BUTLER PARTNERS
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Project No. 03900G

24 January 2014

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL
21 MAY 2014
MEDQ

Cardno HRP
Level 11, 40 Creek Street
BRISBANE QLD 4000

Email: Leo.Mewing@cardno.com.au

Attention: Mr L Mewing

Dear Leo

RE: HIGH DENSITY RESIDENTIAL DEVELOPMENT
5 HERCULES STREET, HAMILTON
CONTAMINATED LAND MANAGEMENT

The property at 5 Hercules Street, Hamilton (Lot 1 on SP231749) is listed on the Department of Environment and Heritage Protection's (EHP) Environmental Management Register (EMR). Butler Partners Pty Ltd prepared a Stage 1 Environmental Site Assessment for the site in 2006:

Stage 1 Environmental Site Assessment
Proposed Extension of Portside Wharf
Catsoulis Site
5 Hercules Street, Hamilton
September 2006

This report was submitted to EHP (known as the Environmental Protection Agency at the time) in 2006 with the necessary Statutory Declaration and documentation and was accepted as being a properly made application. The EHP file reference for the site is BNE 15997. Since 2006, the property has been used for temporary storage of construction materials, temporary offices or it has been vacant. It is anticipated that the contamination identified in the abovementioned report is still present on the site.

The current Development Application proposes high rise residential development of the site with a basement. Based on the information contained in the Stage 1 Environmental Site Assessment report, the site is suitable for this proposed use from a contaminated land perspective, however, management measures will be needed during the process of excavating for the basement. On this basis, a draft Site Management Plan and Remediation Action Plan (SMP/RAP) have been prepared, these will need to be reviewed and approved by EHP and should form the basis of contaminated land conditions attached to the DA. A copy of the draft SMP/RAP is attached.

We trust this provides the information you require as part of the Development Application. Formal lodgement of the draft SMP/RAP to EHP will be required in order for the document to be assessed and approved.

Yours faithfully
BUTLER PARTNERS PTY LTD

SUZANNE WALKER
Principal
Enc: Draft Site Management Plan and Remediation Action Plan

Draft SITE MANAGEMENT PLAN (SMP) - V1

DATE OF EFFECT:

Lot 1 on SP231749

FILE REF: BNE 15997

1.0 SUMMARY OF CONTAMINATION

The site is located at 5 Hercules Street, Hamilton, Queensland and is known as Lot 1 on SP231749. Historical filling with material of unknown origin (surface to approximately 2.4m depth) has occurred throughout the site. Historical information relating to the site indicates that the site has been occupied by various industrial and commercial land uses dating back to at least the early 1900s. Previous land uses include a warehouse and offices.

The following maximum contaminant concentrations have been found in soil samples at depths of up to 0.5 metres below ground level:

Copper	570mg/kg
Lead	350mg/kg
Zinc	6,210mg/kg
Chromium (total)	170mg/kg
Pesticides	
DD	2.9mg/kg
DDD	0.17mg/kg
DDT	1.5mg/kg

2.0 OBJECTIVES OF THE SITE MANAGEMENT PLAN

The objectives of this SMP are to manage impacted soils on the site in a manner that protects human health and the environment.

3.0 ACHIEVEMENT AND MAINTENANCE OF OBJECTIVES

3.1 Responsibility. The owner of the land (as defined in the *Environmental Protection Act 1994* [EP Act]) is to ensure that this SMP and any variations to the SMP approved or required by the administering authority are complied with. The obligations and conditions set out in this SMP bind the owner, from time to time, of the land.

3.2 Site Use. The site is suitable for medium/high density land use with restricted soil access.

3.3 Provision of SMP to appropriate persons. The owner must provide all persons involved in building design and planning and all contractors and lessees conducting building and/or excavation works with a copy of the SMP prior to commencement of works. All persons occupying or working on the site must comply with the requirements of the SMP.

