

POLLUTION ABATEMENT NOTICE

No. 2014/2

(Issued pursuant to section 77 of the *Waste Management and Pollution Control Act*)

Issued to:

Name: Ausco Modular Pty Limited (ACN 010 654 994)
Address: 4 Formation Street, Wacol Qld 4076
Postal Address: PO Box 187, Goodna Qld 4300

In relation to premises: Section 04445 Hundred of Bagot also known as 55
Batten Road, Marrara, Northern Territory.

Reason:

I, Dr William Freeland, delegate of the Northern Territory Environment Protection Authority (NT EPA) pursuant to the *Waste Management and Pollution Control Act* ("the Act"), believe on reasonable grounds that:

1. Ausco Modular Pty Limited is the owner or occupier of Section 04445 Hundred of Bagot ("the premises");
2. the premises is divided into two stages: Stage 1 and Stage 2/3 (Attachment 1);
3. Stage 1 of the premises was subject to an audit in accordance with the *National Environment Protection (Assessment of Contaminated Sites) Measure* resulting in the issue of a Statement of Environmental Audit dated 18 February 2014;
4. The audit concluded, amongst other things, that:
 - 4.1 the key potential risk to human health arises from the existence of asbestos material buried in shallow excavations across the site (principally in Stage 1);
 - 4.2 the risks to occupiers of the site have been mitigated by the provision of a capping layer; and
 - 4.3 the capping layer will require management to ensure the depths of the capping layer materials remain sustainable in the future; and
5. By reason of the facts above, parts of Stage 1 are polluted by the presence of asbestos.

Action Required

1. On and from the date of this notice you must adhere to:
 - 1.1 the Statement of Environmental Audit, dated 18 February 2014, Statement Attachment B, AEC (2014b), Environmental Site Management Plan (ESMP) (as amended from time to time) (Attachment 1); and

- 1.2 all requirements and responsibilities under the ESMP, including those related to inspections, monitoring, maintenance, repairs, and management during earthworks;
 2. Any proposed amendments to the ESMP (other than typographical change or revisions to formatting or referencing) must be
 - 2.1 reviewed by a qualified person pursuant to section 68 of the *Waste Management and Pollution Control Act*;
 - 2.2 the qualified person shall confirm in writing that the proposed amendments to the ESMP remains effective in maintaining the capping layer; and
 - 2.3 A copy of this review must be maintained and filed with the ESMP.
 3. Groundwater at the site must not be used for any beneficial purpose.
-

Notice Issued By:



Dr William Freeland

Chairperson

NT Environment Protection Authority

15/4/14
Date

1150
Time

Important Notice

Failure to comply with this notice is an offence under section 80 of the *Waste Management and Pollution Control Act* and may incur significant penalties and/or other statutory action.

This notice takes effect on the date on which it is served upon you. Pursuant to section 108 of the *Waste Management and Pollution Control Act*, **you have the right to apply for a review of the decision to issue you with this Pollution Abatement Notice. If you intend to apply for a review, YOU MUST MAKE AN APPLICATION NOT LATER THAN 7 DAYS after the date you were served with this notice.** For information on how to lodge an application for review, contact the Northern Territory Environment Protection Authority, telephone 8924 4041.

Pursuant to section 112 of the *Waste Management and Pollution Control Act* the person issued with this notice must fulfil certain obligations before selling, leasing, sub-leasing, giving or exchanging land, premises, a vehicle or business which is the subject of this Notice.

Attachment 1 Statement of Environmental Audit

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Statement of Environmental Audit

This Statement provides a summary of the findings of an Environmental Audit of the Site referred to as **Short Stay Accommodation Village Stage 1, Batten Road, Marrara, Northern Territory**, in accordance with Section 47d of the *Waste Management and Pollution Control Act 1998* (NT).

Name of Auditor	Adrian Hall of GHD
Term of appointment of Auditor (under the Victorian <i>Environment Protection Act 1970</i>)	20 March 2012 to 19 March 2014
Date Audit requested	12 November 2013
Owner of the site	Northern Territory Government (with Crown lease to Ausco Modular Pty Limited)
Person requesting a Certificate	Ian Missingham Commercial Manager - Major Projects APAC Ausco Modular Pty Limited
Site address	55 Batten Road, Marrara, Northern Territory
Title information	Portion Lot 04445 Hundred of Bagot
Area of the Site	2.5 hectares (approx.) for Stage 1 only
Zoning	Zone SD39 (Specific Use Zone Darwin No 39)

The Audit has had regard to, amongst other things:

- Northern Territory *Waste Management and Pollution Control Act 1998*
- *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended April 2013
- The general principles for undertaking Audits, as outlined by Part IXD of the Victorian *Environment Protection Act 1970*, and the associated policies and guidelines
- Advice provided by the Northern Territory Environment Protection Authority (NTEPA).

Summary of findings

The site was historically undeveloped land with a substantial vegetation cover of gamba and spear grass that had been used since the 1990s as a dumping ground for a variety of waste materials, including concrete, bricks, scrap metals, ceramic tiles, rubble and asbestos (ACM). Most of the waste materials were buried in shallow excavations across the eastern portion of the site (i.e. Stage 1).

In order to mitigate risks to occupiers of the site, a separation ('capping') layer of 100 mm minimum thickness across the area identified as being underlain by buried waste has been installed. The capping layer consists of imported gravels and/or soils, depending on the location relative to the land uses (e.g. landscaping soils for grassed and garden areas, gravels for hard-stand areas between accommodation units).

The site is being developed as a short stay accommodation village, including transportable, raised accommodation units, and associated shared facilities. The majority of the site comprises hard-standing, with some landscaped areas.

The site location in relation to the greater Darwin area is shown in Figure 1, and Figure 2 is a site locality plan showing local features. A site development plan showing the accommodation units and the extent of the Stage 1 Audit is given in Figure 3. Figures 1 to 3 are included in **Statement Attachment A**. A site survey plan showing the surveyed extent of Stage 1 is also included in given in Statement Attachment A.

With respect to these land uses, the Audit has concluded as follows:

- The condition of the site is consistent with its intended use. The results of soil sampling noted isolated and/or minor exceedences of ecological or human health criteria, but these are not expected to adversely affect human health or ecosystems at the site, provided that the capping layer remains intact. The capping layer will require management to ensure that the materials remain present in the areas of contamination and that the depths of the capping layer materials remain sustainable in the future; this will be achieved by implementation of the AEC (2014b) Environmental Site Management Plan (ESMP).
- The Auditor considers that the key potential risk to human health arises from the existence of asbestos materials buried in shallow excavations across the site (principally in Stage 1). However, risks to occupiers of the site have been mitigated by the provision of the capping layer, as discussed above.
- A desktop review by AEC showed that the unexploded ordnance (UXO) risk for the site was low, and that no further UXO investigation was necessary. However, assessment of UXO is outside the scope of this Audit, and has been included for general information only. UXO has not been considered by the Auditor, as risks associated with UXO are generally managed through other means.
- The Auditor considers that the condition of the soils at the site is unlikely to pose a risk of chemical degradation to buildings and structures.
- Aesthetic impacts on soils were identified at the site, arising from buried wastes. Such materials would be considered "offensive to the senses of human beings"; however, risks to occupiers of the site have been mitigated by the provision of the capping layer, as discussed above.
- The exceedences of ecological criteria are considered unlikely to adversely affect produce quality or yield, or the level of any indicator in food, flora or fibre as identified in the Victorian Land SEPP.
- There is no evidence to suggest that activities undertaken on the site (i.e. the burial of predominantly inert solid waste materials) have resulted in contamination of surrounding land, or that contamination exists on the site that would adversely affect off-site surface water or groundwater.
- Groundwater at the site has a low salinity, which does not preclude any of the relevant protected beneficial uses. The elevated concentrations of zinc, and non-metallic inorganic contaminants such as total nitrogen, nitrate and phosphorus identified in site groundwater, are not considered by the Auditor to be 'pollution', as they were consistent with background conditions. Nevertheless, the Auditor considers that since chemical substances are present in groundwater underlying the site at concentrations exceeding relevant groundwater criteria, a condition stating that site groundwater should not be abstracted for any beneficial use will be included with this Audit.

Environmental Site Management Plan (ESMP)

The AEC (2014b) Environmental Site Management Plan (ESMP), included in **Statement Attachment B**, provides information on the requirements for the inspection, maintenance and management of the separation ('capping') layer, designed to manage exposure to site soils and the associated potential risks to site occupiers, contractors and the environment.

