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## Mackay Regional Council (MRC)

### **Auditor Certification Report:**

**271 Bedford Road, Andergrove,  
Mackay, Queensland**

**Lot 1 on SP255624**

***Prepared by:* MACH1 ENVIRONMENTAL PTY LTD**

**MARCH 2015**

**REPORT NO: 10-002-020**



**Mackay Regional Council (MRC)**

**271 Bedford Road, Andergrove,  
Mackay, Queensland**

**Lot 1 on SP255624**

Prepared by: *Robin Wagland*

Role: Auditor

Signed:



Date: 26 March 2015



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## 1 INTRODUCTION

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MACH1 Environmental Pty Ltd (MACH1) was commissioned by Mackay Regional Council (MRC) to undertake the Contaminated Land Auditor for the detailed site investigation and remedial works at Lot 1 on SP255624 located at 271 Bedford Road, Andergrove, Mackay, Queensland, herein called the site. The review work was previously undertaken under the Queensland Government Department of Environment and Heritage Protection (EHP) Third Party Reviewer (TPR) Terms of Reference, however, since approval as a Contaminated Land Auditor as of 28 August 2013, ongoing land contamination auditing services for the site have been undertaken in accordance with the provisions of Chapter 7, Part 8 of the *Environmental Protection Act 1994*. The conditions of my appointment as a Queensland Contaminated Land Auditor (Approval No. CLA00002), are pursuant to the provisions of Section 573 of the *Environmental Protection Act 1994*. Copies of both the original TPR approval letter and subsequent CLA approval are provided in **Appendix A**.

The Contaminated Land Practitioner Group (CLPG) for the contaminated site remediation and validation was Environmental Earth Sciences QLD (EES). Their report for the site was titled:

- *“Detailed Site Investigation (DSI) and Soil Remedial Works Validation Report, Lot 1 on SP255624, Former Mackay Regional Council Depot, 271 Bedford Road, Andergrove, Queensland 4740”* dated March 2015.

The Auditor has previously completed a review of a series of documents forming the assessment process to date for the current site and surrounding properties. The documents reviewed include the following:

- Cardno Ullman & Nolan Geotechnic Pty Ltd (CUNG) ‘Report on the Mackay Regional Council, Bedford Road Depot Site – January 2010 Stage One Desktop Assessment with Completed Third Party Review’ Report dated January 2010 Job No. U22655, produced for ULDA.
- CUNG ‘Groundwater Sampling, Bedford Road Depot, Andergrove’ Report dated 8 September 2008 Job No. U22533.
- OTEK ‘Monitoring Well Installation Report, Various Council facilities, Mackay Region, Mackay, QLD’ for Mackay City Council, dated 22 June 1998, Report No B98083.
- AGE ‘Preliminary Environmental Investigation Bedford Road Closed Liquid Waste Disposal Site, Beaconsfield’ for Mackay City Council dated June 2000, Report No E1016D.
- CUNG ‘Sampling and Analysis Quality Plan Mackay Regional Council, Bedford Road Depot, Mackay’ Report dated January 2010 Job No. U22655, prepared for ULDA.
- CUNG ‘Sampling and Quality Assurance Plan Mackay Regional Council Bedford Road Depot, Mackay’ Report dated April 2010 Job No. U22655\_Rev2, prepared for ULDA.

- CUNG 'Stage One Environmental Investigation (Desktop Assessment) Report on the Mackay Regional Council Bedford Road Depot, Mackay' dated April 2010 Job No. U22655, prepared for ULDA.
- CUNG 'Stage Two Site Contamination Investigation and Assessment, 271 Bedford Road Council Depot, Mackay' dated October 2010 Job No. U22655, prepared for Mackay Regional Council.
- Environmental Earth Sciences 2011a, *Remedial Strategy for Lots 1 – 5 on plan SP237606, Bedford Road, Andergrove*, Dated: 20 January 2011, Report: 711010 Remedial Strategy.
- Environmental Earth Sciences 2011b, *Detailed site assessment (DSI) and soil remedial works for Lot 2 to Lot 4 on Survey Plan (SP) 237606, Mackay Regional Council depot, 271 Bedford Road, Andergrove, Queensland*, dated 12 October 2011. Report: 711010 Detailed Site Investigation – Lot 2 to Lot 4\_FINAL.
- Environmental Earth Sciences 2011c, *Groundwater and surface water assessment at 271 Bedford Road, Andergrove, Mackay*, Version 1, dated 19 December 2011, Report: 711010 L8 GW.
- Environmental Earth Sciences 2011d, *Water treatment Methodology*, Version 1, dated 25 February 2011, Report: 711010 L2 to Mackay Regional Council.
- Environmental Earth Sciences 2012a, *Detailed site assessment and soil remedial works for Lot 5 on Survey Plan 237606, former Mackay Regional Council depot, 271 Bedford Road, Andergrove, Queensland*, dated 30 March 2012. Report: 711010b Detailed Site Investigation – Lot 5.
- Environmental Earth Sciences 2012b, *Meeting outcomes from 8 October 2012 for Lot 1 on SP237606, 271 Bedford Road, Andergrove, Queensland*, dated 9 October 2012. To: Robin Wagland (CLA/TPR). Report: 711010\_L8 Meeting outcomes.
- Environmental Earth Sciences 2013a, *Contaminant status of stockpiles at Lot 1 on SP237606, 271 Bedford Road, Andergrove, Queensland*, dated 31 January 2013. Report: 711010\_L9 January 2013 Stockpile Status.
- Environmental Earth Sciences 2013b, *Contaminant status of stockpiles at Lot 1 on SP237606, 271 Bedford Road, Andergrove, Queensland*, dated 27 February 2013. Report: 711010\_L10 February 2013 Stockpile Status.
- Environmental Earth Sciences 2013c, *Advice for turning stockpiles at Lot 1 on SP237606, 271 Bedford Road, Andergrove, Queensland*, dated 22 March 2013. Report: 711010\_L11 Advice to Civil Contractors.
- Environmental Earth Sciences 2014a, *Sampling analysis plan for stockpile sampling at Bedford Road Council Depot Remediation Project*, dated 3 February 2014. Report: 911015 SAP.
- Environmental Earth Sciences 2014b, *Contaminant status of stockpiles at Lot 1 on SP237606, 271 Bedford Road, Andergrove, Queensland*, dated 25 March 2014. Report: 711010\_L13 March 2014 Stockpile Status.

This Certification Report has been prepared to meet the requirements of EHP to allow certification of the work by the Auditor. Mr Robin Wagland of MACH1 was approved a Contaminated Land Auditor, as per the Certificate of Approval (Approval No. CLA00002) dated 28 August 2013, which is included in **Appendix A**.

The certification process included a review of the DSI and Remediation Validation report prepared by EES for the site and previous associated documents. A précis of the EES report has been provided with Auditor comments.

This Auditor certification report also includes a summary of the outcomes of the Auditor inspections/meetings on site dated 15 December 2010, 17 February, 10 May and 24 October 2011, 27 February 2012 and 23 April 2014 and Auditor correspondence. The information forms part of the final Auditor summary Certification report and is accompanied by a statutory declaration, a copy of which is provided in **Appendix B**.

## **2 SCOPE OF WORK**

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The scope of work for the Auditor was as follows:

- A series of site visits/audits were conducted by the Auditor on 15 December 2010, 17 February, 10 May and 24 October 2011, 27 February 2012 and 23 April 2014 to confirm previous site information, verify the current site conditions, observe the validation sampling locations and confirm completion of the remedial works;
- Review of the EES DSI and Remediation Validation report including the provision of comments; and
- Production of an Auditor Certification Report.

The work was undertaken in accordance with the MACH1 proposal reference 10-001-020a dated 11 February 2011.

### **3 PRÉCIS OF EES DSI AND REMEDIATION VALIDATION REPORT**

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The following sections outline some of the key findings of the review process.

#### **3.1 INTRODUCTION**

EES were commissioned to undertake a detailed site investigation and remedial works at the Mackay Regional Council (MRC) depot at 271 Bedford Road, Anderson. The subject site comprises Lot 1 on SP255624, which arose from the subdivision of Lot 2 on RP711645 in August 2010.

The site is currently listed on the EHP Environmental Management Register (EMR) for the notifiable activity of '*petroleum product or oil storage*' and '*waste storage, treatment or disposal*'. The objective of the works was to remediate the site to a sufficient standard for the intended future residential use and for removal from the EMR.

Remediation and validation work was conducted in accordance with the following guidelines:

- Australian Standard AS 4482.1-2005 *Guide to the Sampling and Investigation of Potentially Contaminated Soil – Part 1: Non-volatile and Semi-volatile compounds*;
- *Environmental Protection Act 1994* (EP Act);
- *Guideline for Contaminated Land Professionals*, EHP August 2014;
- *Guidelines for the Assessment of On-Site Containment of Contaminated Soil (National Containment Guidelines)*, Australian and New Zealand Environment Conservation Council (ANZECC 1999);
- *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*, Western Australian Department of Health, 2009; and
- *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPM)*.

#### **3.2 PROPERTY DESCRIPTION**

The former depot site (Lots 1-5) was roughly rectangular and covers an area of 22.15ha. The most extensive potentially contaminating activity was the disposal of night soil in the northern disposal pond. Other waste materials disposed of within the site included waste oil, effluent, sludge and chemical waste associated with printing ink. Portions of the site were also utilised by the MRC as a maintenance depot and investigations focussed on potential contamination resulting from preparation and disposal of water based paints, storage of waste petroleum hydrocarbon drums and stockpiling of scrap metal and rubbish.

Surrounding land uses are predominately residential and recreational. Residential properties are located to the north, south, southwest and east of the site, while parklands and sporting fields are located northwest and north east of the site.



Soils at the site are defined by extensive alluvial Quaternary sediments, deposited within the Cainozoic period. The Quaternary floodplain comprises alluvial sands, silts and clays varying in depths between 1.3 metres below ground level (mbgl) to 6-7mbgl across the site.

Groundwater at the site is considered likely to be highly variable due to the range of soil types and alluvial nature of soil at the site. Due to the shallow nature of the underlying aquifer unit combined with seasonal fluctuations in recharge events, groundwater discharge to nearby creek areas is thought to be ephemeral. Groundwater assessment and monitoring has been carried out at the site during previous investigations.

### 3.3 PREVIOUS INVESTIGATIONS

A Preliminary Site Investigation was undertaken by Cardno Ullman and Nolan Geotechnic Pty Ltd (Cardno) in November 2009. This report included a desktop investigation, site inspection and interviews and concluded with the identification of 24 areas of potential concern (AOPC) across the former Lot 2 on RP711645.

