

**Phase 1 Environmental Site Assessment
Erskine Park Estate
Lots 92 & 93 DP 838541, 562-568 Mamre Road
Erskine Park**

15 June 2004

Prepared for:

CGP Management Pty Ltd

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HLA Ref: S6000602_RPTFinalRev01_15Jun04



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Phase 1 Environmental Site Assessment
Erskine Park Estate
Lots 92 & 93 DP 838541, 562-568 Mamre Road, Erskine Park
15 June 2004

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This document was prepared for the purpose described in our proposal dated 18 June 2003. From a technical perspective, the subsurface environment at any site may present uncertainty. It is a heterogeneous, complex environment, in which small subsurface features or changes in geologic conditions can have impacts on water and chemical movement. Uncertainties may also affect source characterisation assessment of chemical fate and transport in the environment, assessment of exposure risks and health effects, and remedial action performance.

HLA's professional opinions are based upon its professional judgement, experience, and training. These opinions are also based upon data derived from the testing and analysis described in this document. It is possible that additional testing and analysis might produce different results and/or different opinions. HLA has limited its investigation to the scope agreed upon with its client. HLA believes that its opinions are reasonably supported by the testing and analysis that have been done, and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. That standard of care may change and new methods and practices of exploration, testing, analysis and remediation may develop in the future, which might produce different results. HLA's professional opinions contained in this document are subject to modification if additional information is obtained, through further investigation, observations, or validation testing and analysis during remedial activities.



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EXECUTIVE SUMMARY

INTRODUCTION

CSR Limited (CSR) owns Erskine Park Estate, a parcel of land comprising Lots 91, 92 and 93 in DP 838541. The majority of this estate (approximately 150 hectares) comprises Lots 92 and 93 (the Site), which CSR may develop for a mixture of commercial/industrial and open space (wildlife corridors). The Site is divided by Enviroguard landfill and associated quarry overburden materials into the Eastern Lands (approximately 120 hectares) and Western (approximately 30 hectares) Lands. The Eastern Lands comprise Precincts 2 and 3, whilst the Western Lands comprise Precincts 1 and 5. Precinct 4 is occupied by Enviroguard Landfill facility and quarry overburden and is not included within the scope of this report.

HLA-Envirosciences Pty Limited (HLA) was engaged by CGP Management Pty Ltd on behalf of CSR Limited to conduct a Phase 1 Environmental Site Assessment of the Eastern and Western lands of the Erskine Park Estate to identify opportunities and constraints to Site development.

SITE HISTORY

The Site has had a history of agricultural land use from the early 1880s to 1960. Since 1960, the Site has been operated for extractive industry (ie: quarrying of basic igneous rock) and stockpiling of quarry overburden materials. Quarrying activities had ceased by (approximately) the early 1990s, when operation of a NSW EPA licensed landfill facility commenced. The quarry/landfill occupies Lot 91. During quarrying and landfill operations, the majority of the CSR lands have remained vacant.

SITE GEOLOGY AND HYDROGEOLOGY

Site geology is characterised by clay soils overlying Wianamatta Group sedimentary (sandstone, siltstone, shale, claystone and laminite) bedrock. Within this sedimentary rock, an intrusion of basic igneous rock was present, which was subsequently extracted during quarrying operations. The basic igneous rock with inclusions of the surrounding sedimentary bedrock (breccia) forms the majority of the quarry overburden materials. Groundwater in the sedimentary bedrock occurs at depths greater than 20m below ground surface.

CURRENT SITE USE

The Eastern Lands are predominantly vacant, whilst the Western Lands comprises vacant land and areas that are used for concrete batching operations, construction staging area for works associated with road infrastructure projects, a Cleanaway depot facility and administration and maintenance activities associated with Enviroguard Landfill. Some uncontrolled tipping of soil fill, construction spoil, motor vehicles and assorted rubbish has occurred at the Site.

CONCLUSIONS

Western Lands - Precinct 1

The area between Mamre Road and the creek line is currently pasture and has not previously been subject to significant development. There are three derelict buildings in this area and a small rubbish disposal area however, there is no evidence of any significant contamination-related constraint to future industrial development. Investigation for the presence of hazardous building materials (in both current and destroyed buildings and stockpiles of building materials) and targeted Phase 2 contamination investigation may be required prior to Site preparation.



Western Lands - Precinct 5

Precinct 5 incorporates extensive industrial activity and contains a number of potentially contaminating activities. It is likely that this area would be generally suitable for the intended commercial/industrial land use. However, due to past potentially contaminating activities in specific areas at the Site, a targeted Phase 2 contamination investigation may be required to confirm the suitability of soils in these areas. Similarly, investigation for the presence of hazardous building materials (in both current and destroyed buildings and stockpiles of building materials) should be carried out prior to Site preparation.

