

Southlands Remediation and Development Project

Environmental Assessment Project Application (MP 06_0191)

Volume 2: Appendices (I – R)



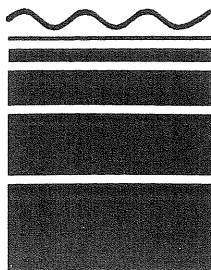
Southlands Remediation and Development Project

Environmental Assessment

Project Application (MP 06_0191)

Appendix I: Section B Site Audit Statement for Remediation Action Plan Orica Southlands





C.M. Jewell & Associates Pty Ltd

A.C.N. 056 283 295 A.B.N. 54 056 283 295

Water and Environmental Management

1/13 Kalinda Road, Bullaburra, NSW 2784, Australia

P.O. Box 10, Wentworth Falls, NSW 2782

Phone: (02) 4759 3251 Fax: (02) 4759 3257

Email: postie@cm-jewell.com.au

Ref: J1130.13L.doc

26 November 2008

The Director General
NSW Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Sam Haddad

Dear Mr Haddad

Site Audit Statement - Orica Southlands

A site audit statement and site audit report relating to the proposed development of the area known as Southlands, at Botany, is attached to this letter.

You will note that these documents are unsigned. The reason for this is as follows:

The site audit statement is a Section-B site audit statement and includes conditions. Compliance with these conditions must be enforced through conditions of development consent.

Section 3.4.5 of the 'Guidelines for the NSW Site Auditor Scheme (2nd Edition, April 2006)' states that:

Where the site audit is being done as part of the planning approval process under the Environmental Planning and Assessment Act 1979, the method for ensuring compliance with any condition must be discussed by the auditor with the consent authority, and agreed to by the authority prior to the audit's completion.

In my view, when the environmental management issues are complex, as they are for the Southlands project, it would be inappropriate for me to ask for the approval of the consent authority (in this case the Minister) before there had been an opportunity for the Minister to review the site audit and its supporting documentation in the context of the overall environmental assessment.

The site audit statement will therefore be signed once I receive the Minister's agreement to the conditions and enforcement mechanisms included thereon.

For and on behalf of
C. M. JEWELL & ASSOCIATES PTY LTD

CHRIS JEWELL

Site Auditor accredited under the
Contaminated Land Management Act 1997

Principal: Chris Jewell BSc MSc CGeol MIWEM

NSW Site Auditor Scheme SITE AUDIT STATEMENT



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

This form was approved under the Contaminated Land Management Act 1997 on 21 February 2005. For more information about completing this form, go to Part IV.

PART I: Site audit identification

Site audit statement no: SA263

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

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

Name: Christopher Jewell

Address: 1/13 Kalinda Road, Bullaburra, NSW 2784

Phone: 4759 3251

Fax: 4759 3257

Site details

Address: 1 McPherson Street, Banksmeadow, NSW 2019

Property description:

The site is identified as Lot 1 in DP85542, Lot 11 in DP109505, Lot 2 in DP1078077, Lot 1 in DP254392, Springvale Drain that passes through Southlands, and Unformed Public Road - Nant Street, in the Parish of Botany, County of Cumberland, as shown on the attached plan.

Local Government Area: City of Botany Bay Council

Area of site: 189,240 m²

Current zoning: 4(a) Industrial

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

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

Declaration of Remediation Site No. 21074: Orica Botany Groundwater Plume, dated 9 February 2005.

Agreement to Voluntary Investigation Proposal No. 26030, dated 21 May 2002.

* *Strike out as appropriate*

C M Jewell and Associates Pty Ltd

Declaration/Order/Agreement/Notice* no(s) (continued)

Agreement to Voluntary Investigation Proposal No. 19014, dated 21 May 2002.

Agreement to Voluntary Investigation Proposal No. 26004, dated 24 February 2000.

Agreement to Voluntary Investigation Proposal No. 19033, dated 24 February 2000.

Notice under s35 of the Environmentally Hazardous Chemicals Act 1985 No. 450, dated 10 July 1997.

Notice Under s23 of the Environmentally Hazardous Chemicals Act 1985 No. 266, dated 19 July 1991.

Notice under s35 of the Environmentally Hazardous Chemicals Act 1985 No. 254, dated 14 May 1991.

Notice under s35 of the Environmentally Hazardous Chemicals Act 1985 No. 160, dated 23 February 1990.