The ESMP is set out under the following headings:

- Introduction
 - Background
 - Objectives
 - Scope of Activities
- Responsibilities & Obligations
 - Relationship to Owner/Operator/Contractor OH&S Obligations
- Design of Separation Layers
 - Objectives
 - Different Types of Separation Layer Materials
- Management of Separation Layers during Operations
 - Staff Inductions
 - Communication to Community and Residents
 - Monitoring and Maintaining the Separation Layers
 - Maintenance Requirements, Earthworks and Work Procedures
 - Maintenance Beneath Separation Layers
 - Documentation and Review
 - Independent Review of the ESMP

Suitability of the Site

On the basis of the work undertaken, the Auditor is of the opinion that the site is suitable for the intended use, that use being Stage 1 of a Short Stay Accommodation Village, including transportable, raised accommodation units, a diner, reception, retail and cafe building, kitchen and barbecue areas, a laundry and linen store, a gymnasium, a bus stop and car parking areas, with the majority of the site comprising hard-standing, with some landscaped areas,

subject to the following conditions:

1. The Environmental Site Management Plan (ESMP) prepared by AEC (2014b) shall be adhered to, and all requirements and responsibilities under the ESMP shall be observed, including those related to inspections, monitoring, maintenance, repairs, and management during earthworks.
2. Groundwater at the site shall not be used for any beneficial purpose.

Other Related Information

The Environmental Site Management Plan (ESMP) is subject to a five-yearly independent review by an Environmental Auditor. The current version of the document should be obtained from the Site Operator.

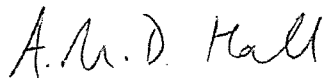
This Audit considers only contamination of the soil and groundwater by potentially hazardous substances, and does not consider or advise on geotechnical conditions, suitability of soil and

fill for planting from the perspective of nutrient content and physical form, or other aspects of the suitability of the land for development that are not related to hazardous substances.

The limitations outlined in Section 14 of the Environmental Audit Report should be referred to.

DATED: 18 February 2014

SIGNED:



ADRIAN HALL

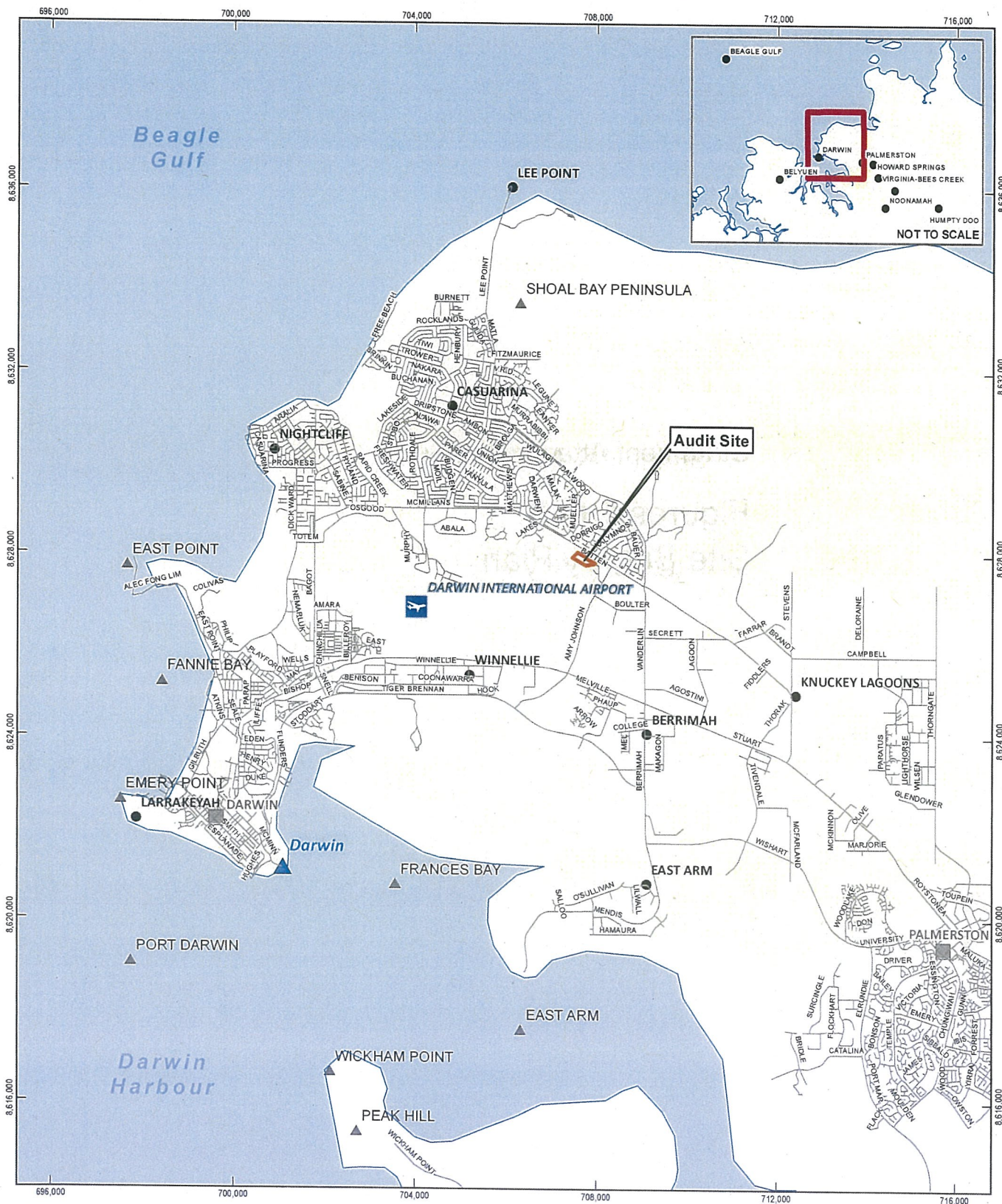
Environmental Auditor (Appointed pursuant to the Victorian *Environmental Protection Act 1970*) and recognized in the Northern Territory under Section 68 of the *Waste Management and Pollution Control Act 1998* (NT)

Statement Attachment A: Figures 1 to 3, Site Survey Plan

Statement Attachment B: AEC (2014b) Environmental Site Management Plan

Statement Attachment A

Figures 1 to 3
Site Survey Plan



LEGEND

- ▲ Port Locations
- ▲ Locality
- Populated Places
- ✈ Airport
- Place Names
- Boundary
- Road
- Audit Extent

Paper Size A4
0 2,000 4,000
Metres

Horizontal Datum: GDA1994
Grid: GCS GDA 1994



AUSCO MODULAR PTY LTD
Batten Road, Marrara, Northern Territory
Short Stay Accommodation Village Stage 1
Environmental Audit Report

Job Number 33-17365
Revision 0
Date 14 Feb 2014

Site Locality Map Showing Local Features

Figure 1

N:\A\U\Adelaide\Projects\33\17365\GIS\Maps\Working\MXD\RevC\3317365_BattenRoadMarraraNT_Fig1_RevC.mxd
Level 4, 211 Victoria Square Adelaide SA 5000 Australia T 61 8 8111 6600 F 61 8 8111 6699 E adelaide@ghd.com W www.ghd.com
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Data source: GHD - Audit Site boundary (feature digitized from Environmental Site Management Plan report page 19 - AEC Environmental (2014), GA - Roads, Locality, Port Locations, Place Names, Populated Areas, Airport Location, Boundary
Google Earth Pro - Imagery (2014/02/12) Created by mgmanali



Paper Size A4
0 50 100
Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 52



LEGEND

- Road
- Audit Site Boundary
- ⊠ Approximate extent of buried waste



AUSCO MODULAR PTY LTD
Batten Road, Marrara, Northern Territory
Short Stay Accommodation Village Stage 1
Environmental Audit Report

Job Number 33-17365
Revision 0
Date 14 Feb 2014

Site Locality Plan
Showing Local Features

Figure 2

N:\AU\Adelaide\Projects\33117365\GIS\Maps\Working\MXD\RevC\3317365_BattenRoadMarraraNT_Fig2_RevC.mxd

Level 4, 211 Victoria Square Adelaide SA 5000 Australia T 61 8 8111 6600 F 61 8 8111 6699 E ademail@ghd.com W www.ghd.com

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Data source: GHD - Approximate extent of buried waste, Audit Site boundary (features were digitized from Environmental Site Management Plan report page 19 - AEC Environmental (2014), GA - Roads (2012), Google Earth Pro - Imagery (2014/02/12) Created by:mgmahalli

SECTION 4445

22012/202



DISCLAIMER:

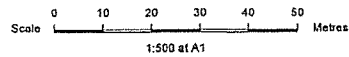
THIS PLAN WAS PRODUCED FOR AUSCO MODULAR BY TRUE NORTH SURVEYING FOR THE PURPOSE OF IDENTIFYING THE STAGE 1 BOUNDARY. STAGE 1 BOUNDARY HAS BEEN TAKEN FROM DESIGN PLANS. REFER TO SURVEY PLAN S2012/202 FOR COMPLETE SURVEY BOUNDARY INFORMATION. THE SURVEY DATA WAS ACCURATE AT TIME OF SURVEY. THE DATA SHOULD ONLY BE USED FOR THE INTENDED PURPOSE AND ACCURACY OF THE SURVEY. THIS DISCLAIMER IS AN INTEGRAL PART OF THIS PLAN AND SHOULD NOT BE REPRODUCED WITHOUT IT.

