 Sent to Lab: Envirolab
 Address: 12 Ashley Street
Chatswood
 Fax: 99106299

Fax: (02) 4979 9988
 Attention: Sample receipt
 Phone: 99106200

Date Required: Standard
 Date Submitted: 31/10/2012
 Page 2 of 2

SAMPLE No.	Date Sampled	No. of Containers	Container Type /Size	MATRIX		PRESERVATION			ANALYSIS REQUIRED			COMMENTS
				Water	Soil	Chill	Acid	Other	Combo 3a (TPH/BTEX/PAH/8 Metals/Asbestos)	OC	Combo 3	
21) AH26	Oct	2	100ml jar		X	X						
22) AH27	Oct	2	"		X	X						
23) QA03	Oct	1										
X QA04	Oct	1										
24) QA05	Oct	1										
25) RB-09	Oct											
26) RB-04	Oct											
27) QA06												

RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed
Amylia Fletcher	GHD	10/10/2012	12.00pm	<i>AF</i>					
RELINQUISHED BY					RECEIVED BY				
Name	Organisation	Date	Time	Signed	Name	Organisation	Date	Time	Signed

It is the responsibility of the receiver to verify that the number of samples and their identifying samples numbers correspond to those listed on this form

PLEASE FAXED COMPLETED FORM TO GHD PROJECT MANAGER ON RECEIPT (02) 4979 9988

AF

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES1224459	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MS AMYLIA FLETCHER	Contact	: Client Services
Address	: PO BOX 5403 NEWCASTLE WEST NSW, AUSTRALIA 2302	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: amylia.fletcher@ghd.com	E-mail	: sydney@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 2121881 BORADZE DEPOT CSI	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 12-OCT-2012
C-O-C number	: ----	Issue Date	: 22-OCT-2012
Sampler	: ----	No. of samples received	: 1
Site	: ----	No. of samples analysed	: 1
Quote number	: EN/005/12		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EA200 Legend for Asbestos Type:**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 't'** Trace levels
- **EA200 'UMF'** Unknown mineral fibres
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Confirmation by alternative techniques is recommended for samples where unknown mineral fibres are detected. Negative results for vinyl tiles should be confirmed by an independent analytical technique.**



Analytical Results

Sub-Matrix: **SOIL**

Client sample ID

QA-02

Client sampling date / time

09-OCT-2012 15:00

Compound	CAS Number	LOR	Unit	ES1224459-001				
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	23.3	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	13	----	----	----	----
Copper	7440-50-8	5	mg/kg	6	----	----	----	----
Lead	7439-92-1	5	mg/kg	14	----	----	----	----
Nickel	7440-02-0	2	mg/kg	3	----	----	----	----
Zinc	7440-66-6	5	mg/kg	13	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	82.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	82.7	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	81.7	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	89.7	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	91.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	95.5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	96.4	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	107	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	74.2	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2,4,6-Tribromophenol	118-79-6	23.1	134.9
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Appendix I Borelogs

BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-01	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447928.0 E 6471658.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12	Logged by : AF	Date : 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH01-0.1 (PID: 0.0)	0.10	XXXX		CLAY with gravels, dark brown, medium plasticity, dry. Gravels are angular and of quartz composition (FILL). End of borehole at 0.1 - refusal on gravels.	D		No odours or staining.
2											
3											
4											
5											

See standard sheets for details of abbreviations & basis of descriptions



GHD
 57 Herbert Street, Artarmon NSW 2064 Australia
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Job No.
2121881

BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-02	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447929.0 E 6471592.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH02-0.4 (PID: 0.0)	0.40			CLAY with gravels, brown, some slightly moist patches, mostly dry. Gravels are angular and coarse.	D		No odours or staining.
								End of borehole at 0.4 - refusal.			
1											
2											
3											
4											
5											

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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-03	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447905.0 E 6471531.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH03-0.3 (PID: 0.0)	0.30			CLAY, light brown, dry.	D		No odours or staining.
2								End of borehole at 0.3 - refusal.			
3											
4											
5											

See standard sheets for details of abbreviations & basis of descriptions



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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-04	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447859.0 E 6471462.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition
1	Hand Auger			AH04-0.4 (PID: 0.0)	0.20	[Hatched Box]		CLAY, brown, dry.	D	
					0.40	[Hatched Box]		CLAY, dark brown/orange, medium plasticity, stiff, slightly moist.	SM	
2										
3										
4										
5										

See standard sheets for details of abbreviations & basis of descriptions



GHD
 57 Herbert Street, Artarmon NSW 2064 Australia
 T: 61 2 9462 4700 F: 61 2 9462 4710 E: sydmail@ghd.com
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Job No.
2121881

BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-05	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447858.0 E 6471414.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition
1	Hand Auger			AH05-0.5 (PID: 0.0)	0.20			CLAY, brown, dry (FILL).	D	No odours or staining.
					0.40			CLAY, dark brown, medium plasticity, stiff, slightly moist.	SM	
					0.50			CLAY, orange/brown, medium plasticity, stiff, dry.	D	
2								End of borehole at 0.5.		
3										
4										
5										

See standard sheets for details of abbreviations & basis of descriptions



GHD
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Job No.
2121881

BOREHOLE LOG SHEET

GEO-BOREHOLE-BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-06	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447791.0 E 6471397.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 8/10/12	Date Completed : 8/10/12		Date : 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger				0.10			CLAY, dark brown, dry. CLAY, dark brown, medium plasticity, stiff, slightly moist.	D SM		No odours or staining.
				AH-06-0.5 (PID: 0.0)	0.50			End of borehole at 0.5.			
1											
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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT_16/11/12

Client : RailCorp		HOLE No. AH-07	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447937.0 E 6471261.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH.07(0.1) (PID=0.0)	0.10	XXXX		GRAVELS with clay, light brown, dry (FILL). End of borehole at 0.1 - refusal	D		No odours or staining
2											
3											
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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-08	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447939.0 E 6471294.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
0	Hand Auger			AH.08(0.3) (PID=0.0)	0.30			GRAVELS with clay, brown, dry (FILL).	D		No odours or staining
0.30	Hand Auger							End of borehole at 0.3 - refusal			
1											
2											
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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-09	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447880.0 E 6471303.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH.09(0.2) (PID=3.7)	0.20			CLAY with gravels, light brown, dry (FILL). Gravels are angular to subangular and of quartz composition.	D		No odours or staining
2	Hand Auger							End of borehole at 0.2 - refusal			
3											
4											
5											

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Client : RailCorp		HOLE No. AH-10	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447949.0 E 6471328.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date: 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH.10(0.25) (PID=0.2)	0.25			GRAVELS with clay, brown, angular to subangular, quartz composition, dry (FILL).	D		No odours or staining
2	Hand Auger							End of borehole at 0.25 - refusal			
3											
4											
5											

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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-11	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447822.0 E 6471382.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date : 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-11(0.3) (PID=4.7)	0.30			GRAVELS with clay, brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.3 - refusal			
2											
3											
4											
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Client : RailCorp		HOLE No. AH-12	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447853.0 E 6471370.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date : 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-12(0.3) (PID=40.4)	0.30			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.3 - refusal			
2											
3											
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Client : RailCorp		HOLE No. AH-13	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447909.0 E 6471343.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-13(0.3) (PID=0.3)	0.30			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.3 - refusal			
2											
3											
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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-14	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447953.0 E 6471348.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH14(0.2) (PID=0.2)	0.20			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
2	Hand Auger							End of borehole at 0.2 - refusal			
3											
4											
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Client : RailCorp		HOLE No. AH-15	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447960.0 E 6471381.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-15(0.3)	0.30			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.3 - refusal			
2											
3											
4											
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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-16	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447941.0 E 6471403.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date : 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH-16(0.25) (PID=0.8)	0.25			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.25 - refusal			
1											
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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-17	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Position : 447880.0 E 6471410.0 N	Surface RL:
Rig Type : Hand auger		Mounting: NA	Contractor : NA
Date Started : 30/10/12		Date Completed : 30/10/12	Logged by : AF
		Angle from Horiz. : 90°	Processed : ST
			Checked : NP
			Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH17(0.2) (PID=0.0)	0.20			GRAVELS with clay, brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
2	Hand Auger							End of borehole at 0.2 - refusal			
3											
4											
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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-18	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447882.0 E 6471424.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH18(0.25) (PID=0.4 QA03)	0.20			GRAVELS with clay, brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
					0.30			CLAY with gravels, reddish brown, medium plasticity, firm to stiff. End of borehole at 0.3 - natural soil encountered			
2											
3											
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5											

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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT_16/11/12

Client : RailCorp		HOLE No. AH-19	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447913.0 E 6471426.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH19-0.4	0.20			GRAVELS with clay, brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
					0.40			CLAY with gravels, dark brown, medium plasticity, firm to stiff.			
								End of borehole at 0.4 - natural soil encountered			
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2											
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Client : RailCorp	HOLE No. AH-20		
Project : Boradze Depot Combined Site Investigation	SHEET 1 OF 1		
Location : Cnr Bushland Drive and Grey Gum Road, Taree	Position : 447942.0 E 6471439.0 N	Surface RL:	Angle from Horiz. : 90°
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Driller : AF
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Processed : ST
			Checked : NP
			Date: 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH-20(0.2) (PID=0.0)	0.20			GRAVELS with clay, brown, subangular to angular, quartz composition, dry (FILL).	D		No odours or staining
	Hand Auger				0.30			CLAY with gravels, dark brown, medium plasticity, firm to stiff, moist. End of borehole at 0.3 - natural soil encountered	M		
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2											
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Client : RailCorp		HOLE No. AH-21	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447871.0 E 6471459.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition
	Hand Auger			AH-21(0.2) (PID=0.0)	0.20			GRAVELS with clay, light brown, subangular to angular, quartz composition, organics present, dry (FILL).	D	
	Hand Auger							End of borehole at 0.2 - refusal		
1										
2										
3										
4										
5										

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GEO-BOREHOLE-BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-22	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447943.0 E 6471471.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-22(0.1) (PID=0.0)	0.10	XXXX		GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL). End of borehole at 0.1 - refusal	D		No odours or staining
2											
3											
4											
5											

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BOREHOLE LOG SHEET

GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-23	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447920.0 E 6471475.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 30/10/12	Date Completed : 30/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-23(0.2) (PID=0.0 QA05)	0.20			GRAVELS with clay, light brown, subangular to angular, of quartz composition, dry (FILL).	D		Organics present
2	Hand Auger							End of borehole at 0.2 - refusal			
3											
4											
5											

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Client : RailCorp		HOLE No. AH-24	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447849.0 E 6471492.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition
1	Hand Auger			AH-24(0.1) (PID=0.0)	0.20	[Cross-hatch pattern]		GRAVELS with clay, brown, subangular to angular, of quartz composition, dry (FILL).	D	No odours or staining
				AH-24(0.4) (QA06)	0.40	[Diagonal lines pattern]		CLAY, dark grey, low to medium plasticity, firm to stiff, moist.	M	
				End of borehole at 0.4 - natural soil encountered						
2										
3										
4										
5										

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Client : RailCorp		HOLE No. AH-25	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447867.0 E 6471485.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Hand Auger			AH-25(0.3) (PID=0.0)	0.30			CLAY with gravels, light brown, dry. Gravels are subangular to angular and of quartz composition (FILL).	D		No odours or staining
	Hand Auger							End of borehole at 0.3 - refusal			
2											
3											
4											
5											

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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-26	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447806.0 E 6471420.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH-26 (PID=0.0)	0.30			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition.			No odours or staining
	Hand Auger							End of borehole at 0.3 - natural soil			
1											
2											
3											
4											
5											

See standard sheets for details of abbreviations & basis of descriptions




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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. AH-27	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447901.0 E 6471564.0 N	Contractor : NA	Driller : AF	Processed : ST
Rig Type : Hand auger	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 29/10/12	Date Completed : 29/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Hand Auger			AH-27(0.2) (PID=0.0)	0.10 0.20			GRAVELS with clay, brown, subangular and angular, of quartz composition, dry (FILL). CLAY, light brown, dry. End of borehole at 0.2 - natural soil encountered	D D		No odours or staining
1											
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP01	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447878.0 E 6471368.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date : 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP01-0.1 (PID: 0.0)	0.30			CLAY with gravels, light brown. Gravels are angular and of quartz composition (FILL).		No odours or staining
				TP01-0.5 (PID: 0.0)	1.00			CLAY, dark brown, medium plasticity, stiff, moist.	M	No odours or staining
				TP01-1.5 (PID: 0.1)	1.50			CLAY, light brown, medium plasticity, firm, moist.	M	No odours or staining
								End of testpit at 1.5.		
2										
3										
4										
5										

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Client : RailCorp		HOLE No. TP02	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 442869.0 E 6471333.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP02-0.1 (PID: 0.0)	0.20			CLAY with gravel, brown, dry. Gravel subangular to angular and of quartz composition (FILL).	D	No odours or staining
				TP02-0.5 (PID: 0.0)	0.60			CLAY with gravels, light brown, dry. Gravels are coarse.	D	No odours or staining
				TP02-1.0 (PID: 0.0)	1.00			MUDSTONE, weathered (probable).		No odours or staining
								End of testpit at 1.0 - refusal.		
2										
3										
4										
5										

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Client : RailCorp		HOLE No. TP03	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447869.0 E 6471326.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition Consistency / Density Index
1	Excavator			TP03-0.1 (PID: 0.0) TP03-0.5 (QA01; PID: 0.0)	0.30 1.00	 		CLAY with gravels, light brown, dry. Gravels are angular and of quartz composition (FILL). CLAY, brown, medium plasticity, stiff becoming firm with depth, moist.	D M	No odours or staining No odours or staining
								End of testpit at 1.0.		
2										
3										
4										
5										

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Client : RailCorp		HOLE No. TP04	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447891.0 E 6471295.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12	Logged by : AF	Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations			
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition	Consistency / Density Index
1	Excavator			TP04-0.1 (PID: 0.0)	0.20			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition (FILL).	D		No odours or staining
				TP04-0.5 (PID: 0.0)	1.00			CLAY with gravels, light grey with traces of orange, medium plasticity, moist. Gravels are coarse.	M		No odours or staining
				TP04-1.5 (PID: 0.0)	1.50			CLAY with gravels, light grey and orange. Gravels are coarse.			No odours or staining
2								End of testpit at 1.5.			No odours or staining
3											
4											
5											

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Client : RailCorp		HOLE No. TP05	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447947.0 E 6471241.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Excavator			TP05-0.1 (PID: 0.0)	0.10			CLAY with gravels, brown, dry (FILL). Gravels are subangular to angular and of quartz composition. MUDSTONE, weathered (probable).	D		No odours or staining No odours or staining.
				TP05-0.5 (PID: 0.0)	0.50			End of borehole at 0.5 - refusal.			
1											
2											
3											
4											
5											

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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. TP06	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447941.0 E 6471309.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Excavator			TP06-0.2 (PID: 0.0)	0.2			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition (FILL).	D		No odours or staining
				TP06-0.5 (QA02; PID: 0.0)	0.50			CLAY, dark brown with traces of grey and orange, medium plasticity firm becoming stiff with depth, traces of organics, moist.	M		No odours or staining
1.00								End of borehole at 1.0.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP07	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447924.0 E 6471318.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations			
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition	Consistency / Density Index
1	Excavator			TP07-0.1 (PID: 0.0)	0.30			CLAY with gravels, brown, dry. Gravels are subangular and of quartz composition (FILL).	D		No odours or staining
				TP07-0.5 (PID: 5.5)				CLAY, dark grey, medium plasticity, organics visible, moist.	M		Decomposition odour
				TP07-1.5 (PID: 0.0)	1.50			End of testpit at 1.5 - refusal on bedrock.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP08	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447894.0 E 6471348.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP08-0.1 (PID: 0.0)	0.40			CLAY with gravels, brown, dry. Gravels are subangular and of quartz composition (FILL).	D	No odours or staining
				TP08-0.5 (PID: 12.2)	0.60			CLAY, medium plasticity, organics, slightly moist.	SM	Decomposition odour
				TP08-1.5 (PID: 0.0)	1.50			CLAY, dark brown/grey, firm to stiff.		No odours or staining
								End of testpit at 1.5.		
2										
3										
4										
5										

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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. TP09	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447898.0 E 6471375.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP09-0.1 (PID: 0.0)	0.40			CLAY with gravels, brown, dry. Gravels are subangular and of quartz composition (FILL).	D	No odours or staining
				TP09-0.5 (PID: 0.0)	0.60			CLAY, brown, medium plasticity, organics visible, slightly moist.	SM	Slight organic odour
				TP09-1.5 (PID: 0.0)	1.50			CLAY, dark brown, firm to stiff, moist.	M	No odours or staining
								End of testpit at 1.5.		
2										
3										
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Client : RailCorp		HOLE No. TP10	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447919.0 E 6471379.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12	Logged by : AF	Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations			
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition	Consistency / Density Index
1	Excavator			TP10-0.1 (PID: 0.0)	0.30			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition (FILL).	D		No odours or staining
				TP10-0.5 (PID: 0.0)	1.00			CLAY, dark brown, medium plasticity, stiff, slightly moist.	SM		No odours or staining
				TP10-1.5 (PID: 0.0)	1.50			CLAY, grading to dark grey with specks of green, medium plasticity, soft, moist.	M		No odours or staining
								End of testpit at 1.5.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP11	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447946.0 E 6471362.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Contractor : NA	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12	Logged by : AF	Date 19.11.12

DRILLING					MATERIAL					Comments/ Observations	
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition		Consistency / Density Index
1	Excavator			TP11-0.1 (PID: 0.0)	0.20			clayey GRAVEL, brown, subangular to angular, of quartz composition, dry (FILL).	D		No odours or staining
				TP11-0.5 (PID: 0.0)				CLAY, brown, medium plasticity, stiff, becoming moist with depth.	M		No odours or staining
					1.20			CLAY, grey and orange, medium plasticity, soft to firm, moist.	M		No odours or staining
				TP11-1.5 (PID: 0.0)	1.50			End of testpit at 1.5.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP12	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447945.0 E 6471396.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP12-0.1 (PID: 0.0)	0.20			CLAY with gravels, brown/orange, slightly moist. Gravels are subangular and of quartz composition (FILL).	SM	No odours or staining
				TP12-0.5 (PID: 0.0)	0.70			CLAY with coarse gravels, brown, medium plasticity, stiff.		No odours or staining
				TP12-1.0 (PID: 0.0)				CLAY, grey/black, medium plasticity, soft to firm.		No odours or staining
				TP12-1.5 (PID: 0.0)	1.50			End of testpit at 1.5.		
2										
3										
4										
5										

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Client : RailCorp		HOLE No. TP13	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447929.0 E 6471435.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Excavator			TP13-0.1 (PID: 0.0)	0.20			CLAY, dark brown, medium plasticity, slightly moist (FILL).	M		No odours or staining
				TP13-0.5 (PID: 0.0)				CLAY, brown, medium plasticity, stiff, slightly damp.	M		No odours or staining
				TP13-1.0 (PID: 0.0)	1.00			End of testpit at 1.0 - refusal on bedrock.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP14	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447894.0 E 6471427.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
	Excavator			TP14-0.1 (PID: 0.0)	0.10			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition (FILL).	D		No odours or staining
				TP14-0.5 (PID: 0.0)	0.70			CLAY with gravels, brown, medium plasticity, moist. Gravels are coarse.	M		No odours or staining
1								End of testpit at 0.7 - refusal on bedrock.			
2											
3											
4											
5											

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
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Client : RailCorp		HOLE No. TP15	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447939.0 E 6471466.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Excavator			TP15-0.1 (PID: 0.0)	0.20			CLAY with gravels, brown, dry. Gravels are angular and of quartz composition (FILL).	D		No odours or staining
				TP15-0.5 (PID: 0.0)	0.50			CLAY with gravels, brown with traces of orange. Gravel are coarse.			No odours or staining
									End of testpit at 0.5 - refusal on bedrock.		
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP16	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447929.0 E 6471435.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations			
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition	Consistency / Density Index
1	Excavator			TP16-0.1 (PID: 0.0)	0.20			CLAY with gravels, brown, dry. Gravels are subangular to angular and or quartz composition (FILL).	D		No odours or staining
				TP16-0.5 (PID: 0.0)				CLAY, brown, medium plasticity, firm to stiff and becoming soft with depth, slightly moist.	SM		No odours or staining
				TP16-1.5 (PID: 0.0)	1.50			End of testpit at 1.5 - refusal on bedrock.			
2											
3											
4											
5											

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Client : RailCorp		HOLE No. TP17	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447795.0 E 6471352.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date : 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP17-0.1 (PID: 0.0)				CLAY with gravels, dry. Gravels are fine (FILL).	D	No odours or staining
				TP17-0.5 (PID: 0.0)	0.50			CLAY, brown, medium plasticity, firm, slightly moist.	SM	No odours or staining
					0.70			CLAY, dark grey, medium plasticity, stiff, slightly moist.	SM	No odours or staining
				TP17-1.5 (PID: 0.0)	1.50			End of testpit at 1.5.		
2										
3										
4										
5										

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GEO_BOREHOLE_BORELOGS.GPJ_GHD_GEO_TEMPLATE.GDT 16/11/12

Client : RailCorp		HOLE No. TP18	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447800.0 E 6471358.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING				MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol		Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength	Moisture Condition Consistency / Density Index
1	Excavator			TP18-0.1 (PID: 0.0)	0.50			CLAY with gravels, brown. Gravels are coarse (FILL).		No odours or staining
				TP18-0.5 (PID: 0.0)	0.50			CLAY, dark brown, stiff, slightly moist.	SM	No odours or staining
2				TP18-1.5 (PID: 0.0)	1.50			End of testpit at 1.5.		
3										
4										
5										

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Client : RailCorp		HOLE No. TP19	
Project : Boradze Depot Combined Site Investigation		SHEET 1 OF 1	
Location : Cnr Bushland Drive and Grey Gum Road, Taree		Surface RL:	Angle from Horiz. : 90°
Position : 447831.0 E 6471404.0 N	Contractor : NA	Driller :	Processed : ST
Rig Type : Testpit	Mounting: NA	Logged by : AF	Checked : NP
Date Started : 9/10/12	Date Completed : 9/10/12		Date 19.11.12

DRILLING					MATERIAL				Comments/ Observations		
SCALE (m)	Drilling Method	Hole Support \ Casing	Water	Samples & Tests	Depth / (RL) metres	Graphic Log	USC Symbol	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE, colour, grain size, structure, weathering, strength		Moisture Condition	Consistency / Density Index
1	Excavator			TP19-0.1 (PID: 0.0) TP19-0.5 (QA03; PID: 0.0)	1.00			CLAY, light grey, low plasticity, dry.	D		No odours or staining
								End of testpit at 1.0 - refusal on bedrock.			
2											
3											
4											
5											

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Appendix J Photographs



Photo Log

	
<p>Photo 1: Typical view of operational portion of the site</p>	<p>Photo 2: View of hand-auger hole with angular gravel</p>
	
<p>Photo 3: Excavation of test pit within operational portion of site</p>	<p>Photo 4: Typical profile of test pit</p>
	
<p>Photo 5: Incinerator waste to west of site buildings</p>	<p>Photo 6: Test pit in the southwest corner of site</p>

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A	A Fletcher	N Passlow		A Smit		22.11.12

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Rail Corporation New South Wales

Property Rezoning Studies, Former Boradze Depot

Flora and Fauna Assessment

July 2015

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Table of contents

1.	Introduction	1
1.1	Background	1
1.2	Site description	1
1.3	Definitions	2
1.4	Aim	2
1.5	Scope and limitations	3
2.	Methodology	5
2.1	Qualifications of personnel undertaking assessment	5
2.2	Desktop review	5
2.3	Site inspection	6
2.4	Survey conditions	9
3.	Results	12
3.1	Database search results	12
3.2	Field survey	13
4.	Preliminary impact assessment	27
4.1	Approach	27
4.2	Vegetation clearing	27
4.3	Flora	27
4.4	Fauna	28
4.5	Migratory species	30
4.6	Indirect ecological impacts	31
5.	Recommendations to avoid or mitigate impacts	34
5.1	Impact avoidance	34
5.2	Mitigation of impacts	34
6.	Conclusion	36
7.	References	37

Table index

Table 2-1	Personnel details.....	5
Table 2-2	Daily weather observations at Gosford during the survey period (BOM 2015)	10
Table 3-1	Vegetation communities at the site	13
Table 3-2	Noxious weeds occurring on site	18
Table 3-3	Threatened flora that are likely to occur at the site	19
Table 3-4	Threatened fauna that are likely to occur at the site	23
Table 3-5	Migratory species with moderate or high potential to occur at the site	23
Table 4-1	Vegetation types at the proposal site	27
Table 4-2	Key threatening processes	33

Figure index

Figure 1	Proposal location.....	4
Figure 2	Survey locations.....	11
Figure 3	Vegetation communities and threatened flora within the proposal site.....	14

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Plate index

Plate 3-1	Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest.....	15
Plate 3-2	Wetland area at the North West corner of the site.....	16
Plate 3-3	Cleared land associated with storage yard activities	17
Plate 3-4	Open woodland forage habitat.....	20
Plate 3-5	Large wooden debris	21
Plate 3-6	Habitat provided by disturbed land.....	21
Plate 3-7	Drainage line at the east of the site.....	25
Plate 3-8	Drainage line in the east portion of the site	25

Appendices

Appendix A – EPBC act protected matters report

Appendix B – Wildlife Atlas results

Appendix C – Threatened species record viewer

Appendix D – Flora species recorded on site

Appendix E – Fauna species recorded on site

Appendix F – Likelihood of occurrence assessment

Appendix G – Assessments of Significance

1. Introduction

This flora and fauna assessment has been prepared by GHD Pty Ltd (GHD) for Rail Corporation New South Wales (Rail Corp) to evaluate the conservation significance of biodiversity, and identify flora and fauna constraints and opportunities, for the proposed rezoning of the Former Boradze Depot Lot 2 DP 577979 and Lot 1 DP 944585, Taree (referred to in this report as 'the proposal'). In particular, the assessment addresses threatened species, populations and communities (and their habitats) listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act), *Fisheries Management Act 1994* (FM Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.1 Background

The former Taree Boradze Depot site was used as a RailCorp Maintenance Workshop, primarily for storing, trimming and boring holes in pre-cut timber lengths for use as rail sleepers, bridge sleepers and power poles. In July 2012 the site was closed as part of the NSW Rail Reform Program. The site was put up for auction in December 2014 but was subsequently passed in due to the current zoning of the land (SP2 Rail Infrastructure Facilities).

RailCorp have been advised that the Greater Taree City Council will commence the preparation of an amendment to their current Local Environmental Plan (LEP) in April/May 2015, providing RailCorp with an opportunity to rezone the site as IN2 – Light Industry. This flora and fauna assessment is intended to inform the Planning Proposal report to Greater Taree City Council which will assist with determination of the rezoning.

1.2 Site description

The site is situated on the corner of Bushland Drive and Grey Gum Road and comprises Lot 2 DP577979 and Lot 1 DP944585, covering an area of approximately 8.5 hectares. The site is approximately 2.5 kilometres northwest of the Taree town centre on the NSW Mid North Coast (Figure 1).

The site consists of cleared land and bushland, with approximately 40 per cent of the site having been cleared for use as a timber storage and supply yard. The remainder of the site consist of remnant and regrowth bushland and a disturbed wetland area. Structures that remain on site include:

Buildings on-site consist of:

- Office and shed for processing and boring of timber sleepers, constructed from brick and colorbond.
- Former fuel storage shed, constructed from corrugated iron and timber with a bund beneath the structure.
- Storage shed for old equipment, constructed from colorbond and steel on a concrete slab.
- Storage and sleeper processing shed, constructed on a concrete slab.

Approximately 40% of the Site is cleared with the remainder being bushland and vegetated swampland. Significant exotic weeds are present on-site. Within the western portion of the site there is a small amount of disused building materials and debris including sleepers, tyres and iron frames. A burnt out car remains in the northeast corner of the central clearing.

Shallow cuttings are present in the storage area, which reveal sandstone/siltstone rock. The predominant soil type is fine grained sand. The site is located in the Manning river catchment approximately 1.5 kilometres north of the Manning River. A small unnamed creek flows from the south west corner of the site to the northern portion of the site where it intersects a second small creek that runs along the eastern boundary.

The site is bordered along the eastern boundary by a narrow strip of remnant native vegetation, which runs along Grey Gum Road and provides a buffer from residential properties on the other side of Grey Gum Road. To the west is light industrial land use and directly to the south are the North Coast train line and the Club Taree golf club.

1.3 Definitions

For the purpose of this report the following definitions apply:

- The 'proposal' refers to the rezoning of the site as part of the NSW Rail Reform Program.
- The 'site' refers to the area that would be directly impacted by the proposal.
- The 'study area' encompasses the site and the area that may be indirectly impacted by the proposal.
- The 'locality' is the area within a 10 km radius of the site.

1.4 Aim

The aim of this flora and fauna assessment is to:

- Identify flora and fauna constraints and opportunities on site with respect to proposed future use based on desktop searches and field surveys.
- Evaluate the conservation significance of the biodiversity values identified for the site, including identification of the known occurrence or likely occurrence of threatened biota listed under the TSC Act or Matters of National Environmental Significance (MNES) listed under the EPBC Act.
- Provide a preliminary assessment of the potential for direct and indirect impacts on biodiversity values and the potential for a significant impact on threatened biota and MNES of the proposed future use of the site.
- Recommend mitigation measures that could be incorporated into future development plans to avoid or minimise impacts on threatened biota (as relevant).
- Assess the likelihood of the requirement for further survey, assessment and approvals under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) or EPBC Act 1999 (as relevant).

1.5 Scope and limitations

This report has been prepared by GHD for RailCorp and may only be used and relied on by RailCorp and their client Greater Taree City council for the purpose agreed between GHD and RailCorp.

GHD otherwise disclaims responsibility to any person other than RailCorp arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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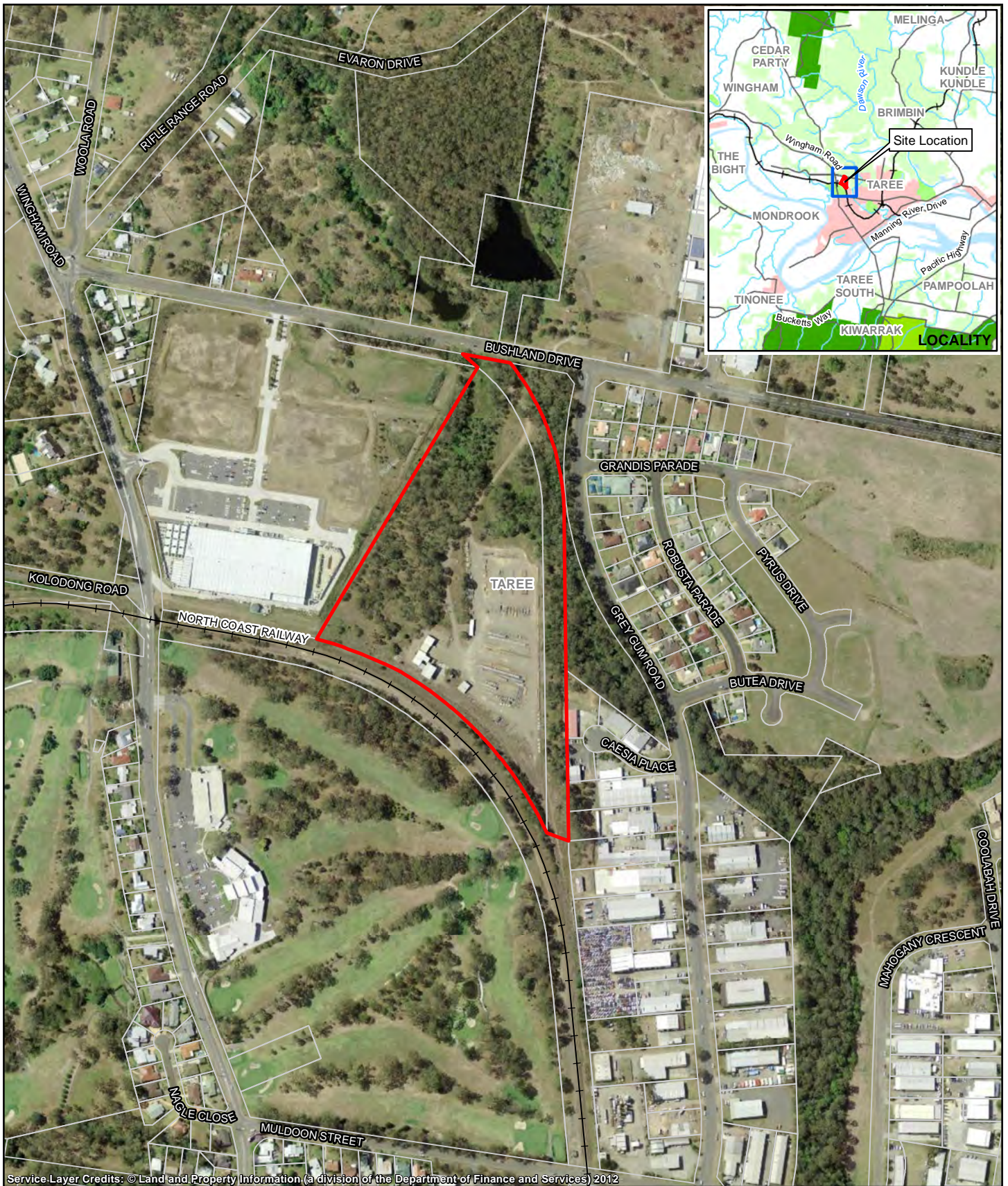
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The survey conducted for this report was not designed to detect all species present at the site, rather to provide an overall 'snapshot' assessment of the ecological values on site and identify potential constraints and opportunities. Given the duration and timing of the field survey it is likely that some species that utilise the site (permanently, seasonally or transiently) were not detected, albeit targeted surveys were conducted for this report. Habitat assessments, the results of previous surveys and database results were utilised to determine the likelihood of threatened and migratory species occurring in the proposal site.




Site conditions (including the presence of threatened vegetation and threatened species and their habitat/s) may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

This flora and fauna assessment has been prepared to identify ecological constraints and opportunities to inform a Planning Proposal. Detailed design for future development on the site is not available at this stage and as such it is outside GHD's scope to consider legislative requirements or prepare detailed assessments of significance in accordance with Section 5A of the EP&A Act for threatened species, population or ecological community, or their habitats listed on the TSC Act and assessments of significance in accordance with the *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (DotE 2013a) for MNES. A general discussion of biodiversity impacts is undertaken in Section 4 and indicative assessments of significance have been prepared for threatened biota considered likely to occur at the site.

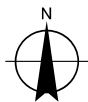
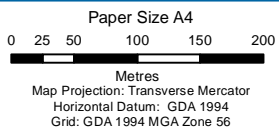


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LEGEND

-  Proposal site
-  Cadastre
-  Railway

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Sydney Trains
 Boradze Depot Rezoning, Taree
 Flora and Fauna Assessment

Job Number | 22-17920
 Revision | A
 Date | 14 Jul 2015

Site Location

Figure 1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntlmail@ghd.com W www.ghd.com.au
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Data source: LPI: DCDB / DTDB / Aerial Imagery 2012; Geoscience Australia: 250k Topographic Data Series 3, 2006. Created by: fmackay

2. Methodology

2.1 Qualifications of personnel undertaking assessment

The desktop review field survey and reporting for this assessment were completed by Ashley Bacales and Arien Quin. Qualifications and experience of these personnel are identified in Table 2-1.

Table 2-1 Personnel details

Personnel name	Position / Project Role	Qualification	Experience	Role
Arien Quin	Ecologist / field survey and reporting	BSc BA – Botany Major	8 years	Flora and Flora survey
Ashley Bacales	Graduate Ecologist / field survey and reporting.	B BioCons	1 year	Flora and Fauna survey

2.2 Desktop review

A desktop assessment was undertaken to help determine the conservation significance of the site and to identify threatened species, populations and ecological communities listed under the TSC Act and FM Act (i.e. threatened 'biota') and MNES listed under the EPBC Act that could be expected to occur in the locality, based on previous records, known distribution ranges, and habitats present. Biodiversity databases and literature pertaining to the subject site and locality (i.e. within a 10 km radius of the site) that were reviewed prior to conducting field investigations included:

- The Commonwealth Department of the Environment (DotE) Protected Matters Search Tool (PMST) for relevant MNES listed under the EPBC Act (July 2015, buffered at 10 km) (DotE 2015a).
- The NSW Office of Environment and Heritage (OEH) Wildlife Atlas database (licensed) for records of threatened species, populations and endangered ecological communities listed under the TSC Act that have been recorded within the locality (within a 10 km radius of the site) (OEH, 2015a).
- OEH threatened biota profiles for descriptions of the distribution and habitat requirements of threatened biota (OEH, 2015b). This resource was used to identify the suite of threatened biota that could potentially be affected by the proposal and to inform habitat assessments.
- Department of Primary Industries (DPI) Threatened and Protected Species Records Viewer for threatened species listed under the FM Act previously recorded within the Greater Taree local government area (LGA) (DPI 2015).
- Review of the species and community profiles in the Species Profile and Threats (SPRAT) and Threatened Species Profile databases.
- Review of relevant threatened species recovery plans
- Department of Primary Industries (DPI) Noxious Weeds Declarations for information regarding noxious weeds (DPI 2015).

The habitat resources present at the site (determined during the site inspection) were compared with the known habitat associations/requirements of the threatened and migratory biota highlighted by the desktop review. This was used to determine the likelihood of each threatened ecological community, endangered population and threatened or migratory species occurring within the study area.

The results of the database searches are presented in Section 3.1 and Appendix A.

2.3 Site inspection

Following the literature review a field assessment was completed to assess the potential for the proposal to impact on endangered ecological communities, threatened species, populations and their habitats and to assist in identifying the most appropriate impact mitigation and environmental management measures to avoid or minimise the potential for significant adverse impacts.

Field surveys were conducted by two ecologists on 10 July 2015 within the proposal area shown in Figure

Methods utilised during the assessment are described below.

2.3.1 Flora survey

The primary objectives of flora surveys undertaken were to:

- Map and describe the vegetation types occurring within the study area.
- Compile a flora list of those species occurring within the vegetation types, identifying any threatened species and communities.
- Undertake targeted survey for threatened flora species within the study area using the 'random meander' technique (Cropper 1993), in accordance with the OEH Threatened Species Survey and Assessment: Guidelines for developments and activities (DEC 2004)
- Assess potential constraints associated with vegetation and flora species within the study area and provide recommendations to assist in minimising impacts on vegetation and threatened flora species.

Vegetation mapping

Native vegetation within the study area was mapped based on dominant flora species present within each structural layer (i.e. canopy, shrub and ground layers). Structural vegetation communities were described according to the NSW plant community type classification system (OEH 2015c).

Field ecologists mapped vegetation polygons with a hand-held GPS unit loaded with aerial photography. On the basis of air photo interpretation, and field habitat assessment, the site was divided into stratification units i.e. functionally similar units for the purposes of environmental assessment according to the OEH guidelines (DEC 2004). Vegetation within the study area was assessed against identification criteria for State and Commonwealth listed threatened ecological communities (critically endangered ecological communities (CEECs), endangered ecological communities (EECs) and vulnerable ecological communities (VECs)). Vegetation and habitats were compared with descriptions provided in published threatened species profiles and management plans (OEH 2015b) and (DotE 2015b).