Site audit commissioned by

Name: Mr Stephen Corish

Company: Orica Australia Pty Ltd

Address: 16-20 Beauchamp Road, Matraville NSW 2036

Phone: 02 9352 2017

Fax: 02 9352 2361

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

Purpose of site audit

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

OR

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

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

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

Information sources for site audit

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

AG Environmental Engineers Pty Ltd

Woodward-Clyde Pty Limited

URS Australia Pty Ltd

HLA-Envirosciences Pty Ltd

* Strike out as appropriate

Title(s) of report(s) reviewed:

Primary Documentation:

Remediation Action Plan, Southlands Remediation and Development Project, prepared by URS Australia Pty Ltd & Goodman Pty Ltd (ref. 43217542), dated 2 October 2008

Human Health Risk Assessment, Southlands Remediation and Development Project, prepared by URS Australia Pty Ltd (ref. 43217543), dated 2 October 2008

Secondary Documentation:

Review of Environmental Factors, Temporary Aquifer Storage and Recovery Report No. EN.1591.61.025.

Review of Environmental Factors, Infilling of Springvale Drain Re-alignment Channel, prepared by URS Australia Pty Ltd (ref. 43217757), dated 29 July 2008

Temporary Aquifer Storage and Recovery (TASR) - Groundwater Flow Modelling and Assessment, JBS Environmental, dated 31 May 2008

Review of Temporary Aquifer Storage and Recovery (TASR) – Groundwater Flow Modelling Assessment, A.D. Laase Hydrologic Consulting, dated 24 June 2008

Draft Report Surface Water and Ambient Air Monitoring Program for Springvale Drain May 2007 to June 2008, prepared by URS Australia Pty Ltd (ref. 43217781), dated 19 September 2008

Environmental Monitoring at Springvale Drain - Orica Southlands, prepared by URS Australia Pty Ltd (ref. 43217651), dated 20 March 2008

Draft Remediation Action Plan, Southlands Remediation and Development Project, prepared by URS Australia Pty Ltd (ref. 43217542), dated 17 March 2008

Draft Human Health Risk Assessment, Southlands Remediation and Development Project, prepared by URS Australia Pty Ltd (ref. 43217543), dated 13 March 2008

Conceptual Site Model – Botany, prepared by URS Australia Pty Ltd (ref. 43217627, revision 0), dated 23 November 2007

Draft Human Health Risk Assessment, Proposed Southlands Development, prepared by URS Australia Pty Ltd (ref. 43217543), dated 17 October 2007

Draft Remediation Action Plan, Orica Southlands, prepared by URS Australia Pty Ltd (ref. 43217542), dated 11 October 2007

Draft Phase 1 & Limited Phase 2 Assessment, Proposed Nant Street Extension, Banksmeadow, prepared by URS Australia Pty Ltd (ref. 43217562/R001D(II).DOC), dated 25 January 2007

Sampling & Analytical Quality Plan, Limited Phase 2 Investigation, Nant Street Extension, Banksmeadow, NSW, prepared by URS Australia Pty Ltd (ref. 43217562/SAQP), dated 13 October 2006

Sampling & Analytical Quality Plan, Limited Phase 2 Investigation, Nant Street Extension, Banksmeadow, NSW, prepared by URS Australia Pty Ltd (ref. 43217562/SAQP), dated 27 September 2006

Letter Report, WCIE4302, Southern Plumes Source Area Delineation Investigation - February 2006, prepared by URS Australia Pty Ltd (ref. 43346038.07901), dated 19 June 2006

Proposal, Southlands Remediation and Development, Development Approval Consultancy Services, prepared by URS Australia Pty Ltd (ref. 3032446), dated 17 May 2006

** Strike out as appropriate*

Orica Botany Environmental Survey, Stage 4 - Remediation, Progress Report, Southern Plumes DNAPL Source Area Delineation Investigation, August 2005, prepared by URS Australia Pty Ltd (ref. 43346038.07101, R031A_DNAPL_SOUTHERN), dated 23 December 2005.