A Detailed Site Investigation was completed by Cardno for six of the identified AOPCs in May 2010. The results relating to the areas within the current investigation have been incorporated into the EES assessment.

Two Detailed Site Assessment and Soil Remedial Works reports for adjacent Lots 2-4 on 237606 dated April 2011 and for adjacent Lots 5 on 237606 dated April 2013 were completed by EES and were reviewed by the Auditor prior to submission to EHP for review and approval.

The Auditor comments on the site setting and previous investigations are summarised as follows:

- The initial Stage 1 and Stage 2 investigations conducted by Cardno were acceptable for initial characterisation of the site. This data has been subsequently utilised and supplemented by EES.
- The site was further characterised by EES with the previous investigation review considered as adequate to identify any historical potentially contaminating activities as well as to inform the remediation and validation works.
- The Auditor conducted an initial site inspection to confirm the details of the site setting and previous investigations. This was followed by a second inspection of the site as part of an assessment of the remedial excavations.
- The previously completed Cardno Stage 1 and 2 reports were reviewed by the Auditor and an Auditor (then TPR) Letter submitted to ULDA dated 21 June 2010.

### 3.4 SITE INVESTIGATIONS

The following areas of investigation were identified within the subject site:

- **Northern night soil disposal area** – Night soil disposal area also potentially containing industrial waste, slag, petroleum based products, asbestos, treated timber and herbicides.
- **Western portion of former maintenance depot and workshop** – Potential contamination resulting from the preparation and disposal of water based paints, storage of waste petroleum hydrocarbon drums and stockpiling of scrap metal and rubbish.

EES conducted a test pitting sampling round in order to provide in-situ characterisation of waste materials within the night soil disposal area. A total of twelve (12) test pits were advanced. Seven (7) boreholes and six (6) surface samples were advanced within the former maintenance depot and workshop area.

The following contaminants of potential concern (COPC) have been identified: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); total recoverable hydrocarbons (TRH); benzene, toluene, ethylbenzene and xylenes (BTEX); polycyclic aromatic hydrocarbons (PAH); organochlorine / organophosphorous (OC/OP) pesticides; phenolic compounds; semi-volatile organic compounds (SVOCs); and volatile organic compounds.

Soils were assessed against the Health-based Investigation Levels for exposure setting A (HIL'A') and the Health-based Screening Levels (HSLs) for TRH and BTEX.

A number of results from the night soil disposal area were identified as containing concentrations above the nominated guidelines for benzene, benzo(a)pyrene, naphthalene, lead and TPH C<sub>6</sub>-C<sub>36</sub>. Given the widespread nature of the identified contamination, the remediation works targeted the entire night soil area.

One borehole location (BH13) within the former depot and workshop area was identified above the screening levels for hydrocarbons. A paint disposal sump was also identified as requiring excavation and removal.

### 3.5 SOIL REMEDIATION AND VALIDATION

Remediation and validation sampling was undertaken in September and November 2011:

- Remediation of previously identified contaminated soils was completed by the excavation of soils above the nominated clean fill criteria for the site.
- Excavated material from the night soil disposal area, BH13 excavation area and paint sump was bioremediated on-site.
- Clean validation samples were collected from the walls and base of the final excavations.

- Bioremediated material was characterised and deemed suitable for unrestricted use.

### 3.6 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

All laboratory QA/QC samples were found to be within acceptable limits. All holding time criteria and sample handling requirements were acceptable.

Sixty-two soil duplicate samples and fifty-one soil triplicate samples were analysed in order to assess the representativeness of the data. Exceedances of relative percent difference (RPD%) were observed for a number of metals and PAHs. All exceedances were for samples with concentrations close to the laboratory limit of reporting (LOR) and are therefore not considered to affect the outcomes of the investigation. No trip blanks, rinsate or trip spike samples were analysed.

EES concluded that the analytical data was of sufficient quality for interpretation.

The Auditor comments on remediation validation methodology and results are summarised as follows:

- The remediation validation sample design and subsequent final coverage of the site was deemed as suitable to validate the removal of impacted soils.
- Soil sampling methodologies and maintenance of sample integrity were deemed to be in accordance with the guidelines as suitable for the investigations undertaken.
- Sampling locations were identified in order to suitably validate the remediated excavation and the extent of this sampling was deemed as suitable.
- The criteria for assessment of the soils were considered appropriate for determining the contamination status of the site.
- The validation program is considered suitable to characterise the remediation of the site.

The Auditor comments on the QA/QC are summarised as follows:

- Sample receipt notices were provided and the samples were correctly preserved and received within the acceptable holding times, chain of custody documents and security seals intact. Chain of custody documents were completed signed and received by the laboratory.
- A QA/QC assessment has been undertaken outlining QA procedures, sample methodology, documentation and sample transportation.
- Quality control samples were obtained meeting the recommended sampling rate.
- Analysis of field duplicate samples indicated acceptable RPDs for the purpose of the sampling and analysis program.
- The assessment of the QA/QC by EES was considered acceptable.

### 3.7 EES RECOMMENDATIONS AND CONCLUSIONS

Based on the detailed site investigation and remedial works conducted at the site, the following was concluded by EES:

- Based on *in-situ* site investigations and remedial works undertaken by EES, it was concluded that Lot 1 on SP237606 was suitable for removal from the EMR; and
- All known residual analyte concentrations were concluded to be below the adopted standard residential land use investigation levels which included HIL'A' and HSL-A.
- In accordance with Section 115C of the Environmental Protection Regulation 2008, it was considered that this validation report complies with the prescribed criteria outlined.

The Auditor comments regarding the EES's conclusions and recommendations are summarised as follows:

- The work completed on-site has been suitably summarised in the EES report.
- The conclusions drawn are a fair reflection of the work completed, conditions at the site and the results recorded.
- The conclusion that the site is suitable for unrestricted use and removal from the EMR is suitably worded.

## **5 AUDITOR SITE INSPECTIONS 15 DECEMBER 2010, 17 FEBRUARY, 10 MAY AND 24 OCTOBER 2011, 27 FEBRUARY 2012 AND 23 APRIL 2014**

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Based on the site inspections, the Auditor can verify the findings of the EES work.

The findings of the Auditor site inspections are summarised as follows:

- The Auditor carried out a number of site inspections on the 15 December 2010, 17 February, 10 May and 24 October 2011, 27 February 2012 and 23 April 2014 to undertake audits and verify the sampling program, protocols, remediation works and completion of the remediation works.
- The Auditor reviewed the investigation and validation sample locations and density undertaken and undertook a detailed series of walkovers of the site to identify any unidentified areas of environmental concern.
- The Auditor visited the site upon completion of the remediation works to verify the remediated soils were no longer odourous.
- Auditor general photos are provided in **Appendix D**.

## 6 CORRESPONDENCE

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EHP correspondence is summarised as follows:

- Certificate of Approval - Auditor Approval No. CLA00002 (provided in **Appendix A**).

Auditor correspondence with MRC and EES is summarised as follows:

- Email correspondence throughout the course of the project including 26 April 2011 and 24 April 2014.
- Auditor comments on the DSI and Remediation Validation report dated 19 December 2014 and 18 March 2015.

Appropriate correspondence is included in **Appendix E**.

## 7 ASSESSMENT OF REPORT AGAINST PRESCRIBED CRITERIA

An assessment has been undertaken of the EES DSI and Remediation Validation report against the Prescribed Criteria under Section 115C of the Environmental Protection Regulations 2008. The results of the assessment are outlined in **Table 7.1** below.

**Table 7.1: Assessment of Report Against the Prescribed Criteria**

Prescribed Criteria	Section of consultant's report addressing criteria	Auditor confirmation that criteria has been satisfied
a) the report or plan accurately includes the following information about the site, the subject of the report or plan—		
(i) the reasons for listing the site on the environmental management register or contaminated land register;	Section 1.1 and 4.4	Yes
(ii) a description of all surface and subsurface infrastructure on the site, including details of the location, size and type of the infrastructure;	Section 7.2.3	Yes
(iii) a description of the surrounding area of the site, including the following— (A) a description of all category A environmentally sensitive areas in the surrounding area; (B) a description of all category B environmentally sensitive areas in the surrounding area; (C) the location of all water, watercourses and wetlands in the surrounding area; (D) the location of all stormwater drainage in the surrounding area; (E) a description of land uses in the surrounding area, including sensitive land uses that may affect the safety of the site or cause a risk to human health or another part of the environment; (F) a description of all activities carried out in the surrounding area that may affect the safety of the site or cause a risk to human health or another part of the environment;	Sections 4.1 and 4.2.1	Yes
(iv) for any waste disposed of, or stored on the site, that contains, or may potentially contain, hazardous contaminants, details of the location, volume and type of waste disposed of, or stored, on the site;	Section 4.3, Section 4.4, Section 4.5, Section 6.1, Section 6.2, Section 6.3 and Section 7.2	Yes
(v) for the waste mentioned in paragraph (iv), details of any potential contamination of the site caused by disposing or storing the waste on the site;	Section 4.3, Section 4.4, Section 4.5, Section 6.1, Section 6.2, Section 6.3 and	Yes

		Section 7.2	
(vi)	a description of the geology and hydrogeology of the site;	Section 4.2	Yes
(vii)	details of any environmentally relevant activities or notifiable activities carried out on the site, including the materials used and waste produced during the carrying out of the activities;	Section 1.1, Section 4.3, Section 4.4 and Section 4.5	Yes
(viii)	details of any earthworks carried out on the site, including the materials used and waste produced during the earthworks;	Section 6.1.2, Section 6.2.2, Section 6.3 and Section 7	Yes
(ix)	if work was carried out on the site to remediate contaminated land— (A) the contamination levels recorded on the site before the work was carried out; and (B) the contamination levels recorded on the site after the work was carried out;	Section 6.1.1, Section 6.1.2, Section 6.2.2, Section 6.3 and Section 7.2	Yes
b) the report or plan includes sufficient information to allow the auditor to assess—			
(i)	if the report or plan provides evidence that the site is suitable for a stated use, whether the site is suitable for that stated use; and	Section 6.1.3, Section 6.2.3, Section 6.3.3 and Section 7.2.3	Yes
(ii)	whether the site is contaminated in a way that is a risk to another part of the environment or human health; and	Section 8.0	Yes
(iii)	if the report or plan provides evidence that the site is contaminated, the extent to which the site is contaminated and the uses that may be suitable for the site; and	Section 8.0	N/A
(iv)	if the plan sets out the objectives to be achieved and maintained under the plan— (A) the proposed objectives are appropriate for the site; and (B) the proposed methods to achieve and maintain the objectives are appropriate for the site; and	N/A	No objectives have been set, as no contamination remains.
(v)	if the plan sets out monitoring and reporting compliance measures for the site, the reporting and compliance measures are appropriate for the site.	N/A	No monitoring is required, as no contamination remains.