Flora quadrats

Flora survey techniques included collecting quantitative data describing the condition of vegetation in terms of floristics, structure and habitats. Survey effort included two 20 m x 20 m quadrats positioned to define native vegetation communities at the site. Plant species were recorded on pro forma field data sheets. Each species list was accompanied by a biophysical description, including vegetation structure, soils, geology and geomorphology, habitat and fire and disturbance history. The locations of flora surveys are shown on Figure 2.

Within each quadrat all vascular plants (i.e. not mosses, lichens or fungi) observed were recorded on pro-forma field data sheets. Plant specimens that could not be identified quickly in the field were collected and subsequently identified using standard botanical texts and, where required, were compared with voucher specimens held in the National Herbarium of NSW Online Reference Collection. Plant identifications were made according to nomenclature in Harden (1992, 1993, 2000 and 2002).

Targeted threatened flora surveys

Targeted surveys were undertaken for threatened flora species identified during the desktop review which could potentially occur within the study area given known distributions, previous records in the locality and habitat requirements for each species. In accordance with the survey guidelines specified in the OEH Threatened Species Survey and Assessment: Guidelines for developments and activities (DEC 2004), random meander transects were undertaken according to the methods of Cropper (1993). These transects focused in areas of proposed impact in potentially suitable habitat. All threatened flora were searched for however the following species were the primary targets;

- Trailing Woodruff (*Asperula asthenes*).
- Narrow-leaved Red Gum (*Eucalyptus seeana*).

Opportunistic observations

Opportunistic and incidental observations of flora species which had not been previously recorded during plot/transect or targeted threatened surveys were recorded during field surveys.

2.3.2 Fauna survey

The fauna survey comprised habitat assessments, diurnal bird survey, active searches for reptiles, frog surveys and opportunistic observations. It was beyond the scope of this assessment to undertake nocturnal surveys (e.g. call playback or spotlighting) or detailed fauna surveys (e.g. trapping for mammals or reptiles).

Detailed descriptions of survey techniques undertaken are outlined below and fauna survey locations are indicated on Figure 2.

Fauna habitat assessment

Habitat assessments were conducted across the entire study area in order to determine the conservation significance of fauna habitats and to assess the potential presence of native fauna (and especially threatened species) not directly observed during the surveys.

An assessment of the quality of habitats present for native fauna was made across the entire site. Habitat quality was based on the level of breeding, nesting, feeding and roosting resources available. Indicative habitat criteria for targeted threatened species identified as occurring or predicted to occur in the locality prior to fieldwork. Criteria were based on information provided in OEH threatened species profiles (OEH 2015b), field guides and the knowledge and experience of GHD field ecologists. This technique is important in assisting in the compilation of a comprehensive list of fauna that are predicted within the vicinity of the site, rather than relying solely on one off surveys that are subject to seasonal limitations and may only represent a snapshot of the species present.

Habitat assessment meanders were completed over 8 person hours during which the following information was recorded (where relevant):

- Specific food trees and evidence of foraging.
- Dominant plant species.
- Level of disturbance.
- Connectivity of vegetation.
- Evidence of activity such as feeding scars, scats, scratches and diggings.
- Trees with bird nests or other potential fauna roosts.
- Presence of rocky outcrops or caves, tunnels, culverts or bridges.
- Presence of burrows, dens and warrens.
- Locations of hollow-bearing trees and logs which provide refuge, nest and den sites for a range of threatened fauna species.
- Koala food trees and evidence of scratches or scats.
- Tracks or animal remains.
- Leaf litter and fallen timber suitable for reptile habitat.
- Presence of potential habitat for frog species.

The locations and quantitative descriptions of significant habitat features, such as habitat trees and wetlands, were captured with a handheld GPS unit and photographed where appropriate.

Diurnal bird surveys

Surveys of diurnal birds were undertaken within the study area, with an emphasis on those habitats of potential relevance for threatened species. Stationary surveys were conducted at two locations within the site. This included recording all birds seen or heard over the period of 20 minutes. Opportunistic observations of bird species were recorded throughout the duration of all surveys on the site. Species were identified by visual observation and call and were documented along with, behaviour, breeding activity and habitat type where appropriate in field notes.

Trees were also scanned for nests, whitewash and roosts and the locations of habitat resources for birds captured with a handheld GPS unit.

The locations of bird surveys are provided on Figure 2.

Active searches

Active searches for frogs and reptiles were performed within the site focussing on drainage lines, wetlands and areas with suitable substrate. Drainage lines and wetland areas were systematically searched and semi-aquatic vegetation was visually scanned. Shelter sites were carefully lifted and replaced, trunks and decorticating bark were scanned and visual scanning of vegetation for active and foraging specimens was undertaken.

Ground debris searches

Ground debris searches were undertaken during the survey while incidentally traversing the site during random meanders. These included active searches in areas where there was dense leaf litter, rocks, fallen timber and hollow logs. These areas were searched for small fauna and opportunistic observation of scats, tracks, burrows or other traces noted.

Microchiropteran Bats

Searches for potential habitat for threatened microchiropteran bats were undertaken during random meanders however it was beyond the scope of this assessment to complete more detailed surveys for microchiropteran bats such as Anabat ultrasonic call detection.

Opportunistic observations

Opportunistic and incidental observations of fauna species were recorded at all times during field surveys.

2.3.3 Likelihood of occurrence of threatened species

Following collation of database records and species and community profiles, a 'likelihood of occurrence' assessment was prepared with reference to the broad habitats contained within the study area. The likelihood of threatened and migratory biota occurring in the study area was assessed based on presence of records from the locality, species distribution and habitat preferences, and quality of potential habitat present in the study area. This assessment was further refined following the field surveys to incorporate the nature and condition of habitats available within the site. The results of this assessment are provided in Appendix E.

2.4 Survey conditions

The field survey was undertaken in mid-winter. Winter is not an ideal time to conduct surveys, as cryptic plant species are generally not flowering and endotherms such as reptiles and amphibians are less active and difficult to detect. Weather was generally fine with temperature ranging from 10 degrees Celsius to 20 degrees Celsius during the day of the survey. Wind during bird surveys was light would not have hampered the detection of bird species. Weather conditions during the survey period were generally not suitable for the detection of reptiles and amphibian species.

Bureau of Meteorology (BOM) records for survey date are outlined in below. These records were taken at Taree Airport weather station located approximately 6 kilometres from the study area.

Table 2-2 Daily weather observations at Gosford during the survey period (BOM 2015)








Date	Day	Temperature (°C)		Wind	Rain (mm)
		Maximum	Minimum	Speed and direction (km/h)	
10-07-2015	Friday	4.3	20.5	WNW 14	0.2

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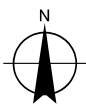
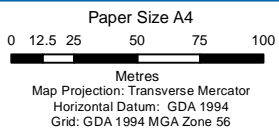


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LEGEND

-  Proposal site
-  Bird Survey
-  Cadastre
-  Frog survey
-  Railway
-  Reptile Survey
-  Flora quadrats

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Sydney Trains
Boradze Depot Rezoning, Taree
Flora and Fauna Assessment

Job Number | 22-17920
Revision | A
Date | 14 Jul 2015

Survey Locations

Figure 2

3. Results

3.1 Database search results

3.1.1 Threatened ecological communities

The desktop assessment indicated that five threatened ecological communities (TECs) were known or predicted to occur within the 10 kilometres of the proposal site. A list of these TECs and an assessment of the likelihood of occurrence for each of these was undertaken and the results are provided in Appendix B.

3.1.2 Endangered populations

One endangered population of *Eucalyptus seeana* has been previously recorded within the Greater Taree Local Government Area (LGA). A likelihood of occurrence was undertaken and the results are provided in are listed in Appendix F.

3.1.3 Threatened flora

The Atlas of NSW Wildlife database identified three threatened flora species listed under the TSC Act previously recorded in the locality. The PMST search identified 10 threatened flora species listed under the EPBC Act as potentially occurring in the locality.

Threatened flora species known or considered likely to occur, based on habitat present, are discussed in more detail in Section 3.2.2.

3.1.4 Threatened fauna

A search of the Atlas of NSW Wildlife database identified 18 threatened fauna species (10 birds, one amphibian, and seven mammal species) listed under the TSC Act as having been previously recorded in the locality (see Appendix B). The PMST search identified 16 threatened fauna species (not including marine species such as whales, dolphins sharks and albatross) listed under the EPBC Act as potentially occurring in the locality, including five bird species, one fish, seven mammal species and three frog species (see Appendix A). A search of the DPI Threatened and Protected Species Records Viewer revealed no results (see Appendix C)

Threatened fauna species known or considered likely to occur, based on habitats observed, are discussed in more detail in Section 3.2.4.

3.1.5 Migratory species

The PMST search identified 10 migratory fauna species (not including marine species such as whales, dolphins sharks and albatross) listed under the EPBC Act as potentially occurring in the locality (see Appendix A).

3.1.6 Other matters of national environmental significance

The PMST search also reported the following matters protected by the EPBC Act that are known or predicted to occur in the locality:

- Commonwealth lands: 6
- Commonwealth Heritage Places: 1
- Listed marine species: 34
- Whales and Other Cetaceans: 1

There were no world heritage properties, national heritage places, wetlands of international importance, Great Barrier Reef Marine Park, Commonwealth marine areas, critical habitats, Commonwealth reserves or nationally important wetlands identified within 10 km of the site.

A number of marine species (such as whales, sharks, dolphins and albatross) appear on the PMST search; however these species are not relevant to this assessment as no marine habitats occur within or adjacent to the site. Marine species are therefore not considered further in this report.

A copy of the EPBC Act PMST report is provided in Appendix A.

3.2 Field survey

3.2.1 Flora results

Flora species

A flora species list for the study area has been compiled from the results of the flora quadrat surveys and opportunistic observations made during random meander surveys. A total of 99 plant species were recorded during the field surveys, of which 69 are native. The total plant species list recorded during the field survey is presented in Appendix D.

Vegetation types

The site includes existing cleared areas associated with previous development, a disturbed wetland area and native vegetation consisting of Grey Ironbark -Forest Red Gum - Small-fruited Grey Gum Open Forest. Native vegetation within the site occurs as two small remnant patches divided by central access road and storage yard clearing. The site is bordered along the eastern boundary by a narrow strip of remnant native vegetation, which runs along Grey Gum Road and provides a buffer from residential properties on the other side of Grey Gum Road. Vegetation along the eastern side of the site forms a nature corridor connecting bushland from the south to a large area of vegetation north of the site.

The site is surrounded by existing disturbance, which is particularly evident in the western portion of the site. To the west there is light industrial land use and directly to the south are the North Coast train line and the Club Taree golf club.

Vegetation communities mapped within the site are shown on Figure 3 and are described below.



Table 3-1 Vegetation communities at the site

Vegetation type	Area H=(Ha)	TSC Act status	FM Act status	EPBC Act status
Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest	3.9	Not listed	Not listed	Not listed
Wetland	0.1	Not listed	Not listed	Not listed
Exotic grassland	4.0	Not listed	Not listed	Not listed

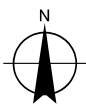
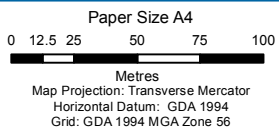


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LEGEND

-  Proposal site
-  Hollow Bearing tree
-  Drainage line
-  Cadastre
-  Large woody debris
-  Exotic grassland
-  Grey Ironbark Open Forest – Forest
-  Red Gum – Grey Gum Open Forest
-  Wetland
-  Railway

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Flora and Fauna Assessment

Job Number | 22-17920
Revision | A
Date | 14 Jul 2015

Vegetation and Fauna Habitat

Figure 3

G:\2217920\GIS\Maps\Deliverables\FloraFaunaAssessment\2217920_FFA003_Vegetation_A.mxd Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntmail@ghd.com W www.ghd.com.au

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Data source: LPI: DCDB / DTDB / Aerial Imagery 2012. Created by: fmackay

Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest

This vegetation community is divided into two narrow strips, running along the western and eastern portions of the site. The eastern portion provides connectivity between southern and northern areas of surrounding bushland, separated by Grey Gum road and Bushland Drive.

Slight variations in structure exist within this vegetation, probably due to past disturbances and the influence of the drainage lines present on site. The canopy layer of this community is dominated by Grey Ironbark (*Eucalyptus paniculata*), Spotted Gum (*Corymbia maculata*), Grey Gum (*Eucalyptus propinqua*) and Forest Red Gum (*Eucalyptus tereticornis*) to 25 meters tall. The midstorey of this community consists of a tall shrub layer dominated by Lightwood (*Acacia implexa*), Black Wattle (*Acacia leiocalyx*) and Black Sheoak (*Allocasuarina littoralis*) and a small shrub layer of exotic species including Lantana (*Lantana camara*), Small-leaved Privet (*Ligustrum sinense*) and Large-leaved Privet (*Ligustrum lucidum*). The ground layer consists of mixed herbs and grasses dominated by *Oplisminus aemulus*, *Microlaena stipoides* and *Dichondra repens*. This vegetation is in moderate condition and is subject to weed invasion associated with edge effects and increased weed cover associated with the drainage lines.

Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest covers approximately 3.9 hectares (ha) of the site as shown in Figure 3 and in Plate 3-1. This vegetation community is not commensurate with any threatened ecological communities listed under the TSC or EPBC Acts.



Plate 3-1 Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest

Wetland

This vegetation community occurs as a single flooded depression in the North West corner of the site. It is likely that this area is an artificial wetland that has been created by altered drainage flow associated with the Bushland Drive and the main access road within the site. This vegetation community is highly disturbed and is dominated by the invasive weed Crofton Weed (*Ageratina adenophora*). This wetland area covers approximately 0.1 hectares of the site as shown in Figure 3 and Plate 3-2.



Plate 3-2 Wetland area at the North West corner of the site

Exotic grassland

Large areas of the site have been cleared of native vegetation for previous land use as a timber storage and maintenance yard for RailCorp. There is no canopy or shrub layer and the groundcover is dominated by exotic grasses and weeds including Rhodes Grass (*Chloris gayana*), Cobbler's Pegs (*Bidens pilosa*), Elastic Grass (*Eragrostis tenuifolia*), Fireweed (*Senecio madagascariensis*) and Parramatta Grass (*Sporobolus africanus*). Areas of exotic grassland within the site have been subject to past development disturbance and have little habitat value.

Disturbed land covers approximately four hectares of the site and is shown in Figure 3 and Plate 3-3.



Plate 3-3 Cleared land associated with storage yard activities

Noxious and environmental weeds

The *Noxious Weeds Act 1993* provides for the declaration of noxious weeds throughout NSW. Landowners and occupiers must control noxious weeds according to the control category specified in the Act.

The site contains numerous exotic flora species, of which six are declared as noxious weeds in the Greater Taree LGA (Table 3-2) (DPI 2015b). Asparagus fern (*Asparagus aethiopicus*), Broad-leaf Privet - (*Ligustrum lucidum*) and Narrow-leaf Privet (*Ligustrum sinense*) occur in low to medium densities primarily along the drainage line in the eastern portion of the site. Lantana (*Lantana camara*) occurs as dense isolated patches throughout the site particularly at the boundary of disturbed areas. Camphor laurel (*Cinnamomum camphora*) occurs in low abundance as isolated individuals and Fireweed (*Senecio madagascariensis*) occurs throughout the disturbed exotic grassland area.

The site also contains high levels of exotic grasses and environmental weeds associated with the storage yard area and disturbed margins of native vegetation including.

Table 3-2 Noxious weeds occurring on site

Weed species	Class	Restriction level
Asparagus fern (<i>Asparagus aethiopicus</i>)	4	Locally Controlled Weed - <i>The plant must not be sold, propagated or knowingly distributed</i>
Fireweed (<i>Senecio madagascariensis</i>)	4	Locally Controlled Weed - <i>The plant must not be sold, propagated or knowingly distributed</i>
Camphor laurel (<i>Cinnamomum camphora</i>)	4	Locally Controlled Weed - <i>The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread and the plant must not be sold, propagated or knowingly distributed</i>
Privet - broad-leaf (<i>Ligustrum lucidum</i>)	4	Locally Controlled Weed - <i>The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread</i>
Privet - narrow-leaf (<i>Ligustrum sinense</i>)	4	Locally Controlled Weed - <i>The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread</i>
Lantana (<i>Lantana camara</i>)	4	Locally Controlled Weed - <i>The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread</i>

3.2.2 Conservation significance

Threatened ecological communities

No threatened ecological communities were identified or are likely to occur within the study area.

Threatened flora species

The Atlas of NSW Wildlife database identified three threatened flora species listed under the TSC Act previously recorded in the locality. The PMST search identified 10 threatened flora species listed under the EPBC Act as potentially occurring in the locality.

A 'likelihood of occurrence' assessment was prepared with reference to the broad habitats contained within the proposal site. This was further refined following field surveys. The likelihood of threatened flora occurring in the study area was assessed based on presence of records from the locality, species distribution and habitat preferences, and quality of potential habitat present in the study area. This assessment determined that there is one threatened flora species known or with potential to occur within the study area:

- Narrow-leaved Red Gum (*Eucalyptus seeana*)

The results of this assessment are provided in Appendix F.

Narrow-leaved Red Gum (*Eucalyptus seeana*)

There is a known population of Narrow-leaved Red Gum (*Eucalyptus seeana*) within the Greater Taree Local Government Area. The population is sporadic in distribution, consisting mainly of scattered individuals in woodlands and open forests on low, often swampy, sandy soils and occasionally as denser stands. This species is very similar in appearance to Forest Red Gum that was recorded at the site. Without reproductive material it is difficult to tell these two species apart. It is therefore recommended that a targeted survey should be undertaken at an appropriate time of year for identification of this species (i.e. when species is in fruit).

Table 3-3 Threatened flora that are likely to occur at the site

Species	TSC Act status	EPBC Act status	Likelihood of occurrence	Comment
Narrow-leaved Red Gum (<i>Eucalyptus seeana</i>)	Endangered	Not listed	Moderate	Individuals may be present on site. The species was not detected during surveys due to the lack of viable fruit present. Targeted surveys should be undertaken at an appropriate time of year.

Threatened ecological communities

No threatened ecological communities listed on the EPBC Act or TSC Act occurs within the site.

Protected marine vegetation

No protected marine vegetation (including seagrass, mangroves and saltmarsh) were recorded at the site or have the potential to occur, as the site does not constitute a marine environment.

3.2.3 Fauna results

Fauna species

Twenty-six fauna species were recorded within the study area including a moderately diverse range of common birds, reptiles and amphibians. Common species recorded within the site during the survey include two amphibians (Common Eastern Froglet (*Crinia signifera*) and Eastern Dwarf Froglet (*Litoria fallax*)).

- Forest birds including Grey Fantail (*Rhipidura albiscapa*), Australian Magpie (*Cracticus tibicen*), White-cheeked Honeyeater (*Phylidonyris niger*), and Superb Fairy-wren (*Malurus cyaneus*).
- Parrots common in woodlands and agricultural landscapes such as Rainbow Lorikeet (*Trichoglossus haematodus*) and Eastern Rosella (*Platycercus adscitus eximius*).
- One common reptile (Pale-flecked Garden Sunskink *Lampropholis guichenoti*).

Evidence of Wallaby and Bandicoot was also observed on site during the field survey. This included tracks, scats and diggings.

One exotic species was observed on site, a European Hare. However the site did not appear to have a significant infestation as scat and evidence of burrowing was not observed.

Important fauna habitat features recorded within the site are shown on Figure 3.

Fauna habitats

The site contains three broad fauna habitat types as discussed below.

- Woodland: including Grey Ironbark - Forest Red Gum - Small-fruited Grey Gum Open Forest
- Wetland and drainage lines
- Disturbed exotic grass land

These habitat types are described below with particular reference to the threatened fauna species that occur or could potentially occur at the site.

Woodland

Woodland (see Plate 3-4 and Plate 3-5) occurs in a relatively undisturbed state along the eastern portion of the site. This area contains a flowering canopy and moderately diverse shrub layer that provides potential foraging habitat for nectivorous species such as birds, arboreal mammals including the threatened Koala (*Phascolarctos cinereus*), the threatened Grey-headed Flying-fox (*Pteropus poliocephalus*), and foraging habitat for insectivorous species including microchiropteran bats and insectivorous birds. A single stag which contains one hollow is located at the eastern boundary and may provide habitat for hollow dependant fauna.

Along the western portion of the site, woodland exists in a slightly more disturbed state and lacks a native shrub layer. It has a ground cover of native grasses and is likely to provide foraging habitat for macropods and other small herbivorous marsupials. There is a large amount of woody debris in the southern extent of this area that is left over from RailCorp land use. This woody debris is likely to provide habitat for ground dwelling reptiles (Plate 3-5).

The site contains potential foraging habitat for owls and other birds of prey including the threatened Powerful Owl (*Ninox strenua*), which may forage at the site occasionally as part of a wider area of occupation.



Plate 3-4 Open woodland forage habitat



Plate 3-5 Large wooden debris

Disturbed land

This habitat type includes areas cleared for the main building and storage sheds, access tracks, and storage yard areas. These areas are dominated by exposed earth, exotic grasses and weeds and provide little habitat for native fauna. However, isolated trees may provide foraging habitat for mobile species (such as birds and microbats). These areas also provide movement corridors for fauna accessing patches of remnant and regrowth native vegetation and grazing ground for macropods (Plate 3-6).



Plate 3-6 Habitat provided by disturbed land

Other habitat resources

The OEH guidelines (DEC 2004) identify “special habitats” (e.g. large, mature or hollow bearing trees, rocky outcrops and cliffs) that are likely to support specific fauna assemblages. These resources may be significant for threatened species (OEH 2014). Notably, tree hollows are important for native fauna as diurnal or nocturnal shelter sites, for rearing young, for feeding, for thermoregulation, and to facilitate ranging behaviour and dispersal. An estimated 15% of all terrestrial vertebrate fauna in Australia are dependent upon tree hollows and for many of these species the relationship is obligate i.e. no other habitat resource represents an adequate substitute (Gibbons and Lindenmayer 2002). Tree hollows are important resources for many species of threatened fauna and may be limiting at a site (OEH 2014) i.e. local populations of a threatened fauna species may be reliably excluded from occurring at a site on a permanent basis if these resources are not present. Accordingly, the field survey included a targeted survey of specific habitat resources in addition to the assessment of the communities described above.

The vegetation on site is relatively young. As such, only one hollow-bearing tree and stag was found during the field survey.

The site contains small amounts of fallen dead timber and disused railway sleepers, which would provide shelter and foraging resources for native invertebrates, reptiles and small terrestrial mammals.

3.2.4 Conservation significance

Threatened species

The Atlas of NSW Wildlife database identified 18 threatened fauna species listed under the TSC Act as having previously been recorded in the locality. The PMST search identified 16 threatened fauna species (not including marine species such as whales, dolphins sharks and albatross) listed under the EPBC Act as potentially occurring in the locality (refer to Appendix A for the full list).

Those species identified as having a ‘moderate’ or ‘high’ possibility of occurrence or those ‘known’ to occur within the site are subject to a general discussion of potential impacts associated with development in Section 4.

There is potential habitat and a moderate probability that four birds, one arboreal mammal and two bats would occur at the site (Table 3-4). The full list of threatened fauna, including their conservation status, habitat requirements, previous records and likelihood of occurrence is presented in Appendix F.

Table 3-4 Threatened fauna that are likely to occur at the site

Species	TSC Act status	EPBC Act status	Likelihood of occurrence	Comments
Regent Honeyeater	CE	E	Moderate	Potential foraging habitat occurs throughout the site
Glossy Black-Cockatoo	V	Not listed	Moderate	Potential foraging habitat occurs throughout the site
Varied Sittella	V	Not listed	Moderate	Potential foraging habitat occurs throughout the site
Swift Parrot	E	E	Moderate	Potential foraging habitat occurs throughout the site
Koala	V	V	Moderate	Potential foraging habitat occurs throughout the site.
Eastern Bent-wing Bat	V	Not listed	Moderate	Potential habitat occurs throughout woodland areas.
Little Bent-wing Bat	V	Not listed	Moderate	Potential habitat occurs throughout woodland areas.
Grey-headed Flying-fox	V	V	Moderate	Potential foraging habitat occurs throughout the site.

Migratory species

The PMST search identified 10 migratory fauna species (excluding marine and estuarine species) listed under the EPBC Act with the potential to occur within the locality (see Appendix A).

Based on an assessment of the nature and condition of habitats available in the site, there is potential foraging habitat and a moderate potential for two migratory species (Rainbow Bee-eater (*Merops ornatus*) and Black-faced Monarch (*Monarcha melanopsis*) to occur at the site (Table 3-5). The site also provides potential habitat for aerial migratory species (such as White-throated Needletail (*Hirundapus caudacutus*)) which has a low potential of occurring. The full list of migratory fauna, including their conservation status, habitat requirements, previous records and likelihood of occurrence is presented in Appendix A.

Table 3-5 Migratory species with moderate or high potential to occur at the site

Species	TSC Act status	EPBC Act status	Likelihood of occurrence	Comments
Rainbow Bee-eater	Not listed	Migratory	Moderate	May forage in woodland areas
Spectacled Monarch	Not listed	Migratory	Moderate	May forage in woodland areas

3.2.5 SEPP 44 Koala Habitat

The site is located within the Greater Taree City Council LGA which is listed as an LGA to which SEPP 44 applies. There are several records of Koala on the Wildlife Atlas within proximity to the site (approximately 600 meters) and numerous records in the locality.

'Potential Koala habitat' as defined under *State Environmental Planning Policy No. 44* (SEPP 44) which is defined as 'an area of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15 percent of the total number of trees in the upper or lower strata of the tree component'.

Preferred Koala food trees listed in the Koala Recovery Plan that occur within the site include the primary feed tree Forest red gum (*Eucalyptus tereticornis*), the secondary feed trees Grey Gum (*Eucalyptus propinqua*) and Grey Box (*Eucalyptus moluccana*) and Narrow-leaved Stringybark (*Eucalyptus eugenioides*) which is listed as a supplementary food tree. Koala feed trees comprise between 25 and 50 percent of the total number of trees within the study area and as such the site is defined as potential habitat under SEPP 44.

Mapping of Koala habitat has been produced by the Australian Koala Foundation (2015). Field surveys for the Taree area have been input into the Koala Habitat Atlas (KHA) to provide a greater accuracy in the mapping of Koala habitat within the Greater Taree area. The KHA has been an approved component in the Draft Comprehensive Koala Plan of Management produced for the Greater Taree City Council (Australian Koala Foundation 2002).

The KHA has the proposal site mapped as Class A secondary habitat. According to the KHA, an area of primary habitat exists approximately 600 meters north west of the proposal site. There is no direct connectivity to the proposal site and the area of primary habitat as these areas are separated by Bushland Drive.

Core Koala habitat, is defined under SEPP 44 as 'an area of land with a resident breeding population of Koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a population'. Targeted surveys for Koalas and searches for signs of recent Koala activity (such as scats) were conducted during the current survey. No evidence of the species was detected. There are no recent OEH records of Koalas at or in the immediate vicinity of the proposal site, nor any other evidence that the proposal site supports a local population of the Koala, including records of breeding females or scats (2015a). Therefore the proposal site is not considered to constitute "core Koala habitat".

3.2.6 Aquatic habitat and species

Habitat assessment

There are several small drainage lines that run through the site. The general flow is from west to east. These drainage lines represent an upper tributary of Browns Creek. The natural drainage of the site has been significantly altered due to previous development on the site. The access road that runs centrally through the site has bisected a prominent drainage line and has potentially created an area of pooling in the north west corner of the site. This single flooded depression provides a small wetland area, which is dominated by Crofton weed (*Ageratina adenophora*) (Plate 3-2). Whilst this area is of low habitat quality, it is likely to provide habitat for a range of common amphibians, reptiles, birds and microbats.

There is a small drainage line that flows through the eastern portion of the site which is bordered by a strip of sparse weedy riparian vegetation, dominated by Small leaf Privet (*Ligustrum sinense*) and Large leaf Privet (*Ligustrum lucidum*) (Plate 3-7 and Plate 3-8). The drainage line is approximately 1 m across and is likely to provide habitat for a range of common amphibians, reptiles, birds and microbats.



Plate 3-7 Drainage line at the east of the site



Plate 3-8 Drainage line in the east portion of the site

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3.2.7 Conservation significance

A search of the DPI Threatened and Protected Species Records Viewer for records of threatened and protected aquatic species listed under the FM Act and EPBC Act within the Hunter/Central Rivers catchment did not reveal any records. Furthermore a review of species profiles for threatened species listed under the FM Act and EPBC Act indicates that there is no suitable habitat for threatened aquatic species at the site, and based on an assessment of habitat requirements for threatened aquatic species listed under the FM Act and EPBC Act, none are considered likely to occur (Appendix C).

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4. Preliminary impact assessment

4.1 Approach

This flora and fauna assessment is intended to inform a report for Greater Taree City Council which will assist with determination of the requirement for a Planning Proposal. It is understood that the site is being considered for future industrial land use. In this regard detailed design for future development on the site is not available at this stage and as such it is outside GHD's scope to apply legislative considerations to the proposal. Accordingly, the preparation of assessments of significance in accordance with Section 5A of the EP&A Act for threatened species, population or ecological community, or their habitats listed on the TSC Act have been completed to provide an indicative assessment of impacts should the land be rezoned as IN2 - Light Industry. These tests would need to be revised once impacts at the site have been defined. This section presents a general discussion and preliminary assessment of impacts associated with the proposed rezoning and future development of the site.

The impacts on native vegetation associated with future development of the site represent a worst case scenario having been calculated based on the removal of all vegetation within the site. A formal assessment of ecological impacts based on final footprints for subsequent developments on the site in accordance with Section 5A of the EPA Act would be undertaken at the time that developments are proposed.

4.2 Vegetation clearing

It is likely that if the land was rezoned that up to 3.9 hectares of native vegetation, 0.1 hectares of wetland and 4.0 hectares of disturbed land could be impacted at the site.

Table 4-1 outlines the areas of vegetation types at the proposal site that have potential to be impacted by the proposal. Vegetation clearing in these communities will involve removal of a moderately diverse range of native plants, including mature trees. The vegetation to be removed for the most part comprises small, isolated remnant stands.

Table 4-1 Vegetation types at the proposal site

Vegetation type	OEH Biometric Vegetation Type	TSC Act status	FM Act status	EPBC Act status	Area (ha)
Grey Ironbark/Forest Red Gum/ Small-fruited Grey Gum Open Forest	NA	Not listed	Not listed	Not listed	3.9
Wetland	NA	Not listed	Not listed	Not listed	0.1
Exotic grassland	NA	Not listed	Not listed	Not listed	4

4.3 Flora

The proposal has the potential to impact on a range of common flora species and may also result in impacts to potential habitat for Narrow-leaved Red Gum (*Eucalyptus seeana*). Further targeted surveys at the site would be required to determine if any individuals associated with the endangered population of this species occurs at the site.

A preliminary assessment of significance for this species has been completed in accordance with Section 5A of the EP&A Act. This assessment concluded that if this species were to occur on the site that is unlikely that the development would have a significant impact on this species.

4.4 Fauna

The development may result in the clearing of habitat for native fauna, including native vegetation and habitat resources for native biota as shown on Table 3-4. The clearing of this habitat may result in impacts on local fauna populations including threatened fauna species that use the site, through displacement or mortality of individuals and removal of habitat resources. The magnitude of these potential impacts is assessed below.

Approximately half of the site is covered with disturbed or cleared land. These areas have been extensively modified by previous development and storage yard activities and would have limited value for native fauna. The development may result in the clearing of up to four hectares of native vegetation as a result of direct surface disturbance during future construction activities. Native vegetation would have greater habitat value than cleared areas for native fauna and there is an increased risk of injury or mortality of native fauna which may be sheltering in this habitat during any construction that may occur on site. There is considerable scope for native fauna that may use native vegetation in areas to be disturbed to evade injury and/or seek alternative habitat in adjoining native vegetation, including extensive areas of intact vegetation to the north of the site.

A variety of native bird species have the potential to be affected by the removal of native vegetation, wetland habitats and other habitat resources. The majority of these species are mobile, widespread and common. Further, there are large quantities of equivalent habitat and resources in the locality. Overall it is likely that the impact on local populations of native birds will be minor.

Larger mammals that are likely to occur in the site would readily evade injury in these areas since construction would occur during daylight hours and there would be opportunity to escape into alternative habitats to the west of the site. There is the potential for adverse effects on smaller or less mobile terrestrial mammals sheltering within native vegetation or beneath woody debris to be removed as a result of direct surface disturbance during potential construction works.

Arboreal mammals may occur in areas of forest at the site. A number of microbats have also been identified as likely to forage across the entire site and potentially roost within woodland habitats. Vegetation clearing at the site would remove foraging habitat for these species as well as potential roost sites in the one hollow-bearing tree that was recorded within the site. There is the potential for impacts on individuals that may be sheltering in tree hollows on site during clearing activities for future development. Mitigation measures outlined in Section 6 would partially ameliorate impacts on these species. The removal of hollow-bearing trees is more serious because of the time it takes for these resources to develop in regenerating vegetation. However given the extensive areas of alternative habitat surrounding the site and within the locality, this development would affect a very minor proportion of available habitat resources for hollow-dependant fauna in the locality.

The site has potential to provide habitat to a range of common native frogs and reptiles. It is likely that individuals would be adversely affected during clearing, particularly species sheltering amongst semi-aquatic vegetation or those which burrow or shelter beneath woody debris. Mitigation measures outlined in Section 6 would partially ameliorate these impacts.

4.4.1 Habitats

The proposal has the potential to have direct negative effect on habitat for native flora and fauna through vegetation clearing as described above. The clearing of vegetation would remove associated habitat resources such as foraging substrate, foraging resources (fruits, nectar, seed etc.), hollow-bearing trees, and woody debris. This clearing is likely to have additional negative effects on the quality of adjoining retained habitats to the east of the site through edge effects and fragmentation and the possible disruption of some fauna movements.

The project has the potential to impact on one hollow-bearing tree. Provided appropriate preclearance protocols are followed the removal of this tree is unlikely to have a significant impact on hollow dependent fauna.

The proposed development of the site has the potential to directly disturb water bodies, including two drainage lines and adjoining wetland. Habitat would be removed and the form and flow characteristics of the drainage line through the site may be modified. Impacts may include the loss of wetland foraging substrates and shelter, drinking water and aerial foraging habitat for species which feed on amphibious insects. Mobile fauna populations would potentially experience increased energy costs of foraging for the duration of the construction period since they will have to travel to utilise alternative surface water resources.

Development of the site could constitute a partial barrier to movements of migratory or nomadic fauna species such as native birds and bats by increasing the area of non-viable habitat that they need to traverse. Migratory species often rely on 'stepping stones' of suitable foraging and roosting habitat during migrations. By removing 3.9 hectares of habitat the proposed rezoning could increase the distance between suitable patches. In a regional context this would probably comprise a minor effect on these more mobile species. Aerial habitat would not be affected and so migratory species are likely to traverse obstacles and gaps in habitat created by permanent infrastructure.

The removal of vegetation at the site would not sever connectivity between of the site and vegetation to the north and south as a corridor would be maintained along the eastern edge of the site.

Existing disturbance on site has resulted in clearly visible edge effects in native vegetation on the site such as infestation with exotic species around the margins of woodland patches. The development would create new edges along areas of retained along Grey Gum Road. Increasing edge effects can compromise bushland habitats by encouraging weed growth, changing light and microclimatic conditions as well as potentially increasing nutrient levels. Some fauna, such as bats and predatory birds, may use the newly created open areas for foraging which would result in increased predation within open areas and along edges by both native and introduced predatory fauna. Measures recommended in Section 6 should be implemented to minimise the potential for edge effects in retained habitats.

4.4.2 Threatened fauna

The proposal has the potential to impact 8 threatened fauna species listed under the TSC and/or EPBC Acts which may occur within the study area, and that may utilise habitat at the site, at least on occasion or on an opportunistic basis. These species include;

- Regent Honeyeater (*Anthochaera phrygia*) Listed as critically endangered under the EPBC Act and endangered under the TSC Act.
- Glossy Black Cockatoo (*Calyptorhynchus lathamii*) Listed as vulnerable under the TSC Act.
- Varied Sittella (*Daphoenositta chrysoptera*) Listed as vulnerable under the TSC Act.
- Swift Parrot (*Lathamus discolor*)- Listed as endangered under the TSC and EPBC Acts.

- Little Bentwing-bat - Listed as vulnerable under the TSC Act.
- Eastern Bent-wing Bat (*Minopterus schreibersii oceanensis*)- Listed as vulnerable under the TSC Act.
- Koala (*Phascolarctos cinereus*) Listed as vulnerable under the TSC and EPBC Acts.
- Grey headed Flying-fox (*Pteropus poliocephalus*) Listed as vulnerable under the TSC and EPBC Acts

Preliminary assessments of significance have in have been completed for these species in accordance with the EP&A Act. These assessments found that the proposal is unlikely to have a significant impact on any of these species.

4.5 Migratory species

The study area provides seasonal foraging habitat for two EPBC Act listed migratory species (Rainbow Bee-eater (*Merops ornatus*) and Black-faced Monarch (*Monarcha melanopsis*)).

Habitats within the site are limited in extent, as well as being patchy and degraded by weed infestation. Therefore the habitats present are not considered to constitute critical or important habitat for any listed species under the migratory bird provisions of the EPBC Act.

The proposal has the potential to impact on up to 3.9 hectares of native vegetation, 0.1 hectare of wetland and 3.9 hectares of cleared land. The proposal has the potential to reduce the extent of native vegetation in the locality but would not isolate any areas of habitat nor sever any important wildlife corridors. Vegetation removal associated with the proposal may constitute a partial barrier to regional movements of migratory species by increasing the area of non-viable habitat that they need to traverse. Migratory species often rely on 'stepping stones' of suitable foraging and roosting habitat during migrations. By removing up to 3.9 hectares of potential habitat would slightly increase the distance between suitable patches. In a regional context this would probably comprise a very minor effect on these more mobile species.

Aerial habitat would not be affected and so migratory species are likely to traverse obstacles and gaps in habitat created by permanent project infrastructure.

The proposal is unlikely to create a barrier to migration, increase the risk of injury or mortality or otherwise impact on migratory species. Therefore the proposal is unlikely to impose a significant effect on any of the listed migratory fauna species, which could possibly occur in the study area on occasion.

Based on a preliminary consideration of the criteria contained in the MNES significance guidelines (DotE 2013), the proposal would not substantially modify, destroy or isolate an area of important habitat for a migratory species or seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species. Therefore the proposal is not likely to have a significant impact on migratory species listed under the EPBC Act.

4.6 Indirect ecological impacts

Indirect ecological impacts occur as a consequence of development whereby changes to the environment have an impact on natural systems as outlined below.

4.6.1 Degradation of surface water

Potential sources of impacts to surface water within the site include:

- Runoff from areas cleared of vegetation.
- Runoff from soil stockpiles.
- Runoff from hardstand areas, including roads and site facilities.
- Leakage or spillage of chemicals from vehicles.
- Refuelling bays and fuel, oil and grease storages.

