Former Kent Brewery
Frasers Broadway Pty Ltd
2 November 2012
Document No.
60153334_S40958_SAR_20121102

Site Audit Report and Site Audit Statement

Proposed Hotel Development - Block 3A

Site Audit Report and Site Audit Statement

Proposed Hotel Development - Block 3A

Prepared for

Frasers Broadway Pty Ltd

Prepared by

AECOM Australia Pty Ltd
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Quality Information

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Draft Prepared by	Beth Toivonen
Reviewed by	Brad Eismen

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
0	2 Nov 2012	Site Audit Report	Frank Mohen Site Auditor NSW EPA Accreditation No. 9801	

Table of Contents

Site Audit Statement

NSW Site Auditor Scheme
SITE AUDIT STATEMENT

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the Contaminated Land Management Act 1997 on 12 May 2011. For more information about completing this form, go to Part IV.

PART I: Site audit identification

Site audit statement no. …FM92/7

This site audit is a **statutory audit** within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details (as accredited under the *Contaminated Land Management Act 1997*)

Name …Frank Mohen Company …AECOM Australia Pty Ltd

Address …PO Box Q410, QVB Post Office Sydney

…NSW Postcode …1230

Phone …+61 2 8934 0000 Fax …+61 2 8934 0001

Site details

Address …20-24 Broadway and 3 Kensington Street, Chippendale, NSW

… Postcode …2008

Property description *(attach a list if several properties are included in the site audit)*

…Lot 1 DP191024 and Lot 6 in DP1142053

Local Government Area …City of Sydney

Area of site (e.g. hectares) …1300 m2 Current zoning …City Edge

To the best of my knowledge, the site **is not** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

Declaration/Order/Proposal/Agreement/Notice* no(s) …

** Select as appropriate*

Site audit commissioned by

Name …Anthony Green Company …Frasers Property Australia Pty Ltd

Address …Suite 11, Lumiere Commercial, Level 12, 101 Bathurst Street, Sydney

… Postcode …2000

Phone …02 9263 8819 Fax …

Name and phone number of contact person (if different from above) …NA

Purpose of site audit

☒ A. To determine land use suitability (please specify intended use[s])

…Commercial/industrial (hotel development)

OR

☐ B(i) To determine the nature and extent of contamination, and/or

☐ B(ii) To determine the appropriateness of an **investigation/remedial action/management plan***, and/or

☐ B(iii) To determine if the land can be made suitable for a particular use or uses by implementation of a specified **remedial action plan/management plan*** *(please specify intended use[s])* …

Information sources for site audit

Consultancy(ies) which conducted the site investigation(s) and/or remediation

…JBS Environmental Pty Ltd

Title(s) of report(s) reviewed …Detailed Environmental Site Assessment, Characterisation Assessment – Proposed Hotel Development, Frasers Broadway Redevelopment Site Block 3A, Administration and Clare Hotel Heritage Buildings, 20 -24 Broadway and 3 Kensington St, Chippendale, NSW. JBS42253-51722, dated October

Other information reviewed (including previous site audit reports and statements relating to the site) …

ENSR 2008a. Site Audit Report. Environmental Site Assessments, Former Kent Brewery Site, Chippendale, NSW. 27 February 2008.

ENSR 2008b. Site Audit Report and Site Audit Statement. Remedial Action Plan, Former Kent Brewery Site, Chippendale, NSW. 3 March 2008.

ENSR 2008c. Site Audit Report and Site Audit Statement. Addendum to the Remedial Action Plan (including Child Care Centres), Former Kent Brewery Site, Chippendale, NSW. 21 July 2008.

JBS 2008a. Remedial Action Plan, Final, Frasers Broadway, Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. February 2008.

JBS 2008b. Frasers Broadway – Addendum to the Remediation Action Plan – Child Care Centres, Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. 11 July 2008.

** Select as appropriate*

PART II: Auditor's findings

Please complete either Section A or Section B, **not** both. *(Strike out the irrelevant section.)*

Use Section A where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land use(s).

Use Section B where the audit is to determine the nature and extent of contamination and/or the appropriateness of an investigation or remedial action or management plan and/or whether the site can be made suitable for a specified land use or uses subject to the successful implementation of a remedial action or management plan.

Section A

☒ **I certify that, in my opinion, the site is SUITABLE for the following use(s)** *(tick all appropriate uses and strike out those not applicable)*:

- ☐ Residential, including substantial vegetable garden and poultry
- ☐ Residential, including substantial vegetable garden, excluding poultry
- ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☒ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☒ Commercial/industrial
- ☐ Other *(please specify)* …

subject to compliance with the following environmental management plan (insert title, date and author of plan) **in light of contamination remaining on the site:** …

OR

☐ **I certify that, in my opinion, the site is NOT SUITABLE for any use due to the risk of harm from contamination.**

Overall comments …Based on the information provided in the JBS (2012) Detailed Environmental Site Assessment, Characterisation Assessment – Proposed Hotel Development, Frasers Broadway Redevelopment Site Block 3A, Administration and Clare Hotel Heritage Buildings, 20 -24 Broadway and 3 Kensington St, Chippendale, NSW (ref: JBS42253-51722) dated October, the Auditor considers that the Site has been assessed in general accordance with the requirements of NSW

EPA published and endorsed guidelines.

The Auditor concurs with the conclusion that the Site is suitable for the proposed land use (adaptive reuse of heritage buildings for boutique hotel and drinks premises) without further investigation, remediation or management based on the findings presented in the Assessment Report. It is noted that the only excavation proposed will be within the loading dock area for installation of services.

The Auditor also concurs that additional waste classification of any materials excavated from the Loading dock area should be further assessed/classified for disposal to confirm the material is consistent with conditions encountered at locations B13 and B14.

The Auditor also considers the concentrations of heavy metals in groundwater previously reported in the vicinity of the Site do not pose an unacceptable risk to human health or the environment and are “typical of concentrations commonly encountered in the urban environment”. With respect to the chlorinated hydrocarbon plume, given the location and reported groundwater flow directions, the Auditor concurs that the potential risks to human health and/or the environment within the Site associated with the chlorinated hydrocarbon plume present within the southern portion of the Fraser Broadway Redevelopment site are negligible.

** Select as appropriate*

Section B

Purpose of the plan[1] which is the subject of the audit …

I certify that, in my opinion:

- ☐ **the nature and extent of the contamination HAS/HAS NOT* been appropriately determined**

AND/OR

- ☐ **the investigation/remedial action/management plan* IS/IS NOT* appropriate for the purpose stated above**

AND/OR

- ☐ **the site CAN BE MADE SUITABLE for the following uses** (*tick all appropriate uses and strike out those not applicable*):
  - ☐ Residential, including substantial vegetable garden and poultry
  - ☐ Residential, including substantial vegetable garden, excluding poultry
  - ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
  - ☐ Day care centre, preschool, primary school
  - ☐ Residential with minimal opportunity for soil access, including units
  - ☐ Secondary school
  - ☐ Park, recreational open space, playing field
  - ☐ Commercial/industrial
  - ☐ Other (please specify) …

---

if the site is remediated/managed* in accordance with the following remedial action plan/management plan* *(insert title, date and author of plan)*

…

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subject to compliance with the following condition(s):

…

[1] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Overall comments

...

PART III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority under the *Contaminated Land Management Act 1997* (Accreditation No. ...9801).

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete,.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed ... 

Date ... 2 Nov 2012

* *Select as appropriate*

PART IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remedial action or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use(s) of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A or Section B of Part II, **not** both.

In **Section A** the auditor may conclude that the land is *suitable* for a specified use(s) OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further remediation or investigation of the site was needed to render the site fit for the specified use(s). Any **condition** imposed should be limited to implementation of an environmental management plan to help ensure the site remains safe for the specified use(s). The plan should be legally enforceable: for example a requirement of a notice under the *Contaminated Land Management Act 1997* (CLM Act) or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979.*

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

In **Section B** the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or whether land can be made suitable for a particular land use or uses upon implementation of a remedial action or management plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

In **Part III** the auditor certifies his/her standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to:

Environment Protection Authority, Department of Premier and Cabinet

Contaminated Sites Section

PO Box A290, SYDNEY SOUTH NSW 1232

Fax: (02) 9995 5930

AND

the **local council** for the land which is the subject of the audit.

EPA
November 2011

1.0 Introduction

1.1 Background

This Site Audit Report (SAR) relates to the environmental condition of a portion of the former Kent Brewery, located at 20 – 24 Broadway and 3 Kensington Street, Chippendale. The investigation area comprises 1300 m^2 and encompasses the Clare Hotel and the former Fosters Administration building, both of which are heritage listed. These heritage buildings are proposed to be developed for adaptive reuse as a hotel.

The former Kent Brewery is currently being redeveloped for mixed commercial, residential and public open space land uses in accordance with a Concept Plan developed by the former land owners (Carlton United Breweries) and modified by Frasers Broadway Pty Ltd, the current owners and developers, and agreed with the City of Sydney Council (Council) and the NSW Department of Planning (NSW DoP).

The former Kent Brewery ceased operations in 2005 and since 2004, a number of environmental investigations have been undertaken to assess the condition of soil and groundwater, the nature and extent of identified contamination and the requirements for remediation based on the proposed land uses within the Concept Plan.

Based on the findings of investigations undertaken by URS Australia Pty Ltd (URS), a remediation action plan (RAP) was developed for the former Kent Brewery by JBS Environmental Pty Ltd (JBS). The URS investigation reports and JBS RAP were the subject of previous reports by the Site Auditor and a Site Audit Statement (SAS) was prepared following review of the RAP. The SAS stated that the site, being the whole of the former Kent Brewery, could be made suitable for the proposed development subject to implementation of the RAP.

Following changes in the proposed overall development to include child care centres, an addendum to the RAP was provided by JBS, which was also reviewed by the Site Auditor. A revised SAS was then issued indicating that the former Kent Brewery could be made suitable for the proposed land uses, subject to implementation of the RAP and the addendum to the RAP.

1.2 Purpose of the Site Audit

For the purposes of staged remediation and development, the former Kent Brewery was divided into a number of separate areas. This SAR has been prepared following review of the assessment works undertaken by JBS in an area identified as Block 3A, and herein referred to as 'the Site'. Based on the results obtained during the assessment and the heritage listing of the buildings, remediation works were not deemed necessary. Further areas of the former Kent Brewery will be the subject of separate audits as remediation and development progresses.

The Audit is required as a condition of the planning consents for the development, comprising:

- Planning approval (PA) for major project (MP) 07_163 Remediation and Transitional Works.

The PA stated that prior to the commencement of foundations (other than shoring) or the commencement of works, a Remediation and Validation Report is to be prepared by a suitably qualified environmental consultant and a final SAS is to be provided by an accredited environmental consultant (i.e. a contaminated sites auditor). This Site Audit is therefore a statutory Site Audit in accordance with the Contaminated Land Management (CLM) Act 1997.

As the buildings on the Site are heritage listed, the purpose of the JBS works were *"to provide sufficient characterisation data to confirm the assumptions made in the RAP in relation to the suitability of the heritage buildings"*.

This SAR has been prepared to assess the suitability of the Site for the proposed land uses, a boutique hotel and food and drinks premises (i.e. commercial/industrial land use).

1.3 Reports Reviewed

In completing this Site Audit, the following report has been reviewed:

- JBS 2012. *Detailed Environmental Site Assessment, Characterisation Assessment – Proposed Hotel Development, Frasers Broadway Redevelopment Site Block 3A, Administration and Clare Hotel Heritage*

Buildings, 20 -24 Broadway and 3 Kensington St, Chippendale, NSW. JBS42253-51722, dated October. This report is herein referred to as 'the Assessment Report'.

In addition, a number of previous and/or supplementary reports have been referred to in the process of preparing this Site Audit, including, but not limited to:

- ENSR 2008a. Site Audit Report. Environmental Site Assessments, Former Kent Brewery Site, Chippendale, NSW. 27 February 2008.
- ENSR 2008b. Site Audit Report and Site Audit Statement. Remedial Action Plan, Former Kent Brewery Site, Chippendale, NSW. 3 March 2008.
- ENSR 2008c. Site Audit Report and Site Audit Statement. Addendum to the Remedial Action Plan (including Child Care Centres), Former Kent Brewery Site, Chippendale, NSW. 21 July 2008.
- JBS 2008a. Remedial Action Plan, Final, Frasers Broadway, Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. February 2008.
- JBS 2008b. Frasers Broadway – Addendum to the Remediation Action Plan – Child Care Centres, Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. 11 July 2008.

Relevant correspondence issued by the Auditor during the course of the Site Audit is included in Appendix C of this SAR and comprised:

- AECOM 2012a. Site Audit Memo 33 – Sampling, Analysis and Quality Plan for Characterisation Assessment Proposed Hotel Development (Block 3A). 22 August 2012.
- AECOM 2012b. Site Audit Memo 34 – Detailed Environmental Site Assessment: Characterisation Assessment Proposed Hotel Development (Block 3A). 15 October 2012.

1.4 Previous Audits

As noted above, the former Kent Brewery as a whole was the subject of a Site Audit and the following SASs were issued:

- SAS FM92/1, included within ENSR 2008b, which concluded that the former Kent Brewery could be made suitable for the proposed land uses subject to implementation of JBS 2008a and subject to compliance with conditions listed on the SAS; and
- SAS FM92/2, included within ENSR 2008c, which concluded that the former Kent Brewery could be made suitable for the proposed land uses subject to implementation of JBS 2008a and JBS 2008b and subject to the conditions listed on the SAS.

It is noted that ENSR Australia Pty Ltd is now part of AECOM Australia Pty Ltd (AECOM).

Both SAS FM92/1 and FM92/2 stated that the audit requirements documented in ENSR 2008a were to be:

- Compiled into a schedule, detailing each requirement with a timeframe for addressing each requirement, which was to be approved by the Auditor; and
- Implemented in accordance with the Auditor approved schedule.

The Audit requirements documented in ENSR 2008a were applicable to the former Kent Brewery as a whole, with those requirements applicable to the Site as follows:

- Implementation of works to address data gaps. Data gaps specific to the Site were considered to comprise:
    - The contamination status of fill materials and natural soils in areas of the Site where sampling densities were low due to the presence of buildings, roads and heritage listed items including the Ovoid Drain;
    - The potential extent of acid sulphate soils within the Site; and
    - The extent of a groundwater chlorinated hydrocarbon contamination plume beneath the Site, referred to as the "leading edge" of the plume.
- Development of sampling analysis and quality plans (SAQPs) for any additional works; and
- Implementation of a waste tracking system during remediation works and inclusion of the waste tracking information in the validation report for the Site. It was also noted that the Auditor should be provided with

waste tracking records throughout the project and be consulted on the use of any waste immobilisation approvals.

The Auditor notes that the requirements for the Site were not compiled into a schedule provided to the Auditor prior to the commencement of works.

While a validation SAQP (JBS 2010) was prepared for Remediation Area 3B, of which the Site forms part, this report was aimed at the basement excavations completed for the development of Blocks 2, 5 and 9 rather than the residual areas of Lot 3. It is noted that at the time of preparation of JBS 2010, it was not anticipated that the Site would be assessed, remediated or validated as a separate portion to the northern and southern portions of Lot 3 and therefore, specific sampling, analytical and quality procedures for the Site were not included.