## **8 AUDITOR CONCLUSIONS AND RECOMMENDATIONS**

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### **8.1 AUDITOR SUMMARY OF INTERPRETATIONS AND CONCLUSIONS**

The following provides a summary of the interpretations and conclusions drawn during the assessment of the EES report, the Auditor site inspections and discussions with EES:

- The EES report suitably summarises the works completed on-site and is of an adequate coverage and standard to meet the requirements of the guidelines, verifying removal of all notifiable activities and the identified impacted soils.
- The EES report complies with the prescribed criteria under Section 115C of the Environmental Protection Regulations 2008.
- The works were suitably completed and were considered to be adequate to allow for the unrestricted future use of the site.
- The conclusions drawn were a fair reflection of the work completed and results recorded for the works.

### **8.2 AUDITOR RECOMMENDATIONS**

Based on the Auditor assessment of the work completed and a review of the EES report, the following recommendations are made:

- The Auditor concurs with EES's conclusions, based on the results of their remediation and validation works, that the site is suitable for unrestricted use and therefore the site can be removed from the EMR.

## 9 LIMITATIONS

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This report is produced exclusively for the benefit of MRC (and EHP) and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise. This report is prepared for the proposed uses stated in the report and the scope outlined and should not be used in whole or part in a different context without reference to MACH1. In time, improved practices or amended legislation may necessitate a re-assessment of the site.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted to this and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed in this report cannot be absolute due to the limitations of time and resources imposed by an agreed client brief and the possibility of un-recorded previous site use and abuse of the site and adjacent sites.

The findings of this report are based on the Scope of Work outlined in this Section 2 of this report. MACH1 performed the services in a manner consistent with the normal level of care and expertise exercised by members of the contaminated land remediation and environmental auditing profession. No warranties, or guarantees, express or implied, are made.

Subject to the Scope of Work, MACH1's assessment is limited strictly to identifying typical environmental conditions associated with the subject property and does not evaluate structural conditions of any buildings on the subject property, nor any other issues. Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials (including soil and groundwater) on the subject property should not be interpreted as a guarantee that such materials do not exist on the site.

This assessment is based on site inspections conducted by MACH1 personnel, sampling and analyses described in the report was conducted by EES and information used in the report was provided by EES, the property owner or other people with knowledge of the site conditions.

All conclusions and recommendations made in the report are the professional opinions of MACH1 personnel involved with the project and, while normal checking of the accuracy of data has been conducted, some of the opinions are based on unconfirmed data and work conducted by others. MACH1 assumes no responsibility or liability for errors in data

obtained from regulatory agencies, EES or any other external sources, nor from occurrences outside the scope of this project.

MACH1 is not engaged in environmental auditing or reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The report should not be used or reproduced in full or in part for any such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

## **Appendix A**

# **Certificate of Approval – Auditor and TPR Approval Letter**

09 MAR 2010



Queensland  
Government

Enquiries Greg O'Brien  
Telephone (07) 33305709  
Your reference 09-002-028  
Our reference BNE7447

Department of  
**Environment and Resource  
Management**

3 March 2010

Mr Robin Wagland  
MACH 1 Environmental  
PO Box 320  
Ferny Hills Qld 4055

Dear Mr Wagland,

**APPOINTMENT AS THIRD PARTY REVIEWER: MACKAY REGIONAL COUNCIL  
DEPOT, BEDFORD ROAD, L2 RP711645**

Department of Environment and Resource Management (DERM) advises that, following panel review under the TPR Terms of Reference (TOR), your application dated 18 December 2009 is accepted to act as TPR for the above site.

This approval is conditional on the following.

1. The acceptance applies to the subject site only and to site investigation and validation work conducted and certified by a person whose qualifications and experience are acceptable to DERM under the above provisions.
2. The requirements of the Terms of Reference, *Use of a third party reviewer (TPR) for assessment and management of site contamination, (TOR) 15 February 2008* must be complied with in relation to all site activities undertaken.
3. The DERM is to be advised in writing within 5 days of final execution of all contractual documents associated with your engagement by the site owner and other relevant parties.

This acceptance does not infer that your services as TPR will be accepted for any other site. Applications for other sites will be assessed according to the TOR. Should you require any additional information, please contact the undersigned or the DERM project officer for any relevant site.

Yours sincerely,

Greg O'Brien  
**Chief Scientific Advisor, Environmental Operations**



# Notice

## *Environmental Protection Act 1994*

### Decision on an application to be an auditor

*This notice is issued by the chief executive<sup>1</sup> pursuant to section 573 of the Environmental Protection Act 1994 (EP Act) to advise you of a decision on an application to be an auditor.*

To: Mr Robin Wagland  
MACH1 Environmental Pty Ltd  
25 Derrima Crescent  
FERNY HILLS QLD 4055

Email: robin@mach1environmental.com.au

Attention: Mr Robin Wagland

Your reference: Queensland Contaminated Land Auditor application  
Our reference: CLA00002

#### Decision made on application to be an auditor

##### 1. Application details

Your application to be an auditor was received by the chief executive on 17 July 2013.

##### 2. Decision

The chief executive's decision is that your application is approved subject to conditions.

The certificate of approval, number **CLA00002** is attached.

##### 3. Grounds

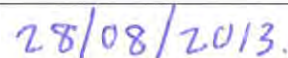
Your application to be a contaminated land auditor to perform functions under s568(b) of the Environmental Protection Act 1994 met the requirements set in the draft Prescribed Auditor guideline and s570 of the Environmental Protection Act 1994. You provided the evidence necessary to provide a positive assessment.

##### 4. Review and appeal rights

You may apply to the chief executive for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court. Information about your review and appeal rights is attached to this notice. This information is guidance only and you may have other legal rights and obligations.



Signature



Date

<sup>1</sup> The Director-General of the Department of Environment and Heritage Protection is the chief executive under the *Environmental Protection Act 1994*.

## Decision on application to be an approved auditor

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Lindsay Delzoppo  
Department of Environment and Heritage Protection  
Delegate of the chief executive  
*Environmental Protection Act 1994*

**Enquiries:**  
Kylie Coleman  
GPO Box 2454  
BRISBANE QLD 4001  
Phone: (07) 3330 5717  
Fax: (07) 3330 5634  
Email: [kylie.coleman@ehp.qld.gov.au](mailto:kylie.coleman@ehp.qld.gov.au)

### Attachments

Information sheet: Internal review and appeal to Planning and Environment Court (EM1866)<sup>2</sup>.

Certificate of approval CL00002

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<sup>2</sup> This is the publication number. The publication number can be used as a search term to find the latest version of a publication at [www.ehp.qld.gov.au](http://www.ehp.qld.gov.au).

# Certificate

*Environmental Protection Act 1994*

**Certificate of approval—Auditor**

**Approval No: CLA00002**

*This certificate of approval as an auditor is issued by the chief executive<sup>1</sup> pursuant to section 571 to 574 of the Environmental Protection Act 1994 because the applicant has been positively assessed against the criteria in section 572.*

**1. Approved person**

Robin Wagland

**2. Approved auditor functions**

The person stated above is approved to perform the following auditor functions:

- (a) Evaluate site investigation reports, validation reports, draft site management plans and draft amendments of site management plans prepared under Chapter 7, Part 8 of the *Environmental Protection Act 1994* (the Act) against criteria prescribed under the *Environmental Protection Regulation 2008*, and:
  - i. If the report or plan does not comply with the prescribed criteria—prepare a report about the evaluation.
  - ii. If the report or plan complies with the prescribed criteria—provide written certification that it complies with the criteria.

**3. Term of approval**

The approval remains in force for 3 years from the date of issue unless cancelled or suspended.

**4. Conditions of approval**

An approved person must comply with the conditions of this approval in performing the approved auditor functions. These conditions are listed below.

<sup>1</sup> The Director-General of the Department of Environment and Heritage Protection is the chief executive under the *Environmental Protection Act 1994*.



1. The approved person must not report on and/or certify matters in a specialised area that is outside of their qualifications or experience unless the relevant matter is first reported on or certified by an individual support expert whom the approved person is reasonably satisfied<sup>2</sup>:
  - is appropriately qualified and experienced to report on or certify the relevant matter;<sup>3</sup> and
  - holds an appropriate level of professional indemnity insurance that covers the provision of the report or certification by the support expert;<sup>4</sup> and
  - is a member of a prescribed organisation.
2. The approved person must not rely on a support expert's report or certification unless the support expert has provided a written signed statement accompanying the support expert's report or certification that states:
  - the matters required to be stated in an auditor's declaration under subsections 574C(2) and (3) of the Act, but by and on behalf of the support expert;
  - that the support expert has not accepted instructions from any person<sup>5</sup> to adopt or reject a particular opinion in relation to a matter the subject of the report or certification;
  - that the support expert is aware and agrees that the relevant report or certification may be relied upon by the administering authority as part of an auditor's report or certification in making a relevant decision under the Act;
  - that the support expert is aware and agrees that the relevant report or certification is to be provided to the administering authority by the approved person on behalf of the support expert; and
  - that the support expert is aware that it is an offence under section 480 of the Act for a person to give the administering authority a document containing information that the person knows, or ought reasonably to know, is false or misleading in a material particular.
3. Where the approved person's report or certification relies on a support expert's report or certification, the approved person's report or certification must:
  - contain a discrete section that describes those matters that the approved person is relying on in the support expert's report or certification;<sup>6</sup> and
  - annexe the support expert's report and/or certification.
4. The approved person must comply with the draft prescribed auditor code of conduct (as prescribed or amended from time to time).
5. The approved person must maintain a minimum level of professional indemnity insurance in the amount of \$5 million and provide proof of the same to the administering authority on an annual basis from the date the approval takes effect.

---

<sup>2</sup> Auditors are required to keep all evidence of material relied upon to justify the selection of a particular support expert. The material relied upon must reasonably demonstrate that the support expert meets the relevant criteria and, as a minimum, should include a comprehensive curriculum vitae and a summary description of a least 2 projects that the support expert has played a key role in that involved substantially similar issues to those to be dealt with in the report or certification. This information must be made available to the administering authority upon request.

<sup>3</sup> For contaminated land audit functions the support expert cannot be the suitably qualified person preparing the relevant regulatory function document.

<sup>4</sup> The professional indemnity insurance must be an amount of at least \$5 million or, if the negligent provision of advice could be reasonably expected to result in a liability of more than \$5 million, the reasonably expected potential liability amount.