STAGE 1 BOUNDARY - MGA94		
MARK	EAST	NORTH
01	707669.84	8628004.82
02	707782.22	8627937.42
03	707774.51	8627924.58
04	707941.69	8627824.29
05	707934.58	8627812.45
06	707754.44	8627783.23
07	707657.84	8627840.15
08	707685.68	8627858.13
09	707696.50	8627863.78
10	707712.30	8627877.83
11	707676.39	8627918.23
12	707636.08	8627938.61
13	707636.58	8627949.37

[Signature]
12/12/13
Date

PO Box 742
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E. north@truenorthsurveying.com.au

trueNorth
SURVEYING



CLIENT:
AUSCO MODULAR

DRAWN	DA 00/00/00	Holder, Datum:	AS NOTED	Centre Interval
CHECKED	MG 00/00/00	Vert. Datum:		Method of Survey:
SCALE:	1:500 at A1			RTK GPS

**WORKERS VILLAGE
STAGE 1 BOUNDARY LOCATION**

DRAWING NUMBER: **TNS203-22_SU01** AMGT: **A**



Statement Attachment B

AEC (2014b)

Environmental Site Management Plan

ENVIRONMENTAL SITE MANAGEMENT PLAN

**LOT 4445, BATTEN ROAD
MARRARA, NORTHERN TERRITORY**

Prepared for:

Ausco Modular Pty Ltd

Date: February 2014

Reference No: J123791

Report Version: J123791-R-002-Rev1

Prepared by:

AEC Environmental Pty Ltd

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APPENDICES

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AEC DOCUMENT CONTROL

Report Title & AEC job Ref:- Phase 1 and 2, Section 4445 Batten Road, Marrara, NT			Filename:- J123791-R-002-Rev0	
Written: Chris Weber Principal Environmental Scientist			Approved: Travis Shreeve Environmental Manager	
Rev No	Status	Date	Author	Reviewer
A	Draft	January 2014	CW	TFS
0	Final	February 2014	CW	TFS
1	Final	February 2014	CW	TFS

Rev No	Copies	Recipient
A	1 x Electronic Copy	Ausco, GHD
1	1 x Electronic Copy 1 x Hard Copy	Ausco, GHD

1.0 Introduction

AEC Environmental Pty Ltd (AEC) was engaged by Ausco Modular Pty Ltd (Ausco) to develop an Environmental Site Management Plan (ESMP) for the eastern portion of Lot 4445, Batten Road, Marrara (the site), see Figure 1, Appendix A.

The ESMP sets out measures to maintain the separation layer to manage exposure to soils at the site and the associated risk to site users, contractors and the environment.

This ESMP relates only to the management of exposure to soil underlying the gravel and soil cap that forms the separation layer at the site. The ESMP does not address general environmental issues associated with works during the development and operation of the site, and does not constitute an Occupational Health and Safety (OH&S) Plan.

Copies of this ESMP should be held by the site owner and the site manager, and be provided to contractors working below ground in the area of the separation layer.

1.1 Background

The available historical information indicates that the site remained undisturbed bushland until the 1980s when the site was partially cleared and surrounding areas were developed. The site had been used as a dumping area for various wastes included asbestos containing materials since the 1990s.

On behalf of the Department of Lands, Planning and the Environment (DLPE), in 2012 AEC conducted an Environmental Site Assessment that highlighted the presence of uncontrolled fill and buried waste at the site, with waste material extending to 1.0m BGL in some areas.

Waste material encountered included plastic, tile fragments, ceramic pieces, glass, scrap metal, polystyrene, concrete, steel rods, ash and cinders, bricks, drink cans, crushed rock, PVC, electrical wire, hessian material, rope, vinyl tile and potential ACM debris.

1.1.1 Contaminants of Concern

Elevated levels of arsenic and zinc were reported above the adopted ecological guidelines in soil samples from a number of locations within the area of buried waste. An elevated level of copper was also reported above the adopted human health guidelines in a soil sample in the eastern portion of the site, as was the presence of asbestos containing material (ACM) debris (in the form of cement sheet) containing Chrysotile (white asbestos) on the ground surface. Asbestos fibres (including AF/FA) were not detected in the soil samples analysed from these locations or within any other soil samples tested.

1.1.2 Proposed Development

Ausco are developing the site for the temporary use of a short term, short stay accommodation village. Prior to commencing the development, the contamination status of the site was assessed to support the undertaking of an Environmental Audit in accordance with the Environment Protection Act. The Statement of Environmental Audit objective is to state that

the site is suitable for the short term, short stay accommodation village use, supported by management conditions that can be implemented by the site manager or a nominated officer for the site.

The proposed development will include 190 accommodation units (282 rooms), a diner / reception / retail and cafe building, kitchen and bbq areas, laundry / linen store, a gymnasium, bus stop and car parking areas. The majority of the site will comprise hardstanding, with some landscaped areas. The proposed accommodation units will be temporary and transportable and will be raised off the ground.

Further details of the proposed site layout, accommodation and landscape design are included in the drawings provided by Ausco and attached in Appendix B.

1.2 Objectives

The objective of this ESMP is to outline management measures for on-going maintenance of the separation layers to manage exposure to the impacted soil at the site by:

- Advising site residents, operators and construction/maintenance workers of the potential soil contamination present.
- Providing information on the physical barriers (hereafter termed "separation layers") that cover the impacted soils at the site and must be maintained during the proposed use of the site.
- During the day to day operation of the short term, short stay accommodation village use, managing exposure to the soils at the site such that residents, and maintenance workers are not able to come into contact with these soils.

1.3 Scope of Activities

All activities or events where the surface of the site is penetrated, eroded or that may cause degradation of separation layer condition will be considered as within the scope of the ESMP. Activities covered by the ESMP include but are not limited to:

- General maintenance of separation layers.
- Excavation into and beneath the separation layers.
- Mitigation measures.
- Weather events.
- Driving on site.

2.0 Responsibilities & Obligations

The site is owned by the Northern Territory Government, and leased and operated by Ausco. It is the responsibility of the operator of the site to implement responsible and practical management procedures to minimise environment impact to achieve the objectives of the ESMP during the operational phase. The overarching responsibility for on-going management of separation layers at the site is with the operator, who should be fully informed of and accept responsibility for the on-going implementation of the ESMP.

In particular, the operator should agree and adopt appropriate management controls for continuing implementation of the protective measures of the ESMP. This will ideally be via the nomination of a representative officer, which may be the facility manager to act as the key point of contact for the implementation and maintenance of separation layers at the site.

The operator must also understand that the ESMP does not remove any of their obligations to comply with relevant occupational health and safety legislation and environmental / NTEPA Guidelines (e.g., State Environment Protection Policies (SEPPs), Waste Regulation Guidelines and environmental regulations promulgated under the *Environment Protection Act*, 1970).

The on-going representative officer or facility manager nominated should:

- 1) Maintain a master hard copy of this ESMP on-site including relevant attachments and reports;
- 2) Undertake/arrange for inspections of the separation layers on a weekly basis or as required (weather event, disturbance), review the findings of the inspections and arrange rectification works, if required;
- 3) Take responsibility for ensuring all staff and contractors undertaking works on the site that may disturb the contaminated soil:
 - i) are aware of the required actions and their responsibilities outlined in this ESMP for tasks that result in uncovered soil;
 - ii) are appropriately trained; and
 - iii) have an appropriate Occupational Health and Safety (OH&S) Plan with regard to the identified soil contamination;
- 4) Facilitate implementation of procedures included within this ESMP and assist workers and contractors in obtaining the appropriate approval for projects and/or earthworks at the site;
- 5) Coordinate the review of the ESMP on a five yearly basis;
- 6) Liaise with the owner/operator regarding issues that may arise in relation to the separation layers, the soil contamination and ESMP; and
- 7) Provide feedback to the operator in response to actions undertaken resulting from this ESMP.

Construction contractors and maintenance workers/contractors should:

- 1) Be aware of the requirements of this ESMP content and implement the relevant actions at all times;
- 2) Prepare or commission an appropriate OH&S Plan with regard to the identified soil contamination for their proposed works; and
- 3) Inform the Representative Officer of potential issues with the separation layers that are observed or result from the works.

Table 1 below summarises the ESMP roles and responsibilities:

Table 1 – Roles and Responsibilities

Role	Responsible Party	Responsibilities under SMP
Site Owner	NT Government	None
Site Operator	Ausco Modular Pty Ltd	Implement ESMP management procedures to minimise environmental impact
		Overarching responsibility for on-going management of separation layers
		Comply with relevant occupational health and safety legislation and environmental / NTEPA Guidelines
		Nominate representative officer
		Organise and cover the costs of the ESMP review every five years
Representative Officer	To be Nominated	Maintain a master hard copy of this ESMP on-site
		Undertake or arrange for inspections of the separation layers on a weekly basis
		Undertake or arrange for additional inspections when required by weather event or disturbance
		Review the findings of the inspections and arrange rectification works if required
		Ensure all staff and contractors undertaking works are site inducted and aware of ESMP requirements
		Ensure all staff and contractors undertaking works are appropriately trained and have appropriate OH&S plan
		Facilitate implementation of procedures included within this ESMP
		Assist workers and contractors in obtaining the appropriate approval for works at the site
		Coordinate the review of the ESMP on a five yearly basis
		Liaise with the owner/operator regarding issues in relation to the separation layers, the soil contamination and ESMP
		Provide feedback to the operator in response to actions undertaken resulting from this ESMP
Construction and Maintenance Workers/Contractors	To be Nominated	Be aware of the ESMP requirements and implement the relevant actions
		Provide appropriate OH&S Plan with regard to the identified soil contamination for their proposed works
		Inform the Representative Officer of potential issues with the separation layers that are observed or result from the works

2.1 Relationship to Operator/Contractor OH&S Obligations

The ESMP outlines the management controls to minimise risk to human health. However, the controls presented in this document are not considered to represent specific occupational health and safety measures (ie. use of PPE) that still may be necessary for certain activities carried out by the operator or subcontractors.