Potential water quality impacts may be associated with runoff from disturbed areas, including vegetation clearing areas, construction lay down areas and access roads if risks are not effectively managed and appropriate mitigation measures implemented. Concentrated and/or altered water movement within the construction footprint may increase the potential for sediment and contaminant mobilisation and transport. Negative effects on aquatic habitats may include increases in stream sediment load, changes in channel form, changes in stream hydrology and a variety of changes in stream faunal populations and communities. Infrastructure that impinge on the stream channel may also cause increases in sediment input and consequent declines in water quality and stream habitat integrity, leading to declines in abundance of invertebrates and fish (Davies and Nelson, 1994).

Soil and erosion protection measures and techniques would require implementation prior to, during and at the completion of any proposed construction works at the site..

4.6.2 Sediment, dust and runoff

There are sensitive environmental receptors adjacent to the proposal, including native vegetation along the eastern boundary of the site. This vegetation however is highly disturbed and has been impacted by edge effects associated with Grey Gum Road. Possible indirect impacts on terrestrial flora and fauna from construction activities are likely to include dust and vehicle exhaust emissions generated from construction vehicles and equipment. A construction environmental management plan (CEMP) including measures to mitigate the risk and severity of these impacts as far as possible would be required for any proposed development at the site.

4.6.3 Weed invasion and edge effects

'Edge effects' is a term that refers to changed environmental conditions at the interface of intact native vegetation and cleared areas. Edge effects may result in impacts such as changes to vegetation type and structure, increased growth of exotic plants, increased predation of native fauna or avoidance of habitat by native fauna. Edge effects are likely to result from clearing of vegetation within the site and would continue to impact on vegetation and habitats in adjoining areas.

Construction at the site may increase the degree of weed infestation through dispersal of weed propagules (seeds, stems and flowers) into areas of native vegetation via erosion (wind and water) and via workers shoes and clothing and through construction vehicles.

4.6.4 Pests and pathogens

Construction activities have the potential to introduce or spread pathogens such as *Phytophthora* (*Phytophthora cinnamomi*), Myrtle Rust (*Uredo rangelii*) and frog chytrid fungus (*Batrachochytrium dendrobatidis*) throughout the site.

A 'clean on entry, clean on exit' policy would need to be implemented during construction activities to prevent the spread of these pathogens. Hygiene measures including decontamination of personnel and plant equipment prior to entering the site would need to be developed as part of the CEMP if any frog habitat is being cleared. These measures would need to be developed with reference to OEH hygiene protocol for the control of disease in frogs (DECC 2008).

4.6.5 Noise, vibration, traffic and lighting

Construction collisions with wildlife within the site would be possible, particularly during initial vegetation clearing. Pre-clearance surveys would need to be undertaken prior to vegetation clearing and fauna exclusion fencing would be installed for the duration of construction to reduce the potential impact.

Artificial lighting during construction (such as night-time security lighting) can potentially discourage habitat use where diffuse light penetrates into adjoining areas of vegetation. The foraging regimes of some nocturnal native animals can be disrupted by lighting and make them vulnerable to predation by cats, dogs and foxes. The eyesight of nocturnal species (such as owls and amphibians) is hindered by bright lights, and where they are affected by this, they become more susceptible to predation. Such lighting should be designed as 'down lights' wherever practicable and be directed inwards so as to not spill into adjoining areas of intact vegetation.

Construction noise and vibration also have the potential to impact fauna. This would not be a novel impact and is likely to have a minor effect on native fauna.

4.6.6 Key threatening processes

A threatening process is something that threatens, or could potentially threaten, the survival or evolutionary development of a species, population or ecological community. Development at the site has the potential to introduce or increase Key Threatening Processes (KTP) listed under the TSC Act and/or EPBC Act as outlined below.

Table 4-2 Key threatening processes

KTP	Status	Comment
Clearing of native vegetation	EPBC Act TSC Act	Clearing of native vegetation has occurred historically within and around the site and any further clearing of native vegetation would increase this KTP.
Infection of native plants by <i>Phytophthora cinnamomi</i>	EPBC Act TSC Act	Construction activities have the potential to introduce the root-rot fungus <i>Phytophthora cinnamomi</i> into the site, which could lead to dieback of vegetation.
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	EPBC Act TSC Act	Construction activities have the potential to introduce or spread amphibian chytrid fungus around the site, which could lead to death of local frogs.
Invasion, establishment and spread of <i>Lantana camara</i>	TSC Act	<i>Lantana camara</i> is present in low abundance within the proposal site. Construction activities have the potential to spread <i>Lantana camara</i> within and surrounding the site, which could lead to the further invasion of this species into native plant communities.
Invasion of native plant communities by exotic perennial grasses	TSC Act	Exotic perennial grasses are present in high abundance within the proposal site. Construction activities have the potential to spread exotic perennial grasses within and surrounding the site, which could lead to the further invasion of these species into native plant communities.

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5. Recommendations to avoid or mitigate impacts

Rezoning of the site should be planned within the hierarchy of aiming to avoid ecological impacts, then mitigate any ecological impacts that cannot be avoided, and if required, compensate for ecological impacts either through offsetting or biobanking.

5.1 Impact avoidance

Impact avoidance is usually achieved at the design phase of a project and includes placement of infrastructure and access points so as to minimise impact on identified biodiversity values.

The majority of the site is mapped as containing low ecological constraints and is suitable for future development with minimal ecological impacts.

It is recommended that the vegetation that runs along the eastern side of the site is included as environmental zoning. This vegetation is of highest conservation value on site, particularly for woodland birds, and includes the eastern drainage line. This vegetation forms part of a corridor that provides connectivity to areas of bushland north and south of the site and would facilitate fauna movements through the site.

5.2 Mitigation of impacts

Mitigation measures are taken in order to reduce the impact on identified biodiversity values where avoidance is not possible. As it is currently unknown what the future develop of the site would involve, it is not possible to provide defined mitigation measures. When a development proposal is available, a flora and fauna assessment should be done to determine the specific mitigation measures required. The assessment should include targeted surveys for *Eucalyptus seeana*.

In general, development on the site should consider and minimise potential indirect ecological impacts on threatened and migratory fauna habitats. A CEMP would also need to be prepared to formalise management actions for native flora and fauna (and their habitats) and provide additional details on implementation.

It is recommended that the CEMP include as a minimum:

- A soil and water management plan, which would require:
 - Installation of erosion and sediment control measures prior to construction.
 - Regular inspection of erosion and sediment control measures, particularly following rainfall events, to ensure their ongoing functionality.
 - Stockpiles to be restricted to identified construction compounds, in areas of cleared land and exotic grassland and managed to ensure no offsite impacts of dust generation or sedimentation.
 - Immediate removal offsite of excavated fill materials not required for backfilling.
 - Runoff from disturbed and rehabilitated areas will be diverted into sediment ponds and not discharged into the natural system.
 - Implementation of measures to minimise the generation of dust during construction.

- A vegetation management sub-plan to the CEMP, which should include (but not be limited to) the following:
 - Delineation and protection of exclusion zones around native vegetation to be retained.
 - Supplementary planting of local flora species in revegetation areas using transplanted stems, seed and/or cuttings from within the development footprint.
 - Communication with construction personnel of the conservation value of surrounding habitats and their responsibilities with regard to protecting these habitats during construction.
 - Hygiene procedures to prevent the introduction and spread of pathogens such as Phytophthora and Myrtle Rust in areas of native vegetation. These would include exclusion zones around retained areas of native vegetation and/or provision of machine and footwear washdown stations for all equipment and personnel working in areas of native vegetation.
- A weed management sub-plan to the CEMP, including a description of:
 - Type and location of weeds of concern (including noxious weeds) within the site.
 - Sensitive receivers (such as native vegetation and waterways) within or adjacent to the site.
 - Measures to prevent the spread of weeds, including hygiene procedures for equipment, footwear and clothing.
 - Proposed weed control methods and targeted areas.
 - Weed disposal protocols.
- A fauna management sub-plan to the CEMP, including (but not limited to) the following:
 - Marking of hollow-bearing trees to be felled prior to clearing of vegetation. The removal of hollow bearing trees would be required to be undertaken in accordance with a tree hollow management protocol (to be developed as part of the fauna management sub-plan), and would require the presence of a qualified ecologist or wildlife expert experienced in the rescue of fauna.
 - Development of procedures for the safe capture and relocation or captive rearing of less mobile fauna (such as roosting microbats, nestling birds or any injured fauna) by a trained fauna handler and with assistance from Wildlife Information Rescue and Education Service (WIRES) as required.
 - Deferral of vegetation removal and associated construction activity in areas occupied by more mobile threatened fauna until the fauna has vacated the subject site.
 - Erection of exclusion fencing around vegetation to be retained, delineation of 'no-go' areas and marking fauna habitat features, such as hollow-bearing trees, in close proximity to construction footprints to avoid inadvertent impacts during construction activities.
 - Habitat features (fallen logs and tree hollows) removed from site should be salvaged and relocated within adjacent areas of retained vegetation.
 - Protocols to prevent the introduction or spread of chytrid fungus should be implemented following OEH Hygiene protocol for the control of disease in frogs (DECCW 2008).

6. Conclusion

This flora and fauna assessment has been prepared by GHD for Rail Corp to evaluate the conservation significance of site biodiversity values and identify flora and fauna constraints and opportunities for Proposed Rezoning of the Proposal.

Three vegetation types were recorded within the study area, these include Grey Ironbark – Spotted Gum – Grey Gum Open Forest, a small wetland area and exotic vegetation.

There are no endangered ecological communities listed on the TSC Act or EPBC Act that occur at the site.

There is potential habitat within the site for one threatened flora species (*Eucalyptus seeana*) and eight threatened fauna species Regent Honeyeater (*Anthochaera phrygia*) Glossy Black Cockatoo (*Calytocybys lathami*) Varied Sittella (*Daphoenositta chrysoptera*) Swift Parrot (*Lathamus discolor*) Little Bentwing-bat Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*), Koala (*Phascolarctos cinereus*) and Grey headed Flying-fox (*Pteropus poliocephalus*).

The potential impact on these species has been determined through preliminary assessments of significance completed in accordance with the Section 5 of the EP&A Act. These assessments determined that the proposal is unlikely to have a significant impact on any of these species.

It is recommended that a further targeted survey is completed for *Eucalyptus seeana* and that if found to occur on the site mitigation measures are implemented to avoid and minimise impacts on this species.

Based on an assessment of the nature and condition of habitats available in the site, there is potential foraging habitat and a moderate potential for two migratory species (Rainbow Bee-eater and Black-faced Monarch) to occur. The site also provides potential habitat for aerial migratory species (such as White-throated Needletail) which have a low probability of occurring.

To help maintain connectivity to bushland north and south of the site and to preserve habitat of higher quality, it is recommended that the native vegetation that runs along the eastern edge of the site be excluded from any future development. This vegetation is also associated with the eastern drainage line and forms part of a corridor that facilitates fauna movements through the site.

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<http://www.environment.nsw.gov.au/research/Visclassification.htm>

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Appendices

Appendix A – EPBC act protected matters report

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 06/07/15 11:37:47

[Summary](#)

[Details](#)

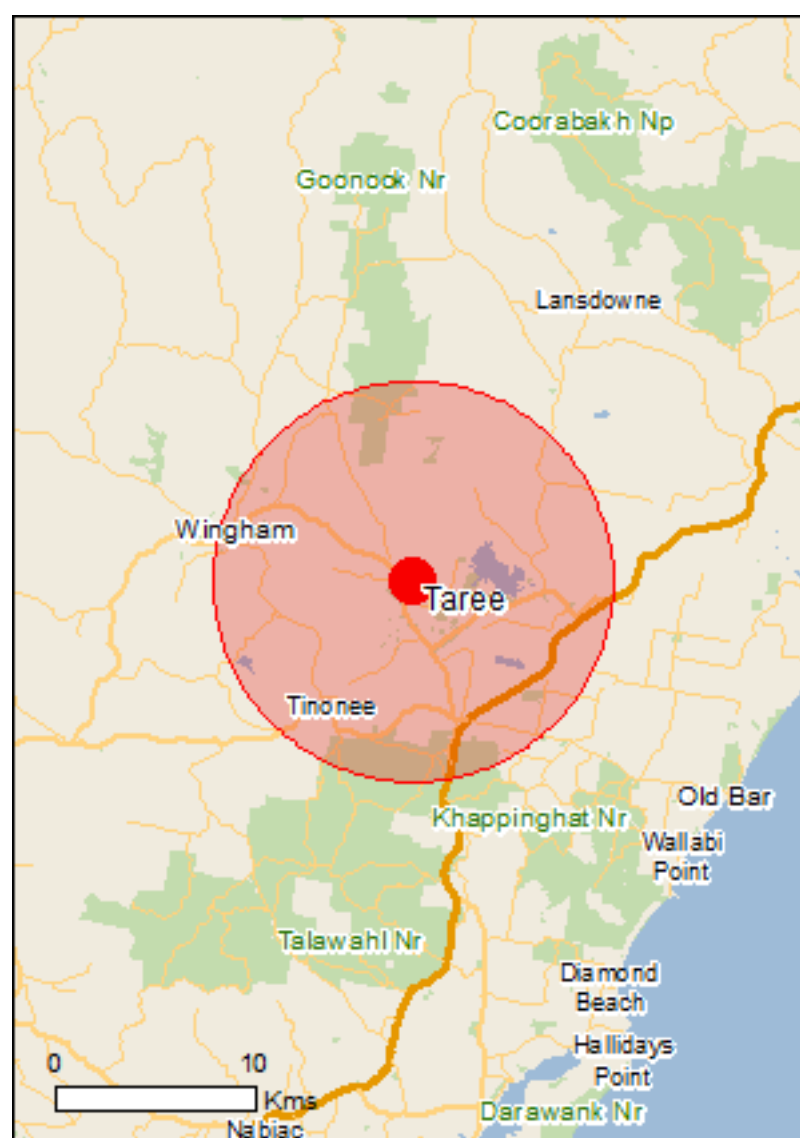
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

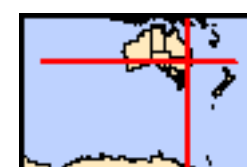
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 10.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	45
Listed Migratory Species:	36

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	6
Commonwealth Heritage Places:	1
Listed Marine Species:	34
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	6
Regional Forest Agreements:	1
Invasive Species:	39
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora epomophora Southern Royal Albatross [25996]	Vulnerable	Species or species habitat likely to occur within area
Diomedea epomophora sanfordi Northern Royal Albatross [82331]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans antipodensis Antipodean Albatross [82269]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans exulans Tristan Albatross [82337]	Endangered	Species or species habitat may occur within area
Diomedea exulans gibsoni Gibson's Albatross [82271]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta salvini Salvin's Albatross [82343]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Fish		
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species

Name	Status	Type of Presence
Pseudomys oralis Hastings River Mouse, Koontoo [98]	Endangered	habitat likely to occur within area Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Allocasuarina defungens Dwarf Heath Casuarina [21924]	Endangered	Species or species habitat likely to occur within area
Asperula asthenes Trailing Woodruff [14004]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
Diuris flavescens Pale Yellow Doubletail, Wingham Doubletail [55075]	Critically Endangered	Species or species habitat known to occur within area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species

[[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross [1072]	Vulnerable*	Species or species habitat likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered*	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion cristatus Eastern Osprey [82411]		Breeding known to occur within area

Name	Threatened	Type of Presence
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Postal Corporation
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Commonwealth Trading Bank of Australia & Harold W J Cowa
Commonwealth Land - Defence Housing Authority
Defence - TAREE GRES DEPOT ; MACQUARIE DEPOT-41 RNSWR-TAREE

Commonwealth Heritage Places [\[Resource Information \]](#)

Name	State	Status
Historic		
Wingham Post Office	NSW	Listed place

Listed Marine Species [\[Resource Information \]](#)

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross [1072]	Vulnerable*	Species or species habitat likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species

Name	Threatened	Type of Presence
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	habitat likely to occur within area Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered*	Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche impavida Campbell Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area

Reptiles

Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat may occur within area

Whales and other Cetaceans

[[Resource Information](#)]

Name	Status	Type of Presence
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Mammals

Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
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Extra Information

State and Territory Reserves

[[Resource Information](#)]

Name	State
Brimbin	NSW
Coocumbac Island	NSW
Khappinghat	NSW
LNE Special Management Zone No1	NSW
Talawahl	NSW
Wingham Brush	NSW

Regional Forest Agreements

[[Resource Information](#)]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species

[[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur

Name	Status	Type of Presence
Oryctolagus cuniculus Rabbit, European Rabbit [128]		within area Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species

Name	Status	Type of Presence
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-31.88966 152.44979

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [-State Forests of NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

Appendix B – Wildlife Atlas results

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Threatened ecological communities recorded in the locality

Scientific name	Common name	NSW status	Comm. status
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	V
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	
Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	E3	
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	CE
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3	CE
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3	CE
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3	
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3	

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Threatened species recorded in the locality

Class	Scientific Name	Common Name	NSW status	Comm. status
Amphibia	<i>Litoria aurea</i>	Green and Golden Bell Frog	E1,P	V
Aves	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P	
Aves	<i>Botaurus poiciloptilus</i>	Australasian Bittern	E1,P	E
Aves	<i>Lophoictinia isura</i>	Square-tailed Kite	V,P,3	
Aves	<i>Pandion cristatus</i>	Eastern Osprey	V,P,3	
Aves	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P	
Aves	<i>Gygis alba</i>	White Tern	V,P	
Aves	<i>Calyptrorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2	
Aves	<i>Ninox strenua</i>	Powerful Owl	V,P,3	
Aves	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3	
Aves	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P	
Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E
Mammalia	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P	
Mammalia	<i>Phascolarctos cinereus</i>	Koala	V,P	V
Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P	
Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V
Mammalia	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P	
Mammalia	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P	
Flora	<i>Eucalyptus glaucina</i>	Slaty Red Gum	V,P	V
Flora	<i>Eucalyptus seeana</i>	Eucalyptus seeana population in the Greater Taree local government area	E2	
Flora	<i>Asperula asthenes</i>	Trailing Woodruff	V,P	V

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Appendix C – Threatened species record viewer

[Appendices\Appendix C\Threatened species record view results.pdf](#)

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Home » [Fishing and aquaculture](#) » [Species protection](#) » [Records](#)

Threatened & protected species - records viewer

Records for this map are from the NSW Department of Primary Industries research surveys, they do not indicate the entire distribution of the species and there may be errors and omissions. To view the records using Google Earth you must download and install the Google Earth Plugin.



Records search

Step 1
Select an area type to search by:
[Statewide](#)
[Catchment Management Authority](#)
[Local Government Area](#)
LGA:

Step 2
Select a species:

Step 3
Select a time period:
 pre 1980
 post 1980
 all records



Appendix D – Flora species recorded on site

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Family	Exotic	Scientific name	Common name	TSC status
Adiantaceae		<i>Pellaea falcata</i>	Sickle Fern	
Amaranthaceae		<i>Alternanthera denticulata</i>	Lesser Joyweed	
Anthericaceae		<i>Caesia parviflora</i>	Pale Grass-lily	
Apiaceae		<i>Hydrocotyle hirta</i>	Hairy Pennywort	
Apocynaceae		<i>Parsonsia straminea</i>	Common Silkpod	
Asparagaceae	*	<i>Asparagus aethiopicus</i>	Asparagus Fern	
Asteraceae	*	<i>Ageratina adenophora</i>	Crofton Weed	
Asteraceae	*	<i>Ageratum houstonianum</i>	0	
Asteraceae	*	<i>Bidens pilosa</i>	Cobbler's Pegs	
Asteraceae		<i>Cassinia aculeata</i>	Dolly Bush	
Asteraceae	*	<i>Cirsium vulgare</i>	Spear Thistle	
Asteraceae		<i>Euchiton sphaericus</i>	Star Cudweed	
Asteraceae	*	<i>Hypochaeris radicata</i>	Catsear	
Asteraceae	*	<i>Senecio madagascariensis</i>	Fireweed	
Bignoniaceae		<i>Pandorea pandorana</i>	Wonga Wonga Vine	
Blechnaceae		<i>Blechnum sp.</i>	0	
Campanulaceae		<i>Wahlenbergia gracilis</i>	Sprawling Bluebell	
Caryophyllaceae	*	<i>Stellaria media</i>	Common Chickweed	
Casuarinaceae		<i>Allocasuarina littoralis</i>	Black She-Oak	
Convolvulaceae		<i>Dichondra repens</i>	Kidney Weed	
Cyperaceae		<i>Carex breviculmis</i>	0	
Cyperaceae	*	<i>Cyperus sesquiflorus</i>	0	
Cyperaceae		<i>Gahnia aspera</i>	Rough Saw-sedge	
Cyperaceae		<i>Lepidosperma laterale</i>	Variable Sword-sedge	
Cyperaceae		<i>Schoenoplectus mucronatus</i>	0	
Dilleniaceae		<i>Hibbertia obtusifolia</i>	Hoary Guinea Flower	
Ericaceae		<i>Leucopogon juniperinus</i>	Prickly Beard-heath	
Fabaceae (Faboideae)		<i>Desmodium rhytidophyllum</i>	0	

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Family	Exotic	Scientific name	Common name	TSC status
Fabaceae (Faboideae)		<i>Glycine clandestina</i>	Twining glycine	
Fabaceae (Faboideae)		<i>Glycine tabacina</i>	Variable Glycine	
Fabaceae (Faboideae)		<i>Jacksonia scoparia</i>	Dogwood	
Fabaceae (Mimosoideae)		<i>Acacia concurrens</i>	Curracabah	
Fabaceae (Mimosoideae)		<i>Acacia falcata</i>	0	
Fabaceae (Mimosoideae)		<i>Acacia leiocalyx subsp. leiocalyx</i>	Curracabah	
Juncaceae		<i>Juncus usitatus</i>	0	
Lauraceae	*	<i>Cinnamomum camphora</i>	Camphor Laurel	
Lobeliaceae		<i>Pratia purpurascens</i>	Whiteroot	
Lomandraceae		<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	
Lomandraceae		<i>Lomandra multiflora subsp. multiflora</i>	Many-flowered Mat-rush	
Loranthaceae		<i>Amyema congener subsp. congener</i>	0	
Luzuriagaceae		<i>Geitonoplesium cymosum</i>	Scrambling Lily	
Malvaceae	*	<i>Modiola caroliniana</i>	Red-flowered Mallow	
Malvaceae	*	<i>Sida rhombifolia</i>	Paddy's Lucerne	
Myrtaceae		<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	
Myrtaceae		<i>Corymbia intermedia</i>	Pink Bloodwood	
Myrtaceae		<i>Corymbia maculata</i>	Spotted Gum	
Myrtaceae		<i>Eucalyptus eugenioides</i>	Thin-leaved Stringybark	
Myrtaceae		<i>Eucalyptus moluccana</i>	Grey Box	
Myrtaceae		<i>Eucalyptus paniculata</i>	Grey Ironbark	
Myrtaceae		<i>Eucalyptus propinqua</i>	Small-fruited Grey Gum	
Myrtaceae		<i>Eucalyptus tereticornis</i>	Forest Red Gum	
Myrtaceae		<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree	
Ochnaceae	*	<i>Ochna serrulata</i>	Mickey Mouse Plant	
Oleaceae	*	<i>Ligustrum lucidum</i>	Large-leaved Privet	
Oleaceae	*	<i>Ligustrum sinense</i>	Small-leaved Privet	
Oxalidaceae	*	<i>Oxalis corniculata</i>	Creeping Oxalis	

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Family	Exotic	Scientific name	Common name	TSC status
Oxalidaceae		<i>Oxalis perennans</i>	0	
Passifloraceae	*	<i>Passiflora subpeltata</i>	White Passionflower	
Phormiaceae		<i>Dianella caerulea</i>	Blue Flax-lily	
Phyllanthaceae		<i>Breynia oblongifolia</i>	Coffee Bush	
Phyllanthaceae		<i>Glochidion ferdinandi</i>	Cheese Tree	
Phyllanthaceae		<i>Poranthera microphylla</i>	Small Poranthera	
Pittosporaceae		<i>Billardiera scandens</i>	Hairy Apple Berry	
Plantaginaceae	*	<i>Plantago lanceolata</i>	Lamb's Tongues	
Poaceae	*	<i>Andropogon virginicus</i>	Whisky Grass	
Poaceae		<i>Aristida vagans</i>	Threeawn Speargrass	
Poaceae	*	<i>Chloris gayana</i>	Rhodes Grass	
Poaceae		<i>Cymbopogon refractus</i>	Barbed Wire Grass	
Poaceae		<i>Cynodon dactylon</i>	Common Couch	
Poaceae		<i>Digitaria parviflora</i>	Small-flowered Finger Grass	
Poaceae		<i>Echinopogon caespitosus</i>	Bushy Hedgehog-grass	
Poaceae		<i>Entolasia stricta</i>	Wiry Panic	
Poaceae		<i>Eragrostis brownii</i>	Brown's Lovegrass	
Poaceae	*	<i>Eragrostis tenuifolia</i>	Elastic Grass	
Poaceae		<i>Imperata cylindrica</i>	Blady Grass	
Poaceae	*	<i>Melinis repens</i>	Red Natal Grass	
Poaceae		<i>Microlaena stipoides</i>	Weeping Grass	
Poaceae		<i>Oplismenus aemulus</i>	0	
Poaceae		<i>Panicum sp.</i>	Panicum	
Poaceae		<i>Paspalidium distans</i>	0	
Poaceae	*	<i>Paspalum dilatatum</i>	Paspalum	
Poaceae	*	<i>Paspalum urvillei</i>	Vasey Grass	
Poaceae		<i>Rytidosperma tenuius</i>	A Wallaby Grass	
Poaceae	*	<i>Setaria sphacelata</i>	South African Pigeon Grass	

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Family	Exotic	Scientific name	Common name	TSC status
Poaceae	*	<i>Sporobolus africanus</i>	Parramatta Grass	
Poaceae		<i>Themeda australis</i>	Kangaroo Grass	
Polygonaceae		<i>Persicaria lapathifolia</i>	Pale Knotweed	
Portulacaceae		<i>Portulaca oleracea</i>	Pigweed	
Rhamnaceae		<i>Alphitonia excelsa</i>	Red Ash	
Rosaceae		<i>Rubus parvifolius</i>	Native Raspberry	
Rubiaceae	*	<i>Galium aparine</i>	Goosegrass	
Rubiaceae		<i>Opercularia diphylla</i>	Stinkweed	
Santalaceae		<i>Exocarpos cupressiformis</i>	Cherry Ballart	
Solanaceae	*	<i>Solanum mauritianum</i>	Wild Tobacco Bush	
Typhaceae		<i>Typha orientalis</i>	Broad-leaved Cumbungi	
Verbenaceae	*	<i>Lantana camara</i>	Lantana	
Verbenaceae	*	<i>Verbena bonariensis</i>	Purpletop	
Violaceae		<i>Viola hederacea</i>	Ivy-leaved Violet	

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Appendix E – Fauna species recorded on site

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Class	Scientific name	Common name	Exotic	TSC Act	EPBC Act
Amphibia	<i>Crinia signifera</i>	Clicking froglet			
Amphibia	<i>Litoria fallax</i>	Eastern sedge frog			
Aves	<i>Daphoenositta chrysoptera</i>	Varied Sittella			
Aves	<i>Acanthiza reguloides</i>	Buff-rumped Thornbill			
Aves	<i>Grallina cyanoleuca</i>	Magpie-lark			
Aves	<i>Pardalotus punctatus</i>	Spotted Pardalote			
Aves	<i>Corvus coronoides</i>	Australian Raven			
Aves	<i>Strepera graculina</i>	Pied Currawong			
Aves	<i>Rhipidura albiscapa</i>	Grey Fantail			
Aves	<i>Phylidonyris niger</i>	White-cheeked Honeyeater			
Aves	<i>Malurus cyaneus</i>	Superb Fairy-wren			
Aves	<i>Eopsaltria australis</i>	Eastern Yellow Robin			
Aves	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill			
Aves	<i>Neochmia temporalis</i>	Red-browed Finch			
Aves	<i>Psophodes olivaceus</i>	Eastern Whipbird			
Aves	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet			
Aves	<i>Manorina melanocephala</i>	Noisy Miner			
Aves	<i>Dacelo novaeguineae</i>	Laughing Kookaburra			
Aves	<i>Meliphaga lewinii</i>	Lewin's Honeyeater			
Aves	<i>Cracticus tibicen</i>	Australian Magpie			
Aves	<i>Manorina melanophrys</i>	Bell Miner			
Aves	<i>Anthochaera carunculata</i>	Red Wattlebird			
Aves	<i>Platycercus eximius</i>	Eastern Rosella			
Reptilia	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sun Skink			
Mammalia	<i>Macropus sp</i>	Macropod			
Mammalia	<i>Perameles nasuta</i>	Long-nosed Bandicoot			
Mammalia	<i>Lepus capensis</i>	Brown Hare	*		

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Appendix F – Likelihood of occurrence assessment

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Threatened Biota Habitat Table

Databases searched

Office of Environment and Heritage (OEH) (2015) Threatened species profiles- threatened ecological communities known or predicted to occur within the Hunter CMA subregion.

Department of the Environment (DoE) (2015) EPBC PMST Online Search 11 June 2015 - 10 km buffer.

Department of Primary Industries (DPI) (2015) Records viewer search for threatened and protected aquatic species - Hunter/Central Rivers CMA.

Office of Environment and Heritage (OEH) (2015) NSW Wildlife Atlas Search - threatened species results within a 10 km buffer

Note: Marine species which are restricted to marine environments only (such as whales, dolphins, sharks and seabirds) are excluded from the Likelihood of Occurrence Table as there is no marine habitat in the proposal site.

Likelihood of occurrence

Matters considered in determining the likelihood of occurrence include:

- Known natural distributions including prior records (database searches) and site survey results.
- Geological/ soil preferences.
- Specific habitat requirements (e.g. aquatic environs, seasonal nectar resources, tree hollows etc).
- Climatic considerations (e.g. wet summers; snow fall).
- Home range size and habitat dependence.
- Topographical preferences (e.g. coastal headlands, ridgetops, midslopes, gilgai, wetlands).

The likelihood of occurrence scale is defined as follows:

Likelihood of occurrence scale

Scale	Description
Known	Species known to occur within the site (e.g. breeding and foraging habitat; foraging habitat; movement corridors). Detected on or immediately adjacent to the site.
High	Presence of high value suitable habitat (e.g. breeding and foraging habitat; important movement corridors). Not detected on site.
Moderate	Presence of medium value suitable habitat (e.g. disturbed breeding conditions; constrained foraging habitat; movement corridors). Not detected on site.
Low/Unlikely	Presence of low value suitable habitat (e.g. disturbed conditions; isolated small habitat area; fragmented movement corridors). Not detected on site.
None	No suitable habitat or corridors linking suitable habitat present. Not detected on site.

Endangered ecological communities (EEC) known or predicted to occur in the locality, community description and presence/absence in the proposal site.

Scientific name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence at proposal site
EECs				
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions	EEC	-	Occurs on landward side of mangrove stands in intertidal zones along the shores of estuaries and lagoons that are permanently or intermittently open to the sea. Characterised by <i>Baumea juncea</i> , <i>Juncus kraussii</i> , <i>Sarcocornia quinqueflora</i> , <i>Sporobolus virginicus</i> , <i>Triglochin striata</i> , <i>Isolepis nodosa</i> , <i>Samolus repens</i> , <i>Selliera radicans</i> , <i>Suaeda australis</i> and <i>Zoysia macrantha</i> , with occasional scattered mangroves occurring throughout the saltmarsh. Saltpans and tall reeds may also occur.	None.
Freshwater Wetlands on Coastal Floodplains	EEC	-	Occurs in coastal areas subject to periodic flooding with standing fresh water for at least part of the year. Typically on silts, muds or humic loams below 20 m elevation in low-lying parts of floodplains, alluvial flats, depressions, drainage lines, backswamps, lagoons and lakes. Structure and composition varies spatially and temporally depending on the water regime, though is usually dominated by herbaceous plants and has few woody species.	None.
Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	EEC		Occurs in the lower Hunter Valley, growing on Permian sediments on gentle slopes of depressions and drainage flats of the valley floor. Open forest dominated by <i>Eucalyptus tereticornis</i> and <i>E. punctata</i> , over an open shrub layer commonly including <i>Breynia oblongifolia</i> , <i>Leucopogon juniperinus</i> , <i>Daviesia ulicifolia</i> and <i>Jacksonia scoparia</i> . Ground cover comprises grasses and herbs.	None.
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	EEC	CEEC	Occurs along the NSW coast, usually within 2 km of the ocean on a variety of substrates. Variable structure and composition, typically with closed canopy. Generally rainforest species with vines a major component.	None.
Lowland Rainforest of Subtropical Australia		CEEC	Occurs from Maryborough in Queensland to the Clarence River (near Grafton) in New South Wales (NSW) (DSEWPAC 2011). Occurs on basalt and alluvial soils, including sand and old or elevated alluvial soils as well as floodplain alluvia (DSEWPAC 2011). Typically there is a relatively low abundance of species from the genera <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Casuarina</i> . Buttresses are common as is an abundance and diversity of vines. (DSEWPAC 2011).	None.
River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	EEC	-	Occurs on flats, drainage lines and river terraces of coastal floodplains where flooding is periodic and soils generally rich in silt, lack deep humic layers and have little or no saline (salt) influence. Occurs south from Port Stephens in the NSW North Coast, Sydney Basin and South East Corner bioregions. Characterised by a tall open canopy layer of eucalypts with variable species composition.	None.

Scientific name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence at proposal site
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	EEC		<p>Known from parts of the Local Government Areas of Tweed, Byron, Lismore, Ballina, Richmond Valley, Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Hastings, Greater Taree, Great Lakes and Port Stephens, but may occur elsewhere in this bioregion.</p> <p>Associated with clay-loams and sandy loams, on periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains.</p>	None.
Swamp Oak Floodplain forest of the NSW North Coast, Sydney basin and South East Corner Bioregions	EEC	-	<p>Typically occurs below 20m asl on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes on coastal floodplains of NSW. Associated with grey-black clay-loams and sandy loams, saline or sub-saline groundwater.</p> <p>Structure variable from open forests to scrubs or reedlands with scattered trees. Canopy dominated by <i>Casuarina glauca</i> (north of Bermagui) or <i>Melaleuca ericifolia</i> (south of Bermagui). Understorey characterised by frequent occurrences of vines, a sparse cover of shrubs, and a continuous groundcover of forbs, sedges, grasses and leaf litter.</p>	None.
Swamp Sclerophyll forest on Coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	EEC	-	<p>Usually occurs below 20m asl (sometimes up to 50m). Associated with humic clay loams and sandy loams, on waterlogged or periodically inundated alluvial flats and drainage lines associated with coastal floodplains. Characterised by open to dense tree layer of eucalypts and paperbarks, with trees up to or higher than 25 m. Includes areas of fern land and tall reed or sedge land, where trees are sparse or absent.</p>	None.
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregion	EEC		<p>Occurs on a range of substrates in the NSW North Coast, Sydney Basin and South East Corner bioregions. The community is found on a range of substrates, although stands on sandstone are infrequent and small.</p>	None.

Threatened flora known or predicted to occur in the locality, species description and presence/absence in the proposal site.

Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
FLORA						
<i>Allocasuarina defungens</i>	Dwarf Heath Casuarina	E	E	Occurs only in NSW, from the Napiac area, north-west Forster to Byron Bay, NSW. Grows mainly in tall heath on sand but can also occur on clay soils/sandstone (OEH 2012)	Predicted to occur in locality (DotE 2015).	None.
<i>Asperula asthenes</i>	Trailing Woodruff	V	V	This herb occurs in scattered locations from Buladelah to Kempsey. Some records from Port Stephens/Wallis Lakes area. Grows in damp sites, often along riverbanks (OEH 2012)	1 records within 10km (OEH 2015) Predicted to occur in locality (DotE 2015).	Low.
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	V	V	Occurs in coastal areas from East Gippsland to southern Queensland. Habitat preferences not well defined. Grows mostly in coastal heathlands, margins of coastal swamps and sedgeland, coastal forest, dry woodland, and lowland forest. Prefers open areas in the understorey and is often found in association with <i>Cryptostylis subulata</i> and <i>Cryptostylis erecta</i> . Soils include moist sands, moist to dry clay loam and occasionally in accumulated eucalypt leaves. Flowers November-February.	Predicted to occur in locality (DotE 2015).	Low.
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	E	Occurs from Gerroa (Illawarra) to Brunswick Heads and west to Merriwa in the upper Hunter. Most common near Kempsey. Usually occurs on the edge of dry rainforest or littoral rainforest, but also occurs in Coastal Banksia Scrub, open forest and woodland, and Melaleuca scrub. Soil and geology types are not limiting.	Predicted to occur in locality (DotE 2015).	None.
<i>Diuris flavescens</i>	Pale Yellow Doubletail, Wingham Doubletail	CE	CE	<i>Diuris flavescens</i> is known only from the Wingham-Tinonee area. It grows in grassy tall eucalypt forest with Kangaroo Grass and Bladey Grass on brown clay soil.	Predicted to occur in locality (DotE 2015).	Low.

Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	Slaty Red Gum is only found on the north coast of NSW in two separate districts; near Casino where it is locally common and further south from Taree to Broke and west of Maitland (Johnson 1962a). It occurs on shallow soils or stony hillsides, but not on poor sandstones (Johnson 1962a), on grassy woodlands on deep moderately fertile and well watered soil (Harden 1991) and on gentle slopes near drainage lines in alluvial and clayey soils (Chippendale 1988).	7 records within 10km (OEH 2015)	Low.
<i>Eucalyptus seeana</i>	Narrow-leaved Red Gum Population in the Greater Taree local government area	EP	-	The Endangered Population within the Greater Taree Local Government Area is at or near the southern-most occurrence of the species and is isolated from other populations of the species to the north. Within the Greater Taree Local Government Area the population is sporadic in distribution, consisting mainly of scattered trees but with some denser stands. A small part of the population occurs in Brimbin Nature Reserve and in a Council reserve. The population occurs as scattered individuals in woodlands and open forests on low, often swampy, sandy soils.	41 records within 10km (OEH 2015)	Moderate.
<i>Euphrasia arguta</i>		CE	CE	Recently rediscovered near Nundle on the north-western slopes and tablelands, once known from scattered locations between Sydney, Bathurst and Walcha. Known populations occur in eucalypt forest with a mixed grass/shrub understorey, while previous records are described as occurring in open forest, grassy country and river meadows. Annual and dies back over winter. Dense stands observed in cleared firebreak areas, suggesting it may respond well to disturbance.	Predicted to occur in locality (DotE 2015).	Low.
<i>Melaleuca biconvexa</i>	Biconvexa Paperbark	V	V	Scattered, disjunct populations in coastal areas from Jervis Bay to Port Macquarie, with most populations in the Gosford-Wyong areas. Grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Predicted to occur in locality (DotE 2015).	Low.

Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
<i>Phaius australis</i>	Lesser Swamp-orchid	E	E	Occurs in Queensland and north-east NSW as far south as Coffs Harbour. Grows in swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest, mostly in coastal areas (OEH 2012).	Predicted to occur in locality (DotE 2015).	Low.
<i>Thesium austral</i>	Austral Toadflax	V	V	Found in small, scattered populations along the east coast, northern and southern tablelands. Occurs in grassland or grassy woodland, and is often found in association with Kangaroo Grass (<i>Themeda australis</i>).	Predicted to occur in locality (DotE 2015).	Low.

Threatened fauna known or predicted from the locality, habitat association and likelihood of occurrence in the proposal site

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
FAUNA						
Birds						
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E	In NSW confined to two known breeding areas: the Capertee Valley and Bundarra-Barraba region. Non-breeding flocks occasionally seen in coastal areas foraging in flowering Spotted Gum and Swamp Mahogany forests, presumably in response to drought. Inhabits dry open forest and woodlands, particularly Box-Ironbark woodland and riparian forests of River Sheoak, with an abundance of mature trees, high canopy cover and abundance of mistletoes.	Predicted to occur in locality (DotE 2015)	Moderate – suitable foraging habitat exists on site.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Widespread but uncommon over most NSW except the northwest. Favours permanent freshwater wetlands with tall dense reedbeds particularly <i>Typha</i> spp. and <i>Eleocharis</i> spp., with adjacent shallow, open water for foraging. Roosts during the day amongst dense reeds or rushes and feeds mainly at night on frogs, fish, yabbies, spiders, insects and snails.	Predicted to occur in locality (DotE 2015). 1 records within 10km (OEH 2015)	Low.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V		Widespread but uncommon from coast to southern tablelands and central western plains. Feeds almost exclusively on the seeds of Allocasuarina species. Prefers woodland and open forests, rarely away from Allocasuarina. Roost in leafy canopy trees, preferably eucalypts, usually <1km from feeding site. Nests in large (approx. 20cm) hollows in trees, stumps or limbs, usually in Eucalypts (Higgins 1999).	16 records within 10km (OEH 2015)	Moderate – suitable foraging habitat exists on site.
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	Sedentary, occurs across NSW from the coast to the far west. Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Sensitive to habitat isolation and loss of structural complexity, and adversely affected by dominance of Noisy Miners. Cleared agricultural land is potentially a barrier to movement. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in	1 record within 10km (OEH 2015)	Moderate - suitable foraging habitat exists on site.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
				the living tree canopy, and often re-uses the same fork or tree in successive years.		
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Primarily inhabits permanent freshwater wetlands and surrounding vegetation including swamps, floodplains, watercourses and billabongs, freshwater meadows, wet heathland, farm dams and shallow floodwaters. Will also forage in inter-tidal shorelines, mangrove margins and estuaries. Feeds in shallow, still water. This species breeds during summer, nesting in or near a freshwater swamp	2 records within 10km (OEH 2015)	Low.
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	E	E	Occurs in three disjunct areas of south-eastern Australia: southern Queensland/northern NSW, the Illawarra Region and in the vicinity of the NSW/Victorian border. Habitat characterised by dense, low vegetation including heath and open woodland with a heathy understorey. The fire history of habitat is important, and the Illawarra and southern populations reach maximum densities in habitat that have not been burnt for over 15 years.	Predicted to occur in locality (DotE 2015).	Low.
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V		Occurs on freshwater wetlands in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW – some recorded in south-eastern NSW potentially in response to unfavourable conditions (OEH 2012).	1 records within 10km (OEH 2015)	None.
<i>Lathamus discolor</i>	Swift Parrot	E	E	Migratory, travelling to the mainland from March to October. Breeds in Tasmania from September to January. On the mainland, it mostly occurs in the southeast foraging on winter flowering eucalypts and lerps, with records of the species between Adelaide and Brisbane. Principal over-winter habitat is box-ironbark communities on the inland slopes and plains. Eucalyptus robusta, Corymbia maculata and C. gummifera dominated coastal forests are also important habitat.	Predicted to occur in locality (DotE 2015).	Moderate - suitable foraging habitat exists on site.
<i>Lophoictinia isura</i>	Square-tailed Kite	V	V	Occurs across NSW, resident in North, northeast and along west-flowing rivers. Summer breeding migrant to southeast of state. Inhabits a variety of habitats including woodlands and open forests, with preference for timbered watercourses. Favours productive forests on the coastal plain, box-ironbark-gum woodlands on the inland slopes, and Coolibah/River Red	2 records within 10km (OEH 2015)	Low.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
				Gum on the inland plains. In Sydney area nests in mature living trees within 100m of ephemeral/permanent watercourse. Large home range > 100 km ² .		
<i>Ninox strenua</i>	Powerful Owl	V	-	Occurs from the coast to the western slopes. Solitary and sedentary species. Inhabits a range of habitats from woodland and open sclerophyll forest to tall open wet forest and rainforest. Prefers large tracts of vegetation. Nests in large tree hollows (> 0.5 m deep), in large eucalypts (dbh 80-240 cm) that are at least 150 years old. Pairs have high fidelity to a small number of hollow-bearing nest trees and defend a large home range of 400 - 1,450 ha. Forages within open and closed woodlands as well as open areas.	8 records within 10km (OEH 2015)	Low.
<i>Pandion haliaetus</i>	Eastern Osprey	V	M	Favours coastal areas, especially the mouths of large rivers, lagoons and lakes. They feed on fish over clear, open water. Breeding takes place from July to September in NSW, with nests being built high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.	2 records within 10km (OEH 2015)	Low.
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	Occurs across NSW except NW corner. Most common on the coast. Inhabits dry eucalypt woodlands from sea level to 1100 m. Roosts and breeds in large (>40cm) hollows and sometime caves in moist eucalypt forested gullies. Hunts along the edges of forests and roadsides. Home range between 500 ha and 1000 ha. Prey mostly terrestrial mammals but arboreal species may also be taken.	3 records within 10km (OEH 2015)	Low.
Mammals						
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Occurs from the coast to the western slopes of the divide. Largest numbers of records from sandstone escarpment country in the Sydney Basin and Hunter Valley (Hoye and Schulz 2008). Roosts in caves and mines and most commonly recorded from dry sclerophyll forests and woodlands. An insectivorous species that flies over the canopy or along creek beds (Churchill 2008). In southern Sydney appears to be largely restricted to the interface between sandstone escarpments and fertile valleys.	Predicted to occur in locality (DotE 2015).	Low.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Inhabits a range of environments including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Den subject sites are in hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces. Females occupy home ranges of up to 750 ha and males up to 3,500 ha, which are usually traversed along densely vegetated creek lines.	Predicted to occur in locality (DotE 2015). 3 records within 10km (OEH 2015)	Low.
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-	Occurs from Cape York to Sydney. Inhabits rainforests, wet and dry sclerophyll forests, paperbark swamps and vine thickets. Only one maternity cave known in NSW, shared with Eastern Bentwing-bats at Willi Willi, near Kempsey. Outside breeding season roosts in caves, tunnels and mines and has been recorded in a tree hollow on one occasion. Forages for insects beneath the canopy of well-timbered habitats (Churchill 2008, Hoyer and Hall 2008).	5 records within 10km (OEH 2015)	Moderate - suitable foraging habitat exists on site.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-	Generally occurs east of the Great Dividing Range along NSW coast (Churchill 2008). Inhabits various habitats from open grasslands to woodlands, wet and dry sclerophyll forests and rainforest. Essentially a cave bat but may also roost in road culverts, stormwater tunnels and other man-made structures. Only 4 known maternity caves in NSW, near Wee Jasper, Bungonia, Kempsey and Texas. Females may travel hundreds of kilometres to the nearest maternal colony (Churchill 2008).	3 records within 10km (OEH 2015)	Moderate - suitable foraging habitat exists on site.
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	Occurs along the drier inland slopes as well as coastal habitats. Inhabits woodland and open forest with a Eucalyptus, Corymbia or Angophora overstorey and a shrubby understorey of Acacia or Banksia. Key habitat components include reliable winter and early-spring flowering Eucalypts, Banksia or other nectar sources, and hollow-bearing trees for roost and nest sites (van der Ree and Suckling 2008, Quin et al 2004), with social groups moving between multiple hollows. Social groups include one or two adult males and females with offspring, and have home ranges of 5-10ha within NSW (van der Ree and Suckling 2008, Kavanagh 2004).	6 records within 10km (OEH 2015)	Low

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-	Predominately east of the Great Dividing Range, occasional records to the west. Prefers open forest with sparse groundcover but occurs in habitats ranging from mallees to rainforest. Home ranges span 20-40 ha (females) and >100 ha (males) though may be smaller in optimal habitats. Male ranges overlap with females and other males. May use up to 40 nests/ year in hollow trees, rotted stumps, buildings or bird nests. When breeding females prefer to nest in large tree cavities with small entrances. Forages preferentially in rough barked trees, large logs and dead standing trees (Soderquist and Rhind 2008).	10 records within 10km (OEH 2015)	Low.
<i>Phascolarctos cinereus</i>	Koala	V	V	Occurs from coast to inland slopes and plains. Restricted to areas of preferred feed trees in eucalypt woodlands and forests. Home range varies depending on habitat quality, from < 2 to several hundred hectares.	Predicted to occur in locality (DotE 2015). 93 records within 10km (OEH 2015)	Moderate - suitable feed trees occur on site.
<i>Potorous tridactylus</i>	Long-Nosed Potoroo	V	V	Restricted to east of the Great Dividing Range, with annual rainfall >760 mm. Inhabits coastal heath and dry and wet sclerophyll forests. Requires relatively thick ground cover and appears restricted to areas of light and sandy soil (Johnston 2008). Feeds on fungi, roots, tubers, insects and their larvae, and other soft-bodied animals in the soil.	Predicted to occur in locality (DotE 2015).	Low.
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	Occurs in disjunct, coastal populations from Tasmania to Queensland. In NSW inhabits a variety of coastal habitats including heathland, woodland, dry sclerophyll forest with a dense shrub layer and vegetated sand dunes (Wilson and Bradtke 1999). Populations may recolonise/ increase in size in regenerating native vegetation after wildfire, clearing and sandmining. Presence strongly correlated with understorey vegetation density, and high floristic diversity in regenerating heath (Lock and Wilson 1999).	Predicted to occur in locality (DotE 2015).	Low.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
<i>Pseudomys oralis</i>	Hastings River Mouse	E	E	A patchy distribution - Great Dividing Range from the Hunter Valley, south of Mt Royal, north to the Bunya Mountains near Kingaroy in south-east Queensland. Occurs in a variety of dry open forest types with dense, low ground cover and a diverse mixture of ferns, grass, sedges and herbs. Preferred habitat open eucalypt forest between 300-1250m asl (mostly above 500-600m), with groundcover of grass, ferns or Lomandra species, although heathy shrubs occasionally present (Townley 2008).	Predicted to occur in locality (DotE 2015).	Low.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Roosts in camps within 20 km of a regular food source, typically in gullies, close to water and in vegetation with a dense canopy. Forages in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, swamps and street trees, particularly in eucalypts, melaleucas and banksias. Highly mobile with movements largely determined by food availability (Eby and Law 2008). Will also forage in urban gardens and cultivated fruit crops.	Predicted to occur in locality (DotE 2015). 17 records within 10km (OEH 2015)	Moderate - suitable foraging habitat exists on site.
Amphibians						
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	Formerly occurred from Brunswick Heads to Victoria, but >80% populations now extinct. Inhabits marshes, natural and artificial freshwater to brackish wetlands, dams and in stream wetlands. Prefers sites containing cumbungi (Typha spp.) or spike rushes (Eleocharis spp.), which are unshaded and have a grassy area and/or rubble as shelter/refuge habitat nearby. Gambusia holbrooki is a key threat as they feed on green and Golden Bell Frog eggs and tadpoles.	Predicted to occur in locality (DotE 2015). 3 records within 10km (OEH 2015)	Low.
<i>Mixophyes balbus</i>	Stuttering Frog	E	V	Occurs along the east coast of Australia. Has undergone a massive range reduction particularly in the south of its range: within the Sydney Basin, White (2008a) located only 3 populations south of Sydney (Macquarie Pass and Mt Werong) and Daly et al. (2002, in White 2008a) found only 2 extant populations between Macquarie Pass and Victoria. Inhabits rainforest and wet, tall, open forest. Shelter in deep leaf litter and thick understorey vegetation on the forest floor. Feeds on	Predicted to occur in locality (DotE 2015).	Low.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
				insects and smaller frogs, breeding in streams during summer after heavy rain. The species does not occur in areas where the riparian vegetation has been disturbed or where there have been significant upstream human impacts (Mahony et al 1997).		
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	Occurs on the coast and ranges from south-eastern QLD to the Hawkesbury River in NSW, particularly in Coffs Harbour - Dorrigo area. Forage and live amongst deep, damp leaf litter in rainforest, moist eucalypt forest and nearby dry eucalypt forest. Breed in shallow, flowing rocky streams. Within Sydney Basin, confined to small populations in tall, wet forest in the Watagan Mountains north of the Hawkesbury and the lower Blue Mountains (White 2008b).	Predicted to occur in locality (DotE 2015).	Low.
Fish						
<i>Epinephelus daemeli</i>	Black Rockcod, Black Cod, Saddled Rockcod		V	Found in warm temperate/sub-tropical parts of south-western Pacific. Naturally occur along NSW Coast incl. Lord Howe Island. Adults generally found on rocky reefs. Juveniles found in coastal rock pools and around rocky shores in estuaries. (DPI 2013).	Predicted to occur in locality (DotE 2015).	None.

All information in this table is taken from NSW OEH and Commonwealth DoE Threatened Species profiles (OEH 2014, DotE 2014) unless otherwise stated. The codes used in this table are: CE – critically endangered; E – endangered; V – vulnerable; EP – endangered population; CEEC – critically endangered ecological community; EEC – endangered ecological community, M- migratory, Ma – marine.

EPBC Act-listed migratory fauna known or predicted from the locality, habitat association and suitable habitat present at the subject site

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
Migratory Birds						
<i>Wetland species</i>						
<i>Ardea alba</i>	Great Egret	-	M	Occurs across NSW. Within NSW there are breeding colonies within the Darling Riverine Plains and Riverina regions, and minor colonies across its range including the north and north-east of the state. Reported from a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial).	Predicted to occur in locality (DotE 2014).	Low.
<i>Ardea ibis</i>	Cattle Egret	-	M	Occurs across NSW. Principal breeding sites are the central east coast from Newcastle to Bundaberg. Also breeds in major inland wetlands in north NSW (notably the Macquarie Marshes). Occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. Uses predominately shallow, open and fresh wetlands with low emergent vegetation and abundant aquatic flora. Sometimes observed in swamps with tall emergent vegetation and commonly use areas of tall pasture in moist, low-lying areas.	Predicted to occur in locality (DotE 2014).	Low.
<i>Rostratula benghalensis</i>	Painted Snipe		M	Most common in eastern Australia, it has been recorded at scattered locations throughout much of Queensland, NSW, Victoria and south-eastern South Australia. The species inhabits many different types of shallow, brackish or freshwater terrestrial wetlands, especially temporary ones which have muddy margins and small, low-lying islands. Suitable wetlands usually support a mosaic of low, patchy	Predicted to occur in locality (DotE 2014).	Low.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
				vegetation, as well as lignum and canegrass.		
Terrestrial species						
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	-	M	Primarily coastal but may extend inland over major river systems. Breeds close to water, mainly in tall open forest/woodland but also in dense forest, rainforest, closed scrub or remnant trees. Usually forages over large expanses of open water, but also over open terrestrial habitats (e.g. grasslands).	Predicted to occur in locality (DotE 2014).	Low.
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	M	Recorded along NSW coast to the western slopes and occasionally from the inland plains. Breeds in northern hemisphere. Almost exclusively aerial while in Australia. Occur above most habitat types, but are more frequently recorded above more densely vegetated habitats (rainforest, open forest and heathland) than over woodland or treeless areas.	Predicted to occur in locality (DotE 2014).	Low.
<i>Merops ornatus</i>	Rainbow Bee-eater	-	M	Widespread across mainland Australia. Mainly inhabits open forests and woodlands and shrublands, often in proximity to permanent water. Also occurs in cleared/semi-cleared habitats including farmland and residential areas. Excavates a nest burrow in flat/sloping ground in banks of waterways, dams, roadside cuttings, gravel pits or cliff faces. Southern populations migrate north for winter after breeding.	Predicted to occur in locality (DotE 2014).	Moderate.

Scientific Name	Common Name	TSC/F M Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
<i>Monarcha melanopsis</i>	Black-faced Monarch		M	Summer breeding migrant to south-east. Occurs along the coast of NSW. Inhabits rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating (Birds Australia 2005).	Predicted to occur in locality (DotE 2014).	Moderate
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch		M	The Spectacled Monarch is found in coastal north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, New South Wales. It is much less common in the south. Prefers thick understorey in rainforest, wet gullies and waterside vegetation as well as mangroves.	Predicted to occur in locality (DotE 2014).	Low.
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	-	M	In NSW widespread on and east of the Great Divide, sparsely scattered on the western slopes, very occasional records on the western plains. Inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, often near wetlands and watercourses. On migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. Generally not in rainforests.	Predicted to occur in locality (DotE 2014).	Low.
<i>Rhipidura rufifrons</i>	Rufous Fantail	-	M	Found along NSW coast and ranges. Inhabits rainforest, dense wet forests, swamp woodlands and mangroves. During migration, it may be found in more open habitats or urban areas (Birds Australia 2008).	Predicted to occur in locality (DotE 2014).	Low.

All information in this table is taken from NSW OEH and Commonwealth Department of the Environment Threatened Species profiles (OEH 2015, DotE 2015) unless otherwise stated. The codes used in this table are: CE – critically endangered; E – endangered; V – vulnerable; EP – endangered population; CEEC – critically endangered ecological community; EEC – endangered ecological community; M - migratory.

Appendix G – Assessments of Significance

DRAFT

***Eucalyptus seeana* (Narrow-leaved Red Gum Population in the Greater Taree local government area)**

The Narrow-leaved Red Gum is a medium to tall woodland tree to 40 m. Bark is smooth and mottled. Leaves are long, narrow and lance-shaped, up to 18 cm long and 2 cm wide. Buds are elongated, horn-shaped, 8-15 mm long. Fruit is hemispherical, 5 - 8 mm wide (OEH 2015b). It is very similar in appearance to the Forest Red Gum and is only distinguishable by the colour of the seed (National Herbarium 2015).

The Endangered Population within the Greater Taree LGA is at or near the southern-most occurrence of the species and is isolated from other populations of the species to the north. This species occurs as scattered individuals in woodlands and open forests on low, often swampy, sandy soils. Within the Greater Taree LGA the population mainly consists of scattered trees and occasional denser stands. A small part of the population occurs in Brimbin Nature Reserve and in a Council reserve.

Part 5A Assessments

***Eucalyptus seeana* (Endangered population)**

There is potential for *Eucalyptus seeana* to occur in the woodland area of the proposal site. Red Gums exist on site; however no individuals of *Eucalyptus seeana* were recorded within the proposal site during the field survey. It is impossible to distinguish Forest Red Gum (*Eucalyptus tereticornus*) from Narrow-leaved Red Gum (*Eucalyptus seeana*) without observing viable seed (National Herbarium 2015). There is the potential that the species does occur within the proposal site and a targeted survey at a suitable time of year would be required to confirm its presence.

- a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable to this threatened population.

- b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

The population of *Eucalyptus seeana* in the Greater Taree LGA is at or near the southern most extent of its distribution range (OEH 2015b). It is also a population that is isolated from other northern populations making it important to preserve individuals to ensure the viability of the population.

The area of native vegetation on the proposal site is very small (3.92 ha) and the number of individuals that may be present on site would not constitute a significant proportion of the greater population. It is not likely that the proposal would adversely effect on the population of this species in the Greater Taree area and would not place the population at risk of extinction.

- c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Not applicable to this threatened population.

- (ii) is likely to substantially and adversely modify the composition of the ecological community

Part 5A Assessments

Eucalyptus seeana (Endangered population)

such that its local occurrence is likely to be placed at risk of extinction,

Not applicable to this threatened population.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The Greater Taree LGA is 357,200 ha in size. Of this, open space for conservation constitutes 88,164 ha, which provides potential habitat for this species (GTCC 2011). The proposal may result in the clearing of approximately 3.92 ha of potential habitat for this species which is 0.004% of the available habitat in the Greater Taree area.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The native vegetation present on the proposal site represents a small linear strip of suitable habitat that provides connectivity to linear bushland north and south of the proposal site. There are no areas of conservation significance to the south of the site and therefore it is not likely to fragment or isolate other areas of potential habitat.

In addition, a narrow strip of remnant native vegetation borders the proposal site along the eastern boundary which will maintain the linear bushland corridor.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

The habitat is in moderate condition with a low to medium density of exotic plant species scattered in isolated patches throughout the site. The site has been subject to past disturbance associated with the timber storage and maintenance yard that was operated on the site by RailCorp. It is also subject to surrounding disturbance including light industrial and residential developments. The site does not represent an important area of habitat for this population of *Eucalyptus seeana*.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been listed for these species.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

OEH has identified the following management actions for this population (OEH 2015b):

- Minimise further loss of habitat from clearing and fragmentation associated with urban and rural development.
- Control environmental weeds
- Assess the habitat requirements and susceptibility to logging and other forestry practices.

The proposal is likely to have a minimal impact on this population. The removal of vegetation on

Part 5A Assessments

Eucalyptus seeana (Endangered population)

the proposal site represents an extremely small proportion of the available habitat in the Greater Taree area (0.004%). Removal of vegetation on the site would not fragment or isolate other areas of potential habitat.

It is likely that future development would require the management of environmental weeds on site, which is consistent with the management actions for this population.

Assessing habitat requirements is not applicable to this proposal.

- g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process

The population is threatened by clearing due to residential and infrastructure development. This proposal would increase the operation of this threatening process, but due to the small amount of area to be cleared, the proposal is not likely to have an adverse impact on the population.

Conclusion of Assessment of Significance

The proposal is unlikely to have a significant impact on the population of *Eucalyptus seeana*, pursuant to section 5A of the EP&A Act, given that:

- No individuals have been confirmed on site
- Clearing is likely to remove only 0.004% of the potential habitat that existing within the Greater Taree LGA
- Isolation and fragmentation would not occur as the result of this proposal.

Grey-headed flying fox

The Grey-headed Flying-fox occurs in the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria however, only a small portion of this range is used at any one time, depending on the availability of food. The species is widespread throughout its range in summer, whilst in autumn it occupies coastal lowlands and is uncommon inland (DotE 2015b).

This species requires roosting sites and foraging resources comprising fruit and nectar producing canopy species in a variety of vegetation communities including rainforest, open forest, closed and open woodland, Paperbark (*Melaleuca*) swamps, Banksia woodlands and commercial fruit crops and introduced species in urban environments (DotE 2015b).

Suitable foraging habitat (in the form of blossom-producing trees) was identified within the proposal site. A camp for this species occurs approximately 3.5 kilometres south of the proposal site, along the Manning River. It is possible that individuals from this camp forage within the proposal site when trees are in flower.

The project would result in the removal of 3.92 hectares of native vegetation identified as providing a suitable foraging resource for the Grey-headed Flying-fox.

Part 5A Assessments

Grey-headed Flying-Fox (Vulnerable)

- a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Flora species in the proposal site provide a variety of foraging resources for the Grey-headed Flying-fox from a range of species that together would flower throughout much of the year. The proposal site provides habitat for winter-flowering myrtaceous tree species such as the Spotted Gum (*Corymbia maculata*) and Grey Ironbark (*Eucalyptus paniculata*), which provide an important foraging resource for the Grey-headed Flying-fox during the winter months. Other Eucalypts that would provide foraging resources at various times of the year include Grey box (*Eucalyptus moluccana*), Forest Red Gum (*Eucalyptus tereticornis*), Small-fruited Grey Gum (*Eucalyptus propinqua*) and Pink Bloodwood (*Corymbia intermedia*).

The Draft National Recovery Plan for the Grey-headed Flying-fox (DECCW 2009) outlines the criteria for identifying foraging habitat considered critical to the survival of the species. In accordance with the plan, foraging habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Grey-headed Flying-foxes:

1. Productive during winter and spring, when food bottlenecks have been identified;
2. Known to support populations of >30 000 individuals within an area of 50 km radius (the maximum foraging distance of an adult)
3. Productive during the final weeks of gestation and during the weeks of birth, lactation and conception (September to May)
4. Productive during the final stages of fruit development and ripening in commercial crops affected by Grey-headed Flying-foxes (months vary between regions); and
5. Known to support a continuously occupied camp (DECCW 2009).

With consideration of the guidelines provided above, the foraging habitat present within the proposal site is considered critical to the survival of the Grey-headed Flying-fox due to the presence of winter flowering species. However, given the small size of the site, feeding resources contained within the proposal site would only provide a small proportion of that available to fauna in the wider locality.

Part 5A Assessments

Grey-headed Flying-Fox (Vulnerable)

Therefore, although native vegetation within the proposal site is consistent with the definition for foraging habitat critical to the survival of the Grey-headed Flying-fox, it is considered to provide only a small proportion of that available in the wider locality. Consequently the removal of about 3.92 hectares of native vegetation identified as providing a critical foraging resource to an important population of Grey-headed Flying-fox is considered unlikely to lead to a long-term decrease in the size of the population, given the availability of similar habitat within the wider locality.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable to this threatened species.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable to this threatened species.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

Approximately 3.92 hectares of potential foraging habitat would be removed as a result of the proposal.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The potential habitat to be removed is an isolated patch of vegetation on the outskirts of an urban area which already has signs of fragmentation (including edge effects). The clearing of 3.92 hectares would not increase the level of fragmentation or isolation at the site. This species is highly mobile and can travel up to 50 kilometres each night to feed (OEH 2015b). There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation. This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area of the home ranges of these highly mobile species.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

Approximately 3.92 hectares of potential foraging habitat would be removed for the proposal.

With consideration of the Draft National Recovery Plan for the Grey-headed Flying-fox (DECCW 2009), the foraging habitat present within the proposal site is considered critical to the survival of

Part 5A Assessments

Grey-headed Flying-Fox (Vulnerable)

the Grey-headed Flying-fox due to the presence of winter flowering species such as the Spotted Gum (*Corymbia maculata*) and Grey Ironbark (*Eucalyptus paniculata*). However, given the small size of the site, feeding resources contained within the proposal site would only provide a small proportion of that available to the Grey-headed Flying-fox in the wider locality. The species is highly mobile and can travel up to 50 kilometres each night to feed (OEH 2015b). There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation. This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area of the home ranges of these highly mobile species.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been listed for this species under the TSC Act.

With regards to the Draft National Recovery Plan for the Grey-headed Flying-fox (DECCW 2009), the foraging habitat present within the proposal site is considered critical to the survival of the Grey-headed Flying-fox due to the presence of winter flowering species such as the Spotted Gum (*Corymbia maculata*) and Grey Ironbark (*Eucalyptus paniculata*). However, given the small size of the site, feeding resources contained within the proposal site would only provide a small proportion of that available in the wider locality. There are extensive areas of protected forest to the north and south of the proposal site. The species is highly mobile and can travel up to 50 kilometres each night to feed (OEH 2015b). There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation. This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area of the home ranges of these highly mobile species.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

Thirteen objectives are listed in the Draft National Recovery Plan to stop the decline of, and support the recovery of the Grey-headed Flying-fox (DECCW 2009). The proposal is not consistent with the first two objectives listed on the plan:

- Objective 1. To identify and protect foraging habitat critical to the survival of Grey-headed Flying-foxes throughout their range
- Objective 2. To protect and increase the extent of key winter and spring foraging habitat of Grey-headed Flying-foxes

With regards to the Draft National Recovery Plan for the Grey-headed Flying-fox (DECCW 2009), the foraging habitat present within the proposal site is considered critical to the survival of the Grey-headed Flying-fox due to the presence of winter flowering species such as the Spotted Gum (*Corymbia maculata*) and Grey Ironbark (*Eucalyptus paniculata*). However, given the small size of the site, feeding resources contained within the proposal site would only provide a small proportion of that available in the wider locality which includes over 88,164 hectares of open space for conservation. This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area. The small amount of vegetation to be removed is not likely to impact these highly mobile species.

Part 5A Assessments

Grey-headed Flying-Fox (Vulnerable)

- g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process

The would result in the operation of one KTP:

- Clearing of vegetation – the proposal would remove about 3.92 ha of native vegetation that represents potential foraging habitat for this species

The proposal has the potential to result in the operation of two additional KTPs:

- Infection of native plants by *Phytophthora cinnamomi*
- Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae

A number of mitigation measures to reduce the potential for the operation of KTPs would be put in place before any works were to occur.

Conclusion of Assessment of Significance

The proposal is unlikely to have a significant impact on the Koala, pursuant to section 5A of the EP&A Act, given that:

- The potential foraging habitat to be removed (3.92 hectares) is only a small proportion of the habitat available within the locality (0.004%). There are extensive areas of protected forest to the north and south of the proposal site.
- The species is highly mobile and can travel up to 50 kilometres each night to feed (OEH 2015b). The small amount of vegetation to be removed is not likely to impact this highly mobile species.

Koala

The Koala is widely distributed in eastern Australia, occurring from north-eastern Queensland to the south-east corner of SA (ANZECC 1998). This distribution equates to about one million square kilometres. In NSW, the Koalas range occurs along the coast and extends west to the Darling Riverine Plains and Mulga Lands bioregions in the north of the state; to the Cobar Peneplain bioregion in the centre of the state; and to the Riverina and eastern most parts of the Murray-Darling Depression bioregions in the south (DotE 2015b).

According to State Environmental Planning Policy No 44 – Koala habitat protection (SEPP 44), core koala habitat constitutes an area of land with a resident population of Koalas, evidenced by attributes such as breeding females and recent sightings of and historical records of a population. Potential koala habitat includes areas of native vegetation where the trees listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component (under SEPP 44).

There was no evidence at the site of a resident population of Koalas and no records within or immediately surrounding the site (OEH 2015a). Koala feed trees however make up more than 15 % of the total number of trees within the site and therefore the site would constitute potential koala habitat under SEPP 44.

Koala habitat mapping within the Koala Atlas (Australian Koala Foundation 2015) identifies some of the proposal site as Secondary Habitat (Class A). The proposal site is on the outskirts of Taree town centre and includes an isolated patch of secondary habitat (Class A).

Part 5A Assessments

Koala (Vulnerable)

- a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

No Koalas were observed during surveys in July 2015. There are numerous scattered records of Koalas throughout the locality and within close proximity of the proposal site (OEH 2014a).

Within the Hunter - Central Rivers Koala management area there are a number of known primary and secondary feed trees (OEH 2015b), some of which were identified at the proposal site. Forest red gum (*Eucalyptus tereticornis*) is a primary feed tree that was identified at the site. Secondary feed trees present at the site include Small-fruited Grey gum (*Eucalyptus propinqua*) and Grey box (*Eucalyptus moluccana*) Spotted Gum (*Corymbia maculata*) is considered a supplementary Koala food tree species. This species was present at the site.

Koala habitat mapping within the Koala Atlas identifies some of the proposal site as Secondary Habitat (Class A) which is capable of supporting high to medium density Koala populations (Australian Koala Foundation 2015). The total size of the proposal site is 8.23 hectares, and approximately 3.92 hectares contains potential habitat for the Koala. According to the DotE (2015b), in coastal NSW, population densities range from high (3 Koalas / hectare) to very low (0.006 Koalas / hectare). If the proposal site contained a population of Koalas, it could only support up 9 -10 Koalas at most.

A viable population can be defined as one which has adequate numbers and distribution of reproductive individuals to ensure its continued existence in the landscape. In order to insure that viable populations will be maintained, births must exceed deaths over an extended period (Australian Research Council & Australian Koala Foundation 2006). A viable local population of the species is not known to occur at the site. If Koalas did occur within the proposal site, or the

Part 5A Assessments

Koala (Vulnerable)

immediate surrounds, it is likely that they would be visiting the proposal site temporarily in search of feed trees. Given the extent of potential Koala habitat in the Greater Taree LGA (approximately 88,164 ha is open space for conservation (GTCC 2011)) and known suitable habitat immediately north of the site (approximately 2775 ha (Australian Koala Foundation 2015)) it is likely that any Koala visiting the site is part of the wider population.

The proposal is unlikely to adversely affect the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable to this threatened species.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable to this threatened species.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

Approximately 3.92 hectares would be removed as a result of the proposal. The potential habitat to be removed is highly degraded with large occurrences of *Lantana camara* (Lantana) and other exotic species throughout the site.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The potential habitat to be removed is an isolated patch of vegetation on the outskirts of an urban area which already has signs of fragmentation (including edge effects). The clearing of 3.92 hectares would not increase the level of fragmentation or isolation at the site. A linear strip of vegetation would remain to the east of the proposal site which could be used by Koalas as a corridor between the wetland areas to the north and other linear patches of forest closer to the town centre. There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation. This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

Approximately 3.92 hectares of potential habitat would be removed for the proposal. The potential habitat to be removed is highly degraded with large occurrences of *Lantana camara* (Lantana) and other exotic species throughout the site. No Koalas were observed during surveys.

Part 5A Assessments

Koala (Vulnerable)

One primary feed trees species (Forest red gum) and two secondary feed tree species (Small-fruited Grey gum and Grey box) were present at the site. An additional secondary feed tree (Narrow-leaved Red Gum) was potentially present at the site but could not be confirmed due to the absence of flowers. An additional species (Spotted Gum) was recorded at the site and is considered a supplementary Koala food tree species according to the Greater Taree KPOM (Australian Koala Foundation 2015).

Koala habitat mapping within the Koala Atlas identifies some of the proposal site as Secondary Habitat (Class A). This is defined as areas of forest where primary koala food tree species comprise less than 50% but at least 30% of overstorey trees; or where primary koala food tree species comprise less than 30% of the overstorey trees, but together with secondary food tree species comprise at least 50% of the overstorey trees; or areas where secondary food tree species alone comprise at least 50% of the overstorey trees (primary koala food tree species absent). Secondary habitat (Class A) is capable of supporting high to medium density Koala populations (Australian Koala Foundation 2015).

The proposal site is on the outskirts of Taree town centre. Numerous records of Koala sightings exist surrounding the proposal site (OEH 2015a). It is possible that Koalas use this patch of vegetation on a temporary basis, whilst moving between other patches of vegetation. There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation.

As the proposal site is highly degraded, within the outskirts of an urban area with similar and better quality habitat in close proximity to the site, it is unlikely that this habitat is of great importance to the Koala to the point where it would affect the long-term survival of the species.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been listed for this species.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

The objectives for the Koala recovery plan include:

1. To conserve koalas in their existing habitat
2. To rehabilitate and restore koala habitat and populations
3. To develop a better understanding of the conservation biology of koalas
4. To ensure that the community has access to factual information about the distribution, conservation and management of koalas at a national, state and local scale
5. To manage captive, sick or injured koalas and orphaned wild koalas to ensure consistent and high standards of care
6. To manage overbrowsing to prevent both koala starvation and ecosystem damage in discrete patches of habitat
7. To coordinate, promote the implementation, and monitor the effectiveness of the NSW Koala Recovery Plan across NSW

Part 5A Assessments

Koala (Vulnerable)

Specific objectives are listed for each of the objectives above. The proposal is consistent with the specific objectives, and therefore the objectives above.

- g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process

The would result in the operation of one KTP:

- Clearing of vegetation – the proposal would remove about 3.92 ha of native vegetation that represents potential habitat for this species.

The proposal has the potential to result in the operation of two additional KTP:

- Infection of native plants by *Phytophthora cinnamomi*
- Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae

The vegetation to be cleared contains both primary and secondary feed tree species. No Koalas were observed during the field survey, however there are numerous records within the locality. It is likely the Koalas utilise the habitat on an opportunistic basis, while searching for better habitat.

A number of mitigation measures to reduce the potential for the operation of the two KTPs would be put in place before any works were to occur.

Conclusion of Assessment of Significance

The proposal is unlikely to have a significant impact on the Koala, pursuant to section 5A of the EP&A Act, given that:

- No Koalas were observed during surveys
- The potential habitat to be removed (3.92 hectares) is highly disturbed and on the outskirts of an urban area. It is likely that Koalas would utilise the site on an opportunistic or transient basis only.
- There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation. The clearing of vegetation for the proposal would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area.
- The proposal is consistent with the objectives listed in the recovery plan

Microchiropteran bats - the Eastern Bentwing Bat and the Little Bentwing-bat

The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) is essentially a cave bat, but also utilises man-made habitats such as road culverts, storm-water tunnels and other man-made structures outside the breeding season. Breeding takes place from October to April in a number of maternity caves that host up to 100,000 females (Churchill, 2008). No maternity caves are present at the site. The species may forage throughout the site, but would not rely solely on these foraging habitats due to the presence of larger areas of native vegetation in the locality. Although Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) was not recorded at the site, potential foraging habitat is present and as a precautionary measure an assessment of significance has been undertaken to assess the loss of a small area of potential foraging habitat.

The Little Bentwing-bat (*Miniopterus australis*) inhabits moist eucalypt forest, rainforest or dense coastal Banksia scrub. This species primarily roosts in caves, tunnels and sometimes tree hollows. Breeding for this species occurs during winter at maternal roost sites (OEH, 2015b). This species may forage throughout the site, but is unlikely to rely solely on these foraging habitats due to the presence of larger areas of native vegetation in the locality. Although Little Bentwing-bat (*Miniopterus australis*) was not recorded at the site, potential foraging habitat is present and as a precautionary measure an assessment of significance has been undertaken to assess the loss of a small area of potential foraging habitat.

The project would result in the removal of 3.92 hectares of native vegetation identified as providing suitable habitat for these microchiropteran bats.

Section 5A Assessment – Cave-roosting microbats	
Eastern Bentwing-bat (Vulnerable)	Little Bentwing-bat (Vulnerable)
a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	
Neither of these two species would be likely to breed or roost within the proposal site, as there is no habitat present on site that would constitute suitable breeding or roosting habitat. The proposal could remove up to 3.92 hectares of potential foraging habitat for these species.	
The proposal would not isolate any areas of habitat or cause significant habitat fragmentation that would affect the breeding, foraging or dispersive movements of these highly mobile species. The vegetation to be removed would make up a small proportion of the home ranges of these highly mobile species. Given the large areas of native vegetation in the locality, including approximately 88,164 hectares of open space for conservation in the Greater Taree LGA, the proposal is unlikely to impact the lifecycle of the species such that viable local populations of these species would be placed at risk of extinction.	
b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,	
Not applicable to these threatened species.	
c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:	
(i) is likely to have an adverse effect on the extent of the ecological community such that its local	

Section 5A Assessment – Cave-roosting microbats

Eastern Bentwing-bat (Vulnerable)

Little Bentwing-bat (Vulnerable)

occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable to these threatened species.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The proposal could remove up to 3.92 hectares of potential foraging habitat for these species. No breeding or roosting habitat would be removed.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposal would not isolate any areas of habitat at a landscape scale: habitat connectivity to bushland north and south of the proposal site would be maintained by the narrow strip of bushland that borders the site to the east.