3.4 Site Capping. The site is currently predominantly capped with concrete paving; this must be maintained in good condition until re-development of the site commences and implementation of the attached Remediation Action Plan (RAP) occurs.

3.5 Soil Excavation and Removal. Any soil excavated from beneath the site capping must be assessed for contaminants of concern to determine if the material is contaminated and to identify appropriate management and disposal/re-use options. Representative sampling and analysis of soil from excavations in contaminated areas must be managed by a suitably qualified and experienced person in accordance with Section 564 of the EP Act. Contaminated soil must not be removed off-site without a disposal permit in accordance with Section 424 of the EP Act (or equivalent).

3.6 Unexpected Contamination. If during any site earthworks or excavation, offensive or noxious odours and/or evidence of gross contamination not previously detected is observed, site works are to cease in that area and action taken to immediately abate the environmental harm. The administering authority is to be notified in writing within two (2) business days of detection and advised of appropriate remedial action.

Any remedial action is to be developed by an appropriately qualified and experienced person in accordance with Section 564 of the EP Act.

3.7 General Environmental Protection. All earthworks are to be undertaken in accordance with general environmental protection measures and Construction Environmental Management Plan (CEMP) to avoid unwanted migration and deposition of soil. These measures include the control of dust, noise, stormwater or sediment runoff, erosion, spillage from haulage trucks and odour releases involving the handling or movement of contaminated material.

3.8 Underground Services. Where underground service trenches are constructed in contaminated areas, the trenches must be surrounded by a minimum of 0.3m of uncontaminated fill for minor services (<100mm in diameter) and 0.5m of uncontaminated fill for services greater than 100mm in diameter. Clean fill must also be placed above any services to the surface of the site. Maintenance of existing services should be conducted in accordance with this SMP.

3.9 Imported Fill Material. Any fill material that may be imported to the site in the future should be sampled and submitted for analysis by a suitably qualified and experienced person prior to delivery to the site. The frequency of the sampling and analysis required, and the acceptance criteria adopted for potential contaminants will depend on the source of the fill.

4.0 MONITORING AND REPORTING

A biennial inspection is to be undertaken to ensure that all site capping remain in sound condition at all times in accordance with Section 3.4.

Records are to be kept of all inspections, any soil excavation in contaminated areas, validation testing, disposal permits and site management plan compliance for review by the administering authority from time to time.

The biennial period is to commence from the effective date of this plan.

This Site Management Plan (SMP) has been developed to manage site contamination risks present at the issue date. Subsequent uses of the site may result in the need to review the plan.

This SMP makes reference to an appendix titled Remediation Action Plan (RAP) that is available from the Administering Authority if required.

Lot 1 on SP231749 **- V1**
Draft REMEDIATION ACTION PLAN

FILE REF: BNE 15997 **PRINTED:**

DATE OF EFFECT:

The site covered by this Remediation Action Plan (RAP) is Lot 1 on SP231749 as shown on Figure 1.

1.0 INTRODUCTION

A Remediation Action Plan (RAP) has been developed for Lot 1 on SP231749, located at 5 Hercules Street, Hamilton. The site is rectangular in shape and bound by Hercules Street to the west, the Portside Warf development to the south and south east a vacant site to the east and commercial buildings to the north as shown on Figure 1. The site is located in Hamilton, and the Brisbane River is located approximately 100m to the south east of the site.

Historical filling of the site and various industrial and commercial land uses including a warehouse and office has resulted in contamination of soil across the site with heavy metals and organochlorine pesticides. This RAP has been prepared in accordance with the Queensland Department of Environment and Heritage Protection (EHP)'s *Guideline for Contaminated Land Professionals 2012* and accepted industry standards to provide a technical framework for the management of contaminated soil on the site.

1.2 Purpose

The purpose of this RAP is to provide the framework for remediation and management of contaminated soil on the site in order to manage potential risks to human health and the environment.