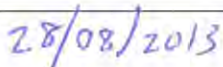
<sup>5</sup> Including but not limited to a person responsible for paying the support expert's fees or the fees of an organisation the support expert works for.

<sup>6</sup> This should include references to relevant parts of the support expert's report or certification relied on.

6. Regardless of the minimum level of cover required by condition 5, if the negligent carrying out of the auditor functions could be reasonably expected to result in a liability of more than \$5 million, the approved person must maintain an amount of professional indemnity insurance that covers the reasonably expected potential liability.
7. The approved person must maintain a certification against ISO 19011:2003 (Guidelines for quality and/or environmental management systems auditing) by a JAS-ANZ accredited organisation<sup>7</sup> or Environmental Management System (EM) Auditor Qualification-based (QB) Certification Scheme<sup>8</sup> or Institute of Environmental Management and Assessment (IEMA) Environmental Auditor Register<sup>9</sup> and provide proof of the same to the administering authority on an annual basis.
8. The approved person must actively participate in continuing professional development during the term of their approval by, as a minimum:
  - actively performing approved audit functions (or an equivalent role in another Australian jurisdiction) at least once every 2 years and provide proof of the same to the administering authority upon request; and
  - attending and/or completing at least 2 approved seminar/ training exercises for each calendar year following the calendar year in which an auditor's approval takes effect and providing proof of the same to the administering authority on an annual basis<sup>10</sup>.
9. The approved person must inform the administering authority if any appointment or approval as an auditor (or an equivalent role) they hold under a corresponding law is suspended or cancelled and provide the reasons for any such suspension or cancellation. The approved person must inform the administering authority as soon as reasonably practicable after becoming aware of the suspension or cancellation.



Signature



Date

Lindsay Delzoppo  
Department of Environment and Heritage Protection  
Delegate of the chief executive  
*Environmental Protection Act 1994*

**Enquiries:**  
Kylie Coleman  
GPO Box 2454  
BRISBANE QLD 4001  
Phone: (07) 3330 5717  
Fax: (07) 3330 5634  
Email: [kylie.coleman@ehp.qld.gov.au](mailto:kylie.coleman@ehp.qld.gov.au)

<sup>7</sup> Certification grade of Auditor or above is required.

<sup>8</sup> Certification of an equivalent grade to ISO 19011:2003 auditor level or above is required.

<sup>9</sup> Certification of an equivalent grade to ISO 19011:2003 auditor level or above is required.

<sup>10</sup> At the beginning of each calendar year and the beginning of each financial year the administering authority will inform all approved auditors of the approved seminar/ training exercises occurring in the following 6 months.

## **Appendix B**

### **Auditor Statutory Declaration**



STATUTORY DECLARATION

Address of Site Investigated: 271 Bedford Road, Andergrove, Mackay, QLD 4740.
Real Property Description: Lot 1 on SP255624.
Title of Report: Auditor Certification Report: 271 Bedford Road, Andergrove, Mackay, Queensland, Lot 1 on SP255624, March 2015.

I, Robin Wagland, of MACH1 Environmental Pty Ltd (Ashgrove, QLD 4060) in the State of Queensland, do solemnly and sincerely declare that:

- 1. I was the previous Third Party Reviewer appointed by the Queensland Government Department of Environment and Heritage Protection, Contaminated Land Unit for the Andergrove site described above.
2. I am now a Queensland Contaminated Land Auditor (No. CLA00002) approved pursuant to Section 571 to 574 of the Environmental Protection Act 1994.
3. Information was collected and collated by Environmental Earth Sciences QLD Pty Ltd in their report titled: Detailed Site Investigation (DSI) and Soil Remedial Works Validation Report, Lot 1 on SP255624, Former Mackay Regional Council Depot, 271 Bedford Road, Andergrove, Queensland 4740 dated March 2015
4. I am a member of the Environment Institute of Australia and New Zealand and my qualifications and experience (submitted previously to the EHP) are relevant to this investigation.
5. I have not knowingly included any false, misleading or incomplete information in the report and I have not knowingly failed to reveal any relevant information or document to the administering authority.
6. The certification report addresses the relevant matters for the audit and is factually correct and the opinions expressed in it are honestly and reasonably held.
7. I certify that the site has been assessed to a standard such that the health and environmental risks associated with the contamination at the site have been addressed.
8. I certify that the site (Lot 1 on SP255624) is suitable to be removed from the Environmental Management Register (EMR).

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1867

Signature [Handwritten Signature]

Name MR ROBIN M WAGLAND

Taken and declared before me at Ennisbane this 26th day of March 2015

Witness (Justice of the Peace/Commissioner for Declarations/Solicitor)

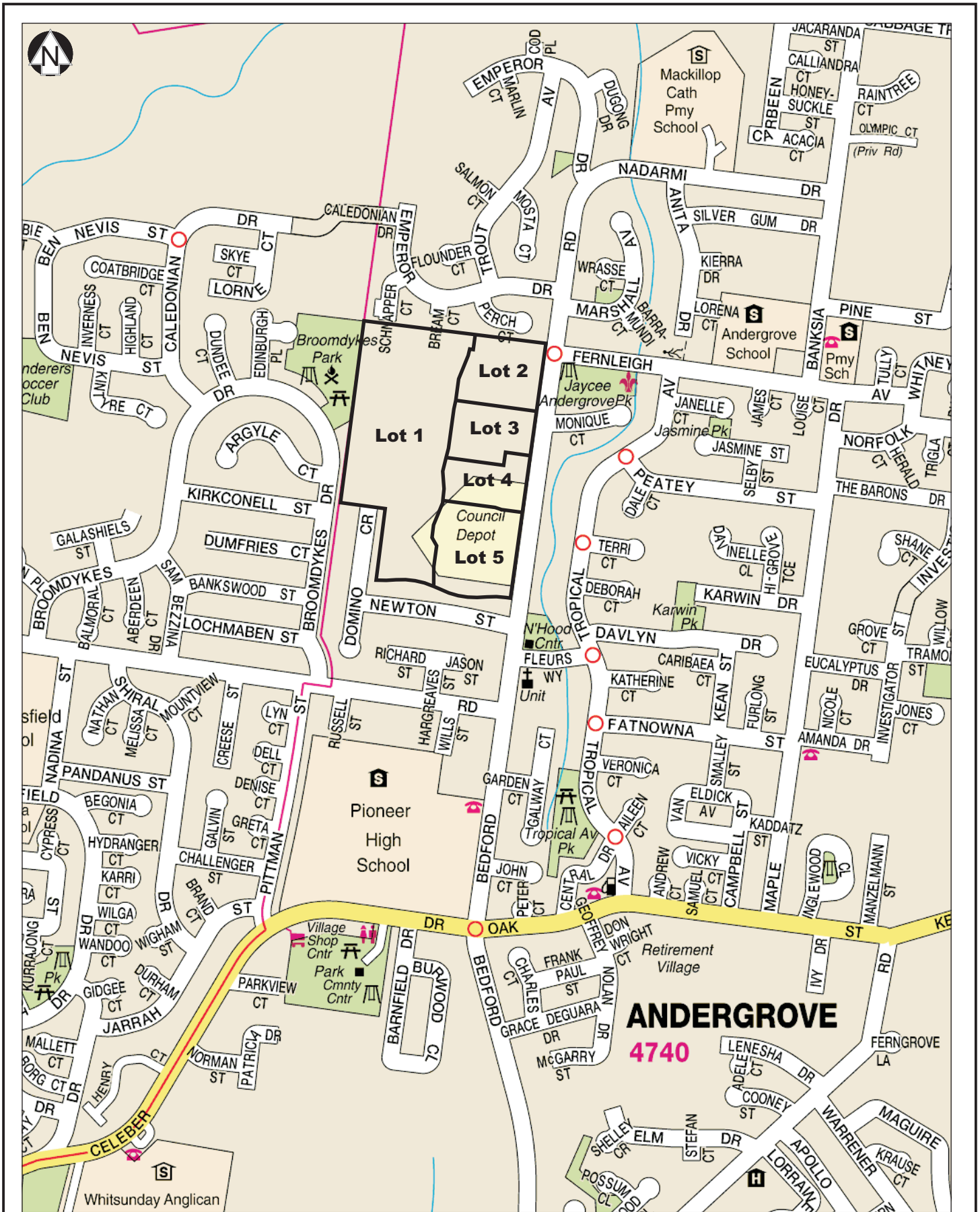
Signature [Handwritten Signature]

Name Brian Vincent Hodge



# **Appendix C**

## **Figures**



Source: UBD Australian Regional Cities and Towns

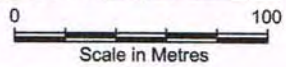


	Title: <b>Site Location Map</b>
	Location: <b>271 Bedford Road, Andergrove, Qld. 4740</b>
Client: <b>Mackay Regional Council</b>	Job No: <b>711010</b>
Project Man: <b>MS</b>	Scale: <b>As Shown</b>
Drawn By: <b>LB</b>	Date: <b>July 2014</b>
<b>Figure 1</b>	





Source: Nearmap.com



**LEGEND:**

— Lot boundary

	<b>Title:</b> <b>Current Lot Boundary Plan</b>	
	<b>Location:</b> 271 Bedford Road, Andergrove, Qld. 4740	
<b>Client:</b> Mackay Regional Council	<b>Job No:</b> 711010	
<b>Project Man:</b> MS	<b>Scale:</b> As Shown	<b>Figure 2b</b>
<b>Drawn By:</b> LB	<b>Date:</b> July 2014	

**NOTE:** This is one interpretation. Other interpretations are possible





Source: Nearmap.com

**LEGEND:**

- Lot boundary
- Groundwater monitoring well location
- Cardno borehole location
- Environmental Earth Sciences borehole location
- Drain

