Request for Director-Generals Requirements
Overview of Proposed Development

Proposed Expansion of
Existing Mainfreight Facility

30-50 Yarrawa St, Prestons
(Lots 101 & 102 DP 1117691 and Lot 2 DP 28729)

December, 2012

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MANAGING COMPLIANCE

Document Control Table

Document Reference:	062882 - DGRsOverview.doc		
Date	**Version**	**Author**	**Checked By**
07 December 2012	Draft	N. Murray	C. Wilson
11 December 2012	Final	N. Murray	C. Wilson

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1 INTRODUCTION

This document has been prepared by McKenzie Group Consulting Planning (NSW) on behalf of Goodman Property Services (Aust) Pty Ltd and is submitted to the Department of Planning and Infrastructure (DoPI) in support of a formal request for Director-General's Requirements (DGRs).

The DGRs are requested in relation to a proposed expansion of the existing Mainfreight warehouse and distribution facility at 30-50 Yarrawa Street, Prestons (Lots 101 & 102 DP 1117691 and Lot 2 DP 28729 (**Figure 1**) including use of the facility for the storage of dangerous goods.

This application satisfies the definition of State Significant Development pursuant to Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* as the proposal will involve the storage of dangerous goods in quantities that trigger the definition of a Major Hazards Facility under Chapter 6B of the *Occupational Health and Safety Regulation 2001*.

This document provides a brief overview of the proposal, including the planning framework applying to enable to the issue of Director-Generals Requirements (DGRs) that will guide the preparation of a formal Environmental Impact Statement.

The proposal supports the continued development of the Yarrunga Release Area, providing employment and contributing to the retention and growth of manufacturing, distribution and supply industry in Sydney.

2 SITE DETAILS

Land which is the subject of this application is identified as Lots 101 & 102 DP 1117691 and Lot 2 DP 28729, being 30-50 Yarrawa Street, Prestons (**Figure 1**).

The allotments that make up the site are detailed in **Table 1**.

Table 1 – Site Details

Property Description	***Address***	***Area (approximate)***	***Road Frontage (approximate)***
Lot 101 DP 1117691	50 Yarrawa St, Prestons	4.8ha	242m
Lot 102 DP 1117691	40 Yarrawa St, Prestons	2.0ha	80m
Lot 2 DP 28729	30 Yarrawa St, Prestons	1.6ha	100m
	TOTAL	*8.4ha*	*422m*

The development area forms part of a larger industrial estate, in which there are three (3) sites (**Figure 2**). At the time of this application, only Site 1 has been developed and accommodates the Mainfreight Distribution Centre. The proposal will seek to expand this facility onto 30-40 Yarrawa Street which lies immediately to the east and is known as Site 2. Site 3 lies to the south of Sites 1 and 2, with frontage to Yarrunga Street, and is subject to a separate application lodged by southern Logistics.

The existing Mainfreight facility at 50 Yarrawa Street comprises:

- Two warehouse buildings joined by an awning creating a breezeway;
- Two offices (both 2 levels);
- A weighbridge and a covered truckwash facility with water recycling facilities;
- Refuelling facility for trucks (diesel) and forklifts (LPG); and
- Hardstand area, site landscaping, and parking areas;
- Entrance/exit to Yarrawa Street for cars and truck on the north-west corner, and an exit to Yarrawa Street for truck
- Site signage and perimeter fencing.

No buildings or activities currently exist on 30-40 Yarrawa Street; however, this land has been previously disturbed by past agricultural activities and site preparation works associated with adjoining development.

Currently, two (2) detention basins exist within the northwest portion of the site while the remainder exists as grassland interspersed with small stands of bush and a scattering of individual trees. An existing 50-metre wide TransGrid easement traverses across the northeast portion of Lot 2. The easement is associated with the sub-station located on the northern side of Yarrawa Street, opposite the site, and accommodates a high capacity tower positioned across the boundary of Lot 2 and adjoining lot to the east.

The existing site conditions are shown in **Figure 3**.

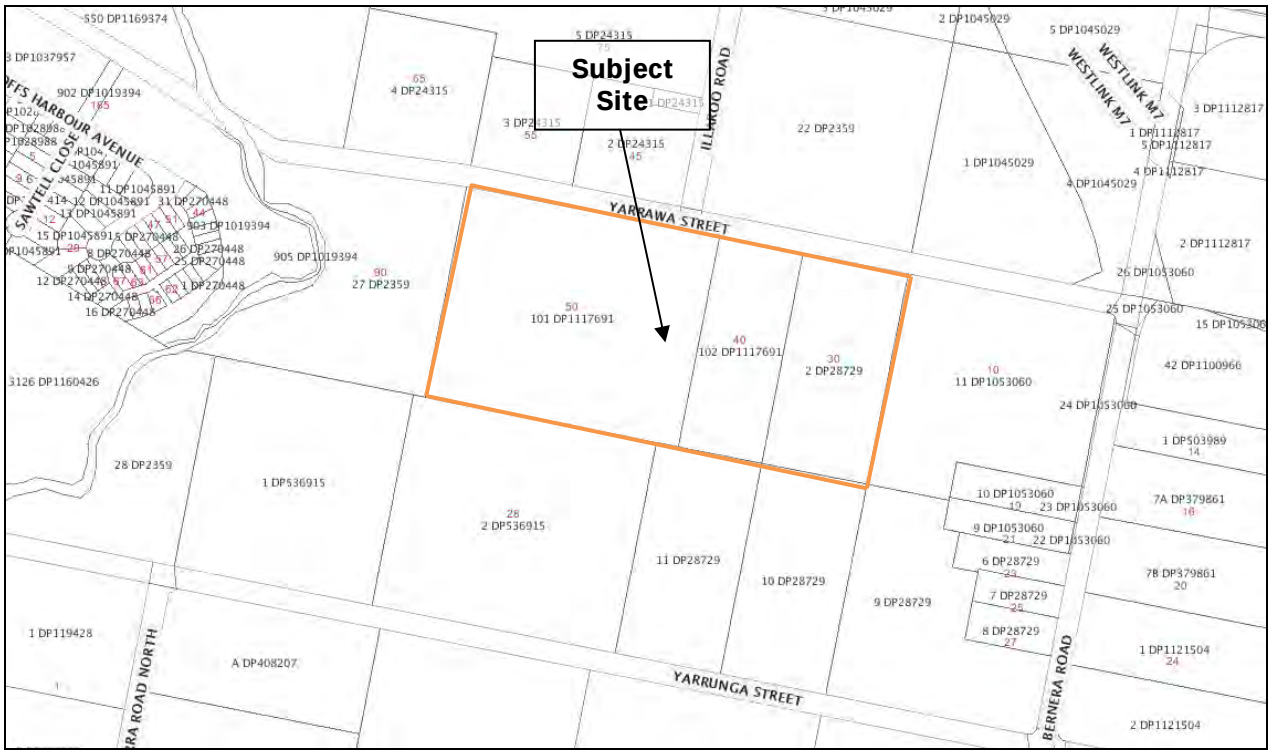


Figure 1. Site Location
(Source: Land and Property Information, 2012)

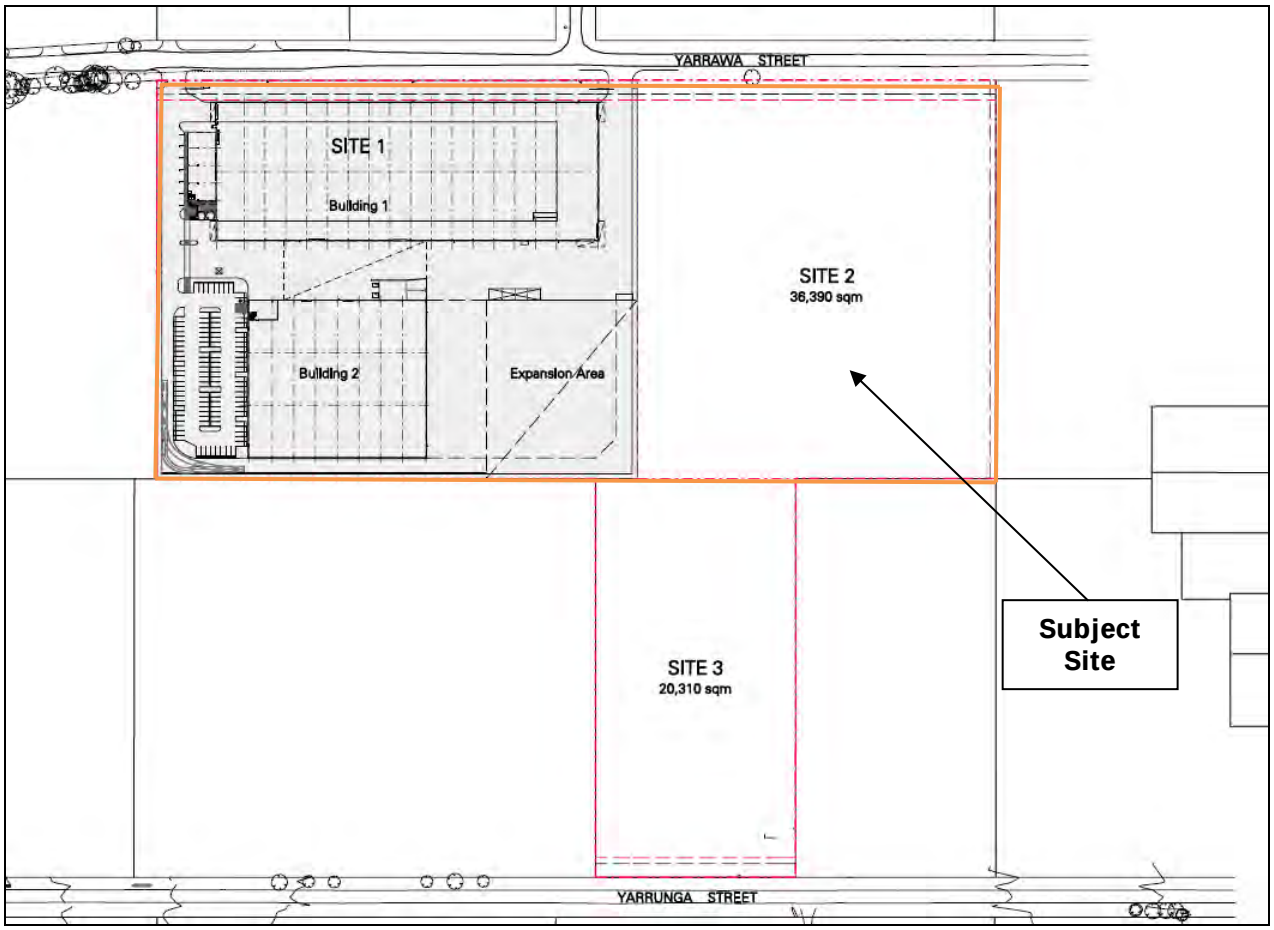


Figure 2. Estate Layout
(Source: Land and Property Information, 2012)

Figure 3. Existing Site Conditions
(Source: Google, 2012)

3 SITE CONTEXT

The site forms part of a larger industrial precinct generally bound by Cabramatta Creek to the west, Hoxton Park Drive to the north, Wonga Road to the east and Kurrajong and Yarrunga Roads to the south (**Figure 4**).

The industrial precinct was known as the Yarrunga Release Area and covered approximately 227 hectares. In late 2005, Liverpool Council resolved to rezone the release area for industrial purposes. While a number of sites within this industrial precinct are yet to be developed and remain in an agricultural state, there is significant evidence of growth with land in close proximity to the subject site having been developed for warehousing, infrastructure and extractive industry.

While more densely populated residential suburbs are located beyond the boundaries of the industrial precinct, including the emerging suburb of Carnes Hill to the west, pockets of low density residential development remain throughout the precinct.

Industrial activities are beginning to dominate the area in response to the connectivity benefits provided by the M7 Motorway corridor and its links to the M5 Motorway only 3 kilometres southeast of the site. The Hume Highway, Camden Valley Drive, Cowpasture Road, Hoxton Park Drive also provide high levels of connectivity locations across the region from the site.

It is noted that full construction of Yarrawa Road from the site east to Bernera Road and upgrade works to the western side of the intersection were undertaken by Goodman as part of the existing Mainfreight facility.

The sites' context is shown in **Figure 4**.

Figure 4. Local Context
(Source: GoogleMaps, 2012)

4 BACKGROUND

Yarrunga Release Area

The Yarrunga Release Area (approximately 227 hectares) is within the Liverpool Local Government Area and is bounded by the M7 Motorway on the north and east, Kurrajong Road to the south and Cabrammatta Creek to the west. The existing Preston Industrial Area located to the east on either side of the M7 Motorway adjoins the Yarrunga Release Area.

In late 2005 Liverpool City Council resolved to rezone the entire release area for industrial purposes. Amendments to the *Liverpool Local Environmental Plan 1997* (Amendment No. 98) were gazetted on the 20th July 2007 and, with the adopted *Liverpool Industrial Development Control Plan*, enabled the Yarrunga Release Area to be developed.

Previous Development Applications

The development applications that have been approved in relation to the subject lands are outlined in **Table 2**. Note that the subject allotments were previously identified as Lot 26 DP 2359 and Lot 1 DP 28729.

Table 2 – Previous Development Applications

DA	***Description***
1064/2006	Demolition of two single storey dwellings and outhouses on Lot 26 DP 2359.
1065/2006	Demolition of two storey brick/tile dwelling on Lot 1 DP 28729.
1672/2006	Lot 26 DP 2359 and Part Lot 1 DP 28729 bulk earthworks including land filling, the construction of retaining walls and sedimentation and erosion control works.
1093/2007	Construction of a Warehouse/Freight Distribution Centre and its use by Mainfreight, on Lot 26 DP 2359 and Part Lot 1 DP 28729, including: ▪ Two warehouse buildings with a total floor area 20,510m^2 joined by an awning of 2,160 m^2; ▪ Two offices (both 2 levels) with a total floor area of 1,300m^2; ▪ Hardstand area, site landscaping, and parking areas; ▪ A weighbridge and a covered truckwash facility with water recycling facilities; ▪ Refuelling facility for trucks (diesel) and forklifts (LPG); ▪ full construction of Yarrawa Road from the site east to Bernera Road and upgrade works to the western side of the intersection; ▪ construction of an entrance/exit to Yarrawa Street for cars and truck on the north-west corner, and an exit to Yarrawa Street for trucks; and ▪ Site signage and perimeter fencing.
153/2008	Extension of Mainfreight Building 2 to provide an additional 7,574m^2 of warehouse floorspace. The awning between Buildings 1 and 2 has also been increased by 1,312m^2. No change to entry/exit arrangements with Yarrawa Street or landscaping.
153/2008/A	Section 96 Application to include truck wash facility adjacent to eastern boundary.
1636/2012	Civil works on Lots 102 DP 1117691 and Lot 2 DP28729 comprising: ▪ Minor site earthworks to create building pad; ▪ Retaining wall; ▪ Stormwater services; ▪ Water services; and ▪ Sewer services.

5 PROJECT SUMMARY

The proposed development involves the extension of the existing Mainfreight distribution centre and use of the facility for the storage and handling of dangerous goods comprising aerosols cans, acidic solids, acidic liquids and alkali liquids. Other non-dangerous materials will also continue to be stored and handled on site.

Details of the proposal are outlined below:

Built Form

Warehouse Expansion

The proposal involves the addition of approximately 13,260m^2 of new warehouse space that will be located adjoining the eastern elevation of the existing Mainfreight warehouse at the rear of the site, known as the Logistics Shed. 1,570m^2 of this space will be provided as dangerous goods storage. A new dock office of 150m^2 and mezzanine storage space will also be provided in addition to the Logistics Shed expansion.

Extension of approximately 1,710m^2 to the existing Transport Shed (being the building closest to Yarrawa Street) will also be undertaken.

Expanding the central breezeway linking the two buildings by 2,350m^2 will enable all weather loading/unloading facilities.

Hardstand and Driveway Arrangements

Approximately 15910m^2 of new hardstand area will be provided along with 7,505m^2 of heavy duty area and 4,317m^2 of light duty area. This includes new driveways for heavy vehicles and cars at the eastern end of the Yarrawa Street road frontage. The new heavy vehicle driveway will replace the existing driveway off Yarrawa Street that is located adjacent to the eastern end of the existing Transport Shed.

The driveway at the western end of the Yarrawa Street road frontage will remain.

The existing truck wash bay located along the eastern elevation of the Logistics Shed will be relocated to the eastern end of the expansion area.

Both line-marked parking and provisional spaces are to be provided within the new hardstand spaces. The total number will be reflective of anticipated employment numbers and forecasted growth.

No hardstand will be undertaken within the exclusion zone of the TransGrid tower. Maintenance access will be provided via two gates adjacent to the tower.

Landscaping

Formal landscaping is to be undertaken to the Yarrawa Street frontage where the terrain will include a batter as a result of the earthworks design. Landscaping with the transmission easement will be of suitable height to avoid conflict with TransGrid maintenance or service provision.

Operations

Proposed Activities and Use

Mainfreight Distribution's core business includes capital city metro pickup and delivery, along with interstate and intrastate LTL (less than truckload) freight services to and from any town or city in Australia. These services compliment the company's international freight forwarding and warehousing capabilities. The freight to be handled at this facility will not include dangerous or hazardous materials.

The logistics operation provides client companies with warehouse storage and distribution facilities to complement their supply chain operations. The services offered in relation to the existing facility include:

- Inventory Management
- Multi-client pick & pack facilities.
- Bulk warehousing and distribution.
- Full on-site warehouse and despatch management.
- Time definite delivery.
- Dedicated customer service agents.
- Web (internet) consignment track and trace.
- Inventory visibility and web order processing.
- E-commerce system interfacing

No manufacturing of products is undertaken within the existing facility and is not proposed as part of the extension. Activities to be undertaken include the receipt, storage and dispatch of products for the bulk warehousing and distribution services, involving:

- Unloading and loading of finished goods via trucks and shipping containers;
- Management of inventory in a racked and stacked environment;
- Order fulfilment including picking and packing of finished orders to customers;
- Loading of transport vehicles;
- Management of product returns;
- Inspection of goods for QA purposes; and
- Product embellishment.

Hours of Operation
The proposed hours of operation for the facility are 24-hours, seven days per week.

Employment
The total staff number for the site following the proposed expansion will be 197 persons (141 warehouse staff and 56 office staff).

Heavy Vehicle Movements
The proposed vehicle movements are essentially split into two distinct precincts:

1. Movements associated with the Transport Shed (being the one closest to Yarrawa Street); and
2. Traffic flow for the warehouse at the rear of the site, known as the Logistics Shed.

These precincts are then broken down into morning and afternoon periods, as follows:

- *Transport Shed*
  The morning vehicle movements are expected to involve 90 PUD's of 2-12 tonnes each moving through the facility. These vehicles will enter from the western boundary entry and go through the northern side of the transport shed and continue out of the eastern exit.

  Approximately 30 B-Doubles and 10 Semis that will enter from the eastern boundary and head through the southern side of the transport shed where they will unload. The empty truck will then exit out of the Transport Shed by turning left to drive around the rear warehouse.

  The afternoon traffic flow will have the 30 B-Doubles and 10 Semis that have been parked since the morning unloading moving out from their parking behind the warehouse of in the yard and will travel between the buildings under the breezeway and will turn right at the western end of the Transport Shed where they will then enter the transport shed on the Yarrawa Street side to load up. After loading, these vehicles will exit the transport shed and circulate back around and through the breezeway to go to the weighbridge located in the western end of the breezeway before exiting on the western end of the site.

The PUD's (90) who are returning from their deliveries and pickups will enter the site at the eastern end and head across the yard to the southern side of the Transport Shed where they will unload for the product to be gathered and put into line haul tracks for interstate delivery. They will then exit at the western end.

- *Logistics Shed*
  Semis (total of 10 for whole day) as well as trucks carrying containers (20 for the whole day) will enter from the east and go to their respective door (either docks on expansion shed or side load at either shed) and unload or load, then exit the site through the breezeway at the western end of the site.

Dangerous Goods

A summary of storage quantities for the dangerous goods to be stored on the site are illustrated in **Table 3** below.

Table 3. Storage Quantities

Dangerous Goods Class	Quantity (approximate)
2.1	347,260 kilograms
3	83,916 kilograms
5.1	63,784 kilograms
8	1,259 kilograms
9	4,172 kilograms

The draft layout of the facility is provided as **Appendix 1**. The design is not final at this stage and may be subject to change.

6 JUSTIFICATION

The future tenant has a need to provide facilities for the safe and efficient storage of goods that contain materials which can be potentially hazardous under certain circumstances. The goods will be stored until ready for shipment to retail outlets for sale.

The intention of the proposal is to provide a facility that meets the requirements of the future tenant within a location that:

- Allows for the activities as a permissible use,
- Has appropriate access,
- Is compatible with surrounding development and local context,
- Will result in minimal impact on the environment, and
- Will allow for the implementation of suitable mitigation measures where required.