1.3 Objectives

The objectives of the RAP are:

- to provide a strategy to manage contamination on the site in a manner that protects human health and the environment and which ensures that the site is suitable for future residential land use;
- to ensure Regulatory Compliance during remediation works;
- to complete the program expediently; and
- to comply with the principles of reducing waste to landfill supported by the Queensland State Government.

1.4 Regulatory Compliance

This RAP has been prepared in accordance with the requirements of the EHP "Guidelines for Contaminated Land Professionals 2012".

1.5 Site Management Plan

This RAP is an attachment to a Site Management Plan (SMP) for Lot 1 on SP231749 governing the proposed management and remediation of site contamination on the site in accordance with Section 402 of the *Environmental Protection Act, 1994* (EP Act). The SMP outlines the overall management objectives and strategies as well as the ongoing management and monitoring requirements should the works described in this RAP not be completed.

2.0 BACKGROUND

2.1 Site History

Historical information relating to the site indicates that the site has been occupied by various industrial and commercial land uses dating back prior to the 1950's.

2.1 Topography

Ground surface levels at the site generally approximately RL3m Australian Height Datum (AHD) and the site covers a total area of 1,382m^2.

2.2 Geology

Reference to the Geological Survey of Queensland's 1:31,680 Brisbane Series Maps indicates that the site is underlain by Quaternary alluvial sands, clay, mud, silt, sand and gravel. Prior investigations by Butler Partners have also identified alluvial sands, clay, mud, silt, sand and gravel cobble layers to approximately 20m depth, which unconformably overly sandstone, claystone and coal, possibly of the Ipswich Coal Measures.

2.3 Hydrogeology

A search of the Department of Natural Resources and Mines (DNR&M) Groundwater Database indicated there are seven registered groundwater bores within a radius of 1.5 km of the site. The bores intersected groundwater at 16-25 mbgl in sands, and clays with a standing water level (SWL) of 8-15m and yields of 0.55-1.00 L/s. It is anticipated that on-site shallow groundwater is present within 5m of the surface and will flow towards the Brisbane River to the South. The aquifer would also be subject to some tidal effects.

2.4 Previous Investigations

This work follows investigative work undertaken by Butler Partners Pty Ltd, which has been reported in the following:

Stage 1 Environmental Site Assessment
Proposed Extension of Portside Wharf
Catsoulis Site
5 Hercules Street, Hamilton
Prepared by: Butler Partners Pty Ltd
September 2006

2.5 Extent of Contamination

Results from previous investigations have indicated that the contaminants are present at depths of up to 3 metres below ground level. Investigative works associated with the identified potential contaminant sources indicate no discernible impact to the natural soils underlying the site. The following maximum contaminant concentrations have been found in soil samples:

Copper	570mg/kg
Lead	350mg/kg
Zinc	6,210mg/kg
Chromium (total)	170mg/kg
Pesticides	
DD	2.9mg/kg
DDD	0.17mg/kg
DDT	1.5mg/kg

This RAP provides details of the proposed methods to further investigation and addresses contamination across the site.

3.0 ENVIRONMENTAL GUIDELINES

The purpose of this RAP is to provide guidelines for the redevelopment works to be undertaken on the site. It is intended that the site be redeveloped in a manner such that it will be suitable for the proposed high density residential land use. The remediation criteria are based on the Queensland EHP *Guideline for Contaminated Land Professionals 2012* (The Guidelines) which recommends the use of the following environmental guidelines:

- *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)* National Environment Protection Council.
- *Canada-wide standard for petroleum hydrocarbons (PHC) in soil,* Canadian Council of Ministers of the Environment (CCME) 2008;
- *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater* (CRC CARE Health Screening Levels), Friebel and Nadebaum 2011; and
- *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA Asbestos Guidelines), Western Australian Department of Health (DoH) and Department of Environment and Conservation (DEC), 2009.