Scale in Metres

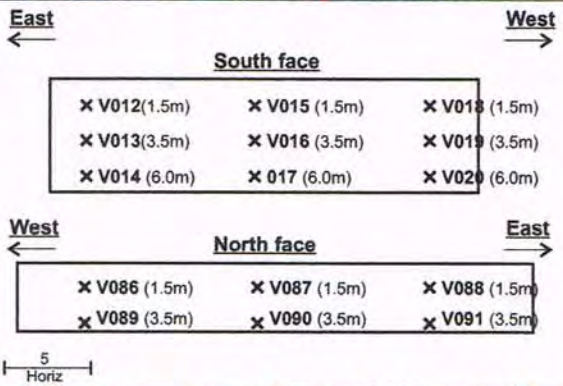
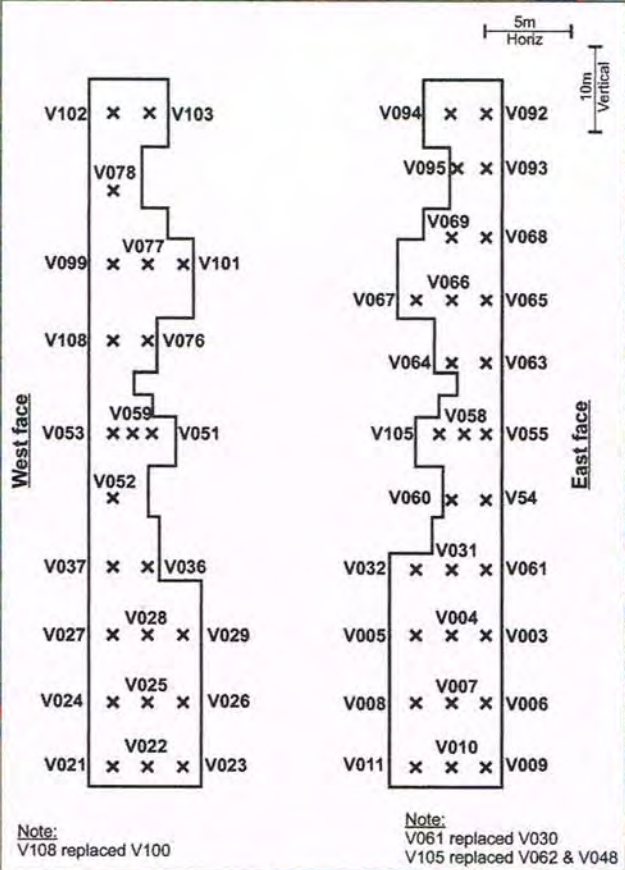
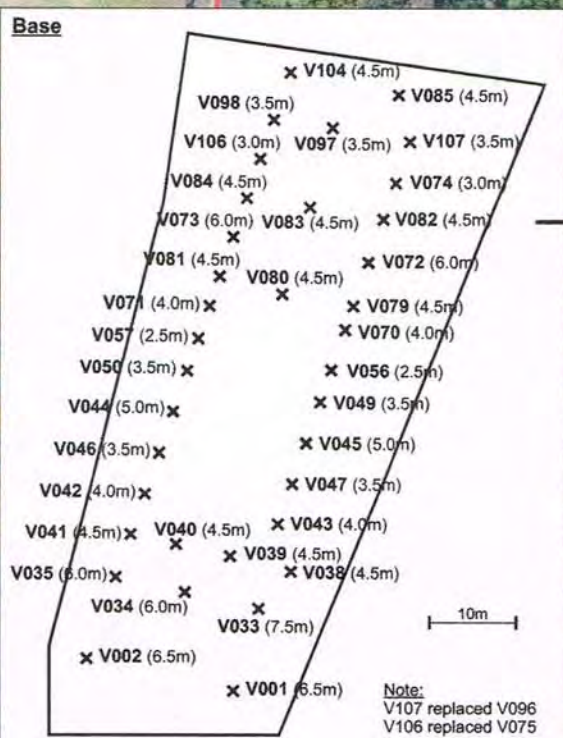
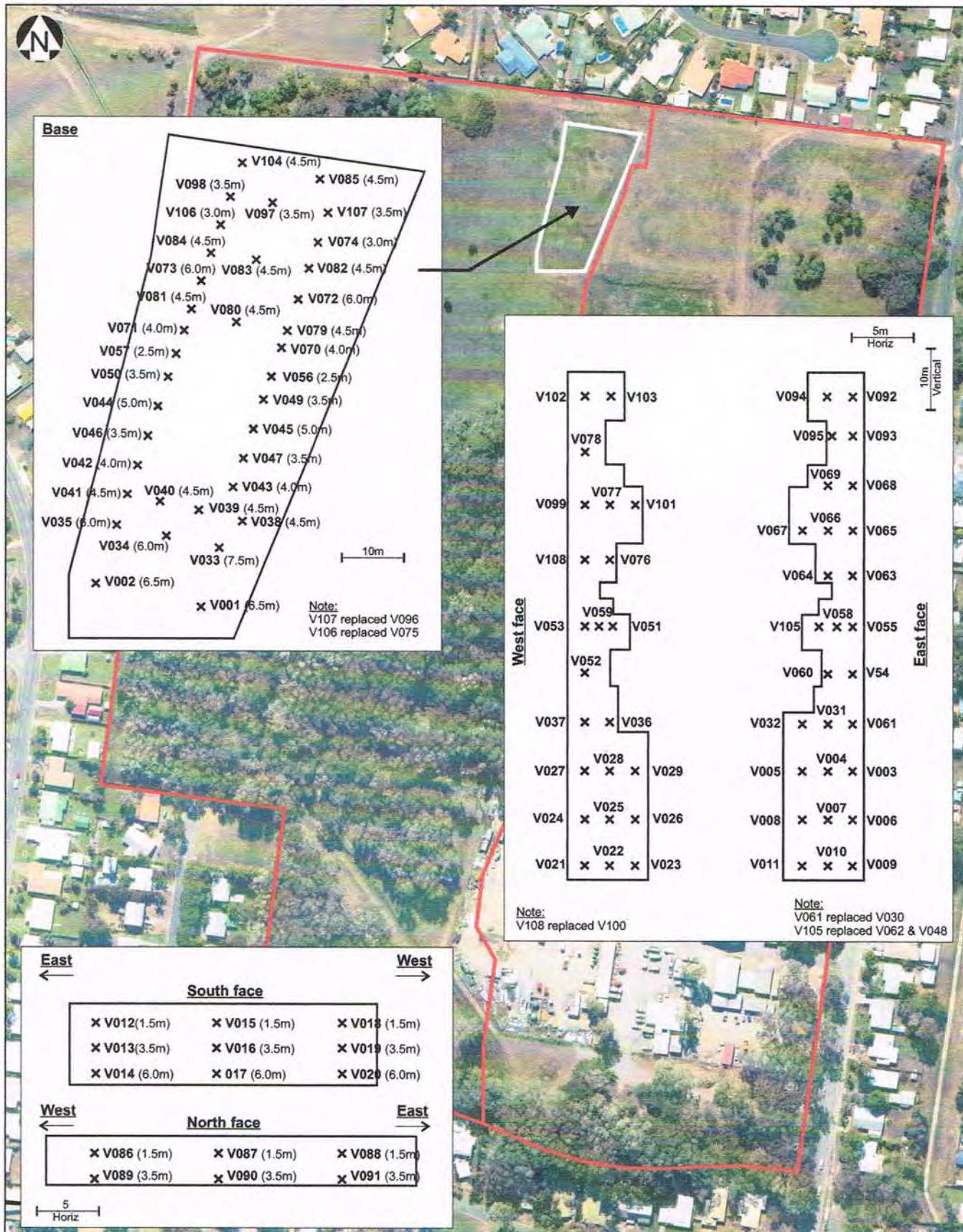


Title: In Situ Soil Characterisation - Northern Night Soil Disposal Area  
 Location: 271 Bedford Road, Andergrove, Qld. 4740

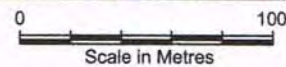
Client: Mackay Regional Council		Job No: 711010
Project Man: DM	Scale: As Shown	Figure 3a
Drawn By: LB	Date: July 2014	

NOTE: This is one interpretation. Other interpretations are possible





Source: Nearmap.com



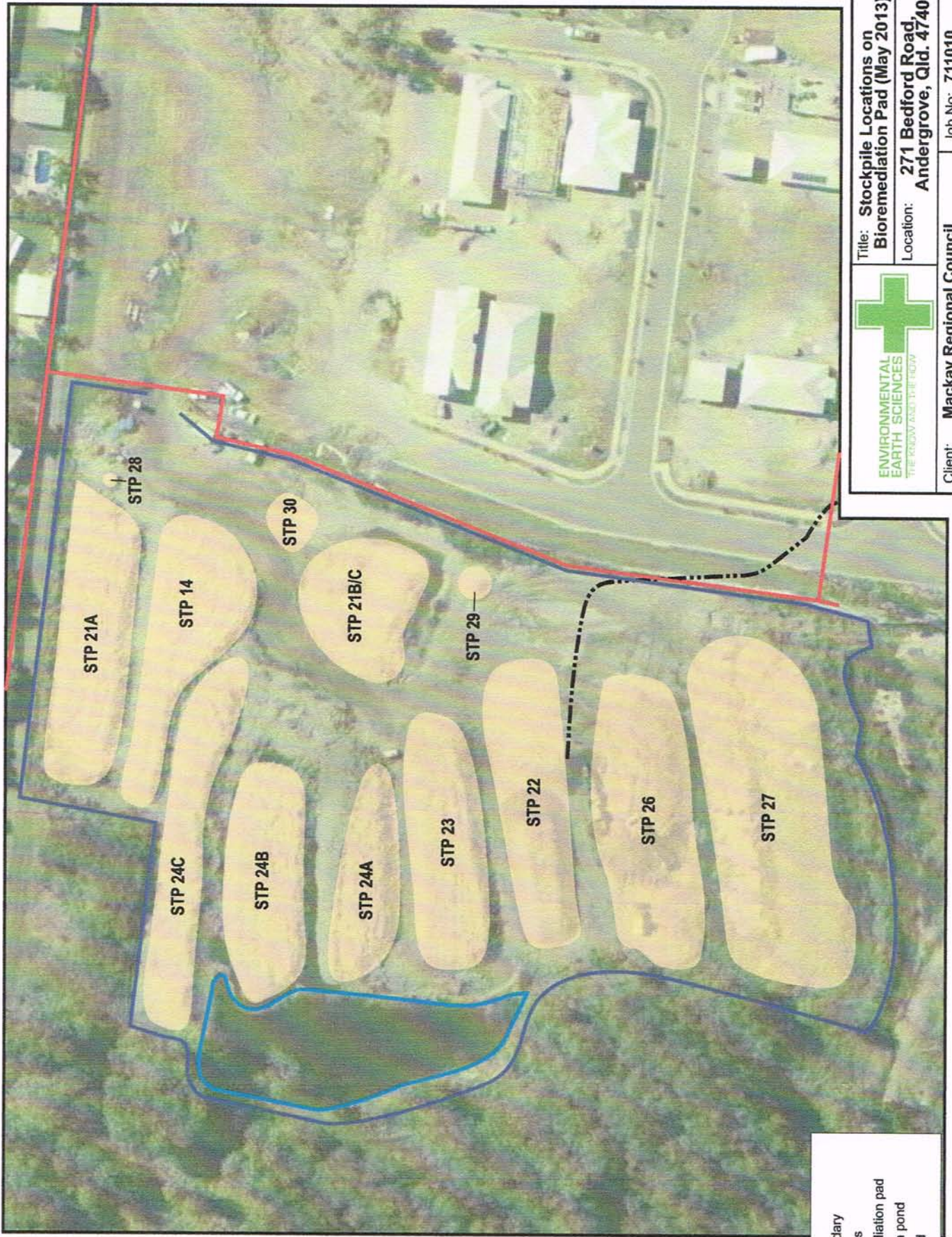
**LEGEND:**

- x Soil validation point
- Lot boundary

	<b>Title: In Situ Soil Validation - Northern Night Soil Disposal Area</b>	
	<b>Location: 271 Bedford Road, Andergrove, Qld. 4740</b>	
Client: <b>Mackay Regional Council</b>	Job No: <b>711010</b>	
Project Man: <b>MS</b>	Scale: <b>As Shown</b>	<b>Figure 3b</b>
Drawn By: <b>LB</b>	Date: <b>July 2014</b>	