The site is considered to meet the objectives of the project as it allows for the storage of the intended materials on a site that has been previously approved (and continues to be used) for the storage of hazardous materials.

The options considered, and subsequently dismissed, in arriving to the current proposal included:

(a) 'Do Nothing' Scenario

This option was dismissed as the need to have a facility to store the potentially hazardous materials would remain.

If the proposal was not to go ahead, the site would continue to be developed for other industrial purposes.

(b) Development on an Alternative Site

Consideration to alternative sites were made, however these were dismissed as the subject site resulted in the most beneficial outcomes for the proposal as:

- it will be located within a site zoned for industry not suitable for traditional business parks;
- the site has appropriate proximity from sensitive land activities including residential development;
- the site has all essential infrastructure required to service the development;
- the development will allow for the continued use of the existing Mainfreight facility;
- all potential environmental impacts of the proposal can be suitably mitigated within the site;
- the proximity to the regional road network provides increased economic benefits;
- the proposal will not affect any area of heritage or archaeological significance;
- the proposal can be developed with appropriate visual amenity given its industrial context.

The proposal is considered to be justified in the context of environmental, social and economic terms and is compatible with the locality in which it is proposed.

7 CONSULTATION

Liverpool City Council

A formal pre-Development Application Meeting was undertaken with Liverpool Council on Thursday 30 November 2012.

It is noted that the nature and quantity of the dangerous goods were not confirmed at the time of this meeting and the potential status of the project as State Significant Development was only briefly discussed.

Attendees at this pre-DA meeting were:

- Venetin Aghostin (Senior Development Planner – Liverpool Council)
- Indira Seneviratne (Engineer – Liverpool Council)
- Zeaul Hoque (Flood Engineer – Liverpool Council)
- Charles Wiafe (Manager, Transport and Traffic – Liverpool Council)
- Nathaniel Murray (Planning Manager – McKenzie Group Consulting)

No formal pre-DA meeting minutes have been received from Council at the time of writing.

TransGrid

As part of the assessment of DA 1963/2012, Council has received correspondence from TransGrid which is relevant to the Mainfreight facility expansion. The correspondence is provided as **Appendix 3**.

8 Capital Investment Value

While costs have not yet been finalised, the estimated capital investment of this project is $12,500,000.00 The costs will be finalised once the final design is prepared.

9 PLANNING FRAMEWORK

9.1 State Planning Context

Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the overarching governing document for all development in NSW and pursuant to Section 89D(2) provides that:

> *A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*

The proposed development has been identified as State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011* as outlined below.

Protection of the Environment Operations Act 1997

It is likely that the proposed use involving the storage or dangerous goods will require an Environmental Protection License issued under the *Protection of the Environment Operations Act 1997*.

State Environmental Planning Policy (State and Regional Development) 2011

Proposals involving activities that are listed in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP) are identified as being State Significant Development (SSD).

Part 10 of Schedule 1 to this SEPP states:

> ***10 Chemical, manufacturing and related industries***
>
> *(1) Development that has a capital investment value of more than $30 million for the purpose of the manufacture or reprocessing of the following (not including labelling or packaging):*
> *(a) soap, detergent or cleaning agents,*
> *(b) paints, ink, dyes, adhesives, solvents,*
> *(c) pesticides or inorganic fertiliser,*
> *(d) pharmaceuticals or veterinary products,*
> *(e) ammunition or explosives,*
> *(f) oils, fuels, gas, petrochemicals or precursors,*
> *(g) polymers, plastics, rubber or tyres,*
> *(h) batteries or carbon black.*
> *(2) Development with a capital investment value of more than $30 million for any of the following purposes:*
> *(a) liquid fuel depots,*
> *(b) gas storage facilities,*
> *(c) chemical storage facilities.*
> *(3) Development for the purpose of the manufacture, storage or use of dangerous goods in such quantities that constitute the development as a major hazard facility within the meaning of Chapter 6B of the Occupational Health and Safety Regulation 2001.*

Based on a review of the inventory provided by Mainfreight and discussions with dangerous goods consultants from OneGroup ID, the proposal will be State Significant Development (SSD) as the development satisfies the requirements of a Major Hazard Facility under Subclause (3) above.

Chapter 6B of the *Occupational Health and Safety Regulation 2001* (OHS Regulation) defines a Major Hazard Facility as follows:

> ***major hazard facility*** *means:*
>
> *(a) a facility at which Schedule 8 materials are present or likely to be present in a quantity that exceeds their threshold quantity, or*

While other materials are to be stored on-site, it is evident that just the Class 2.1 materials to be stored on-site places the development into the category of a Major Hazard Facility even without the need to review the additional Classes. The threshold quantity for compressed and liquefied gases (Class 2.1) materials in Schedule 8 of the OHS Regulation is 200 tonnes.

Based on the Inventory prepared by Mainfreight, the Class 2.1 materials to be stored on-site will exceed the threshold of 200 tonnes where a total of approximately 347 tonnes is anticipated.

As such, the proposal is classified as SSD and will need to follow the new procedures established for this category of development. This Request for Director-Generals Requirements represents the first step in the SSD process for the proposal.

State Environmental Planning Policy No. 19 – Bushland in Urban Areas
State Environmental Planning Policy No. 19 – Bushland in Urban Areas (SEPP 19) applies to the local government areas listed in Schedule 1 to the SEPP. The Liverpool Local Government Area is identified within this list and is subject to the provisions of SEPP 19.

The proposal does not seek to remove trees of affect any land zoned or reserved for public open space purposes. Additionally, the site does not adjoin any land that is zoned or reserved for public open space. The provisions of SEPP 19 do not apply to the proposed development.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
The proposal will involve the storage of materials which may be potentially hazardous. A Preliminary Hazard Analysis is likely to be required and will be undertaken as part of a formal Environmental Impact Statement.

State Environmental Planning Policy No. 44 – Koala Habitat Protection
No vegetation considered to have potential to provide habitat or feed trees for koalas will be affected.

State Environmental Planning Policy No. 55 – Remediation of Land
No known contamination issues affect the subject site. The land has been previously used for grazing and market gardening and rural residential activity. No intensive purposes such as industrial use are known to have occurred on the site.

The prior use of the land indicates that the land is unlikely to have been contaminated.

A portion of the site was used as a stockpile for material extracted for the earthworks approved under DA 1672/2006. A Virgin Excavated Natural Material (VENM) classification for the excavated soil was undertaken by Environmental Investigation Services in November 2008. The soil was considered to be VENM and the slight levels of zinc and arsenic were not considered to be indicative of contamination.

The area nominated as 'Exclusion Zone' in the Phase 1 Investigation contained building material including brick and rubble that was used to create a temporary accessway to enable the removal of stockpiled material (**Appendix 2**).

State Environmental Planning Policy No. 64 – Advertising and Signage
Detail of proposed signage will be assessed as part of an Environmental Impact Statement.

State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure) repeals the former State Environmental Planning Policy No. 11 – Traffic Generating Development and provides for certain proposals, known as Traffic Generating Development, to be referred to NSW Roads and Maritime Services (RMS) for concurrence.

Schedule 3 lists the types of development that are defined as Traffic Generating Development. The referral thresholds for 'Industry' development are:

- 20,000m^2 or more in area with site access to any road; or
- 5,000m^2 or more in area where the site has access to a classified road or to a road that connects to a classified road (if access is within 90 metres of connection, measured along the alignment of the connecting road).

The development does not propose an increased industrial floor area in excess of 20,000m^2 warehouse floor area with access to Huntingwood Drive, however, the total floor area of the facility will exceed this threshold. As such, the proposal will require referral to RMS under the provisions of SEPP (Infrastructure) 2007.

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment (Deemed SEPP)

Greater Metropolitan Regional Environmental Plan No.2 – Georges River Catchment (REP 2) applies to the Liverpool Local Government Area (**Figure 5**).

The general aims and objectives of this REP 2 are:

(a) to maintain and improve the water quality and river flows of the Georges River and its tributaries and ensure that development is managed in a manner that is in keeping with the national, State, regional and local significance of the Catchment,

(b) to protect and enhance the environmental quality of the Catchment for the benefit of all users through the management and use of the resources in the Catchment in an ecologically sustainable manner,

(c) to ensure consistency with local environmental plans and also in the delivery of the principles of ecologically sustainable development in the assessment of development within the Catchment where there is potential to impact adversely on groundwater and on the water quality and river flows within the Georges River or its tributaries,

(d) to establish a consistent and coordinated approach to environmental planning and assessment for land along the Georges River and its tributaries and to promote integrated catchment management policies and programs in the planning and management of the Catchment,

(e) (Repealed)

(f) to provide a mechanism that assists in achieving the water quality objectives and river flow objectives agreed under the Water Reform Package.

The specific aims and objectives of REP 2 are:

Environmental protection and water quality and river flows

(a) to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments such as wetlands (including mangroves, saltmarsh and seagrass areas), bushland and open space corridors within the Catchment, by identifying environmentally sensitive areas and providing for appropriate land use planning and development controls,

(b) to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment by providing appropriate development,

(c) to ensure that development achieves the environmental objectives for the Catchment.

Regional role and land use

(a) to identify land uses in the Catchment which have the potential to impact adversely on the water quality and river flows in the Georges River and its tributaries and to provide appropriate planning controls aimed at reducing adverse impacts on the water quality and river flows,

(b) to conserve, manage and improve the aquatic environment within the Catchment which is a significant resource base for the aquaculture industry, by providing controls aimed at reducing pollution entering the Catchment's watercourses,

(c) to protect the safety and well being of the local and regional community in accordance with standards and processes aimed at improving the water quality and river flows in the Catchment to enable recreation,

(d) to aid in the improvement of the environmental quality of Botany Bay in conjunction with other regional planning instruments.

The proposal is consistent with the aims and objectives of REP 2 as it seeks to construct an extension to an approved industrial facility on land that has been significantly modified and provided with essential infrastructure to manage stormwater quality and quantity. The development will also include management of stormwater flows as well as erosion and sediment control to mitigate against potential impacts.

REP 2 includes a number of planning principles and development controls which must be applied during assessment of a development application. These provisions will be addressed in the formal Environmental Impact Statement.

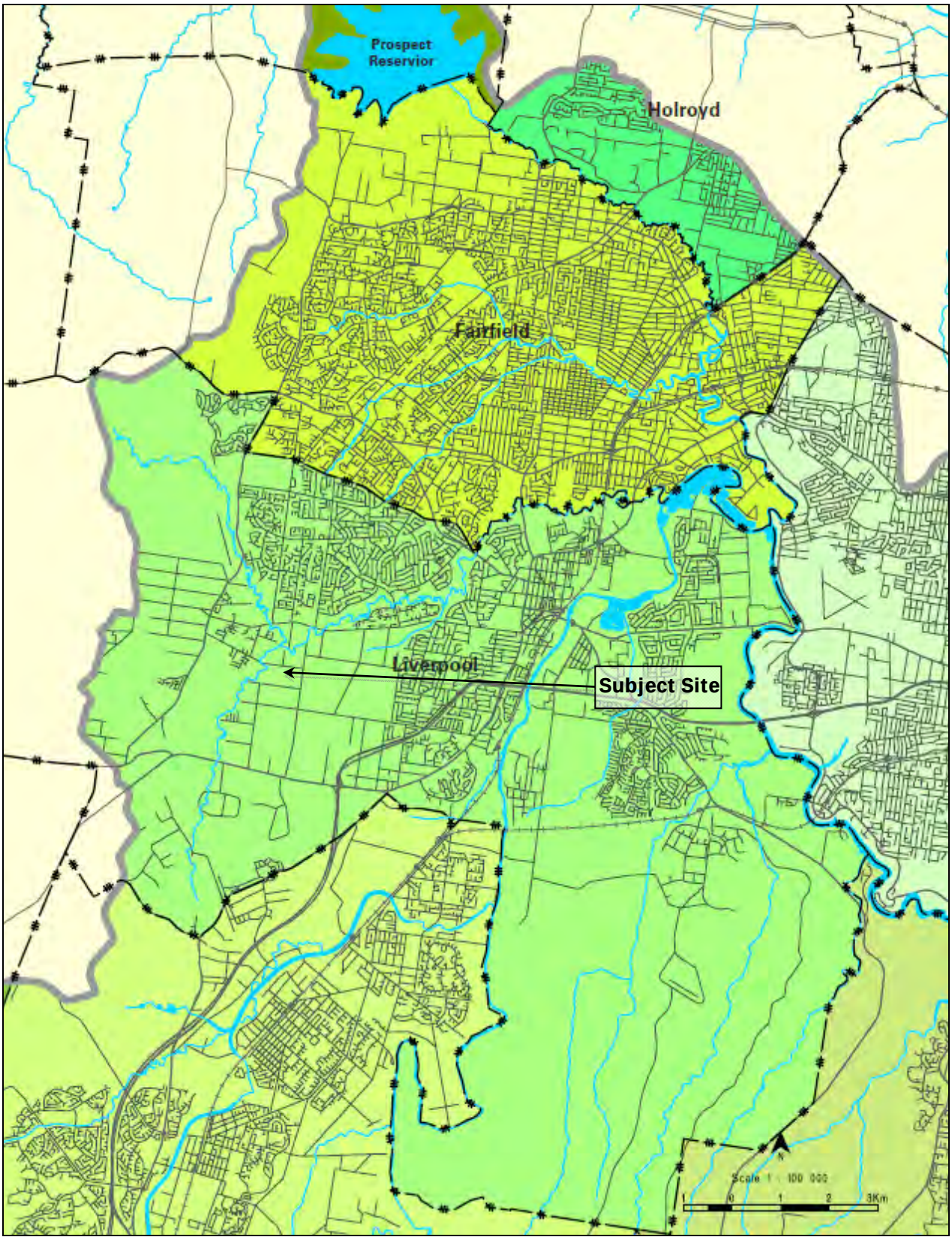


Figure 5. Greater Metropolitan Regional Environmental Plan No.2 – Georges River Catchment Map 1
(DUAP, 1999)

9.2 Local Planning Context

Liverpool Local Environmental Plan 2008

The relevant provisions of Liverpool Local Environmental Plan 2008 (LLEP 2008) are considered below:

Zoning and Permissibility

The subject land is zoned 'IN3 Heavy Industrial' under the provisions of Liverpool Local Environmental Plan 2008 (LLEP 2008) (**Figure 6**).

The objectives of the Heavy Industrial zone are:

- *To provide suitable areas for those industries that need to be separated from other land uses.*
- *To encourage employment opportunities.*
- *To minimise any adverse effect of heavy industry on other land uses.*
- *To support and protect industrial land for industrial uses.*
- *To preserve opportunities for a wide range of industries and similar land uses by prohibiting land uses that detract from or undermine such opportunities.*

The proposed development is consistent with the objectives of the IN3 Heavy Industrial zone as it will facilitate future employment-generating development for Warehouse or distribution centre activities that are permitted within this zone.

For the purposes of LLEP 2008, ***warehouse or distribution centre*** means:

> *a building or place used mainly or exclusively for storing or handling items (whether goods or materials) pending their sale, but from which no retail sales are made.*

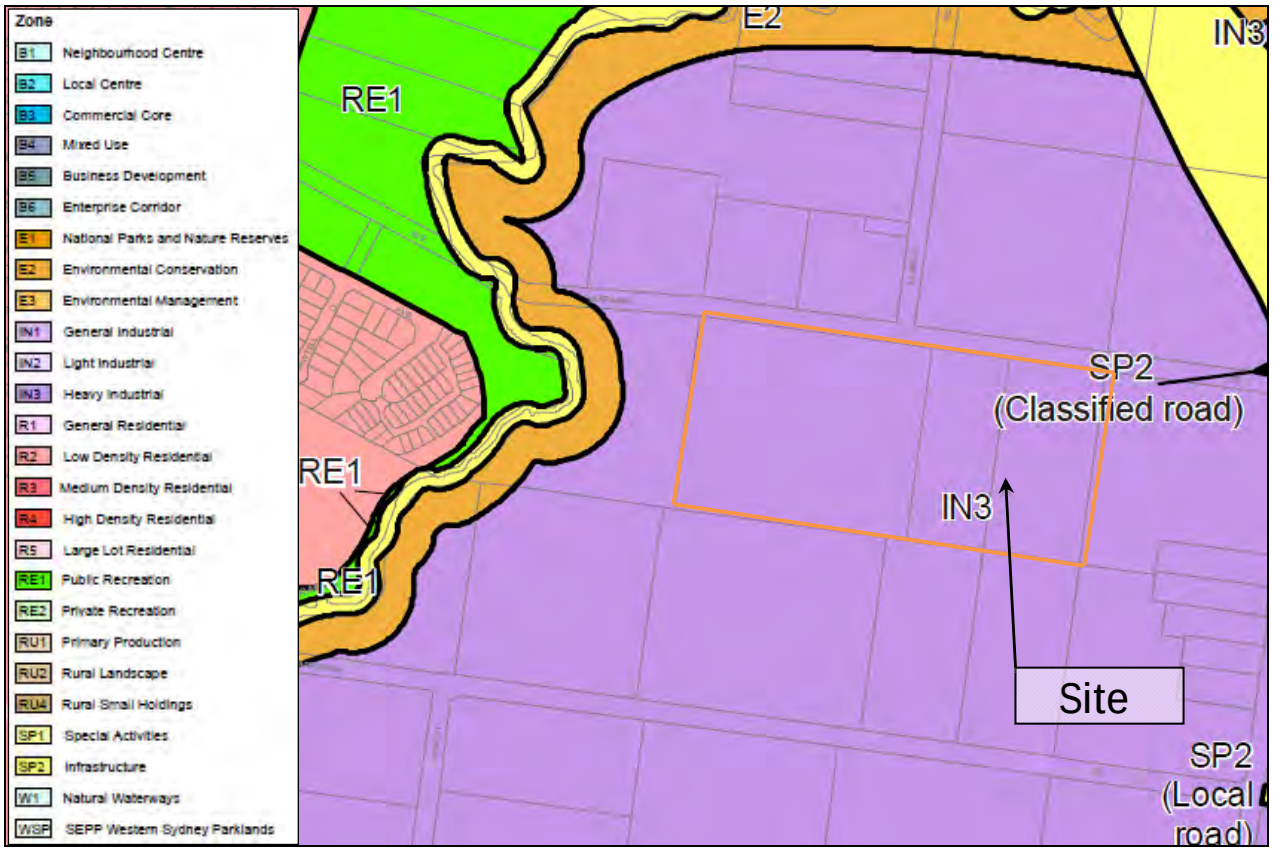


Figure 6. Liverpool Local Environmental Plan 2008 Zoning Map
(Liverpool Council, 2008)

Subdivision
Subdivision does not form part of the proposal.

Floor Space Ratio
No Floor Space Ratio controls apply to the site (**Figure 7**).

Figure 7. Liverpool Local Environmental Plan 2008 Zoning Map
(Liverpool Council, 2008)

Architectural Roof Features
No buildings are proposed as part of the subject development application.

Height of Buildings
The proposal will maintain consistency with the height of existing Mainfreight facility and will be substantially lower than the permitted height of 30 metres.

Preservation of Trees or Vegetation
No vegetation is to be impacted by the proposal as the site has been previously disturbed and approved for earthworks to accommodate to the proposed development.

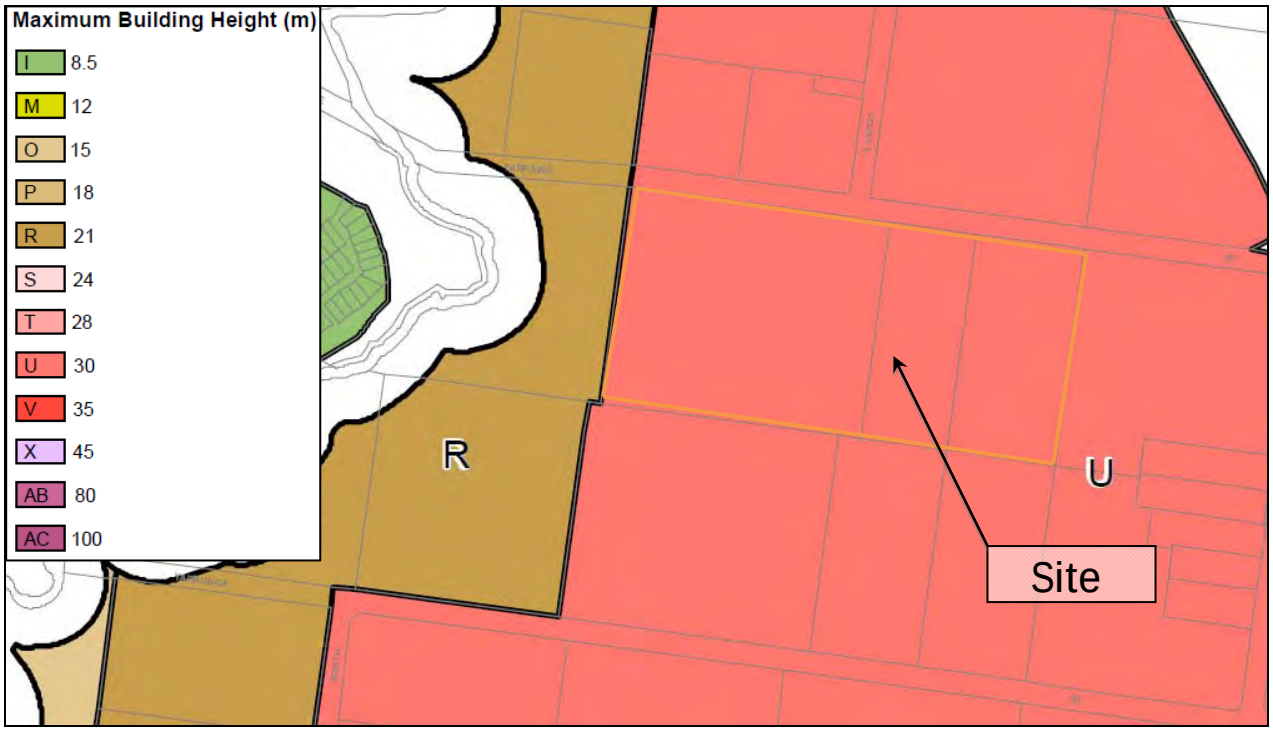


Figure 8. Liverpool Local Environmental Plan 2008 Height of Buildings Map
(Liverpool Council, 2008)

Heritage Conservation
The site does not contain an item of environmental heritage and does not adjoin any heritage item.