3.1 Clean Fill Criteria and Remediation Criteria

Clean Fill Criteria

Heavy Metals	
Arsenic (As)	100mg/kg
Cadmium (Cd)	20mg/kg
Chromium (as CrVI)	100mg/kg
Cu	6,000mg/kg*
Pb	300mg/kg
Hg	40mg/kg
Nickel (Ni)	400mg/kg*
Zn	7,400mg/kg*
Organic Substances	
Total PAH	300mg/kg*
B(a)P TEQ	3mg/kg*
TRH C6-C10	45mg/kg†
TRH >C10-C16	110mg/kg†
TRH >C16-C34	300mg/kg‡
TRH >C34	2,800mg/kg‡

Benzene	0.5mg/kg†
Toluene	160mg/kg†
Ethylbenzene	55mg/kg†
Xylenes	40mg/kg†
Naphthalene	3mg/kg†
Asbestos	0.001% w/w asbestos for friable asbestos and asbestos fibres in soil 0.01% w/w asbestos for asbestos in asbestos containing materials No visible asbestos for soil surface

Notes: * PAH and heavy metal clean fill criteria for protection of human health or material remaining onsite, offsite disposal restrictions discussed below.
† Coarse-grained soil types (0 to <1.0m depth) for low to high density residential land uses. The most conservative criteria have been selected as the validation criteria, however NEPM criteria specific to the soil type and depth sampled may be adopted as the validation criteria.
‡ Coarse-grained soil types for urban residential and parkland land uses. The most conservative criteria have been selected as the validation criteria, however NEPM criteria specific to the soil type and depth sampled may be adopted as the validation criteria.

Material going off-site as clean fill must be shown to have concentrations below these criteria. These clean fill criteria may be modified depending on conditions encountered and final land use objectives.

Material with PAH concentrations exceeding the laboratory's limit of reporting (LOR) but below the Soil Clean Fill Criteria (i.e. Total PAH 300mg/kg, B(a)P 0.7mg/kg, b(a)p TEQ 3mg/kg) will be suitable for removal from the site as clean fill, however, final disposal destinations for this material will need to be assessed on a site specific basis to ensure elevated PAH and heavy metals concentrations are not disposed to a sensitive land use or a sensitive environmental setting.

Aesthetic Guidelines discussed in Section 3.5, Schedule 1B of the NEPM state that soils should not be discoloured, malodorous (including when dug over or wet) nor of abnormal consistency. According to the EHP (formerly EPA, DERM) operational policy (Licensing requirements for construction and demolition wastes, 2002) inert waste material, suitable for use as backfill onsite is classified as:
- Bricks, pavers and ceramics;
- Concrete (including embedded steel reinforcing rods), pulverised to a maximum 300mm nominal size; and
- Clean earthen fill (no identified contamination).

Other elements generally identified as construction and demolition waste not considered to be inert waste under the operational policy, include, inter alia:
- Glass;
- Green Waste;
- Plastics;
- Metal;
- Plasterboard;
- Cardboard/paper; and
- Timber.

Non-inert waste as described above would need to be separated from inert waste and would require off-site disposal to an appropriately licensed facility in order for in-situ material to be considered 'clean fill'.

The recycling of materials including bricks, timber and other C&D waste is encouraged.

Soil material exceeding these clean fill criteria is to be managed in accordance with this RAP.

3.2 Validation Criteria

On the basis that it is proposed to remediate the site such that at the completion of final redevelopment works the site will be suitable for any land use and removed from EHP's EMR, the validation criteria for soils remaining on the site following redevelopment works will be in accordance with the clean fill criteria defined in Section 3.1.

If soil material exceeding the validation criteria is identified to remain on-site following development works, management of the site under an approved SMP may be required in accordance with Section 11.0.

3.3 Imported Fill

Imported fill may be required if the excavated soil is not suitable or if filling quantities exceed excavated quantities, for backfilling behind basement walls and landscaping purposes.