It is recommended that the manager of the works develop a site specific OH&S Plan to ensure that OH&S risks are managed to acceptable levels during ground intrusive works.

3.0 DESIGN OF SEPARATION LAYERS

3.1 Objectives

The separation layers are to be maintained at the site to manage the risk of exposure to contaminated soil during ongoing site use. The separation layers comprise a gravel and soil cap across the site. This section describes the minimum requirements for the separation layers.

The objective of the separation layers is to minimise the risk of exposure (direct and indirect) to elevated chemical concentrations in soil by the following:

- Provide physical separation between site occupiers and potentially impacted soil;
- Prevent the potential for generation of potentially contaminated dust; and
- Maintain the visual and aesthetic amenity of the site.

3.2 Different Types of Separation Layer Materials

The separation layers at the capped section of the site generally comprise gravel, with top soil used as a substrate under garden beds, grassed areas and beneath the raised accommodation units. The separation layers have a minimum thickness of 100 mm in all areas.

Gravel: The gravel separation layer generally comprises pale grey to pale brown, coarse grained crushed rock gravels of angular to sub angular shape, and include quartzite and igneous rock, as well as some quartz. The rock colour is generally light and grey for fresh, unweathered rock (Acacia Blue Gravel), and grey-brown to brown for lightly weathered to weathered rock (Hayes Creek Gold Gravel).

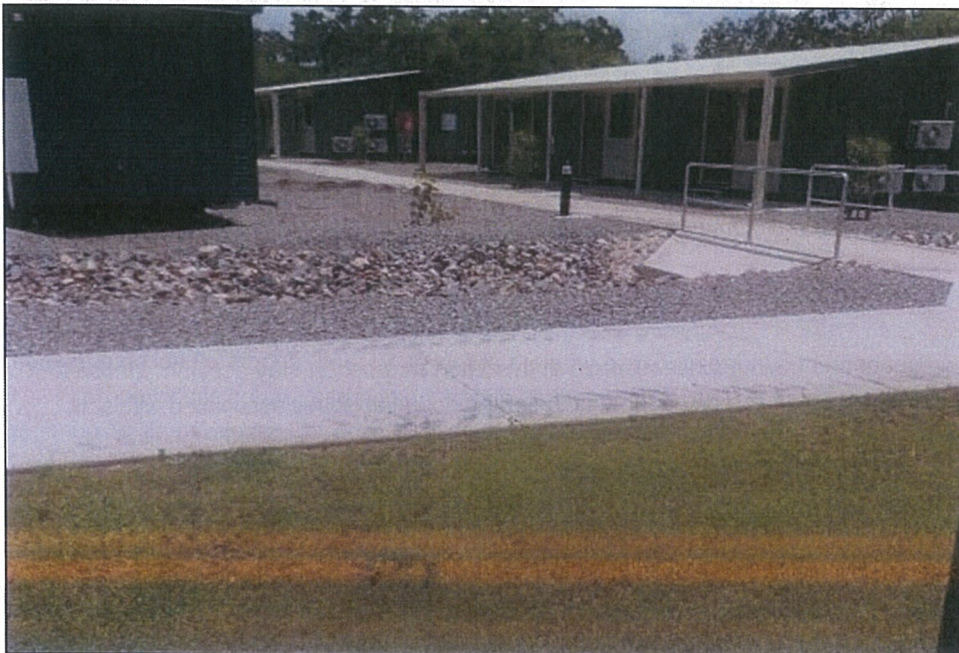


Photograph 1 – Close up of capping gravels.

Capping soils: Imported planting soils have been used to construct the capping layers in the grassed and planting bed areas, and soils comprising sandy and clayey silts were used for the pad areas underneath the accommodation blocks. The soils comprise mostly dark brown to dark grey sandy silts and silty sands with some sub-angular gravels and trace organic materials. Depending on the surface finish, the grassed areas are covered either in Buffalo or seeded grass, while the planting beds have a thin surface cover of landscaping pebbles (Champagne Quartz Pebbles) between the individual plants.



Photograph 2 – Planting bed with landscaping pebbles.



Photograph 3 – Grassed area in the foreground, with concrete footpath and rock lined stormwater drain in the background.

In addition to the separation layer materials above, rock lined stormwater drains and concrete walkways are also present within the capped area. These also serve as barriers to the underlying soils in addition to their primary function as drains and thoroughfare.

The site layout and distribution of different separation layer materials is shown the drawings provided by Ausco and attached in Appendix B.

4.0 Management of Separation Layers During Operations

The separation layers provide long-term prevention of exposure of residents and staff at the short term, short stay accommodation village development to the soils at the site. The separation layers must therefore be inspected and maintained during the on-going and long-term operation of the site.

The inspection and maintenance regime for the separation layers can only be relaxed or rescinded if:

- The use of the site changes from the proposed short term, short stay accommodation village residential use; and
- A subsequent Environmental Risk Assessment for the new site use is undertaken by an environmental consultant who is a member of the Australian Contaminated Land Consultants Association (ACLCA).

The risk assessment and final condition of the site with respect to the proposed land use change would need to be reviewed by an accredited EPA Environmental Auditor (Contaminated Land). A revised audit report may also need to be prepared to support the proposed land use change.

The following sections set out the monitoring and maintenance of the separation layer as follows:

- Inductions of management staff for awareness of the existence of the impacted soil and separation layer.
- Communication to community and residents
- Long-term monitoring and rectification of the separation layer.
- Management of soils and reinstatement of separation layer during further construction, upgrade or maintenance works at the site.

4.1 Staff Inductions

Senior management and maintenance workers at this short term, short stay accommodation village development should have an understanding of the potential issues associated with soil contamination at the site, the role of the separation layer and the requirement for ongoing implementation of the ESMP. The requirement for informing all staff at the site should be decided by the operator.

It is recommended that the facility management and maintenance staff are formally inducted to these issues, particularly during handover to new staff. Records must be kept of the inductions.

4.2 Communication to Community and Residents

The Owner may wish to communicate the presence of the impacted soil and the management of risks by the separation layers to community and residents. If approved by the operator, provision of appropriate, consistent and accurate information is vital. The operator should prepare the information to be released in the preferred format. A qualified environmental consultant may be consulted on the required content of a letter or information leaflet. A record of issue of this information release to each stakeholder should be maintained.

4.3 Monitoring and Maintaining the Separation Layers

4.3.1 Monitoring of Separation Layers

Detailed visual inspections shall be undertaken or arranged for by the operator or named representative officer as a minimum weekly to confirm the status of the separation layers.

Additionally, further inspection should be conducted if any of the following occurs:

- Extreme weather events with heavy, torrential rainfall and/or flooding, like Cyclones and rainfall events with an Average Recurrence Interval (ARI) of 2 years or greater.
- Vehicles driving across the capping area (cars, 4x4s and motorbikes).
- Burrowing or digging animals (e.g. rabbits, kangaroos and others) are observed on site and below the accommodation units.
- Damage to below ground infrastructure like water pipes and sewers.

An Inspection and Action Record Sheet (see pro-forma document attached in Appendix C) should be filled in following the inspections. The findings of all inspections shall be documented and filed with the ESMP and made available for review by the owner.

4.3.2 Restrictions for Separation Layers

The following restrictions apply to the separation layers:

- Vehicles are not to be driven across the separation layer, specifically in the gravel areas. An exception are ride-on mowers required to cut grass on the grassed areas. Should vehicular access to the separation layer be required for maintenance or other operational reasons, the separation layer needs to be inspected after the vehicle has vacated the site.
- Excavations into and beneath the separation layers are only to be conducted in accordance with the requirements of the ESMP.

4.3.2 Ongoing Rectification of Defective Separation Layers

If some areas of the separation layers are found to be defective as a result of the inspections, or are observed to be defective or degraded during the daily operations of the site, the owner (or representative officer) shall take actions to have the layers repaired or reinstated. Defects of the separation layers may include:

- Disturbed capping gravels and soils, including furrowed tyre tracks;
- Animal disturbances like forage pits and burrows;
- Stormwater damage including surface erosion and erosion scarps. Gutters and downpipes of the accommodation units should be maintained to avoid overflow that could damage the separation layer.
- Tree roots/shoots that penetrate the surface.
- Damage associated with leaking water and sewer pipes.

The repair actions should meet, or better, the as-built descriptions of the separation layers. The repair actions shall be documented in accordance with this ESMP using the pro forma Soil Management Plan in Appendix C. Any repair actions that require excavation into the soil at the site beneath the identified separation layer shall only be undertaken by maintenance personnel or authorised contractors in accordance to the requirements of this SMP.