As a result of the staged development process, the following SASs have been issued for other portions of the former Kent Brewery, following completion of remediation and validation works:

- SAS FM92/3, which concluded that the northern portion of Superlot 3 was suitable for the proposed mixed development, comprising commercial/industrial (including a children's day care centre), residential with minimal soil contact land uses.
- SAS FM92/4, which concluded that the Main Park was suitable for the proposed park, recreational open space, playing field land uses.
- SAS FM92/5, which concluded that the southern portion of Superlot 3 was suitable for the proposed mixed development, comprising commercial/industrial (including a children's day care centre), residential with minimal soil contact land uses.
- SAS FM92/5R, which concluded that the southern portion of Superlot 3 was suitable for the proposed mixed development, comprising commercial/industrial (including a children's day care centre), residential with minimal soil contact land uses. This was a reissue due to minor changes in Block and PA references.
- SAS FM92/6, which concluded that the identified residual areas of Superlot 3 were suitable for the proposed commercial/industrial (road reserves) land use.

2.0 The Site Audit Process

2.1 Legislative Background

The CLM Act 1997, as amended by the Contaminated Land Management Amendment Act 2008, defines a site audit as a review:

a) that relates to management (whether under this Act or otherwise) of the actual or possible contamination of land, and

b) that is conducted for the purpose of determining any one or more of the following matters:

   i. the nature and extent of any contamination of the land,

   ii. the nature and extent of management of actual or possible contamination of the land,

   iii. whether the land is suitable for any specified use or range of uses,

   iv. what management remains necessary before the land is suitable for any specified use or range of uses,

   v. the suitability and appropriateness of a plan of management, a long-term management plan, or a voluntary management proposal.

The site audit process is undertaken by an Auditor, accredited by NSW Environment Protection Authority (EPA) under the CLM Act (1997) and comprises an independent review of reports prepared by a consultant.

It is noted that the NSW EPA was formerly encompassed within the NSW Office of Environment and Heritage (OEH), previously known as the NSW Department of Environment, Climate Change and Water (DECCW), NSW Department of Environment and Climate Change (DECC) and NSW Department of Environment and Conservation (DEC).

2.2 General Stages of the Site Audit

The site audit process generally includes review of assessment and investigation reports prepared by an environmental consultant pertaining to the environmental condition of the land and the suitability of the land for a given land use. The site audit may also include the review of a remedial action plan (RAP) which, if conducted, may render the land suitable for a given land use. Until the RAP has been adequately implemented, the Auditor cannot certify the suitability of the land. The site audit may also review the Validation Plan, which is prepared by an environmental consultant to document the requirements for successful completion of the requirements of a RAP. At the conclusion of any remedial works, the site audit process also reviews the Validation Report, which documents the successful completion of the works outlined in the RAP and Validation Plan.

Interim Site Audit Advice may also be completed throughout the site audit to document review of reports at project milestones. The audit process is completed by preparation of a Site Audit Report, which reviews the report prepared by the consultant, and preparation of a Site Audit Statement, which certifies in Section A the suitability of the land for one or more uses, or in Section B certifies whether the extent of contamination has been appropriately determined and/or the appropriateness of an investigation/remedial action plan/management plan and/or the site can be made suitable for one or more uses if it is remediated/managed in accordance with a RAP/management plan.

The investigation of the environmental condition of the land and any required remediation is carried out by the environmental consultant by reference to guidelines endorsed by NSW OEH under Section 105 of the CLM Act. If the report(s) prepared by the consultant are in substantial conformance with the guidelines, the Auditor is entitled to accept the results and conclusions stated therein and complete the Site Audit Report and issue a Site Audit Statement and the Auditor is entitled to form other opinions based on the results and conclusions stated in the report(s) by the consultant.

The Auditor does not normally carry out independent sampling or chemical analyses of soil, fill, groundwater or other media on the subject site, but relies on the testing and reporting that has been carried out by the consultant if it has been demonstrated to be of adequate reliability by reference to quality indicators listed in the endorsed guidelines.

It is expressly recognised that, even when a qualified environmental consulting firm has substantially followed guidelines endorsed by NSW EPA, unidentified contamination or sub-surface structures may remain present. The

processes of investigation, remediation and validation are statistically based and no liability is accepted by the Auditor for unidentified contamination or sub-surface structures subsequently found to be present on a site, which has been subjected to investigation, remediation and validation processes that are in substantial conformance to guidelines endorsed by NSW EPA. In addition, this site audit has not addressed geotechnical or engineering suitability of the site, for which specialist advice is required to be obtained outside the site audit process.

3.0 Site Information

3.1 Site Identification

The Assessment Report identified the Site as Lot 1 in deposited plan (DP) 191024 and Lot 6 in DP1142053, located at 20 - 24 Broadway and 3 Kensington Street in Chippendale and comprising an area of approximately 1300 m^2. The Site is shown on Figures presented within the Assessment Report, which are included in Appendix A of this SAR.

The Assessment Report also provided geographical coordinates the Site (with reference to Map Grid Australia) and stated that the Site was within the City of Sydney Council Local Government area. According to the Assessment Report, the Site is zoned City Edge (City of Sydney LEP 2005) and the previous and current land uses comprised hotel/commercial office/storage space, and the proposed land use was identified as *"commercial hotel development"*.

Auditor's opinion

The Auditor considers that the Site was appropriately identified in the Assessment Report, in accordance with the requirements of the NSW OEH Guidelines for Consultants Reporting on Contaminated Sites (NSW OEH 2011).

3.2 Site Description and Surrounding Land Uses

The Assessment Report described the Site conditions and surrounding land uses by area, as summarised below:

- Approximately rectangular in shape and bounded by Broadway to the north, Kensington Street to the east, the proposed Kent Road to the west and the proposed Frasers Broadway Redevelopment site Block 3B to the south.
- Approximately 90 % of the Site is occupied by two heritage buildings (the Clare Hotel and the former Fosters Administration Building), with the remaining 10 % comprised of a concrete paved loading dock extending from the west to east Site boundaries between the two buildings. No exposed vegetation or soil is present.
- Clare Hotel:
    - A two storey, cement rendered red brick building, with a single basement level.
    - Currently used as ground floor public bar and gaming facilities, first floor accommodation and basement storage facilities.
    - Loading dock used for storage of kegs, waste bins, manager parking and outdoor smoking facilities.
- Former Fosters Administration Building:
    - A three storey brick building with sandstone foundations and a basement level.
    - The ground floor currently occupied as Frasers' site construction offices, with the remainder of the building vacant.

The Assessment Report described the hotel basement level in detail, including access points, potential sources of contamination (such as potential asbestos containing lagging and above ground heating oil tanks associated with the boiler) and description of the various rooms, and referred to photographs taken during the site inspection.

The Assessment Report also described the administration building basement level in detail, including access points and description of the various rooms, and referred to photographs taken during the site inspection.

According to the Assessment Report, the land uses for surrounding the Site (i.e. adjacent properties or properties across adjacent roads) are as follows:

- North: Broadway, beyond which is a multistorey education facility (UTS);
- South: Frasers Broadway Redevelopment site Block 3B, currently occupied by temporary site construction offices and proposed to be redeveloped for student accommodation purposes;
- East: Dwyer Street, Frasers Broadway Redevelopment site Block 6, which comprises a three storey building (formerly the Rum Bond Store and now artists' studio), a two storey building (formerly the General Store) and former residential terrace houses;

- West: Construction access for current works within redevelopment Blocks 2, 5 and 9 (mixed use buildings with a large basement). The access road will eventually become a new public road known as Kent Road.

The Assessment Report stated that other than impacted fill removed during remediation works conducted in the vicinity of the Site, *"No other obvious significant potential off-site contamination sources were located in the properties immediately surrounding the site"*.

Auditor's opinion

The Auditor considers the description of the Site and the surrounding land uses was adequate and reported in general accordance with the requirements NSW OEH (2011).

3.3 Site Conditions

The Assessment Report described the topography, geology, hydrology, hydrogeology and meteorology of the Site, as summarised below.

3.3.1 Topography

The Assessment Report stated that previous development (including construction of the two buildings) has altered the natural topography of the Site. The current levels are approximately 17.1 m Australian Height Datum (AHD) at the Broadway site boundary, approximately 17.7 m AHD at the southeast extent and 17.4 m AHD at the southwest corner of the Site.

3.3.2 Geology

Regional geology was described as comprising Triassic Hawkesbury Sandstone with overlying Ashfield Shale (regionally) in the east and south and Quaternary alluvial and estuarine sediments in the west. Based on the geotechnical investigations undertaken immediately to the west of the Site, subsurface condition in the vicinity of the Site were expected to comprise the following:

- Near surface fill, comprising sand to sandy clay soils with variable portions of rock fragments and demolition materials, increasing in depth to the south.
- Natural aeolian sand soils, light grey and brown, fine to medium grained, with greater depth to the south, overlying residual and/or alluvial soils.
- Silty clay, grey and mottled red-brown residual soils expected to underlie the full material and/or sandy soils in the northern portion of the Site, overlying Ashfield Shale.
- Ashfield Shale along the Broadway site boundary, underlain by Hawkesbury Sandstone in the northern portion of the Site. Hawkesbury Sandstone is also expected to underlie the Aeolian and/or residual soils in the southern portion of the Site. In the vicinity of the Site, bedrock is expected at elevations ranging from 12.7 m AHD (north) to 12.1 m AHD (south).

3.3.3 Acid Sulphate Soil

Available information reportedly indicated that the former Kent Brewery was in an area classified as *"no known occurrence of acid sulphate soils"*. However, previous investigations were stated to have encountered acid sulphate soils associated with the alignment of the former Blackwattle Creek, generally consistent with the Ovoid Drain alignment.

According to the Assessment Report, the Site is expected to be located beyond the extent of the abovementioned acid sulphate soil occurrence, therefore no further consideration was considered necessary.

3.3.4 Hydrology

The Assessment Report stated that the Site is entirely covered by building footprints and concrete pavement, therefore precipitation is expected to drain via the building and pavement stormwater collection systems to the Site boundaries and from there into the Broadway and Kensington Street stormwater systems. From there stormwater was expected to drain via regional infrastructure towards Blackwattle Bay to the northwest.

3.3.5 Hydrogeology

The Assessment Report stated that the overall groundwater levels are expected to fall from east to west across the Frasers Broadway Redevelopment site, with localised movement towards the Ovoid drain alignment located to the south of the Site.

Prior to construction of the large basement to the west of the Site, groundwater elevation was expected to be approximately 13.5 m AHD (or 4 m below the current ground level) and the estimated gradient was 0.02.

Deeper regional groundwater was expected within the underlying sandstone formation, however insufficient data were available in the vicinity of the Site to provide estimates of groundwater levels and flow.

According to the Assessment Report, previous modelling indicated that following installation of the cut off walls associated with the basement, groundwater levels to the east of the basement (within the Site) would be expected to initially rise, with flows forced toward the north and south around the basement. Establishment of a new equilibrium was considered to result in higher groundwater elevations than previously identified.

3.3.6 Meteorology

The Assessment Report summarised the local meteorology, based on information publically available.

Auditor's opinion

The description of Site conditions was in general accordance with the requirements of NSW OEH (2011), and was satisfactory for the purposes of the Site Audit.

3.4 Site History

The Assessment Report summarised the history of the overall Frasers Redevelopment site, including the Site, based on previous investigations undertaken by URS and included in the ENSR 2008a review, as well as the heritage assessment conducted by GML.

The Assessment Report noted that:

- In 1819, the former Kent Brewery was located within an 8 acre parcel granted to Major George Druitt for an area where members of the military could grow vegetables and keep livestock.
- The former Kent Brewery (located within the western portion of Druitt's land grant) was constructed between Balfour Street and Kensington Street from 1835. Fire reportedly destroyed much of the initial development in 1853, with rebuilding occurring in 1855.
- The western portion of Druitt's land grant was sold in 1841 and subdivided and marketed it as the Kensington Estate residential subdivision, with lots sold between 1842 and1845 and all built upon by 1861.
- The brewery invested in a number of hotels (pubs) "tied" to the brewery in the late 1800s, including the Keg Room Tavern reportedly located on the corner of Parramatta (now Broadway) and Kensington Streets.
- Residential areas immediately surrounding the initial brewery site were purchased over time, including a run of terrace house occupying the Site and facing Kensington Street. These terraces were demolished for the construction of the Aerated Water Building in 1912.
- Between 1914 and 1919, residential properties to the east of Kensington Street were also purchased.
- Buildings 10A and 10B, comprising the former Fosters Administration building replaced the Aerated Water Building in the 1930s.
- The creation of the current Broadway alignment in the 1930s led to the demolition of four hotels along the former Parramatta Street, including the Keg Room Tavern. The purchase of additional residual land along the new Broadway street frontage allowed for expansion of the brewery to the current northern boundary.
- The (County) Clare Hotel building was constructed in 1939 and tied to the brewery in 1941, although the land was not purchased by Carlton United until 1982.
- Brewery operations ceased in 2005, however brewery staff occupied the former administration building until 2009, from which time Frasers' staff have used portions of the building as office space.
- The concept plan for redevelopment was approved in 2007 and ownership of the Frasers Broadway Redevelopment site was transferred to Frasers Broadway Pty Ltd.

Auditor's opinion

The Auditor considers that the historical summary was adequate and reported in general accordance with the requirements of NSW OEH (2011).

3.5 Block 3A Proposed Development

The Assessment Report summarised the proposed development of the former Kent Brewery and noted that the Site was proposed to comprise public roads and open space, together with commercial and residential land uses.

According to the Assessment Report, Frasers are in the process of seeking consent for the adaptive reuse of the heritage buildings present on the Site as a boutique hotel and food and drinks premises. The hotel is proposed to accommodate approximately 50 rooms, with ground floor retail space fronting Kensington Street. Sub-surface works are proposed to be limited to excavation within the existing loading dock area between the buildings for installation of infrastructure.

Auditor's opinion

Overall, the Auditor considers the proposed development information presented to be adequate for the intended purpose and reported in accordance with the requirements of NSW OEH (2011).

3.6 Summary of Known Contamination

3.6.1 Frasers Broadway Redevelopment Site

The Assessment Report summarised the findings of environmental investigations undertaken across the former Kent Brewery, based on the RAP (JBS 2008a).

According to the Assessment Report, fill materials at the Frasers Broadway Redevelopment site have been shown to be contaminated with heavy metals, total petroleum hydrocarbons (TPH), polycyclic hydrocarbons (PAHs) and asbestos at depths ranging from surface (beneath concrete pavements) to approximately 2 m below ground level (bgl), depending on the depth of the fill.

The Validation Report also included a summary of known groundwater impacts across the Frasers Broadway Redevelopment site, which were not necessarily directly applicable to the Site, including:

- Elevated metals (principally copper, zinc and manganese).
- Chlorinated hydrocarbon plume, which has migrated onto the south-eastern portion of the Frasers Broadway Redevelopment site and travelled approximately 180 m in a northwest direction.
- Dissolved phase TPH in isolated areas, some associated with the chlorinated hydrocarbon plume and others unrelated localised areas associated with point sources, such as a former underground storage tank.

Concentrations of heavy metals in groundwater were not considered to pose an unacceptable risk to human health or the environment and were reported to be *"typical of concentrations commonly encountered in the urban environment"*. With respect to the chlorinated hydrocarbon plume, given the location and reported groundwater flow directions, the Assessment Report stated that *"there are no risks to human health and/or the environment within the subject site associated with the chlorinated hydrocarbon plume"*.