All imported fill will be required to be sampled at a rate of 1 sample per $50m^3$ to confirm compliance with the clean fill criteria identified in the Environmental Guideline Section 3.2. However, if imported fill is a product sourced from an EHP licensed quarry or can be verified to be from a clean source, then a lower frequency of sampling may be agreed with the EHP.

4.0 REDEVELOPMENT STRATEGIES

4.1 Redevelopment Goals

The redevelopment goal is to make the site suitable for high rise residential land use with a basement car park in accordance with the developed SMP/RAP.

4.2 Suitably Qualified Persons to Conduct / Supervise Works

A person qualified in accordance with Section 564 of the *Environmental Protection Act 1994* must conduct all investigations, supervise all remediation works and compile report/s required to remediate the site.

4.3 Strategies Applied

The following strategies are to be applied during excavation undertaken as part of the redevelopment of the site:

- characterise any contaminated soil to be excavated and removed from the site by sampling on a 1 per $50m^3$ basis by conducting soil sampling of the subsurface soils using a 10m x 10m sampling grid. The proposed sampling grid to determine sampling locations is shown on Figure 1;

- determine if groundwater contamination has resulted from the presence of the overlying contaminated soil;

- soil identified to be contaminated within areas to be redeveloped is to be either disposed of appropriately to a licensed landfill under an EHP approved Disposal Permit or reused on site as bulk fill provided it can be managed in accordance with the requirements of the SMP; and

- no contaminated soil will be removed from the site without a Disposal Permit issued pursuant to Section 424 of the EP Act.

4.4 Site Capping

Following redevelopment, areas identified to be contaminated that are to remain on-site are to be managed by placement of an appropriate capping layer as follows:

- a concrete slab (minimum thickness 100mm);
- bitumen/asphalt paving on 150mm compacted roadbase; or
- compacted low permeability soil to a minimum depth of 0.5m.

Other equivalent cover may be considered in consultation with EHP.

In the interim and prior to redevelopment, the current capping layer of bitumen/asphalt present across the site must be maintained in sound condition.

5.0 REMEDIATION PROGRAM

Excavation of contaminated soil within redevelopment areas will occur concurrently with bulk earthworks associated with the redevelopment works. A Disposal Permit will be obtained prior to any off-site removal of contaminated soil following a contaminant characterisation investigation as identified in Section 4.3. Excavated contaminated soil will be loaded into trucks, covered and disposed of to an approved landfill in accordance with the conditions of the approved Disposal Permit.

Following removal of the contaminated soil from the site, the resultant excavations will be validated.

All remediation and validation works (including excavation and disposal of contaminated material) must be supervised by a person suitably qualified in accordance with Section 564 of the *Environmental Protection Act 1994*.

6.0 WORK PROCEDURES

This section of the RAP provides and overview of the procedures to be undertaken during redevelopment works.

Tracking and Documentation

Movement of materials both on-site and off site will be tracked as follows:

- a manifest will be maintained for every truckload of contaminated soil removed from site;
- the landfill will provide a weighbridge print-out for the received contaminated soil;
- weighbridge print outs will be compared with the manifest of contaminated soil removed from site; and
- a manifest will be maintained for every truckload of contaminated soil relocated on-site.

7.0 OPERATIONAL CONTROL

The contractor responsible for the remediation works shall prepare a Construction Environmental Management Plan (CEMP) that shall be reviewed and approved by the TPR prior to the commencement of on-site works. Specific issues to be addressed are discussed in the following sections.

7.1 Stormwater Management

Remediation works must comply with requirements for stormwater management as outlined in Schedule B(2) of the NEPM. This includes stockpiling excavated soil in a manner that shall prevent contamination from being transported off-site by stormwater.

Management of the stormwater shall be undertaken in accordance with Brisbane City Council (BCC) Stormwater Management Codes or approved equivalent entailing soil and sediment erosion issues and runoff consideration. Measures to be undertaken include:

- diversion of clean water runoff outside the site so that it does not flow through the site;
- appropriate management of storm water collected from the site in trenches and sumps; and
- erection of silt fences at locations where storm water may flow from the site.