The site is not located within a heritage conservation area. See **Figure 9**.

Figure 9. Liverpool Local Environmental Plan 2008 Heritage Map
(Liverpool Council, 2008)

Bushfire Prone Land

A Bushfire Impact Assessment will be undertaken to address the bushfire prone land classification affecting the eastern portion of the site (**Figure 10**).

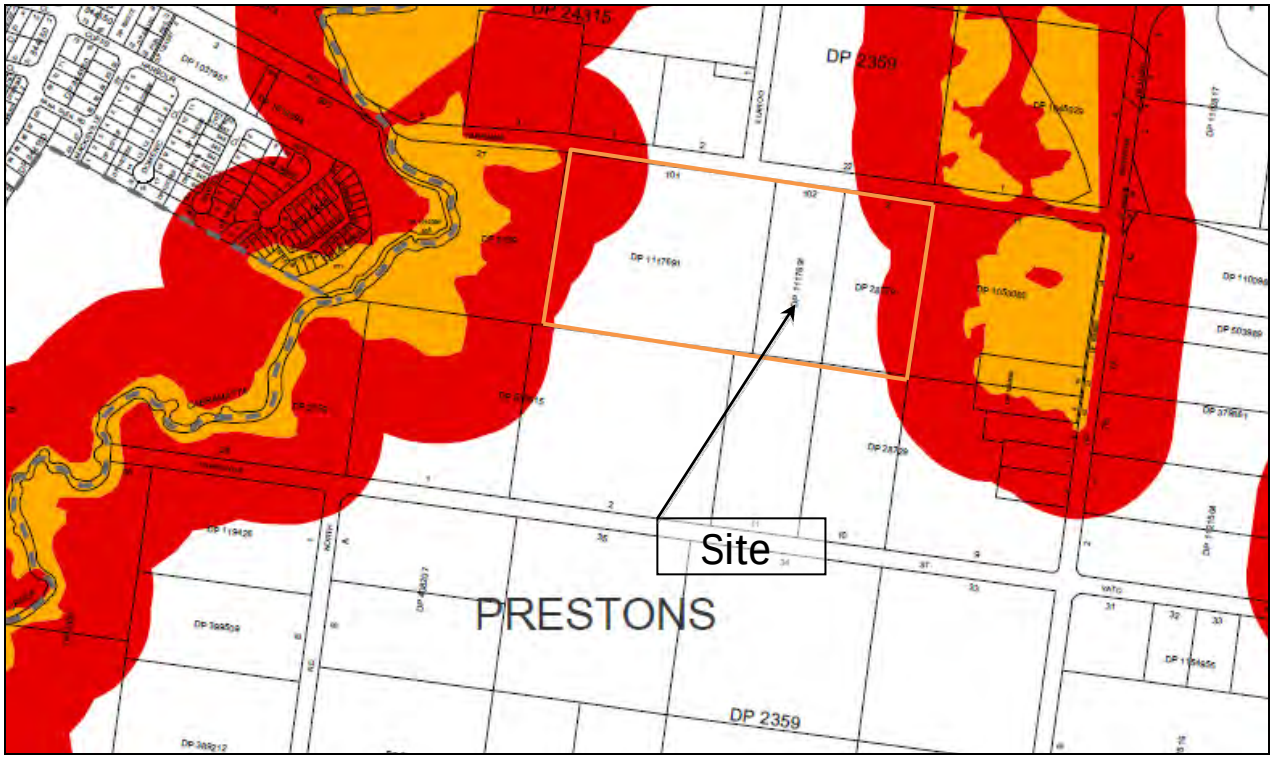


Figure 10. Bushfire Prone Land Map (Liverpool Council, 2008)

Environmentally Significant Land

The Environmentally Sensitive Land Map (**Figure 11**) indicates that the site does not contain any environmentally sensitive land. The proposal will not affect any nearby land identified as being environmentally sensitive.

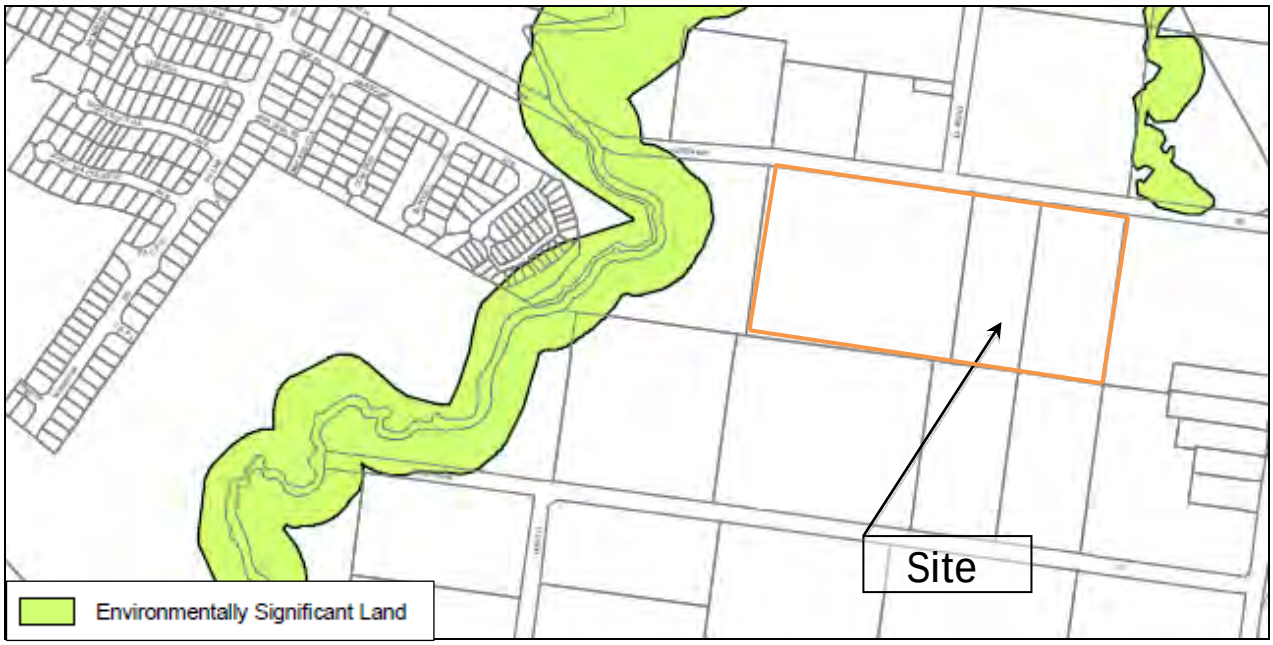


Figure 11. Liverpool Local Environmental Plan 2008 Environmentally Sensitive Land Map
(Liverpool Council, 2008)

Acid Sulfate Soils
The site is not identified as containing any Acid Sulphate Soils.

Development in Flight Paths
The development is not affected by any airport restrictions.

Flood Planning
The Flood Planning Area Map (**Figure 10**) indicates that while a small portion of land in the north west corner of the existing Mainfreight site is Flood Prone Land. No work will be undertaken within this area.

No portion of the site and is not within a Flood Planning Area.

Key Sites Map
The site is not identified as a Key Site.

Urban Release Area
The site is not identified as an Urban Release Area.
Land Reservation Acquisition
The Flood Planning Area Map (**Figure 11**) indicates that the site is not Flood Prone Land and is not within a Flood Planning Area.

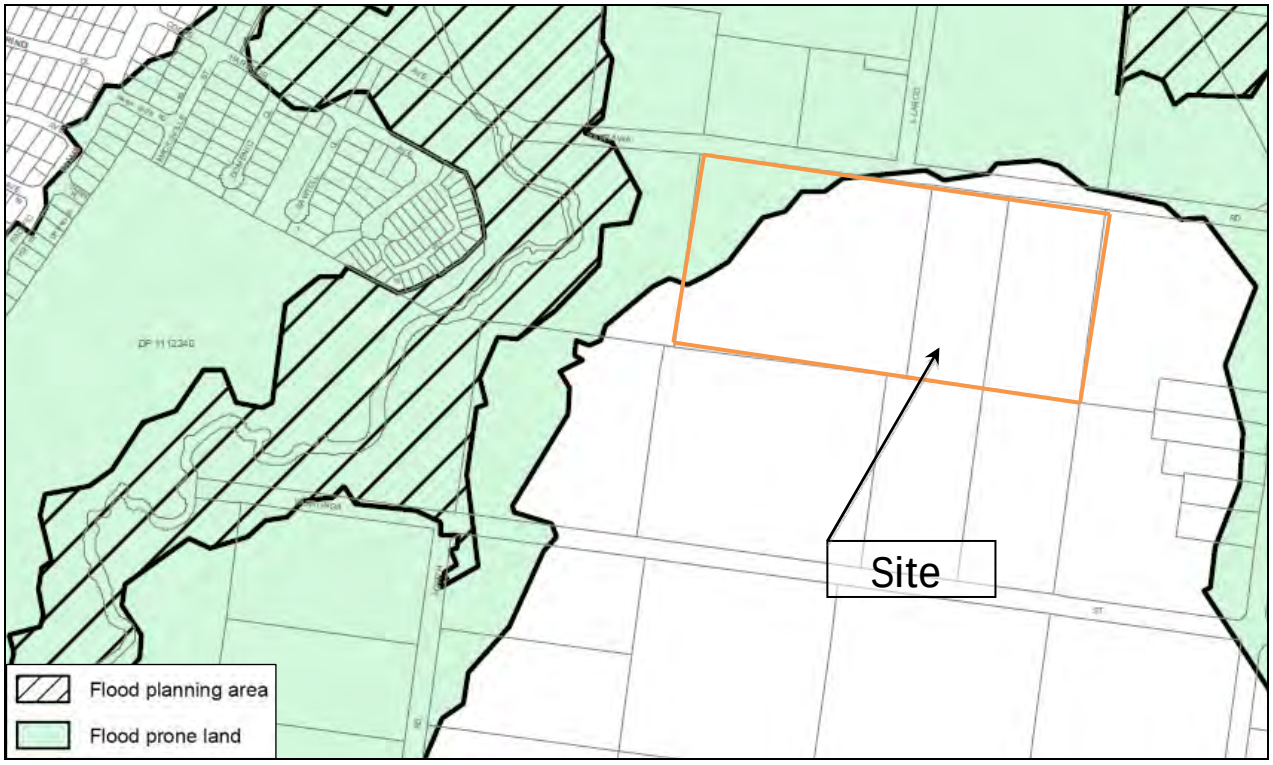


Figure 10. Liverpool Local Environmental Plan 2008 Flood Planning Area Map
(Liverpool Council, 2008)

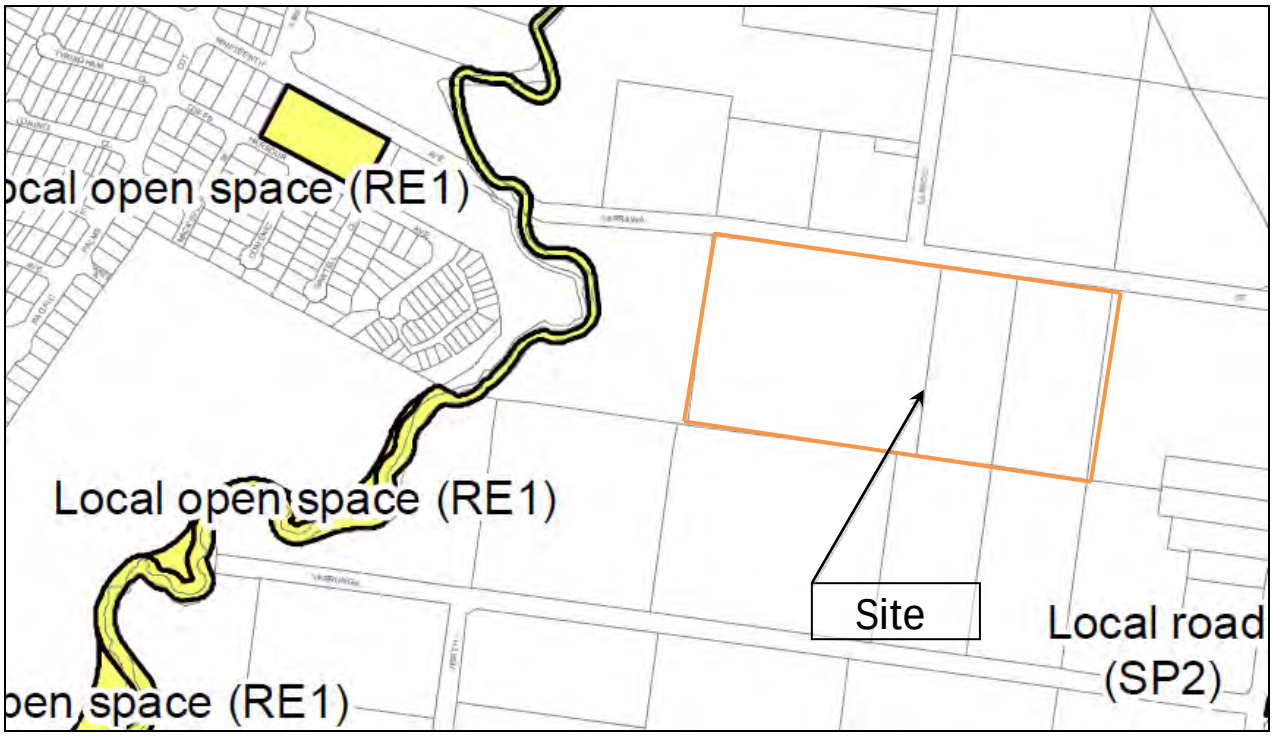


Figure 11. Liverpool Local Environmental Plan 2008 Land Reservation Acquisition Map
(Liverpool Council, 2008)

Liverpool Development Control Plan 2008

It is noted that Section 11 of *State Environmental Planning Policy (State and Regional Development) 2011* states:

> ***11 Exclusion of application of development control plans***
> *Development control plans (whether made before or after the commencement of this Policy) do not apply to:*
>
> *(a) State significant development*

Notwithstanding, the proposal is generally consistent with the provisions of the adopted Development Control Plans applicable to industrial development.

9.3 Draft Planning Instruments

No draft Environmental Planning Instruments apply to the site.

10 Conclusion

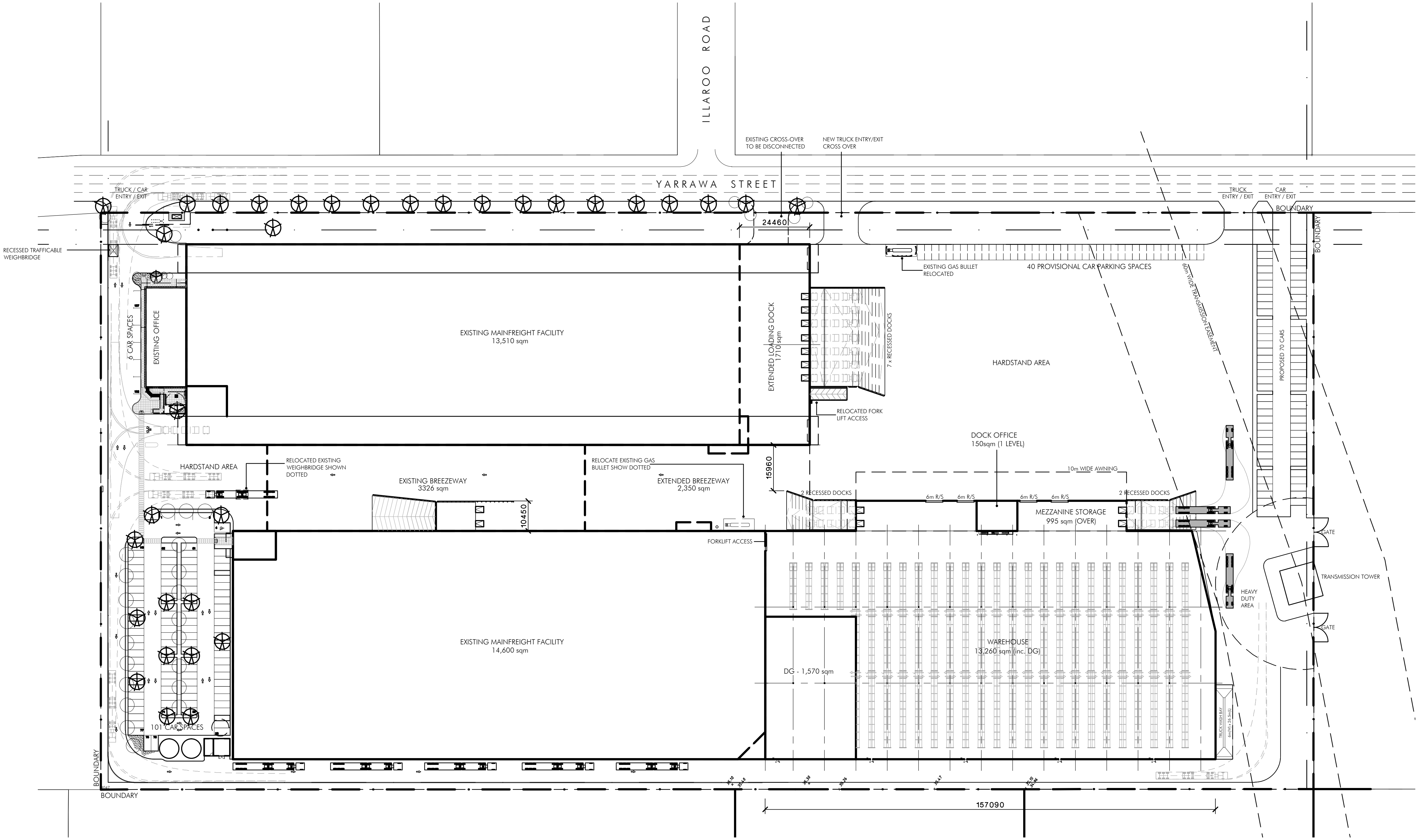
The proposed extension of the existing Mainfreight facility at 30-50 Yarrawa Street, Prestons will involve the storage and handling of dangerous goods that satisfy the requirements of a Major Hazard Facility under the *Occupation Health and Safety Regulation 2001*. As such, the development is defined as State Significant Development pursuant to Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*.

The subject site is appropriately zoned to permit the proposed use and no departure from any development standard is required to enable the development. Additionally, the site is located close to major roads making it a convenient location with good accessibility to and within the region.

It requested that the Department issue formal Director-General's Requirements (DGRs) for the preparation of an Environmental Impact Statement for the proposal as State Significant Development.

Specialist studies relating to stormwater management, dangerous goods risk, traffic, and bushfire will be undertaken and submitted as part of a detailed application along with other relevant matters required by the DGRs.