Eastern Lands - Precincts 2 and 3

The eastern lands have been predominantly undeveloped other than in relation to clay extraction, dam construction and low-impact activities such as farming and aero club operation. There is no evidence of any significant contamination-related constraint to future industrial development in these areas.

1 INTRODUCTION

CSR Limited (CSR) currently owns the parcel of land known as the Erskine Park Estate, located at 562-568 Mamre Road, Erskine Park, NSW (refer Figure 1). Erskine Park Estate comprises Lots 91, 92 and 93 in Deposited Plan 838541.

CGP Management Pty Limited on behalf of CSR engaged HLA-Envirosciences Pty Limited (HLA) to conduct a Phase 1 Environmental Site Assessment (ESA) of Lots 92 and 93 in DP 838541 (the Site). The boundary of the Site area investigated is shown on Figure 2. The Site represents an approximate area of 151 hectares¹ (ha) and comprises an eastern portion (approximately 120 ha) and western portion (approximately 30 ha). The eastern and western portions of the Site are separated by Enviroguard Landfill and quarry overburden materials.

Within the overall study area, four precincts (1, 2, 3 and 5) have been identified as the development lands and are the subject of this report. A fifth precinct (No. 4) contains the Enviroguard Landfill and is not part of the development lands. Precincts 1 and 5 form the Western Lands of the Site, whilst Precincts 2 and 3 form the Eastern Lands. The Eastern Lands are predominantly vacant land, whilst the Western Land comprise vacant land and areas that are used for concrete batching operations, construction staging areas and a Cleanaway depot facility (Lot 93) and administration and maintenance activities associated with Enviroguard Landfill (Lot 92).

Lot 91/DP 838541 (17.227 hectares – Precinct 4), formerly utilised for quarrying purposes, is currently operated by Enviroguard Pty Ltd as a solid waste class landfill. Quarry overburden materials are situated adjacent to the former quarry on Lot 93/DP 838541. Lot 92/DP 838541 (3.8 hectares) is currently utilised by Enviroguard Pty Ltd for purposes associated with the land filling operations (offices, workshops etc). Lot 91 in DP838541 and quarry overburden materials located within Lot 93 are not included within the developable lands of the Site.

The ESA was undertaken as part of the Master Planning for Erskine Park Infrastructure and CSR lands, primarily to identify opportunities and constraints to Site redevelopment. HLA understands that future Site use may entail commercial/industrial activities on Precincts 1, 2, 3 and 5, creation of bushland and open space on Precinct 4 and retention of some existing bushland for wildlife corridors.

¹ Lot 91 is approximately 17.2 ha (and is not included within the Site area)



2 OBJECTIVES

The objectives of the ESA are to:

- Document the history of the Site;
- Identify potential contamination areas and types;
- Discuss the Site condition;
- Provide a preliminary assessment of Site contamination;
- Evaluate any potential liabilities with regard to contamination; and
- Identify constraints to future industrial development.

3 SCOPE OF WORK

The scope of work for the ESA included a desktop study, review of statutory information, Site inspection and preparation of this report. Research into historical activities conducted on-site was undertaken to identify past and present potentially contaminating activities that may have occurred.

All investigative work was conducted in accordance with the following applicable guidelines:

- National Environment Protection Council (1999) *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM) - was considered throughout the entire investigation;
- NSW EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites* - were followed throughout the investigation and during preparation of this report; and
- NSW EPA (1998) *Guidelines for the NSW Site Auditor Scheme* - were used to apply the NSW EPA decision processes for assessing redevelopment of urban sites.

The scope of work undertaken during the ESA included:

- A review of Council records, including certificates pertaining to the Site issued under Section 149 of the Environmental Planning and Assessment Act 1979;
- A review of Penrith City Council Development Application (DA) records for the Site;
- A search of the NSW Environment Protection Authority (NSW EPA) records;
- A review of Land Titles Office documents;
- A search of WorkCover NSW Stored Chemical Information Database;
- A search of the Department of Infrastructure Planning & Natural Resources (DIPNR) registered groundwater bore database within a 1km radius of the Site, to gain an understanding of local and regional hydrogeology;
- A review of all available DIPNR historical aerial photographs for the Site;
- A review of geological and hydrogeological information for the area;
- A review of geotechnical assessment reports prepared (by other consultants) for the Site;
- An inspection of the Site and adjacent land uses; and
- Preparation of a report detailing the methodologies used and conclusions regarding the land use suitability of the Site, based on the above.