Stormwater that has come into contact with contaminated soil must be treated as contaminated and appropriately managed. . As a minimum, laboratory analysis of the contaminants listed in Section 2.5 will be required prior to discharge.

Collected storm water to be removed from site must be disposed of either to the stormwater system (if it is deemed to meet the requirements of Brisbane Water *Guideline on Identifying and Applying Water Quality Objectives in Brisbane City, Version 1— March, 2000),* or removed from site by a licensed contractor.

7.2 Soil and Sediment Control

Soil and sediment control will be managed in accordance with BCC erosion and sediment control requirements which assesses land-disturbing activities against specific performance criteria. Key issues from the standard for the specific development include:

- the need to plan carefully for adequate erosion and sediment control by preparing a separate Erosion and Sediment Control (ESC) Plan setting out the required measures for the site over all stages of development/construction;

- the ESC Plan must address all key phases of construction, not just one point in time; and

- develop plans showing the layout and sequencing of controls including bulk earthworks and refuse processing.

Measures to limit the generation of sediment runoff from on-site soil stockpiles include:

- covering stockpiles to limit erosion (as well as odour and visual concerns); and

- surround stockpiles by an appropriate sediment fence to limit ability to become mobile.

All trucks and machinery are to be inspected and cleaned as necessary prior to leaving the site to ensure soil is not leaving the site in an uncontrolled manner.

The requirements for the management of sediment and soil described in Schedule B(2) of the NEPM (from which the above control measures are drawn) must be complied with during remedial works.

7.3 Groundwater

The groundwater depth and contamination status will be determined during the groundwater investigation described in Section 4.3. Should excavations require de-watering due to stormwater run off entering the trenches or seepage from perched water, adequate water samples must be collected to characterise the water prior to off-site disposal. The characterisation of the water will determine the fate of either disposal stormwater in accordance with BCC water quality requirements or suitable equivalent, or disposal to a licensed facility as liquid waste.

7.4 Noise Control

The potential for noise and vibration impacts from the remediation works will result from the:

- preparation of the site;
- movement of construction vehicles as they traffic local roads;
- the operation of plant and activities on site, and
- traffic movements on public roads associated with the site.

In relation to noise emissions from the site, the sensitive receptors that may potentially be impacted by the site works comprise neighbouring commercial facilities.

Remediation works will be performed in a manner to minimise unnecessary noise. All works will be carried out in accordance with Regulatory limits for noise and vibration and the *Environmental Protection Regulation 1998.*

Noise mitigation measures which will be implemented at the site include:

-in general, site machinery will operate Monday to Friday between the hours of 6.30am and 6.30pm and Saturday between 6.30am and 5pm;

-all remediation equipment used will comply with noise attenuation regulatory standards;

- monitoring of equipment regarded by the site superintendent as being excessively noisy. If equipment is found to be excessively noisy, the contractor will be instructed to modify the equipment or remove it from the site;

- temporary acoustic barriers may be erected where required to minimize specific noise problems;

- preparation of a noise management plan (included in the CEMP) prior to construction to ensure all staff understand noise control measures. The management plan includes periodic monitoring to ensure continued compliance with the site's development conditions and operating license;

- a communications program will be developed to keep the community informed of activities;

- investigation and response to any complaints received; and

- construction activities will be conducted in accordance with AS 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites.

7.5 Dust Control

Emissions resulting from the remedial works will consist primarily of particulate emissions generated by excavation and soil disturbance activities. Monitoring of the level of airborne particulates as well as good on-site management practices and controls will greatly minimise off-site impacts.

Compliance targets for dust levels will be selected based upon occupational health and safety levels, an assessment of risks for boundary receptors and review of local Air Quality Planning Scheme Policy. Compliance with Schedule B(2) of the NEPM must be achieved, which is in addition to BCC and EHP requirements.

7.6 Odour Control

The remedial works are not considered likely to generate significant offensive odours to off-site receptors.