Factual Report on Preliminary Soil Investigation, Orica Botany – Southlands, NSW, prepared by HLA-Envirosciences Pty Limited (ref. S4039401_RPT_25Aug05), dated 25 August 2005

Botany Groundwater Project, Groundwater Cleanup Plan Progress Report No. 6, prepared by Orica Engineering Pty Ltd (ref. EN1591-PR-009), Revision 0, dated 17 May 2005

Orica Botany Environmental Survey Stage 4 – Remediation, Groundwater Cleanup Plan (GCP) Quarterly Groundwater and Surface Water Monitoring Report – March 2005, prepared by URS Australia Pty Ltd (ref. 43346038.06701/R025_A), dated 16 May 2005

Sampling and Analysis Plan, Limited Environmental Investigation, Orica Botany – Southlands, NSW, prepared by HLA-Envirosciences Pty Limited (ref. S4039401_SAPRev01_6Apr05.doc), dated 6 April 2005

Draft Limited Environmental Investigation, Orica Botany – Southlands, NSW, prepared by HLA-Envirosciences Pty Limited (ref. S4039401_RPTDraft02_14June05), dated 14 June 2005

Draft Consolidated Human Health Risk Assessment 2005, prepared by URS Australia Pty Ltd (ref. R022-B), dated 31 March 2005

Botany Groundwater Project, Groundwater Cleanup Plan Progress Report No. 5, prepared by Orica Engineering Pty Ltd (ref. EN1591.61-PR-007), Revision 0, dated 16 February 2005

Orica Botany Environmental Survey - Stage 4 Remediation, Full Scale Reactive Iron Barrier (FSRIB) - Data Gaps - Module 2a, prepared by URS Australia Pty Ltd (ref. 46160-005/R010_A), dated 12 May 2004

Block 2 Southlands DNAPL Investigation, prepared by AGC Woodward-Clyde Pty Limited (ref. R004-A.DOC), dated August 1996

State Pollution Control Commission, ICI Botany Environmental Survey, Stage 1 Preliminary Investigations, prepared by A G Environmental Engineers in association with Woodward-Clyde Consultants (USA), dated May 1990

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

- Regional geological and topographic mapping
- Regional hydrogeological data

Site audit report

Title: Site Audit – Suitability of Remediation Action Plan, Southlands – 1 McPherson Street, Banksmeadow

Report no: J1130.10R-rev0

Date: 25 November 2008

** Strike out as appropriate*

PART II: Auditor’s findings

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

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

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

Section A

- ☒ I certify that, in my opinion, the site is ~~SUITABLE~~ for the following use(s) (tick all appropriate uses and strike out those not applicable):
- ☒ Residential, including substantial vegetable garden and poultry
 - ☒ Residential, including substantial vegetable garden, excluding poultry
 - ☒ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
 - ☒ Day care centre, preschool, primary school
 - ☒ Residential with minimal opportunity for soil access, including units
 - ☒ Secondary school
 - ☒ Park, recreational open space, playing field
 - ☒ Commercial/industrial
 - ☒ Other (please specify)

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

.....

.....

OR

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

Overall comments

Section B

Purpose of the plan¹ which is the subject of the audit: Remediation

I certify that, in my opinion:

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

AND/OR

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

AND/OR

- ☒ the site CAN BE MADE SUITABLE for the following uses (tick all appropriate uses and strike out those not applicable):

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

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

Remediation Action Plan – Southlands Remediation and Development Project,
prepared by URS Australia Pty Ltd, and dated 2 October 2008.

subject to compliance with the following condition(s):

1. All permanent structures built on the site that are designed for regular occupation shall have permanent vapour intrusion mitigation measures incorporated in their design and construction.
2. All permanent structures built on the site that are designed for occasional use or occupation only shall be subject to approved vapour intrusion management plans.

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

3. Prior to issue of a construction certificate in relation to any permanent above-ground works on the site, the following secondary documentation shall be reviewed and approved by a site auditor:

- a) Compensatory flood storage area groundwater reticulation system detail design.
- b) Vapour intrusion conceptual model and preliminary remedial options study.
- c) Detailed vapour intrusion mitigation measures for site structures.
- d) Interim verification data plan.
- e) Detailed barrier design.
- f) Perimeter area detailed design.
- g) Groundwater monitoring well replacement program plan.
- h) Further assessment of the extent of impacted soils investigation report.
- i) Waste classification report and management plan.
- j) Construction environmental management plan.
- k) Remediation communications plan.
- l) Remediation validation plan.

Approval of these documents shall be provided in the form of Section B of a Site Audit Statement signed by the Site Auditor.