4.4 Maintenance Requirements, Earthworks and Work Procedures

4.4.1 OH&S Plan

A site-specific OH&S Plan should be developed and maintained for the site by the owner (or an occupational hygienist) in relation to the potential excavation of soil from beneath separation layer at the site. The requirement for an OH&S Plan to be developed and maintained for the site relates to the presence of metals and asbestos in fill soils at the site.

The OH&S Plan can be generic in nature and further considered by the contractors when it is intended to undertake intrusive maintenance or installation works beneath the existing separation layers.

The developed OH&S Plan shall be kept with this ESMP and altered or revised appropriately by a qualified occupational hygienist for future excavation works undertaken at the site should the site conditions alter.

The minimum OH&S measures for works that may disturb the underlying fill soils are:

- Monitoring of dusts.
- Washing hands, forearms and face with clean water, detergent and clean towels before eating, drinking, smoking, applying cosmetics, using the toilet and before leaving site; and
- Cleaning of work boots and washing of work clothes that may have adhering soil or dust.
- Personal protective equipment to reduce exposure to potentially contaminated soil in the work area (long trousers, long sleeves, gloves and safety glasses/goggles and, if necessary, dust mask).
- Food and drink shall not be consumed within the work area, and should be confined to clean areas for welfare and eating.

Staff should be inducted to these measures if expected to encounter contaminated soil during site works.

Notwithstanding the above, this document does not constitute occupational health and safety advice and all parties working at the site should design and implement appropriate work practices to protect the health and safety of site workers and the general public during site works.

4.4.2 Standard Maintenance Activities

Standard maintenance activities are those where soil is not excavated below the separation layers as defined by this ESMP. These standard maintenance activities include, for example, building maintenance, gardening in landscaping beds, mowing of grass, fencing and all other activities where soil or site disturbance is above the separation layer.

It is recommended that standard maintenance staff are formally inducted to the potential issues at the site and records kept of the inductions.

It is the responsibility of the facility management to assess when existing or new staff or external contractors require training and induction, and to arrange for the training to occur.

4.5 Maintenance Beneath Separation Layers

Intrusive maintenance is considered to be maintenance requiring excavation beneath the installed separation layer into the sub-surface soils of the capped site area. This includes:

- Excavation below the buildings and other structures like concrete pathways; and
- Excavation below the separation layer as defined in this ESMP.

Written approval shall be sought from the facility manager prior to carrying out excavations. Where possible, maintenance works should be carried with restricted public access. This may include barriers, fencing or not using parts of the site near the work area.

A task-specific Soil Management Plan (SMP) should be developed in consultation with the facility management. An example task-specific SMP has been provided in Appendix C and should be followed through the works.

The task-specific Soil Management Work Plan shall be implemented, rectification confirmed and confirmation of this be submitted to facility manager for record on completion of the works.

4.5.1 Earthworks Work Procedures

The following minimum requirements for excavation beneath the Separation Layers shall be met:

- A task-specific Soil Management Work Plan should be developed prior to commencement of works as set out in Section 4.5;
- The OH&S Plan shall be considered in preparation of the task-specific Soil Management Work Plan;
- Excavations should be as small as practical;
- Soil excavated should be placed onto a sheet of builder's plastic (HDPE tarp) laid down beside the excavation and should be covered with builder's plastic;
- Should highly odorous or discoloured soil be encountered that exceeds the level considered within the OH&S Plan, then further work at the location should be stopped and the Facility Manager be informed;

- Excavations should be left open for the minimum possible time to achieve the required action;
- Soil generated from the excavations should be placed back into the hole in approximately the same order that it was excavated (i.e. deep soil should be replaced first); and
- The Separation Layers should be reinstated over the excavated area to meet the original construction standards in terms of placement and material contamination status or a better standard.

Disposal of Waste Soil

All soil and other materials to be removed off site must be tested, classified and disposed of in accordance with NT Environmental Protection Guidelines (Publication IWRG621, 2009) or subsequent documents that replace it.

Where possible, the soil should be classified prior to excavation so it can be loaded directly into trucks for offsite disposal in accordance with EPA transport regulations. Where this is not possible, excess excavated soils should be placed onto a sheet of builder's plastic (HDPE tarp) and should be covered with builder's plastic, or stored in a labelled lockable bin (with the facility manager's details) within an area on the site which cannot be accessed by the public. The soils should then be classified in accordance with Environment Protection Publication IWRG621 (2009).

Records of the testing and verifying the material classification shall be maintained by the facility manager.

Import of Clean Fill to Site

Should material be imported on to the site for use in repairing the separation layers, filling excavations or for other construction purposes, the material shall meet the requirements of Fill Material criteria outlined in Environment Protection Publication (IWRG621, 2009) or subsequent documents that replace it. The testing frequency for imported material shall be 1 sample per 25 m³ of imported fill unless otherwise specified in the guidelines

Records verifying the contamination status of the material brought on to site shall be collated and maintained by the facility manager.

4.5.2 Major Alterations to the Development

Should the operator wish to alter the separation layers on the site such that areas of the capped soil are exposed, then a specific contamination assessment of those areas of soil should be undertaken and remediation or revision to the separation layers be approved by an EPA accredited Environmental Auditor.

The ESMP should then be updated to reflect the changes.

4.5.3 Contingencies and Uncertainties

Where unexpected events occur that may result in exposure to contaminated soil, the Facility Manager shall be contacted immediately. Where possible, the area where the exposure is

likely to occur should be isolated in order that development users are prevented from using it. This may include the use of barriers or completely preventing use of the area.

Where uncertainty exists in relation to the soil contamination or in relation to the integrity or fit-for-purpose nature of the separation layers, the facility manager shall be contacted immediately. They shall contact an environmental consultant for advice as required.

In the event that potential asbestos containing materials (ACM) is encountered during site works or as a result of disturbance of the separation layer, the following steps should be undertaken to manage the contamination:

- Stop work;
- Report suspected contamination to site foreman;
- Isolate area with a physical barrier;
- Assume the area is contaminated until an assessment proves otherwise;
- Nominated officer to notify a suitably qualified asbestos removalist to enable them to assess and remove the ACM.
- Repair or re-install the separation layer in accordance with ESMP requirements and OH&S Plan.

4.6 Documentation and Review

The originals of all reports and actions taken under this ESMP shall be kept in one place at a location nominated by the owner or operator so that the information can be easily reviewed.

Records should be kept of:

- Staff inductions,
- Information provided to community and residents, and inspections of the Separation Layers,
- All remedial actions to maintain the separation layers or work which necessitates the disturbance of the separation layers.

4.7 Independent Review of the ESMP

Once every five years it is the responsibility of the owner to organise an independent review of the site to ensure that Separation Layers are being maintained, that the ESMP and associated procedures are being implemented and that the documentation of the outcomes of the procedures are being recorded in general accordance with this ESMP.

The independent review should be undertaken by a 'suitably qualified person' pursuant to Section 68 of the Waste Management and Pollution Control Act. The NT EPA administers a Register of Qualified Persons, and in early 2011 persons accredited under the NSW Site Auditor Scheme or the Victorian Environmental Auditor Scheme were approved as a class of person suitable to undertake environmental audits in the NT. The Environmental Auditor shall confirm in writing that the ESMP in place at that time remains effective in addressing the issues related to the soil contamination.

The findings of the five year review should be maintained and filed with the ESMP.

5.0 Limitations

The ESMP outlines the management controls to reduce risk to human health and the environment, however, these controls are not considered to represent all specific occupational health and safety measures that still may be necessary for certain activities carried out by the site owner or contractors at the site. These potential risks should be controlled by the development of site specific OH&S plans.

The site operator must understand that this ESMP does not obviate their obligations to comply with relevant occupational health and safety legislation and environmental /EPA Guidelines (e.g., Occupational Health and Safety Act 2000, State Environment Protection Policies (SEPPs), Industrial Waste Regulation Guidelines (IWRGs) and environmental regulations promulgated under the Environment Protection Act, 1970)

This ESMP has been prepared in accordance with industry recognised standards and procedures at the time of the work. No warranties expressed or implied are offered to any third parties and no liability will be accepted for use of this ESMP by any third parties.

Information provided by third parties has been assumed to be correct and complete. AEC does not assume any liability for misrepresentation of information by third parties or for matters not visible, accessible or present on the subject property during any site inspections conducted during the time of the work.

