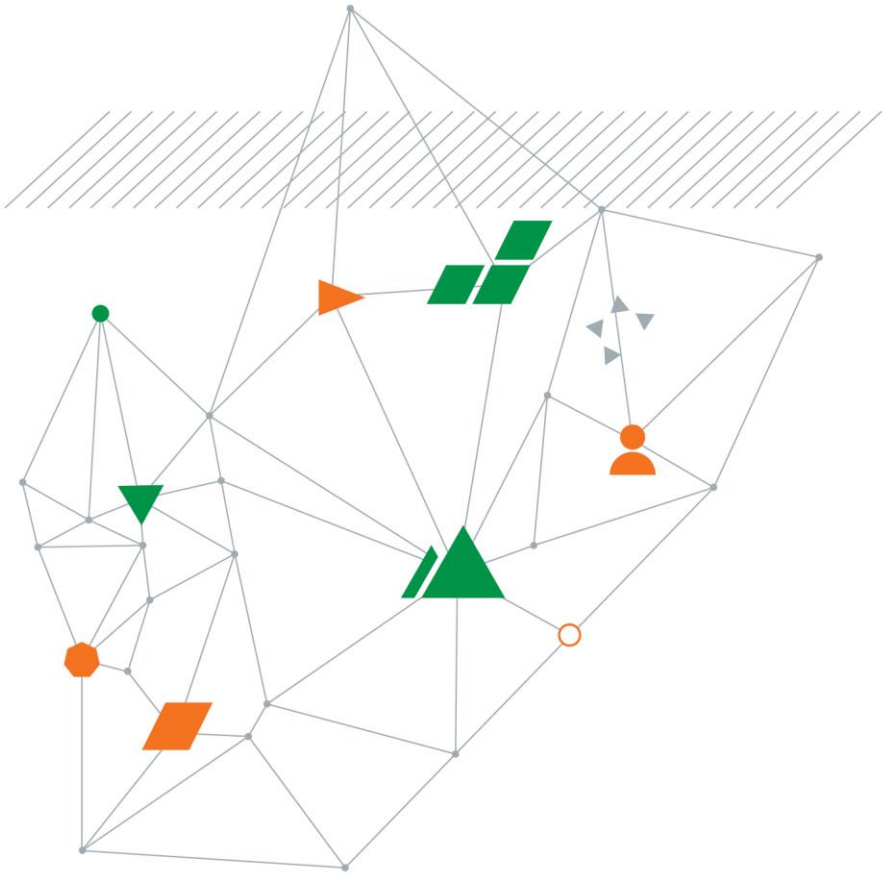
Mr Andrew Carswell

Unexpected Finds Management Plan

Part Lot 1 DP710456
39 Macquarie Street
Jamberoo NSW

19 February 2015



Real
potential
is uncovered
only when
you scratch
beneath
the surface

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Unexpected Finds Management Plan

Prepared for
Mr Andrew Carswell

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19 February 2015

ENAUWOLL04194AA-R02 Revision 1

Quality information

Revision history

Revision	Description	Date	Author	Reviewer
Final	Original	28/01/2015	Alexander Williams	Manuel Fernandez
Revision 1	Updated Section 3.2	19/02/2015	Alexander Williams	Manuel Fernandez

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Executive summary

Mr Andrew Carswell commissioned Coffey to prepare this unexpected finds management plan for the proposed subdivision in the north-eastern portion of Lot 1 DP710456 Jamberoo, NSW (the 'site'). Based on the recommendation from a Phase 1 contamination assessment, this plan was developed to manage potential contamination, should it be encountered during future site construction activities. The objectives of this plan are to manage potential unexpected finds of contamination (if any), mitigate human health and environmental risks (if any) associated with the find and provide guidance to obtain adequate management advice and allow validation.

This plan includes the details of the site and the responsible parties who are required to implement the plan. Based on the site history information on this site, this plan has identified possible unexpected finds that could be encountered at the site during earthworks or construction activities. The plan includes a procedure for site personnel to follow in the event of an unexpected find which will mitigate human health and environmental risks (if any) associated with the find. We have recommended that the nearest Coffey office be contacted in the event of unexpected find.