NOTE: This is one interpretation. Other interpretations are possible





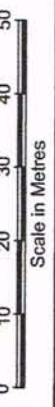
**LEGEND:**

- Lot boundary
- Stockpiles
- Bioremediation pad
- Retention pond
- Haul road



**Title:** Stockpile Locations on Bioremediation Pad (May 2013)  
**Location:** 271 Bedford Road, Andergrove, Qld. 4740

<b>Client:</b> Mackay Regional Council		<b>Job No:</b> 711010	
<b>Project Man:</b> MS	<b>Scale:</b> As Shown		
<b>Drawn By:</b> LB	<b>Date:</b> July 2014		



**NOTE:** This is one interpretation. Other interpretations are possible

**Figure 6C**

## **Appendix D**

### **Auditor Photographic Log**





**Photo 1: General view of site looking south east 12/12/09**



**Photo 2: Northern end looking south west showing fenced area of site 12/12/09**



**Photo 3: General view looking south showing eastern portion 12/12/09**



**Photo 4: View of Disposal Pond area looking south 17/02/11**



**Photo 5: Test pit in former Disposal Pond 17/02/11**



**Photo 6: View of initial stockpiles to eastern portion of the site 17/02/11**





**Photo 7: Stockpiles with irrigation system  
10/05/11**



**Photo 8: Excavation works looking north  
west 24/10/11**



**Photo 9: Excavation works looking south  
24/10/11**



**Photo 10: Stockpiles before treatment  
24/10/11**



**Photo 11: Backfilled excavations 27/02/12**



**Photo 12: Stockpiles during bioremediation  
27/02/12**





**Photo 13: Stockpiles during remediation looking north 27/02/12**



**Photo 14: Stockpiles following remediation 23/04/14**



**Photo 15: Test pit in stockpiles following remediation 23/04/14**



**Photo 16: Stockpiles following remediation 23/04/14**



**Photo 17: Ponds adjacent stockpiles 23/04/14**



**Photo 18: Backfilled area of the site 23/04/14**

# **Appendix E**

## **Correspondence**

**From:** [Robin Wagland](#)  
**To:** "[Mark Stuckey](#)"; "[David McKendry](#)"  
**Cc:** "[Anna Sheldon](#)"  
**Subject:** RE: Mackay  
**Date:** Wednesday, 18 March 2015 7:38:00 AM

---

Mark,

Many thanks for provision of you revised report for Lot 1. As Auditor for the site, I have reviewed the report and consider it as suitable for EHP submission, subject to the provision of the associated statutory declaration, completed Forms A and B and application fee.

If you can complete the stat dec and email me a copy, I can get mine signed, complete my Auditor Certification report and send my original stat dec via Express Post to EES for submission.

Many thanks for your assistance in closing out on the project and if you have any queries on the submission process, please do not hesitate to contact me further.

Kind regards,

Robin.

**Robin Wagland**  
**Principal**  
**Auditor**

MACH1 Environmental Pty Ltd  
Tel + 61 (0)7 3366 7702  
Fax + 61 (0)7 3366 7712  
Mob + 61 0420 931 207  
Email [robin@mach1environmental.com.au](mailto:robin@mach1environmental.com.au)  
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Ashgrove East, QLD 4060  
[www.mach1environmental.com.au](http://www.mach1environmental.com.au)

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The views, opinions, conclusions and other information expressed in this electronic mail are not given or endorsed by the company unless otherwise indicated by an authorised representative independent of this message.

---

**From:** Mark Stuckey [<mailto:mstuckey@environmentalearthsciences.com>]  
**Sent:** Monday, 16 March 2015 12:05 PM  
**To:** David McKendry; Robin Wagland  
**Cc:** Anna Sheldon  
**Subject:** RE: Mackay

Robin,

Please see attached. I have included the report with tracked changes, as well as updated Figures 5b and 5c, and the revised pre-reconfiguration Registered Plan (which will be provided in Appendix D), and Tables A1-A8 with BH30 at 2.0m updated (as they are in the report).

Note also that we will provide all previous reports on a CD as Appendix K.

Regards,  
Mark

---

**From:** David McKendry [<mailto:david.mckendry@mackay.qld.gov.au>]  
**Sent:** Monday, 16 March 2015 10:09 AM  
**To:** Mark Stuckey; Robin Wagland  
**Cc:** Anna Sheldon  
**Subject:** RE: Mackay



**From:** [Robin Wagland](#)  
**To:** ["Mark Stuckey"](#)  
**Cc:** ["David McKendry"](#)  
**Subject:** Auditor Comments Lot 1 Bedford Road  
**Date:** Friday, 19 December 2014 1:07:00 PM  
**Attachments:** [10-002-020 Auditor Comments EES Lot 1 Validation, Bedford Rd, Mackay 18-12-14.pdf](#)

---

Mark,

I trust all is going well in the "silly season" and not too hectic in the run up to Christmas.

I hope you are sitting down (to avoid any sudden shock), but please see attached my comments on the Lot 1 report. So sorry it has taken so long, I'm not sure where the weeks have gone to.

I assume the attached is self-explanatory, however, if you have any queries, please do not hesitate to contact me further.

I look forward to your final revision in "tracked changes" in due course. I have done my Auditor report and ready to go and I'm working next week if you want to get them in to EHP before Christmas and I can chase them for a quick response.

Wishing you all the best for Christmas and the New Year.

Kind regards,

Robin.

**Robin Wagland**  
**Principal**  
**Auditor**

MACH1 Environmental Pty Ltd  
Tel + 61 (0)7 3366 7702  
Fax + 61 (0)7 3366 7712  
Mob + 61 0420 931 207  
Email [robin@mach1environmental.com.au](mailto:robin@mach1environmental.com.au)  
Web [www.mach1environmental.com.au](http://www.mach1environmental.com.au)



Tel: +61 (0)7 3366 7702  
Fax: +61 (0)7 3366 7712

PO Box 3028  
Ashgrove East, QLD 4060  
[www.mach1environmental.com.au](http://www.mach1environmental.com.au)

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All reasonable precautions have been taken to ensure no viruses are present in this e-mail. As our company cannot accept responsibility for any loss or damage arising from the use of this e-mail or attachments we recommend that you subject these to your virus checking procedures prior to use.

The views, opinions, conclusions and other information expressed in this electronic mail are not given or endorsed by the company unless otherwise indicated by an authorised representative independent of this message.

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**AUDITOR COMMENTS MEMO**

---

<b>TO:</b>	Environmental Earth Sciences QLD	<b>DATE:</b>	19/12/14
<b>ATTENTION:</b>	Mark Stuckey	<b>JOB No:</b>	10-002-020
<b>FROM:</b>	Robin Wagland	<b>CC:</b>	David McKendry – MRC
<b>No OF PAGES</b> (including this page):	8		
<b>Email:</b>	mstuckey@environme ntalearthsciences.com		

**MEMO:**           **Auditor Comments EES Detailed Site Investigation for Lot 1,  
Former Mackay Regional Council Depot, 271 Bedford Road,  
Andergrove**

---

Dear Mark,

Robin Wagland of MACH1 Environmental Pty Ltd (MACH1) was commissioned by Mackay Regional Council (MRC) to undertake the role of Third Party Reviewer (TPR)/Contaminated Land Auditor (CLA) for the investigation of the Lot 1 area of the Bedford Road site.

The original TPR role was in accordance with the Department of Environment and Heritage Protection (EHP) guidelines outlined in the Terms of Reference with Robin Wagland acting on behalf of EHP to review and certify the work completed by the consultants. It should be noted that during the course of the project, the appointment of TPR has now been further legislated in Queensland and termed Contaminated Land Auditor (CLA). The later part of auditing services for this site was therefore undertaken in accordance with the provisions of Chapter 7, Part 8 of the *Environmental Protection Act 1994* (EPAct) under the conditions of my appointment as a Queensland Contaminated Land Auditor (Approval No. CLA00002 of 28<sup>th</sup> August 2013) pursuant to the provisions of Section 573 of the EPAct.

The following memo outlines the CLA review of the Environmental Earth Science QLD's (EES) report titled: "*Detailed Site Investigation (DSI) and Soil Remedial Works Validation Report Lot 1 on SP255624, Former Mackay Regional Council Depot, 271 Bedford Road, Andergrove, Queensland 4740*", dated 20 August 2014, Reference No. 711010.

The information in this memo should not be considered pre-emptive of the final CLA report submission and certification for the site, but rather represents the CLA opinions based on the current review of available site information. It is understood

that the report will be submitted in hard copy to EHP, with a CLA Certification Report to allow removal of the Lot from the EMR (as appropriate).

### **SCOPE OF WORKS**

The CLA scope of work was as follows:

- Various site visits to observe the areas of investigation, previous investigation works and the remediation work (including stockpiles);
- A review of the previous Cardno Stage 1 Report;
- A review of the EES DSI Report; and
- Preparation of these comments on the above report.

Yet to be completed are the following:

- Review of the final revised EES report; and
- Completion of the preparation of a CLA covering letter.

It should be noted that the CLA considers the report to be of a good quality for the purposes for which it was written with only minor comments below. The CLA also appreciates that the works were undertaken within a specified scope agreed between Environmental Earth Sciences QLD and MRC and therefore the following summary is to be noted within this context.

***It is requested to aid the future process, that any changes to the report be provided to the CLA in Word version in "tracked changes" mode to allow for ease and speed of reviewing the amendments made.***

### **REVIEW COMMENTS**

The following comments relate to my review of the DSI report. The comments are referenced to section numbers. All comments should be noted and addressed appropriately as follows:

### **General Comments:**

- The final report must be accompanied by:
  - A statutory declaration;
  - EHP submission fee; and
  - Completed EHP application forms (A and B).
- The final DSI report for submission to EHP should be a signed original. The CLA is happy to accept his final version in CD form.
- One of those signing the report and the one signing the statutory declaration must be a Suitably Qualified Person (SQP).
- Update the date on the front cover (as appropriate).