APPENDIX A

Figures

Figure 1: Site Location, Lot 4445, Batten Road, Marrara, NT



Legend

- Site Boundary
- Approx. extent of capped fill with contamination



1:6,000

0 50 100 200 Metres

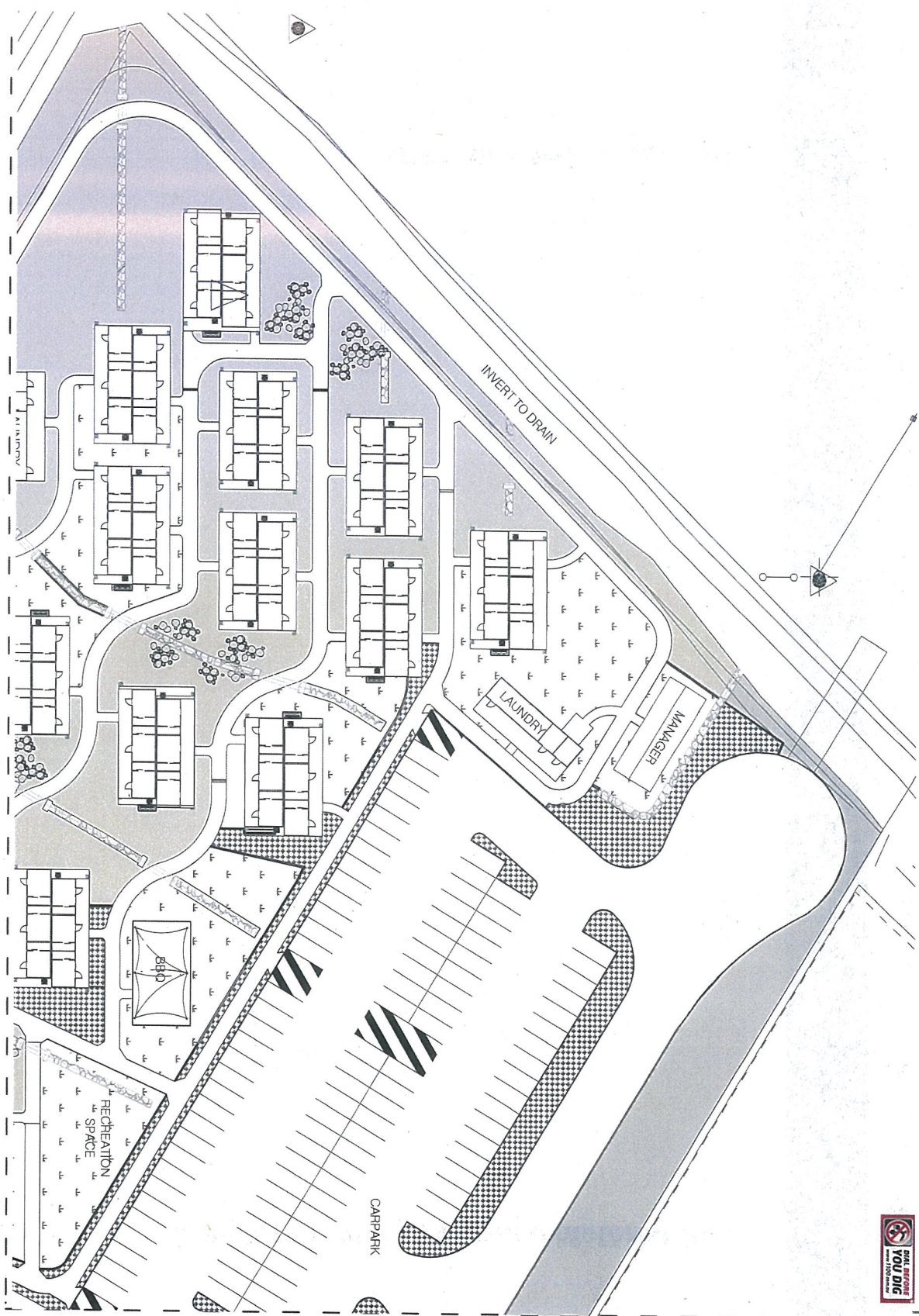
Disclaimers:

Basemap Source: Google 2013
Information source: NAA 2013
Noel Arnold and Associates has prepared Client GIS map and data sets. Every reasonable effort has been made to assure the accuracy of the map. However, this map and other information are only as accurate as the source of such maps and other information. Further, the map requires regular updates and therefore may not reflect the most current information.

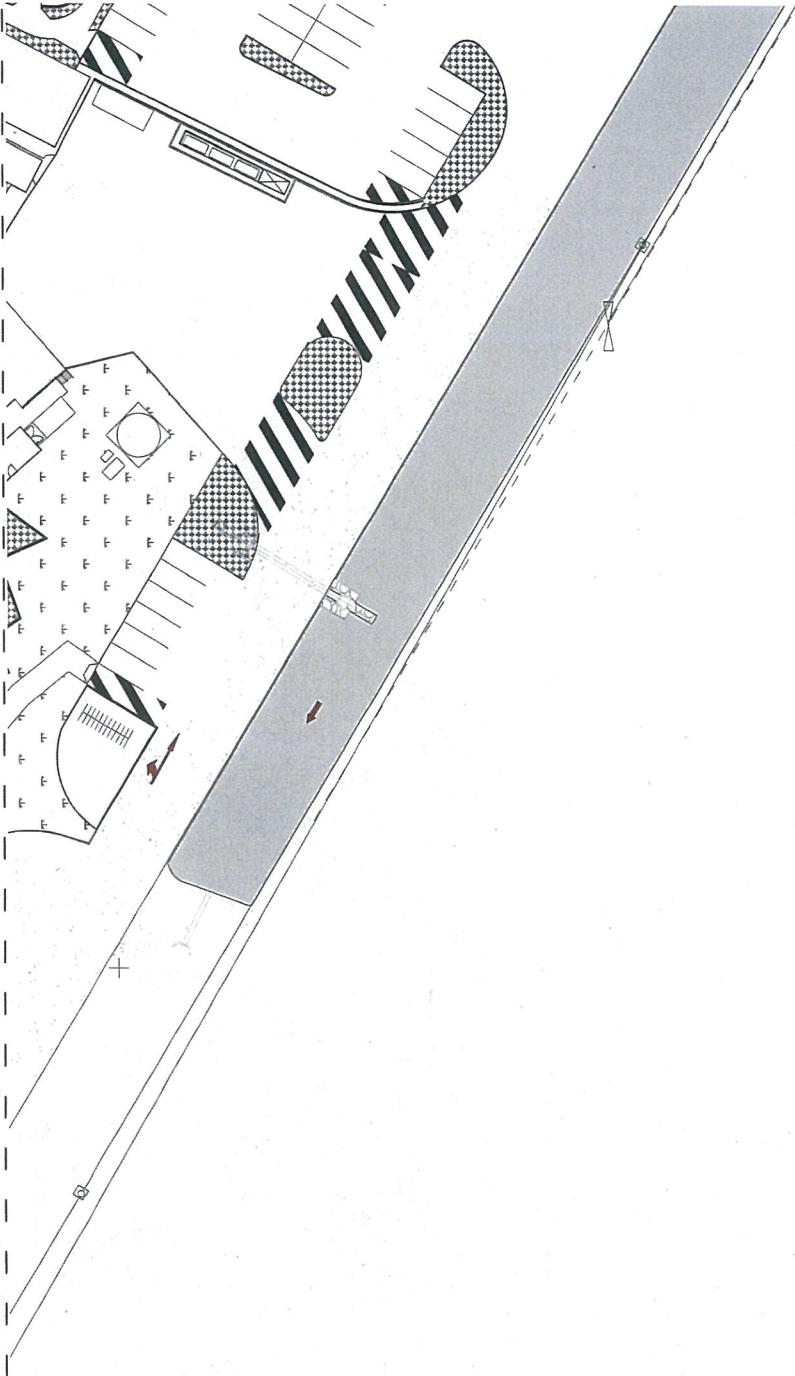
Client: Ausco Modular Pty Ltd			
Project: Environmental Site Management Plan			
Job No.: J123791	Date: 24/01/2014	Verified: DCC	
Client No.: C10709	Drawn: MCL	PM: CW	
AEC Environmental A GREENCAP CONSULTING COMPANY			Draft No. 1

APPENDIX B

Development and Surface Material Plan



FOR CONTINUATION OF PLAN REFER WD-402



FOR CONTINUATION OF PLAN REFER WD-404



NOTES: ALL DIMENSIONS ARE GIVEN IN METERS UNLESS OTHERWISE SPECIFIED.
 1. ALL DIMENSIONS ARE GIVEN IN METERS UNLESS OTHERWISE SPECIFIED.
 2. ALL DIMENSIONS ARE GIVEN IN METERS UNLESS OTHERWISE SPECIFIED.
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 10. ALL DIMENSIONS ARE GIVEN IN METERS UNLESS OTHERWISE SPECIFIED.