We have assumed that "if in doubt" about a potential find, the precautionary principal will be employed and the unexpected finds procedure activated. It is also noted that some forms of potential contamination may not be associated with any visual or olfactory indications in the field. The unexpected finds management plan will not provide protections against such finds.

This report must be read in conjunction with the attached "Important Information about your Coffey Environmental Report."

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1 Introduction

Mr Andrew Carswell commissioned Coffey Environments Australia Pty Ltd (Coffey) to prepare this Unexpected Finds Management Plan (the "plan") for the proposed subdivision in the north-eastern portion of Lot 1 DP710456 Jamberoo, NSW (the 'site'). Based on the recommendation from our previous assessment, this plan was developed to manage potential contamination, should it be encountered during future site construction activities (Coffey, 2014). This plan was prepared in accordance with our proposal dated 16 December 2014 (Ref: ENAUWOLL04194AA-P02).

The objectives of the plan were to:

- manage potential unexpected finds of contamination (if any)
- mitigate human health and environmental risks (if any) associated with the find
- provide guidance to obtain adequate management advice and allow validation.

The site is a proposed rectangular subdivision in the north-eastern portion of Lot 1 DP710456 located at 39 Macquarie Street, Jamberoo NSW. The site is approximately 800m^2 in size, with dimensions of 20m east-west by 40m north-south. A site locality and layout plan showing relevant site features is included in Figure 1, copied from our previous report (Coffey, 2014).

2 Background

The site has a history of rural land use, generally consisting of grazing activities associated with a dairy farm and private landowners.

We understand that Mr Carswell made a submission to Kiama Municipal Council (Council) to amend the north-eastern portion of Lot 1 DP710456 (the site) from the current zoning (rural residential) to low density residential. We are currently not aware of any formal development details or plans.

To assist Mr Carswell with Council's requests, we previously carried out Phase 1 contamination assessment on this north-eastern portion to support the rezoning submission (Coffey, 2014). The assessment included a site history study and site walkover to assess for potential areas of environmental concern (AEC). We did not identify potentially contaminating activities directly onsite, however fill soils containing demolition materials were noted in an offsite area within 1m of the site's western boundary. Several fragments of suspected asbestos containing materials (ACM) were observed at the ground surface in this area. Based on the results of this assessment, we concluded that further stages of investigation at the site were not considered necessary provided that demolition materials near the site are appropriately managed and are not inadvertently transported onto site. We recommended that an unexpected finds procedure be developed to manage potential contamination, should it be encountered during construction.

During a subsequent visit to Lot 1, we removed fragments of suspected ACM from the ground surface within an offsite area adjacent to the site and a clearance certificate was issued for this area. We recommended that soils in this area remain undisturbed to maintain existing conditions until the site's western boundary is fenced (Coffey, 2015).

3 Implementation of the plan

3.1 Why is the unexpected finds management plan necessary?

Due to the nature of contaminated site investigations the degree of variability in site conditions cannot be known completely and no assessment program can eliminate all uncertainty concerning the condition of a site, including those statistically based and substantially following guidelines made or approved by the relevant regulatory authorities. The previous assessment was desk based without intrusive investigations and was interpreted to provide an opinion about overall site conditions. Actual conditions may differ from those inferred to exist.

This plan is a precautionary measure (to be implemented during future construction works) to ensure that unexpected finds of contamination, if any, are appropriately managed and ensures the on-going suitability of the site's residential uses.

The plan is necessary to describe the actions to be implemented by contractors if unexpected finds are encountered during excavation/construction activities.

3.2 Who is responsible to implement this plan?

The site owner is responsible to provide advice and a copy of the Unexpected Finds Management Plan to all excavation / construction personnel prior to commencing work to identify the known potential site hazard as required under Work Health & Safety Act 2011.

The plan is to be implemented by contractors during any construction works where the ground surface may be disturbed. The plan provides a procedure to be followed in the event of an unexpected find of contamination during these development works.