3.6.2 Site-specific Soil and Groundwater Impacts

The Assessment Report stated that based on available information in the vicinity of the Site, soils may potentially be impacted by fill material of unknown origins and/or impacted as a result of previous land use by heavy metals, TPH, PAHs and asbestos. Based on the identified former heating oil storage in the basement of the northern building and the age of the buildings, there is potential for heating fuel storage to have occurred within the basements of both building, which may have results in impacts associated with leaks/spills.

The potential for fill material was considered likely to be limited to a bedding layer beneath the current floor slabs and fill material underlying the loading dock was considered likely to extend to a depth of 1.5 m below the current ground levels.

According to the Assessment Report, it was considered unlikely for groundwater beneath the Site to be impacted by either the chlorinated hydrocarbon plume or TPH impacts associated with known former or current petroleum storage facilities. Groundwater may be impacted by heavy metals, however as stated previously this was not considered to pose an unacceptable risk to human health or the environment and was likely to be typical of concentrations commonly encountered in the urban environment.

Auditor's opinion

The Auditor considers the known contamination information within the Frasers Broadway development site and the Site presented to be adequate for the intended purpose and reported in accordance with the requirements of NSW OEH (2011).

The Auditor notes that JBS did not discuss further the dissolved phase TPH in isolated areas, not associated with the chlorinated hydrocarbon plume, however this is considered to be a relatively minor discrepancy as the impacts were not directly associate with the Site. It is further noted that the conceptual site model (Figure 5) depicts a leaking above ground fuel oil tank, therefore a sample point has been positioned to target this location.

4.0 Ground Penetrating Radar Survey

According to the Assessment Report, the RAP (JBS 2008a) required that a ground penetrating radar (GPR) survey of sub-surface conditions underlying the heritage buildings be conducted in order to provide information on potential anomalous conditions which may indicate the presence of former underground waste storage, transport infrastructure and/or preferential migration pathways.

JBS subcontracted Hunter Smith Management Pty Ltd (Hunter Smith) to undertake the GPR survey in accessible areas of the two heritage building on the Site as well as the loading dock between the buildings. The Assessment Report stated that the survey was conducted using an IDS Australasia Detector Duo radar unit with a dual 250 and 700 MHz antenna frequency.

According to the Assessment Report, due to the relatively small rooms and limited extent of accessible area, the survey was completed along indicative longitudinal transects with perpendicular runs where achievable to confirm observations. Diagrams showing the accessible areas, completed survey transects and locations of anomalies were presented in Appendix B of the Assessment Report and are included in Appendix A of this SAR.

The GPR survey results discussed in the Assessment Report are summarised below and shown on Figures B-1 and B-2 (provided in Appendix A of this SAR):

- Clare Hotel:
    A. A newer concrete slab (approximately 1.2 m by 2.2 m) was located in the central north-eastern portion of the basement was underlain by an inferred inconsistent soil density profile of approximately 0. 7m below the current floor level. No apparent inconsistencies were identified beneath what appeared to be a second “newer” concrete slab.
- Loading Dock:
    A. Several suspected sub-surface concrete slabs, approximately 0.2 m thick, were identified at depths of approximately 0.8 and 1.0 m below the current ground level, extending approximately halfway toward the western Site boundary.
    B. Stormwater drainage pit and possible discharge pipes identified (the pit cover was evident at the surface and GPR identified a discharge pipe extending to the east from the pit at a depth of 1 m bgl for approximately 3 m, as well as a separate suspected line at approximately 0.6 m bgl in the north-eastern portion of the loading dock.
    C. Telecommunications service pit, approximately 1.5 m by 0.6 m, was identified adjoining the administration building wall in approximately the centre of the Site.
- Administration Building:
    A. Sub-surface pit underlying concrete cover in the northeast corner of room B01.
    B. Three possible sub-surface pipes, oriented east-west (F1 and F2) and east-northeast (F3), within the northern portion of room B03 at depths of approximately 0.4 to 0.6 m below the pavement level.
    C. Possible pipe, crossing room B08 in a north-south direction at a depth of approximately 0.5 m bgl.
    D. Suspected former concrete footing, approximately 1 m by 1.3 m to a depth of 3.0 m below the current ground level within room B11.
    E. Suspected former concrete footing, approximately 0.8 m by 1.5 m to a depth greater than 5.0 m below the current ground level within room B13.
    F. Series of suspected pipes crossing the corridor in an east-west direction at depths ranging from 0.4 to 0.7 m bgl within B34 (southern corridor).
    G. Suspected footing or similar type of obstruction, at a depth of approximately 0.3 m to 0.5 m crossing the accessible portion of the room B35 in a north-south direction.
    H. Suspected pipe crossing the corridor in an east-west direction (L1) across B37 (northern corridor), consistent with the alignment and depth with that identified in room B03. Suspected former building foundation (L2) identified to the south of the suspected pipe, approximately 5.75 m long and 1 m wide with an interpreted depth of approximately 5 m.

I. Suspected pipe (M1), approximately 0.45 m bgl in the southern portion of room B40 and a potential former bore (M2), located in the eastern portion of room B40, with a density change to a depth of approximately 2.3 m bgl.

According to the Assessment Report, based on the survey information obtained for the accessible areas, the presence of underground waste/fuel storage infrastructure beneath the two heritage buildings was considered unlikely. Inspection of the basement floors indicated only limited modification since construction. Given the documented Site uses and the limited occurrence of sub-surface anomalies, the potential for burial and/or leakage of waste materials beneath the floor slabs was also considered to be low.

Auditor's opinion

The Auditor considers the known GPR survey information presented to be adequate for the intended purpose and complies with the requirements of RAP (JBS 2008a). The Auditor has reviewed the Underground Investigation Report provided by Hunter Smith, which was presented in Appendix B of the Assessment Report, and considers the summary and conclusions provided in the Assessment Report to be consistent with Hunter Smith's advice.

5.0 Conceptual Site Model

The Assessment Report included a Conceptual Site Model (CSM) for the Site, which identified potential areas of concern and contaminated media, contaminants of potential concern (CoPC) and the potential for contaminant migration, exposure and receptors.

The CSM is summarised below.

- Areas of concern and associated CoPC were identified as follows:
    - Fill materials (underlying the buildings) – heavy metals, TPH, benzene, toluene, ethylbenzene and xylene (BTEX), PAHs and volatile organic compounds (VOCs);
    - Fill materials (within the loading dock) – heavy metals, TPH, BTEX, PAHs, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), VOCs and asbestos;
    - Impacts associated with previous used or stored fuels – TPH, BTEX, PAHs and phenols;
    - Former buildings (debris), potentially containing hazardous materials – asbestos, lead;
    - Application of pest control chemicals – OCPs, metals; and
- Fill materials, natural soils and groundwater were identified as potentially contaminated media.
- The potential for migration of contaminants via windblown dust was considered to be low.
- The potential for migration of contaminants via surface water movement and infiltration was considered to be low given the paved status and relatively flat nature of the Site.
- Sensitive receptors were considered to include: Site workers and visitors who may come into contact with potentially contaminated media and occupants, visitors and workers of the adjoining residential and commercial developments who may come into contact with potential vapours and groundwater underlying the surrounding properties.

Auditor's opinion

The Auditor considered that the areas of concern identified in the CSM were potentially contaminating activities, not areas, and were therefore applicable to the Site as a whole.

Overall, the Auditor considers the CSM information presented to be adequate and reported in general accordance with the requirements of NSW OEH (2011).

6.0 Data Quality Objectives

The Assessment Report included data quality objectives (DQOs) in the format prescribed by NSW DEC (2006), as summarised below.

6.1 State the Problem

The Assessment Report noted that previous investigations at the former Kent Brewery had identified areas of soil and groundwater contamination that required remediation and/or management in order for the Frasers Broadway Redevelopment site to be considered suitable for the proposed land uses.

Access restrictions at the time the RAP (JBS 2008a) was prepared meant that previous assessment of the contaminant conditions beneath the heritage buildings was not possible. These buildings are proposed to be adapted for use as a boutique hotel development. To facilitate the required site audit statement, characterisation of site conditions was required to determine the suitability of the Site for the proposed hotel use (residential with minimal access to soil), or provide recommendations to render the Site suitable.

6.2 Identify the Decision

The following decisions were reportedly required to be made:

- *"Are there any unacceptable risks from soil to likely future on site receptors?*
- *Are there any issues relating to the local area background soil concentrations that exceed appropriate soil criteria?*
- *Are there any impacts of chemical mixtures?*
- *Are there any aesthetic issues?*
- *Are there any unacceptable risks to likely future onsite or down-gradient receptors from groundwater?*
- *Is a site management strategy required?"*

The Assessment Report further stated that the proposed development may include excavation within the loading dock for installation of services, therefore the following additional decision was also required to be addressed:

- *"Can a waste classification for subsurface material underlying the loading dock be provided based on the available data?"*

6.3 Identify Inputs to the Decision

Inputs to the decision were stated to be the historical information, site inspection and GPR survey results to identify CoPC, previous assessment information (including physical observations and laboratory results), sampling in the areas of concern, laboratory analysis of samples of potentially contaminated media for the identified CoPC and confirmation that the data generated was of sufficient quality for the purposes of the assessment.

6.4 Define the Study Boundaries

The study area was stated to comprise the Lot 1 DP191024 and Lot 6 DP1142053 as depicted in Figures 2 and 3 of the Assessment Report, which are included in Appendix A of this SAR. A description of the boundaries of the Site was also provided in the Assessment Report.

According to the nature of the potential contaminants and project deadline requirements, factors including seasonality and other temporal variables were not assessed. Temporal boundaries were stated to be limited to the period of the field investigation and reporting (August to September 2012).

6.5 Develop a Decision Rule

Decision rules for the Site assessment were provided with reference to the decisions to be made as discussed in Section 6.2 above, and are summarised below.

Table 1 Site Assessment Decision Rules

Decision	Decision Rule
Are there any unacceptable risks to on site future receptors from soils?	Soil analytical results were stated to be subject to the following statistical assessment: Either: all reported concentrations were less than the site criteria; Or: the average concentration for each analyte was less than the site criterion, no single concentration was greater than 250% of the criterion and the standard deviation of the results was less than 50% of the criterion; And: the 95% upper confidence limit (UCL) of the average concentration for each analyte was less than the site criterion. If the above statistical criteria were satisfied the decision was stated to be "no". Otherwise the answer to the decision was "yes".
Are there any issues relating to the local area background soil concentrations that exceed appropriate criteria?	If the 95% UCL of surface soils exceeded the published background criteria in NEPC 1999, the decision was stated to be "yes". Otherwise, the decision was "no".
Are there any chemical mixtures?	If more than one group of contaminants were present that increased the risk of harm, the answer was stated to be "yes". Otherwise the decision was "no".
Are there any aesthetic issues?	If there were any unacceptable odours or soil discolouration, the decision was stated to be "yes". Otherwise, the answer was "no".
Are there any unacceptable risks to likely future onsite or down-gradient receptors from groundwater?	If contaminants were identified in groundwater at concentrations exceeding the adopted criteria, the decision was stated to be "yes". Otherwise, the decision was "no". If "yes", then further assessment of risk is required to be undertaken.
Is a site management strategy required?	If the answer to any of the above decisions was "yes", then a site management strategy was considered to be required. Otherwise the answer was "no". It was noted that remediation may preclude the need for a site management strategy, causing the decision to be "yes".
Can a waste classification be provided based on the available data?	If the material is considered to have met the applicable guidelines, the decision was stated to be "yes". Otherwise, the decision was "no".

6.6 Specify Limits on Decision Error

The Assessment Report summarised the types of decision errors that could be made and stated that sources of decision errors were considered to be sampling errors and/or measurement errors. Data quality indicators (DQIs), based on the parameters of precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS), were stated to be adopted for the Site assessment to provide a *"semi-quantitative assessment of compliance with the limits on decision error"*, i.e. 5% probability that a type a) error is made (deciding the Site is suitable when it actually is not) and 20% probability that a type b) decision error is made (deciding that the Site is not suitable when it actually is).

The DQIs were provided in tabulated format, including acceptance limits for field and laboratory methods, quality assurance and quality control (QA/QC) testing and required documentation.

6.7 Optimise the Design for Collecting Data

According to the existing available data, including site history information and the GPR survey results, a combined systematic and targeted sampling pattern was determined to be the most appropriate strategy to achieve the required outcomes for this assessment.

Soil sampling location B01 to B15 were shown on Figures 5 and 6 (provided in Appendix A of this SAR), with justification for each location summarised in this step of the DQOs. According to the Assessment Report, based

on the reported objectives and the available historical information, the sampling density (15 locations across the 1300 m^2 Site footprint) was considered to be appropriate. The sampling locations were positioned as following:

- Ten locations (B01 to B09 and B15) within the former Administration Building basement;
- Three locations (B10 to B12) within the Clare Hotel basement; and
- Two locations (B13 and B14) within the loading dock.

The Assessment Report stated that the spacing between locations varied between 8 m and 15 m, with some minor skewing of locations to allow for completion of boreholes in the vicinity of the anomalies identified during the GPR survey.

Based on the DQOs, the Assessment Report described the sampling and analytical plan adopted at the Site, as summarised in Section 7, below.

Auditor's opinion

The Auditor considers that while the DQOs were not in strict accordance with the requirements of NSW DEC (2006), they were sufficient to outline the purpose and the desired outcome of the Site investigation.

The Auditor concurs that, based on the available information, the combined systematic and targeted sampling approach was the most appropriate strategy to achieve the required outcomes for this assessment.

The Auditor notes that adoption of residential with minimal access to soils is conservative under the proposed hotel and drinks premises scenario. However, if these criteria are met, the Site will also be considered suitable for commercial/industrial land use. Therefore this issue is considered unlikely to adversely impact the outcome of the site audit.

7.0 Sampling and Analysis Plan

7.1 Soil Sampling Methodology

The Assessment Report stated that soil samples were collected using hand tools due to access limitations associated with the basement locations. Samples were collected immediately beneath the pavement sub-grade (0.2 to 0.4 m) and then at regular depths based on observations to approximately 1.0 m into the underlying natural soils. Boreholes were reportedly extended to approximately 1.0 m into the underlying natural soils or refusal, whichever was shallowest.

Samples were obtained from the hand auger head using a decontaminated stainless steel trowel/knife, by JBS personnel wearing a new pair of disposable nitrile gloves for each sample. All non-disposable sampling equipment was decontaminated between sampling locations. Potential disturbance was minimised to reduce the potential loss of volatile contaminants.

An inspection of the encountered fill/soil was also reportedly undertaken for the presence of discolouration and odours, as well as to identify potential ACM, with observations recorded on field logs, included in Appendix E of the Assessment Report.

The Assessment Report described sample handling, preservation and transportation of the samples to the laboratory under chain-of-custody protocols, as well as the decontamination procedures employed during the field investigation.

Duplicate (blind duplicate) and triplicate (split duplicate) samples were reportedly collected at a rate of at least one per 20 primary samples and sub-samples for field screening using a photoionisation detector (PID) were also collected into plastic bags.

The primary project laboratory was identified as Envirolab Services Pty Ltd and the secondary laboratory was identified as SGS Environmental, both NATA accredited for the required analyses, except for asbestos analysis which was conducted by Pickford and Rhyder, which is NATA accredited for asbestos analysis.