Appendix 1
Concept Development Plan



Development Area Schedule	
Site Area	
101 DP 1117691 (Existing)	48746.5 sqm
102 DP 1117691	16070.7 sqm
2 DP 28729	20292.3 sqm
Total Site Area	85,109.5 sqm
Existing	
Ex. Bldg 1 Warehouse	13,510 sqm
Ex. Bldg 1 Office	
Ground	500 sqm
Level 1	485 sqm
Ex. Bldg 2 Warehouse	14,600 sqm
Ex. Bldg 2 Office	
Ground	150 sqm
Level 1	137 sqm
Ex. Breezeway	3,326 sqm
Existing Building Area	31,708 sqm
Proposed	
Bldg 1 Expansion	1,710 sqm
Bldg 2 Expansion	13,260 sqm
Bldg 2 Dock Office	
Ground	150 sqm
Bldg 2 Mezzanine Storage	995 sqm
Breezeway Expansion	2,350 sqm
Proposed Building Area	18,465 sqm
Total Building Area	50,173 sqm
Existing Hardstand	4,687 sqm
Existing Heavy Dutry Area	4,448 sqm
Existing Light Duty Area	2,746 sqm
Proposed Hardstand Area	15,910 sqm
Proposed Heavy Duty Area	7,505 sqm
Proposed Light Duty Area	4,317 sqm
Car parking	
Existing Car Parking	107 cars
Proposed Car Parking	70 cars
Provisional Car Spaces	40 cars
Total Car Spaces provided	217 cars

Client
GOODMAN

L17, 60 Castlereagh Street, Sydney NSW 2000
t 02 9230 7400 f

Goodman

Project
PROPOSED MAINFREIGHT EXPANSION FACILITY
PRESTONS DISTRIBUTION CENTRE
26 YARRAWA STREET, PRESTONS

Issue	Description	Date

Title **proposed expanded site plan**
Scale 1:750 (A1) / 1:500 (A3)
Date Dec 2012
Number **4167_SK11**

nettletontribe
nettleton tribe partnership pty ltd ABN 58 161 683 122
117 willoughby road crows nest nsw 2065
t 02 9431 6431 f 02 9439 7474
e sydney@nettletontribe.com.au w nettletontribe.com.au

Appendix 2
VENM Report

ENVIRONMENTAL INVESTIGATION SERVICES

3 November 2008
Ref: E22520K let

Burton Contractors Pty Ltd
Unit 3, 11-21 Underwood Road
Homebush NSW 2140

ATTENTION: Mr Vijay Arcot

Dear Sir

VENM ASSESSMENT
CLAY/SHALE STOCKPILE
50 YARRAWA STREET, PRESTONS

Burton Contractors Pty Ltd commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to assign a Virgin Excavated Natural Material (VENM) classification to the soil that has been excavated at 50 Yarrawa Street, Prestons. The site location is shown on Figure 1, the excavated zone and stockpile area are shown on Figure 2 and the sampling was confined to the stockpile (Stockpile 1) as shown on Figure 3.

This letter and the recommendations contained within are valid for 3 months from the date of issue.

The screening was undertaken generally in accordance with an EIS proposal of 27 October 2008 and Burton Contractors Pty Ltd written acceptance by email of 29 October 2008.

EIS understand that the stockpiled material is to be disposed of off-site. EIS understand that the stockpiled material has been sourced from the excavated zone as shown in Figure 2.

The purpose of this assessment was to provide a VENM classification and to assess disposal/re-use options for the excavated material. This letter and the limited sampling and analyses undertaken should not be construed as a site contamination report and does not meet the NSW DECC (formerly EPA) requirements in relation to a contaminated site assessment.

Site Description

The site is located on Yarrawa Street adjacent and south of the intersection of Yarrama Street and Illaroo Rd. The regional topography consists of slightly undulating slopes with a

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EIS IS A DIVISION OF JEFFERY & KATAUSKAS PTY LTD • ABN 17 003 550 801
Principals: B F Walker BE DIC MSc P Stubbs BSc MIEAust D Treweek Dip Toch L Spoechley BE(Hons) MEngSc MIEAust
Consultant: E H Fletcher BSc (Eng) ME

general slope of approximately 3° down to the north. The site is relatively flat and falls at approximately 1° to the north. The site forms an approximate 'L' shape.

At the time of the investigation stockpiles of excavated material were located in the central-south section of the site. One stockpile (Stockpile 1 as defined in S.P. Site Setout Pty Ltd drawing Ref: SW8396-001.PRO) was located in the south-west section of the site. Two recently constructed warehouses (not shown in Fig 2) were located in the north-west section of the site within the excavation zone. An 'L' shaped 4 to 5m high retaining wall was located south-west of the site.

The site was bounded by Yarrawa Street and an electrical substation to the north; an industrial warehouse to the south-west; and grassed paddocks to the south, east and west. The site is located in a developing industrial park with a number of new industrial lots.

No building or structures are visible on the excavation site in the 1947, 1961, 1970, 1978, 1986 and 2005 aerial photographs.

The brief inspection of the site undertaken during the site visit to obtain soil samples did not indicate any obvious significant contamination sources either at the site or immediate surrounding properties.

Regional Geology

The 1:100,000 geological map of Penrith (Map 9030, 1:100,000 Department of Mineral Resources –1991) indicates the site to be underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

The 1:25000 Acid Sulfate Soil Risk Map for Liverpool (1997) indicates that the site is located within an area of no known occurrence of acid sulfate soil.

Subsurface Investigation and Soil Sampling Methods

Field work for this investigation was undertaken on 29 October 2008, from twenty locations (SS1 to SS20 inclusive) in the stockpile area (Stockpile 1) and two locations (TP1 and TP2) to assess the natural conditions on site. EIS understands that approximately the first 2m of the stockpile with be removed under a separate waste classification. Therefore approximately 44,000m^3 of excavated natural soil and shale bedrock will be required to be disposed off-site.

Samples were obtained by excavating a series of test pits within the stockpile to depths of approximately 2.5m to 3m and two 'at grade' test pits. Samples were obtained directly from the excavator bucket. Sampling personnel used disposable Nitrile gloves during sampling activities.

Soil and rock samples were obtained at various depths, based on observations made during the field investigation. All samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. During the investigation, samples were preserved by immediate storage in an insulated sample container with ice. Each sample was labelled with a unique job number, the sampling location, sampling depth and date. All samples were recorded on the chain of custody (COC) record.

On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody procedures.

Photoionisation Detector (PID) Screening

A portable PID was used in this investigation to assist with selection of samples for laboratory hydrocarbon (TPH/BTEX) analysis. The PID is sensitive to volatile organic compounds. The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source.

The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents.

Photoionisation detector (PID) screening of detectable volatile organic compounds (VOC) was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled glass jar samples following equilibration of the headspace gases. The PID headspace data is included on the COC documents.

Assessment Criteria

In the absence of published guideline criteria for VENM soils EIS have adopted the following criteria for assessing material.

VENM Criteria (mg/kg)		
Physical characteristics		
VENM should be free from any anthropogenic inclusions such as rubble		
VENM should not contain sulphidic ores or soils (potential acid sulphate soil)		
Substance	**Acceptance criteria**	**Guideline**
Arsenic (total)	≤20	a
Cadmium	≤3	a
Chromium	≤400	a
Copper	≤100	a
Lead	≤300	b
Mercury (inorganic)	≤1	a
Nickel	≤60	a
Zinc	≤200	a
Benzo[a]pyrene	LPQL	-
Polycyclic Aromatic hydrocarbons	LPQL	-
Organochlorine pesticides	LPQL	-
Benzene	LPQL	-
Toluene	LPQL	-
Ethyl benzene	LPQL	-
Total xylenes	LPQL	-
Petroleum hydrocarbons C_6-C_9	LPQL	-
Petroleum hydrocarbons C_{10}-C_{36}	LPQL	-
Referenced Guidelines: a) *NEPC. Guidelines (1999), Ecological Investigation Levels* b) *NEPC. Guidelines (1999), Health Investigation Levels for Standard Residential with Gardens.* LPQL Less than the Practical Quantitation Limit		

Subsurface Conditions

The stockpile conditions (SS1 to SS20 inclusively) encountered generally consisted of silty clay with weathered shale and ironstone gravel. The subsurface conditions (TP1 and TP2) encountered generally consisted of topsoil/fill material to a depth of approximately 0.3m, underlain by silty clay with weathered shale bands and ironstone gravel to the termination of the testpits at a maximum depth of approximately 1m. The topsoil/fill material typically consisted of silty sandy clay with inclusions of igneous gravel and ash.

Laboratory Results

Selected laboratory analyses were scheduled on twenty-two natural samples obtained from the site. The laboratory report is attached to this letter. Results are as follows:

Heavy Metals

Twenty stockpile samples and two in-situ soil samples were analysed for heavy metals. The arsenic result for SS12 was 24mg/kg which is above the site assessment criteria of 20mg/kg. The zinc result for SS13 was 270mg/kg which is above the site assessment criteria of 200mg/kg. The remaining results met the site assessment criteria.

Polycyclic Aromatic Hydrocarbons (PAHs)

The twenty stockpile samples were analysed for PAHs. The results of the analyses met the site assessment criteria.

Organochlorine (OC) Pesticides and Polychlorinated Biphenyls (PCBs)

The twenty stockpile samples were screened for OC pesticides and PCBs. The results of the analyses met the site assessment criteria.

Petroleum Hydrocarbons (TPH) and Monocyclic Aromatic Hydrocarbons (BTEX)

PID soil sample headspace measurements were taken on all samples obtained for this assessment. All PID measurements were less than 2.2ppm equivalent iso-butylene which indicates a lack of significant PID detectable volatile organic compounds in the samples. The twenty stockpile samples and two in-situ soil samples were analysed for TPH and BTEX compounds. The results of the analyses met the site assessment criteria.

Discussion and Recommendations

The VENM assessment for the clay/shale stockpiled material included an inspection of the site and immediate surrounds, soil sampling and subsequent analysis of natural samples for a wide range of contaminants commonly encountered in the Sydney Region.

EIS understand that the stockpiled material is to be disposed of off-site. EIS understand that the stockpiled material has been sourced from the excavated zone as shown in Figure 2.

The laboratory results have been assessed with comparison to the importation criteria for VENM material specified in the Environmental Management Plan for the Rehabilitation of Quarry Pits at Boral Quarry, Nuwarra Road, Moorebank.

A slightly elevated concentration of arsenic was encountered in SS12 and a slightly elevated concentration of zinc was encountered in SS13 above the site assessment criteria. The presence of slightly elevated concentrations of arsenic and zinc in the clay/shale samples is considered to be result of natural deposition process. Heavy metals are commonly associated with shale profiles in the Sydney region. Based on this and the results of the assessment, the sampled material is considered to be VENM and the slight elevations are not considered to be indicative of contamination.

The assessment criteria for arsenic and zinc are based on the Provisional Phytotoxicity Investigation Levels (PPILs) or ecological site assessment criteria. The ecological site assessment criteria are principally concerned with phytotoxicity (i.e. adverse effects on plant growth in established and proposed areas of landscaping) and are described in the

NEPC Guidelines as "somewhat arbitrary", as the effect of these compounds on plant growth will depend on the soil and plant type. These elevations should be taken into consideration where the material is to be re-used on sites where the proposed development includes landscaped areas and therefore slightly elevated levels of heavy metals in these areas may influence plant growth and general health.

The stockpiled material in the exclusion zone (as shown in Figure 3) was not sampled as part of this assessment as it was not considered to be VENM.

VENM must not be mixed with any other fill soil or anthropogenic material (eg building rubble) as this will invalidate the VENM classification. Where doubt exists about the difference between fill and VENM material an environmental/geotechnical engineer should be contacted.

Section 143 of the *Protection of the Environment Operations Act 1997* states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. EIS accepts no liability whatsoever for the unlawful disposal of any waste from any site.

The findings presented in this letter are based on site conditions that existed at the time of the assessment and subsequent remediation. The conclusions are based on the investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances.

If you have any questions concerning the contents of this letter please do not hesitate to contact us.

Yours faithfully
ENVIRONMENTAL INVESTIGATION SERVICES

for Vittal B S
Belinda Sinclair
Environmental Engineer

Adrian Kingswell
Senior Associate

Attachments:

- Table B: VENM Stockpile Assessment Results Summary
- Figure 1: Site Location Plan
- Figure 2: Site Plan
- Figure 3: Inset - Sample Location Plan
- Test Pit Logs 1 and 2
- Envirolab Services Laboratory Report Number - 23838 and Chain of Custody Documents

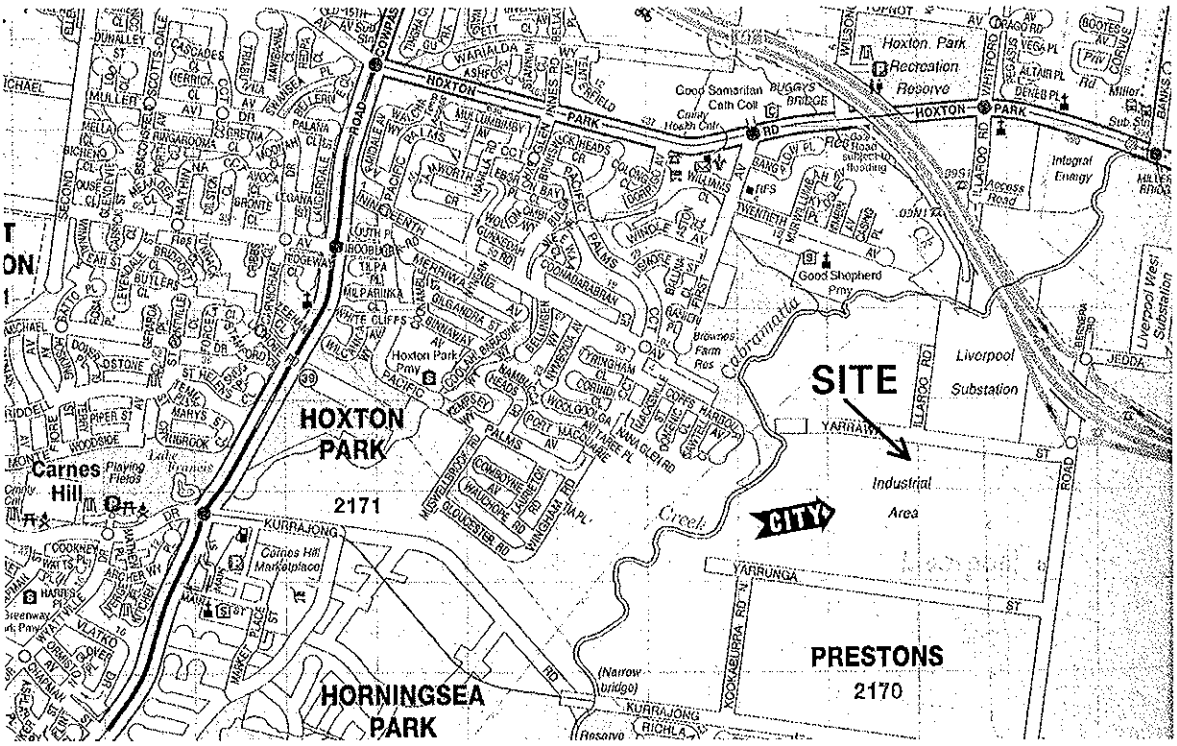
TABLE B
SUMMARY OF LABORATORY TEST DATA
VENM STOCKPILE ASSESSMENT
All data in mg/kg unless stated otherwise

ANALYTE			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES				PCBs	PETROLEUM HYDROCARBONS									PID VALUES
																		Petroleum Hydrocarbons					Benzene	Toluene	Ethyl Benzene	Total Xylenes	
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Aldrin and Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	C_{10} - C_{36}					
PQL - Envirolab Services			4	0.5	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.5	0.5	1	3	
VENM Assessment Criteria ^			20	3	400	100	300	1	60	200	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
Location	Depth in metres	DESCRIPTION																									
SS1	-	Silty Shaley Clay	LPQL	LPQL	3	20	9	LPQL	3	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS2	-	Silty Gravelly Clay	9	LPQL	20	15	20	LPQL	3	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS3	-	Silty Shaley Clay	LPQL	LPQL	9	21	14	LPQL	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS4	-	Silty Clay	LPQL	LPQL	8	16	8	LPQL	2	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS5	-	Clayey Shale	LPQL	LPQL	9	21	11	LPQL	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS6	-	Silty Clay	LPQL	LPQL	3	12	8	LPQL	1	6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS7	-	Silty Clay	5	LPQL	9	14	15	LPQL	2	12	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS8	-	Silty Shaley Clay	LPQL	LPQL	9	32	15	LPQL	7	37	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS9	-	Silty Clay	5	LPQL	11	18	16	LPQL	3	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS10	-	Silty Clay	6	LPQL	10	15	15	LPQL	2	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS11	-	Silty Shaley Clay	5	LPQL	12	14	8	LPQL	3	19	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS12	-	Silty Clay	**24**	LPQL	8	19	13	LPQL	4	27	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
SS13	-	Silty Shaley Clay	7	LPQL	21	74	51	LPQL	7	**270**	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.2
SS14	-	Silty Shaley Clay	LPQL	LPQL	6	29	12	LPQL	7	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS15	-	Silty Shaley Clay	5	LPQL	7	36	16	LPQL	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS16	-	Silty Clay	6	LPQL	9	19	19	LPQL	4	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS17	-	Silty Shaley Clay	LPQL	LPQL	3	9	5	LPQL	2	9	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS18	-	Silty Shaley Clay	6	LPQL	9	41	19	LPQL	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS19	-	Silty Shaley Clay	LPQL	LPQL	6	13	10	LPQL	2	12	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
SS20	-	Silty Shaley Clay	LPQL	LPQL	4	9	9	LPQL	<1	4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
TP1	0.6-0.7	Silty Clay	9	LPQL	10	14	16	LPQL	2	8	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0
TP2	0.8-0.9	Silty Clay	6	LPQL	13	11	13	LPQL	3	11	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0
Total no. of samples			22	22	22	22	22	22	22	22	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	22
Maximum Value			24	LPQL	21	74	51	0	9	270	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.2

EXPLANATION:
^ Adopted VENM Assessment Criteria

Concentration above the VENM Assessment Criteria **VALUE**

ABBREVIATIONS:
PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)Pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OP: Organophosphorus Pesticides
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyles
NSL: No Set Limit



Recreated from UBD

Ref: 267 N11

SITE LOCATION PLAN

50 Yarrawa Street, Prestons

EIS

ENVIRONMENTAL INVESTIGATION SERVICES

Job No: E22520K
Figure: 1

Note: Reference should be made to the text for a full understanding of this plan

Recreated from Google Earth Pro

LEGEND:

APPROXIMATE LOCATION OF STOCKPILE 1

EXCAVATED ZONE

Approximate Scale (m)

0 30 60 90 120 150

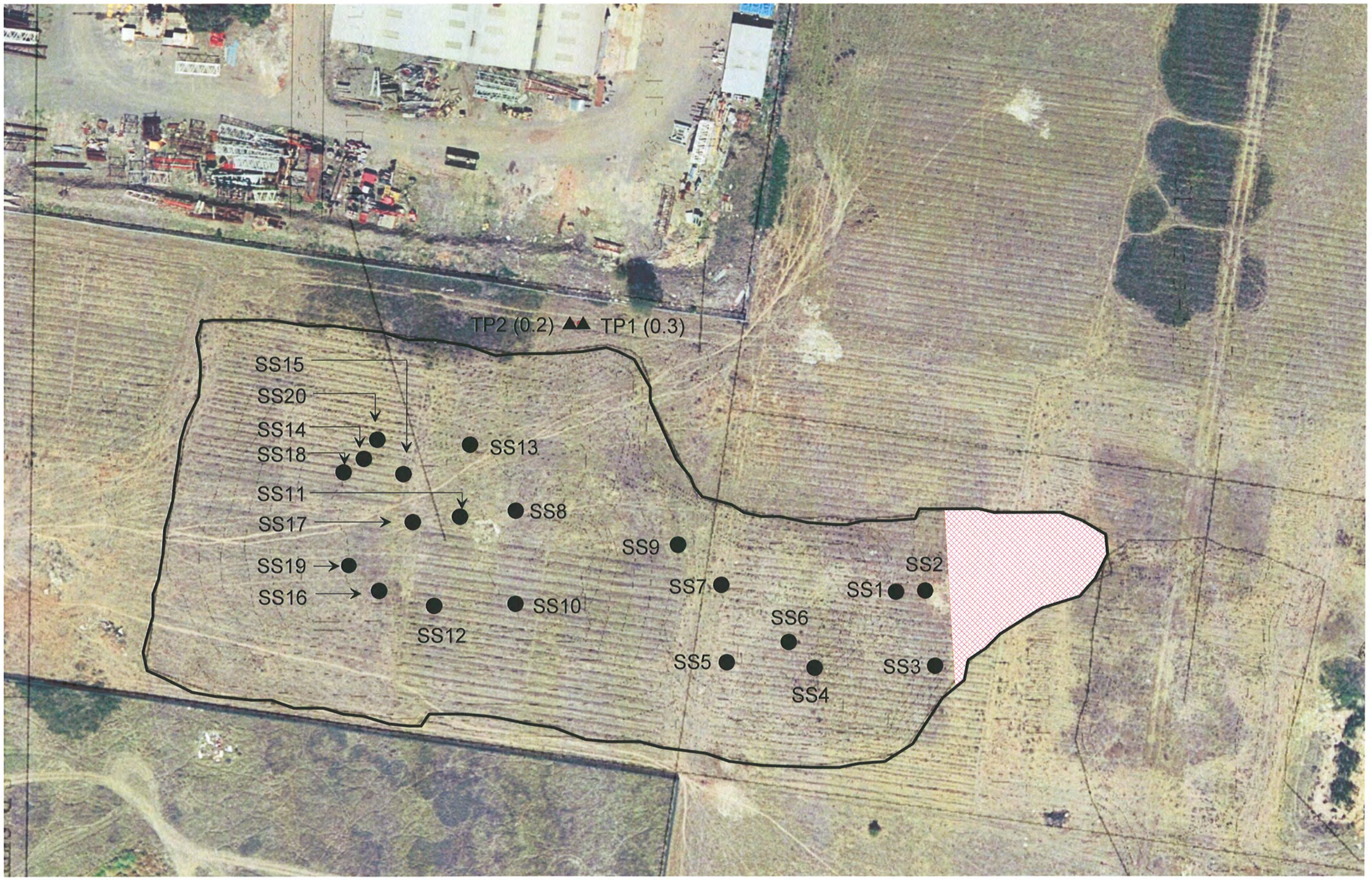
Note: Reference should be made to the text for a full understanding of this plan