The site owner is responsible for ensuring that the plan is implemented by contractors during construction works at the site.

3.3 When does this plan apply to the site?

After the site is rezoned to low density residential landuse, this plan applies for the period of construction and earthworks being carried out at the site.

After construction works are completed, this plan does not include procedures for on-going management. Should on-going management be determined to be required at a later date, than this plan should be updated or an alternative plan prepared.

3.4 Need Help?

Should help be required in the interpretation and/or implementation of the Unexpected Finds Management Plan then contact Coffey using the details below:

Contact Person: Alexander Williams (Project Manager)
Office Phone: (02) 4201 1400 – Office hours 9am to 5pm
Office Location: 118 Auburn Street, Wollongong NSW 2500

4 Identification of potential unexpected finds

4.1 Expected Conditions

The site is currently a vacant grassed area with fences along existing Lot 1 boundaries to the north and east. This procedure was prepared prior to installation of fences along the south and west boundaries.

The expected geology of the area from published sources suggests the site is underlain by mid-grey to dark-grey siltstone to fine sandstone. Our site observations suggest there is a layer of natural topsoils comprising brown-coloured sand and clay, beneath the grassed surface. Some residual clay soil may also exist.

4.2 Unexpected Finds

Unexpected finds of potential contamination on site may be identified by visual (appearance) and/or olfactory (odour/stain) evidence during earthworks and construction activities.

The following are examples of typical unexpected finds that occur on rural properties and is based on our experience. This does not infer that they will actually occur.

Buried or surface asbestos containing materials and/or buried asbestos pipes

This may include cement-bound asbestos (e.g. fibro cement in the form of small fragments, flat sheets, corrugated roofing, or pipe) or other bonded forms of asbestos (e.g. bitumen, textured coatings and floor tiles may also contain asbestos). Friable forms of asbestos including lagging and insulation may be seen as fibrous material which flakes and powders easily.

It is often very difficult to identify the presence of asbestos by sight. The only way to be certain is to have a sample of the material analysed by a laboratory.

Buried waste materials

This may include a variety of waste materials, inclusive of wood, plastic, metal fragments, building rubble (e.g. concrete, brick, asphalt, asbestos containing materials) and other general household/farm waste (e.g. tins and containers of farm chemicals and fuels). If waste materials are observed throughout the soil, this could indicate uncontrolled and poor quality fill material. We do not consider that a trivial piece or fragment of foreign material is constituted as an unexpected find (e.g. a single brick).

Hydrocarbon impacts

May be identified by a hydrocarbon odour which may vary in strength from possible (just detectable) to very strong (easily detectable at a distance from the source).

The odour may or may not be accompanied by specific areas of dark staining (e.g. black, grey or green staining), evidence of oily sheen (e.g. soil produces a coloured effect on water surface) or larger scale discolouration of strata from a previously identified ‘natural colour’.

Septic tanks (biological waste)

May be identified by a decaying odour (landfill/sewer/putrefied) which may vary in strength from possible (just detectable) to very strong (easily detectable at a distance from the source). Associated staining may be identifiable; colour and extent may vary dependant on the magnitude of spillage encountered.

Underground Storage Tanks (USTs)

These may be identified by encountering a buried cylindrical steel underground tank, deeper sand fill or relatively small concrete footings or steel pipelines, sometimes with observed hydrocarbon odours or staining.

Other unexpected finds

Other indications of contamination include various chemical odours (solvent, acetone, alcohol odour, sulphur (rotten egg), acidic (acetic/formic/citric), ammonia, or caustic) or staining and discolouration of soils.

It is not practical to cover all types of possible unexpected finds based on their very nature. It is possible that indications of contamination not specifically covered by the plan may be encountered. In such cases it is assumed that “if in doubt” about a potential find, the precautionary principal will be employed and the unexpected finds procedure (refer to Section 5) will be duly activated.

5 Unexpected finds procedure

5.1 Training and induction of personnel

All excavation/construction personnel working on the site are to be inducted on the identification of potential unexpected finds (refer to Section 4). The induction can be undertaken at the time of general site induction and toolbox meetings.