The removal of vegetation on site would be unlikely to prevent movements of these highly mobile, aerial species.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

The proposal would remove up to 3.92 hectares of potential foraging habitat for these species. There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation (GTCC 2011). This would represent a minor proportion (0.004%) of the available habitat in the Greater Taree area of the home ranges of these highly mobile species

It is therefore considered that the removal of vegetation within the proposal site would be unlikely to threaten the long-term viability of either of these threatened microbat species in the locality.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been listed for these species.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

No recovery plan has been prepared for these species. Priority actions mainly relate to research and habitat management and protection. The proposal would remove potential foraging habitat for these species and is therefore not consistent with the recovery actions. The small area of potential foraging habitat that would be cleared is unlikely to interfere with the recovery of these species.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result

Section 5A Assessment – Cave-roosting microbats

Eastern Bentwing-bat (Vulnerable)

Little Bentwing-bat (Vulnerable)

in the operation of, or increase the impact of, a key threatening process

The proposed action would contribute to the operation of one KTP of relevance to these species as follows:

- Clearing of vegetation – the proposal would remove about 3.92 ha of native vegetation that represents potential foraging habitat for these species.

As previously discussed, the vegetation to be removed represents a minor proportion of vegetation within the locality, and would therefore represent a minor increase in the operation of this KTPs.

Conclusion of Assessment of Significance

The proposal is unlikely to have a significant impact on these cave-roosting microbats, pursuant to section 5A of the EP&A Act, given that:

- No breeding or roosting habitat would be removed;
- Vegetation to be removed comprises a negligible (0.004%) proportion of native vegetation present in the locality, which includes over 88,164 hectares within open space conservation areas; and
- Habitat connectivity would be retained for these mobile species.

Woodland Birds

The Regent Honeyeater occurs on the inland slopes of south-east Australia, but is also found in coastal woodlands and forests on occasion. A range contraction in recent years has restricted the Regent Honeyeater to between north-eastern Victoria and south-eastern Queensland. While it is predicted to occur in the locality (DotE 2015), it has not been recorded (OEH 2015). The Regent Honeyeater only breeds in two locations in NSW and includes the Capertee Valley and the Bundarra-Barraba region. The Regent Honeyeater is a generalist feeder, with a preference for nectar, lerp infestations or honeydew. The proposal site contains only suitable foraging habitat for this species.

The Varied Sittella inhabits most of NSW; however it has a preference for eucalypt forest and woodlands. It has been recorded in the locality (OEH 2015). The Varied Sittella forages high in the canopy and feeds on arthropods. The Varied Sittella builds nests on upright tree forks high in the canopy which may be used for successive years. The proposal site provides foraging habitat for this species and limited nesting habitat.

The Swift Parrot is a seasonal migrant to south-east Australia in autumn and winter, where it feeds on winter-flowering eucalypts and associated lerp infestations. While it is predicted to occur in the locality (DotE 2015), it has not been recorded (OEH 2015). In the warmer months, this species can be found breeding in Tasmania between November and February. The proposal site contains favoured feed tree species for this species including Spotted Gum (*Corymbia maculata*) and lerp infested trees such as Grey Box (*Eucalyptus moluccana*). The proposal site is likely to contain suitable foraging habitat for this species in winter.

The Glossy Black Cockatoo has a wide distribution throughout NSW and occurs in the southern tablelands, central coast and central western plains of NSW. It is known to occur in the locality and has been recorded several times (OEH 2015). This species feeds almost exclusively on the seeds of *Allocasuarina* species and prefers woodland and open forests, rarely away from *Allocasuarina*. The proposal site provides foraging habitat for this species. The proposal site does not contain nesting habitat for this species due to the absence of hollows of an appropriate size.

The project would result in the removal of 3.92 hectares of native vegetation identified as providing suitable habitat for these woodland birds. An assessment of the likely significance of impacts of the proposal on woodland birds has been prepared and is presented in the table below. The conclusion of this assessment is that the proposal is not likely to have a significant impact on a local population of the Regent Honeyeater, Varied Sittella, Swift Parrot and Glossy Black Cockatoo.

Part 5A Assessments

Woodland Birds

- a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Given the absence of notable records of sighting of the Regent Honeyeater, Varied Sittella and Swift Parrot within the locality (OEH 2015a), it is unlikely that the proposal site contains habitat for a viable population of these species. However, while these species may visit the locality and proposal site on occasion (due to the presence of potential foraging and/or breeding habitat), impacts from the removal of 3.92 hectares of habitat is unlikely to place viable populations of these species at risk of extinction.

Part 5A Assessments

Woodland Birds

Up to 12 sightings of the Glossy Black Cockatoo have been recorded within the locality (OEH 2015a) and given the presence of potential foraging habitat for this species in the eucalypt woodland areas of the proposal site, it is likely that individuals from a viable population of this species may utilise the proposal site for foraging on occasion. However, given the abundance of similar habitat in the locality, impacts from the removal of 3.92 hectares by the proposal is unlikely to place viable populations of this species at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable to this threatened species.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable to this threatened species.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The proposal would remove up to 3.92 hectares of potential foraging habitat for these threatened woodland birds and also 3.92 hectares of potential breeding habitat for the Varied Sittella. The potential habitat to be removed is highly degraded with large occurrences of *Lantana camara* (Lantana) and other exotic species throughout the site.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The potential habitat to be removed is an isolated patch of vegetation on the outskirts of an urban area which already has signs of fragmentation (including edge effects). The clearing of 3.92 hectares would not increase the level of fragmentation or isolation at the site, given the mobility of these particular birds, particularly the Swift Parrot.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

The proposal would remove up to 3.92 hectares of potential foraging habitat for these threatened woodland birds and also 3.92 hectares of potential breeding habitat for the Varied Sittella. The potential habitat to be removed is highly degraded with large occurrences of *Lantana camara* (Lantana) and other exotic species throughout the site. There are extensive areas of similar vegetation in adjoining areas and in the broader locality, including over 88,164 hectares of open space for conservation (GTCC 2011). This would represent a minor proportion (0.004%) of the

Part 5A Assessments

Woodland Birds

available habitat in the Greater Taree area of the home ranges of these highly mobile species.

Accordingly, it is unlikely that potential habitat on the proposal site is important to these threatened woodland birds such that the long-term survival of these species would be affected.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been listed for this species.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

No recovery plan has been prepared for these species, with the exception of the Swift Parrot and Regent Honeyeater. Suggestions for encouraging recovery of these species' and which are relevant to this proposal include:

- Identifying the extent and quality of habitat
- Managing and protecting habitat at a landscape scale
- Monitoring population and habitat

Potential impacts of threatened woodland birds have been assessed in this report and are considered insignificant given the large home-range of these species, extent of habitat in surrounding lands including conservation reserves and the limited extent and magnitude of impacts of the proposal. Given these considerations, the proposal is unlikely to interfere with the recovery of these species'.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process

The would result in the operation of one KTP:

- Clearing of vegetation – the proposal would remove about 3.92 ha of native vegetation that represents potential habitat for this species.

As previously discussed, the vegetation to be removed represents a minor proportion of vegetation within the locality, and would therefore represent a minor increase in the operation of this KTPs.

Conclusion of Assessment of Significance

The proposal is unlikely to have a significant impact on the Regent Honeyeater, Varied Sittella, Swift Parrot and Glossy Black Cockatoo pursuant to section 5A of the EP&A Act, given that:

- 3.92 hectares of potential breeding habitat for the Varied Sittella would be removed.
- 3.92 hectares of potential foraging habitat for all threatened woodland birds would be removed.
- These species may only use the proposal site on an occasional basis.
- Vegetation to be removed comprises a negligible (0.004%) proportion of native vegetation present in the locality, which includes over 88,164 hectares within open space conservation areas.

DRAFT

GHD



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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	A. Bacales	D. Williams		D. Williams		23/07/2015

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Our ref: PP_2017_MCOAS_008_00 (15/18252)

Mr Glenn Handford
Interim General Manager
MidCoast Council
PO Box 450
FORSTER NSW 2428

Att: Sue Calvin

Dear Mr Handford,

Planning Proposal to amend Greater Taree Local Environmental Plan 2010

I refer to Council's email dated 20 June 2017 requesting a Gateway determination under section 56 of the *Environmental Planning and Assessment Act 1979* (the Act) and subsequent additional information in respect of the Planning Proposal to undertake various housekeeping amendments to the Greater Taree Local Environmental Plan 2010.

As delegate of the Minister for Planning, I have now determined the Planning Proposal should proceed subject to the conditions in the attached Gateway determination.

I have agreed that the Planning Proposal's inconsistency with S117 Directions 1.1 Business and Industrial Zones, 1.2 Rural Zones, 4.1 Acid Sulfate Soils and 4.3 Flood Prone Land are justified by being consistent with the underlying strategic directions of the Hunter Regional Plan 2036 and being of minor significance.

I have approved the reduction of land for public purposes and the reservation of land for the future Cundletown Bypass under the Minister's direction 6.2 Reserving Land for Public Purposes.

The Minister delegated plan making powers to councils in October 2012. Council did not request the Minister's plan making delegations. However, I have considered the nature of Council's Planning Proposal and have decided to issue an authorisation for Council to exercise delegation to make this plan.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the week following the date of the Gateway determination. Council should aim to satisfy the Gateway conditions and commence the exhibition of the Planning Proposal as soon as possible. Council's request to draft and finalise the LEP should be made directly to Parliamentary Counsel's Office 6 weeks prior to the projected publication date. A copy of the request should be forwarded to the Department for administrative purposes.

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Minister may take action under section 54(2)(d) of the EP&A Act if the time frames outlined in this determination are not met.

Attached for your assistance is a simplified guide to the plan making process and reporting requirements to ensure that the LEP Tracking System is kept updated.

Should you have any questions regarding this matter, I have arranged for Mr Trent Wink from the Hunter office to assist you. Mr Wink can be contacted on (02) 4904 2716.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Monica Gibson', written in a cursive style.

11/8/2017

Monica Gibson
Director Regions, Hunter
Planning Services



Gateway Determination

Planning Proposal (Department Ref: PP_2017_MCOAS_008_00): to introduce new clauses, introduce new zone objectives, update the land use tables, adjust heritage conservation floor space ratios and undertake various site-specific amendments at Cooplacurripa, Harrington, Johns River, Coopernook Village, Kundle Kundle, Taree, Wingham, Tallwoods Village, Red Head, Black Head, Cundletown.

I, the Director Regions, Hunter at the Department of Planning and Environment as delegate of the Minister for Planning, have determined under section 56(2) of the Act that an amendment to the Greater Taree Local Environmental Plan (LEP) 2010 to undertake various housekeeping amendments as described in Council's Planning Proposal, version 5 and dated 20 June 2017, should proceed subject to the following conditions:

1. Prior to undertaking community consultation Council is to amend the Planning Proposal as follows:
 - (a) Include the proposed amendment to clause 4.1B Exceptions to minimum subdivision lots sizes for certain split zones as a general amendment because it will apply to all land zoned RU5 covered by the Greater Taree Local Environmental Plan 2010.
 - (b) Update site specific amendment (C) Coopernook to realign the RU1 Primary Production and RU5 Village zone boundary so that only flood free land (FPL3 2100 + 1% + 0.5m) as identified by the Manning River Flood Study 2016 is zoned RU5 Village and has a minimum lot size of 1000sqm in the subject area.
 - (c) Delete the site-specific amendment (L) Diamond Beach because Council hasn't resolved to rezone part of the site E3 Environmental Management and to permit permanent residential accommodation. Retain the existing site specific amendment labelling (a-q) to avoid confusion when consulting public agencies.
 - (d) Update Council's assessment of the Minister's S117 Direction 2.2 Coastal Protection to explain that the Planning Proposal is consistent because any future development application in the coastal zone will be assessed against the criteria contained in the Greater Taree Local Environmental Plan 2010 (clause 5.5) to provide for the protection of the coastal environment.
 - (e) Update Council's assessment of the Minister's S117 Direction 3.1 Residential Zones to explain that the Planning Proposal is consistent because it continues to provide housing diversity and makes efficient use of existing infrastructure and services.
 - (f) Update Council's assessment of the Minister's S117 Direction 3.4 Integrating Land Use and Transport to explain that the Planning Proposal is consistent because it either reinforces the urban footprint, permits the continuance of an existing employment activity, reflects ownership arrangements or corrects zoning anomalies.
2. A traffic and acoustic impact assessment needs to be prepared for site-specific amendment B Johns River to determine potential impacts to and from the Pacific Highway. The Planning Proposal is to be updated to include the traffic and acoustic impact assessment prior to commencing public exhibition and consulting agencies.
3. Community consultation is required under sections 56(2)(c) and 57 of the Environmental Planning and Assessment Act 1979 ("EP&A Act") as follows:
 - (a) the Planning Proposal must be made publicly available for a minimum of 28 days; and
 - (b) the relevant planning authority must comply with the notice requirements for public exhibition of Planning Proposals and the specifications for material that must be made publicly available along with Planning Proposals as identified in section 5.5.2 of A Guide to Preparing LEPs (Planning & Infrastructure 2013).

4. Consultation is required with the following public authorities under section 56(2)(d) of the EP&A Act and/or to comply with the requirements of relevant S117 Directions:
- NSW Rural Fire Service regarding S117 Direction 4.4 Planning for Bushfire Protection.
 - Office of Environment and Heritage regarding site-specific amendments B Johns River and H Taree.
 - National Parks and Wildlife Services regarding site-specific amendment F Harrington.
 - Roads and Maritime Services regarding site-specific amendments B Johns River and I Cundletown.
 - NSW Department of Primary Industries (Agriculture) regarding the general amendments G3, G4, G5, G6 and G12.
 - NSW Department of Primary Industries (Minerals and Petroleum) regarding S117 Direction 1.3 Mining, Petroleum Production and Extractive Industries.

Each public authority is to be provided with a copy of the Planning Proposal and any relevant supporting material, and given at least 21 days to comment on the proposal. Council should, following receipt of advice from the public authorities, update its consideration of S117 Directions and SEPPs in the Proposal, as required.

5. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).
6. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 11th day of August 2017.



Monica Gibson
Director Regions, Hunter
Planning Services
Department of Planning and Environment
Delegate of the Minister for Planning



WRITTEN AUTHORISATION TO EXERCISE DELEGATION

MidCoast Council is authorised to exercise the functions of the Minister for Planning under section 59 of the *Environmental Planning and Assessment Act 1979* that are delegated to it by instrument of delegation dated 14 October 2012, in relation to the following planning proposal:

Number	Name
PP_2017_MCOAS_008_00	Planning Proposal to introduce new clauses, introduce new zone objectives, update the land use tables, adjust heritage conservation floor space ratios and undertake various site-specific amendments at Cooplacurripa, Harrington, Johns River, Coopernook Village, Kundle Kundle, Taree, Wingham, Tallwoods Village, Red Head, Black Head, Cundletown.

In exercising the Minister's functions under section 59, the Council must comply with the Department's "A guideline for the preparation of local environmental plans" and "A guide to preparing planning proposals".

A handwritten signature in black ink, appearing to read "Monica Gibson".

11/8/2017

Monica Gibson
Director Regions, Hunter
Planning Services
Department of Planning and Environment

Delegated plan making reporting requirements

(Attachment 5 from "A guide to preparing local environmental plans)

Notes:

- The department will fill in the details of Table 3
- RPA is to fill in details for Table 2
- If the planning proposal is exhibited more than once, the RPA should add additional rows to **Table 2** to include this information
- The RPA must notify the relevant contact officer in the regional office in writing of the dates as they occur to ensure the Department's publicly accessible LEP Tracking System is kept up to date
- A copy of this completed report must be provided to the Department with the RPA's request to have the LEP notified

Table 1 – To be completed by the Department

Stage	Date/Details
Planning Proposal Number	PP_2017_MCOAS_008_00
Date Sent to Department under s56	20 June 2017
Gateway determination date	11 August 2017

Table 2 – To be completed by the RPA

Stage	Date/Details
Dates draft LEP exhibited	
Date of public hearing (if held)	
Date sent to PCO seeking Opinion	
Date Opinion received	
Date Council Resolved to Adopt LEP	
Date LEP made by GM (or other) under delegation	
Date sent to Department requesting notification (hunter@planning.nsw.gov.au)	
Brief Description of Purpose of planning proposal	

Table 3 – To be completed by the Department

Stage	Date/Details
Notification Date and details	

Additional relevant information:

PLAN MAKING PROCESS POST GATEWAY – FOR DELEGATED MATTERS

1. Post Exhibition Review

- Any unresolved s117 directions must be finalised before progressing with LEP
- If planning proposal is revised, council is to email a copy of the revised proposal to the regional planning team - hunter@planning.nsw.gov.au under Section 58(2) of the Act prior to requesting LEP to be made.
- If changes to planning proposal are substantial then may no longer be authorised by the Gateway determination and a Gateway amendment may be required before LEP is made. Councils are encouraged to contact regional planning team to seek advice before finalising the LEP under delegation.

2. Legal Drafting of the LEP

- Council's request to draft and finalise the plans should be made as soon as possible to ensure timeframes are met. Council should upload the maps and GIS data directly to the department's portal site (<https://data.planningportal.nsw.gov.au/help>).
- Once uploaded Council should email hunter@planning.nsw.gov.au and advise maps are available for checking. Any questions about uploading can be directed to gis@planning.nsw.gov.au.
- Unless otherwise negotiated the department will only undertake a technical review of any maps, to ensure they comply with LEP mapping technical guidelines.
- No maps or mapping/GIS data is to be sent directly to PCO.
- The request for legal drafting should be send to PCO at parliamentary.counsel@pco.nsw.gov.au including the planning proposal, a copy of the gateway determination and details of any change to the proposal arising from the gateway determination. The name and contact details of the council contact officer should also be supplied.
- A copy of the request to PCO should also be forwarded to the department for administrative purposes only – hunter@planning.nsw.gov.au

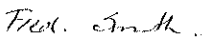
3. Making of the draft LEP s59

- Council's delegate resolves to finalise the LEP by signing the instrument (see example below).
- If council's delegate decides not to make plan or defer a matter, council should liaise with regional team for assistance.
- Council must also notify PCO if plan not proceeding

4. Notification of LEP

- Council advises and requests the department to make the plan, email request to hunter@planning.nsw.gov.au and the following documents to be provided for notification
 1. Signed LEP - which includes full name of LEP and PCO file reference
 2. Signed map cover sheet and associated maps,
 3. Name and position of the delegate who signed the LEP and date,
 4. Completed Attachment 5 - delegated plan making reporting template,
 5. Copy of council's assessment (s 59 report) which is usually the council report/minutes
 6. PC opinion
- Request to hunter@planning.nsw.gov.au by Tuesday of the week will enable notification by Friday.

Example of signature front page


Fred Smith General Manager
As delegate for the Minister for Planning 12/12/14



PDA Planning
PO Box 468
Taree NSW 2430
m | 0431133472
abn 31358339153
www.pdaplanning.com.au

Attachment G - Johns River Supporting Information

Our Ref: P00179_L1.doc

15 September 2017

The General Manager
MidCoast Council
PO Box 482
Taree NSW 2430

Dear Sir,

**SUBJECT: TRAFFIC AND ACOUSTIC IMPACT ASSESSMENT
PROJECT: PROPOSED REZONING OF 24-30 JOHNS RIVER ROAD,
JOHNS RIVER, NSW**

1. Background

The subject land being 24-30 Johns River Road, Johns River is the subject of a Gateway Determination (PP_2017_MCOAS_008_00) to rezone 2.26 hectares of the land to Village (RU5) zone under the provisions of Greater Taree Local Environmental Plan 2010.

The Gateway Determination has requested that in respect of this site specific amendment that a traffic and noise impact assessment be prepared to determine the potential impacts of the rezoning to and from the adjacent Pacific Highway.

This letter provides this assessment.

In 2013 Council approved a fuel outlet development at 28 John River Road. As part of the Development Application for the fuel outlet the following assessments were undertaken:

- Noise Impact Assessment prepared by Matrix Industries (Report M13223.01) dated 30 September 2013; and
- Traffic Impact Assessment prepared by Roadnet dated September 2013.

Copies of these reports are attached to this assessment and relevant information from those assessments has been considered in this report.

2. Potential Use Intensification

24-30 Johns River Road, Johns River currently comprises 4 lots being Lot 85 DP 1109105, Lot 283 DP 879623, part Lot 284 DP 879623 and Lot 1 DP 308795. The rezoning of the land to RU5 will require a minimum lot size of 1.5 hectares, therefore there is no increased residential subdivision potential created by the proposed rezoning. The potential use intensification of the proposed rezoning is discussed further below.

- Residential

The RU5 zone lists dual occupancies and secondary dwellings as permissible. There are currently 3 residences on 3 of the lots (being Lot 85, Lot 1 and Lot 283). Therefore, there is a potential for a maximum of 3 additional residential dwellings on those 3 lots. Lot 284 will not meet the minimum area requirement for a dwelling.

- Commercial

The RU5 zone lists several commercial uses permissible for the site that would be compatible with other commercial uses in a village environment. As indicated previously there is currently a Development Consent for a retail fuel outlet on Lot 283 upon which tavern currently exists.

3. Traffic Impacts

The Roadnet Traffic Impact Assessment concluded that the proposed retail fuel outlet on Lot 284 would not have an adverse impact on traffic, or the local road network inclusive of the Pacific Highway.

Given that a retail fuel outlet is a high traffic generating commercial business, it can be concluded that an additional 3 residences, or lower traffic generating commercial uses, would not have an adverse impact upon the local road network, inclusive of the Pacific Highway.

4. Noise Impacts

The Matrix Noise Impact Assessment indicates that the background noise level at 28 Johns River Road, being 61.6 L_{Aeq} exceeds the acceptable daytime assessment criteria for Freeways being 60.0 L_{Aeq} . Therefore any additional development on the subject land is likely to experience noise levels from the Pacific Highway that exceed amenity criteria.

Council has a requirement for noise impact to be assessed as part of its Development Assessment process, therefore any future development proposals (either residential or commercial) should be required to provide a Noise Impact Assessment with any Development Application to assist in this decision-making process and to provide information that satisfies the requirements of Section 79C of the EP&A Act. Such assessments should determine the potential noise impacts from the existing Pacific Highway and propose mitigation measure to ensure noise levels at the developments are maintained to acceptable levels.

5. Conclusion

This assessment has considered the potential noise and traffic impacts to and from the Pacific Highway upon future potential development at 24-30 Johns River Road, Johns River, that may result from future development of the land that would be afforded due to the proposed rezoning of the subject land to RU5 Village under the provisions of Greater Taree Local Environmental Plan 2010. Reference is made to previous studies that relate to future development at 28 Johns River Road.

This assessment concludes:

- that an additional 3 residences, or lower traffic generating commercial uses, on the subject land, would not have an adverse impact upon the local road network, inclusive of the Pacific Highway.
- any additional development on the subject land is likely to experience noise levels from the Pacific Highway that exceed amenity criteria. Any future development proposals (either residential or commercial) should be required to provide a Noise Impact Assessment with any Development Application to assist in this decision-making process and to provide information that satisfies the requirements of Section 79C of the EP&A Act.

Yours faithfully

PDA Planning

A signed copy can be provided upon request.

TONY FISH

Town Planner



ABN: 61 002 929 857

Consulting Structural, Mechanical & Acoustical Engineers

144 Oxley Island Road
Oxley Island, NSW 2430

Phone: (61) 2 6553 2577

Fax: (61) 2 6553 2585

Email: info@matrixindustries.com.au

Web: www.matrixindustries.com.au

NOISE IMPACT ASSESSMENT

of

The Proposed Fuel Outlet

for

Johns River Tavern (A. Galati)

Report No. M13223.01

**Site: Lot 2839, DP 879623
28 Johns River Road
Johns River NSW 2443**

**Prepared by: Philip Thornton BE CPEng
Acoustic Consultant**

30 September, 2013

TABLE OF CONTENTS

1.	<i>Introduction</i>	4
2.	<i>Purpose of the Report</i>	4
3.	<i>Proposed Development</i>	4
4.	<i>Location</i>	5
5.	<i>The Building</i>	6
6.	<i>Potential Noise Sources</i>	7
7.	<i>Proposed Operations</i>	7
8.	<i>Planning Noise Levels</i>	7
9.	<i>Instrumentation</i>	10
10.	<i>Background Noise Measurement Procedure</i>	10
11.	<i>Existing Background Noise Levels</i>	11
12.	<i>Noise Criteria</i>	12
13.	<i>Noise Sources</i>	14
14.	<i>Predicted Noise Levels</i>	15
15.	<i>Noise Impacts</i>	16
16.	<i>Certification</i>	17
17.	<i>Conclusion</i>	17
18.	<i>Glossary of Acoustic Terms</i>	18
	<i>Appendix</i>	
A	<i>Sound Level Meter Calibration Certificates</i>	19
B	<i>Report Photos</i>	21

List of Tables

Table 1 - Recommended amenity criteria from the NSW Industrial Noise Policy

Table 2 - Road Traffic Noise Criteria from NSW Road Noise Policy

Table 3 - Alternative Road Traffic Noise Criteria from NSW Road Noise Policy.

Table 4 - Distance of residences located on Johns River Road to the Proposed Fuel Outlet.

Table 5 – Background A-weighted sound pressure levels – short term.

Table 6 – Background A-weighted sound pressure levels – long term.

Table 7 - Estimated Average Background Sound Pressure Levels (from AS1055.2).

Table 8 - Summary of environmental criteria

Table 9 - Adjustment for duration

Table 10 - Project Specific Criteria for Operational Noise

Table 11 – Project Specific Criteria for Sleep Disturbance

Table 12 – Road Traffic Noise Criteria

Table 13 – Noise levels of typical activities associated with the project.

Table 14 – Predicted L_{AeqT} noise at 26 Johns River Rd, Johns River.

Table 15 – Predicted outside noise level for sleep disturbance at 26 Johns River Road.

Table 16 – Predicted L_{AeqT} noise at 31 Johns River Rd, Johns River.

Table 17 – Predicted outside noise level for sleep disturbance at 31 Johns River Road.

Table 18 – Road Traffic Noise Assessment

Site Map 1 – Location of the proposed development.

Site Map 2 – Location of the proposed development in relation to the nearest residences, the overpass and the Pacific Highway (Freeway).

Site Map 3 – Drawing showing the size and position of the awning in relation to the building.

Site Map 4: Locations of the noise measurements positions – A, B & C.

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ACOUSTIC REPORT

1 Introduction

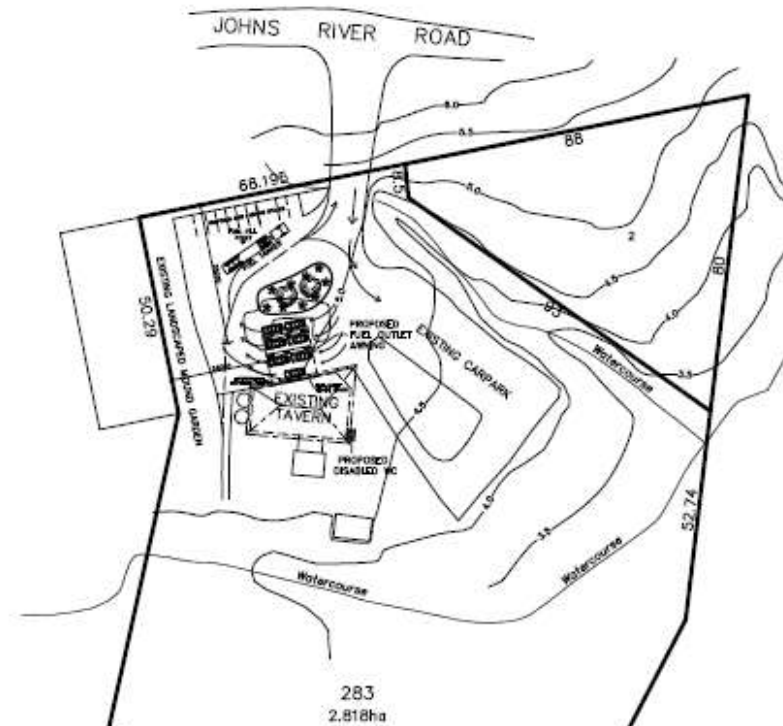
This assessment will form part of a development application for the proposed fuel outlet at Johns River Tavern. Greater Taree City Council (GTCC) is the certifying authority and has requested that an acoustic report be submitted with the Statement of Environmental Effects. The proponent, Tony Galati, has engaged the services of Philip Thornton of Matrix Industries Pty Ltd, a firm of Acoustic and Engineering Consultants, to prepare a noise impact assessment to satisfy council requirements.

2 Purpose of the Report

- a. Measure the existing background noise levels.
- b. Determine acceptable noise criteria within the limits of the NSW Industrial Noise Policy (INP), the NSW Road Noise Policy (RNP) and the NSW Office of the Environment and Heritage (OEH).
- c. Obtain noise data of proposed activities.
- d. Analyse noise level data and predict new levels of likely noise impacts at the nearest affected residences.
- e. Compare these figures against assessment criteria to determine if they are within acceptable noise levels.
- f. Suggested method of noise mitigation required, if any, to achieve desired noise levels.
- g. Prepare a report on these findings acceptable to GTCC.

3 Proposed Development

The proponent has lodged a Development Application, 604/2010/DA, with Greater Taree City Council for a proposed fuel outlet at 28 Johns River Road, Johns River NSW 2443 – Lot 283 DP 879623. The development involves the construction of a new awning and associated concrete plinths for the fuel bowsers. Council has identified that the operations of the proposal could be a source of noise for nearby residences. The Protection of the Environment Operations Act requires a report that addresses the acoustic “impacts of the development on adjoining properties and identifying measures necessary to comply with noise criteria to ensure that the development will have no adverse affect on the adjoining properties”. It is the usual procedure that “details certified by an appropriately qualified acoustic engineer be submitted to and approved by the Certifying Authority prior to the release of a Construction Certificate”. This report will satisfy these requirements.



Site Map 1: Location of the proposed development.

4 Location

The proposed fuel outlet is attached to the front of the Johns River Tavern at 28 Johns River Road, Johns River NSW. Johns River Road is an extension of Stewarts River Road after it crosses the overpass above the Pacific Highway. Refer to Site Map 1.



Site Map 2: Location of the proposed development in relation to the nearest residences, the overpass and the Pacific Highway (Freeway).

6 Potential Noise Sources

The proposed development has the potential to generate noise from the following sources;

- Cars & Trucks manoeuvring
- Vehicle door slamming
- Vehicles starting and stopping
- People talking

7 Proposed Operations

The hours of trading of the proposed fuel outlet would be the same as the Tavern:

- a) Monday to Saturday: 7.00am to 12.00 midnight
- b) Sunday: 7.00 am to 10.00pm

8. Planning Noise Levels

8.1. Operational Noise

The relevant document that sets acceptable noise limits for this type of operation is the NSW Industrial Noise Policy (INP). It provides the framework and process for deriving noise limits that enable the NSW EPA to regulate premises under the Protection of the Environment Operations Act 1997. Within these guidelines, the local council is the regulatory authority responsible for non-scheduled commercial premises. Although “the INP is designed for large and complex industrial sources” (INP Section 1.3 Scope of Policy), the general principles are used in preparing this assessment in accordance with the following two criteria:

- Account for intrusive noise impacts in the short term.
- Protect the noise level amenity for particular land uses

Intrusive Noise Impacts: The INP states that the noise from any single source should not intrude greatly above the background noise level. Industrial noise sources may generally be considered acceptable if the equivalent continuous (energy average) A-weighted level of noise from the source (L_{Aeq}), measured over a 15 minute period (T), does not exceed the background noise level measured in the absence of the source by more than 5 dB. This is defined as the Intrusiveness Criterion.

The ‘Rating Background Level (RBL) is the background noise level to be used for assessment purposes and is determined using either the long term or short term methods described in section 3.1 of the INP. This approach results in the intrusiveness criterion being met for 90% of the time. “Modifying factor” adjustments are to be applied to the source noise level before comparison with the criterion where the noise source contains annoying characteristics – such as prominent tonal components, impulsiveness, intermittency, irregularity and dominant low frequency content.

Protecting noise amenity: To limit continuing increases in noise levels, the maximum ambient noise levels within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.1 of the INP. Meeting these levels will protect the community against speech interference, general annoyance and, to some degree, sleep disturbance. For a residential receiver in an urban area, the recommended amenity criteria are shown in Table 1 below. Due to the proximity of the Pacific Highway, any residence within the general vicinity of the Johns River Tavern will come under the definition of an ‘Urban’ receiver (section 2.2.2 INP).

Table 1: Recommended amenity criteria from the NSW Industrial Noise Policy.

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended L_{Aeq} Noise Level dB(A)	
			Acceptable	Recommended Maximum
Residence	Urban	Day	60	65
		Evening	50	55
		Night	45	50

Day is defined as 7.00am to 6.00pm, Monday to Saturday; 8.00am to 6.00pm Sunday and Public Holidays.

Evening is defined as 6.00pm to 10.00pm, Monday to Saturday and Public Holidays.

Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.

In assessing the noise impact of the project, both criteria must be taken into account for residential receivers, but, in most cases, only one will be the limiting criteria and form the project specific noise levels.

The noise impact of the proposal may generally be considered acceptable if the level of noise from the source (represented by the L_{Aeq} descriptor) does not exceed the criteria when measured at the nearest residential premises. This may be summarised as follows:

a) Intrusiveness Criterion:

$$\text{Noise at the receiver } L_{Aeq} \leq \text{Rating Background Level} + 5$$

b) Amenity Criterion:

$$\text{Noise at the receiver } L_{Aeq} \leq \text{Amenity Criteria}$$

- The L_{Aeq} is the most appropriate noise descriptor to use when measuring noise impacts for regulatory control. The L_{Aeq} is the equivalent continuous (average energy) level of noise under investigation and is used in assessing noise impacts against existing limits and to identify an acceptable noise that should be met (ref: Noise Guide for Local Government).
- $L_{90,T}$ is the sound level exceeded for 90% of the measurement period, T. In the absence of the noise source under investigation it is called the background sound level. See Appendix 3 of the INP.

Reference has been made to the current Australian Standard: AS1055–1997 “Acoustics – Description and measurement of environmental noise”, Part 1 “General procedures”, Part 2 “Application to specific situation” and Part 3 “Acquisition of data pertinent to land use”.

8.2. Sleep Disturbance

Whilst there is no definitive guideline to indicate a noise level that causes sleep disturbance, the noise impact of the proposal may generally be considered acceptable if the peak level of noise from the source (represented by the L_{Amax} descriptor) does not exceed the criteria when measured outside the window of the nearest adjoining premises. This may be summarised as:

- Noise at the receiver $L_{Amax} \leq \text{Background } L_{90,15min} + 15$*
- Maximum internal noise level below 50-55 dB(A) are unlikely to cause awakening reactions.*

- c) *One or two noise events permitted up to 65-70 dB(A) are not likely to affect health and wellbeing significantly.*

Note: Based on background noise levels during the night time period

8.3. Road Traffic Noise

The proposed development requires an assessment of the increase in traffic noise along Johns River Road. The NSW Office of Environment & Heritage (formerly NSW Department of Environment and Climate Change) has produced a document “NSW Road Noise Policy” (RNP) which contains recommended noise criteria for various situations and different road classifications.

Johns River Road is classified as a sub-arterial road from the following definition in the RNP:

- A road that collects local traffic leaving a locality and connects to another local road, freeway or arterial or sub-arterial road.

According to Table 3 of the RPN (reproduced in part below), the project category is Type 3 (Category 6 for local roads is also shown for reference). The traffic noise resulting from the proposal should not raise the existing noise levels above the criteria. The nearest residences also fit the category: ‘Isolated residences in commercial or industrial zones’ from Table 4 of the RNP and shown in Table 3 below. In addition, the RNP recommends that where the criteria are already exceeded, traffic arising from the development should not lead to an increase in existing noise levels by more than 2 dB(A).

Table 2: Road Traffic Noise Criteria from NSW Road Noise Policy.

Road category	Type of project/land use	Assessment criteria – dB(A)	
		Day (7 am – 10 pm)	Night (10 pm - 7 am)
Freeway/arterial/sub-arterial roads	3. Existing residences affected by additional traffic on existing freeways /arterial/sub-arterial roads generated by land use developments.	L _{Aeq} (15 hour) 60 (external)	L _{Aeq} (9 hour) 55 (external)
Local roads	6. Existing residences affected by additional traffic on existing local roads generated by land use developments.	L _{Aeq} (1 hour) 55 (external)	L _{Aeq} (1 hour) 50 (external)

Table 3: Alternative Road Traffic Noise Criteria from NSW Road Noise Policy.

Existing sensitive land use	Assessment criteria – dB(A)		Assessment criteria – dB(A)
	Day (7 am – 10 pm)	Day (7 am – 10 pm)	
6. Isolated residences in commercial or industrial zones	-	-	For isolated residences in commercial or industrial zones, the external ambient noise levels can be higher than those in residential areas. Internal noise levels in such residences are likely to be more appropriate in assessing any road noise impact, and the proponent should determine suitable internal noise level targets, taking guidance from Australian Standard 2107:2000.

9. Instrumentation

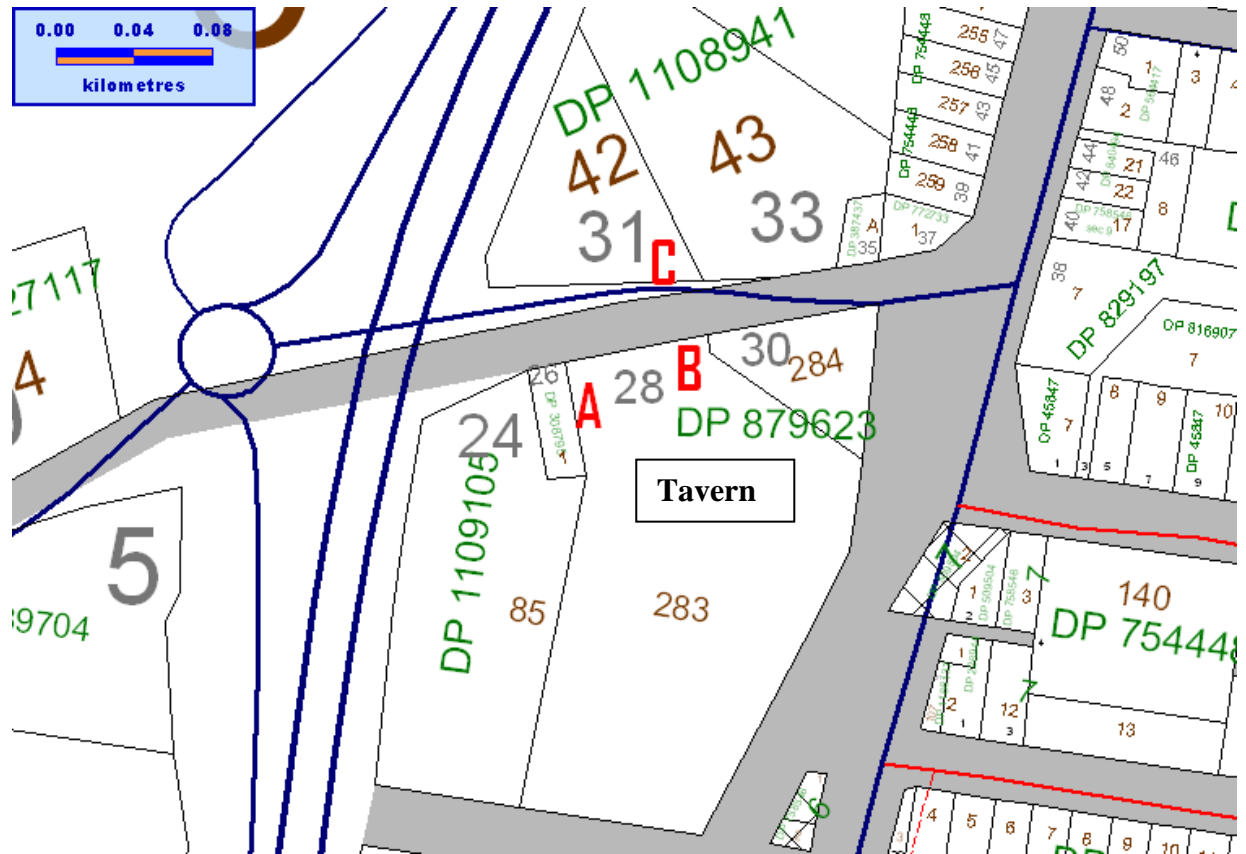
All measurements were recorded using a Type I integrating sound level meter (SLM), model SVAN949, manufactured by Svantech. A Lutron sound level calibrator, model SC-941, was used as a reference sound source immediately before and after measurements were taken. Both instruments are in current calibration from a NATA registered laboratory. An integrating sound level meter is able to process a continuous, variable, intermittent or impulsive signal to give a single integrated level or L_{Aeq} for the sampling period. This equipment complies with AS 1259 'Acoustics-Sound level meters', Part 2 "Integrating-Averaging" and the testing procedure with AS 2659 "Guide to the use of sound measuring equipment".