Samples were submitted to the nominated testing laboratories for the following analysis:

Table 2 Analytical Schedule

Media	No. of Sampling Locations	Primary Analysis
Fill Material	15	8 heavy metals – 9 samples TPH – 9 samples BTEX – 9 samples VOCs – 3 samples PAHs – 9 samples OCPs – 4 samples PCBs – 4 samples Asbestos – 4 samples TCLP Benzo(a)pyrene - 1 sample TCLP Lead – 2 samples
Natural Soils	15	8 heavy metals – 12 samples TPH – 12 samples BTEX – 12 samples VOCs – 3 samples PAHs – 12 samples OCPs – 2 samples PCBs – 2 samples Asbestos – 2 samples

Auditor's opinion

The Auditor considers that the sampling methodology, sample handling, storage and preservation techniques and decontamination procedures described were appropriate for the investigation and reported in accordance with the requirements of NSW OEH (2011).

The Auditor notes that the collection of rinsate samples and calibration of the PID was not discussed in this section of the Assessment Report. As a rinsate sample was collected and analysed as reported in Appendix D of the Assessment Report, this reporting oversight is considered to be minor and does not impact the outcome of the Site Audit.

With respect to calibration of the PID, a calibration certificate was not provided in the Assessment Report, however as this was only used as a field screening tool, and field observations and analytical results did not indicate the presence of volatile compounds on the Site during the field investigation, this omission is considered unlikely to impact the outcome of either the investigation or the Site Audit.

7.2 Assessment Criteria

The Assessment Report stated that the adopted soil assessment criteria (SAC) were the residential with minimal access to soils health based investigation levels (HIL-D) presented in NSW DEC 2006, based on the proposed future use of the Site as a boutique hotel. For TPH and BTEX, the sensitive land use criteria provided in NSW EPA (1994) *Guidelines for Assessing Service Station Sites* were adopted.

Where no NSW EPA endorsed SAC were considered to exist, the laboratory limit of reporting (LOR) was reportedly used as a screening value in these circumstances.

For waste classification, results were compared against soil contaminant concentrations (SCC) and, where relevant, the toxicity characteristic leaching procedure (TCLP) criteria presented in NSW DECCW (2009) *Waste Classification Guidelines Part 1: Classifying Waste*.

The SAC, where available, were provided in tabulated format.

Auditor's opinion

The Auditor considers the assessment criteria adopted to be appropriate, if not somewhat conservative, based on the proposed land use and reported in accordance with the requirements of NSW OEH (2011).

As stated previously if residential with minimal access to soil criteria are met, the Site will also be considered suitable for commercial/industrial land use. Therefore this issue is considered unlikely to adversely impact the outcome of the site audit.

7.3 Quality Assurance / Quality Control

The Assessment Report discussed the quality assurance/quality control (QA/QC) procedures implemented during the works with respect to the PARCC parameters and previously established DQIs.

The Assessment Report stated that compliance, or partial compliance, with the specified DQIs was achieved. Where 100% compliance was not achieved, a summary of results and discussion regarding the useability of the data was provided. The following main points were noted:

- Precision
    - Blind and split duplicate samples (intra- and inter-laboratory duplicates, respectively) were considered to partially meet the DQI criteria. Relative percentage differences (RPDs) were greater than the DQI criteria of 50% for some PAH compounds in blind samples from one location and split samples from two locations. In blind and split duplicate sample pairs, the primary sample concentration was greater than the duplicate sample concentration, thereby ensuring a conservative approach to evaluation of the data. However, as the reported concentrations in were all less than the adopted SAC, this is not considered to affect the outcome of the data assessment.

      JBS noted that RPD exceedances can be expected when concentrations are close to the laboratory LOR and materials sampled are heterogeneous and the non-conformances were considered unlikely to affect the overall reliability or precision of the data.
    - Results for trip blank and trip spike samples were stated to be acceptable.
    - RPDs for laboratory duplicate sample pairs were considered to partially meet the DQI criteria. RPDs were greater than the DQI criteria of 50% for some PAH compounds and copper in the sample from location B14_0.25-0.4.

As stated previously, JBS noted that RPD exceedances can be expected when concentrations are close to the laboratory LOR and materials sampled are heterogeneous and the non-conformances were considered unlikely to affect the overall reliability of the data.

- Accuracy
  - All organics analyses were completed with a surrogate included. In general, surrogate spike results fell within the 70-130% acceptance criteria, however in two laboratory QA/QC samples the laboratory surrogate recovery results exceeded 130 % but were within the 60-140% interval included in the NATA accredited method.
  - Similarly, laboratory control samples (LCS) were generally undertaken at a suitable density for each soil analysis batch and were within acceptable criteria, however three laboratory surrogate recovery results were outside the 70 to 130% range, but were within the 60-140% interval included in the NATA accredited method.
  - Matrix sample analyses were undertaken at a suitable frequency by the laboratory during the soils assessment. As for the surrogate analyses, samples generally met the 70-130% adopted criteria, with minor occurrences of values within the 60-140% criteria adopted by the laboratory under their NATA accreditation.
- Representativeness
  - Sampling methods were considered to be appropriate for the project.
  - All samples were extracted and analysed within holding times appropriate for the respective CoPC.
  - Results for trip blank and trip spike samples were stated to be acceptable.
- Comparability
  - All sampling was stated to be undertaken in accordance with JBS sampling protocols, as per the DQIs.
  - All sampling was stated to be undertaken by experienced JBS personnel.
  - The nominated testing laboratories were stated to be NATA accredited and used similar analytical methods.
- Completeness
  - The Assessment Report stated that all laboratory documentation was complete and correct.
  - The frequency of QA/QC samples was considered to be appropriate.
- Sensitivity
  - The Assessment Report stated that the field and laboratory QA/QC results indicated that the data obtained were *"of acceptable quality and suitable for the stated objectives"*.

Auditor's opinion

The Auditor has independently reviewed the laboratory data provided in the Assessment Report and concurs that the minor non-conformances identified were unlikely to adversely impact the reliability of the dataset.

Although not clear from the discussion in the Assessment Report, based on the Auditor's review, the DQI for sensitivity was achieved (LOR less than SAC) and laboratory duplicates were completed at an appropriate frequency, with results generally meeting the DQIs.

Overall, the Auditor considers the QA/QC results presented to be adequate and reported in accordance with the requirements of NSW OEH (2011).

7.4 Results

The Assessment Report summarised the field observations in each area of the Site (i.e. former Administration Building, Clare Hotel and Loading Dock), which were generally consistent with the soil descriptions discussed in Section 3.3.2 of this SAR. In addition, the following observations were noted:

- Groundwater seepage was not encountered in any of the boreholes completed, with the exception of B02, where natural soils were saturated/wet at a depth of 0.9 m bgl;

- The encountered fill materials contained anthropogenic inclusions such as brick fragments, bituminous material, concrete gravels and terracotta fragments;
- Natural soils and/or refusal on sandstone were reported at all locations beneath the former Administration Building (B01 to B09 and B15) and beneath the Clare Hotel (B10 to B12). Within the Loading Dock, location B13 was terminated in natural soils and B14 refused on an obstruction with the fill material; and
- A sub-surface concrete pavement was noted at location B04 at a depth of 0.49 m bgl.

The analytical results of the investigation were stated to be provided in Tables A – G of the Assessment Report (included in Appendix B of this SAR) and are summarised below:

- All sample results for heavy metals were less than the SAC and considered to be less than or close to published background levels;
- All sample results for OCPs were less than the laboratory LOR and the SAC, where available;
- All sample results for TPH were less than the laboratory LOR and the SAC;
- All sample results for BTEX were less than the laboratory LOR and the SAC;
- All sample results for VOCs were less than the laboratory LOR and the SAC;
- All sample results for PAHs were less than the laboratory LOR and/or the SAC;
- All sample results for PCBs were less than the laboratory LOR and the SAC; and
- No asbestos fibres were detected in samples analysed.

With respect to comparison of results for samples collected from the Loading Dock against the waste classification criteria, the Assessment Report stated the following:

- All sample results for individual heavy metals were less than the CT1 criteria, with the exception of lead in samples B13 (0.2-0.3) and B13 (0.8-1.1), which were subsequently analysed for TCLP lead. Total lead results were less than the SCC1 criterion and TCLP lead results were less than the TCLP1 criterion.
- All sample results for OCPs were less than the SCC1 criterion;
- All sample results for TPH were less than the SCC1 criterion;
- All sample results for BTEX were less than the CT1 criterion;
- All sample results for VOCs were less than the CT1 criterion;
- Total PAH results were less than the SCC1 criterion, with the exception benzo(a)pyrene at a concentration of 0.89 mg/kg in sample B13 (0.2-0.3), which was less than the CT1 criterion. This sample was subsequently analysed for TCLP PAHs. The TCLP benzo(a)pyrene result was less than the TCLP1 criterion;
- All sample results for PCBs were less than the SCC1 criterion; and
- No asbestos fibres were detected in samples analysed.

Auditor's opinion

The Auditor notes that the summary results table for VOC was mislabelled Table D, however this should have been Table F as the PAH table was Table D. This is considered to be a minor typographical error which does not impact the outcome of the investigation or this Site Audit.

The Auditor also notes that comparison of the Loading Dock sample against waste classification criteria (including relevant TCLP results) has not been tabulated. However, the analytical report for the TCLP analysis was provided, therefore this discrepancy is considered to be relatively minor and unlikely to impact the outcome of the Site Audit.

The Auditor also notes that the correct reference to the current NSW waste guidelines is NSW DECCW (2009), not 1999 as stated in the Assessment Report. Again, this is considered to be a typographical error which does not impact the overall outcome of the investigation or this Site Audit because the correct reference is provided elsewhere in the Assessment Report and results were compared to the correct guideline.

Overall, the Auditor considers that the discussion of results provide in the Assessment Report was generally in accordance with the requirements of NSW OEH 2011.

7.5 Discussion

Based on the pre-determined DQOs for the investigation, the Assessment Report provided a discussion of the results obtained, as summarised below.

7.5.1 Potential Risks to Future Onsite Receptors

Concentrations of all CoPC were not detected at concentrations greater than the laboratory LOR and/or the SAC in any of the samples analysed. Therefore, contaminant concentrations were not considered to represent an unacceptable risk to human health with respect to the proposed future use of the Site.

7.5.2 Background Soil Concentrations

The Assessment Report noted concentrations of CoPC were less than the Australian background ranges published in NEPC (1999), therefore there were not considered to be any outstanding issues related to natural background soil conditions.

7.5.3 Chemical Mixtures

No chemical mixtures were identified that were considered to increase the risk of harm at the Site.

7.5.4 Aesthetics

Minor anthropogenic inclusions were observed in fill materials, however, based on the proposed future land use at the Site (boutique hotel occupying the entire Site limiting access to soils) these materials were not considered to pose an aesthetic issue.

No staining, malodorous soils or potential asbestos containing material were identified within the soil profile, therefor the soils are not considered to poise an aesthetic issue.

7.5.5 Unacceptable Risks to likely Future Onsite or Down Gradient Receptors from Groundwater

The potential for contaminant migration was considered to be low given the absence of significant contamination identified.

7.5.6 Site Management Strategy

The Assessment Report stated that *"the site is considered suitable for the proposed use without specific management with regard to soil contamination concentrations"*.

7.5.7 Waste Classification

The Assessment Report stated that analytical results indicated the material located within the Loading Dock portion of the Site would be classified as General Solid Waste. However, following demolition of the existing slab and prior to off-site disposal, a final assessment of the material should be conducted to confirm the material to be excavated is consistent with conditions encountered at locations B13 and B14.

Auditor's opinion

The Auditor considers that the discussion of results presented was appropriate and reported in accordance with the requirements of NSW OEH 2011.

7.6 Conclusions

Based on the findings of the investigations, the Assessment Report concluded that *"the site is considered suitable for the proposed land use without further investigation, remediation or management"*.

Auditor's opinion

The Auditor considers that the conclusions drawn were appropriate, based on the findings of the investigation. The Auditor's conclusions are discussed further in Section 8 of this SAR.

8.0 Audit Conclusions

Based on the information provided in the Assessment Report, the Auditor considers that the Site has been assessed in general accordance with the requirements of NSW EPA published and endorsed guidelines.

The Auditor concurs with the conclusion that the Site is suitable for the proposed land use (adaptive reuse of heritage buildings for boutique hotel and drinks premises) without further investigation, remediation or management based on the findings presented in the Assessment Report. It is noted that the only excavation proposed will be within the loading dock area for installation of services.

The Auditor also concurs that additional waste classification of any materials excavated from the Loading dock area should be further assessed/classified for disposal to confirm the material is consistent with conditions encountered at locations B13 and B14.

The Auditor also considers the concentrations of heavy metals in groundwater previously reported in the vicinity of the Site do not pose an unacceptable risk to human health or the environment and are *"typical of concentrations commonly encountered in the urban environment"*. With respect to the chlorinated hydrocarbon plume, given the location and reported groundwater flow directions, the Auditor concurs that the potential risks to human health and/or the environment within the Site associated with the chlorinated hydrocarbon plume present within the southern portion of the Fraser Broadway Redevelopment site are negligible.

9.0 References

AECOM 2012a. Site Audit Memo 33 – Sampling, Analysis and Quality Plan for Characterisation Assessment Proposed Hotel Development (Block 3A). 22 August 2012.

AECOM 2012b. Site Audit Memo 34 – Detailed Environmental Site Assessment: Characterisation Assessment Proposed Hotel Development (Block 3A). 15 October 2012.

ENSR 2008a. Site Audit Report Environmental Site Assessments. Former Kent Brewery Site, Chippendale, NSW. Final. 27 February 2008. S4095801_SAR_27Feb08.

ENSR 2008b. Site Audit Report and Site Audit Statement. Remedial Action Plan. Former Kent Brewery Site, Chippendale, NSW. 3 March 2008. S4095901_SAR_RAP_03MAR08.

ENSR 2008c. Re: Site Audit Report and Site Audit Statement, Addendum to Remedial Action Plan (including Child Care Centres), Former Kent Brewery Site, Chippendale NSW. 21 July 2008. S4095801_LRTSAR_Addrap_21Jul08.

JBS 2008a. Remedial Action Plan. FINAL. Frasers Broadway. Former Carlton & United Breweries Site. 26 – 100 Broadway, Chippendale, NSW. 22 February 2008. JBS 40474 – 12123.

JBS 2008b. Frasers Broadway - Addendum to Remediation Action Plan – Child Care Centres. Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. 11 July 2008. JBS 40474-12461.

JBS 2009. Acid Sulfate Soil Management Plan, Frasers Broadway Pty Ltd, Former Carlton & United Breweries Site, 26 – 100 Broadway, Chippendale, NSW. June 2009.

NSW DEC 2006. Guidelines for the NSW Site Auditor Scheme (2nd edition) NSW Department of Environment and Conservation.

NSW DEC 2007. Guidelines for the Assessment and Management of Groundwater Contamination. NSW Department of the Environment and Conservation.

NSW DECCW 2009. Waste Classification Guidelines Part 1: Classifying Waste. NSW Department of Environment and Climate Change.