### ***Detailed Comments***

The following detailed comments are referenced to sections of the report.

### **Executive Summary**

#### **Introduction Sub-Section**

- Printing ink – I can't recollect where the information relating to ink was derived. Can you confirm?

#### **Conclusion Sub-Section**

- Suitable "any" land-use – Typo.
- "standard" – Or we should specify low density residential or unrestricted landuse?

#### **Section 1.1**

- Paragraph 1 – "(ULDA)" – Is this not EDQ now?
- Paragraph 2 – "ID 122409" – What is this reference?
- Paragraph 4 – It would be useful to include a Registered Plan for both historic and new Lots eg. Is there one for SP255624 (noting current one is spread over four pages and hard to read – if possible can a single page be reproduced).

#### **Section 1.2**

- Paragraph 2 – "remnant bushland" – It would be useful to reference where this is.
- Paragraph 3 – "Environmental Earth Sciences" – It would be useful to reference which EES reports will form part of the submission. Will they be

included as part of a package and will they be included in the statutory declaration? It is suggested all reports referenced in drawing the conclusions for the site be included, noting these could be in electronic form as an attachment).

- Paragraph 5 and 6 – “deletion” – Was it not removal from the EMR following remediation works, as deletion suggests the areas should not have been listed in the first instance?
- Paragraph 6 – It should be noted or referenced that previous reports have been submitted to EHP but it is suggested (as above to be comprehensive that these reports also form part of this submission –noting they should all be covered by statutory declarations).

### Section 3

- Paragraph 1 – Bullet Point 6 – “CLA” – Note not just for CLA but for EHP submission.

### Section 4

- It would be useful to also include a brief summary section on the site history. In addition with reference to the EP Regulation Prescribed Criteria, all elements of these criteria should be discussed here even if only in a brief form, e.g. specific references to sensitive landuses, categories, watercourses etc.

#### Section 4.1

- Paragraph 2 – “refers to area included” – Typo add “the”.
- Paragraph 3 – Note how far the nearest residential property is from the Lot Boundary.
- Paragraph 4 – Sentence 1 – At what distance?

#### Section 4.2.1

- “mAHD” – Please write all acronyms out in full the first time used to assist in the readers interpretation.
- Sentence 3 – “Further north” – How far?

#### Section 4.2.3

- Paragraph 2 – “Acceptable” – How is acceptable defined, potable freshwater etc, please quantify.
- Paragraph 2 – “natural attenuation” – Of what?

### Section 4.3

- Paragraph 1 – “as liaisons with stakeholders has resulted in confusion” – What does this specifically mean?

### Section 4.4

- Paragraph 2 – Bullet Point 2 “deleted” – See previous comment.

### Section 5

- What about reference to groundwater guidelines?
- Paragraph 1 – It would be useful to reference AS4482.1 in relation to the required number of sample locations for the area of Lot 1. How does the actual number compare to the recommended number?
- Paragraph 2 – While it is appreciated that the majority of work was completed historically, as the submission will now be under the EHP 2014 guidelines these should also be referenced and a discussion covering the EP Regulations Prescribed Criteria (noting and accepting the earlier table in the executive summary).

### Section 6

- Paragraph 1 – What about a section on methodology with specific soil and groundwater sampling methods, QA/QC, DQO’s etc? Again, it is noted and accepted that there is an appendix covering this, but a short summary and reference to this within the main body would be useful.

### Section 6.1

- Paragraph 1 – “anecdotal evidence” – Table 2 references printing ink. Where was this information specifically derived as it is not mentioned here?
- Paragraph 2 – It may be useful to specifically state “historical” waste disposal activities.

### Section 6.1.1

- Paragraph 1 – How does this compare to the sample location numbers in AS4482.1?

### Section 6.1.2

- Paragraph 2 – “Sampling” – Sampling of what? The material to be removed or the base and walls of the resultant excavations?
- Paragraph 3 – “following locations” – Reference to a specific figure in this upfront section would be useful.

- Paragraph 3 – “depth-specific HSLs” – Note removal of a site from the EMR requires clean material regardless of depths, therefore, this should be noted. Also reference should be made to soil aesthetics.

### Section 6.1.3

- Sentence 2 – “At such” – Typo.
- Sentence 2 – “unrestricted use” – Is this the case regardless of depth?

### Section 6.2.1

- Paragraph 1 – Sentence 2 – “Samples” – Typo.

### Section 6.2.2

- Paragraph 1 – “five in situ samples” – Was this of the walls and base?

### Section 6.3.3

- “transported to” – It may be worth mentioning transport was within the same site and not via public road, therefore, a disposal permit was not required.

### Section 6.4

- Paragraph 2 – Note that Section 5 does not reference groundwater, therefore, discussion of investigation/remediation criteria is needed. Reference to beneficial use of groundwater and the Water Act should be made.
- Paragraph 2 – “silica gel” – This needs to be explained further i.e. laboratory based not groundwater remediation.
- Paragraph 3 – “decrease” – To what levels? Has the beneficial use of groundwater been restored?
- Paragraph 3 – “also decreased” – As per metals, please discuss in relation to beneficial use and the fact the groundwater does not need to be managed or monitored in the future.

### Section 7

- Paragraph 1 – “was constructed” – It would be useful to briefly reference how this was constructed. Will EES (2011a) form part of this submission, as is suggested?

### Section 7.1

- Paragraph 3 – “use in other parts” – Specifically what other parts? Parts of Lot 1 or Lot 2 or Lot 4?
- Paragraph 4 – biopad “is” – Should this be “was”?
- Paragraph 4 – “was treated” – How was it treated? Was it sampled before discharge to stormwater? Please expand these discussions and include reference to where the sampling results are presented.

### Section 7.2

- Paragraph 2 – Can details of the system and additives be provided? It can be provided in an annex if easier. The addition of solvents may be seen as adding a potential contaminant, therefore explanation should be included.
- Paragraph 4 – “but needed to be stockpiled” – Explain why?
- Paragraph 4 – “Other soil” – Please reference what happened to this “other soil”. There should be a section, or sub-section relating to disposal of soils. What landfill did the soil go to, where are the disposal permits presented, where is the waste disposal documentation, a summary table of volumes vs tonnes vs disposal permit approval would be useful.
- Table 8 – STP08/Comments – “off-site disposal” – To where?
- Table 8 – STP13/Comments – “off-site disposal” – To where?
- Table 8 – STP20, STP25 – “No observable” – Was this sampled and not just observed?

#### Section 7.2.1

- Paragraph 6 – “proceed” – Or should this be “continue”?

#### Section 7.2.2

- Paragraph 1 – “extensive sampling” – It would be useful to estimate what the rate of sampling would have been based on all sampling i.e was it more than 1 per 50m<sup>3</sup>?
- Paragraph 2 – “disposed of to landfill” – What landfill, what volumes when and under what disposal permit?
- Paragraph 4 – “to landfill” – As per previous comments, a specific section on landfill disposal would be useful.

#### Section 7.2.3

- Paragraph 1 – “At such” – Typo.
- Paragraph 2 – “bioremediation pad” – What about the soil underlying the biopad? How is it known if this is clean? Was this sampled? Please comment and explain further.



## Section 8

- Paragraph 1 – “in this report” – Should also reference other reports providing the supporting information?

## Section 9

- Point 3 – “any third party” – Can EHP and the Auditor be specifically relied upon?

## Section 10

- Reference 12 and 13 – If in alphabetical order, this should be referenced before EHP.

## Appendices

### ***Appendix A - Tables***

- Table A3 - The column for F1 lists the hydrocarbon chain lengths as being C10-C16, however it should read C6-C10.
- The laboratory results for BH30 2.0 do not appear to match the summary tables and text results. Please check and amend as appropriate.

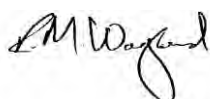
### ***Appendix B - Figures***

- Figure 4b, 5a, 5b and 5c– It would be useful to note the dates of the sampling/investigations.

I trust the above comments are useful to aid in progressing the completion of the draft/revision of this report and I look forward to receipt of the final report in “tracked changes” in due course.

In the meantime, should you require any additional information or wish to discuss any aspects of the CLA comments, please do not hesitate to contact me further.

Kind regards,



.....  
***Robin Wagland***

***Principal  
Auditor***

**From:** [Robin Wagland](#)  
**To:** ["David McKendry"](#); ["Mark Stuckey"](#)  
**Subject:** RE: Woodlands - Stage 8 - Bio-remediation - Site Visit  
**Date:** Thursday, 24 April 2014 9:10:00 AM  
**Attachments:** [Table for Prescribed Criteria under Section 115C of the Environmental Protection Regulations 2008.docx](#)  
[Prescribed Criteria Part 5 EP Regs.docx](#)

---

David,

Many thanks again for your help and really appreciate the photos (much better than mine !!).

As per your email below and our discussions yesterday, I can concur with your summary below and suggestions for moving forward. Obviously subject to reporting by the SQP, the material viewed appears from an aesthetic perspective to be suitable for reuse. Based on previous results, it is assumed the SQP will draw the same conclusions and on this basis the soils can be used for any purpose.

Obviously, where feasible, it would be ideal to leave the more anaerobic (slightly odorous) material at depth, however, I would imagine that as part of the moving/blending process any residual odours will rapidly disperse.

I hope the above is suitable, however, upon completion of a validation report, we should be able to process things for removal from the EMR.

I have also attached FYI Mark, the prescribed criteria details and also a table used in the Auditor report. A similar table can be used in the consulting report to summarise compliance and assist with the final certification. In producing the final report, please include brief summaries of the relevant criteria for the site (accepting these have been previously reported to EHP).

Feel free to call to chat over any of the above and again your assistance yesterday was much appreciated.

Enjoy the long weekend.

Kind regards,

Robin.

**Robin Wagland**  
**Principal**  
**Auditor**

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**From:** David McKendry [mailto:[david.mckendry@mackay.qld.gov.au](mailto:david.mckendry@mackay.qld.gov.au)]

**Sent:** Wednesday, 23 April 2014 11:51 AM

**To:** Mark Stuckey; Robin Wagland

**Cc:** David McKendry

**Subject:** Woodlands - Stage 8 - Bio-remediation - Site Visit

Guys, thank-you for the site visit today.

As discussed copies of my photos attached. I have separated each by Stockpile and have the associated e-mail noted with which is which.