SITE PLAN

50 Yarrawa Street, Prestons

ENVIRONMENTAL INVESTIGATION SERVICES

Job No: E22520K
Figure: 2



Recreated from Google Earth Pro

INSET - SAMPLE LOCATION PLAN

50 Yarrawa Street, Prestons

LEGEND:

- ● SS01 — STOCKPILE SAMPLING LOCATION AND NUMBER
- ▲ TP1 (0.3) — TEST PIT LOCATION, NUMBER
- APPROXIMATE LOCATION OF STOCKPILE 1
- EXCLUSION ZONE

Approximate Scale (m)

0 15 30 45 60 75

Note: Reference should be made to the text for a full understanding of this plan

EIS
ENVIRONMENTAL INVESTIGATION SERVICES

Job No: E22520K
Figure: 3

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Test Pit No. TP1 1/1

Environmental logs are not to be used for geotechnical purposes

Client: BURTON CONTRACTORS

Project: VENM CLASSIFICATION

Location: 50 YARRAWA STREET, PRESTONS, NSW

Job No. E22520K **Method:** EXCAVATOR **R.L. Surface:** N/A

Date: 29-10-08 **Datum:**

Logged/Checked by: B.S./

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL/TOPSOIL: Silty sandy clay, low plasticity, brown, with a trace of igneous gravel.	MC > PL			
	■					0.5		CH	SILTY CLAY: high plasticity, red brown mottled light grey.	MC < PL	-	-	
									as above, but light grey, with a trace of ironstone gravel.				
						1			END OF TEST PIT AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Test Pit No. TP2 1/1

Environmental logs are not to be used for geotechnical purposes

Client: BURTON CONTRACTORS

Project: VENM CLASSIFICATION

Location: 50 YARRAWA STREET, PRESTONS, NSW

Job No. E22520K **Method:** EXCAVATOR **R.L. Surface:** N/A

Date: 29-10-08 **Datum:**

Logged/Checked by: B.S./

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL/TOPSOIL: Silty sandy clay, low to medium plasticity, brown, with a trace of ash.	MC < PL			
	■					0.5		CH	SILTY CLAY: high plasticity, light grey mottled red brown and orange, with XW shale bands.	MC > PL	-	-	
						1			END OF TEST PIT AT 0.9m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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CERTIFICATE OF ANALYSIS 23838

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Belinda Sinclair

Sample log in details:

Your Reference:	**E22520K, Prestons**
No. of samples:	22 Soils
Date samples received:	29/10/08
Date completed instructions received:	29/10/08

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:	31/10/08
Date of Preliminary Report:	Not issued
Issue Date:	31/10/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
Business Development & Quality Manager

Giovanni Agosti
Technical Manager

Envirolab Reference: 23838
Revision No: R 00

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTPH & BTEX in Soil						
Our Reference:	UNITS	23838-1	23838-2	23838-3	23838-4	23838-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
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	%	76	84	81	86	84

vTPH & BTEX in Soil						
Our Reference:	UNITS	23838-6	23838-7	23838-8	23838-9	23838-10
Your Reference	----------	SS6	SS7	SS8	SS9	SS10
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
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	82	82	82	80

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
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	%	73	85	81	78	87

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
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	81	75	79	82

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	23838-21 TP1 0.6-0.7 29/10/2008 Soil	23838-22 TP2 0.8-0.9 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008
vTPH C_6 - C_9	mg/kg	<25	<25
Benzene	mg/kg	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	86

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	23838-1	23838-2	23838-3	23838-4	23838-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	94	96	98	96	97

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	23838-6	23838-7	23838-8	23838-9	23838-10
Your Reference	----------	SS6	SS7	SS8	SS9	SS10
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	96	94	93	95	96

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	23838-11	23838-12	23838-13	23838-14	23838-15
Your Reference	----------	SS11	SS12	SS13	SS14	SS15
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	99	102	101	99

sTPH in Soil (C10-C36) Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- -	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	98	97	98	98

sTPH in Soil (C10-C36) Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-21 TP1 0.6-0.7 29/10/2008 Soil	23838-22 TP2 0.8-0.9 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100
Surrogate o-Terphenyl	%	100	100

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- - -	23838-1 SS1 - 29/10/2008 Soil	23838-2 SS2 - 29/10/2008 Soil	23838-3 SS3 - 29/10/2008 Soil	23838-4 SS4 - 29/10/2008 Soil	23838-5 SS5 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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-d_{14}	%	99	96	99	98	100

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	23838-6 SS6 - 29/10/2008 Soil	23838-7 SS7 - 29/10/2008 Soil	23838-8 SS8 - 29/10/2008 Soil	23838-9 SS9 - 29/10/2008 Soil	23838-10 SS10 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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-d_{14}	%	101	98	97	100	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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	100	101	100	99

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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-d_{14}	%	101	100	98	99	101

Organochlorine Pesticides in soil						
Our Reference:	UNITS	23838-1	23838-2	23838-3	23838-4	23838-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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 TCLMX	%	101	101	99	104	103

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	23838-6 SS6 - 29/10/2008 Soil	23838-7 SS7 - 29/10/2008 Soil	23838-8 SS8 - 29/10/2008 Soil	23838-9 SS9 - 29/10/2008 Soil	23838-10 SS10 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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 TCLMX	%	102	102	102	103	101

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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 TCLMX	%	100	104	103	104	101

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
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 TCLMX	%	102	99	102	100	101

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-1 SS1 - 29/10/2008 Soil	23838-2 SS2 - 29/10/2008 Soil	23838-3 SS3 - 29/10/2008 Soil	23838-4 SS4 - 29/10/2008 Soil	23838-5 SS5 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	101	101	99	104	103

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-6 SS6 - 29/10/2008 Soil	23838-7 SS7 - 29/10/2008 Soil	23838-8 SS8 - 29/10/2008 Soil	23838-9 SS9 - 29/10/2008 Soil	23838-10 SS10 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	102	102	102	103	101

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	104	103	104	101

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date extracted	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	102	99	102	100	101

Acid Extractable metals in soil						
Our Reference:	UNITS	23838-1	23838-2	23838-3	23838-4	23838-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
Arsenic	mg/kg	<4	9	<4	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	3	20	9	8	9
Copper	mg/kg	20	15	21	16	21
Lead	mg/kg	9	20	14	8	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	3	4	2	4
Zinc	mg/kg	15	16	20	15	23

Acid Extractable metals in soil						
Our Reference:	UNITS	23838-6	23838-7	23838-8	23838-9	23838-10
Your Reference	----------	SS6	SS7	SS8	SS9	SS10
Depth	----------	-	-	-	-	-
Date Sampled		29/10/2008	29/10/2008	29/10/2008	29/10/2008	29/10/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
Arsenic	mg/kg	<4	5	<4	5	6
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	3	9	9	11	10
Copper	mg/kg	12	14	32	18	15
Lead	mg/kg	8	15	15	16	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	2	7	3	2
Zinc	mg/kg	6	12	37	34	15

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date digested	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
Arsenic	mg/kg	5	24	7	<4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	12	8	21	6	7
Copper	mg/kg	14	19	74	29	36
Lead	mg/kg	8	13	51	12	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	4	7	7	7
Zinc	mg/kg	19	27	270	42	33

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date digested	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008	31/10/2008	31/10/2008	31/10/2008
Arsenic	mg/kg	6	<4	6	<4	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	9	3	9	6	4
Copper	mg/kg	19	9	41	13	9
Lead	mg/kg	19	5	19	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	2	9	2	<1
Zinc	mg/kg	30	9	34	12	4

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-21 TP1 0.6-0.7 29/10/2008 Soil	23838-22 TP2 0.8-0.9 29/10/2008 Soil
Date digested	-	30/10/2008	30/10/2008
Date analysed	-	31/10/2008	31/10/2008
Arsenic	mg/kg	9	6
Cadmium	mg/kg	<0.5	<0.5
Chromium	mg/kg	10	13
Copper	mg/kg	14	11
Lead	mg/kg	16	13
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	3
Zinc	mg/kg	8	11

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-1 SS1 - 29/10/2008 Soil	23838-2 SS2 - 29/10/2008 Soil	23838-3 SS3 - 29/10/2008 Soil	23838-4 SS4 - 29/10/2008 Soil	23838-5 SS5 - 29/10/2008 Soil
Date prepared	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Moisture	%	18	16	21	20	17

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-6 SS6 - 29/10/2008 Soil	23838-7 SS7 - 29/10/2008 Soil	23838-8 SS8 - 29/10/2008 Soil	23838-9 SS9 - 29/10/2008 Soil	23838-10 SS10 - 29/10/2008 Soil
Date prepared	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Moisture	%	17	17	19	18	18

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-11 SS11 - 29/10/2008 Soil	23838-12 SS12 - 29/10/2008 Soil	23838-13 SS13 - 29/10/2008 Soil	23838-14 SS14 - 29/10/2008 Soil	23838-15 SS15 - 29/10/2008 Soil
Date prepared	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Moisture	%	15	19	16	16	16

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	23838-16 SS16 - 29/10/2008 Soil	23838-17 SS17 - 29/10/2008 Soil	23838-18 SS18 - 29/10/2008 Soil	23838-19 SS19 - 29/10/2008 Soil	23838-20 SS20 - 29/10/2008 Soil
Date prepared	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008	30/10/2008	30/10/2008	30/10/2008
Moisture	%	16	14	16	18	15

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	23838-21 TP1 0.6-0.7 29/10/2008 Soil	23838-22 TP2 0.8-0.9 29/10/2008 Soil
Date prepared	-	30/10/2008	30/10/2008
Date analysed	-	30/10/2008	30/10/2008
Moisture	%	19	22

Method ID	Methodology Summary
GC.16	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.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008	LCS-3	30/10/2008
Date analysed	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008	LCS-3	30/10/2008
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	23838-1	<25 || <25	LCS-3	91%
Benzene	mg/kg	0.5	GC.16	<0.5	23838-1	<0.5 || <0.5	LCS-3	99%
Toluene	mg/kg	0.5	GC.16	<0.5	23838-1	<0.5 || <0.5	LCS-3	83%
Ethylbenzene	mg/kg	1	GC.16	<1	23838-1	<1 || <1	LCS-3	95%
m+p-xylene	mg/kg	2	GC.16	<2	23838-1	<2 || <2	LCS-3	89%
o-Xylene	mg/kg	1	GC.16	<1	23838-1	<1 || <1	LCS-3	90%
Surrogate aaa-Trifluorotoluene	%		GC.16	86	23838-1	76 || 79 || RPD: 4	LCS-3	84%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008	LCS-3	30/10/2008
Date analysed	-			31/10/08	23838-1	31/10/2008 || 31/10/2008	LCS-3	31/10/08
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	23838-1	<50 || <50	LCS-3	88%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	23838-1	<100 || <100	LCS-3	89%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	23838-1	<100 || <100	LCS-3	104%
Surrogate o-Terphenyl	%		GC.3	97	23838-1	94 || 98 || RPD: 4	LCS-3	94%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008	LCS-3	30/10/2008
Date analysed	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008	LCS-3	30/10/2008
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	102%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	93%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	96%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	91%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	98%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	LCS-3	123%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	23838-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	23838-1	<0.05 || <0.05	LCS-3	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	102	23838-1	99 || 101 || RPD: 2	LCS-3	106%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/10/08	23838-1	30/10/2008 || 30/10/2008	LCS-4	30/10/08
Date analysed	-			30/10/08	23838-1	30/10/2008 || 30/10/2008	LCS-4	30/10/08
HCB	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	103%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	98%
Heptachlor	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	60%
delta-BHC	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	89%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	97%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	94%
Dieldrin	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	96%
Endrin	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	79%
pp-DDD	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	101%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	LCS-4	89%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	95	23838-1	101 || 99 || RPD: 2	LCS-4	100%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/10/08	23838-1	30/10/2008 || 30/10/2008	LCS-4	30/10/08
Date analysed	-			30/10/08	23838-1	30/10/2008 || 30/10/2008	LCS-4	30/10/08
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	LCS-4	104%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	23838-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	95	23838-1	101 || 99 || RPD: 2	LCS-4	99%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			30/10/08	23838-1	30/10/2008 || 30/10/2008	LCS-1	30/10/08
Date analysed	-			31/10/08	23838-1	31/10/2008 || 31/10/2008	LCS-1	31/10/08
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4	23838-1	<4 || <4	LCS-1	96%
Cadmium	mg/kg	0.5	Metals.20 ICP-AES	<0.5	23838-1	<0.5 || <0.5	LCS-1	100%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1	23838-1	3 || 3 || RPD: 0	LCS-1	99%
Copper	mg/kg	1	Metals.20 ICP-AES	<1	23838-1	20 || 26 || RPD: 26	LCS-1	100%
Lead	mg/kg	1	Metals.20 ICP-AES	<1	23838-1	9 || 9 || RPD: 0	LCS-1	98%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.1	23838-1	<0.1 || <0.1	LCS-1	97%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1	23838-1	3 || 3 || RPD: 0	LCS-1	101%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1	23838-1	15 || 17 || RPD: 12	LCS-1	102%

QUALITY CONTROL **Moisture**	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results **Base II Duplicate II %RPD**
Date prepared	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008
Date analysed	-			30/10/2008	23838-1	30/10/2008 || 30/10/2008
Moisture	%	0.1	LAB.8	<0.1	23838-1	18 || 18 || RPD: 0

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/2008
Date analysed	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/2008
vTPH C_6 - C_9	mg/kg	23838-11	<25 || <25	23838-2	76%
Benzene	mg/kg	23838-11	<0.5 || <0.5	23838-2	84%
Toluene	mg/kg	23838-11	<0.5 || <0.5	23838-2	73%
Ethylbenzene	mg/kg	23838-11	<1 || <1	23838-2	75%
m+p-xylene	mg/kg	23838-11	<2 || <2	23838-2	73%
o-Xylene	mg/kg	23838-11	<1 || <1	23838-2	74%
Surrogate aaa-Trifluorotoluene	%	23838-11	73 || 79 || RPD: 8	23838-2	82%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	23838-2	30/10/2008
Date analysed	-	[NT]	[NT]	23838-2	31/10/08
TPH C_{10} - C_{14}	mg/kg	[NT]	[NT]	23838-2	89%
TPH C_{15} - C_{28}	mg/kg	[NT]	[NT]	23838-2	89%
TPH C_{29} - C_{36}	mg/kg	[NT]	[NT]	23838-2	97%
Surrogate o-Terphenyl	%	[NT]	[NT]	23838-2	97%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/2008
Date analysed	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/2008
Naphthalene	mg/kg	23838-11	<0.1 || <0.1	23838-2	97%
Acenaphthylene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	23838-11	<0.1 || <0.1	23838-2	91%
Phenanthrene	mg/kg	23838-11	<0.1 || <0.1	23838-2	92%
Anthracene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	23838-11	<0.1 || <0.1	23838-2	89%
Pyrene	mg/kg	23838-11	<0.1 || <0.1	23838-2	95%
Benzo(a)anthracene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	23838-11	<0.1 || <0.1	23838-2	119%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(b+k)fluoranthene	mg/kg	23838-11	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	23838-11	<0.05 || <0.05	23838-2	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	23838-11	101 || 98 || RPD: 3	23838-2	100%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/08
Date analysed	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/08
HCB	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	23838-11	<0.1 || <0.1	23838-2	109%
gamma-BHC	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	23838-11	<0.1 || <0.1	23838-2	100%
Heptachlor	mg/kg	23838-11	<0.1 || <0.1	23838-2	113%
delta-BHC	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	23838-11	<0.1 || <0.1	23838-2	95%
Heptachlor Epoxide	mg/kg	23838-11	<0.1 || <0.1	23838-2	110%
gamma-Chlordane	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	23838-11	<0.1 || <0.1	23838-2	111%
Dieldrin	mg/kg	23838-11	<0.1 || <0.1	23838-2	91%
Endrin	mg/kg	23838-11	<0.1 || <0.1	23838-2	95%
pp-DDD	mg/kg	23838-11	<0.1 || <0.1	23838-2	113%
Endosulfan II	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	23838-11	<0.1 || <0.1	23838-2	105%
Methoxychlor	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	23838-11	100 || 105 || RPD: 5	23838-2	98%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/08
Date analysed	-	23838-11	30/10/2008 || 30/10/2008	23838-2	30/10/08
Arochlor 1016	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	23838-11	<0.1 || <0.1	23838-2	127%
Arochlor 1260	mg/kg	23838-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	23838-11	100 || 105 || RPD: 5	23838-2	102%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	23838-11	30/10/2008 || 30/10/2008	LCS-2	30/10/08
Date analysed	-	23838-11	31/10/2008 || 31/10/2008	LCS-2	31/10/08
Arsenic	mg/kg	23838-11	5 || 4 || RPD: 22	LCS-2	102%
Cadmium	mg/kg	23838-11	<0.5 || <0.5	LCS-2	103%
Chromium	mg/kg	23838-11	12 || 8 || RPD: 40	LCS-2	104%
Copper	mg/kg	23838-11	14 || 10 || RPD: 33	LCS-2	105%
Lead	mg/kg	23838-11	8 || 8 || RPD: 0	LCS-2	102%
Mercury	mg/kg	23838-11	<0.1 || <0.1	LCS-2	102%
Nickel	mg/kg	23838-11	3 || 2 || RPD: 40	LCS-2	108%
Zinc	mg/kg	23838-11	19 || 15 || RPD: 24	LCS-2	108%
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	23838-11	30/10/2008 || 30/10/2008		
Date analysed	-	23838-11	30/10/2008 || 30/10/2008		
Moisture	%	23838-11	15 || 15 || RPD: 0		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	23838-2	30/10/08
Date analysed	-	[NT]	[NT]	23838-2	31/10/08
Arsenic	mg/kg	[NT]	[NT]	23838-2	88%
Cadmium	mg/kg	[NT]	[NT]	23838-2	89%
Chromium	mg/kg	[NT]	[NT]	23838-2	90%
Copper	mg/kg	[NT]	[NT]	23838-2	98%
Lead	mg/kg	[NT]	[NT]	23838-2	86%
Mercury	mg/kg	[NT]	[NT]	23838-2	102%
Nickel	mg/kg	[NT]	[NT]	23838-2	91%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Zinc	mg/kg	[NT]	[NT]	23838-2	88%

Report Comments:

Asbestos was analysed by Approved Identifier: Not applicable for this job
INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit <: Less than >: Greate
RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

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 sample batch were within 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. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
Envirolab Services Pty Ltd 12 Ashley Street Chatswood NSW 2067 Phone: (02) 99106200 Fax: (02) 99106201 Attention: Aileen	EIS Job Number: E22520K Date Results Required: 48 hr T/A Sheet 1 /	Environmental Investigation Services Rear 115 Wicks Road Macquarie Park NSW 2113 Phone: (02) 9888 5000 Fax: (02) 9888 5004 Contact: Belinda Sinclair

Project: VENM Classification
Location: Prestons
Sampler: BS

Sample Preservation:
In esky on ice

Tests Required

Date Sampled	Lab Ref:	Borehole/ Sample Number	Depth (m)	Sample Container	PID	Sample Description	Heavy Metals (8)	TPH/BTEX	PAH	OC/PCB	Asbestos	TCLP Prep + M6, PAH	Phenols	VOC	sVOC	sPOCAS		
29/10/08	1	SS1		Glass jar + Asb Bag	0	Natural	X	X	X	X								
	2	SS2		Glass jar + Asb Bag	0		X	X	X	X								
	3	SS3		Glass jar + Asb Bag	0		X	X	X	X								
	4	SS4		Glass jar + Asb Bag	0		X	X	X	X								
	5	SS5		Glass jar + Asb Bag	0		X	X	X	X								
	6	SS6		Glass jar + Asb Bag	0		X	X	X	X								
	7	SS7		Glass jar + Asb Bag	0		X	X	X	X								
	8	SS8		Glass jar + Asb Bag	0		X	X	X	X								
	9	SS9		Glass jar + Asb Bag	0		X	X	X	X								
	10	SS10		Glass jar + Asb Bag	0		X	X	X	X								
	11	SS11		Glass jar + Asb Bag	0		X	X	X	X								
	12	SS12		Glass jar + Asb Bag	0.2		X	X	X	X								
	13	SS13		Glass jar + Asb Bag	2.2		X	X	X	X								
	14	SS14		Glass jar + Asb Bag	0		X	X	X	X								
	15	SS15		Glass jar + Asb Bag	0		X	X	X	X								
	16	SS16		Glass jar + Asb Bag	0		X	X	X	X								
	17	SS17		Glass jar + Asb Bag	0		X	X	X	X								
	18	SS18		Glass jar + Asb Bag	0		X	X	X	X								
	19	SS19		Glass jar + Asb Bag	0		X	X	X	X								
	20	SS20		Glass jar + Asb Bag	0		X	X	X	X								
	21	TP1	0.6-0.7	Glass jar + Asb Bag	0		X	X										
✓	22	TP2	0.8-0.9	Glass jar + Asb Bag	0	✓	X	X										
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: 9910 6200

Job No: 28858
Date received: 29/10/08
Time received: 1600
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Relinquished By:	Date: Time:	Received By:	Relinquished By:	Date: Time:		Received By:
BS	29/10/08 PM					

Appendix 3
TransGrid Correspondence

TransGrid

Land Assets and Facilities/ Network Services and Operations
Telephone: (02) 9284 3015
Our reference: Tim Cowdroy
Your reference:

ABN 19 622 755 774

201 Elizabeth Street (cnr Park St)
PO Box A1000 Sydney South
New South Wales 1235 Australia
Facsimile (02) 9284 3456
Telephone (02) 9284 3000
Web http://www.transgrid.com.au
DX 1122 Sydney

16 November, 2012

Mr Peter Flynn
Senior Development Planner
Liverpool City Council
Locked Bag 7064
LIVERPOOL BC NSW 1871

Dear Peter,

Re: Land Development (DA-1636/2012), Yarrawa Road, Prestons

We refer to Liverpool City Council's correspondence dated 16 October, 2012 regarding DA-1636/2012. TransGrid has previously had correspondence with Goodman International Limited regarding this proposal and a copy of the more important correspondence is attached herewith.