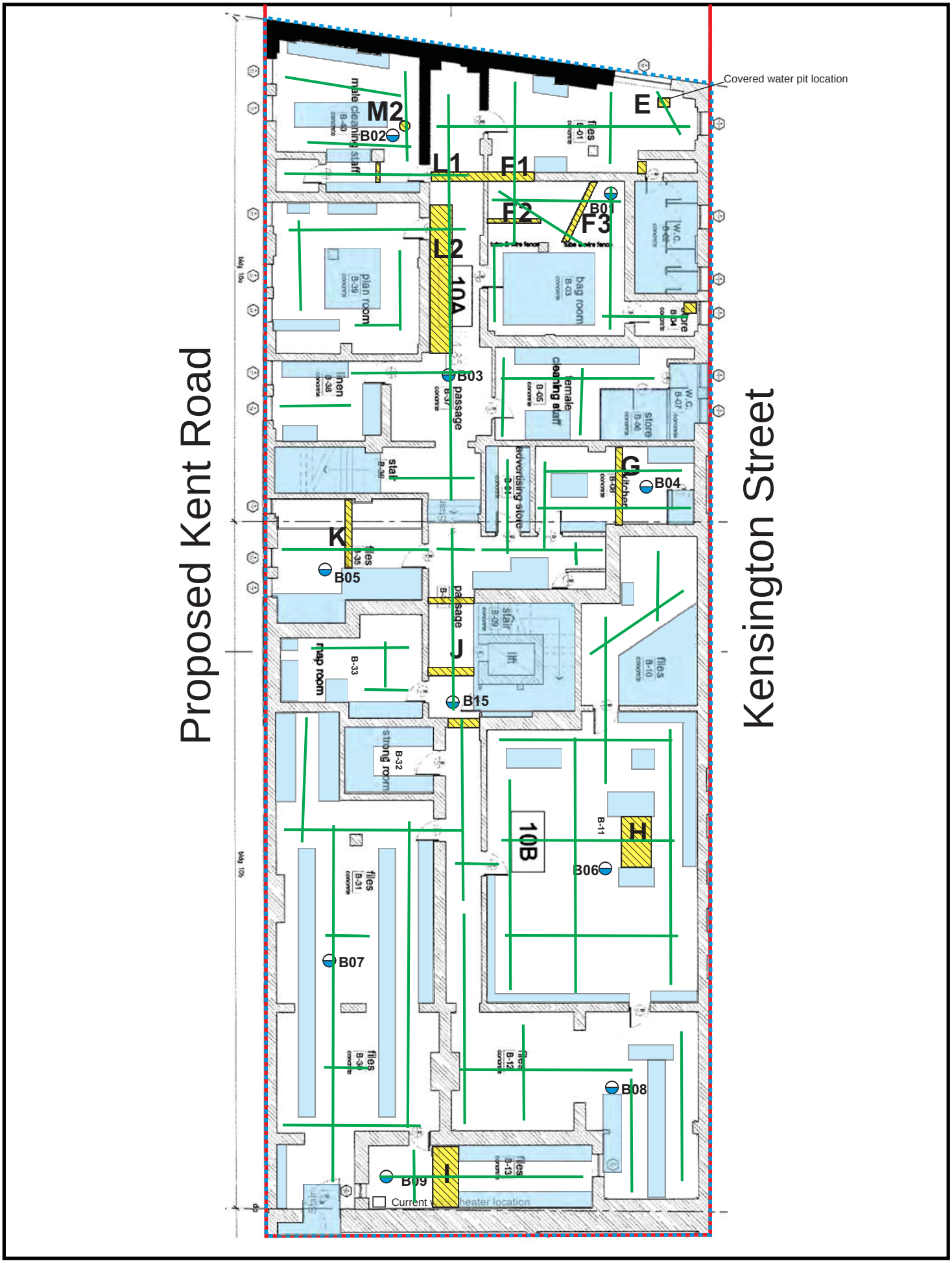
NSW EPA 1994. Contaminated Sites: Guidelines for Assessing Service Station Sites. NSW Environment Protection Authority.

NSW EPA 1995. Contaminated Sites: Sampling Design Guidelines. NSW Environment Protection Authority.

NSW OEH 2011. Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites. NSW Office of Environment and Heritage.

Appendix A

Figures from Consultants Report



Source: Base Image - HBO EMTB Heritage Pty Ltd, ADMIN Sv01, 22 April 2008

0 2 4 8 m
Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
0	Final Issue - R02	JR	16-10-2012
B	Original Issue - R02	SE	19-09-2012
A	Original Issue - R01	SE	16-08-2012

Legend:
- Approximate Site Boundary
- Former Administration Building Boundary
- Proposed Borehole Location
- Area Inaccessible at Time of GPS Survey
- Identified Subground Anomaly
- B Anomaly Identification Reference

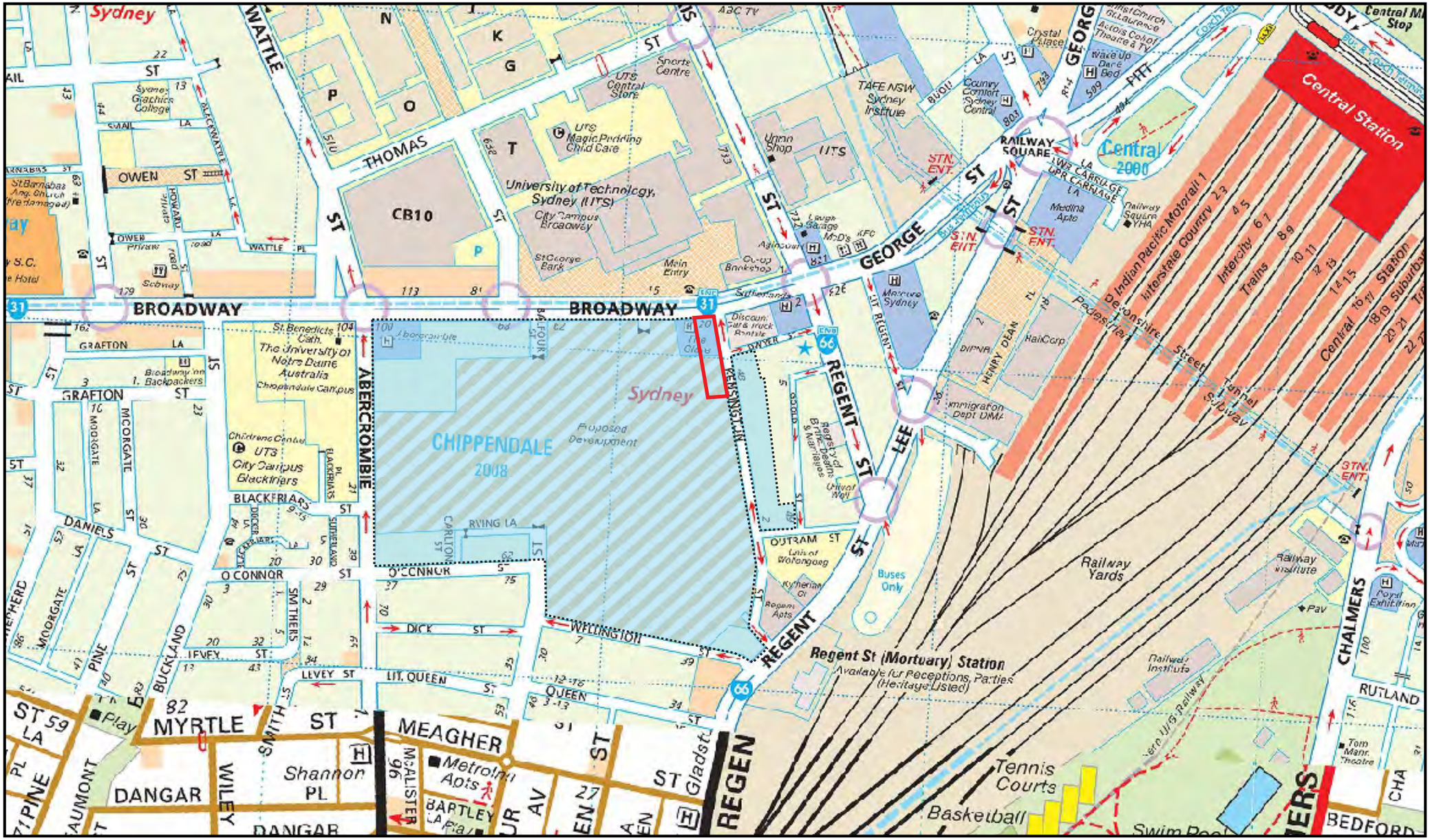
JBS ENVIRONMENTAL

Appendix B-1: Administration BuildingGPR Survey Summary

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_AP-B1



Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R01	SE	13-08-2012

Legend:
- Approximate Footprint of Block 3A
- Approximate Frasers Broadway Redevelopment

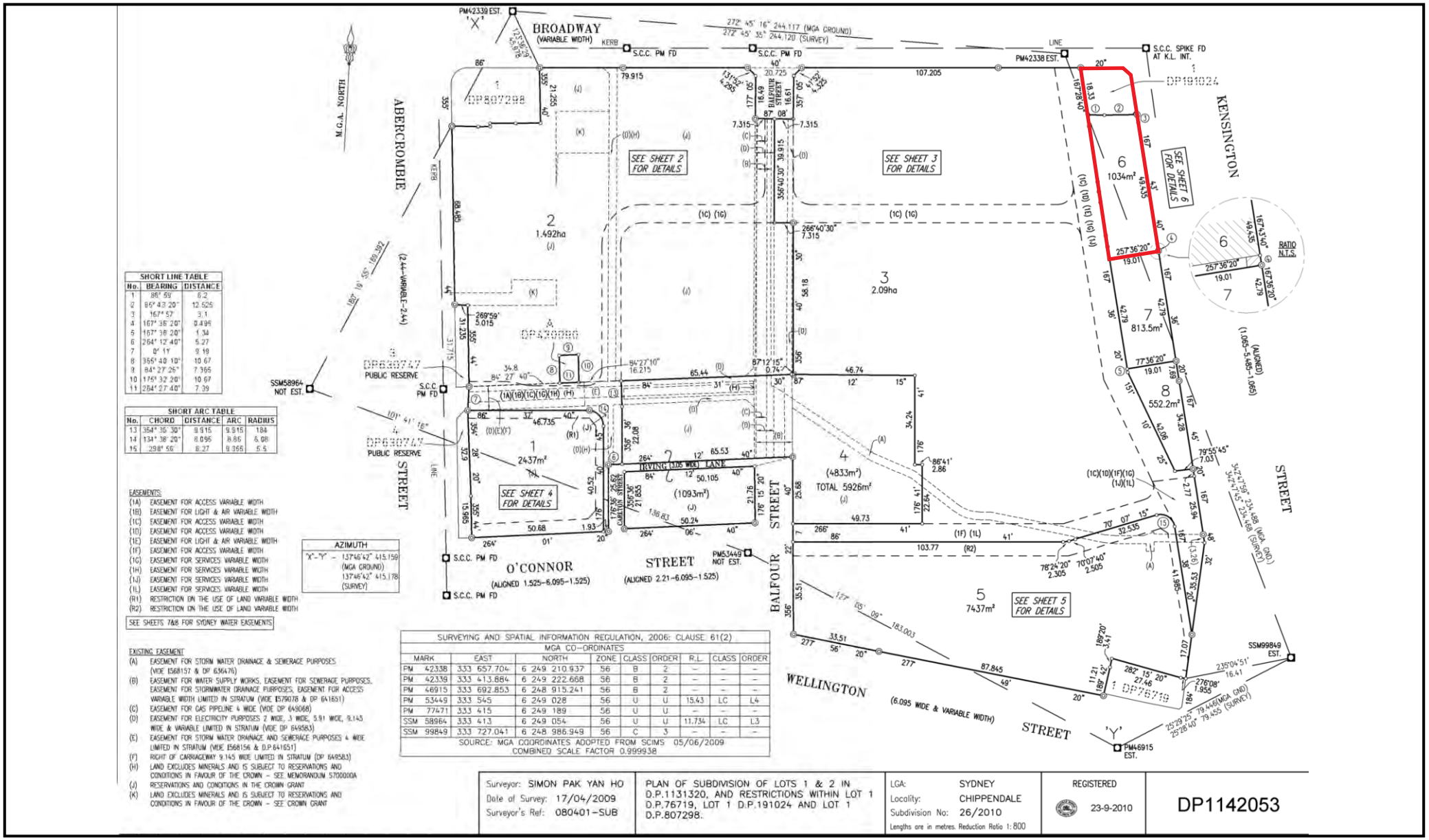
JBS ENVIRONMENTAL

Figure 1: Site Location

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_01



SHORT LINE TABLE		
No.	BEARING	DISTANCE
1	86° 59'	6.2
2	86° 43' 20"	12.525
3	167° 57'	3.1
4	167° 38' 20"	0.495
5	167° 38' 20"	1.34
6	264° 12' 40"	5.27
7	0° 11'	9.19
8	355° 40' 10"	10.67
9	84° 27' 26"	7.365
10	175° 32' 20"	10.67
11	264° 27' 40"	7.39

SHORT ARC TABLE				
No.	CHORD	DISTANCE	ARC	RADIUS
13	354° 35' 30"	9.915	9.915	184
14	134° 38' 20"	8.095	8.86	6.08
15	298° 56'	8.27	9.366	5.5

EASEMENTS:
(1A) EASEMENT FOR ACCESS VARIABLE WIDTH
(1B) EASEMENT FOR LIGHT & AIR VARIABLE WIDTH
(1C) EASEMENT FOR ACCESS VARIABLE WIDTH
(1D) EASEMENT FOR ACCESS VARIABLE WIDTH
(1E) EASEMENT FOR LIGHT & AIR VARIABLE WIDTH
(1F) EASEMENT FOR ACCESS VARIABLE WIDTH
(1G) EASEMENT FOR SERVICES VARIABLE WIDTH
(1H) EASEMENT FOR SERVICES VARIABLE WIDTH
(1J) EASEMENT FOR SERVICES VARIABLE WIDTH
(1L) EASEMENT FOR SERVICES VARIABLE WIDTH
(R1) RESTRICTION ON THE USE OF LAND VARIABLE WIDTH
(R2) RESTRICTION ON THE USE OF LAND VARIABLE WIDTH

SEE SHEETS 7&8 FOR SYDNEY WATER EASEMENTS

EXISTING EASEMENT
(A) EASEMENT FOR STORM WATER DRAINAGE & SEWERAGE PURPOSES (VIDE E568157 & DP 636476)
(B) EASEMENT FOR WATER SUPPLY WORKS, EASEMENT FOR SEWERAGE PURPOSES, EASEMENT FOR STORMWATER DRAINAGE PURPOSES, EASEMENT FOR ACCESS VARIABLE WIDTH LIMITED IN STRATUM (VIDE E579078 & DP 641651)
(C) EASEMENT FOR GAS PIPELINE 4 WIDE (VIDE DP 649068)
(D) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE, 3 WIDE, 5.91 WIDE, 9.145 WIDE & VARIABLE LIMITED IN STRATUM (VIDE DP 649583)
(E) EASEMENT FOR STORM WATER DRAINAGE AND SEWERAGE PURPOSES 4 WIDE LIMITED IN STRATUM (VIDE E568156 & D.P.641651)
(F) RIGHT OF CARRIAGEWAY 9.145 WIDE LIMITED IN STRATUM (DP 649583)
(H) LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE MEMORANDUM 5700000A
(J) RESERVATIONS AND CONDITIONS IN THE CROWN GRANT
(K) LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT

AZIMUTH	
"X"-"Y"	137°46'42" 415.159 (MGA GROUND)
	137°46'42" 415.178 (SURVEY)

SURVEYING AND SPATIAL INFORMATION REGULATION, 2006: CLAUSE 61(2)
MGA CO-ORDINATES

MARK	EAST	NORTH	ZONE	CLASS	ORDER	R.L.	CLASS	ORDER
PM 42338	333 657.704	6 249 210.937	56	B	2	–	–	–
PM 42339	333 413.884	6 249 222.668	56	B	2	–	–	–
PM 46915	333 692.853	6 248 915.241	56	B	2	–	–	–
PM 53449	333 545	6 249 028	56	U	U	15.43	LC	L4
PM 77471	333 415	6 249 189	56	U	U	–	–	–
SSM 58964	333 413	6 249 054	56	U	U	11.734	LC	L3
SSM 99849	333 727.041	6 248 986.949	56	C	3	–	–	–