In the event that offensive odours at the excavation face will be left exposed for periods greater than 24 hours, a non-odorous cover material shall be placed over the exposed odour producing area. This cover material may comprise other fill material recovered at the site, mulch or other appropriate cover or odour masking material.

To minimise offensive odours resulting from odorous stockpiles, stockpiles should be covered with mulch or other appropriate cover to ameliorate the spread of odours. Measures such as moisture conditioning, misting sprays, odorants and masking agents may also be used to manage stockpile odours, should the need arise.

7.7 Public Consultation

Community consultation with regard to the proposed remediation process is not considered to be a primary concern due to the current nature and location of the site. Should significant issues be raised through the public complaints system, community consultation should be implemented to address these issues.

The potential issues of community concern that may arise during the remediation at the site may include:

- odour;
- increased traffic;
- noise;
- air quality and dust generation; and
- general concerns arising from the observed use of personnel protective equipment by remediation workers.

Appropriate measures to address the public consultation may include an information sheet distributed to local premises, community information sessions and/or appropriate signage. We note these processes may be required for development elements other than remediation.

7.8 Public Complaints System

Public complaints will be dealt with through the community information sessions or via the direct contact of personnel outlined on a household information sheet. All complaints will be acted on immediately with investigations into the cause of the concern and prompt action taken to rectify the problem.

8.0 VALIDATION PROGRAM

8.1 Validation Soil Sampling

Validation of clean materials located below the impacted fill material will be undertaken in accordance with *AS4482.1 – 2005 Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*. Validation samples will be collected on a 10 metre grid, or at 10 lineal metre basis at vertical intervals no greater than 0.5m centres along linear excavations, such as service trenches and walls. Where more than one soil strata or geological unit is present, each material will be validated.

8.2 Sample Dispatch and Documentation

Samples will be placed in appropriately pre-treated sample jars, placed in an insulated container on ice and submitted to a NATA accredited laboratory for analysis. Sample movements will be documented using appropriate Chain of Custody forms.

8.3 Backfilling

Where required, areas from which material has been removed will be backfilled with clean fill following successful validation of the areas. Backfill material will be compacted to meet the engineering requirements of ongoing and future use of the area.

8.4 Quality Assurance Program

Quality assurance sampling will be conducted as outlined in AS4482.1-2005, namely:

- collection and analysis of one blind replicate sample per twenty primary samples analysed (submitted to primary analysing laboratory under an individual sample name not identifiable with the primary sample);

- collection and analysis of one split sample per twenty primary samples analysed (submitted to secondary analysing laboratory under the same sample name as the primary sample); and

- one rinsate sample per day will be collected to ensure there is no cross-contamination of substances from the sampling equipment used.

Further quality control techniques that will be used include submission of a chain of custody documentation to track sample movements.

9.0 DECONTAMINATION PROCEDURES

Decontamination procedures for sampling equipment, personnel and the general site must be in accordance with the Australian Standard AS 4482.1-2005 and the NEPM guidelines (Schedule B(9)).

10.0 REPORTING REQUIREMENTS

A validation report must be prepared by a person qualified in accordance with S.5.3 of the EP Act, and submitted to EHP within 45 days of the completion of remediation and validation works. The report must be prepared and submitted in accordance with the *Guideline for Contaminated Land Professionals 2012*, the NEPM and the EP Act.

The report must document remediation and validation program activities including the results of any further excavation and/or validation required by the results of the initial validation analysis, an evaluation of the results against the remedial goals and an investigation demonstrating compliance with the conditions of this RAP.