Item	Description	Notes
A	WATER TREATMENT TANK	FE
B	PATENTED AND DRAINAGE	FE
C	WATER TREATMENT TANK	FE
D	WATER TREATMENT TANK	FE

- KEY TO SYMBOLS:**
- WATER TREATMENT TANK ON 100MM DEPTH TOPSOIL AS SPECIFIED
 - SEEDED GRASS ON 100MM DEPTH TOPSOIL AS SPECIFIED
 - GARDEN BED WITH 200MM WIDE GARDEN BED EDGING AS SPECIFIED
 - 100MM DEPTH BLENDED GRAVEL AS SPECIFIED
 - CONCRETE FOOTPATHS BY OTHERS
 - ASPHALT ROAD SURFACES AND CAR PARK BY OTHERS
 - ROCK LINED STORMWATER DRAINS BY OTHERS
 - SEALING BOLDERS AS SPECIFIED
 - OPTIONAL GRATED DRAIN AS SPECIFIED
 - OPTIONAL TRELLIS SCREEN AS SPECIFIED

PROJECT:
 AIRPORT
 ACCOMMODATION VILLAGE
CLIENT:
 AUSCO Pty Ltd

DRAWING TITLE:
 SURFACE TREATMENT PLAN
 2 OF 6

SCALE:
 1:250@A1
 NORTH

Item	Description	Notes
A	WATER TREATMENT TANK	FE
B	PATENTED AND DRAINAGE	FE
C	WATER TREATMENT TANK	FE
D	WATER TREATMENT TANK	FE

MODE DESIGN
 MANNER METHOD FORM
 3 Level, Three Design, N° 0000
 PO Box 93, Parramatta, NSW 2150
 Tel: +61 8 8841 8262 Fax: +61 8 8841 3307
 Email: damian@modedesign.com.au

FOR TENDER

FOR CONTINUATION OF PLAN REFER WD-400



FOR CONTINUATION OF PLAN REFER WD-403

MANAGEMENT	
Item	Description
A	DESIGN
B	CONSTRUCTION
C	OPERATION
D	MAINTENANCE

- KEY TO SYMBOLS**
- 1. SIR WALTER BUFFALO TURF ON 100MM DEPTH TOPSOIL AS SPECIFIED
 - 2. GARDEN BED WITH 200MM WIDE GRASS BED EDGING AS SPECIFIED
 - 3. CONCRETE FOOTPATHS BY OTHERS
 - 4. ASPHALT ROAD SURFACES AND CAR PARK BY OTHERS
 - 5. ROCK LINED STORMWATER DRAINS BY OTHERS
 - 6. REMEDIATED BOLLERS AS SPECIFIED
 - 7. OPTIONAL GRATED DRAIN AS SPECIFIED
 - 8. OPTIONAL TRELLIS SCREEN AS SPECIFIED

PROJECT
AIRPORT
ACCOMMODATION VILLAGE

CLIENT
AUSCO Pty Ltd

DRAWING TITLE
SURFACE TREATMENT PLAN
3 OF 6

SCALE
1:250@A1

Item	Rev	Description	Date
A	1	DESIGN	10/04/2013
B	1	CONSTRUCTION	10/04/2013
C	1	OPERATION	10/04/2013
D	1	MAINTENANCE	10/04/2013

MODE DESIGN

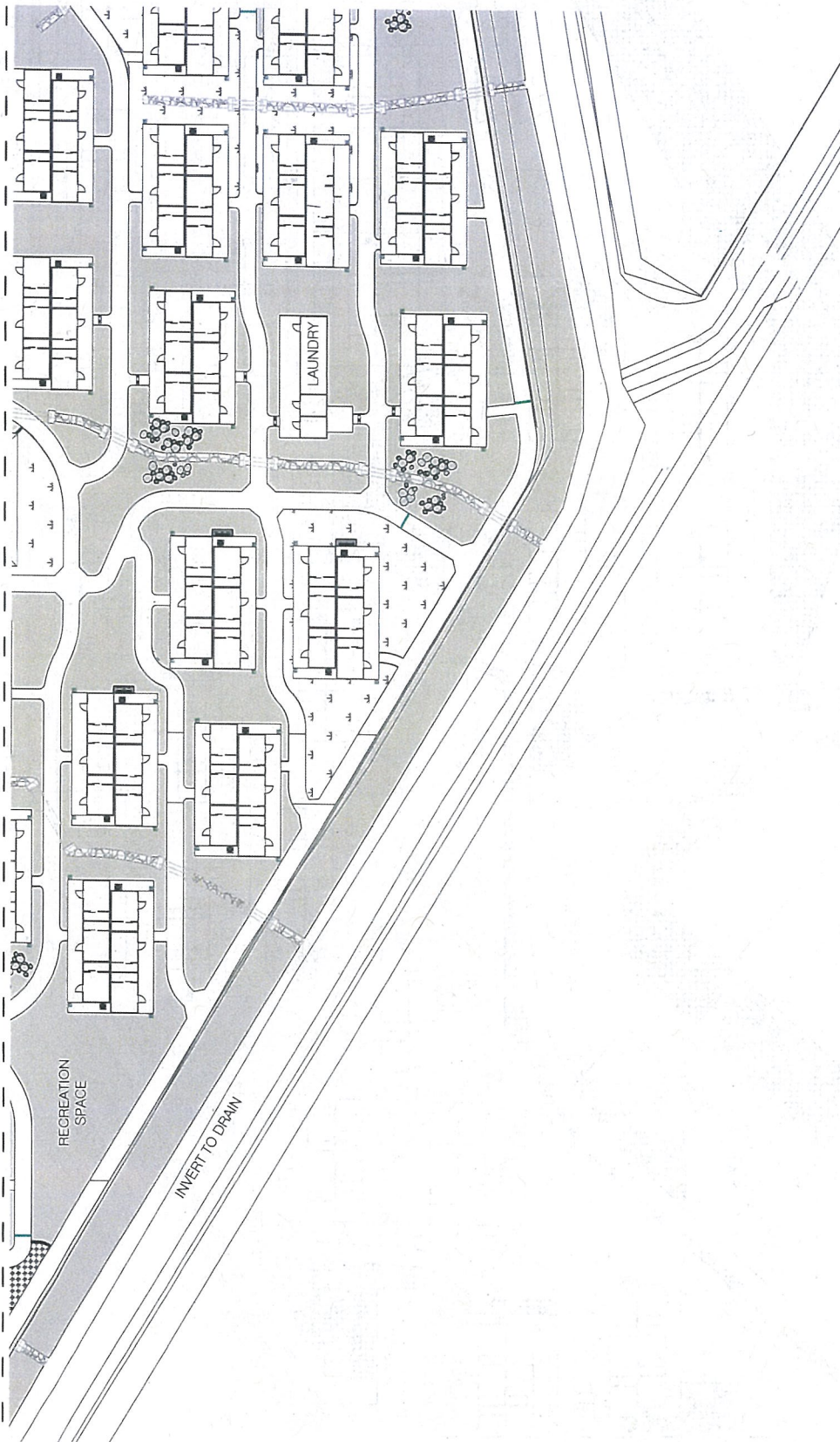
MANNER METHOD FORM

3. Harriet Place, Cammeray NSW 1585
P.O. Box 93, Cammeray NSW 1585
Tel: (02) 9439 1000
Email: info@modedesign.com.au

FOR TENDER



FOR CONTINUATION OF PLAN REFER WD-401



NOTES:
1. ALL WORKING IN THIS DRAWING IS TO BE COMPLETED BY THE
2. THE CLIENT IS TO BE ADVISED OF ANY CHANGES TO THE
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AMENDMENTS	Drawn	Checked	Author
A	15/01/2017	15/01/2017	FE
B	15/01/2017	15/01/2017	FE
C	15/01/2017	15/01/2017	FE
D	15/01/2017	15/01/2017	FE

- KEY TO SYMBOLS
- SIR WALTER BUFFALO TURF ON 100MM DEPTH TOPSOIL AS SPECIFIED
 - 100MM DEPTH TOPSOIL AS SPECIFIED
 - GARDEN BED WITH 200MM WIDE 100MM DEPTH BLENDED GRAVEL AS SPECIFIED
 - CONCRETE FOOTPATHS BY OTHERS
 - ASPHALT ROAD SURFACES AND CAR PARK BY OTHERS
 - ROCK LINED STORMWATER DRAINS BY OTHERS
 - SEMI-CIRCULAR BOULDER SPECIFIED
 - OPTIONAL GRATED DRAIN AS SPECIFIED
 - OPTIONAL TRELLIS SCREEN AS SPECIFIED

PROJECT
AIRPORT
ACCOMMODATION VILLAGE
CLIENT
AUSCO Pty Ltd

DRAWING TITLE
SURFACE TREATMENT PLAN
5 OF 6

SCALE
1:250 @ A1



DOCUMENT STATUS & REVIEW	Drawn	Checked	Author
A	15/01/2017	15/01/2017	FE
B	15/01/2017	15/01/2017	FE
C	15/01/2017	15/01/2017	FE
D	15/01/2017	15/01/2017	FE

Drawn	Check	Date	Drawn by	Checked by
FE	FE	15/01/2017	15/01/2017	15/01/2017

**MODE
DESIGN**

MANNER METHOD FORM

A.B.N. 65 112 807 931
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Darwin
3. Haniel Place Darwin NT 0800
08 9393 9393
Tel +61 8 9393 9393
Email darwin@modedesign.com.au

FOR TENDER

FOR TENDER

**MODE
DESIGN**
MANNER METHOD FORM

Drawn	Check	Date	Job No.	Drawn By	Drawn
05	FE	16/11/2012	220652	WB-KS	D
04	FE	16/11/2012	220652	WB-KS	D
03	FE	16/11/2012	220652	WB-KS	D
02	FE	16/11/2012	220652	WB-KS	D
01	FE	16/11/2012	220652	WB-KS	D