SOURCE: MGA COORDINATES ADOPTED FROM SCIMS 05/06/2009
COMBINED SCALE FACTOR 0.999938

Surveyor: SIMON PAK YAN HO	PLAN OF SUBDIVISION OF LOTS 1 & 2 IN D.P.1131320, AND RESTRICTIONS WITHIN LOT 1 D.P.76719, LOT 1 D.P.191024 AND LOT 1 D.P.807298.	LGA: SYDNEY Locality: CHIPPENDALE Subdivision No: 26/2010 Lengths are in metres. Reduction Ratio 1:800	REGISTERED 23-9-2010	DP1142053
Date of Survey: 17/04/2009				
Surveyor's Ref: 080401-SUB				

Source: Base Image - Simon Pak Yan Ho 17-04-2009 Surveyor's Ref 080401-SUB

0 20 40 80 m
Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R01	SE	13-08-2012

Legend:
Approximate Footprint of Block 3A

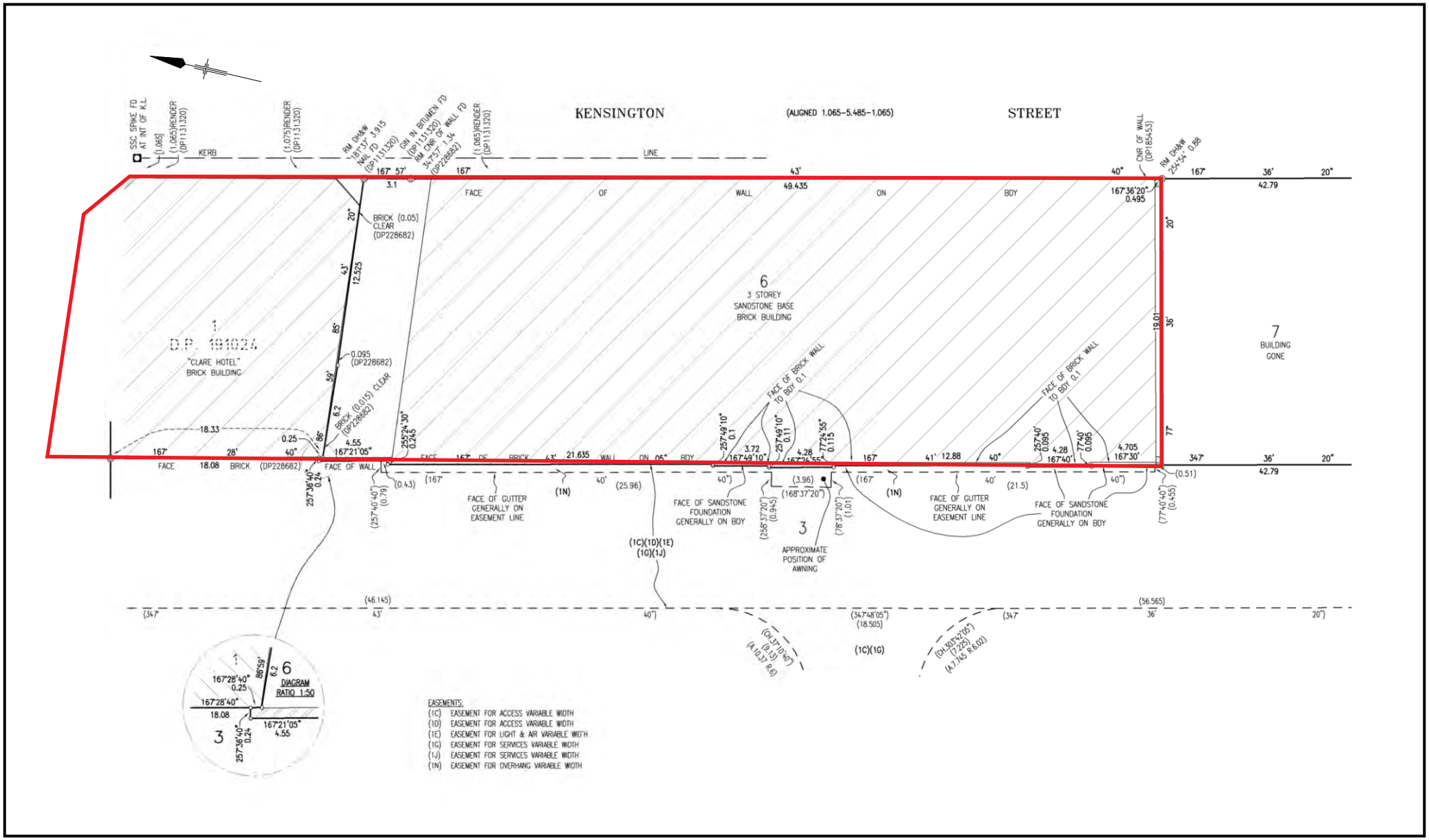
JBS ENVIRONMENTAL

Figure 2: Site Cadastral Identification

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_02



Source: Base Image - Simon Pak Yan Ho 17-04-2009 Surveyor's Ref 080401-SUB

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Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R01	SE	13-08-2012

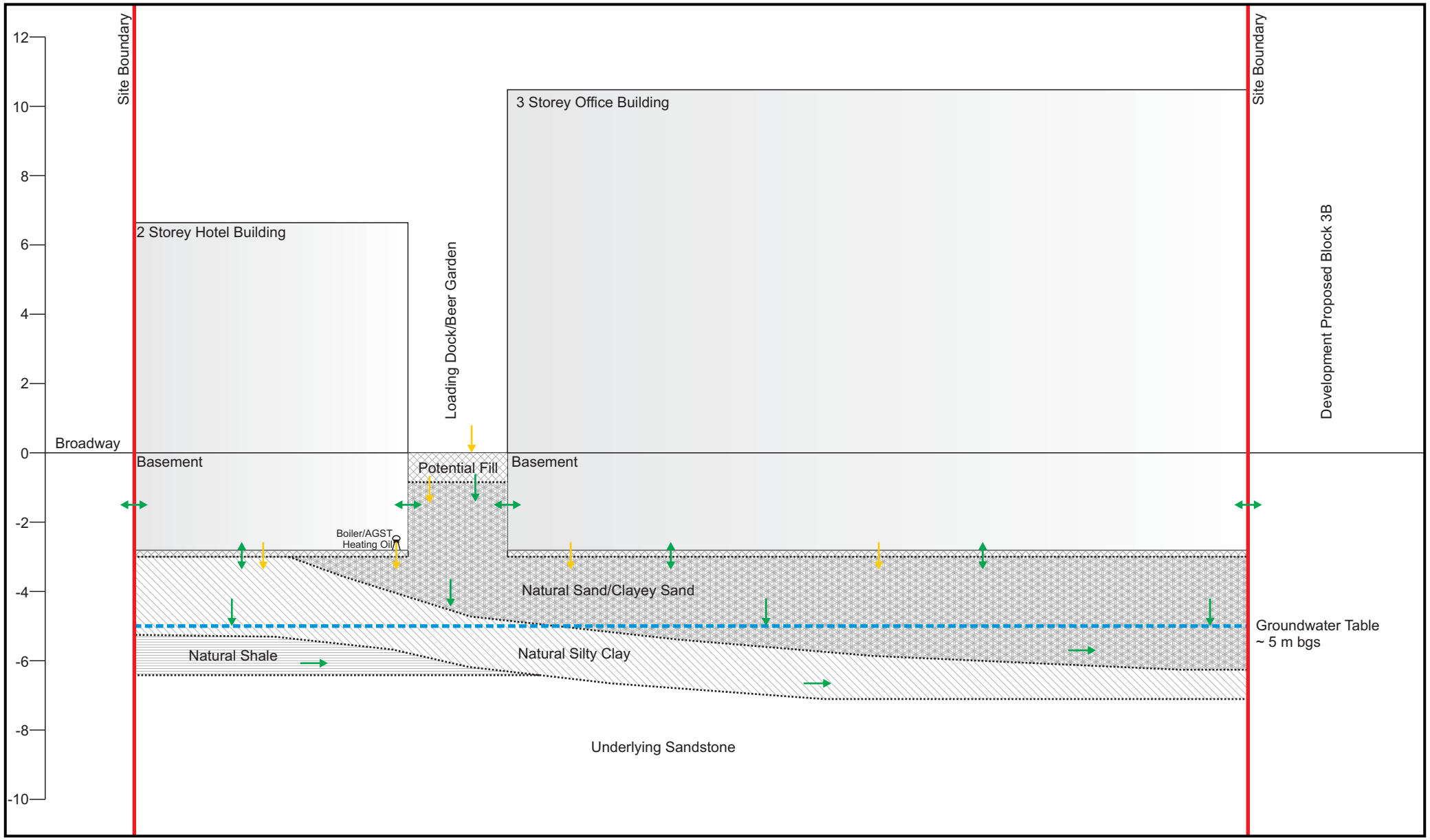
Legend:
Approximate Footprint of Block 3A

Figure 3: Site Layout

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_03



Source: Base Image - Simon Pak Yan Ho 17-04-2009 Surveyor's Ref 080401-SUB

0 4 8 16 m
Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R01	SE	14-08-2012

Legend:

- Approximate Site Boundary
- Contaminant Migration Pathway
- Contaminant Impact Pathway
- Inferred Groundwater Table
- Potential Fill Material
- Natural Sand/Clayey Sand
- Natural Silty Clay
- Shale Bedrock

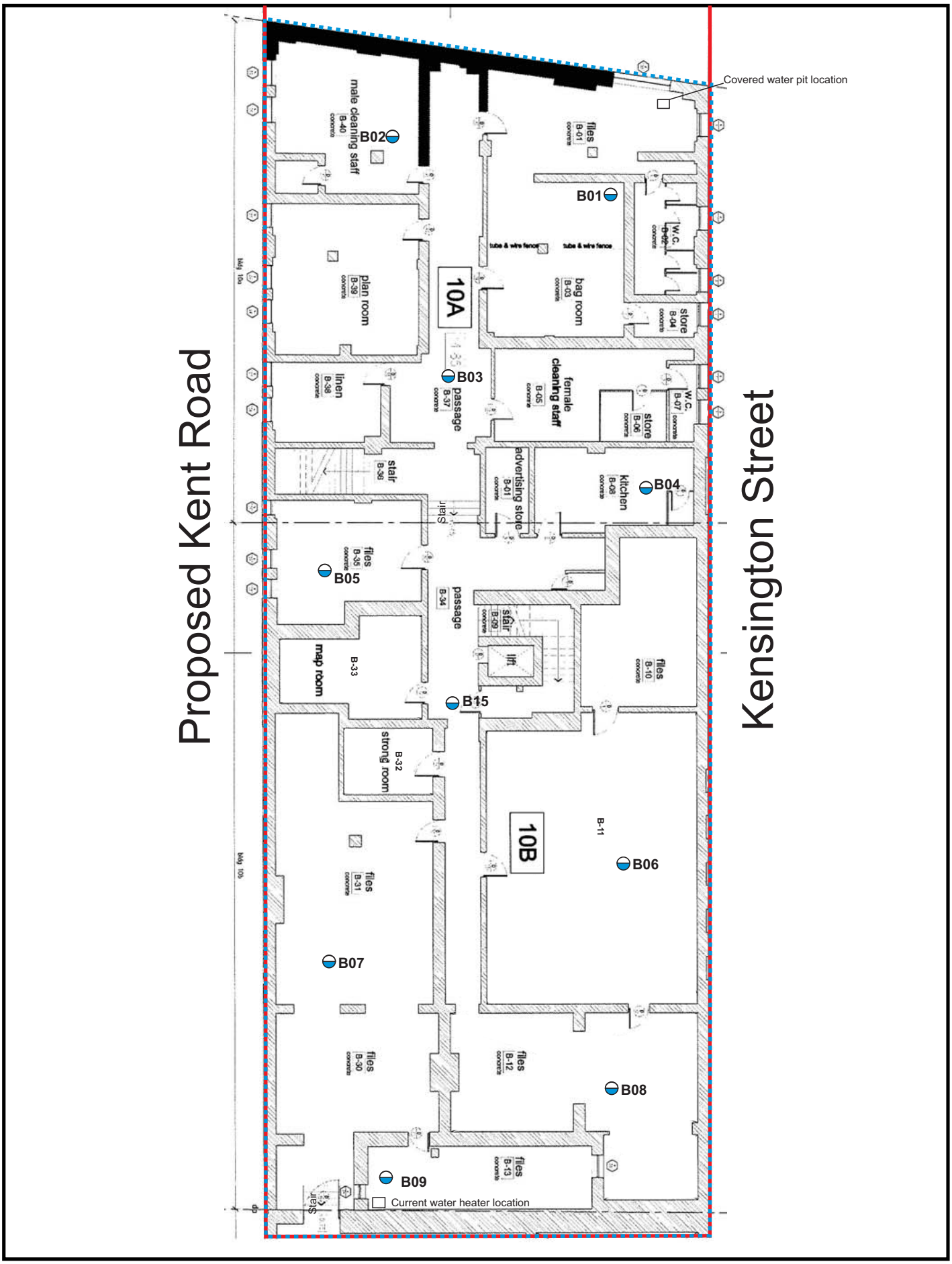
JBS ENVIRONMENTAL

Figure 4: Conceptual Site Model

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_04



Source: Base Image - HBO EMTB Heritage Pty Ltd, ADMIN Sv01, 22 April 2008

0 2 4 8 m

Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R02	SE	11-09-2012

Legend:
- Approximate Site Boundary
- Former Administration Building Boundary
- Borehole Location