The personnel working on the site are required to have the general competencies to identify unexpected finds of contamination in the field and that this competency will be used in good faith during earthworks or construction activities.

It is not possible to provide awareness induction to cover all types of possible unexpected finds. It is possible that indications of contamination not specifically covered by the induction may be encountered. In such cases it is assumed that “if in doubt” about a potential find the precautionary principal will be employed and the unexpected finds procedure (refer to section 5) will be duly activated.

Additionally, it is noted that some forms of potential contamination may not be associated with any visual or olfactory indications in the field. The unexpected finds procedure will not provide protections against such finds.

5.2 Procedure in the event of an unexpected find

Should an unexpected find of potential contamination be encountered during the development works, the following procedure should be followed;

1. Stop work in the potentially hazardous area as soon as it is safe to do so and move to a designated meeting point.
2. Assess the potential risk to human health posed by the unexpected find and assess if evacuation or emergency services need to be contacted.
3. Delineate an exclusion/quarantine zone around the affected area using fencing and/or appropriate barriers and signage.
4. Contact the site owner and then Coffey (refer to contact details in Section 3) for advice and request an environmental consultant to visit the site to undertake an assessment of the unexpected find.
5. The environmental consultant should assess the unexpected find and provide advice as follows:
    - Preliminary assessment of the contamination and need for immediate management controls (if any)
    - What further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines.
    - Preparation of a remediation action plan (if necessary)
    - Remediation works required (where applicable)
    - Validation works required following remediation works (if applicable).
6. Works are not to recommence in the affected area until appropriate advice has been obtained from the environmental consultant and they have provided clearance.
7. If it is deemed safe to do so, the environmental consultant will provide clearance for works to proceed in the affected area. If it is not considered to be safe, works must remain on hold until appropriate assessment, remediation and/or validation measures have been actioned.

6 Closure and limitations

As discussed previously, the personnel working on the site are required to have the general competencies to identify unexpected finds of contamination in the field and that this competency will be used in good faith during earthworks or construction activities.

It is not possible to provide awareness induction to cover all types of possible unexpected finds. It is possible that indications of contamination not specifically covered by the induction may be encountered. In such cases it is assumed that “if in doubt” about a potential find the precautionary principal will be employed and the unexpected finds procedure (refer to Section 5) will be duly activated.

Additionally, it is noted that some forms of potential contamination may not be associated with any visual or olfactory indications in the field. The unexpected finds procedure will not provide protections against such finds.

This report must be read in conjunction with the attached “Important Information about your Coffey Environmental Report.”

7 References

Coffey Environments Australia Pty Ltd (2014) '*Phase 1 Contamination Assessment, Part Lot 1 DP710456, 39 Macquarie Street, Jamberoo, NSW'* (ENAUWOLL04194AA-R01, dated 5 November 2014).

Coffey Environments Australia Pty Ltd (2015) '*Removal of suspected ACM fragments, Part Lot 1 DP710456, 39 Macquarie Street, Jamberoo, NSW',* (ENAUWOLL04194AA-L01, dated 23 January 2015).

Land and Property Information (2014), Spatial Information Exchange, online map; http://maps.six.nsw.gov.au/# , accessed 04/11/2014

NSW EPA (1994), *Guidelines for Assessing Service Station Sites.*

NSW DEC (2006), *Guidelines for the NSW Site Auditor Scheme (Second Edition)*

NEPC (1999) *National Environmental Protection (Assessment of Site Contamination) Measure (NEPM),* Amended 2013