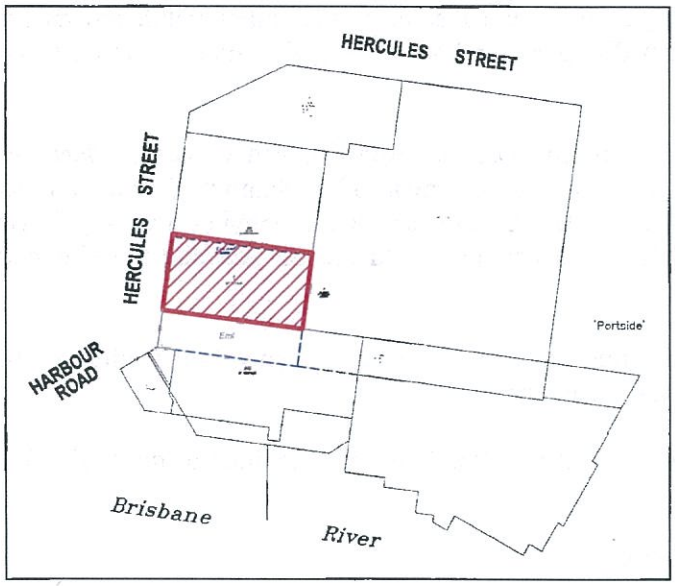
The report must also include the results of the QA/QC program, and copies of documentation validating the appropriate handling, disposal and treatment of contaminated soil and water in accordance with EHP requirements. The validation report and accompanying Statutory Declaration must be submitted to the EHP for review in accordance with the EP Act and the *Guidelines for Contaminated Land Professionals.*

A draft Site Management Plan for the site must be prepared and submitted with the validation report if contaminated material remains following remediation.

If requested by the EHP, progress reporting must be finalised and submitted to the EHP within one business day.

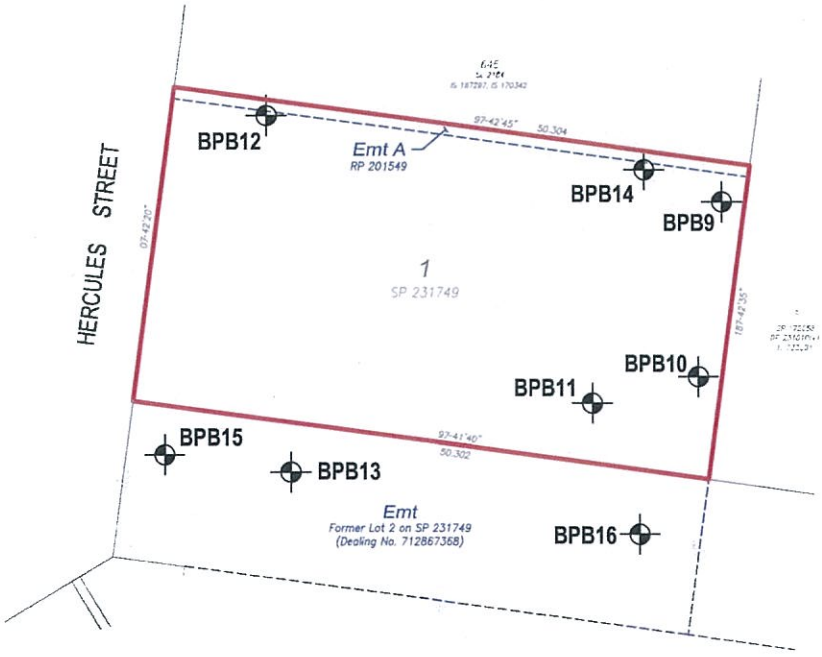
11.0 STATEMENT OF SUITABILITY

Prior to commencement of the land use proposed by the material change of use, a Statement of Suitability must be obtained from the Administering Authority. The Statement of Suitability must specify that the site is suitable for the intended use of the site for use with an approved SMP.



SITE LOCATION

Scale 1:2500



TEST LOCATIONS

Scale 1:600

LEGEND

BPB Bore

Site Boundary

REMEDIATION ACTION PLAN

5 HERCULES STREET, HAMILTON

SAMPLING LOCATIONS

SCALE AT A4:

0 5 10 15 20m

1:600

DATE: JANUARY 2014

FIGURE No: 1