With respect to TransGrid's previous correspondence all conditions/restrictions laid out in that correspondence will need to be complied with for TransGrid to give any formal approval to this project.

The latest submission by Goodman International Limited to Council possesses changes that differ from the plans originally submitted to TransGrid for comment. In particular, the location of TransGrid's existing Transmission Line (TL) easement is not clearly defined on the latest plans.

With respect to tower relocation, specific timing of any such works cannot be given as this will be dependent on power demands in the CBD. Further, conditions need to be placed on title now so that any future property owner is aware of TransGrid's rights for reconstruction work on this property."

Any changes to existing ground levels within the easement and around the TL tower would have an adverse impact on TransGrid's means of 24/7 trafficable access down the easement and around the tower base. There is also the possibility that the earthing system would have to be upgraded, at the developer's expense.

Any fencing along the easement will be subject to the placement of access gates in a location to be approved by TransGrid prior thereto. Some parts of the fence may also need to be earthed. In addition to protecting the transmission infrastructure along the width and length of the easement, TransGrid also seeks to preserve 30 metre horizontal clearances from the nearest part of transmission towers. Amongst other reasons, the purpose of this is to provide a *safe working platform* in order for work on the TL tower to occur. Like the easement itself, safe working platforms are designed to protect transmission line workers; the public; surrounding development; and the environment. Please refer to the pictorial example attached herewith.

TransGrid is a State Owned Corporation responsible for the development, operation and maintenance of the high voltage transmission network across New South Wales. These functions are facilitated through transmission lines (TL), substations and other related infrastructure including telecommunications facilities. In the normal course of TransGrid operations, activities undertaken include maintenance and upgrade of infrastructure (e.g. transmission lines, substations and related telecommunications); vegetation and access track management; plus the strategic construction of new infrastructure to meet the growing and changing needs of the NSW people. TransGrid's existing transmission line easements form part of the State's electricity network and will be required indefinitely.

Easement Guidelines

TransGrid seeks that appropriate development controls are attached to any future development within vicinity of TransGrid sites. To accommodate future infrastructure development; to ensure the access to and security of existing infrastructure; and to ensure the safety of adjoining developments, it is recommended that TransGrid's *Guidelines for Easement Activities and Responsibilities* are followed when assessing proposed development applications. These guidelines seek to protect TransGrid's easement and ensure an appropriate buffer is provided to existing infrastructure. TransGrid also seeks to ensure there is an appropriate width for the placement of additional infrastructure/lines. Development within close proximity of TransGrid easements and/or infrastructure should be subject to the *TransGrid Easement Guidelines for Third Party Development.* Copies of the guidelines are enclosed herewith.

The abovementioned guidelines are not an exhaustive list and where there is any doubt concerning a particular activity within an easement, please do not hesitate to contact TransGrid for further advice.

Future development activity, including subdivisions, should be planned taking into account the recommendations documented in the report by The Right Honourable Harry Gibbs', titled '*Inquiry into Community Needs and High Voltage Transmission Line Development*', that being a policy of "prudent avoidance" in practical terms. This means designing transmission lines with regard for their capacity to produce magnetic fields and siting them having regard to their proximity to houses, schools, work sites and the like. Prudent avoidance should also apply to the planning of subdivisions and other land development.

Should you require any further information, please contact Tim Cowdroy on (02) 9284 3015 or Timothy.Cowdroy@transgrid.com.au

Yours sincerely,

Tim Cowdroy
Land Economist | Land Assets and Facilities
Network Services and Operations

Attached:

1. TransGrid Letter (dated 4 October, 2007) to Goodman International Limited.
2. *Safe Working Platform* (pictorial example).
3. Plan showing the proximity of TransGrid's easements and substation to the development site.
4. *TransGrid Easement Guidelines for Third Party Development.*
5. TransGrid *Guidelines for Easement Activities and Responsibilities.*

TransGrid

ABN 19 622 765 774

Network Services,C,Metrop,Mains&Environment,

Telephone: (02) 9620 0777
Our reference: GCU/ID

200 Old Wallgrove Road.
Eastern Creek.
PO Box 87, Horsley Park
NSW 2175 Australia
Facsimile (02) 9620 0727
Telephone (02) 9620 0777
Web http://www.transgrid.com.au

Goodman International Limited
Level 10, 60 Castlereagh Street
SYDNEY NSW 2000

Attention: ELISABETH WALLACE

Dear Elisabeth

RE: PROPOSED WAREHOUSE COMPLEX ON LOT 1&2 IN DP 28729 AT 26 YARRAWA STREET PRESTONS

I refer to your email dated the 17th September 2007 submitting a revised plan (PDC SPE SK11 (E))

TransGrid notes you have responded to most of our initial concerns and in general are pleased to see the way the design is progressing. The design needs to ensure that TransGrid's rights under the existing easement terms are protected.

To further progress this matter the following items still need to be addressed;

1/ The minimum clearance required around an existing structure, not to be included in any car park design or traffic areas is five metres, the 3 metres shown on the plan is not acceptable. There may be a need during works on the existing structure or associated conductors to clear the car park of vehicles in the vicinity of the works. This could arise in an urgent manner following an emergency, and minimal notice would be given. The car park within the easement area and closer than 30m to the tower shall be constructed such that heavy vehicles, including cranes and elevating work platforms, may utilise the area without damage to the pavement. The existing ground contours are to be maintained, unless approved in writing by TransGrid, to allow for a safe working area for these vehicles and other equipment.

2/ The earthing system for the transmission line structure will be upgraded by TransGrid, as the area around structure (tower) will become more accessible to the public. All costs associated with earthing system upgrade will be borne by the developer.

3/ A "restriction on use of the land" or "variation to easement" over the whole car park area reserving the right at anytime in the future to construct a new structure anywhere in the defined area. This will involve the permanent removal of car spaces required for the location to construct a new structure. It will also require the temporary closure of other sections if not the whole car park deemed to be a construction zone with no

compensation payable for the removal of the car parking spaces or temporary closure of the car park. All reasonable legal costs are to be met by the applicant.

4/ Conditions of development will need to include a suitable parking policy that addresses item (1) & (3) above and also allows a reduction in car parking spaces in the event of another structure being constructed within the car park area.

Please note the formal approval will be sent from the TransGrid Property Group therefore all correspondence from this point should be forwarded to;

Manager Property Group – Attention Mr David Turvey
PO Box A1000,
SOUTH SYDNEY NSW 1235

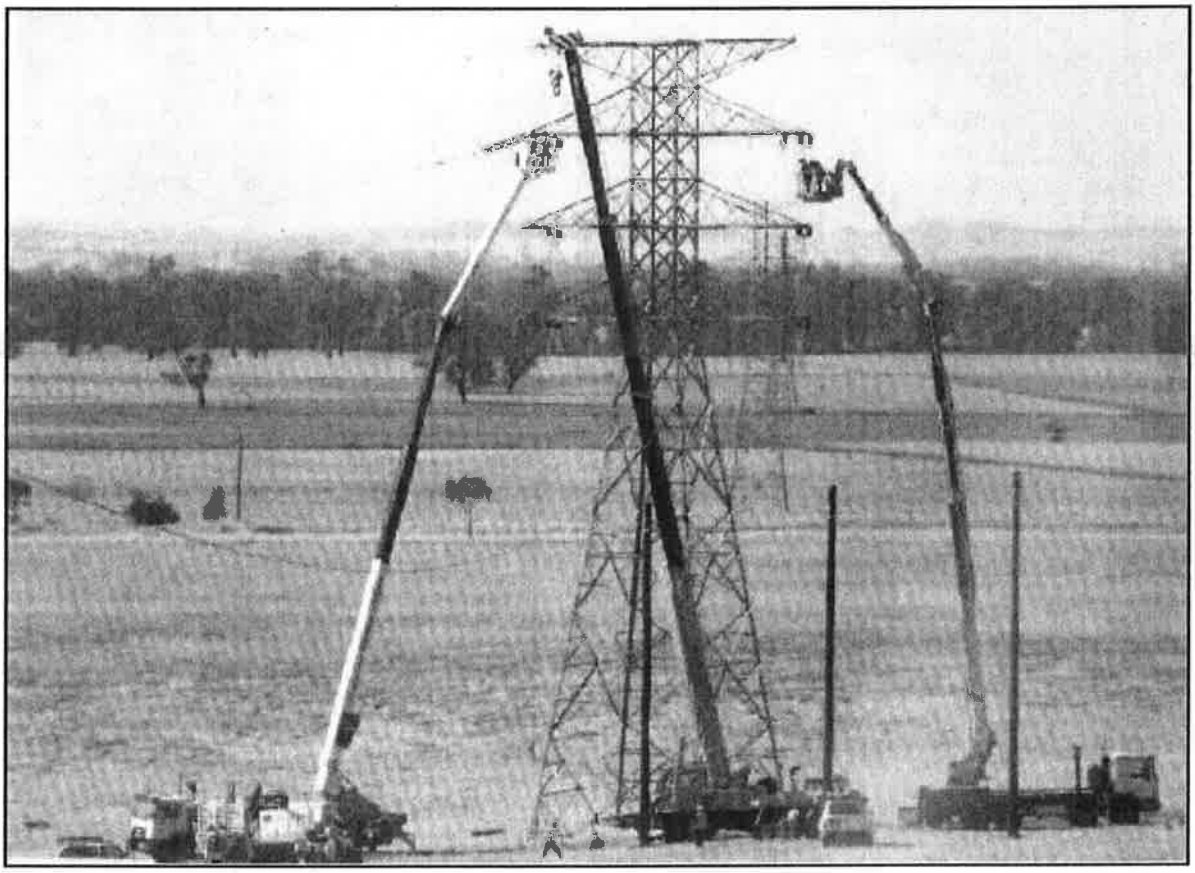
For any further assistance in this matter related to the technical design do not hesitate to contact the Easement Development Control Officer on Telephone (02) 9620 0777 or in relation to items (3) or (4) contact Mr Stephen Gale of TransGrid's Property Group on 9284-3169.

Yours sincerely

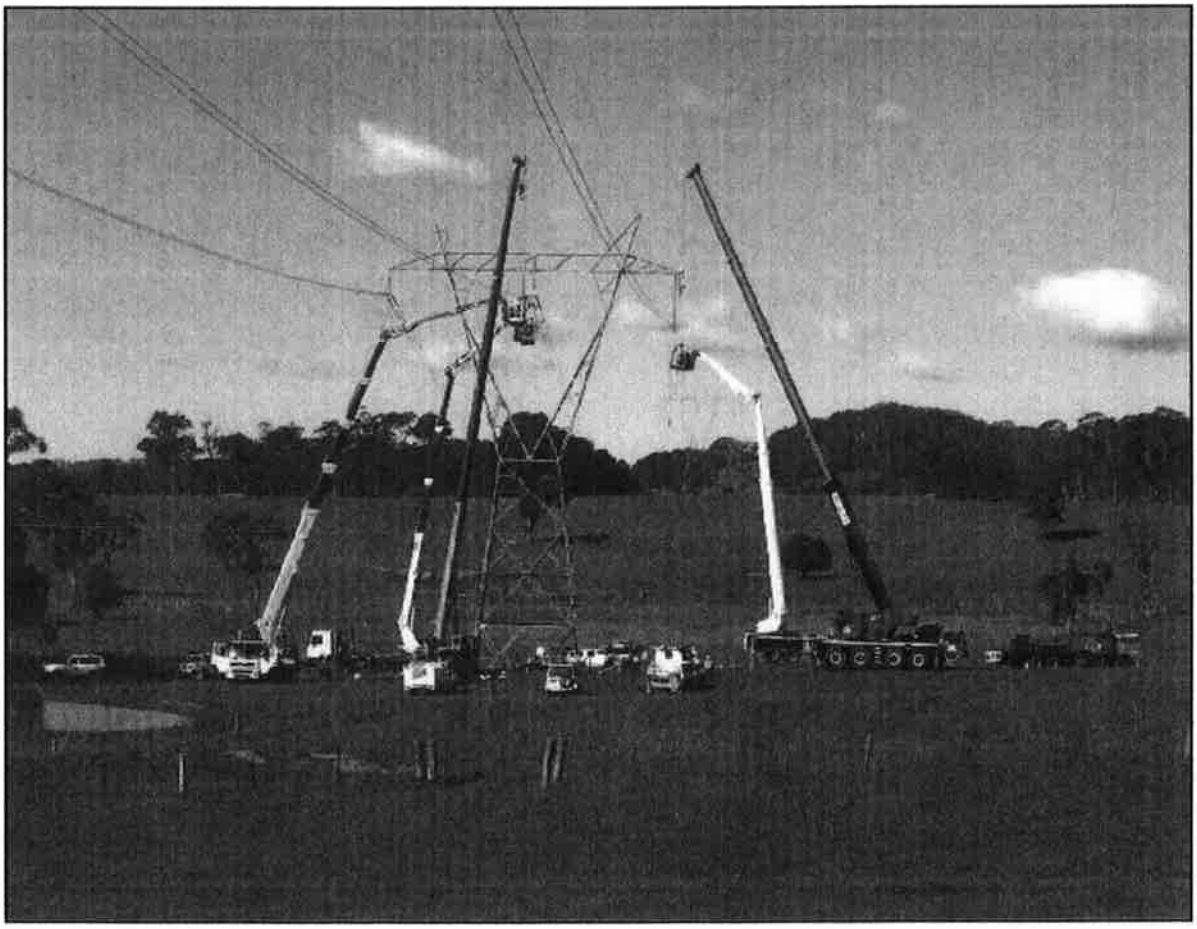
Tim Barnes
Acting Manager/Central Region
4 October 07

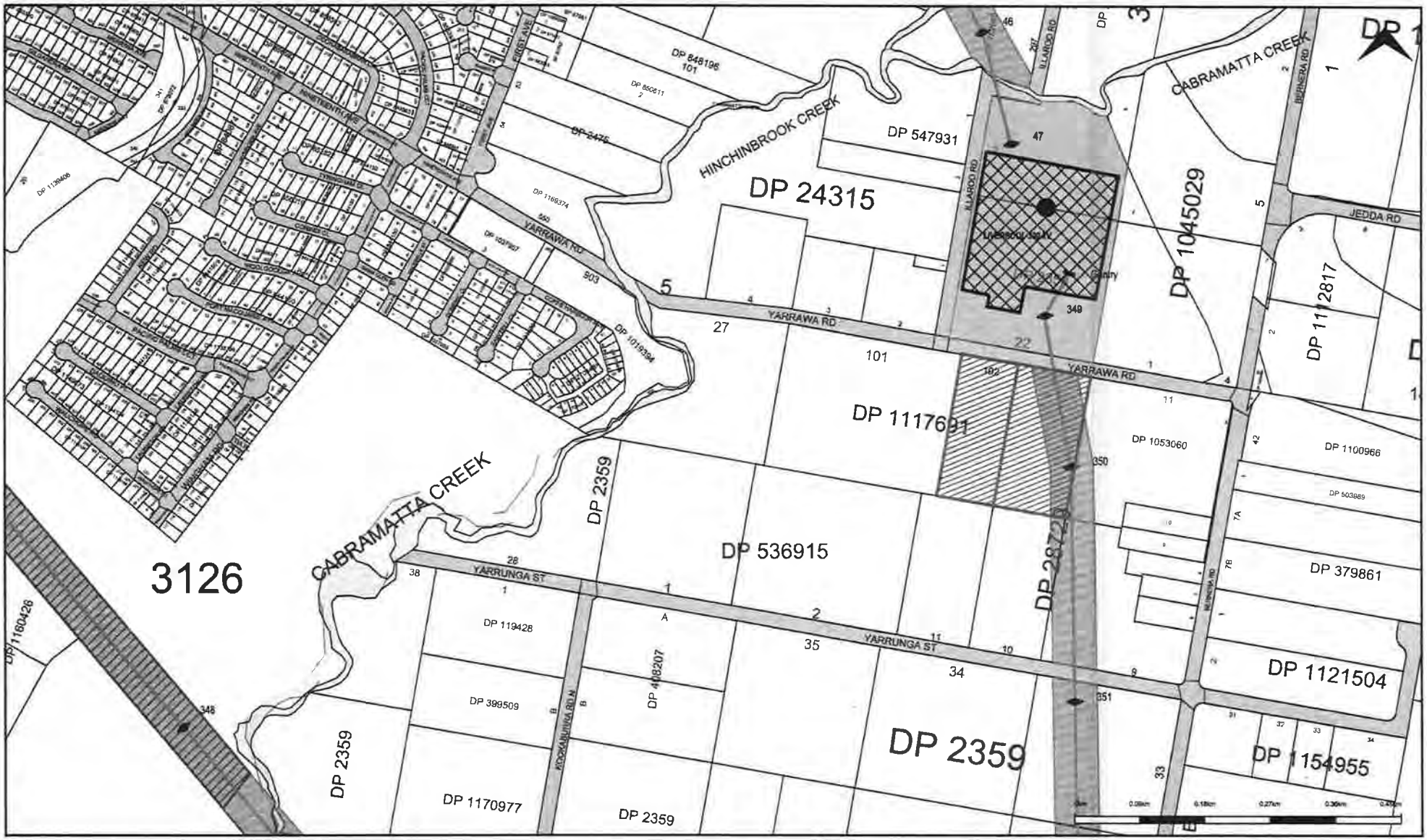
Examples of Required Working Platform for Infrastructure Maintenance

132kV Tower & Line



330kV Tower & Line





Legend

- Structure
- Substation
- TransGrid Land Interest
- TransGrid Easement
- TransGrid Proposal

TransGrid

DA re Lot 2 DP 28729 & Lot 102 DP 117691, Yarrawa Road, Prestons

Liverpool Council: DA-1636/2012.

Property of Transgrid. No warranty is given that information shown is complete or accurate

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TransGrid

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

Background

Transmission Line (TL) and cable easements are acquired by TransGrid to provide adequate clearance along the route of a transmission line for construction and maintenance work and also to ensure that no work or other activity is undertaken under or near the TL or cable which could create an unsafe situation either for persons or for the security of the TL or cable. The easement area contributes to the *prudent avoidance* of exposure by persons to EMF (Electric and Magnetic Fields).

The TL or cable easement area and its ongoing maintenance are control measures that cannot be compromised. The easement is established to prevent and mitigate against the following electrical safety risks:

- Infringement of electrical safety clearances e.g. due to an activity or vegetation growth.
- Electrical Induction e.g. due to parallel conducting materials.
- Step and touch potentials under fault conditions e.g. due to lightning or bushfire.
- Failure of structures or line equipment e.g. due to third party vehicle or plant impact.
- Transfer off easement of dangerous voltages, e.g. by services installed within the easement area.
- Blowout of a conductor under high wind (or blow in of vegetation) e.g. into an adjacent fixed structure.

Safety to people and property is of paramount concern. TransGrid is also bound to maintain its infrastructure efficiently and cost effectively. TL and cable easements along with accesses thereto have been designed to facilitate effective operational maintenance.