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

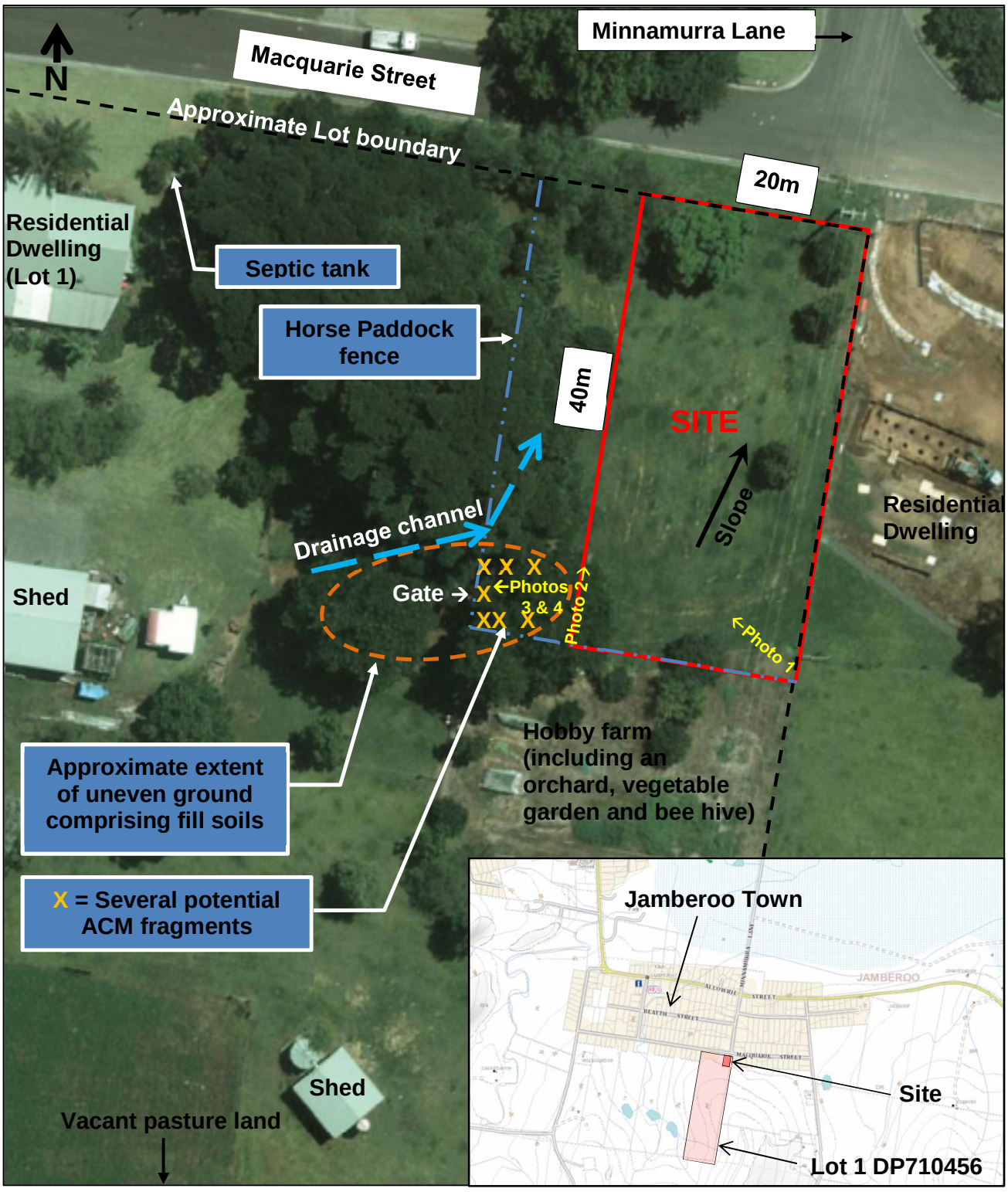

Image Reference: © Land and Property Information 2014

drawn	**AJW**	coffey	client:	**ANDREW CARSWELL**
approved	**CCQ**		project:	**PHASE 1 CONTAMINATION ASSESSMENT PART LOT 1 DP710456, 39 MACQUARIE STREET JAMBEROO, NSW**
date	**5/11/14**			
scale	**Not to scale**		title:	**SITE LOCALITY AND LAYOUT PLAN SHOWING SITE FEATURES**
original size	**A4**		project no: **ENAUWOLL04194AA-R01**	figure no: **FIGURE 1**

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