10 Background Noise Measurement Procedure

Background noise levels were recorded at the following locations (refer Site Map 1):

- **Position A** - On the boundary of the nearest potentially affected residential receiver at 26 Johns River Road, adjacent to the dwelling (short-term operator attended day-time monitoring).
- **Position B** - On the northern boundary of the tavern opposite 31 Johns River Road (short-term operator attended day-time monitoring).
- **Position C** - On the boundary of 31 Johns River Road (long-term unattended noise monitoring recorded between October & November, 2010 by Wilkinson Murray and presented in the Cooperbrook to Herons Creek Operational Noise Report).

Measurement conditions for day-time readings were taken between 3 & 4 pm in the afternoon of September 21, 2013. Weather conditions: clear day, 23°C temperature, 23% humidity, 1005hPa barometric reading, no rain and the wind was calm at around 3 kph with gusts at speeds not exceeding 5 m/s (the limit of measuring conditions).



Site Map 5: Locations of the noise measurements positions – A, B & C.

Table 4: Distance of residences located on Johns River Road to the Proposed Fuel Outlet.

Residence	Distance of Residence to Noise Source (metres)	
	Position A	Position C
	26 Johns River Rd, Johns River	31 Johns River Rd, Johns River
Proposed Fuel Outlet	42 metres	110 metres

11 Existing Background Noise Levels

The background noise levels for the day, evening and night time period are all characterised by vehicles travelling along:

- The Pacific Highway,
- Stewarts River Road and Johns River Road (East & West road traffic),
- The Pacific Highway Overpass,
- Koolyangarra Way & Johns River Road (North & South road traffic)
- Vehicles using the Johns River Tavern.

Table 5: Background A-weighted sound pressure levels – short term

Position	DAY					
	L _{Aeq}	L _{A01}	L _{A10}	L _{A90}	L _{Amax}	L _{Amin}
A	57.1	67.9	59.1	48.6	79.3	
B	61.6	-	63.9	49.9	80.5	
Minimum	57	-	59	49	79	

Table 6: Background Ambient L_{Aeq} sound pressure levels – long term

Position	DAY	EVENING	NIGHT
	L _{Aeq}	L _{Aeq}	L _{Aeq}
C	58	54	50

Background noise measurements, recorded using the operator attended procedure at the two nearest residential receivers (Positions A & B), are shown in Table 5 above. The figures are short term (15 minute) recordings for the day period. They were recorded mid-week under ideal conditions and are therefore considered reliable and typical for the receptor area. The residence located at 24 Johns River Road is not included in the noise assessment as it has been purchased by the RMS and is scheduled for demolition (source: Cooperbrook to Herons Creek Operational Noise Manual). The distance to the boundary of each residence from the fuel outlet is listed in Table 4.

The evening and night time background figures are taken from AS1055.2 “Acoustics – Description and measurement of environmental noise, Part 2: Application to specific situations”, Appendix A”. An extract of the Noise Area Categories is shown below in Table 7. The selected Noise Area Category is R3.

- R2, “Areas with *low density transportation*”, or
- R3, “Areas with *medium density transportation* or some commerce or industry”, or
- R4, “Areas with *dense transportation* or some commerce or industry”.

Table 7: Estimated Average $L_{A90,T}$ Background Sound Pressure Levels (from AS1055.2)

Noise area category	Average background A-weighted sound pressure level, $L_{A90,T}$					
	Mondays to Saturdays			Sundays and public holidays		
	Day	Evening	Night	Day	Evening	Night
R2	45	40	35	45	40	35
R3	50	45	40	50	45	40
R4	55	50	45	55	50	45

12. Noise Criteria

12.1. Operational Noise

To determine the Assessment Criteria, which is the maximum acceptable noise level at the boundary of the nearest residential receivers, the background noise, the ambient noise and the amenity criterion are all taken into account. These details are summarised in Table 8 and are determined in the following manner for each column labelled A - G:

- **A Time of Day**
 - Day is defined as 7.00am to 6.00pm, Monday to Saturday; 8.00am to 6.00pm Sunday and Public Holidays.
 - Evening is defined as 6.00pm to 10.00pm, Monday to Saturday and Public Holidays.
 - Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.
- **B Rating Background Level**

The figure is the lowest of the recorded $L_{A90,T}$ background noise measurements or the figures from AS1055.2 “Acoustics – Description and measurement of environmental noise, Part 2: Application to specific situations”, Appendix A”. In this case, the day figure is the recorded level whereas the evening and night figures are from the Standard.
- **C Intrusive Criterion $RBL + 5$**

The L_{A90} figures in column B are used for the intrusive criterion as per the requirement shown in section 8.1 (a) of this report.
- **D Ambient Level**

The figure is the lowest of the recorded $L_{Aeq,T}$ background noise measurements from either the short or long term monitoring.
- **E Amenity Criterion**

The project fits the description of an ‘urban’ receiver type (Table 2.1 of the INP and Table 1 in this report).
- **F Acceptable Noise Level – ANL**

Due to the strong presence of traffic noise, the existing L_{Aeq} background readings show that industrial noise is negligible. Consequently the amenity criterion becomes the ANL as outlined in table 2.2 of the INP.
- **G Assessment Criteria**

The assessment criteria are the lowest figure of either the intrusive criterion or the ANL. For the day period, it is the intrusive criterion. For the evening and night periods, the levels are equal.

Table 8: Summary of environmental criteria

A	B	C	D	E	F	G
Time of Day	Rating Background Level	Intrusive Criterion RBL+5	Ambient Level L_{Aeq}	Amenity Criterion	Acceptable Noise Level	Assessment Criteria
Day	49	54	57	60	60	54
Evening	45	50	54	50	50	50
Night	40	45	50	45	45	45

An important consideration with this project is the one-off delivery from a fuel tanker/semi-trailer. This results in a single short term noise event which, according to Section 4 of the INP, allows an increase in the acceptable noise level according to the duration of the noise as given in Table 9 below.

Table 9: Adjustment for duration

Duration of noise (one event in any 24 hour period)	Increase in acceptable noise level at receptor, dB(A)	
	Day (7 am – 10 pm)	Night (10 pm - 7 am)
1.0 to 2.5 hours	2	Nil
15 minutes to 1 hour	5	Nil
6 minutes to 15 minutes	7	2
1.5 minutes to 6 minutes	15	5
Less than 1.5 minutes	20	10

However, this adjustment has not been added to the figures. Thus, the criteria applicable to this project, calculated at the nearest affected residential premises, are shown in Table 10 below:

Table 6: Project Specific Criteria for Operational Noise

Period	Criterion – Residential Areas, $L_{Aeq15min}$
Day	54 dB(A)
Evening	50 dB(A)
Night	45 dB(A)

Day is defined as 7.00am to 6.00pm, Monday to Saturday; 8.00am to 6.00pm Sunday and Public Holidays.

Evening is defined as 6.00pm to 10.00pm, Monday to Saturday and Public Holidays.

Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.

12.2. Sleep Disturbance

The background L_{A90} noise level for the night period given in Table 6 is used to determine the criterion (outside bedroom window) listed in Section 8.2 (a) and is shown below in Table 11.

Table 7: Project Specific Criteria for Sleep Disturbance

Period	L_{Amax}
Night	$L_{A90} 40 + 15 = \mathbf{55 dB(A)}$
<i>Recommend maximum internal noise level below 50-55 dB(A)</i>	
<i>One or two noise events permitted up to 65-70 dB(A)</i>	

Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.

12.3. Road Traffic Noise

The road traffic noise criterion as determined in section 8.3 is shown in Table 12:

Table 8: Road Traffic Noise Criteria

Type of Development	Period	L_{AeqT}
3. Existing residences affected by additional traffic on existing freeways /arterial/sub-arterial roads generated by land use developments.	Day (7am to 10pm)	60 dB(A)
	Night (10pm to 7am)	55 dB(A)

13. Noise Sources

Noise levels for the operations and typical activities of the proposed Fuel Outlet are listed in Table 13. The figures are based on previous recordings of similar equipment from other projects and that available from reference material.

Table 13: Noise levels of typical activities associated with the project.

Activity	Sound Power Level, L_{WA} Plus correction	Sound Power Level, L_{WA}
Truck/Semi trailer - idling	94	94
Truck/Semi trailer - reversing incl. beeper	97 + 5	102
Truck/Semi trailer – drive by at 10 kph	104	104
Truck/Semi trailer – parking brake	103 + 5	108
Vehicle – door closing	86 + 5	91
Car – drive by at 10 kph	91	91
Car starting	91 + 5	96
People talking normally	65 + 5	70
People talking in raised voices	72 + 5	77

The noise sources were the following equipment:

- **Fuel Tanker/Semi Trailer**

Fuel deliveries will occur as required and could be during the day or evening periods but not after 10.00 pm in the night period. Penalty adjustments of 5 dB(A) have been added for the intermittent reverse beeper and the impulsiveness of the door closing, air brakes and starting up to a maximum of 10 dB(A) according to Table 4.1 of the INP.

- **Customer Vehicles**

The anticipated number of vehicles arriving during the peak period has been assessed as between 6 -12 per hour in the Traffic Impact Assessment by RoadNet.

- **Customers**

If customers decide to stand outside and talk this could be a source of noise. The intermittent nature of speech attracts a 5 dB(A) modifying factor adjustment during the night period only.

14. Predicted Noise Levels due to the Proposed Development

To check the L_{AeqT} noise levels for the two nearest residential receivers (numbers 26 & 31 Johns River Rd), the following scenario of activities is proposed for customers using the fuel outlet during any 8 hour time period:

- Double the predicted number of vehicles using the fuel outlet per hour
- 15 minutes of heavy truck idling.
- 15 seconds of reversing beeper for one truck
- Arrival and drive by of 2 heavy trucks, 4 light trucks and 12 cars per hour during the day and evening periods.
- Arrival and drive by of 1 heavy truck, 2 light trucks and 6 cars per hour during the night period.
- 16 operations of a truck parking brake at 3 seconds duration
- 22 engine starts per hour of 5 seconds each.
- 2 hours of people talking during the day and evening period.
- 0.5 hours of people talking during the night period plus 5 dB (the night time modifying factor for intermittent noise).

14.1. Position A - 26 Johns River Rd, Johns River

The predicted L_{AeqT} noise levels at the nearest residential receiver, 26 Johns River Rd, Johns River, are given in Table 14 & 15, taken into account are:

- Distance attenuation for 42 metres between the fuel outlet and the side boundary of the property.
- Soft ground attenuation for 21 metres
- 1.4 m high barrier consisting of a low masonry wall and an earth mound adjacent to the boundary of the property giving a 5 dB(A) barrier loss.
- A facade adjustment of +2.5 dB(A) added to the free field predicted level.
- Outside to inside residence attenuation with an open window giving a 10 dB(A) reduction, refer AS 2436-2010, Table B4.

Table 14: Predicted L_{AeqT} noise at 26 Johns River Rd, Johns River.

Predicted levels	Day		Evening		Night		Inside Bedroom			OK
	Criterion	Excess	Criterion	Excess	Criterion	Excess	Predicted	Criterion	Excess	
42	54	-12	50	-8	45	-3	35	50	-15	✓

Table 15: Predicted outside noise level for sleep disturbance at 26 Johns River Road.

Period	Predicted	Criterion	Excess	OK
Night	53	55	-2	✓

14.2. Position C - 31 Johns River Rd, Johns River

The predicted L_{AeqT} noise levels at the residential receiver, 31 Johns River Rd, Johns River, are given in Table 16 & 17 and take into account:

- Distance attenuation for 110 metres between the fuel outlet and the front boundary of the property.
- Soft ground attenuation for 40 metres.
- No barrier losses included.
- A facade adjustment of +2.5 dB(A) added to the free field predicted level
- Outside to inside residence attenuation with a fully open window gives a 10 dB(A) reduction; refer AS 2436-2010, Table B4.

16: Predicted L_{AeqT} noise at 31 Johns River Rd, Johns River.

Predicted levels	Day		Evening		Night		Inside Bedroom			OK
	Criterion	Excess	Criterion	Excess	Criterion	Excess	Predicted	Criterion	Excess	
30	54	-24	50	-20	45	-15	27	50	-23	✓

Table 17: Predicted sleep disturbance at 31 Johns River Road, Johns River

Period	Predicted	Criterion	Excess	OK
Night	50	55	- 5	✓

15. Noise Impacts of the Proposed Development

15.1 Operational Noise

The predicted noise levels of the operations of the proposed fuel outlet are within acceptable noise level criteria at the two nearest residences. These results are a conservative prediction yet are still well below the required noise levels. Not unexpectedly, traffic noise from the freeway dominates the day, evening and night periods. From the traffic study, the additional patronage of vehicles using the fuel outlet is expected to be low. Twice the number of vehicles per hour that are expected to use the facility during peak periods has been used in the noise calculations.

15.2 Sleep Disturbance

The proposed fuel outlet will not cause sleep disturbance. There may be a “one-off” nightly high noise event, for example of a truck reversing or unhitching a trailer, but the INP allows an increase in acceptable noise level of up to 10 dB(A) during the night period.

15.3 Road Traffic Noise

The road traffic noise criterion as determined in section 8.3 of this report is shown in Table 18. The noise levels from the additional vehicles using Johns River Rd as a result of the proposed fuel outlet is at 10 dB(A) below the existing levels and will not increase the overall road traffic noise.

Table 18: Road Traffic Noise Criteria

Type of Development	Period	Predicted	Criteria	Excess	OK
6. Existing residences affected by additional traffic on sub-arterial roads.	Day (7am to 10pm)	50	60	-10	✓
	Night (10pm to 7am)	43	55	-12	✓

15.4 Construction Noise

The construction of the fuel outlet is a relatively minor activity. The site is level with no major earthworks required apart from the footings for the awning and excavations for the storage tanks. It is not necessary to supply detailed calculations for the predicted noise levels as all these activities are expected to be within the management levels for the nearest residential neighbours. The proposed fuel outlet will use standard construction techniques during the day over a relatively short period and can be managed effectively for minimum noise impact.

15.5 Discussion

The analysis of the predicted noise levels for the expected activities, sleep disturbance, traffic and construction show that the proposed fuel outlet at Johns River Tavern will be a low noise risk development. Assessment has been made at the two nearest neighbours, 26 & 31 Johns River Rd, Johns River.

The Operational Noise Management Report for the Coopernook to Herons Creek Pacific Highway Upgrade has Johns River Tavern between the 55 and 60 dB(A) night time noise contours. This noise assessment of the fuel outlet shows that the predicted noise levels will not increase the existing background levels.

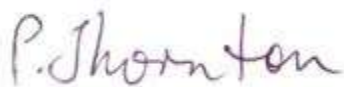
Long term background noise measurements were not considered necessary as the noise impact of this development was found to be low risk. The additional cost for the proponent cannot be justified.

16. Certification for Noise Impact Statement

It is predicted that the noise associated with the regular operations of the proposed Fuel Outlet at 28 Johns River Road, Johns River NSW 2443 – Lot 283 DP 879623 will be within the levels specified in the NSW Industrial Noise Policy and the Greater Taree City Council policy at the boundary of the two nearest residential neighbours at 26 & 31 Johns River Rd, Johns River during day, evening and night time periods. It is further predicted that sleep disturbance, road traffic noise and construction activities will also be within the appropriate guidelines issued by the NSW Office of the Environment and Heritage. Based on the information provided, the development will not cause “offensive noise” as defined by the protection of the Environment Operations Act 1997.

17. Conclusion

The expected activities associated with the proposed development at 28 Johns River Road, Johns River NSW 2443 – Lot 283 DP 879623 have been assessed for their noise impact. Noise levels will remain within acceptable OEH criteria and/or guidelines for amenity, intrusive noise, sleep disturbance, traffic noise and construction noise. The existing layout of the access road using low retaining walls and earth mounds will help to minimise noise impacts.



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Acoustic Consultant
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30 September, 2013



Glossary of Acoustic Terms

Assessment

Period	The period in a day over which assessments are made.
dB(A)	Unit of sound level in A-weighted decibels. The A-weighting approximates the sensitivity of the human ear by filtering these frequencies. The dB(A) measurement is considered representative of average human hearing.
L_{Aeq}	The A-weighted equivalent continuous sound pressure level, used to quantify the average noise level over a time period.
L_{A10}	The A-weighted sound pressure level exceeded for 10% of the measurement period. It is usually used as the descriptor for intrusive noise level.
L_{A90}	The A-weighted sound pressure level exceeded for 90% of the measurement period. It is usually used as the descriptor for background noise level.
$L_{Aeq15min}$	Refers to the A-weighted energy averaged equivalent noise level over a 15 minute time period.
L_{Cpeak}	The highest instantaneous C-weighted sound pressure level over the measurement period. It is usually used for high impulsive noise.
L_{Amax}	The maximum A-weighted sound pressure level for the measurement period.
Loudness	A 3dB(A) change in sound pressure level is just noticeable or perceptible to the average human ear; a 5dB(A) increase is quite noticeable and a 10dB(A) increase is typically perceived as a doubling in loudness.
RBL	The overall single figure background level representing the assessment period over the whole monitoring period. For the short term method of assessment, the RBL is the measured $L_{A90, 15min}$ value, or where a number of measurements have been made, the lowest $L_{A90, 15min}$ value.

Appendix: Sound Level Meter Calibration Certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: **SLM 39404 & FILT 9975**

Equipment Description: Sound Level Meter

Manufacturer: Svantek

Model No: Svan-949 **Serial No:** 8123

Microphone Type: SV-22 **Serial No:** 4013422

Filter Type: 1/1 Octave **Serial No:** 8123

Comments: All tests passed for type 1.
(See over for details)



Owner: Matrix Industries Pty Ltd
144 Oxley Island Road
Oxley Island, NSW 2430

Ambient Pressure: 995 hPa ± 1.5 hPa


Temperature: 23 °C ± 2 °C **Relative Humidity:** 56% ± 5 %

Date of Calibration: 14/12/2012 **Issue Date:** 14/12/2012


Acu-Vib Test Procedure: AVP05 (SLM) & AVP06 (Filters)

CHECKED BY:  **AUTHORISED SIGNATORY:** 
Jack Reed

Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to
Australian/national standards



NATA
NATIONAL METROLOGY
ACCREDITATION

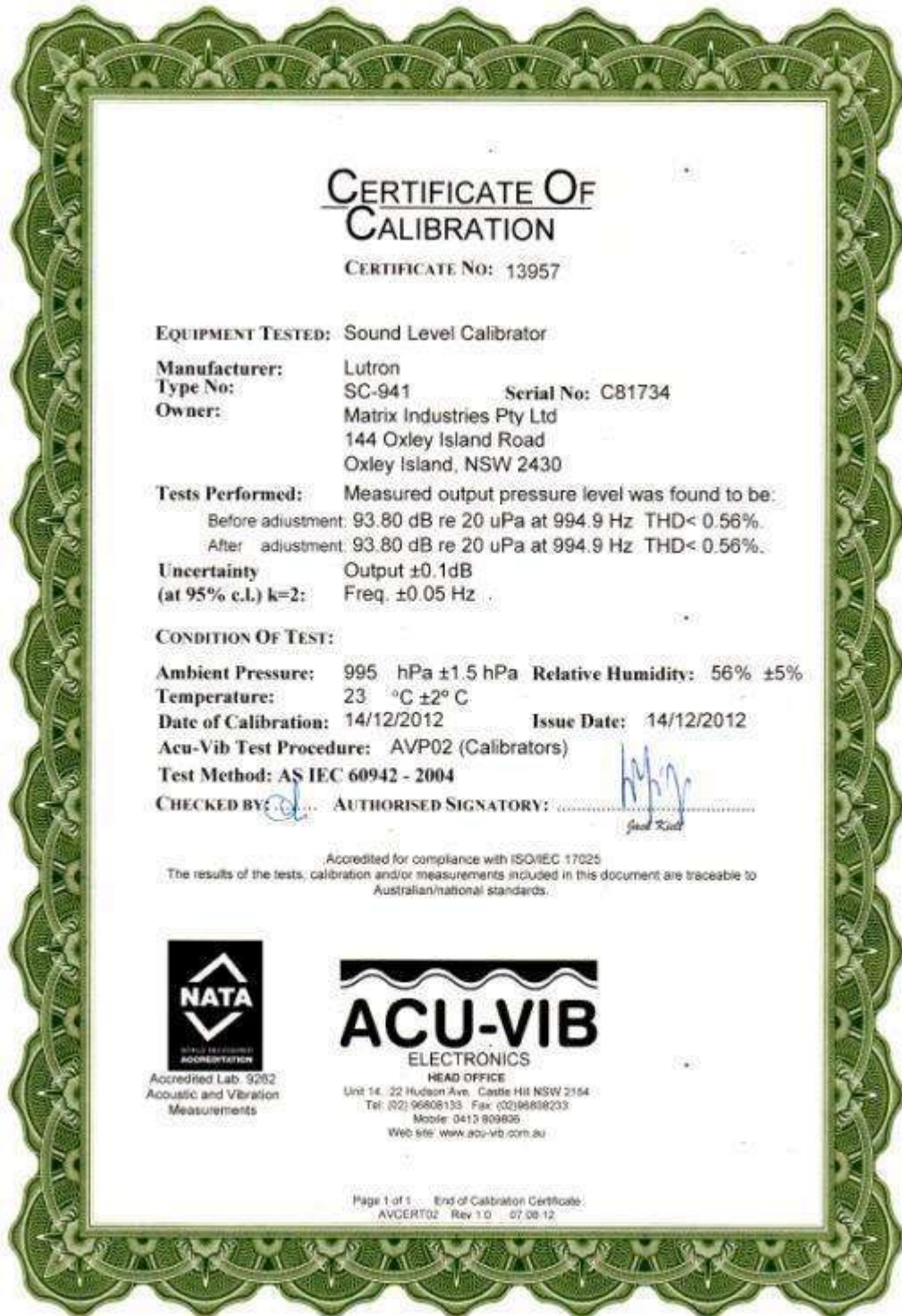


ACU-VIB
ELECTRONICS

Accredited Lab. No. 9262
Acoustic and Vibration
Measurements

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Mobile: 0413 809806
web site: www.acu-vib.com.au

Page 1 of 2
AVCERT05 Rev. 1.0 07.08.12



CERTIFICATE OF CALIBRATION

CERTIFICATE NO: 13957

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: Lutron
Type No: SC-941 **Serial No:** C81734
Owner: Matrix Industries Pty Ltd
144 Oxley Island Road
Oxley Island, NSW 2430

Tests Performed: Measured output pressure level was found to be:
Before adjustment: 93.80 dB re 20 uPa at 994.9 Hz THD < 0.56%.
After adjustment: 93.80 dB re 20 uPa at 994.9 Hz THD < 0.56%.

Uncertainty Output ± 0.1 dB
(at 95% c.L.) k=2: Freq. ± 0.05 Hz

CONDITION OF TEST:

Ambient Pressure: 995 hPa ± 1.5 hPa **Relative Humidity:** 56% $\pm 5\%$
Temperature: 23 °C $\pm 2^\circ$ C
Date of Calibration: 14/12/2012 **Issue Date:** 14/12/2012
Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2004

CHECKED BY:  **AUTHORISED SIGNATORY:** 

Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.



Report Photos



Photo 1: The proposed Fuel Outlet will be attached to this side of the Tavern.



Photo 2: The SLM recording background noise levels on the boundary. The white truck is travelling on the Highway.



Photo 3: An earth mound is already constructed near the boundary and acts as an acoustic barrier.



Photo 4: Existing low retaining walls will help block noise.



RoadNet

Traffic Impact Assessment

Fuel Outlet Development

Johns River Tavern

Johns River

for

Anthony Galati

September 2013



Document Control

Document Status/version	FINAL
Prepared By	Rohan Jayawardene
Reviewed By	Craig Nethery
Date	September 2013
Issued to	Anthony Galati

Prepared by:

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PORT MACQUARIE NSW 2444
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CONTENTS

1. INTRODUCTION.....	3
1.1 Scope.....	3
2. EXISTING CONDITIONS.....	4
2.1 Site Location.....	4
2.2 Site Access.....	4
2.3 Road Network.....	5
2.4 Intersection Counts.....	6
3. PROPOSED DEVELOPMENT.....	7
3.1 Development Details.....	7
3.2 Traffic Generation.....	7
4. CONCLUSION and RECOMMENDATION.....	8
APPENDIX A.....	9
Development Plan.....	9
APPENDIX B.....	10
Traffic Counts.....	10
APPENDIX C.....	11
Swept Path Drawing.....	11

1. INTRODUCTION

RoadNet Ltd has been engaged by Anthony Galati, owner of the site, to prepare a traffic assessment of the proposed fuel outlet at 28 Johns River Road, Johns River. Currently the site contains the Johns River Tavern and cafe.

Figure 1.1 shows the locality plan.



FIGURE 1.1 - SITE LOCALITY (AERIAL PHOTO FROM GOOGLE MAPS)

1.1 Scope

This report assesses the traffic impacts of the development in terms of

- Access standard and sight distance,
- Traffic generation,
- Parking provision, and
- On-site vehicle circulation.

2. EXISTING CONDITIONS

2.1 Site Location

The site is identified as lot 283 DP879623 located in Johns River Rd, approximately 35 km north of Taree. The subject site is currently occupied by existing Johns River Tavern located rear of the subject site. The traffic environment around Johns River Road is mainly residential.

Johns River Road/Koolyangarra Road t-intersection is located approximately 150m to the east from the site. Pacific Highway in the north-south direction passes under Johns River Road and the new interchange, with Bulleys Road and Stewarts River Road is located 130m and 220m west of the site respectively.

2.2 Site Access

Access to the site is via a channelised right turn (CHR) arrangement approximately 160m west of Johns River Road/Koolyangarra Way priority intersection (Figure 2.1).

The access road linking site to Johns River Road is a private road, approximately 36m long. The roadway is bitumen sealed and approximately 14m wide, with occasional widening to allow vehicles to pass. The same access provides access to two other properties, no 26 and 30, which is owned by the owner of no. 28, as well as a truck parking area.

As shown in the drawings attached in the Appendix, the access can adequately handle the largest expected vehicle on site, a 19m semi trailer. The development is set up for future B-double use with the access able to handle B-doubles. Swept path drawings are attached as Appendix C.



FIGURE 2.1: JOHNS RIVER ROAD LOOKING WEST SHOWING SITE ACCESS INTERSECTION



FIGURE 2.2: SITE ACCESS ROAD LOOKING NORTH TOWARDS JOHNS RIVER ROAD

2.2.1 Sight Distance

Sight distance at the access meets the Austroads guidelines, 85m. To the left (west) the distance just on the limits required. The height of the grass in this area needs to be maintained so as not to obstruct visibility.

2.3 Road Network

2.3.1 Johns River Road

As part of the Pacific Highway Upgrade works, which bypassed Johns River Village, Johns River Road west of site, the tavern access road and intersection were upgraded. Johns River Road West is a sub-arterial road, under Greater Taree City Council's control, which connects the villages of Johns River and Hannam Vale including the Pacific Highway to the north with a speed limit of 60km/h. The 2-coat sealed roadway has a nominal seal width of 6m, with no formal shoulders.



FIGURE 2.3: JOHNS RIVER ROAD LOOKING EAST TOWARDS KOOLYANGARRA INTERSECTION



FIGURE 2.4: JOHNS RIVER RD/KOOLYANGARRA RD INTERSECTION LOOKING SOUTH

Approximately 150m east of the site, Johns River Road forms a t-intersection with Koolyangarra Road including dedicated left and right turning lanes (Figure 2.4). The road continues south and ends with the formation of the Pacific Highway south-bound off-ramp.

West of the site Johns River Road forms the newly constructed Pacific Highway roundabout interchange on-off ramps with Stewarts River Road and Bulleys Road.

2.4 Intersection Counts

To assist in the quantification of existing road network operations, a morning and evening traffic survey was conducted at the Johns River Road/Koolyangarra Road intersection.

TABLE 2.1: TRAFFIC COUNTS

Approach	Koolyangarra Rd				Johns River Rd North				Johns River Rd West				Grand Total
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
8:30 to 9:30	14	0	0	14	35	10	0	45	24	0	0	24	83
15:30 to 16:30	5	0	0	5	44	1	2	47	12	1	0	13	65

Assuming a peak volume of 10% of the daily traffic volume the daily average volume on Johns River Road will be approximately 240 vehicles.

3. PROPOSED DEVELOPMENT

3.1 Development Details

It is proposed to construct a fuel outlet on the subject site including:

- six fuel pumps;
- car and truck parking, and
- associated amenities.

A plan of the development is attached as Appendix.

The hours of trading would be same as the trading hours of the tavern; 7am to midnight Monday Saturday and 7am to 10pm Sunday.

Access to the development will be via the existing access off Johns River Road.

3.1.1 Car Parking

Eight car parking spaces are to be provided which meets the requirements.

3.1.2 Service Vehicles

Car and petrol tanker (19m semitrailer) tracking path drawings through the site are attached in the Appendix.

3.2 Traffic Generation

According to RMS's "Guidelines to Traffic Generating Developments" the traffic generation of a service station is calculated as:

Evening peak hour vehicle trips to site = $0.04 \times \text{site area}$.

Given the site area of the is approximately 2,000m², the number of trips into site is = 80 vehicles

This however is an unrealistic figure as there are only 24 vehicles and 13 vehicles in the morning and evening peak hours on the frontage John River Road. In 2011 there were approximately 400 people living in Johns River.

Therefore, assuming 50% (conservatively) of the frontage road vehicles use the service station, the maximum number of vehicles that can be expected on site would more likely be around 12 and 6 in any peak hour. This many vehicles are not likely to have any negative impact on internal or external road network.

4. CONCLUSION AND RECOMMENDATION

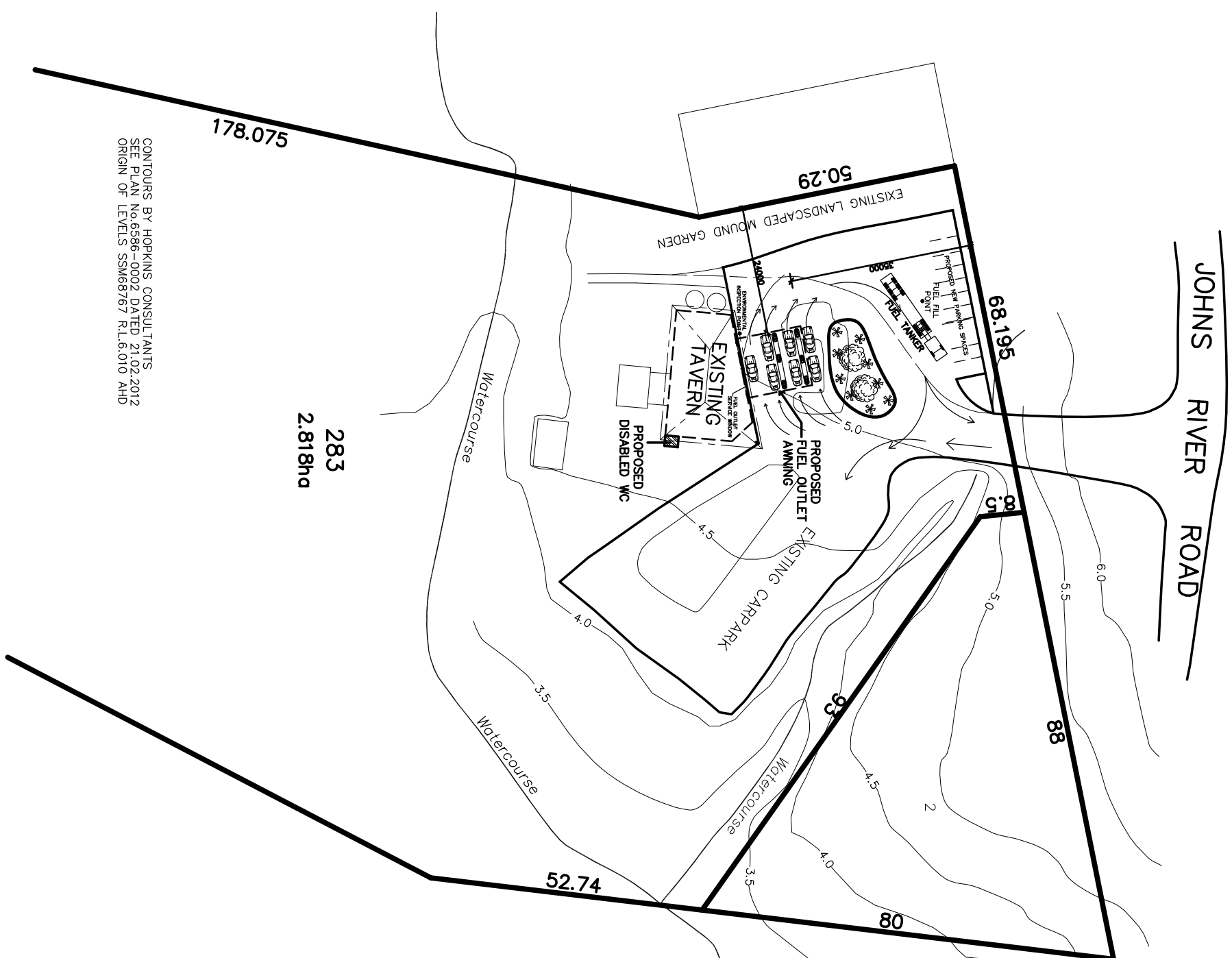
The impact of a proposed fuel outlet development consisting of six fuel pumps has been assessed. The main points of this assessment are:

1. The expected traffic generation of the fuel outlet is 10-12 vehicles in any peak hour.
2. Peak hour traffic volume on the site frontage road, Johns River Road is 24 and 13 vehicles in the morning and evening peak hours.
3. The provision of car parking meets the requirement.
4. Swept path of the largest vehicle expected on site has been checked and complies with requirements.
5. The traffic impact of the proposal on the surrounding road network is expected to be minimal to none.

It is recommended that:

- The vegetation west of site access is to be kept to a minimum so as not to obstruct sight lines in that direction.

APPENDIX A Development Plan

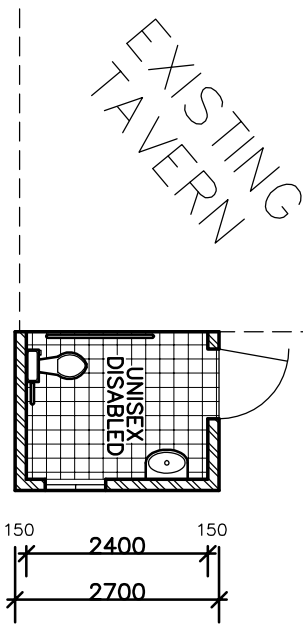
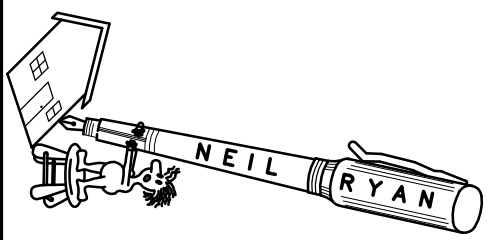


CONTOURS BY HOPKINS CONSULTANTS
SEE PLAN No.6586-0002 DATED 21.02.2012
ORIGIN OF LEVELS SSM68767 R.L.6.010 AHD

SITE PLAN

SCALE 1:1000

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UNISEX DISABLED WC

SCALE 1:100

ALL CARE IS TAKEN WITH DIMENSIONS, BUT NO RESPONSIBILITY ACCEPTED FOR DISCREPANCIES. MEASUREMENTS TAKE PRECEDENCE OVER SCALE.

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ANY HEATING APPLIANCE & ASSOCIATED COMPONENT MUST BE INSTALLED BY A LICENSED PERSON & COMPLY TO BCA PART P2.3.3. & 3.7.3

ALL CONSTRUCTION METHODS & MATERIALS MUST COMPLY TO ANY & ALL BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS & IT IS THE BUILDERS RESPONSIBILITY TO ENSURE ALL TRADES RECEIVE COPIES OF SUCH ASSESSMENTS. ALL EARTHWORKS ARE TO BE UNDERTAKEN STRICTLY TO COMPLY TO BCA PART 3.1.1.

ALL STORM WATER & SURFACE DRAINAGE IS TO BE UNDERTAKEN STRICTLY TO COMPLY TO BCA 3.1.2. A TERMITE BARRIER MUST BE INSTALLED STRICTLY TO COMPLY TO BCA 3.1.3.

ALL CONCRETE FOOTINGS & SLABS ARE TO BE CONSTRUCTED STRICTLY TO BCA 3.2. & ENGINEERS SPECIFICATIONS.

ALL MASONRY & ASSOCIATED COMPONENTS IS TO BE CONSTRUCTED STRICTLY TO COMPLY TO BCA 3.3.

SUB-FLOOR VENTILATION WHERE REQUIRED MUST COMPLY TO BCA 3.4.1.

ALL TIMBER FRAMING, WIND BRACING & ASSOCIATED COMPONENTS MUST COMPLY TO AS1684-2-2006 OR ENGINEERS DESIGN.

ROOF CLADDING & ASSOCIATED COMPONENTS MUST BE INSTALLED STRICTLY AS TO COMPLY TO BCA 3.5.1

GUTTERS, DOWN PIPES & ASSOCIATED COMPONENTS MUST BE INSTALLED STRICTLY AS TO COMPLY TO BCA 3.5.2.