I understand from today that you are each fairly happy with site and don't see the need for further on-site work or testing, rather that it is now a 'paperwork' process.

Could you please confirm our discussion that we are OK from a civils point of view to work on the site including 'mixing' of the stockpiles? Just this will make the process a lot easier.

I also note our discussion that whilst material on site might be 'cleared', it would be best to follow a work process that sees the newest material placed further down in fill, and/or any fresh soil needed for site used on the top layer (ie use the existing site material below say 300mm of finished level where possible).

Thanks again for your time.

David McKendry | Executive Officer | Sustainability & Collaboration | Mackay Regional Council

Phone: 07 4961 9525 | Fax: 07 4944 2441 | [david.mckendry@mackay.qld.gov.au](mailto:david.mckendry@mackay.qld.gov.au) | Web: [mackay.qld.gov.au](http://mackay.qld.gov.au)

**WORKING AS ONE TEAM TO ACHIEVE FOR OUR CLIENTS & COMMUNITY**



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**From:** [Dan Morton](#)  
**To:** [Robin Wagland](#)  
**Cc:** [Tracy Berger](#); [Tracey Bauer](#)  
**Subject:** FW: 711010 - Council Depot Bedford Road, Andergrove  
**Date:** Thursday, 26 May 2011 10:11:30 AM  
**Attachments:** [eesgd@eesi.biz\\_20110525\\_173912.pdf](#)  
[AOPC1&2.pdf](#)  
[711010\\_AoPC\\_1&2\\_HC&Metals.pdf](#)

---

Robin please see Tracy Berger's email below and the attached table of results, figures and the stats table below the email. We look forward to meeting with you on Friday and can you please confirm the time by phone, thank you.

Regards,



Dan Morton - Senior Environmental Scientist  
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**From:** Tracy Berger  
**Sent:** Wednesday, 25 May 2011 4:50 PM  
**To:** Dan Morton; Tracey Bauer  
**Subject:** RE: 711010 - Council Depot Bedford Road, Andergrove

Hi Robin

Apologies for the time it has taken to make a response regarding your email below.

We believe the best way to sort out any concerns re: perceived dilution would be in a face to face meeting with yourself. To that end, we would ask if you could meet with us here this Friday 27 May.

Short version of our stance:

The primary contaminant of concern is TPH – and the highest concentrations/occurrences of petroleum hydrocarbons are in the C10+ hydrocarbon chain range. The Cardno and EES previous investigations found the highest TPH concentrations in the soil within the two night soil ponds on Lot 1 and the southern pond on Lot 2.

Where there were elevated concentrations of TPH detected in Cardno's and our investigation samples, there were also some metals as co-contaminants: copper, lead, and zinc. This is not an unusual finding, considering the source of the TPH is likely to be waste oil, which typically contains some metals (either as waste by product or as lubricant – e.g., zinc in hydraulic oil). The metal concentrations from the Cardno and our initial investigation can be summarised as follows:

- Copper – all less than HIL A
- Lead – 6 samples marginally above HIL A (304mg/kg – 558 mg/kg) and 2 samples at or very close to HIL F (1450mg/kg and 1500 mg/kg).
- Zinc – 12 samples greater than phytotox (400) but all less than NEPM/QLD HIL A (7000)

Clearly it is not technically reasonable to somehow try and “extract” or otherwise separate the metals out of the soil that is also contaminated with TPH. It is not possible to “break down” the metals – immobilising them is possible, but could be problematic (immobilising the lead by conventional treatment could increase the solubility/mobility of the other metals). And as the total metals concentrations do not change (just the soluble concentrations), the result does not meet the requirements to get the Lots of the EMR, and immobilisation/fixation of the metals will not treat the hydrocarbons.

Based on our original findings, and statistical analysis of results (see attached tables), the TPH was highlighted as the contaminant of concern. We then undertook a remediation feasibility review, and ex-situ bioremediation was deemed most suitable for the TPH contamination (taking into considering the goal for removal of the Lots from the EMR, the volume of soil needing treatment, the space available, and DERM preference for onsite remediation solutions). Bioremediation is a proven treatment “technology” for TPH and has been recognised as such (including by the US EPA – see attached) for many years. It does not rely on any “magic bullets” – just providing optimum conditions for the native microbe population to consume the hydrocarbons. These conditions can be “enhanced” but the addition of nutrients (typically high nitrogen commercial fertilisers or animal manure), moisture, and oxygen (turning the soil and sometimes adding organic material like straw or compost to “fluff up” or otherwise improve the soil texture to allow better oxygen permeation). Other additives may be added, for example surfactants, to enhance delivery/distribution of the nutrients, moisture and oxygen.

Our remediation strategy involves excavating soil contaminated with TPH (and co-contaminants copper, lead and zinc) and placing this soil on purpose build pads for bioremediation. The areas to be excavated were determined by the Cardno and EES previous investigations. Some mixing of already contaminated soil is inevitable – even the process of excavating the TPH/metals contaminated soil would cause this. However, we have not combined any contaminated soil with soil from areas that were deemed “clean” based on those investigations.

As stated in our remediation strategy, we will collect validation samples from the soil in the bioremediation stockpile(s) at the completion of bioremediation and analyse these samples for TPH and metals.

We trust this allays any fears about outright “dilution” of contaminated soil using clean soil on the Bedford Road site. That has not ever been part of our remediation strategy nor will it be.

We look forward to meeting with you on Friday to get this sorted so we can all move on with confidence.

---

Type	Copper	Lead	Zinc	TPH: C <sub>6</sub> -C <sub>9</sub>	TPH: C <sub>10</sub> -C <sub>14</sub>	TPH: C <sub>15</sub> -C <sub>28</sub>	TPH: C <sub>29</sub> -C <sub>36</sub>	Benzene	Total BTEX	Benzo(a)pyrene (total)	Total PAHs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR	5	5	5	10	50	100	100	0.2		0.5	
AoPC 1 and AoPC 2											
No. samples above HILs A	17	8	12	10	25	24	23	4	12	3	7
Max	980	1500	2070	710	21700	38100	23400	8.7	185.5	3.5	99.8
Count	142	142	142	142	142	142	142	142	142	142	142
Sum	7551	8229	16791	3929	104200	294810	205670	19.7	957.6	6.9	467.3
Mean	53.18	57.95	118.25	27.67	733.80	2076.13	1448.38	0.14	6.74	0.05	3.29
Std Dev	94.05	154.48	199.39	64.06	1696.80	3912.74	2684.22	0.51	17.00	0.26	8.98
degrees of freedom	141	141	141	141	141	141	141	141	141	141	141
CV	1.769	2.666	1.686	2.315	2.312	1.885	1.853	3.706	2.521	5.405	2.729
AoPC 2											
No. samples above HILs A	11	5	8	8	15	13	12	2	9	0	2
Max	980	1500	2070	710	21700	38100	16700	1.3	185.5	0	99.8
Count	61	61	61	61	61	61	61	61	61	61	61
Sum	4008	5846	10012	3247	78710	176440	105950	5.3	763.7	0	142.3
Mean	65.70	95.84	164.13	53.23	1290.33	2892.46	1736.89	0.09	12.52	0.00	2.33
Std Dev	94.05	154.48	199.39	64.06	1696.80	3912.74	2684.22	0.51	17.00	0.24	8.98
degrees of freedom	60	60	60	60	60	60	60	60	60	60	60
CV	1.431	1.612	1.215	1.204	1.315	1.353	1.545	5.917	1.358	N/A	3.850
AoPC 1											
No. samples above HILs A	6	3	4	2	9	10	10	1	2	3	5
Max	733	558	1380	330	10000	29700	23400	8.7	115	3.5	85.5
Count	81	81	81	81	81	81	81	81	81	81	5
Sum	3543	2383	6779	682	25490	118370	99720	14.4	193.9	6.9	237.8
Mean	43.74	29.42	83.69	8.42	314.69	1461.36	1231.11	0.18	2.39	0.09	47.56
Std Dev	94.05	154.48	199.39	64.06	1696.80	3912.74	2684.22	0.51	17.00	0.26	8.98
degrees of freedom	80	80	80	80	80	80	80	80	80	80	4
CV	2.150	5.251	2.382	7.609	5.392	2.677	2.180	2.892	7.102	3.083	0.189
Health-based Soil Investigation Levels (HIL A)	100	300	400	100	100	1000	1000	1	7	1	20
Environmental Investigation Level (EIL)	60	300	200	-	-	-	-	-	-	-	-

Regards

Tracy



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**From:** Robin Wagland [<mailto:robin@mach1environmental.com.au>]  
**Sent:** Tuesday, 26 April 2011 9:06 AM  
**To:** Dan Morton  
**Cc:** Tracy Berger; Mark Stuckey; 'Barry Kim'  
**Subject:** RE: 711010 - Council Depot Bedford Road, Andergrove

Dan,

Following brief communications with Kim, there are concerns that the proposed strategy would be deemed as "dilution".

In advance of confirming a meeting, can you provide some details as to why this would not be the case and an outline remediation strategy.

Many thanks in advance.

Robin.

**Robin Wagland**  
**Principal**  
**Third Party Reviewer**

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**From:** Dan Morton [<mailto:dmorton@environmentalearthsciences.com>]  
**Sent:** Wednesday, 20 April 2011 6:50 PM  
**To:** Barry Kim  
**Cc:** Robin Wagland; Tracy Berger; Mark Stuckey  
**Subject:** 711010 - Council Depot Bedford Road, Andergrove

Dear Kim,

Please can we arrange a meeting after Easter, for you, Robin Wagland, and me and Mark Stuckey and Tracy Berger if she is available? I am in Mackay next week and the week after, back on Friday 6 May 2011. So a meeting anytime after the 10 May would be good, to allow me to gather the information.

I wish to discuss the site at the Council Depot Bedford Road, Andergrove and I wish to discuss the remediation strategy for the site, considering the following:

- the fact that there is no groundwater contamination on site;
- risk assessment deriving site specific criteria; and
- it is proposed that the metals present in the bioremediated soils be re-characterised on completion of bioremediation to reduce the primary hydrocarbon contamination and are assessed against site specific criteria for residential development.

I will provide a groundwater report and remediation strategy to you prior to the meeting.

The purpose of the meeting would be to ensure the TPR and DERM are happy with our remediation strategy for the site, especially re-characterisation of the material on completion of bioremediation to reduce the primary hydrocarbon contamination and the assessment of metal concentrations (Cu, Pb and Zn) against site specific criteria for residential development.

I hope you have a good Easter Break and we will be in touch after I am back from Mackay, Dan.

Regards,



Dan Morton - Senior Environmental Scientist  
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