4. Prior to issue of an occupation certificate in relation to any permanent structures on the site, the following secondary documentation that is relevant to a specific structure or structures shall be reviewed and approved by a site auditor:

- a) Validation report, including verification of vapour risk mitigation measures.
- b) Long-term environmental management plan.

Approval of these documents and of the suitability of the site for its proposed use shall be provided in the form of Section A of a Site Audit Statement signed by the Site Auditor.

The existence and enforceability of the long-term environmental management plan shall be appropriately noted on Planning Certificates issued under s149 of the Environmental Planning and Assessment Act 1979.

The Site Auditor has accepted that these measures to manage off-site risks have been implemented and are effective, because they have been approved by the regulatory authorities identified above. These authorities have the capacity to require any changes to the measures that may become necessary in the future. The Site Auditor is satisfied that the proposed remediation will not reduce the effectiveness of the existing groundwater containment areas. Consequently, the site audit has focussed on on-site issues.

The Site Auditor has reviewed the relevant documents and concluded that the proposals outlined in the remediation action plan are based on an appropriate assessment of adequate data, and are technically feasible, environmentally justifiable and consistent with relevant laws, policies and guidelines. The Site Auditor considers that if all the measures set out in the remedial action plan are implemented and the conditions of this site audit statement are complied with, then the site can be made suitable for the proposed industrial and commercial use.

Overall comments

The site that is the subject of this Site Audit Statement has also been the subject of detailed and extensive geoenvironmental investigations and assessments extending over the period from 1990 to 2008. These investigations have shown that geological materials (including surface water and groundwater) at and below the surface of the site are severely and extensively contaminated with a wide range of anthropogenic chemicals including, particularly, a number of chlorinated hydrocarbons. Several plumes of groundwater contaminated with chlorinated hydrocarbons extend beneath the site, and continue beyond the site boundaries. Some of these compounds are dense non-aqueous phase liquids (DNAPL) and they are present in dissolved, adsorbed and separate phases.

As discussed in the attached site audit report and the documents upon which that report relies, in particular the Conceptual Site Model for the Orica Botany Contamination Projects developed by URS Australia Pty Ltd (November 2007), and the Remediation Action Plan for Southlands, also prepared by URS (October 2008), these investigations and assessments have resulted in a good general understanding of the distribution of contaminants on and beneath the site, but do not permit highly detailed three-dimensional mapping of this distribution. Given the chemical and physical properties of the contaminants, the complexity of the geological system and the dynamic nature of groundwater flow, such detailed mapping may never be possible.

The Site Auditor is satisfied that the remediation strategy set out in the remediation action plan prepared by URS does not rely upon precise definition of the contaminant distribution, and that the nature and extent of contamination have been determined to the degree necessary to enable effective implementation of the plan.

The Site Auditor is also satisfied that the extent of the DNAPL source zones has been defined to the degree necessary to ensure that the activities envisaged in the remedial action plan will not further mobilise these materials, or restrict future remediation of the source zones should that prove to be technically feasible.

The investigations have also enabled an adequate assessment of the risks to human health posed by the contaminants of concern, as outlined in the attached site audit report, and the Human Health Risk Assessment report (URS, October 2008) upon which the site audit report relies.

The remediation action plan does not propose the removal of contaminants from soil and groundwater at the site; rather, it sets out an approach to control and manage future on-site exposure to these materials so that human health risks remain within acceptable limits. The Site Auditor considers that, given the site constraints, this is an appropriate approach.

The remediation action plan does not include measures to control exposure to chemicals transported off the site by groundwater flow. Such measures, including the operation of containment lines (groundwater pumping and subsequent treatment) and restrictions on groundwater use, have been implemented through a Notice of Clean-Up Action issued by the Environment Protection Authority (under the Protection of the Environment Operations Act 1997), and by restrictions on the use of groundwater in the impacted areas imposed by the Department of Water and Energy.

PART III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority under the *Contaminated Land Management Act 1997* (Accreditation No: 9810)

I certify that:

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

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

Signed Date

PART IV: Explanatory notes

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

How to complete this form

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

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

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

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

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

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

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

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

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

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

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

Where to send completed forms

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

Department of Environment and Conservation (NSW)

Contaminated Sites Section

PO Box A290, SYDNEY SOUTH NSW 1232 Fax: (02) 9995 5930

AND

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