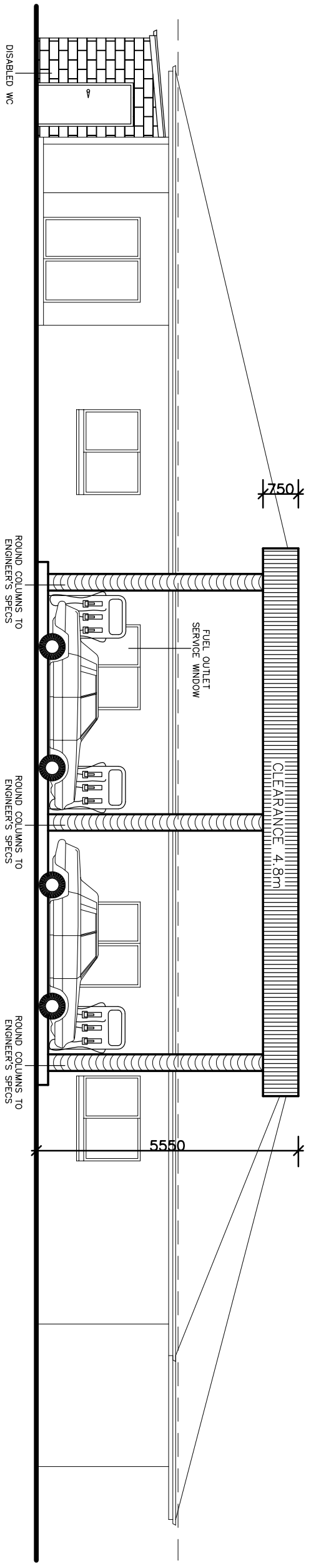
ALL WALL CLADDING & ASSOCIATED COMPONENTS MUST COMPLY TO BCA 3.5.3.

ALL GLAZING IS TO COMPLY TO BCA 3.6. & ANY REQUIREMENTS UNDER BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS. DIRECT WIRE SMOKE DETECTORS MUST COMPLY WITH AS3786 & BE INSTALLED AS TO COMPLY TO BCA 3.7.2.

ALL REQUIRED AREAS ARE TO BE PROTECTED AGAINST WATER IN ACCORDANCE WITH BCA 3.8.1.2. TO 3.8.1.6.

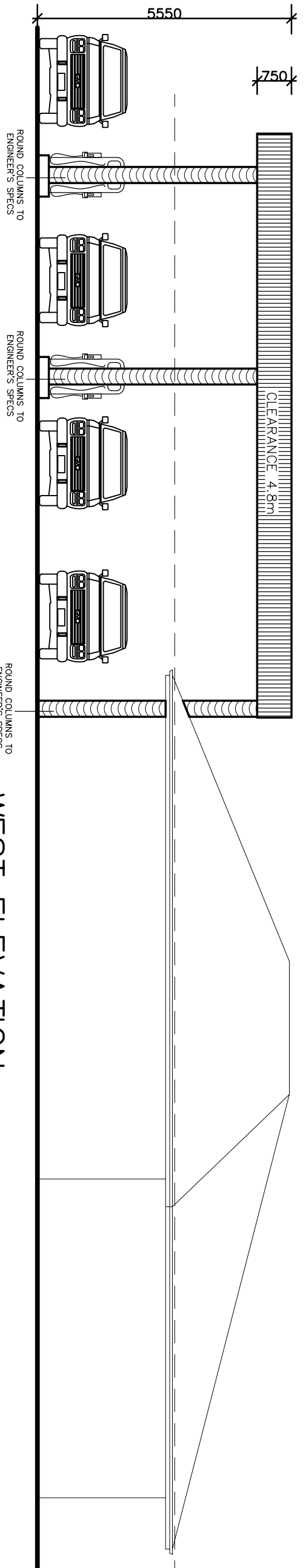
PROPOSED FUEL OUTLET TO EXISTING TAVERN FOR:
Mr Anthony Galati
#28 Johns River Road Johns River

DRAWING	JOB No.	SHEET No.
SITE PLAN & WC	2012-081	1 OF 3
DATE	SCALE	ISSUE
DEC 2012	VARIES	A-3
DRAWN BY:	CHECKED	
NEIL RYAN		
47a OXLEY STREET TAREE		
Ph./Fax (02) 65525086 Mob. 0417682880		
Email: neilryan@westnet.com.au Web: www.neilryan.com.au		
ABN: 43 831 206 704		



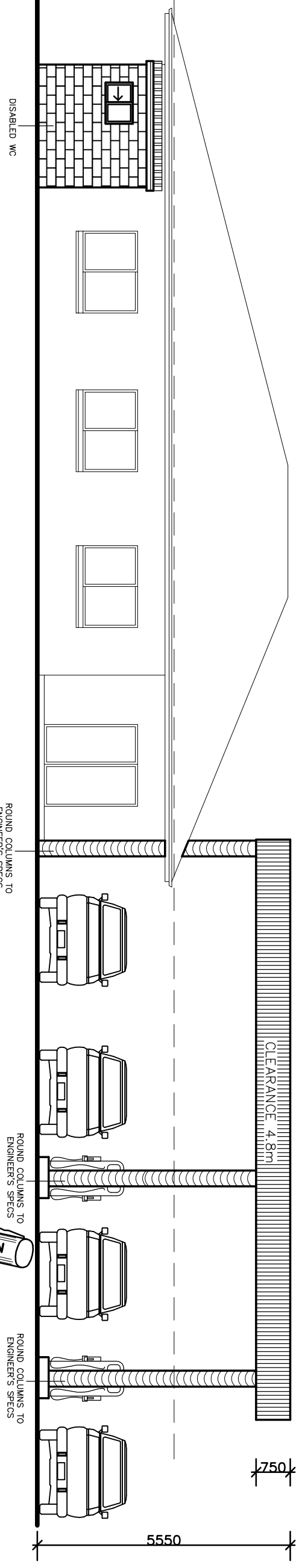
NORTH ELEVATION

SCALE 1:100



WEST ELEVATION

SCALE 1:100



EAST ELEVATION

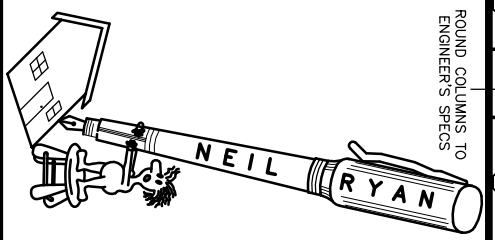
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PROPOSED FUEL OUTLET TO EXISTING
TAVERN FOR: Mr Anthony Galati
#28 Johns River Road Johns River

DRAWING ELEVATIONS	JOB No. 2012-081	SHEET No. 2 OF 3
DATE DEC 2012	SCALE 1:100	ISSUE A-3
DRAWN BY: NEIL RYAN 47a OXLEY STREET TAREE Ph./Fax (02) 65525086 Mob. 0417682880 Email: neilryan@westnet.com.au Web: www.neilryan.com.au	CHECKED	

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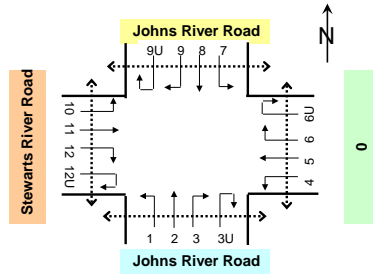
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APPENDIX B

Traffic Counts

Job No. 13063P
Client Tony Galati
Suburb Johns River
Location Johns River Road / Stewarts River Road

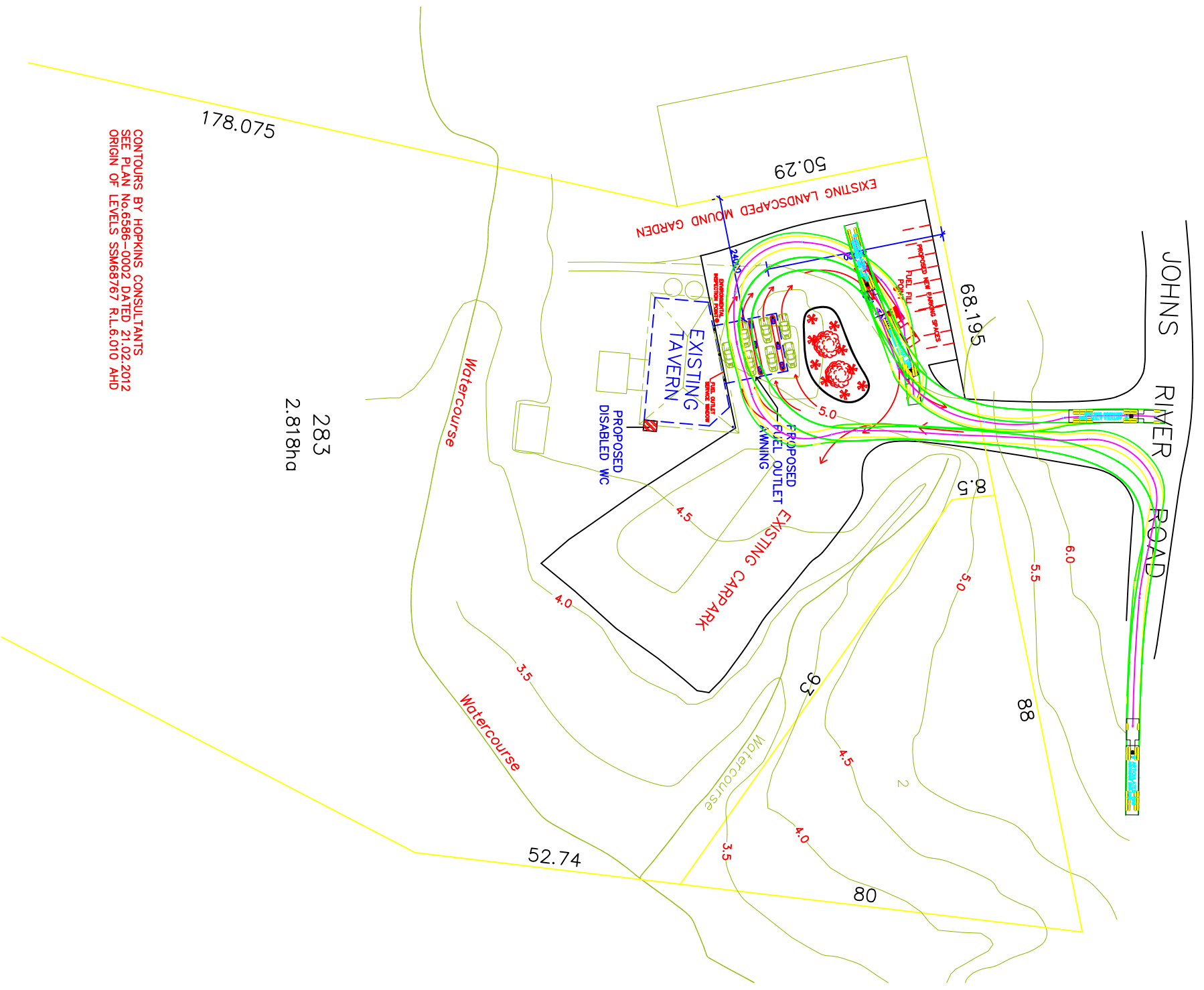
Day/Date Thursday, 22nd August 2013
Weather Sunny
Description Intersection Count
 Peak Hour Summary



Approach	Johns River Road				0				Johns River Road				Stewarts River Road				Grand Total
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM 8:30 to 9:30	14	0	0	14	0	0	0	0	35	10	0	45	24	0	0	24	83
PM 15:30 to 16:30	5	0	0	5	0	0	0	0	44	1	2	47	12	1	0	13	65

Approach	Johns River Road				0				Johns River Road				Stewarts River Road				Grand Total
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
7:00 to 8:00	1	0	0	1	0	0	0	0	5	5	0	10	1	0	0	1	12
7:15 to 8:15	2	0	0	2	0	0	0	0	15	5	1	21	3	0	0	3	26
7:30 to 8:30	4	0	0	4	0	0	0	0	20	6	1	27	18	4	0	22	53
7:45 to 8:45	7	0	0	7	0	0	0	0	27	5	1	33	19	3	0	22	62
8:00 to 9:00	9	0	0	9	0	0	0	0	32	7	1	40	24	1	0	25	74
8:15 to 9:15	14	0	0	14	0	0	0	0	29	11	0	40	27	1	0	28	82
8:30 to 9:30	14	0	0	14	0	0	0	0	35	10	0	45	24	0	0	24	83
8:45 to 9:45	11	0	0	11	0	0	0	0	27	7	0	34	19	0	0	19	64
9:00 to 10:00	8	0	0	8	0	0	0	0	18	4	0	22	34	0	0	34	64
AM Totals	70	0	0	70	0	0	0	0	208	60	4	272	115	9	0	124	466
15:00 to 16:00	2	0	0	2	0	0	0	0	25	0	2	27	1	0	0	1	30
15:15 to 16:15	3	0	0	3	0	0	0	0	35	1	2	38	8	0	0	8	49
15:30 to 16:30	5	0	0	5	0	0	0	0	44	1	2	47	12	1	0	13	65
15:45 to 16:45	8	0	0	8	0	0	0	0	40	1	1	42	13	1	0	14	64
16:00 to 17:00	7	0	0	7	0	0	0	0	33	1	0	34	21	1	0	22	63
16:15 to 17:15	6	0	0	6	0	0	0	0	36	0	0	36	16	1	0	17	59
16:30 to 17:30	4	0	0	4	0	0	0	0	35	0	0	35	15	0	0	15	54
16:45 to 17:45	0	0	0	0	0	0	0	0	28	0	0	28	14	0	0	14	42
17:00 to 18:00	0	0	0	0	0	0	0	0	21	0	0	21	5	0	0	5	26
PM Totals	9	0	0	9	0	0	0	0	79	1	2	82	27	1	0	28	119

APPENDIX C
Swept Path Drawings

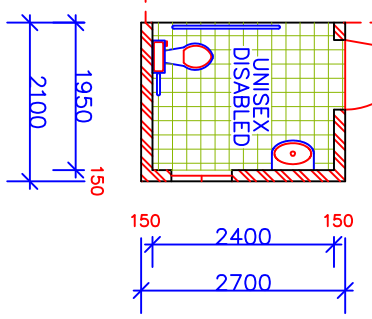


CONTOURS BY HOPKINS CONSULTANTS
SEE PLAN No 6586-0002 DATED 21.02.2012
ORIGIN OF LEVELS SSM68767 R.L.6.010 AHD

SITE PLAN

SCALE 1:1000

EXISTING TAVERN

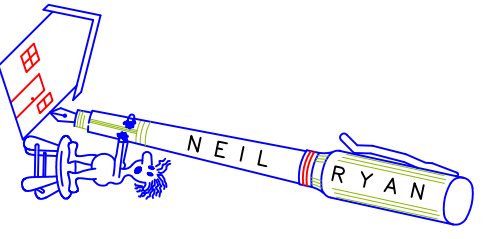


UNISEX DISABLED WC

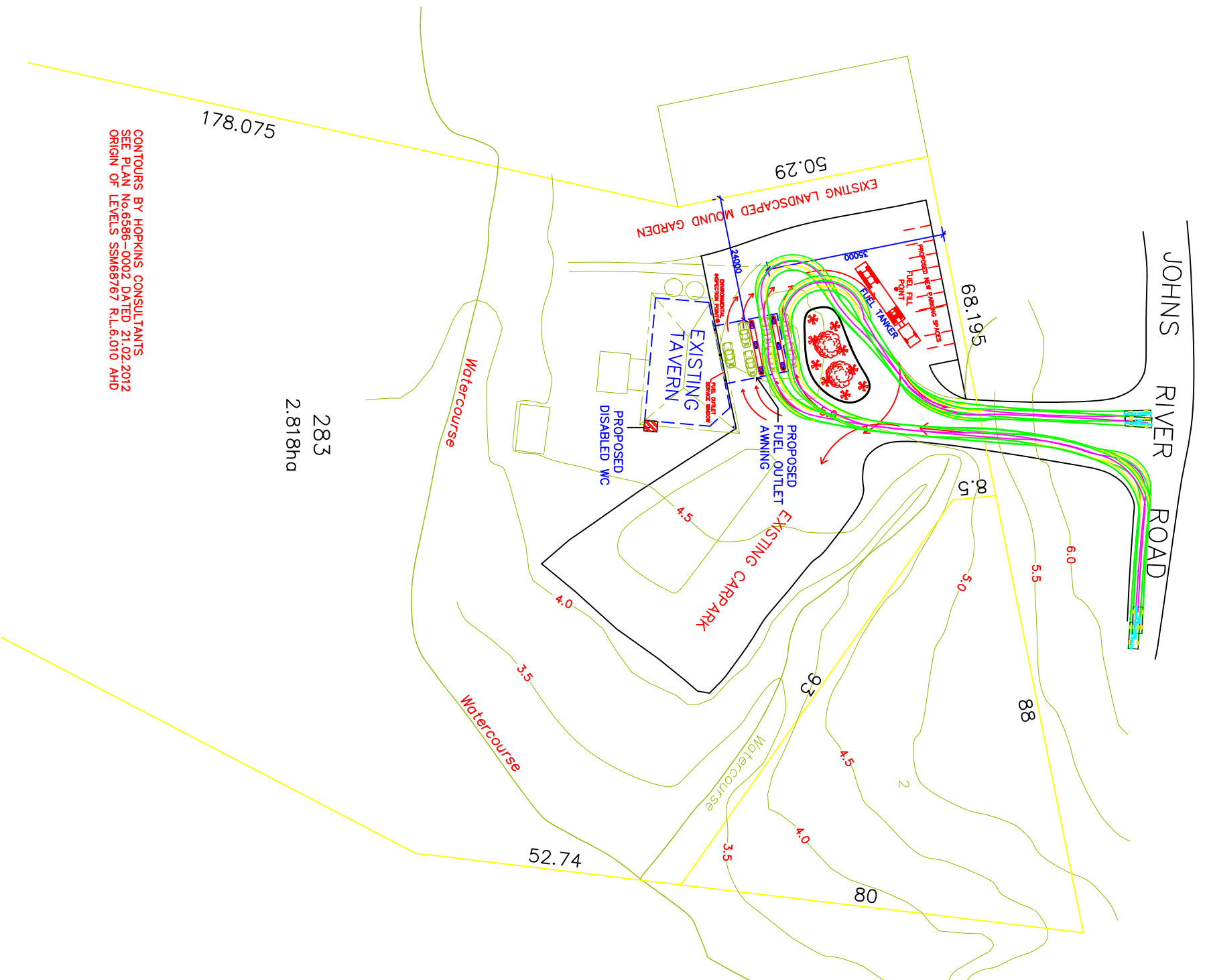
SCALE 1:100

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ANY HEATING APPLIANCE & ASSOCIATED COMPONENT MUST BE INSTALLED BY A LICENSED PERSON & COMPLY TO BCA PART P2.3.3. & 3.7.3.
3.7.3 ALL CONSTRUCTION METHODS & MATERIALS MUST COMPLY TO ANY & ALL BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS & IT IS THE BUILDERS RESPONSIBILITY TO ENSURE ALL TRADES RECEIVE COPIES OF SUCH ASSESSMENTS. ALL EARTHWORKS ARE TO BE UNDERTAKEN STRICTLY TO COMPLY TO BCA PART 3.1.1.
ALL STORM WATER & SURFACE DRAINAGE IS TO BE UNDERTAKEN STRICTLY TO COMPLY TO BCA 3.1.2. A TERMITE BARRIER MUST BE INSTALLED STRICTLY TO COMPLY TO BCA 3.1.3.
ALL CONCRETE FOOTINGS & SLABS ARE TO BE CONSTRUCTED STRICTLY TO BCA 3.2. & ENGINEERS SPECIFICATIONS.
ALL MASONRY & ASSOCIATED COMPONENTS IS TO BE CONSTRUCTED STRICTLY TO COMPLY TO BCA 3.3.
SUB-FLOOR VENTILATION WHERE REQUIRED MUST COMPLY TO BCA 3.4.1.
ALL TIMBER FRAMING, WIND BRACING & ASSOCIATED COMPONENTS MUST COMPLY TO AS1684-2-2006 OR ENGINEERS DESIGN.
ROOF CLADDING & ASSOCIATED COMPONENTS MUST BE INSTALLED STRICTLY AS TO COMPLY TO BCA 3.5.1.
GUTTERS, DOWN PIPES & ASSOCIATED COMPONENTS MUST BE INSTALLED STRICTLY AS TO COMPLY TO BCA 3.5.2.
ALL WALL CLADDING & ASSOCIATED COMPONENTS MUST COMPLY TO BCA 3.5.3.
ALL GLAZING IS TO COMPLY TO BCA 3.6. & ANY REQUIREMENTS UNDER BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS. DIRECT WIRE SMOKE DETECTORS MUST COMPLY WITH AS3786 & BE INSTALLED AS TO COMPLY TO BCA 3.7.2.
ALL REQUIRED AREAS ARE TO BE PROTECTED AGAINST WATER IN ACCORDANCE WITH BCA 3.8.1.2. TO 3.8.1.6.

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PROPOSED FUEL OUTLET TO EXISTING TAVERN FOR: Mr Anthony Galati			
#28 Johns River Road Johns River			
DRAWING	JOB No.	SHEET No.	
SITE PLAN & WC	2012-081	1 OF 3	
DATE	SCALE	ISSUE	
DEC 2012	VARIABLES	A-3	
DRAWN BY: NEIL RYAN			
47a OXLEY STREET TAREE			
Ph./Fax (02) 65525086 Mob. 0417682880			
Email: neilryan@westnet.com.au Web: www.neilryan.com.au			
ABN 43 831 206 704			

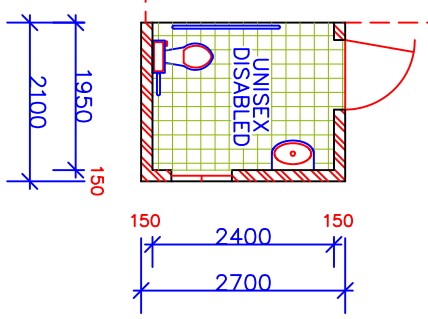


CONTOURS BY HOPKINS CONSULTANTS
SEE PLAN No 6586-0002 DATED 21.02.2012
ORIGIN OF LEVELS SSM68767 R.L.6.010 AHD

SITE PLAN

SCALE 1:1000

EXISTING TAVERN

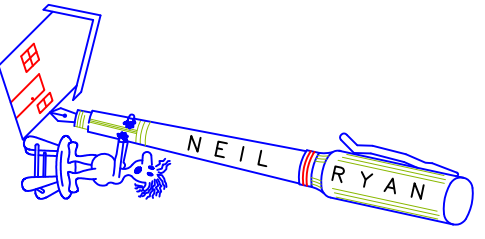


UNISEX DISABLED WC

SCALE 1:100

ALL CARE IS TAKEN WITH DIMENSIONS BUT NO RESPONSIBILITY ACCEPTED FOR DISCREPANCIES. MEASUREMENTS TAKE PRECEDENCE OVER SCALE.
IT IS THE TENDER'S RESPONSIBILITY TO CHECK ALL ON SITE HEIGHTS, LEVELS & MEASUREMENTS. EVERY PART OF THE BUILDING & ASSOCIATE COMPONENTS MUST BE CONSTRUCTED IN AN APPROPRIATE MANNER TO ACHIEVE THE REQUIREMENTS OF THE HOUSING PROVISIONS USING MATERIALS THAT ARE FIT FOR THE PURPOSE FOR WHICH THEY ARE INTENDED. THE BUILDING & ANY ASSOCIATED SITE WORK IS TO BE CONSTRUCTED IN A WAY THAT PROTECTS SURROUNDING OCCUPANTS & PREVENT FROM ADVERSE EFFECTS OF REDIRECTED SURFACE WATER. THE BUILDING IS TO BE CONSTRUCTED TO PROVIDE RESISTANCE TO MOISTURE FROM OUTSIDE & MOISTURE RISING FROM THE GROUND.
ANY HEATING APPLIANCE & ASSOCIATED COMPONENT MUST BE INSTALLED BY A LICENSED PERSON & COMPLY TO BCA PART P2.3.3. & 3.7.3.
3.7.3 ALL CONSTRUCTION METHODS & MATERIALS MUST COMPLY TO ANY & ALL BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS & IT IS THE BUILDERS RESPONSIBILITY TO ENSURE ALL TRADES RECEIVE COPIES OF SUCH ASSESSMENTS. ALL EARTHWORKS ARE TO BE UNDERTAKEN STRICTLY TO COMPLY TO BCA PART 3.1.1.
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3.5.1 GUTTERS, DOWN PIPES & ASSOCIATED COMPONENTS MUST BE INSTALLED STRICTLY AS TO COMPLY TO BCA 3.5.2
ALL WALL CLADDING & ASSOCIATED COMPONENTS MUST COMPLY TO BCA 3.5.3.
3.5.3 ALL GLAZING IS TO COMPLY TO BCA 3.6. & ANY REQUIREMENTS UNDER BASIX, NATHERS OR ALTERNATIVE THERMAL/ENERGY ASSESSMENTS. DIRECT WIRE SMOKE DETECTORS MUST COMPLY WITH AS3786 & BE INSTALLED AS TO COMPLY TO BCA 3.7.2.
3.7.2 ALL REQUIRED AREAS ARE TO BE PROTECTED AGAINST WATER IN ACCORDANCE WITH BCA 3.8.1.2. TO 3.8.1.6.

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PROPOSED FUEL OUTLET TO EXISTING TAVERN FOR: Mr Anthony Galati			
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DRAWING	JOB No.	SHEET No.	
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DATE	SCALE	ISSUE	
DEC 2012	VARIABLES	A-3	
DRAWN BY: NEIL RYAN			
47a OXLEY STREET TAREE			
Ph./Fax (02) 65525086 Mob. 0417682880			
Email: neilryan@westnet.com.au Web: www.neilryan.com.au			
ABN 43 831 206 704			

Attachment H - State Agency Consultation

Sue Calvin

From: Alan Bawden <Alan.Bawden@rfs.nsw.gov.au>
Sent: Wednesday, 20 December 2017 2:23 PM
Subject: FW: Greater Taree LEP Package 4 - RFS submission (ref: R16/1641 DA17102309893 AB)
Attachments: RFS letter 30 Nov 2017.pdf

Thanks for your comment and advice on Council position with respect to the G2 – Events Permitted Without Development Consent.

Unfortunately the NSW RFS position is unchanged and reflects the previous Gloucester LEP amendment.

Therefore the NSW RFS would welcome a meeting to further discuss the issue and identify suitable options to resolve our differences.

However due to the festive season holidays, we are unavailable until the 2nd January 2017.

Regards



Alan Bawden
Team Leader - Development Assessment and Planning
Planning and Environment Services (North)
NSW RURAL FIRE SERVICE
1/129 West High Street Coffs Harbour
Locked Bag 17 GRANVILLE NSW 2142
p 02 66910400 e csc@rfs.nsw.gov.au
www.rfs.nsw.gov.au www.facebook.com/nswrfs www.twitter.com/nswrfs
PREPARE.ACT.SURVIVE

From: Planning & Environment Services
Sent: Tuesday, 19 December 2017 12:54 PM
To: Alan Bawden <Alan.Bawden@rfs.nsw.gov.au>
Subject: FW: Greater Taree LEP Package 4 - RFS submission (ref: R16/1641 DA17102309893 AB)

FYA – please advise if BRIMS action required



Nichole Philp | Administration Officer | Planning and Environment Services, North
NSW RURAL FIRE SERVICE
Suite 1, 129 West High Street, Coffs Harbour NSW 2450
P 02 6691 0400 F 02 6691 0499 E nichole.philp@rfs.nsw.gov.au
www.rfs.nsw.gov.au | www.facebook.com/nswrfs | www.twitter.com/nswrfs
PREPARE. ACT. SURVIVE.

From: Sue Calvin [<mailto:Sue.Calvin@MidCoast.nsw.gov.au>]
Sent: Tuesday, 19 December 2017 8:18 AM
To: Planning & Environment Services <CustomerService.Centre@rfs.nsw.gov.au>
Subject: Greater Taree LEP Package 4 - RFS submission (ref: R16/1641 DA17102309893 AB)

Alan

We had concerns with the requirements RFS were placing on amendment G2 – Events Permitted Without Development Consent and sought advice from Trent Wink from DPE (below). Based on this advice we are hoping you will revise the conditions imposed on this provision. As mentioned by Trent we can organise a phone conference if you need to discuss the matter further.

I'm currently writing the Council report for this package of amendments and would appreciate your response as soon as possible. If we do not get your approval we will be unable to use our delegations to finalise the amendments and will require DPE to finalise the plan.

Please let me know if you require any additional information or would like to have a conference call with Trent Wink

Thanks

Sue

Sue Calvin

Senior Strategic Planner



Direct 02 6592 5384

sue.calvin@midcoast.nsw.gov.au

www.midcoast.nsw.gov.au or follow us 



From: Trent Wink [<mailto:Trent.Wink@planning.nsw.gov.au>]

Sent: Monday, 11 December 2017 12:10 PM

To: Sue Calvin

Subject: RE: Greater Taree LEP Package 4 - RFS submission

Hi Sue,

I didn't know Aaron was made to include the additional requirement that the public events clause doesn't permit overnight accommodation. In my opinion, it is overkill because the clause only permits the temporary use of public reserves and public roads for exhibitions, meetings, concerts and or other events. It doesn't permit camping grounds or other forms of accommodation.

Council's draft clause (below) explains that other approvals may be required. It is not appropriate or necessary for the LEP to stipulate that a suitable bushfire risk assessment needs to be incorporated into the S68 Local approval process.

(1) *The objective of this clause is to provide for the temporary use of public reserves and public roads for a temporary events.*

(2) *Despite any other provision of this Plan, development (including any associated temporary structures) for the purpose of a temporary event may be carried out on a public reserve or public road without development consent.*

Note. Other approvals may be required, and must be obtained, under other Acts, including the Local Government Act 1993, the Roads Act 1993 and the Crown Lands Act 1989.

(3) *State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007 – Part 2 Erection of temporary structures, does not apply to development to which this clause applies.*

(4) *In this clause:*

public reserve has the same meaning as in the Local Government Act 1993.

temporary event means an exhibition, market, meeting, concert or other event that is open to the public for which land is used for a period of not more than 52 days (whether or not consecutive) in any period of 12 months.

Hopefully you're able to resolve this objection, otherwise Council will be unable to use the Minister's plan making delegations to finalise the plan. I'm happy to participate in a teleconference between all parties if that can assist the conversation.

Regards

Trent Wink
A/Team Leader
NSW Planning and Environment
PO Box 1226 | NEWCASTLE NSW 2300
T 02 4904 2716
[E:trent.wink@planning.nsw.gov.au](mailto:Trent.Wink@planning.nsw.gov.au)

Available on Monday, Tuesday, Thursday and Friday

From: Sue Calvin [<mailto:Sue.Calvin@MidCoast.nsw.gov.au>]

Sent: Monday, 4 December 2017 4:49 PM

To: Trent Wink <Trent.Wink@planning.nsw.gov.au>

Subject: Greater Taree LEP Package 4 - RFS submission

Trent

I've just received a submission from RFS (attached) regarding the proposed clause 7.12 Events Permitted Without Development Consent, and I am seeking your advice.

RFS have asked that:

- the clause be amended to include the following provision:
Nothing in this clause permits development for the purpose of overnight accommodation
I have concerns that we already include a definition in the clause being "an exhibition, market, meeting, concert or other event" and shouldn't start listing exclusions. Has this been a requirement for other Councils? I know Aaron was made to do this for the Gloucester LEP and wanted to make sure that it is consistently being required
- a requirement for a suitable bush fire risk assessment be incorporated in the proposed Sect 68 Local Approvals process. I had explained to RFS that the current event application form for the Manning region (where this amendment applies) requires the lodgement of both a Risk Assessment Management Plan and an Emergency Management Plan which would address the issue of bushfire risks. I believe that these plans would be sufficient to address the risks. In addition, many of our major events are located within towns which are not subject to bushfire risks. Can you please advise whether this is a necessary requirement?

Thanks for your assistance with this

Sue

Sue Calvin
Senior Strategic Planner



Direct 02 6592 5384

sue.calvin@midcoast.nsw.gov.au

www.midcoast.nsw.gov.au or follow us 

RFS Disclaimer:

This email message, and any files/links transmitted with it, is intended only for the addressee(s) and contains information which may be confidential. If you are not the intended recipient, please notify the sender and delete this email and any copies or links to this email completely and immediately from your system. Views expressed in this message are those of the individual sender, and are not necessarily the views of the NSW Rural Fire Service.



General Manager
MidCoast Council
PO Box 482
TAREE NSW 2430

Your Ref: S671/03/01
Our Ref: R16/1641
DA17102309893 AB

ATTENTION: Sue Calvin

30 November 2017

Dear Ms Calvin

Agency Comment:- Greater Taree LEP 2010 Planning Proposal – Temporary Events Exemptions and Industrial/Environmental Rezoning

I refer to your letter dated 22 November 2017 seeking advice for the above Planning Instrument in accordance with the 'Environmental Planning and Assessment Act 1979'.

This correspondence is in addition to our previous correspondence dated 17 November 2017. In that correspondence the NSW Rural Fire Service (NSW RFS) did not support the following amendments

- *Proposed Amendment 3.1.2 G2:- Events Permitted Without Development Consent*
- *Site Specific Amendment:- Existing Use D 586 Lansdowne Road Kundle Kundle*
- *Site Specific Amendment:- Existing Use H 202 Bushland Drive Taree*

The NSW Rural Fire Service (NSW RFS) now provides the following comments with respect to the above amendments

Proposed Amendment 3.1.2 G2:- Events Permitted Without Development Consent

This amendment is conditionally supported providing the following additional measures are applied:

- Inclusion of the following wording (or similar) into proposed clause 7.12 'Events Permitted Without Development Consent'
"Nothing in this clause permits development for the purposes of overnight accommodation";

Postal address

Records
NSW Rural Fire Service
Locked Bag 17
GRANVILLE NSW 2142

Street address

NSW Rural Fire Service
Planning and Environment Services (North)
Suite 1, 129 West High Street
COFFS HARBOUR NSW 2450

T (02) 6691 0400
F (02) 6691 0499
www.rfs.nsw.gov.au
Email: pes@rfs.nsw.gov.au



- A requirement for a suitable bush fire risk assessment is incorporated in the proposed S68 Local Approvals process.

Site Specific Amendment:- Existing Use D 586 Lansdowne Road Kundle

- No objection to the proposed IN1 General Industry and E2 Environmental Conservation zone on the subject land.

Site Specific Amendment:- Existing Use H 202 Bushland Drive Taree

- No objection to the proposed IN2 Light Industry and E2 Environmental Conservation zone on the subject land.

For any queries regarding this correspondence please contact Alan Bawden on 1300 NSW RFS.

Yours Sincerely



John Ball
Manager – Planning and Environment Services North

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at www.rfs.nsw.gov.au and search under 'Planning for Bush Fire Protection, 2006'.

22 November 2017

NSW Rural fire Service
Locked Bag 17
GRANVILLE NSW 2142

Ref: S671/03/01
Your ref: R16/1641
DA17102309893AB
Enquiries: Sue Calvin

Attention: Alan Bawden

Dear Alan

Housekeeping amendments to Greater Taree LEP 2010

Thank you for your letter dated 17 November 2017. I'm writing to provide further details on the amendments not supported by the Rural Fire Service. The three amendments and additional details are outlined below:

G2- Events Permitted Without Development Consent

***Issue** - Council has not demonstrated how bush fire assessment will be undertaken for development activities located on mapped bush fire prone land including the potential for overnight accommodation associated with event. Overnight accommodation associated with such events would normally trigger the provisions of S100B of the Rural Fires Act 1997, requiring a referral for a Bush fire Safety Authority.*

This clause applies to events on public reserves or roads. An application will need to be lodged with Council under section 68 of the Local Government Act 1993. The current application form can be viewed at <http://www.midcoast.nsw.gov.au/Community/Holding-an-Event>. The event form for the Manning region (where this amendment applies) requires the lodgement of both a Risk Assessment Management Plan and an Emergency Management Plan. A consideration for the assessment of these events is the fire danger level at the time of the event.

The clause applies to temporary events and is not intended for overnight accommodation. The definition in the clause means "an exhibition, market, meeting, concert or other event". If uses are proposed that are not included in the definition, a development application would be required.

Please note that the clause notes that "other approvals may be required, and must be obtained, under other Acts". If there was the requirement for approval under the *Rural Fires Act 1997*, it would need to be obtained by the applicant.

Site D - 586 Lansdowne Road Kundle Kundle and Site H - 202 Bushland Drive Taree

***Issue** - Council has not demonstrated that the existing and proposed industrial land use activities have sufficient separation distance to the proposed E2 Environmental Conservation zone. The existing and proposed building should be afforded a sufficient setback from the 'conserved' vegetation to minimise bush fire risk to the asset and workers. Any bush fire report will be required to address the access provisions to ensure property access meets the access provisions of Planning for Bush Fire Protection 2006.*

The uses have been established on the sites for over 30 years. The proposed zone changes reflect the existing uses and recognise the important ecological values of the sites. Currently the separation of buildings to vegetation varies for each site. Maps showing the separation distances are attached. In summary:

- 586 Lansdowne Road Kundle Kundle – the majority of the buildings are 15m+ from the land to be included in the Environmental Conservation zone. The exception is the office at the front of the site which is 5m from the zone boundary, though much closer to the access road than other buildings on the site.
- 202 Bushland Drive Taree – the buildings are 80+m from the land to be included in the Environmental Conservation zone.

It appears that the area of greatest risk would be the office on the Lansdowne Road site. In this location the vegetation has been modified and the understorey growth has been cleared. It is anticipated that only minor works would be required to achieve adequate bushfire protection in this part of the site.

If a development application was lodged for either site, we would require a bushfire assessment to address potential bushfire impacts. Given the importance of the vegetation (which forms part of a regional wildlife corridor), we would firstly require the applicant to investigate a range of options that do not involve clearing of the vegetation included in the Environmental Conservation zone. However, if it was agreed that cleared buffers between the buildings and vegetation was the only practical solution, then clearing of the land included in the Environmental Conservation zone could be permitted (the zoning would not prevent this).

At this point in the process, we do not feel that it is appropriate to increase the extent of the General Industrial zone to cater for one bushfire solution when alternative solutions may be available that have less impact on the ecological values of the sites. We believe a solution can be achieved through the development assessment process.

If no development application applies (i.e. the landowner continues with current approved uses), the RFS can authorise clearing under Part 2 clause 8(1) of the *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*, if deemed necessary.

We are wishing to finalise this package of amendments as soon as possible and would appreciate your advice as soon as possible. If you have any further questions, I can be contacted on 6592 5384. If I am unavailable, please contact Council's Special Projects Coordinator, Richard Pamplin, on 6592 5266.

Yours sincerely



Sue Calvin
Senior Strategic Planner
(02) 6592 5384





General Manager
MidCoast Council
PO Box 482
TAREE NSW 2430

Your Ref: PP_2017_MCOAS_008_00
Our Ref: R16/1641
DA17102309893 AB

ATTENTION: Sue Calvin

17 November 2017

Dear Ms Calvin

Agency Comment:-Planning Instrument for Planning Proposal - Housekeeping Amendments To Greater Taree LEP 2010

I refer to your letter dated 19 October 2017 seeking advice for the above Planning Instrument in accordance with the 'Environmental Planning and Assessment Act 1979'.