Development Approval Process

Where the Environmental Planning and Assessment Act 1979 makes Local Councils the consent authority for development applications, proponents to a proposed development on land are to prepare a development application and submit same to the Local Council for development consent.

The *State Environmental Planning Policy (Infrastructure) 2007* (SEPP), which commenced on 1 January 2008, requires local councils to consult with Electricity Network Operators before granting development consent for proposals that might adversely affect:

- existing electricity infrastructure;
- easements for electricity purposes, even if no infrastructure has yet been constructed in the easement.

Local Councils must give written notice to the network operator of any proposals for development:

- within or immediately adjacent to an easement for electricity purposes;
- immediately adjacent to a substation;
- within 5 metres of an exposed overhead power line;
- involving excavation within 2 metres of an underground power line or a pole or within 10 metres of a tower;

- involving a swimming pool within 30m of a transmission tower or within 5m of an overhead line.

Any comments made by the Electricity Network Operator within 21 days of receiving Local Council's written notification must be taken into consideration by the Local Council before it determines the development application.

The *proponent* is required to consult with TransGrid in accordance with the *State Environmental Planning Policy (Infrastructure) 2007* (SEPP); the *NSW Occupational Health and Safety Act 2000,* and; the *NSW WorkCover Code of Practice for Working Near Overhead Power Lines 2006*.

TransGrid Approval

The approving statutory authority will require written approval from TransGrid for all proposed activities within an easement area in accordance with Section 45 of the *State Environmental Planning Policy (Infrastructure) 2007 (SEPP)*.

To assess and respond to an approving statutory authority, TransGrid will require the following information from the development proponent. TransGrid will object to any development where the development proponent has not provided the following information to TransGrid prior to Local Council's notification:

- Detailed specifications and plans drawn to scale and fully dimensioned, showing property boundaries and other relevant information.
- An *Impact Assessment* of the development on TransGrid infrastructure and associated interests (including easements). Further, details as to how any impacts thereto are proposed to be managed, mitigated or resolved (see below – *Impact Assessment*).

Upon receipt of the abovementioned documentation, the proponent's proposed development will be assessed in relation to its impact on TransGrid infrastructure, easements and means of access thereto. The proponent should note that for complicated proposals the consultation process will be iterative and the proponent should allow sufficient time for this process (see *Timeframes* below).

General *Development Proposal* Guidelines

1. Prohibited Activities and Encroachments

A number of activities and encroachments are not permitted within the easement area. These are detailed in the "TransGrid Easement Guide" (see Appendix 1 - *Prohibited Activities*).

Any *Development Proposal* should be designed in such a way that:

- It does not involve these activities, nor introduce these encroachments; and
- Does not to encourage other parties to undertake such activities or introduce such encroachments in the future.

2. Development

The *Development Proposal* should be planned with the adoption of The Right Honourable Harry Gibbs Report (*Inquiry into Community Needs and High Voltage Transmission Line Development*) recommendations, that being a policy of "*prudent avoidance*".

This report placed recommendations on the design of new transmission lines having regard to their proximity to houses, schools, work sites and the like and is equally valid when considering new developments proposed in proximity to existing powerlines and associated easements.

Electric and Magnetic Field (EMF) strength rises from the easement edge to beneath the conductors and the most practical way to achieve the *prudent avoidance* policy is to keep the development entirely outside the easement area.

If it is desired to place any part of a development within an easement the proponent shall, in conjunction with the *Development Proposal*, undertake an *Impact Assessment* to be provided to TransGrid that covers the changes in risk and mitigation measures proposed.

Relocating Infrastructure and Interruption to Transmission

The developer will be liable for any costs involved in having to relocate TransGrid infrastructure as part of any proposed development. Further, the developer will also be liable for any costs and penalties incurred as a consequence of interruptions to TransGrid's transmission operations arising from the development, whether planned or inadvertent.

Impact Assessment

An *Impact Assessment* shall be completed and is to accompany the *development proposal* when it is submitted to TransGrid for consideration.

The *Impact Assessment* shall cover:

1. Detailed description of the development
2. Health and safety risk assessment and control measures
3. Operational risk to the TL or cable due to the development
4. Maintenance risk to the TL or cable due to the development
5. Design and construction risk to the TL or cable and associated with the proposed development
6. Physical impact risk to the TL (vehicle collision, vegetation or other impact)
7. Risk to TransGrid's rights and entitlements
8. Impact of the proposed development re access to the easement and along the easement.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

Checklist

The following checklist may assist in the completion of the *Impact Assessment.* A template is provided in *Appendix 3.*

Refer also to *Appendix 1* and *Appendix 2* for guidance on prohibited activities and TransGrid's requirements for developments and subdivisions.

1. **Detailed Description of the Development**

- Street Address;
- Land and Title references;
- Physical proximity of the proposed development to TransGrid's easement boundary (distance dimensions to be provided on a scaled plan); and
- Horizontal and vertical clearances of the proposed development to TransGrid's Infrastructure and associated easements

2. **Health and Safety Risk Assessment**

- **Safety Risk to General Public**

i. Have ground levels been changed that would compromise design clearances?
ii. Has the easement been altered in any way that would encourage prohibited activities to occur within the easement?
iii. Has the easement been altered in any way, or the nature of the land in the vicinity of the easement, that would encourage prohibited encroachments to occur within the easement?
iv. Is it possible for proposed structures to transfer voltages off easement, or bring remote earths into the easement?
v. Has development been proposed that increase step and touch potential hazards, or that would encourage people to congregate within the step/touch potential zone of a structure?

- **Safety Risk to Non-electrical Workers and Emergency Service Personnel**

i. Has infrastructure been proposed that can be climbed compromising design clearances?
ii. Has infrastructure been proposed that can be accessed by maintenance persons using Elevated Work Platforms (EWPs) compromising design clearances?
iii. Has infrastructure been proposed that can bring remote earths onto the easement?
iv. Has infrastructure been proposed that is a fire hazard, or that would encourage the storage or use of flammable material on the easement?
v. Has infrastructure been proposed that would require emergency workers (such as fire fighters) to come near, or their equipment to come on or near high voltage conductors?

- **Safety Risk to TransGrid Employees & Contractors**

  i. Has access around any TransGrid structure been altered preventing EWPs, crane or other plant access or introduced other risks to maintenance staff?
  ii. Has the proposed development complied with TransGrid's horizontal clearances?
  iii. Has access to the easement been altered that would introduce risks to personnel, including although not limited to asset inspectors or patrol staff?

- **Health Risk to the General Public**

  i. Have public spaces been proposed *within the easement* that would encourage persons to congregate for lengthy periods of time?
  ii. Have facilities been provided outside of the easement but immediately adjacent thereto that would encourage persons to congregate within the easement?

3. **Operational Risk**
   - Have any ground level developments been proposed (including roads, driveways, parking lots and turning bays etc) that would expose TransGrid transmission structures and lines to impact risk?
   - Has change in water flows or drainage been proposed that could impact on the foundations of any TransGrid structure (or guy)?
   - Are excavations proposed that would impact a TransGrid structure's foundations, stability or earthing systems?

4. **Maintenance Risk**
   - Have roads, driveways or landscaping been proposed that would prevent or hinder TransGrid maintenance, or increase maintenance costs, for the above or below ground components of the transmission line structure?
   - Has access to the easement or within the easement, been obstructed, restricted or altered?
   - Have access roads, bridges, crossings and the like been designed to cater for the weight and size of TransGrid maintenance plant (EWPs and Cranes)?
   - Does the development encourage the placement of obstructions that would prevent access for routine or emergency works?

5. **Development Design and Construction Risk**
   - Has the development been designed so that during the construction phase TransGrid is not restricted from undertaking normal maintenance and inspection activities?
   - Has the development been designed so that during the construction phase prohibited activities or encroachments are not required in the easement area?
   - Has the design health and safety risk assessment taken into account the requirements of the NSW WorkCover Code of Practice for *Working Near Overhead Powerlines* 2006?

6. **TransGrid's Rights**

- Have TransGrid's existing rights been preserved?
- Has TransGrid been exposed to new maintenance costs (e.g. landscaping or other development changes impacting easement access, use and maintenance)?
- Does a new deed of easement need to be negotiated?

Post Construction Compliance Statement

The development proposal shall include as-built plans of the final construction to TransGrid, therein demonstrating compliance to the agreed plans and implementation of agreed control measures.

Timeframes

TransGrid will respond to a Local Council notification of a proposed development within 21 days as required in the SEPP, however that response may not be an approval (or a disapproval). If the development proposal does not meet the requirements of these Guidelines, or in the event further detailed engineering analysis is required, TransGrid will require the development proposal to be revised and resubmitted.

Developers are advised to consider TransGrid's requirements early in the process (and not as an afterthought that could result in project delays).

Further Assistance

For any further development enquiry assistance please contact the Development Enquiry Services Coordinator on Telephone (02) 9620 0777.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

APPENDIX 1

Prohibited Encroachments and Activities

TransGrid will use its powers under the Electricity Supply Act, involve WorkCover or take other legal action as required to prevent or halt prohibited activities.

1. Transmission Lines

Activities and encroachments that are prohibited within a Transmission Line (TL) Easement include, but not limited to *(Note 2)*, the following:

- The construction of houses, buildings, substantial structures, or parts thereof.
- The installation of fixed plant or equipment.
- The storage of flammable materials, corrosive or explosive material.
- The placing of garbage, refuse or fallen timber.
- The planting or cultivation of trees or shrubs capable of growing to a height exceeding 4 metres.
- The placing of obstructions other than timber boundary fences within 15 metres of any part of a transmission line structure or supporting guy.
- Camping
- Permanent parking of caravans or other camping vehicles.
- The parking or storage of flammable liquid carriers or containers.
- The installation of site construction offices, workshops or storage compounds.
- Flying of kites or wire controlled model aircraft within the easement area.
- Flying of any manned aircraft or balloon within 30m of any structure, guy or conductor.
- Flying of remote controlled or autonomous aerial devices (such as UAVs) within 30m of any structure, guy or conductor.
- Any obstructions placed on access tracks or placed in the easement area that restricts access.
- Any vegetation maintenance (such as felling tall trees) where the vegetation could come within the *Ordinary Persons Zone* – refer to the NSW WorkCover *'Working Near Overhead Powerlines - Code of Practice 2006'.*
- Any substantial excavation within 7 metres of a pole or supporting guy or guy foundation or within 16 metres of a tower
- The climbing of any structure (*Any development that encourages or facilitates climbing will not be permitted).*
- Any change in ground levels that reduce clearances below that required in AS7000.
- The attachment of any fence, any signage, posters, or anything else, to a structure, or guy
  Note: Interference to electricity infrastructure is an offence under the Electricity Supply Act.
- The movement of any vehicle or plant within 5m of a structure, guy or between the tower legs, or between a guy and the pole.
  Note: Any damage to electricity infrastructure is an offence under the Electricity Supply Act.
- The storage of anything whatsoever within the tower base or within 5m of any tower leg.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

- Any structure whatsoever that during its construction or future maintenance will require an *Accredited* person to access. *Note: The final structure may meet AS7000 clearances, but may be accessible* (e.g. by EWP) by Ordinary Persons within the Ordinary Persons Zone.
- Any work that generates significant amounts of dust or smoke that can compromise the TL high voltage insulation.
- The erection of any structure in a location which could create an unsafe situation work area for TransGrid staff.
- Any activity by persons not *Accredited* or not in accordance with the requirements of the WorkCover *'Working Near Overhead Powerlines - Code of Practice 2006'* that is within *(Note 1)*:
    - 3m of an exposed 132kV overhead power line
    - 6m of an exposed 220kV or 330kV overhead power line
    - 8m of an exposed 500kV overhead power line

  Note: Distances quoted are to the design conductor position (i.e. maximum sag and blowout)

The following activities may be approved with conditions. The proponent will have to demonstrate (using the *Impact Assessment* process) that the risks associated with the activity have been satisfactorily mitigated. Guidance on how to achieve this is provided in Appendix 2.

- Burning off or the lighting of fires (Lighting of fires directly under energised conductors will not normally be approved)
- The operation of mobile plant or equipment having a height when fully extended not exceeding 4.3 metres.
- *Temporary* parking of caravans and other large vehicles in the outer 3m of the easement area.
- The erection of flagpoles, weather vanes, single post signs, outdoor lighting
- The erection of non-electric agricultural fencing, yards and the like. (Fencing that exceeds 2.5 metres in height or that impedes would not be approved. Metallic fencing may require earthing and will generally not be approved if located within 15 metres of any part of a transmission line structure or supporting guy or within 4 metres of the vertical projection of the overhead conductors).
- The erection of electric fencing.
- The installation or use of irrigation equipment inside the easement.

  NOTE: An irrigation system will not be approved if it is capable of coming within 4 metres of the overhead conductors; exceeds 4.3 metres in height; consists of individual sections of rigid or semi-rigid pipe exceeding 4.3 metres; and/or is capable of projecting a solid jet of water to within 4 metres of any overhead conductors.

- The installation of *low voltage* electricity, telephone, communication, water, sewerage, gas, whether overhead, underground or on the surface.

  Note: Services that do not maintain standard clearances to the overhead conductors that are within 15 metres from the easement centre-line, 16 metres from any part of a transmission line supporting structure or are metallic and within 30 metres of any part of a structure will not be approved.

- The installation of high voltage electricity services.
- Swimming pools, subject to TransGrid's strict compliance criteria.

  Note: Above ground pools will not be approved. In-ground pools will not be approved if there is a practicable alternative site clear of the easement area. If there is no practical alternative site, in-ground pools including coping will not be approved if it encroaches more than 4.5 metres, or is less than 30 metres a transmission line structure.

- Detached garages, detached carports, detached sheds, detached stables, detached glass houses, caravans, site containers, portable tool sheds, pergolas and unroofed verandahs attached to residences. (Easement encroachments of more than 3m will not be approved).
- Prefabricated metal (garden) sheds. (Sheds exceeding 2.5 metres in height, with a floor area exceeding 8 m^2 ,encroaching more than of up to 3 metres or within 15 metres of any part of a transmission line structure will not be approved. Connection of electric power will not be approved).
- Single tennis courts. Tennis courts that hinder access, are for commercial use or do not provide adequate clearances shall not be approved.
- Sporting facilities and open recreational areas.
- Subdivisions. See ***Appendix 2*** requirements.
- Roads.

  Note: Roads located within 15 metres of any part of a transmission line structure will not be approved.

- Cycleways, walking tracks and footpaths.
- Excavation – subject to restriction criteria.

  Note: Substantial excavations located within 7 metres of a general purpose pole structure or supporting guy, or within 15 metres of any part of a steel tower or major pole structure and exceeding a depth 3 metres will not be approved.

- Quarrying activities, earthworks, dam or artificial lake construction.
- Mining.
- Use of explosives.
- Vehicle access or parking facilities.

  Note: Such facilities will not be approved if within 30 metres of a TL structure without adequate precautions provided to protect the structure from any accidental damage.

Note 1: An encroachment or activity that is located outside the prohibited distance of the infrastructure but still within the easement will not necessarily be permitted. It will generally need to be addressed in the Impact Assessment.

Note 2: The above list is not exhaustive and if there is any uncertainty as to whether an activity or encroachment is acceptable within an easement, please contact TransGrid.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

1. Cables

The activities listed below are prohibited within cable easements:

- The storage of flammable liquids or explosives.
- The planting or cultivation of trees or shrubs with extensive root systems.
- The construction of houses, buildings or substantial structures.
- The installation of fixed plant or equipment .
- The placing of garbage, refuse or fallen timber.
- Vertical boring directly over the cable lay (eg. the installation of fencing or safety railing).
- The raising or lowering of existing ground surface levels.
- Any excavation within *2m* of an underground cable.

The following activities may be approved with conditions. The proponent will have to demonstrate (using the *Impact Assessment* process) that the risks associated with the activity have been satisfactorily mitigated. Guidance on how to achieve this is provided in Appendix 2.

- Parking of vehicles.

  Note: Parking will be prohibited if the surface is not capable of supporting the vehicles likely to be parked, risking the crushing of the cable/ducts or erosion of the ground.

- The operation of mobile plant and equipment.

  Note: Such operations will be prohibited if the surface is not capable of supporting the vehicles likely to be parked, whereby risking the crushing of the cable/ducts or erosion of the ground.

- The erection of structures spanning the easement.
- Excavation.
- Concrete driveways.
- The installation of metal pipes, metal fences, underground or overhead cables.
- Road-boring in the vicinity of a high voltage cable.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

APPENDIX 2

General Requirements for Developments and Subdivisions

The following list of current general requirements is provided for your information. It should be noted that the list is not exhaustive and, where there is any doubt concerning a particular activity within the easement area advice should be sought from TransGrid.

1. Completed Works

The completed works shall provide for the following considerations:

- A safe unobstructed working platform shall be preserved around the transmission line structures for access by EWP, cranes as well as other large plant and equipment. No obstructions of any type shall be placed within 30 metres of any part of a transmission line structure.
- Roads, streets etc (including kerb to property boundaries) and intersections shall not be located within 30 metres of any TL structure.
- Roads crossing the easement require 12 metre clearance between the finished road surface and the conductor at it's maximum operating temperature.
- Roads paralleling the transmission line are not to be within the easement area.
- Proposed roadway locations shall also take into consideration any street lighting requirements to ensure that statutory clearance requirements are followed. The design clearances should include future maintenance safety issues. TL outages will not be provided for street light maintenance.
- Details of the levels of proposed roadways where they cross the easement shall be submitted to TransGrid for written approval prior to construction to ensure that adequate clearances to the TL conductors are maintained. It should be noted that formal approval will not be given to the subdivision if such clearances are not maintained.
- Access to the TL and its structures shall be available at all times for TransGrid plant and personnel. In this regard a continuous and unobstructed access way shall be retained along the easement.
- Where fences are required for security purposes access gates will be installed in an agreed location and a TransGrid lock will be fitted.
- All underground services installed more than 16 metres but within 30 metres of a TL structure shall be non-metallic. Utility services (including street lighting), whether above or below ground, shall not be installed without prior written approval of TransGrid.
- Excavation work or other alterations to existing ground levels shall not be carried out within the easement area without the prior approval of TransGrid. Approval will not normally be granted for such work within 16 metres of any supporting structure.
- Fenced boundaries for all new properties in the subdivision shall not be within 30 metres of any TL structure.
- A "Restriction-as-User" (88B Instrument) shall be placed on the titles of the lots affected by the TL easement. Any proposed activity within an easement area will require the prior written approval of TransGrid (appropriate wording will be advised when required).
- Any proposed development does not impact on TransGrid's costs of inspecting, maintaining or reconstruction the transmission lines.
- Vegetation Control
  In order to comply with its statutory responsibilities to maintain adequate clearance between the conductors and any forms of vegetation. TransGrid maintains its easements as follows:

- Tall growing species likely to infringe safe clearances are to be removed regardless of existing height at time of construction.
- Trees likely to fall onto conductors or towers are also to be removed whether on the easement or off the easement (ref. Sec 48 of the Electricity Supply Act 1995).
- Shrubs and other vegetation of lower mature height within the easement will be reduced and managed, generally by slashing with ground level retained.
- Vegetation management will aim to reduce available fuel and subsequent bushfire risks in accordance with NSW Rural Fire Service Bush Fire Environmental Assessment Code, which sets out requirements for hazard reduction strategies such as Asset Protection Zones and Strategic Fire Advantage Zones
- Removed vegetation will be mulched or chipped and removed from site or retained on site in accordance with owner/stakeholder requirements and
- Other works considered necessary in order to provide safe a working environment for maintenance staff, contractors and for the property owner/manager will be undertaken.

Proposed vegetation plantings, such as Riparian corridors, within the transmission line easements shall be compatible with the above maintenance requirements.

2. Construction

During construction, the development plans shall also provide for the following considerations:

- Vehicles, plant or equipment having a height exceeding 4.3 metres when fully extended shall not be brought onto or used within the easement area without prior TransGrid approval.
- Where temporary vehicular access or parking (construction period) is within 16 metres of a transmission line structure, adequate precautions shall be taken to protect the structure from accidental damage. Plans need to be submitted for approval.
- The easement area shall not be used for temporary storage of construction spoil, topsoil, gravel or any other construction materials.

3. Costs

The Developer shall bear all costs of any reconstruction or modification of the transmission line, including consultation and design required to maintain clearances due to proposed ground level changes; road crossings within the easement; or due to any damage to the TL arising from the development.

TRANSGRID EASEMENT GUIDELINES FOR THIRD PARTY DEVELOPMENT

APPENDIX 3

Impact Assessment Template

Detailed Description of the Development

Risk Type	Aspect	Drawing Reference	Assessment	Risk Level	Control Measure	Residual Risk
Health and Safety						
Operational						
Maintenance						
Design and Construction						
Rights and Entitlements						

Compliance plan

TransGrid

Guidelines for Easement Actions and Responsibilities

An easement is an encumbrance on the title of land that confers the right to construct, operate and maintain a transmission line or cable. Easements are acquired by TransGrid to obtain the legal right to have access to its lines or cables for the purposes of construction, operation, maintenance, renewal and replacement and also to enable activities, which could either by accident or otherwise create an unsafe situation, to be controlled. Such easements impose an obligation on affected property owners not to do anything that may interfere with TransGrid's rights.