SCALE
1:250@A1
NORTH

DRAWING TITLE
SURFACE TREATMENT PLAN
6 of 6

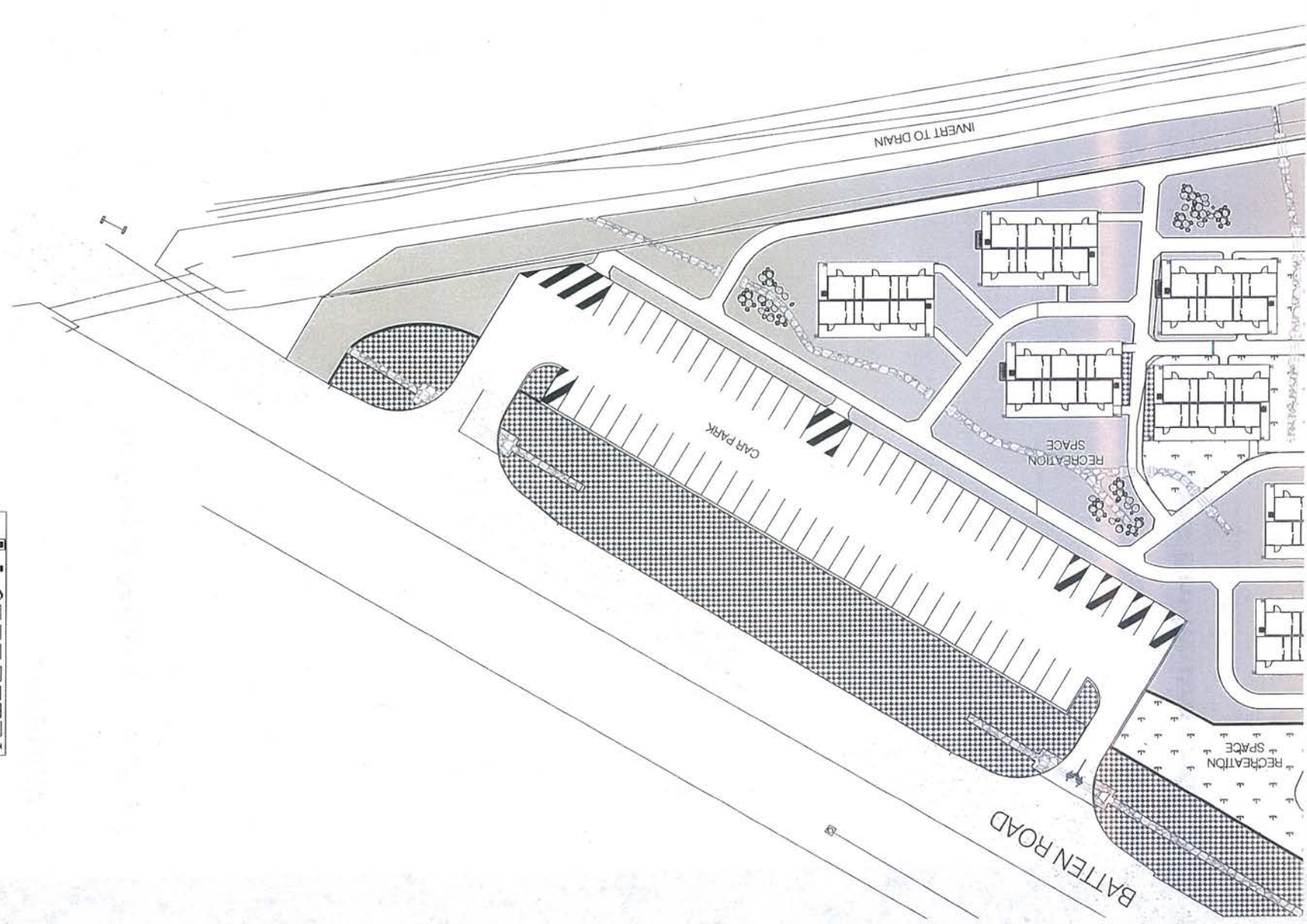
PROJECT
AIRPORT ACCOMMODATION
VILLAGE
CLIENT
AUSCO Pty Ltd

KEY TO SYMBOLS
OPTIONAL TRELLIS SCREEN AS SPECIFIED
OPTIONAL GRATED DRAIN AS SPECIFIED
SEMI-BURNED BOULDERS AS SPECIFIED
ROCK LINED STORMWATER DRAINS BY OTHERS
ASPHALT ROAD SURFACES AND CAR PARK BY OTHERS
CONCRETE FOOTPATHS BY OTHERS
SPECIFIED
100MM DEPTH BL ENDED GRAVEL AS SPECIFIED
GARDEN BED EDGING AS SPECIFIED
TOPSOIL AS SPECIFIED
SEDED GRASS ON 100MM DEPTH
DEPTH TOPSOIL AS SPECIFIED
SILT WALTER BUFFALO TURF ON 100MM

REVISIONS	
No.	Date
01	
02	
03	
04	
05	

NOTES

- 1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
- 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
- 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
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- 9. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
- 10. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.



FOR CONTINUATION OF PLAN REFER WD-404



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E-mail: dave@modedesign.com.au

APPENDIX C

Pro-Forma Records and Plans

AEC Environmental

A GREENCAP
CONSULTING COMPANY

Pro-forma Inspection and Action Record Sheet**All of the following items are to be addressed****Date of Action:** **Time of Action:** **Personnel:****Weather Conditions (Temperature, Wind, Rain):**

ITEM	OBSERVATIONS	CHECKED (Y/N)
1	Was the entire site inspected?	
2a	Is the Separation Layer intact? (Check condition of layers)	
2b	If not, list required actions below and record location on a photocopy of the diagram layout of the facility.	
3a	Have works covered by the EMP been undertaken?	
3b	If works have been undertaken, list below and record location on a photocopy of the diagram layout of the facility.	
4	Were works undertaken in accordance with the EMP Attach any supporting information to this sheet	
5	Is any additional follow up recommended?	

Required Date/ Time of Next Action:**ADDITIONAL NOTES/ OBSERVATIONS**

Pro-Forma Task-Specific Soil Management Plan for Excavating Below the Separation Layers

All of the following items are to be addressed.

Works Personnel: Phone No:

Proposed Date of Works:

Proposed Duration of Works:

ITEM	ACTIONS
1	Location and Depth of Works Location: Depth: (Attach Plan showing intended location)
2	Works Description (Attach additional sheets if more space is required.)
3	Procedures for Management of Soil During Excavation (See overleaf for requirements) (Attach additional sheets if more space is required.)
4	Procedures for Management of Excess Soil Soil Classification: (Attach testing results/ assessment) Transport Contractor: Offsite Disposal Location:
5	Specific Occupational Health and Safety Considerations and Personal protective Equipment Requirements (consider both staff involved in the excavation and users of the facility) (Attach additional sheets if more space is required.)

Prior to Work – Approval of Task Specific EMP:

Signed: (Representative Officer of Owner/ Management)

Pro-Forma Task- Specific Soil Management Plan for Excavating Below the Separation Layers

All of the following items are to be addressed.

Work Completed and soil disposed of appropriately (Attach supporting documentation)

Table 1:

--

Signed:

(Representative Officer of Management)

On completion of works this form should be retained by the Facility Manager.

NOTES and COMMENTS

Pro-Forma Task-Specific Soil Management Plan for Excavating Below the Separation Layers

A. Summary of Requirements for Excavations

The following minimum requirements for excavation beneath the Separation Layers shall be met:

- A task-specific Soil Management Plan should be developed prior to commencement of works;
- The Occupational Health & Safety (OH&S) Plan shall be considered in preparation of the task-specific soil management plan;
- Excavations should be kept as small as practical;
- Soil excavated should be placed onto a sheet of builder's plastic laid down beside the excavation and should be covered with a piece of builder's plastic;
- Soil from below the separation layer should not be left at the surface after completion, nor should it be mixed with surface soil.
- Should highly odorous or discoloured soil or ACM be encountered then further work at the location should be stopped and the Facility Manager be informed;
- Excavations should be left open for the minimum possible time to achieve the required action;
- Soil generated from the excavations should be placed back into the hole in approximately the same order that it was excavated (i.e. deep soil should be replaced first); and
- The separation layer should be reinstated over the excavated area to meet the original construction standards in terms of placement and material as specified in the ESMP.

Disposal of Waste Soil

All soil and other materials to be removed off site must be tested, classified and disposed of in accordance with Environmental Protection (Publication IWRG621, 2009) or subsequent documents that replace it. Where possible, the soil should be classified prior to excavation so it can be loaded directly into trucks for offsite disposal in accordance with EPA transport regulations. Where this is not possible, excess excavated soils should be placed in a labelled lockable bin (with the facility Manager's details) within an area on the site which cannot be accessed by the public and classified in accordance with Environment Protection Publication IWRG621 (2009).

Records of the testing and verifying the material classification shall be maintained by the Facility Manager.

Import of Clean Fill to Site

Should material be imported on to the site for use in filling excavations or for other construction purposes, the material shall meet the requirements of *Fill Material* criteria outlined in EPA publication IWRG621 (2009) or subsequent documents that replace it. The testing frequency for imported material shall be 1 sample per 25 m³ of imported fill unless otherwise agreed with an Environmental Consultant.

Records verifying the contamination status of the material brought on to site shall be collated and maintained by the Facility Manager.