The NSW Rural Fire Service (NSW RFS) understands the planning proposal includes the following amendments:

- *general amendments that are changes to provisions in LEP 2010 that can apply to the whole Manning region;*
- *site specific amendments that apply to one location, these are typically zone changes that can result in changes to other provisions for a site (eg. floor space ratio and height). In addition, these site specific amendments include changes to the heritage listing of properties and the inclusion of a site on the Land Reservation Acquisition map and Additional Permitted Uses map.*

The NSW RFS notes that some of the land subject to the planning proposal is mapped bush fire prone land by Council.

The NSW RFS has no objection to the planning proposal **except** for the following items which will need to be addressed:

Postal address

Records
NSW Rural Fire Service
Locked Bag 17
GRANVILLE NSW 2142

Street address

NSW Rural Fire Service
Planning and Environment Services (North)
Suite 1, 129 West High Street
COFFS HARBOUR NSW 2450

T (02) 6691 0400
F (02) 6691 0499
www.rfs.nsw.gov.au
Email: pes@rfs.nsw.gov.au



Proposed Amendment 3.1.2 G2:- Events Permitted Without Development Consent

This amendment is not supported

Council has not demonstrated how bush fire assessment will be undertaken for development activities located on mapped bush fire prone land including the potential for overnight accommodation associated with event.

Overnight accommodation associated with such events would normally trigger the provisions of S100B of the *Rural Fires Act 1997*, requiring a referral for a Bush fire Safety Authority.

Site Specific Amendment:- Existing Use D 586 Lansdowne Road Kundle

This amendment is not supported

Council has not demonstrated that the existing and proposed industrial land use activities have sufficient separation distance to the proposed E2 Environmental Conservation zone. The existing and proposed building should be afforded a sufficient setback from the 'conserved' vegetation to minimise bush fire risk to the asset and workers. Any bush fire report will be required to address the access provisions to ensure property access meets the access provisions of *Planning for Bush Fire Protection 2006*.

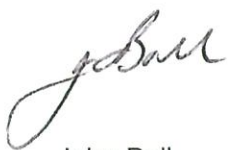
Site Specific Amendment:- Existing Use H 202 Bushland Drive Taree

This amendment is not supported

Council has not demonstrated that the existing and proposed industrial land use activities have sufficient separation distance to the proposed E2 Environmental Conservation zone. The existing and proposed building should be afforded a sufficient setback from the 'conserved' vegetation to minimise bush fire risk to the asset and workers. Any bush fire report will be required to address the access provisions to ensure property access meets the access provisions of *Planning for Bush Fire Protection 2006*.

For any queries regarding this correspondence please contact Alan Bawden on 1300 NSW RFS.

Yours Sincerely



John Ball

Manager – Planning and Environment Services North

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at www.rfs.nsw.gov.au and search under 'Planning for Bush Fire Protection, 2006'.

Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Thursday, 19 October 2017 3:42 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Planning Proposal + Attachment A-D.pdf; Attachment F Gateway Determination.pdf

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding consideration of the Ministerial Direction 4.4 Planning for Bushfire Protection.

For easy reference:

- an outline of the general amendments is on pages 6-19
- details of the site specific amendments are in Attachment A on pages 31-69
- the bushfire assessment is undertaken in Attachment B on page 82

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on (02) 6592 5384.

Your comments are sought by close of business **10 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue


Sue Calvin

Senior Strategic Planner



Direct 02 6592 5384

sue.calvin@midcoast.nsw.gov.au

www.midcoast.nsw.gov.au or follow us 



Department of Primary Industries

OUT17/49869

19 December 2017

Sue Calvin
Senior Strategic Planner
Mid Coast Council
2 Pulteney Street
Taree NSW 2430
sue.calvin@midcoast.nsw.gov.au

Dear Ms Calvin

Re: Amendments to Greater Taree LEP 2010

Thank you for your reply on the NSW Department of Primary Industries (NSW DPI) Agriculture's comments (OUT17/48294) for the planning proposal to amend the Greater Taree Local Environment Plan 2010.

DPI Agriculture supports the permitting water recreation structures with consent in the RU1 zone.

Our position on not supporting detached dual occupancies in the Primary Production zone (RU1) remains. We acknowledge that there are other council's with this provision; however this is not supported by NSW DPI. Justification for this position is outlined below. The Department will be publishing guidelines on detached dual occupancies and secondary dwellings in the New Year to provide state wide advice. Outcomes from the Council's Rural Opportunities Land Use Strategy will also help provide further direction and/or need for this provision through the consolidated LEP program.

General Amendment 5:

LEPs in NSW are increasingly permitting housing development within rural zones which is not related to primary production (including agricultural outcomes). The cumulative impact of the various forms of housing permitted within rural zones has the potential to negatively impact on the productive capacity of agricultural industries and the availability of agricultural resources. It also impacts on the development of other primary industry opportunities eg forestry, mineral development, renewable energy, quarrying etc. Detached dual occupancy development potentially place pressure on the operation of agricultural industries and increases the likelihood of land use conflicts with more sensitive receptors in the vicinity. Impacts from unreasonable proximity to farm buildings, farm boundaries and agricultural industry land uses (e.g. intensive livestock operations, livestock yards, dairies etc.) are the cause of many land use conflicts.

Construction of dual occupancy on a rural property can also inflate property values and can prevent other farmers from purchasing land to start or expand operations. This is a particularly important issue for young farmers wanting to invest in the industry.

It is recognised that changing community needs and aspirations may require a change in the use of agricultural land. However, once land is converted to other uses, it is most unlikely to return to agricultural production. Since these decisions cannot be practically reversed the long term social and economic costs and benefits (including intergenerational equity), should be evaluated before a decision is made.

Having dual occupancies attached and rural worker's dwellings (where strategically justified) assists in reducing some of these adverse impacts. Determinations based on current agri-business productivity may change in the future leaving a landscape of houses, making it difficult for new agri-business to develop due to the close settlement pattern to new or current agricultural activities.

Should you require further information on these matters, please do not hesitate to contact us.

NSW DPI Agriculture is working to ensure that the advice provided is of the highest quality. Please take some time to provide us with feedback on our work by completing a [short survey](#).

Kind Regards,

A handwritten signature in black ink, appearing to read 'H. Squires', written in a cursive style.

Helen Squires
Agriculture Landuse Planner

4 December 2017

Helen Squires
Agriculture Landuse Planner
Department of Primary Industries (Agriculture)
Tocal Agricultural Centre
PATERSON NSW 2421

Ref: S671/03/01
Your ref: OUT17/48294
Enquiries: Sue Calvin

Dear Helen

Regarding amendments to Greater Taree LEP 2010

Thank you for your letter dated 1 December 2017. This letter is in response to the proposed amendments not supported by your Department, being:

1. G5 – enabling detached dual occupancies on rural lands

Dual occupancies (attached) are currently permitted with consent in the RU1 - Primary Production zone. The RU1 zone prohibits secondary dwellings, but permits rural worker's dwellings in this zone. The proposed amendment aims to:

- continue to prohibit secondary dwellings
- prohibit rural worker's dwellings to negate the opportunity for people to apply for both a rural worker's dwelling and a dual occupancy on a site. A dual occupancy can provide a place for rural workers to live on a property
- enable dual occupancies to be detached to ensure the built form is separated to be more in keeping with the rural landscape.

This proposed amendment does not increase the opportunity for additional residential uses in the zone.

An issue raised by DPI is the need to avoid potential land use conflict by separating dwellings from farm sheds. This provision aims to achieve this outcome

Please note that this provision is generally consistent with:

- Great Lakes LEP 2014 - clause 4.2B erection of dual occupancies and secondary dwellings in Zone RU2
- Gloucester LEP 2010 which permits dual occupancies (detached or attached) in the Primary Production zone.

A consistent approach to this issue will be developed through the Rural Opportunity and Land Use Strategy (ROLUS) and be implement in a future consolidated LEP. Until that time, this amendment is required to provide a level of consistency across the three LEPs.

We would also like to note that this provision has been implemented in a number of regional LEPs across NSW. In some LEPs dual occupancies (attached and detached) are permitted with no locational requirements specified.

Based on the above it would be appreciated if you could reconsider the Department's position on this proposed amendment.

2. G6 – enabling more uses as permitted with consent in the RU1 zone (intensive plant agriculture)

This amendment was first proposed in December 2015, prior to the recent issues around blueberry farming on the north coast of NSW. We understand the Department's need for a strategy to consider the implications of this change on farming in the MidCoast area, which will be considered in ROLUS. We will amend the planning proposal to retain intensive plant agriculture as a permitted without consent use.

3. G6 – enabling more uses as permitted with consent in the RU1 zone (additional uses)

These amendments were proposed prior to the Council merger and were developed in the context of uses permitted with consent in both the Gloucester and Great Lakes LEPs. Given the commencement of ROLUS, we will make the Department's suggested changes to remove a number of uses proposed to be permitted with consent. However, we are concerned with the removal of water recreation structures which is defined as:

a structure used primarily for recreational purposes that has a direct structural connection between the shore and the waterway, and may include a pier, wharf, jetty or boat launching ramp

Given boat launching ramps, wharf or boating facilities and boat sheds will be permitted with consent; it would be appropriate for this use to also be permitted. It would be appreciated if you could review whether this use should be removed as a permitted with consent use?

DPI also recommended adding/permitting the following uses as permitted with consent:

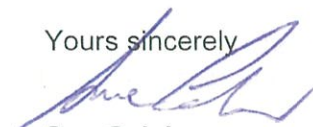
- *agricultural processing facilities* - this is not a defined use in the LEP. If you meant *agricultural produce industries*, this is already permitted with consent as a rural industry. If you meant *livestock processing industries*, this use is prohibited in the zone. Such a change is significant and would require re-notification and a new Gateway determination. We expect that this issue will be addressed through ROLUS
- *rural workers dwellings and dual occupancies (attached)* - this is addressed under the discussion around the detached dual occupancies
- *aquaculture* – this use is permitted with consent as agriculture.

Thank you for providing your comments on the package of amendments to the Greater Taree LEP 2010. Based on the information provided in this letter, it would be appreciated if you could review the Departments concerns with regard to:

- G5 which enables detached dual occupancies on rural lands
- G6 with regard to permitting water recreation structures as a permitted with consent use in the Primary Production zone.

I can be contacted on 6592 5384 if you would like to discuss this issue further.

Yours sincerely



Sue Calvin
Senior Strategic Planner
02 6592 5384 | sue.calvin@midcoast.nsw.gov.au



Department of Primary Industries

OUT17/48294

1 December 2017

Sue Calvin
Senior Strategic Planner
Mid Coast Council
2 Pulteney Street
Taree NSW 2430
sue.calvin@midcoast.nsw.gov.au

Dear Ms Calvin

Re: Amendments to Greater Taree LEP 2010

Thank you for the opportunity to provide comment on the planning proposal to amend the Greater Taree Local Environment Plan 2010. The NSW Department of Primary Industries (NSW DPI) Agriculture provides advice to consent authorities about the protection and growth of agricultural industries and the resources upon which these industries depend.

Advice sought from NSW DPI, as per the Gateway Determination issued August 2017, pertain to the proposed general amendments outlined in Table 1. This table also summarizes NSW DPI's position on the current proposed amendments.

Table 1: Proposed general amendments and NSW DPI Agriculture's position

Proposed General Amendment	NSW DPI position
G3 – changes to boundaries in rural and environmental zones.	Supported
G4 – inclusion of a new zone objective for the RU1 and RU5 zones.	Supported
G5 – enabling detached dual occupancies on rural lands	Not supported
G6 – enabling more uses as permitted with consent in the RU1 zone.	Not supported
G9 – enabling rural industries as permitted with consent in the IN2 zone.	Supported
G12 – enabling dams to be permitted with consent in the RU1 zone.	Supported

General Amendments 3, 4, 9 and 12:

NSW DPI Agriculture supports the proposed changes to boundaries in rural and environmental zones (G3), the inclusion of a new zone objective for the RU1 zone (G4), removing the contradictory landuse direction for rural industries in the Light Industry (IN2) zone and allow it under *permitted with consent* (G9), and enabling dams to be *permitted with consent* in the Forestry (RU3), Primary Production Small Lots (RU4), Village (RU5) and Large Lot Residential (R5) zones (G12).

General Amendment 5:

LEPs in NSW are increasingly permitting housing development within rural zones which is not related to primary production (including agricultural outcomes). The cumulative impact of the various forms of housing permitted within rural zones has the potential to negatively impact on the productive capacity of agricultural industries and the availability of agricultural resources. It also impacts on the development of other primary industry opportunities eg forestry, mineral development, renewable energy, quarrying etc. Detached dual occupancy development and secondary dwellings potentially place pressure on the operation of agricultural industries and increases the likelihood of land use conflicts with more sensitive receptors in the vicinity. Impacts from unreasonable proximity to farm buildings, farm boundaries and agricultural industry land uses (e.g. intensive livestock operations, livestock yards, dairies etc.) are the cause of many land use conflicts.

Construction of a second dwelling on a rural property can also inflate property values and can prevent other farmers from purchasing land to start or expand operations. This is a particularly important issue for young farmers wanting to invest in the industry.

It is recognised that changing community needs and aspirations may require a change in the use of agricultural land. However, once land is converted to other uses, it is most unlikely to return to agricultural production. Since these decisions cannot be practically reversed the long term social and economic costs and benefits (including intergenerational equity), should be evaluated before a decision is made.

Having dual occupancies and rural worker's dwellings (where strategically justified) attached assists in reducing some of these adverse impacts. Determinations based on current agri-business productivity may change in the future leaving a landscape of houses, making it difficult for new agri-business to develop due to the close settlement pattern to new or current agricultural activities.

General Amendment 6: *intensive plant agriculture permitted with consent*

I understand that the intent of the proposed amendment is to address land use conflict issues arising within the community around the blueberry industry experienced in neighboring LGAs, and to use the development assessment process to address these issues. However this proposal could set a precedent and impact on the sustainable development of a vibrant agricultural sector for the Midcoast Council area and possibly more broadly in NSW. DPI Agriculture has significant concerns with this proposal as highlighted by the following:

1. LEP definition of Intensive Agriculture: The definition of the land use of "*intensive plant agriculture*" within the planning framework covers a broad range of agricultural products that all require different growing methods, infrastructure requirements, labour inputs and climatic conditions. Therefore, development of controls for blueberry farming will unfairly restrict growth of other industries. For this reason, NSW DPI has focussed on building relationships with industry to promote best practice and self-regulation amongst growers.

This provision needs to be strategically justified ie as part of a rural strategy that will determine what is driving the issue of intensive plant agricultural development to justify the position of the Council in determining the regulation level of such activity. Public and industry consultation is essential in helping determine the issue, and resolve positions that will enable council to determine the most appropriate land use outcomes.

2. “Blueberry Code of Conduct” development: Over the past six months considerable resources have been invested by the Australian Blueberry Growers Association (ABGA), NSW Government agencies and local governments across the region to develop a united and consistent approach to address land use conflict issues arising from the expanding blueberry industry. The main focus of this work has been the establishment of a Blueberry Code of Conduct, currently being developed by the ABGA as a self-regulation tool for new and existing growers. The industry itself is seeking to change and to manage their impacts so that there will be better outcomes for community, environment, and existing land uses. NSW DPI will continue to support Councils, the blueberry industry and the community in developing a community charter or similar program through the Blueberry Interagency Working Group.
3. Council resourcing the change: If further conditions are applied by council as part of development assessment, additional planning resources would be required to address assessment requirements, technical agricultural expertise and response timeframes. Technical support from NSW DPI would be limited as it does not have a priority role in assessment of routine development applications.
4. Rural land use strategy: Agricultural industries are critical to the growth of regional economies. Changes to how rural land is used are often guided by rural land use strategies or similar strategic planning policies. NSW DPI supports Councils in developing such strategies to provide a more holistic and strategic approach to managing their rural lands. NSW DPI is currently working with Midcoast Council to provide a greater understanding of agriculture and its input to the council area.
5. State level legislation: A number of State-level legislative frameworks underpin the regulation of land, water, vegetation, threatened species and biosecurity in NSW. These associated agencies have existing referral procedures in place that trigger involvement and should be consulted on whether these recommendations by council could be supported and resourced.
6. Other State level policies: The NSW Right to Farm Policy and Hunter Regional Plan stipulate the priorities of Government to protect and enhance agricultural land and identify opportunities for agribusiness growth. Instead of providing increased confidence to investors and industry, this proposal may have unintended consequences for agriculture in the council area as well as the State.

NSW DPI recommends that *intensive plant agriculture* remain in an activity *permitted without consent* in the RU1 zone.

General Amendment 6: enabling more uses as “permitted with consent” in the RU1 zone

As identified earlier in this letter increasing none compatible landuses within the primary production zone promotes a high risk for landuse conflict and decline in agriculture productivity. A significant number of the proposed new landuses permitted with consent in the RU1 zone are likely to cause conflict and are not in accordance to the objectives of the zone for primary production. The below non struck landuses highlights those that NSW DPI supports.

boat launching ramps, boat sheds, camping grounds, charter and tourism boating facilities, community facilities, ~~depots, educational establishments, function centres, industrial training facilities, information and education facilities, intensive plant agriculture,~~ jetties, marinas, markets, mooring pens, moorings, plant nurseries, ~~public administration buildings,~~ recreation areas, ~~recreation facilities (major),~~ recreation facilities (outdoor), ~~registered clubs,~~ restaurants or cafes, sewerage systems, timber yards, veterinary hospitals, waste or resource management facilities, ~~water recreation structures,~~ water supply systems, wharf or boating facilities

in addition NSW DPI recommends adding or retaining to "permitted with consent"
agricultural processing facilities, rural workers dwellings, dual occupancies (attached), aquaculture

Should you require further information on these matters, please do not hesitate to contact us.

NSW DPI Agriculture is working to ensure that the advice provided is of the highest quality. Please take some time to provide us with feedback on our work by completing a [short survey](#).

Kind Regards,



Helen Squires
Agriculture Landuse Planner

Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Thursday, 19 October 2017 5:15 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Planning Proposal + Attachment A-D.PDF; Attachment F Gateway Determination.pdf

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding consideration of general amendments G3-G6 and G12.

In summary these changes relate to:

- G3 – changes to boundaries in rural and environmental zones as outlined on page 7. It will permit re-arrangements of boundaries where there is no increase in lots/dwelling entitlements and the rural viability of the land is not impacted upon
- G4 – inclusion of a new zone objective for the RU1 and RU5 zones as outlined on page 7-8. After reviewing LEPs in NSW we thought that these objectives were appropriate for our region
- G5 – enabling detached dual occupancies on rural lands as outlined on page 8
- G6 – enabling more uses as permitted with consent in the RU1 zone as outlined on page 8
- G12 – enabling dams to be permitted with consent in the RU1 zone as outlined on page 12.

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on **(02) 6592 5384**.

Your comments are sought by close of business **10 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue

Sue Calvin
Senior Strategic Planner



Direct 02 6592 5384

sue.calvin@midcoast.nsw.gov.au

www.midcoast.nsw.gov.au or follow us 



DOC17/520033-2
PP_2017_MCOAS_008_00

Sue Calvin
Senior Strategic Planner
MidCoast Council
sue.calvin@midcoast.nsw.gov.au

Dear Sue

Planning proposal – various amendments to Greater Taree Local Environmental Plan 2010

I refer to your email dated 19 October 2017 requesting comment from the Office of Environment and Heritage (OEH) regarding various general and site specific amendments to the Greater Taree Local Environmental Plan (LEP) 2010. It is understood that the planning proposal contains a number of general amendments to the Manning region and 17 site specific amendments that predominately involve zone changes. I note that a Gateway Determination for this proposal was issued on 11 August 2017 and required specific consultation with OEH in relation to site specific amendments B Johns River and H Bushland Drive Taree, and with the National Parks and Wildlife Service (NPWS) in relation to site specific amendment F Harrington.

OEH has undertaken a review of the planning proposal (including Attachments A to F). OEH's recommendations are listed in **Attachment A** with detailed comments provided in **Attachment B**.

If you require any further information regarding this matter please contact Anne Browett, Conservation Planning Officer, on 4927 3160.

Yours sincerely

STEVEN COX
Senior Team Leader - Planning
Hunter Central Coast Branch
Regional Operations Division

16 November 2017

OEH Recommendations

Land adjoining Palms Oasis Caravan Park – planning proposal

Acronyms

BAM	Biodiversity Assessment Method
LEP	Local Environmental Plan
NPWS	NSW National Parks and Wildlife Service
OEH	NSW Office of Environment and Heritage

Recommendations:

1. OEH does not object to the site specific rezoning at Site B – Johns River.
2. OEH does not object to the site specific rezoning at Site F – Harrington.
3. OEH does not object to the site specific rezoning at Site H – Bushland Drive Taree.

ATTACHMENT B**OEH Detailed Comments****Various amendments to Greater Taree LEP 2010 – planning proposal****Biodiversity****Site B – Johns River**

OEH does not object to the rezoning at Johns River, however, Council should note that the threatened species *Maundia triglochoides* has been recorded on and near the site. This will require further assessment at the development application stage. Such assessment may need to be undertaken according to the Biodiversity Offset Scheme of the *Biodiversity Conservation Act 2016* and may require application of the Biodiversity Assessment Method (BAM).

Recommendation:

1. OEH does not object to the site specific rezoning at Site B – Johns River.

Site F - Harrington

OEH understands that Site F at Harrington has been previously incorrectly zoned E1 National Parks and Nature Reserves despite it remaining in private ownership. OEH supports the proposal to rezone the site to E2 Environmental Conservation while leaving the site on the land acquisition map as national park.

Recommendation:

2. OEH does not object to the site specific rezoning at Site F – Harrington.

Site H – Bushland Drive Taree

OEH acknowledges the need for Council to change the site zoning from SP2 Special Purpose - Infrastructure as the site will no longer be operated as a rail facility. OEH supports the E2 Environmental Conservation zone proposed to protect the eastern vegetated corridor on the site. Council should note, however, that further detailed ecological survey work will be required over the remainder of the site prior to any future development applications, with particular focus placed on the koala and *Eucalyptus seeana*. Future assessment may need to be undertaken according to the Biodiversity Offset Scheme of the *Biodiversity Conservation Act 2016* and may require application of the BAM.

Recommendation:

3. OEH does not object to the site specific rezoning at Site H – Bushland Drive Taree.

Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Thursday, 19 October 2017 4:02 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Attachment F Gateway Determination.pdf; Planning Proposal + Attachment A-D.PDF

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding site specific amendment B at Johns River and H at 202 Bushland Drive, Taree.

For easy reference:

- details on Site B at Johns River are in Attachment A pages 33-36
- details on Site H at 202 Bushland Drive, Taree are in Attachment A pages 51-53. There are technical studies for this site located on Council's website at <http://www.midcoast.nsw.gov.au/Have-Your-Say/Greater-Taree-Local-Environmental-Plan-Amendments>

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on (02) 6592 5384.

Your comments are sought by close of business **10 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue

Sue Calvin

Senior Strategic Planner



Direct 02 6592 5384

sue.calvin@midcoast.nsw.gov.au

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Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Thursday, 19 October 2017 4:20 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Planning Proposal + Attachment A-D.PDF; Attachment F Gateway Determination.pdf

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding consideration of site specific amendment F at 102 Industrial Rd and Lot 193 Glacken St, Harrington.

For easy reference details of the site specific amendment F are in Attachment A on pages 45-47. It involves changing the zone of the property from National Parks and Nature Reserve (E1) zone to the Environmental Conservation (E2) zone given the land is privately owned. The intent for future acquisition of the property by NP&WS is addressed by the sites being included on the Land Reservation Acquisition (LRA) map in the LEP. A minor change to clause 5.1(2) of the LEP is also proposed to trigger the acquisition of this site when it is included in the Environmental Conservation (E2) zone.

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on **(02) 6592 5384**.

Your comments are sought by close of business **10 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue

Sue Calvin

Senior Strategic Planner



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13 November 2017

The General Manager
MidCoast Council
PO Box 482
TAREE NSW 2430

Your Reference: PP_2017_MCOAS_008_00
Our Reference: OUT17/45527

Emailed: tareecouncil@midcoast.nsw.gov.au
Taree@midcoast.nsw.gov.au

ATTN: Sue Calvin

Dear Sir/Madam,

**Re: Planning Proposal – Amendment to Greater Taree Local Environmental Plan
2010 – Package 4**

Thank you for the opportunity to provide advice on the above matter. This is a response from the NSW Department of Planning & Environment – Division of Resources & Geoscience, Geological Survey of New South Wales (GSNSW).

GSNSW has reviewed the housekeeping amendments in regards to *Section 117(2) Direction 1.3* of the *Environmental Planning & Assessment Act 1979* and provisions of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* and has no issues to raise.

Queries regarding the above information, and future requests for advice in relation to this matter, should be directed to the GSNSW Land Use team at landuse.minerals@industry.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Cressida Gilmore'.

Cressida Gilmore
Manager - Land Use

Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Monday, 23 October 2017 2:18 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Planning Proposal + Attachment A-D.PDF; Attachment F Gateway Determination.pdf

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding consideration of Ministerial Direction 1.3 Mining, Petroleum Production and Extractive Industries.

For easy reference:

- an outline of the general amendments is on pages 6-19
- details of the site specific amendments are in Attachment A on pages 31-69
- the assessment of Direction 1.3 is undertaken in Attachment C on page 80.

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on (02) 6592 5384.

Your comments are sought by close of business **13 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue


Sue Calvin

Senior Strategic Planner



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Sue Calvin

From: Sue Calvin <Sue.Calvin@MidCoast.nsw.gov.au>
Sent: Thursday, 19 October 2017 5:01 PM
Subject: Amendment to Greater Taree LEP 2010 - (DPE Ref: PP_2017_MCOAS_008_00)
Attachments: Planning Proposal + Attachment A-D.PDF; Attachment F Gateway Determination.pdf

Good afternoon

We have a planning proposal that contains a number of housekeeping amendments to the *Greater Taree Local Environmental Plan 2010*. This planning proposal contains:

- general amendments that cover the whole Manning region (eg changes to uses permitted with consent in zones)
- 17 site specific amendments that predominately involve zone changes to reflect the current use of the site.

The Gateway determination was issued in August 2017 and is attached for your information. Item 4 of the determination requires consultation with your Department regarding consideration of site specific amendment B at Johns River and site specific amendment I at River St, Cundletown.

For easy reference:

- details of the site specific amendment B at Johns River are in Attachment A on pages 33-36. For this amendment DPE had requested additional information regarding the a traffic and noise impact assessment given the proximity of the sites to the Pacific Highway (item.2 of Gateway determination). This information is contained in Attachment G which is available on Council's website at <http://www.midcoast.nsw.gov.au/Have-Your-Say/Greater-Taree-Local-Environmental-Plan-Amendments>. The assessment of this information is provided o page 33 of the planning proposal
- details of the site specific amendment I at River Street Cundletown are in Attachment A on pages 54-55. This site is owned by RMS and is to be included on the Land Reservation Acquisition Map in the LEP as it forms part of the Cundletown Bypass.

The planning proposal reference number issued by the Department of Planning and Environment is **PP_2017_MCOAS_008_00** and Trent Wink (ph: 02 4904 2716) in the Department's Newcastle office is the Department's contact for this proposal.

If you require any further information or would like to discuss the proposal, please contact me on (02) 6592 5384.

Your comments are sought by close of business **10 November 2017**. If a response is not received by the above date we will assume that you have no objection to this proposal.

Thanks for your assistance with this planning proposal

Sue

Sue Calvin
Senior Strategic Planner



Direct 02 6592 5384

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General Amendment Package 4 to Greater Taree LEP 2010
Summary of submissions

Issue	Response	No.
General comments		
<p>Preference for a consolidated LEP rather than amendments to the Greater Taree LEP 2010. Create a vision and then prepare one LEP for the whole area</p>	<p>This package of amendments was proposed prior to the merger of Councils in May 2016 and aims to improve the assessment of development applications in the Manning Valley. While we are currently undertaking strategy work in preparation for a Community Strategic Plan and a consolidated LEP, we also need to ensure current priority planning proposals from the previous Councils are completed to provide a robust planning framework for development applications. Some clause harmonisation has been included in these changes.</p> <p>No change</p>	11
G3 – Changes to boundaries		
<p><i>Currently there are no provisions in LEP 2010 to enable changes to the boundaries of rural or environmental lots where the lot size is less than 40 ha. Landowners frequently request changes to boundaries for a range of reasons including improving the viability of agricultural lots, access, and accounting for natural features such as creeks and steep land. The proposed clause has been adopted by a number of NSW rural councils to enable minor boundary changes to occur where the lots are below the minimum lot size.</i></p>		
<p>Support the proposed clause. Recommend a minor change to ensure that existing dwelling entitlements are not removed</p>	<p>The suggested change would remove any uncertainty with regard to the issue of dwelling entitlements. This change is consistent with the provision included in the <i>Great Lakes LEP 2014</i>. It is agreed to include a new provision in the proposed clause, being:</p> <p><i>(6) Despite clause 4.2A, development consent may be granted for the erection of a dwelling house on land that, immediately before the adjustment of its boundaries under this clause, was a lot on which the erection of a dwelling house was permissible.</i></p> <p>Amendment proposed</p>	6
G5 – Dual occupancies (detached) on rural land		
<p><i>Currently dual occupancies (attached) are permitted with consent in the Primary Production (RU1) zone. Given these buildings are attached, the resultant built form can be very large buildings that are not in keeping with the rural nature of the zone. To address this impact, a number of rural councils have permitted dual occupancies (detached) with development consent where the rural use of the land is not impacted (eg. separation distance, access and rural amenity).</i></p>		
<p>Support this proposed amendment – facilitate economic development and better utilisation of rural lands</p>	<p>Support noted</p> <p>No change</p>	5, 10
<p>This provision should apply to the Large Lot Residential zone</p>	<p>This provision aims to retain the rural character of rural areas and provide alternate accommodation for rural families and workers. Given the Large Lot Residential sites vary from 4,000m² to 1.5ha it is expected that the character outcome would be very different. This approach is consistent with <i>the Great Lakes LEP 2014</i>.</p> <p>A strategic assessment of the possible impacts would need to be undertaken before supporting such a change (this would require a new Gateway determination and re-</p>	8

Issue	Response	No.
	exhibition). This matter will be considered when a new consolidated LEP is prepared for MidCoast Council. No change	
G6 – Primary Production (RU1) zone changes <i>A comparative review of LEP's across NSW identified the restrictive nature of the Primary Production (RU1) zone in the Greater Taree LEP 2010. While the Primary Production zone covers 66% of the Manning Valley, the number of permitted with consent uses are restricted. It was also found that many of the prohibited uses are currently operating in the rural area (being approved under previous LEPs) and positively contribute to the rural nature of the zone. This change involved increasing the number of permitted with consent uses in the Primary Production zone consistent with the intent of the zone and the Great Lakes and Gloucester LEPs</i>		
Club Taree support inclusion of Outdoor Recreation Facilities in the Primary Production zone	Support noted. No change	7
These amendments should have included Livestock Processing Facilities to accommodate Wingham Beef	This issue was identified after the planning proposal was considered by Council and was unable to be included in this package of amendments. The issue has been noted for future LEP reviews No change	12
Site C – West St, Coopersnook <i>Part of Coopersnook village was included in the Village zone, but had a minimum lot size requirement larger than the typical 1,000m² (being 15,000 m² and 8,000 m²). A landowner requested further investigation. It was agreed to have a minimum lot size of 1,000m² apply to the part of the sites in the Village zone. With the completion of the Manning River Flood Study 2016, the zone boundary between the rural and village zone was also amended to reflect the new flood lines</i>		
Support for the proposed zone change.	Support noted. No change	3
Landowner had not received the letter about the proposed zone change - recently purchased two sites	The contact details on Council's database had not been updated when the letters were sent out. The new landowner contacted staff and was provided with the relevant information and discussed the changes No change	4
Lot sizes proposed for the Village zone should be reduced to allow the front parts of High Street to be subdivided from the Primary Production zoned land at the rear (e.g. 800m ²).	It is agreed that the minimum lot size applied to the front of 30 High Street would result in a poor subdivision outcome. Propose to reduce the minimum lot size for this part of the site to 900m ² to enable a lot to be created fronting High Street, thereby providing an improved future subdivision opportunity. Amendment proposed	4
Need to fill part of the site to achieve a suitable building platform, but filling will be restricted in the Primary Production zone	Any filling requirements would have to be justified through a development application. The proposed zone boundary is based on current flood levels as directed by the NSW Department of Planning and Environment - it cannot be altered.	4

Issue	Response	No.
	No change	
Reduce the minimum lot size of the Primary Production zone to enable the land in this zone to be further subdivided	Given the land is flood prone, the zone of the land and minimum lot size cannot be reduced below 40ha. The proposed changes to the minimum lot sizes enable some further subdivision to occur for the land in the Village zone only. No change	4
Site D – 586 Lansdowne Rd, Kundle Kundle <i>In the 1980s an engineering business was lawfully established on the site to fabricate railway products. The site has continued to be used for industrial activities. However, LEP 2010 now lists the use as prohibited in the Primary Production (RU1) zone. This has led to difficulties when extensions have been proposed and new uses have been proposed. It is proposed to include part of the site in the General Industrial zone and the remainder in the Environmental Conservation zone</i>		
The landowner requested a site inspection to discuss the extent of the zone boundaries proposed given areas used for industrial purposes were included in the Environmental Conservation zone. After an inspection a revised zone boundary was proposed that was accepted by the landowner	The cadastre boundaries on the Council mapping can be out by up to 20m in rural areas. A GPS was used at the site meeting to clearly define the extent of the industrial use of the site. In addition, the office at the front of the site and fenced off area were also included in the General Industrial zone. It was agreed between Council staff and the landowner that this amended site boundary better reflected the extent of current industrial activity on the site. Amendment proposed	2
Site F – 102 Industrial Rd and Lot 193 Glacken St, Harrington <i>Part of this site is currently included in the National Parks and Nature Reserve (E1) zone which is typically applied to land owned by the National Parks and Wildlife Service. This zone was applied to this site in LEP 2010 as a direct transition from the former LEP 1995 - 8(b) National Parks and Nature reserves zone. Given the site is privately owned, it is proposed to change the National Parks and Nature Reserve zone to Environmental Conservation to reflect the private ownership of the land. The future acquisition of the site is identified on the Land Reservation Acquisition Map in LEP 2010.</i>		
Strong objection – incorrect statement that the owner wants the zone changed. The site has been identified for acquisition by National Parks and Wildlife Services 20 years ago and they have done nothing to resume the land. Preferred zone for the site is Primary Production	A representative of the firm verbally requested this investigation a number of years ago, on at least two occasions. Given the submission it is proposed to amend the text in the planning proposal to remove reference to the landowner requesting the change. Amendment proposed. The National Parks and Nature Reserve (E1) zone is applied to land that is reserved under the <i>National Parks and Wildlife Act 1974</i> or that is acquired under Part 11 of that Act. This land is privately owned, but identified on the Land Reservation Acquisition Map as land to be purchased by National Parks and Wildlife Service (NP&WS). Given the current zone is inappropriate, another zone is required. The Environmental Conservation zone is considered appropriate given the site contains a number of significant vegetation communities including Coastal Dune Dry Sclerophyll Forest and Coastal Heath Swamp which provide habitat for a range of threatened species including migratory bird species. Parts of the site have also been mapped as SEPP 14 Coastal Wetlands and form	14

Issue	Response	No.
	<p>part of the Harrington-Old Bar Regional Corridor. The environmental significance of the site is also demonstrated by the identification of this site as a future acquisition site by NP&WS.</p> <p>Given the environmental significance of this site, the Primary Production zone suggested by the landowner would not be appropriate. It is recommended that the Environmental Conservation zone is appropriate for this site.</p> <p>It is proposed to amend the planning proposal to include the above information on the environmental significance of the site.</p> <p>Amendment proposed</p>	
<p>Site N – 25 Myalup Court, Red Head</p> <p><i>This land formed part of the Seascape development. At the time of rezoning, the open space zone was applied over part the lot to enable driveway access to a public car park on the adjoining eastern land which formed part of the headland park. Since the rezoning, an assessment was undertaken of the open space needs in this location. It was decided that there is no need for a public car park on the adjoining site given the park is mainly used by residents and there is sufficient on-road parking available. In addition, the main access to the headland and viewing platform (including parking) is provided off Glenelg Crescent. As a result, the provision of a 6m wide pedestrian access was considered sufficient for this site, so as to permit vehicle access to the site for Parks and Landcare vehicles to maintain the adjoining park.</i></p> <p><i>To reflect this change, the width of land included in the Public Recreation zone is to be reduced to 6m wide (refer proposed zone map over the page). This will enable residents to access the headland and connect to the open space network to the north and south of the site.</i></p> <p><i>This land has remained in private ownership. An agreement will be put in place to enable the transfer of this land to Council following this plan being made</i></p>		
Support the reduction of the path to 6m	Support noted. No change	15
The access path should be 4m wide which is sufficient to cater for vehicles (consistent with other paths in Seascape being 3m wide)	At the Council meeting on 9 December 2015, Council increased the required width of the access from 4m to 6m. The planning proposal was amended accordingly. This width will enable suitable access for pedestrians, Landcare and Council maintenance vehicles to access the adjoining reserve. No change	1
Access to the path should be restricted to minimise anti-social behaviour. Is this path needed given there is ample access?	Bollards to restrict vehicular access would be investigated by our Parks section after the land has been dedicated. This is common practice for access paths such as these. No change	1, 9, 15
The change is contrary to the original intent for a driveway, car park and facilities on the headland that would enable access to the park for all users. The area is currently accessed by people that are not locals for	It is agreed that the intent for this area has changed since the original rezoning was undertaken for Seascape. The main access to the headland and viewing platform is now provided off Glenelg Crescent. Parking and paths in this location provide access to the headland park.	13

Issue	Response	No.
<p>fishing, rock climbing and paragliding. Not having a car park will cause congestion in Myalup Court.</p> <p>Access and manoeuvring needs to be maintained for emergency vehicles. Six metres is insufficient.</p> <p>Proposal is contrary to SEPP 71 Coastal Protection and guidelines that promote public access to the coast.</p> <p>Concern that the land will not be dedicated to Council.</p>	<p>A review of the parklands in Seascope identified that there is no need for the proposed public vehicular access and parking facilities off Myalup Court as they would be duplicating existing facilities in Glenelg Crescent.</p> <p>No change</p> <p>The proposed pedestrian access and vehicular access for maintenance or emergency vehicle will meet the needs of locals and is considered to be consistent with SEPP 71 Coastal Protection.</p> <p>Dedication of the land is being discussed with the landowner so as to be required within a reasonable timeframe following this amendment being made.</p> <p>No change</p>	
<p>The maximum building height for land in the residential zone should be 8m not 8.5m. Why does the land in the Public Recreation zone need a building height and floor space ratio</p>	<p>This was a mapping error in the exhibited documents. The maximum building height map has been amended to show 8m. The amendment removes the building height and floor space ratio from the land in the Public Recreation zone which is the standard for land in this zone.</p> <p>Amendment proposed</p>	15
<p>Does Council contribute to boundary fencing when it adjoins a park?</p>	<p>Councils are exempt from contributing to the cost of fencing common boundaries between private and community land.</p> <p>No change</p>	15