This document provides guidelines for the management of activities and encroachments on easements for overhead transmission lines and high voltage underground cables.

Because of the varied circumstances that apply to electricity easements, there will be circumstances that will require special attention. The particular circumstances may suggest restrictions over and above those outlined in this document.

1.1 Encroachments Onto Easement Areas

From TransGrid's viewpoint, it is essential that buildings, structures or other objects that could interfere with access along the easement, particularly to any structure or joint bay, not be placed within an easement area and that nothing be done which may affect the safe and continuous operation of the transmission line or cable or prevent its repair, replacement or renewal.

From both TransGrid's and the property owner's viewpoint, it is desirable that the property owner be prevented from doing anything within the easement which, while not necessarily interfering with TransGrid's formal rights, creates a safety risk either to the operation of the transmission line or cable or to persons. Such risks could possibly occur from induction, step or touch potentials under fault conditions, infringement of safety clearances to conductors, failure of line material or structures, or the uncovering of an underground cable.

The most important questions to be considered in the examination of a request for an encroachment within an easement area are the following:

1. Will it affect the safe operation of the line or cable, under normal conditions as well as maximum sag and blowout?
2. Will it unduly restrict access, particularly to overhead line structures, underground cable joint bays or surface installations?
3. What will be the effect on the encroachment of electrostatic induction, electromagnetic induction or an earth fault at the nearest structure of an overhead line or an earth fault on an underground cable?
4. What is likely to happen if there is a line structure collapse or failure of an earthwire, conductor or fitting?
5. What will be the effect if the line is uprated and/or structure positions are changed or the underground cable is relaid?

1.2 Approval For Encroachments Or Activities Affecting Easements

All approvals are to be notified in writing.

All approvals granted should be subject to the encroachments being removed or relocated at the owner's cost in the event that TransGrid requires this for line maintenance, operation or further construction/reconstruction.

It is recognised that this requirement may be difficult to negotiate for *substantial structures* and in-ground swimming pools (for example). This requirement is necessary, however, in case the encroachments need to be removed in the future and serves to confirm the awareness of the land owner to the terms of the approval.

The granting of a local council approval for a given encroachment does not negate TransGrid's rights. It does, however, create the potential for conflict with landowners that believed they had done all that was required to obtain the necessary approvals.

An important strategy in avoiding encroachments of significance is to have a good working relationship with constituent councils in respect of Building Approvals. In particular, the recording of electricity easements on constituent council records is essential for their consideration of such easements in the approval process.

The co-operation of constituent councils should be sought to include a general condition on every approval, referring to electricity easements, such as "subject to approval by the relevant authority where easements are involved".

1.3 Specific Restrictions Within Easement Areas

Property owners and others frequently make inquiries with regard to the restrictions that apply to the use of land affected by easements. Having regard to the type of easement in question and to any special conditions which may apply, the activities listed below have been categorised as being either permitted, controlled or prohibited as applicable.

The list is not necessarily exhaustive and the omission of a particular activity does not relieve those concerned from seeking advice from TransGrid where there is any doubt as to whether its rights are likely to be infringed.

Note that in the following, allowable encroachments are normally given in terms of distances from the edge of the easement. **This is for an easement of standard width.** Standard easement widths are:

132 kV – 45 metres

220 kV – 50 metres

330 kV – 60 metres

500 kV – 70 metres

A reduction in the width of the easement similarly reduces any allowable encroachment. For example, if the easement is 10m narrower than standard (5m off each side) then allowable encroachments are reduced by 5m.

1.3.1 Overhead Transmission Line Easements

A. Permitted Activities

The activities listed below are permitted within easement areas provided that they do not interfere with the maintenance or safe operation of the line. In this regard, access is to be available to all structures at all times and no physical obstructions other than timber boundary fences are to be placed within 15 metres of a transmission line structure or supporting guy. It is desirable, where *practicable*, to retain a continuous and *unobstructed access way* along the entire length of the easement.

(i) Normal agricultural pursuits subject to restrictions applying to the heights of mobile plant and equipment being observed. Care should be taken when ploughing or operating mobile machinery in the vicinity of structures or supporting guys to ensure that the buried earthing system or the tower is not damaged.

(ii) Domestic recreational activities other than the flying of kites, model aircraft, etc.

(iii) Gardening activities involving trees, shrubs or plants that grow to a mature height not exceeding 4 metres.

(iv) Parking of vehicles subject to adequate precautions being taken to protect structures or supports from accidental damage and a 4.3 metre height limitation on the vehicles to be parked.

Flammable liquid carriers, caravans and other camping vehicles and vehicles with fixed ladders which make it possible for a person to ascend to the top of the vehicle are not permitted.

(v) The operation of mobile plant and equipment having a height not exceeding 4.3 metres when fully extended, including aerials, subject to adequate precautions being taken to prevent collision or interference with structures or supporting guys.

(vi) The storage of *non-flammable materials*, subject to a height limitation of 2.5 metres.

(vii) The erection of *minor structures*, subject to a height limitation of 2.5 metres and the *earthing* of metallic parts.

B. Controlled Activities

The activities listed below are not permitted within transmission line easements without written approval. Each case should be assessed on its merits in accordance with the guidelines indicated below and subject to the general provisions concerning access, maintenance and safe operation as detailed for Permitted Activities.

It is normal that a site inspection would be made for these cases. Note that during the site inspection it should be confirmed that there is not a suitable alternative site within the property where the proposal could be accommodated.

Where the extent of a proposed encroachment by a *substantial structure* exceeds half of the maximum encroachment stipulated in these guidelines, the property owner should be required at their expense to have the structure set out by a registered surveyor. On completion of the work, an identification survey is to be carried out and a copy of the survey plan forwarded to TransGrid. This requirement should be specifically referenced in the approval.

Many of the activities described are confined to a height of 4.3 metres. In particular cases, where the conductor height above ground is substantially greater than the normal design minimum, approval may be given after obtaining *engineering advice*, for the 4.3 metre height restriction to be relaxed. This would normally only be done following detailed investigation of the situation.

(i) Burning off or the lighting of fires within the easement area if there is no other location other than in the easement, provided that structures and supporting guys are not endangered and provided that the activity does not produce flames exceeding 3 metres in height.

Lighting of fires directly under energised conductors would not normally be approved, with the exception of burning of crop stubble.

(ii) The operation of mobile plant or equipment having a height when fully extended exceeding 4.3 metres. Approval would be based on the need to maintain adequate clearance between the equipment and the line, having regard to the particular situation. Note that plant may require trailing earths and supervision by TransGrid staff.

(iii) Parking of caravans and other camping vehicles provided that there is no *practicable* alternative site clear of the easement area. Approval will normally be given for temporary parking only, in the outer 3 metres of the easement area, subject to metallic parts being *earthed* and a 4.3 metre height restriction.

(iv) The erection of flagpoles, weather vanes, single post signs, outdoor lighting and the like provided that adequate clearance is maintained to the overhead conductors, the height does not exceed 4.3 metres and metallic parts are *earthed*.

(v) The erection of non-electric agricultural fencing, yards and the like, provided that the height of the fencing does not exceed 2.5 metres and that access along the easement is not impeded. In the case of metallic fencing, *earthing* may be required.

(vi) The erection of electric fencing provided that the height of the fencing does not exceed 2.5 metres and provided that the fence does not pass beneath the overhead conductors.

Approval may be given for a portable electric fence to pass underneath the conductors provided that it is supplied from a portable battery-powered energiser that is located remotely from frequented areas.

Where it is necessary for a permanent electric fence to pass beneath the overhead conductors, or where an extensive permanent electric fencing system is installed in proximity to a transmission line certain additional safety requirements may be required. *Engineering advice* should be obtained prior to approval.

(vii) The erection of metallic fencing provided that:

(a) the height of the fencing does not exceed 2.5 metres;

(b) the fence is *earthed*;

(c) the fence is not located within 15 metres of any part of a transmission line structure or supporting guy or within 4 metres of the vertical projection of the overhead conductors; and

(d) access to structures is maintained.

Approval may be given for such fencing to be located within 4 metres of the vertical projection of the overhead conductors provided that any section so located is electrically isolated from the remainder of the fence. In the case of swimming pool or tennis court enclosures, it is sufficient to isolate the enclosure fence from other metallic fencing not forming part of the enclosure.

(viii) The installation or use of irrigation equipment inside the easement provided that:

(a) no part of the system is permitted to come within 4 metres of the overhead conductors at any time;

(b) the height of the equipment does not exceed 4.3 metres;

(c) the length of individual sections of rigid or semi-rigid pipe associated with the equipment does not exceed 4.3 metres;

(d) the equipment as located is not capable of projecting a solid jet of water to within 3 metres of any overhead conductor up to 330 kV and 4 metres for 500 kV. In the case of gun type irrigators, it is required that the water jet not be directed towards the line;

(e) the equipment is suitably *earthed*, if necessary; and

(f) the equipment does not interfere with the maintenance or safe operation of the line.

(ix) The installation of *low voltage* electricity, telephone, communication, water, sewerage, gas, whether overhead, underground or on the surface subject to there being no *practicable* alternative and provided that:

(a) standard clearances are maintained to the overhead conductors;

(b) services are to be at least 15 metres from the centre-line of the easement and 15 metres from any part of a transmission line supporting structure; and

(c) services within 30 metres of any part of a structure are to be non-metallic.

Where the service is to be buried, it is understood that heavy vehicles may be driven on the ground above the service. In the case of 330 kV and 500 kV lines, all undercrossings by the above mentioned services are required to be underground. For lower voltage lines the service should preferably be underground where *practicable*.

Where extensive parallels are involved, certain additional safety requirements may be necessary, depending on the particular case and *engineering advice* should be obtained.

In the case of critical services such as optical fibre communications circuits, these should be buried on the edge of the easement (typically within 1 metre of the edge) and must be clearly marked to show the location of the buried cable.

Details specific to each installation should be ascertained and approved to ensure minimal impact on TransGrid operations and to reduce our exposure to liability.

(x) The installation of high voltage electricity services subject to there being no *practicable* alternative and provided that *standard clearances* are maintained to the supporting structures.

Where extensive parallels are involved certain additional safety requirements may be required, depending on the particular case and *engineering advice* should be obtained.

(xi) Swimming pools, whether above or in-ground, provided there is no *practicable* alternative site clear of the easement area. Approval may be given for encroachments of not more than 4.5 metres, including coping, subject to the pool being not less than:

(a) 30 metres from the centre of a transmission line structure for voltage or 132kV and below; or

(b) 30 metres from any part of a transmission line structure for voltages greater than 132 kV.

These requirements are aimed at minimising step potentials under fault conditions.

(xii) Detached garages, detached carports, detached sheds, detached stables, detached glass houses, caravans, site containers, portable tool sheds, pergolas and unroofed verandahs attached to residences where there is no *practicable* alternative site clear of the easement area. Approval may be given for encroachments of not more than 3 metres.

(xiii) Prefabricated metal (garden) sheds not exceeding 2.5 metres in height, where a *practicable* site is not available clear of the easement area. Approval may be given for encroachments of up to 3 metres. Consideration may be given to a further encroachment provided that:

(a) the shed's floor area does not exceed 8 m^2;

(b) the shed is not located within 15 metres of any part of a transmission line structure;

(c) the shed is *earthed*;

(d) electric power is not connected to the shed;

(e) the shed is not to be used for the storage of flammable liquids;

(f) in the event of TransGrid requiring the shed to be relocated at some future date, all costs are to be borne by the owner; and

(g) the shed is not easily convertible to living quarters.

Brick garages and other similar *substantial structures* should not be approved, as such structures are likely to create additional problems should TransGrid seek to upgrade the use of the easement.

(xiv) Single tennis courts provided:

(a) the tennis court is for private, non-commercial use;

(b) there is no alternative space clear of the easement;

(c) adequate safety clearances are maintained;

(d) the fence is non-conductive or suitably *earthed* on all corners;

(e) fence height is restricted to 4 metres;

(f) lighting is limited to a maximum height of 4.3 metres and supplied via underground wiring;

(g) access to the transmission line is not hindered. This may involve gates and court construction able to withstand large, heavy plant; and

(h) changes to ground levels may be associated with the construction of the courts. If required, such changes should not affect access along the easement and should meet the requirements of (xx) below.

(xv) Sporting facilities and open recreational areas subject to the general restrictions outlined in these guidelines and the displaying of suitable warning notices concerning the flying of kites or model aircraft. Facilities associated with the use of firearms and *public sporting venues* are discouraged.

(xvi) Subdivisions for domestic or industrial purposes subject to relevant requirements being met such as:

(a) *standard clearances* and access being maintained;

(b) road intersections being well clear (preferably 30 metres) of line structures;

(c) line structures being suitably protected against motor vehicle impact; and

(d) the layout of the subdivision not being such as to give rise to numerous utility crossings or later requests for encroachments due to insufficient space being left between the Council's building alignment and TransGrid's easement.

Where a proposed road passes within 30 metres of a line structure or supporting guy, the structure earthing system may require modification in order to prevent fault currents from entering utility services which may be buried in the road.

Boundaries created by subdivisions should not pass, where *practicable*, within 15 metres of a structure to prevent the future erection of metallic fence in violation of these guidelines.

Care is also required to ensure that earthing will be adequate on structures that may be in a location which was regarded as 'remote' at the time of construction (as defined in the Electricity Association of NSW Publication – "Guide to Protective Earthing" – EA5). Development may cause the structures location to become 'frequented' or 'special'. Additional earthing required as a result of the subdivision should be at the cost of the developer.

Advantage should be taken of subdivisional activities to upgrade existing easements, especially "resumed" easements by insisting that they be shown on the new line plans with modern "Restrictions as to User" quoted in the Section 88B Instruments.

Many innovative planning techniques are available to incorporate existing transmission line easements within new subdivisions that do not result in lines straddling backyards and hence ultimately cause encroachment problems. These options should be actively pursued with developers and constituent councils.

(xvii) Roads (other than access tracks) provided that *standard clearances* are maintained, the proposal is environmentally acceptable and line structures are adequately protected against motor vehicle impact.

Approval will not normally be granted for roads to be located within 15 metres of any part of a transmission line structure.

Where the road passes within 30 metres of a structure or supporting guy, the structure earthing system may require modification as outlined in (xvi) above.

The option of raising conductors or relocation of structures, at the full cost of the proponent, may be considered.

(xviii) Cycleways, walking tracks and footpaths provided that *standard clearances* are maintained and the proposal does not alienate large sections of the easement area.

(xix) Excavation (not including ploughing) in the case of minor excavations. In the case of substantial excavations, approval will normally be given, provided that the depth of the excavation does not exceed 3 metres, it is not located within 7 metres of a general purpose pole structure or supporting guy, or within 15 metres of any part of a steel tower or major pole structure.

Where there is no *practicable* alternative, consideration may be given to permitting an excavation which does not comply with the above general requirements, subject to *engineering advice* on the proposal confirming that it will not interfere with the maintenance or safe operation of the line. In such cases, TransGrid supervision of the excavation may be required and would normally be charged to the property owner.

(xx) Quarrying activities, earthworks, dam or artificial lake construction subject to the maintenance of adequate ground clearances and provided that the subsoil stability and surface drainage in the vicinity of structures is not adversely affected and excessive quantities of dust are not generated. *Engineering advice* should be obtained prior to approval being given.

Where artificial lakes or dams are classed as navigable waters then clearances specified by the Maritime Services Board shall be provided.

Where access is compromised by such developments, a condition of approval should be the provision of alternative access – for example with an access easement.

(xxi) Mining – Approval would be based on the merits of the proposal and any related circumstances involved.

(xxii) Use of explosives – Although not encouraged, approval may be given for minor blasting involving charges not greater than 2kg/delay and not closer than 30 metres to a supporting structure, provided that satisfactory safety procedures are observed and the safe operation of the line is not jeopardised.

(xxiii) Blasting procedures in accordance with Australian Standard AS2187 and the use of blasting mats and safety fuses would normally be the minimum requirements. As specified in AS2187 the peak particle velocity should be kept to below 25mm/sec (unless modified in a subsequent issue). In cases where the charge exceeds 2kg/delay and/or blasting is required closer than 30 metres to supporting structures *engineering advice* should be obtained prior to approval.

C. Prohibited Activities

The activities listed below are normally prohibited within transmission line easements. Approval to engage in such activities will not be granted other than in the most exceptional circumstances.

(i) The construction of houses, buildings, *substantial structures*, or parts thereof including eaves other than those permitted under Sections (A) or (B) above. Where difficulty is experienced in locating a residence between the Council's building alignment and TransGrid's easement or an extension to the residence between the existing building and TransGrid's easement, consideration may be given to permitting the eaves to encroach onto the easement area to a maximum distance of 600mm.

(ii) The installation of fixed plant or equipment other than that permitted under Sections (A) or (B) above.

(iii) The storage of *flammable materials*, corrosive or explosive material.

(iv) The placing of garbage, refuse or fallen timber.

(v) The planting or cultivation of trees or shrubs, which grow to a height exceeding 4 metres.

(vi) The placing of obstructions other than timber boundary fences within 15 metres of any part of a transmission line structure or supporting guy.

(vii) Camping or the permanent parking of caravans or other camping vehicles.

(viii) The parking or storage of *flammable* liquid carriers or containers.

Where an existing encroachment contravenes the requirements of this section, arrangements should generally be made for its removal.

1.3.2 Underground Cable Easements

Underground cables are predominantly installed in gazetted roadways. Easements are not normally obtained in this situation as the legal right to occupy space in a gazetted roadway, by a public utility, is conferred by 'The Roads Act 1993' and TransGrid, as an electricity supply organisation, has further rights conferred by the 'Electricity Supply Act 1995'.

The activities listed below are intended to apply in situations where cables are installed within cable easements outside of gazetted roadways.

A. Permitted Activities

The activities listed below are permitted within cable easements provided that they do not interfere with the maintenance or safe operation of the cable:

(i) Domestic recreational activities.

(ii) The temporary storage of non-flammable materials provided that the area of ground surface contact doesn't prevent the free flow of air over the cable trench. The material must be capable of being removed at short notice.

(iii) The planting of small shrubs and tilling of the soil to a maximum depth of 200mm , except in the vicinity of joint bays, surface installations, cable marker plates and posts, and kiosks.

B. Controlled Activities

The activities listed below are not permitted within cable easements without written approval.

Each case should be assessed on its merits in accordance with the guidelines indicated below and subject to the general provisions concerning maintenance and safe operation as detailed for Permitted Activities.

(i) Parking of vehicles provided that an adequate surface exists that is capable of supporting the vehicles likely to be parked, thus preventing the crushing of the cable/ducts or erosion of the ground.

(ii) The operation of mobile plant and equipment provided that an adequate surface exists which is capable of supporting the mobile plant or equipment. If a suitable surface does not exist, approval may be given subject to the activity being supervised by TransGrid personnel.

(iii) The erection of structures spanning the easement are discouraged, but approval may be given provided that there is no *practicable* alternative and sufficient clearance is maintained between the ground surface and the underside of the structure to allow cable maintenance and/or repairs to be carried our without inconvenience.

(iv) Excavation will normally be approved, provided that TransGrid personnel supervise the activity. Excavation within 2 metres of the cables should normally be carried out by hand. Mechanical excavation is not permitted, unless directly supervised by TransGrid personnel.

(v) Concrete driveways may be approved where cables are in existing continuous ducts and the driveway is capable of supporting the heaviest vehicle likely to traverse the driveway.

(vi) The installation of metal pipes, metal fences, underground or overhead cables: Approval may be given subject to investigation.

(vii) Road-boring in the vicinity of a high voltage cable. A trial hole should be dug alongside the cable trench to locate the cable and to verify that the bore does not interfere with the cable. Because the precise location of the cable is unknown, this precaution is required even where equipment is used which can accurately determine the location of the bore-head.

C. Prohibited Activities

The activities listed below are normally prohibited within cable easements. Approval to engage in such activities will not be granted other than in the most exceptional circumstances and only where a detailed investigation proves no impact on the operation or safety of the cable.

(i) The storage of *flammable* liquids or explosives.

(ii) The painting or cultivation of trees or shrubs with extensive root systems.

(iii) The construction of houses, buildings or *substantial structures* other than those permitted under sections (A) or (B) above.

(iv) The installation of fixed plant or equipment other than that permitted under sections (A) or (B) above.

(v) The placing of garbage, refuse or fallen timber.

(vi) Vertical boring directly over the cable lay (for example, for the installation of fencing or safety railing). These holes must be hand excavated.

(vii) The raising or lowering of existing ground surface levels. Cable ratings are reduced by increased depth of burial.