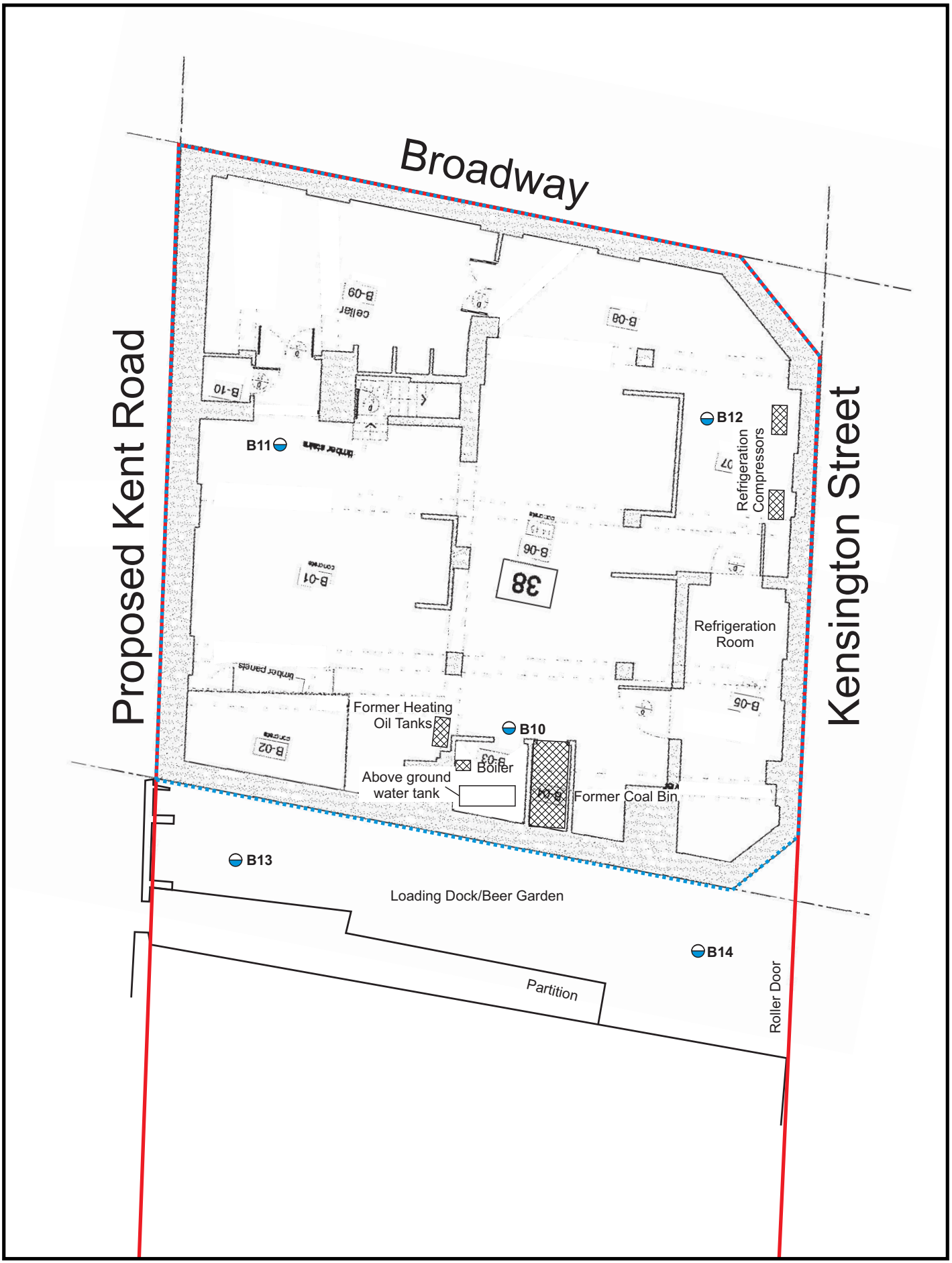
JBS ENVIRONMENTAL

Figure 5: Investigation Locations - Former Administration Building

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_05



Source: Base Image - HBO EMTB Heritage Pty Ltd, ADMIN SV-01, 22 April 2009

0 1 2 4 m

Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
A	Original Issue - R02	SE	11-09-2012

Legend:

- Approximate Site Boundary
- Former Administration Building Boundary
- Borehole Location

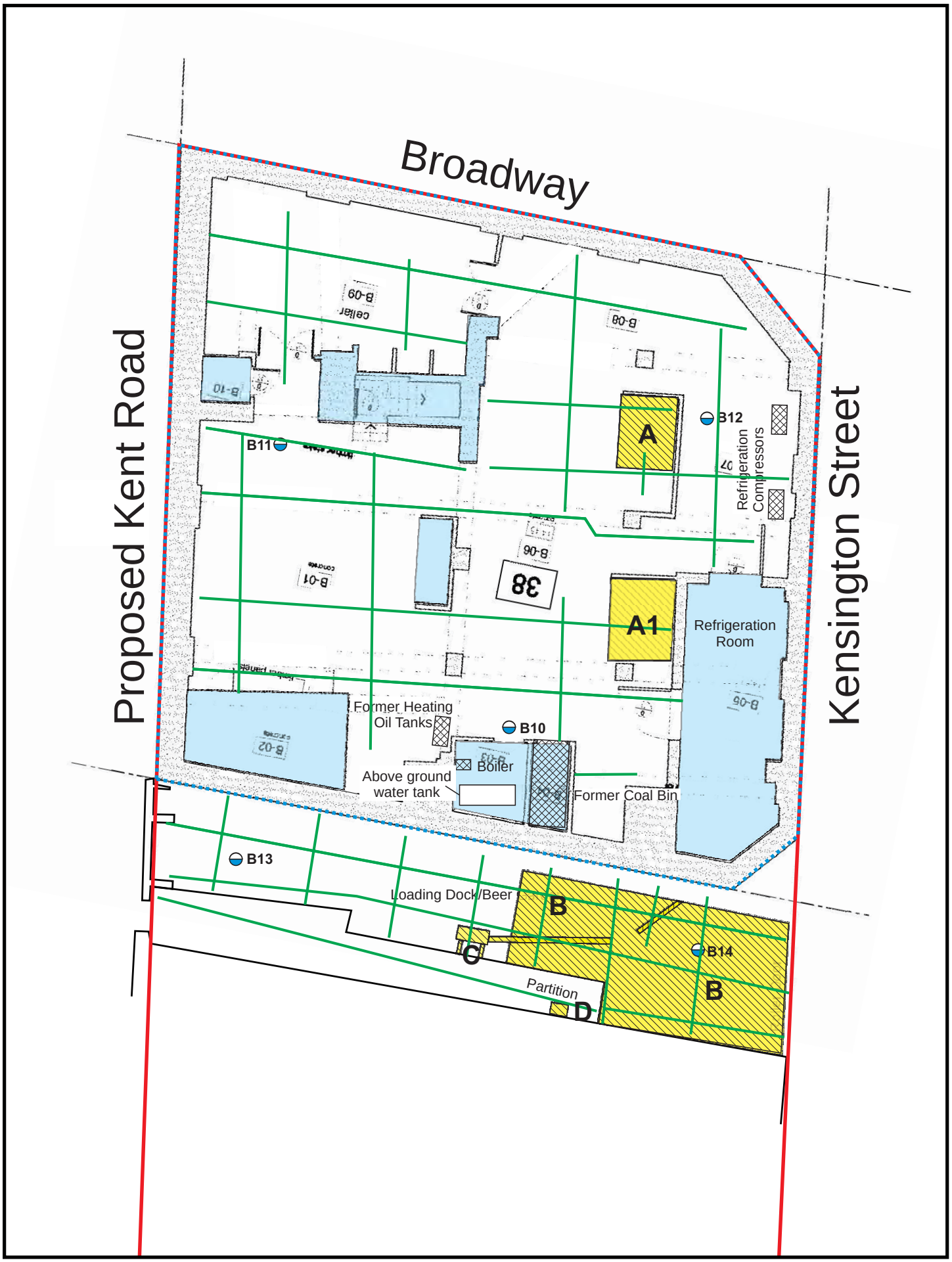
JBS ENVIRONMENTAL

Figure 6: Investigation Locations - Clare Hotel Building

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_06



Source: Base Image - HBO EMTB Heritage Pty Ltd, ADMIN SV-01, 22 April 2009

0 1 2 4 m

Scale: Approximate

Datum: MGA94 Zone 56 - AHD

Rev	Description	Drn.	Date
A4			
0	Final Issue - R02	JR	16-10-2012
B	Original Issue - R02	SE	18-09-2012
A	Original Issue - R01	SE	16-08-2012

Legend:

- Approximate Site Boundary
- Hotel Building Extent
- Proposed Borehole Location
- Area Inaccessible at Time of GPS Survey
- Identified Subground Anomaly
- A Anomaly Identification Reference
- Approx GPR Run Location

JBS ENVIRONMENTAL

Appendix B-2: Clare Hotel Building GPR Survey Summary

Client: Frasers Broadway Pty Ltd

Project: Characterisation Assessment - Development Block 3A

Job No: 42253 File Name: 42253_AP-B2

Appendix B

Tables from Consultants Report

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table A - Results of Soil Analysis - Heavy Metals

					Heavy Metals							
					Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury	Nickel	Zinc
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					4	0.5	1	1	1	0.1	1	1
NEPM 1999 HIL D					400	80	400	4000	1200	60	2400	28,000
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**								
Block 3A												
B01	0.16-0.26	Block 3A	27/08/2012	Natural	6	<0.5	24	130	62	0.2	5	68
B02	0.1-0.25	Block 3A	28/08/2012	Natural	6	<0.5	8	62	67	0.3	2	40
B03	0.12-0.25	Block 3A	27/08/2012	Natural	<4	<0.5	4	22	16	<0.1	2	28
B04	0.35-0.49	Block 3A	27/08/2012	Fill	<4	<0.5	4	57	31	<0.1	4	23
B04	0.7-0.85	Block 3A	27/08/2012	Natural	5	<0.5	10	19	26	<0.1	2	22
B05	0.23-3	Block 3A	27/08/2012	Natural	6	<0.5	11	13	31	0.1	<1	37
B06	0.25-0.35	Block 3A	28/08/2012	Natural	<4	<0.5	8	1	6	<0.1	2	4
B07	0.25-0.35	Block 3A	28/08/2012	Fill	<4	<0.5	4	7	35	0.2	2	24
B07	0.55-0.65	Block 3A	28/08/2012	Natural	11	<0.5	23	11	15	<0.1	2	30
B08	0.25-0.35	Block 3A	28/08/2012	Fill	<4	<0.5	6	9	16	<0.1	1	10
B09	0.25-0.35	Block 3A	27/08/2012	Fill	4	<0.5	12	9	37	0.2	1	17
B09	0.85-0.95	Block 3A	27/08/2012	Natural	11	<0.5	20	5	16	<0.1	1	5
B10	0.25-0.3	Block 3A	27/08/2012	Fill	13	<0.5	11	39	26	<0.1	16	54
B11	0.3-0.4	Block 3A	27/08/2012	Natural	6	<0.5	5	18	18	<0.1	<1	1
B12	0.4-0.5	Block 3A	27/08/2012	Natural	5	<0.5	5	18	83	0.4	1	19
B13	0.2-0.3	Block 3A	27/08/2012	Fill	6	<0.5	9	41	120	0.6	5	73
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	4	<0.5	8	39	120	0.6	5	64
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	4	<0.3	7.8	31	120	0.42	4.5	73
B13	0.8-1	Block 3A	27/08/2012	Fill	<4	<0.5	9	33	280	0.9	5	51
B13	1.4-1.5	Block 3A	27/08/2012	Natural	<4	<0.5	12	<1	7	<0.1	1	2
B14	0.25-0.4	Block 3A	27/08/2012	Fill	<4	<0.5	13	13	88	0.6	2	68
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<4	<0.5	10	19	78	0.5	3	70
QC01A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<3	<0.3	8.8	19	100	0.36	2.5	82
B14	0.8-1	Block 3A	27/08/2012	Fill	<4	<0.5	8	14	94	0.5	3	47
B14 - Triplicate	0.25-0.4	Block 3A	27/08/2012	Fill	<4	<0.5	11	18	82	0.5	3	58
B15	0.2-0.3	Block 3A	27/08/2012	Natural	4	<0.5	16	10	14	0.1	2	5

Number Concentration exceeds NEPM 1999 HIL D

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table B - Results of Soil Analysis - OCPs

					OCPs																					
					4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Aldrin + Dieldrin	DDT+DDE+DDD
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
NEPM 1999 HIL D									200												40				40	800
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**																						
Block 3A																										
B01	0.16-0.26	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B02	0.1-0.25	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B03	0.12-0.25	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
B04	0.35-0.49	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
B04	0.7-0.85	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B05	0.23-3	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B06	0.25-0.35	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	0.25-0.35	Block 3A	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	0.55-0.65	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B08	0.25-0.35	Block 3A	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B09	0.25-0.35	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
B09	0.85-0.95	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B10	0.25-0.3	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B11	0.3-0.4	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B12	0.4-0.5	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
B13	0.2-0.3	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
B13	0.8-1	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	1.4-1.5	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14	0.25-0.4	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01 A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14	0.8-1	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14 - Triplicate	0.25-0.4	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B15	0.2-0.3	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Number Concentration exceeds NEPM 1999 HIL D

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table C - Results of Soil Analysis -TPH and BTEX

					TPH					BTEX					
					TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH+C10 - C36	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					25	50	100	100	250	0.2	1	0.5	2	1	3
EPA 1994 Terrestial Organisms					65				1000	1	3.1	1.4			14
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**											
Block 3A															
B01	0.16-0.26	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B02	0.1-0.25	Block 3A	28/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B03	0.12-0.25	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B04	0.35-0.49	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B04	0.7-0.85	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B05	0.23-0.3	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B06	0.25-0.35	Block 3A	28/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B07	0.25-0.35	Block 3A	28/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B07	0.55-0.65	Block 3A	28/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B08	0.25-0.35	Block 3A	28/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B09	0.25-0.35	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B09	0.85-0.95	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B10	0.25-0.3	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B11	0.3-0.4	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B12	0.4-0.5	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B13	0.2-0.3	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<20	<20	<50	<50	<120	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
B13	0.8-1	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B13	1.4-1.5	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B14	0.25-0.4	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
QC01A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<20	<20	<50	<50	<120	<0.1	<0.1	<0.1	<0.2	0.1	0.2
B14	0.8-1	Block 3A	27/08/2012	Fill	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3
B14 - Triplicate	0.25-0.4	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-
B15	0.2-0.3	Block 3A	27/08/2012	Natural	<25	<50	<100	<100	<250	<0.2	<1	<0.5	<2	<1	<3

Number Concentration exceeds EPA 1994 Terrestrial Organisms

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table D - Results of Soil Analysis - PAHs

					PAHs															
					Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					0.1	0.1	0.1	0.1	0.05	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.55
NEPM 1999 HIL D									4											80
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**																
Block 3A																				
B01	0.16-0.26	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B02	0.1-0.25	Block 3A	28/08/2012	Natural	<0.1	<0.1	<0.1	0.1	0.16	0.2	<0.1	0.1	<0.1	0.4	<0.1	<0.1	<0.1	0.3	0.3	2.01
B03	0.12-0.25	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B04	0.35-0.49	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	0.5	0.3	0.8	0.3	0.7	<0.1	1.5	<0.1	0.3	<0.1	0.4	1.6	6.7
B04	0.7-0.85	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B05	0.23-3	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B06	0.25-0.35	Block 3A	28/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B07	0.25-0.35	Block 3A	28/08/2012	Fill	<0.1	<0.1	<0.1	0.1	0.14	0.2	<0.1	0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.2	0.2	1.54
B07	0.55-0.65	Block 3A	28/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B08	0.25-0.35	Block 3A	28/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.85
B09	0.25-0.35	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	0.07	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.82
B09	0.85-0.95	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B10	0.25-0.3	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	0.18	<0.2	<0.1	0.2	<0.1	0.2	0.1	<0.1	<0.1	0.3	0.2	1.68
B11	0.3-0.4	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B12	0.4-0.5	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	0.2	0.17	0.3	<0.1	0.2	<0.1	0.4	<0.1	<0.1	<0.1	0.1	0.4	2.17
B13	0.2-0.3	Block 3A	27/08/2012	Fill	<0.1	0.1	0.1	0.6	0.89	1.2	0.6	0.6	<0.1	1	<0.1	0.7	<0.1	0.5	1.1	7.59
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.1	0.1	0.1	0.8	1.2	1.6	0.7	0.8	0.1	1.4	<0.1	0.6	<0.1	0.5	1.5	9.55
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.1	<0.1	<0.1	0.5	0.5	0.8	0.5	0.4	<0.1	0.6	<0.1	0.3	<0.1	0.2	0.6	4.7
B13	0.8-1	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	0.3	0.35	0.5	0.2	0.3	<0.1	0.6	<0.1	0.2	<0.1	0.3	0.6	3.65
B13	1.4-1.5	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55
B14	0.25-0.4	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	0.2	0.24	0.4	0.1	0.2	<0.1	0.4	<0.1	0.1	<0.1	0.1	0.4	2.44
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<0.1	<0.1	<0.1	0.2	0.24	0.3	0.1	0.2	<0.1	0.2	<0.1	0.1	<0.1	<0.1	0.3	1.99
QC01A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	<0.1	<0.1	<0.1	0.1	<0.1	0.15	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1
B14	0.8-1	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	0.1	0.1	<0.2	<0.1	0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.1	0.2	1.3
B14 - Triplicate	0.25-0.4	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B15	0.2-0.3	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.55

Number Concentration exceeds NEPM 1999 HIL D

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table E - Results of Soil Analysis - PCBs

					PCBs						
					Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 1999 HIL D					40						
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**							
Structures With Painted Walls											
B01	0.16-0.26	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B02	0.1-0.25	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-
B03	0.12-0.25	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B04	0.35-0.49	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B04	0.7-0.85	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B05	0.23-3	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B06	0.25-0.35	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-
B07	0.25-0.35	Block 3A	28/08/2012	Fill	-	-	-	-	-	-	-
B07	0.55-0.65	Block 3A	28/08/2012	Natural	-	-	-	-	-	-	-
B08	0.25-0.35	Block 3A	28/08/2012	Fill	-	-	-	-	-	-	-
B09	0.25-0.35	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B09	0.85-0.95	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B10	0.25-0.3	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-
B11	0.3-0.4	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B12	0.4-0.5	Block 3A	27/08/2012	Natural	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B13	0.2-0.3	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
B13	0.8-1	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-
B13	1.4-1.5	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-
B14	0.25-0.4	Block 3A	27/08/2012	Fill	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	-	-	-	-	-	-	-
QC01A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	-	-	-	-	-	-	-
B14	0.8-1	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-
B14 - Triplic	0.25-0.4	Block 3A	27/08/2012	Fill	-	-	-	-	-	-	-
B15	0.2-0.3	Block 3A	27/08/2012	Natural	-	-	-	-	-	-	-

Number Concentration exceeds NEPM 1999 HIL D

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table D - Results of Soil Analysis -VOCs

					VOCs																			
					1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropan	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adopted Criteria LOR					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**																				
Areas of Hydrocarbon Storage																								
B01	Block 3A	0.16-0.26	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B02	Block 3A	0.1-0.25	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B03	Block 3A	0.12-0.25	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.35-0.49	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.7-0.85	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B05	Block 3A	0.23-3	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B06	Block 3A	0.25-0.35	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.55-0.65	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B08	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B09	Block 3A	0.25-0.35	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B09	Block 3A	0.85-0.95	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B10	Block 3A	0.25-0.3	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B11	Block 3A	0.3-0.4	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B12	Block 3A	0.4-0.5	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B13	Block 3A	0.2-0.3	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02A	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	1.4-0.5	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14	Block 3A	0.25-0.4	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QC01	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QC01A	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B14	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14 - Triplicate	Block 3A	0.25-0.4	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B15	Block 3A	0.2-0.3	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Number Concentration exceeded the adopted criteria (LOR)

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table D - Results of Soil Analysis -VOCs

					VOCs																			
					2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					1	1	1	0.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adopted Criteria LOR					1	1	1	0.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**																			
Areas of Hydrocarbon Storage																							
B01	Block 3A	0.16-0.26	27/08/2012	Natural	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B02	Block 3A	0.1-0.25	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B03	Block 3A	0.12-0.25	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.35-0.49	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.7-0.85	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B05	Block 3A	0.23-3	27/08/2012	Natural	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B06	Block 3A	0.25-0.35	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.55-0.65	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B08	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B09	Block 3A	0.25-0.35	27/08/2012	Fill	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B09	Block 3A	0.85-0.95	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B10	Block 3A	0.25-0.3	27/08/2012	Fill	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B11	Block 3A	0.3-0.4	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B12	Block 3A	0.4-0.5	27/08/2012	Natural	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
B13	Block 3A	0.2-0.3	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02A	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	1.4-0.5	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14	Block 3A	0.25-0.4	27/08/2012	Fill	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QC01	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<1	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QC01A	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.1	<1	<0.1	<0.1	<0.1	<0.1
B14	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14 - Triplicate	Block 3A	0.25-0.4	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B15	Block 3A	0.2-0.3	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Number Concentration exceeded the adopted criteria (LOR)

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table D - Results of Soil Analysis -VOCs

					VOCs																
					Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	Toluene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1
Adopted Criteria LOR					1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**																	
Areas of Hydrocarbon Storage																					
B01	Block 3A	0.16-0.26	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
B02	Block 3A	0.1-0.25	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B03	Block 3A	0.12-0.25	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.35-0.49	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B04	Block 3A	0.7-0.85	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B05	Block 3A	0.23-3	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
B06	Block 3A	0.25-0.35	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B07	Block 3A	0.55-0.65	28/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B08	Block 3A	0.25-0.35	28/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B09	Block 3A	0.25-0.35	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
B09	Block 3A	0.85-0.95	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B10	Block 3A	0.25-0.3	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
B11	Block 3A	0.3-0.4	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B12	Block 3A	0.4-0.5	27/08/2012	Natural	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
B13	Block 3A	0.2-0.3	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02A	Block 3A	0.2-0.3	27/08/2012	B13 (0.2-0.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B13	Block 3A	1.4-0.5	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14	Block 3A	0.25-0.4	27/08/2012	Fill	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
QC01	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
QC01A	Block 3A	0.25-0.4	27/08/2012	B14 (0.25-0.4)	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
B14	Block 3A	0.8-1	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B14 - Triplicate	Block 3A	0.25-0.4	27/08/2012	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B15	Block 3A	0.2-0.3	27/08/2012	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Number Concentration exceeded the adopted criteria (LOR)

Project Number: 42253
Report: Block 3A DSI
Address: Former Carlton and United Breweries Site 26 - 100 Broadway, Chippendale, NSW
Table G - Results of Soil Analysis - Asbestos

					Asbestos
					g/kg
LOR					LOR and no respirable fibres detected
Field ID	**Depth (m)**	**Location Code**	**Date**	**Matrix Description**	
Block 3A					
B01	0.16-0.26	Block 3A	27/08/2012	Natural	-
B02	0.1-0.25	Block 3A	28/08/2012	Natural	-
B03	0.12-0.25	Block 3A	27/08/2012	Natural	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
B04	0.35-0.49	Block 3A	27/08/2012	Fill	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
B04	0.7-0.85	Block 3A	27/08/2012	Natural	-
B05	0.23-3	Block 3A	27/08/2012	Natural	-
B06	0.25-0.35	Block 3A	28/08/2012	Natural	-
B07	0.25-0.35	Block 3A	28/08/2012	Fill	-
B07	0.55-0.65	Block 3A	28/08/2012	Natural	-
B08	0.25-0.35	Block 3A	28/08/2012	Fill	-
B09	0.25-0.35	Block 3A	27/08/2012	Fill	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
B09	0.85-0.95	Block 3A	27/08/2012	Natural	-
B10	0.25-0.3	Block 3A	27/08/2012	Fill	-
B11	0.3-0.4	Block 3A	27/08/2012	Natural	-
B12	0.4-0.5	Block 3A	27/08/2012	Natural	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
B13	0.2-0.3	Block 3A	27/08/2012	Fill	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
QC02	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
QC02A	0.2-0.3	Block 3A	27/08/2012	B13 (0.2-0.3)	-
B13	0.8-1	Block 3A	27/08/2012	Fill	-
B13	1.4-1.5	Block 3A	27/08/2012	Natural	-
B14	0.25-0.4	Block 3A	27/08/2012	Fill	-
QC01	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
QC01A	0.25-0.4	Block 3A	27/08/2012	B14 (0.25-0.4)	-
B14	0.8-1	Block 3A	27/08/2012	Fill	No asbestos found at reporting limit of 0.1 g/kg. Respirable fibres not detected.
B14 - Triplicate	0.25-0.4	Block 3A	27/08/2012	Fill	-
B15	0.2-0.3	Block 3A	27/08/2012	Natural	-

Number Concentration exceeds assessment criteria (LOR)

Appendix C

Relevant Correspondence

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Level 21, 420 George Street
Sydney NSW 2000
PO Box Q410
QVB Post Office NSW 1230
Australia
www.aecom.com

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Memorandum

To	Michael Goldrick, Frasers Property Pty Ltd	Page	1
CC	Scott Clohessy, Frasers Property Pty Ltd		
Subject	Site Audit Memo 33 – Sampling, Analysis and Quality Plan for Characterisation Assessment Proposed Hotel Development (Block 3A)		
From	Frank Mohen		
File/Ref No.	60153334-S40958_SAM33_220812	Date	22 Aug 2012

Dear Michael,

Site Audit Memo No.: 33

Date: 22 August 2012

Purpose of Memo: To provide interim advice regarding the draft Sampling, Analysis and Quality Plan for the characterisation assessment of the proposed hotel Development (Block 3A) (herein referred to as the Site), as presented in JBS Environmental (2012) *Sampling Analysis and Quality Plan – Characterisation Assessment Proposed Hotel Development, Frasers Broadway Redevelopment Block 3A, Administration and Clare Hotel Heritage Buildings, 26-100 Broadway, Chippendale NSW* (Draft for Comment), dated August, (ref: JBS 42253-51465), herein referred to as 'the Draft SAQP'.

This Site Audit Memo (SAM) does not constitute a Site Audit Report or Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but rather provides interim advice as part of the Site Audit.

The Auditor notes that the Site Audit is conducted with reference to guidelines published and/or endorsed by the NSW Environment Protection Agency (EPA), particularly *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 1997), *Sampling Design Guidelines* (NSW EPA 1995) and *Guidelines for the NSW Site Auditor Scheme 2nd edition* (NSW DEC 2006).

Auditor's Comments:

The Auditor has reviewed the Draft SAQP and considers that it substantially complies with the NSW EPA made or endorsed guidelines for preparation of an SAQP and generally provides sufficient information with respect to the proposed investigation. However, the Auditor offers the following comments which should be addressed in the final version of the SAQP:

- Section 4.2: Is it possible to show the GPR survey runs on a figure?
- Section 4.3:
    - Please refer to the appropriate figures in Appendix B (for clarification);
    - Please identify the anomalies more clearly on the figures, and include appropriate references in the text (i.e. assign an identifier to each anomaly);
    - It is noted that Figure B-2 does not show the anomalies within the loading dock area as discussed in the text.
    - The anomaly shown in room B04 has not been discussed in the text.
    - Several anomalies discussed in the text were not shown on Figure B-1, including the anomaly within room B35, the suspected pipe crossing room (corridor) B37 and the suspected pipe in room B40.

    The Auditor requests that the complete geophysical report, with interpretations of the various anomalies, be included in Appendix B, rather than just the GPR output prints.

AECOM

- Section 6.1.6, Table 6.2: It is noted that Blind duplicates are intra-lab duplicates and Split duplicates are inter-lab duplicates (reversed in the table).
- Section 6.1.7: borehole locations B07 and B08 are not discussed. Please confirm that these locations are for general site/grid coverage.
- Section 6.2: It is noted that hand auguring is the proposed sampling methodology and that shallow refusal may be encountered. What is the contingency plan for assessing the site if adequate samples are not able to be collected?
- Section 6.3, Table 6.3: It appears that one sample of fill material (14 samples) plus one QA/QC sample will be analysed from each borehole for metals, TPH/BTEX (TPH/VOCs) and PAHs, with fewer samples analysed for OCPs, PCBs, asbestos and TCLP for metals/PAHs. The Auditor notes that the proposed QA/QC program requires 1/20 split duplicates and 1/20 blind duplicates. Please confirm how samples for the additional analytes (included TCLP) will be selected. It is also noted that only 3 samples of natural soils are proposed to be analysed. Please confirm how these samples will be selected? Consideration should also be given to increasing the number of natural samples analysed, for example to 50 % of the boreholes.
- Figures 5 and B-1: A possible well location is noted in the northeast corner of the Site. Please confirm whether this is a "proposed" possible well location or whether it is an existing possible well, and if determined to be a well, will the integrity be assessed and a sample collected? It is also noted that two rooms are labelled B-01 (files and advertising store).

  The Auditor notes a relatively large gap in the investigation grid within the southern section of the Site and recommends an additional sample location be included to fill this gap, perhaps in the southern passageway, adjacent to the suspected pipeline anomalies identified on Figure B-2, depending on access.

If you have any questions, please do not hesitate to contact Beth Toivonen (0421 320 735) or the undersigned.

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Memorandum

To	Anthony Green, Frasers Property Pty Ltd	Page	1
CC	Scott Clohessy, Frasers Property Pty Ltd Michael Goldrick, Frasers Property Pty Ltd		
Subject	Site Audit Memo 34 – Detailed Environmental Site Assessment: Characterisation Assessment Proposed Hotel Development (Block 3A)		
From	Frank Mohen		
File/Ref No.	60153334-S40958_SAM34_151012	Date	15 Oct 2012

Dear Anthony,

Site Audit Memo No.: 34

Date: 15 October 2012

Purpose of Memo: To provide interim advice regarding the draft characterisation assessment of the proposed hotel development (Block 3A) (herein referred to as the Site), as presented in JBS Environmental (2012) *Detailed Environmental Site Investigation – Characterisation Assessment Proposed Hotel Development, Frasers Broadway Redevelopment Block 3A, Administration and Clare Hotel Heritage Buildings, 20-24 Broadway and 3 Kensington St, Chippendale NSW* (Draft for Comment), dated September, (ref: JBS 42253-51722), herein referred to as 'the Draft DESI'.

This Site Audit Memo (SAM) does not constitute a Site Audit Report or Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but rather provides interim advice as part of the Site Audit.

The Auditor notes that the Site Audit is conducted with reference to guidelines published and/or endorsed by the NSW Environment Protection Agency (EPA), particularly *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 1997), *Sampling Design Guidelines* (NSW EPA 1995) and *Guidelines for the NSW Site Auditor Scheme 2nd edition* (NSW DEC 2006).

Auditor's Comments:

The Auditor has reviewed the Draft DESI and considers that it substantially complies with the NSW EPA made or endorsed guidelines for preparation of a detailed site investigation report as well as the Sampling, Analysis and Quality Plan (SAQP) previously prepared by JBS for the investigation. It is noted that comments previously made by the Auditor with respect to the SAQP have been adequately addressed during the assessment works and preparation of the DESI.

The Auditor offers the following comments which should be addressed in the final version of the DESI:

- Section 2 and Appendix A (Photographs) – The Auditor noted a few minor typographical errors in one or two of the photo captions. It would also be helpful if the photographs were numbered and referenced in Section 2
- Section 6.2.3: Minor typographical error.
- Table 8.1 and Section 8.3.1 – Envirolab report number 78098 reported laboratory RPDs up to 120% (Fluoranthene and pyrene), not 110% as indicated. Please amend Table 8.1 and the discussion in Section 8.3.1 appropriately.
- Section 9.1.1.3 and Appendix E – two borelogs (not identical) were presented in Appendix E for location B14.The report did not mention this location being moved and drilled again, nor has a second location been indicated on the figures. It is also noted that the second borelog indicated concrete underlain by "Fill – As

above, increase in concentration of red brick fragments", however there was no fill description provided "above". Please confirm which borelog is correct and amend the log as/if required.

If you have any questions, please do not hesitate to contact Beth Toivonen (0421 320 735) or the undersigned.

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