4 SITE IDENTIFICATION

The following information describes the Site:

Item	Details
Site Owner	CSR Limited
Address	562-568 Mamre Road, Erskine Park, NSW
Lot & DP Number	Lot 92 & 93, DP 838541
Folio Identifier	92 & 93/838541
County & Parish	Cumberland & Melville
Site Area	151 hectares
Local Government Authority	Penrith City Council
Land Use Zoning	Rural 1(a) – per Interim Development Order No. 93 Partly Zone No. 4(e)(Employment) and partly Zone No. 4 (e1)(Employment Restricted) – per Penrith Local Environmental Plan 1994
Geographical Coordinates (m)	Eastern Boundary: 296600E Southern Boundary: 6255030N Western Boundary: 294050E Northern Boundary: 6256120N
Elevation (mAHD)	Eastern Boundary: (approximately) 67 Western Boundary: (approximately) 35
Locality Map	Refer Figure 1
Site Map	Refer Figure 2

Notes:

Coordinates sourced from Erskine Park U7352-6, 1:4000 Series Orthophotomap

Elevation sourced from Erskine Park U7352-6, 1:4000 Series Orthophotomap

5 SITE BACKGROUND & HISTORY

5.1 Preamble

The scope of works within HLA's proposal dated 18 June 2003 was to complete a Phase 1 ESA of portions representing 'developable land' of Lot 93 of the Erskine Park Estate (as requested by CGP Management on behalf of CSR Limited). This developable land comprised:

- Two parcels of land located to the east of the quarry/landfill, including one parcel of 4.9 ha and one of 40.3 ha (now described as the Eastern Lands); and
- Four parcels of land located to the west of the quarry landfill, including one parcel of 2.2 ha (adjacent to Mamre Road), one parcel of 3.1 ha, one parcel of 10 ha and one parcel of unspecified area (now described as the Western Lands).

On 29 October 2003, HLA was advised that the area of investigation was to include all lands to the east and west of the quarry/landfill. On 1 December 2003, HLA was advised that the ESA was to include Lot 92.

As a consequence of the adjustments in the Site area, the searches conducted for the Phase 1 ESA (as detailed in the following sections of this report) have only been performed on Lot 93. Evaluation of Lot 92 entailed a detailed inspection and interviews with Enviroguard personnel. HLA considers that the detailed inspection of Lot 92, combined with the background review information obtained for Lot 93, provides sufficient information for the purpose of this investigation.

5.2 Zoning

Lot 93, under the terms of Interim Development Order No. 93 – Penrith, is currently zoned Rural 1 (a1) and under the terms of Penrith Local Environmental Plan 1994 (Erskine Park Employment Area) the land is zoned partly Zone No.4 (e) (employment) and partly Zone No. 4 (e1) (employment restricted). The objectives of these zones are:

Zone No.4 (e) (employment)

- To prohibit certain development which is likely to have an adverse environmental effect on the amenity of adjoining localities;
- To provide opportunities for a diverse range of employment generating activities;
- To accommodate office and retail activities which are primarily intended to service persons working in the Erskine Park Employment Area;
- To permit development for the purposes of recreation facilities, child care centres or community facilities in association with, or independent of, other permitted development to serve the needs of the workforce in the area and the adjoining residential communities;
- To prohibit development of land for any purpose if, as a result of carrying out the development, there will be direct vehicular access between the land and either Erskine Park Road or Mamre Road; and
- To promote development of land with frontage to Mamre Road and Erskine Park Road if the buildings or works resulting from the carrying out of development will, by their architectural and landscape design, enhance the rural scenic character of those roads and their roles as gateways to the City of Penrith.

Zone No.4 (e1) (employment restricted)

- To prohibit certain development which is likely to have an adverse environmental effect on the amenity of adjoining localities;
- To promote development which does not have an adverse environmental effect on the adjoining residential and rural communities arising from air, noise or other pollution;
- To permit retail activities which are: (i) compatible with the concept of the employment area; and (ii) unlikely to prejudice the viability of existing business centres, or are primarily intended to service persons working in the Erskine Park Employment Area;
- To permit office development of a type which: (i) would not be readily located in a traditional business zone; and (ii) would be unlikely to prejudice the viability of existing business centres; and
- As per the three final bullet points for Zone No. 4 (e).

Rural 1 (a1)

- Agriculture (other than pig keeping or poultry farm establishments) and forestry.

5.3 Council Information

5.3.1 Section 149 Certificate

A copy of the Planning Certificate from the Penrith City Council, issued under Section 149 of the Environmental Planning and Assessment Act 1979 was obtained and is included in Appendix A.

HLA notes that in Section 149 Planning Certificates, a Council must report any current declarations, orders and voluntary proposals, and the existence of any Site Audit Statements provided to the Council by the EPA under the Contaminated Land Management Act 1997 (Section 59). A Council may, in a planning certificate, include advice on other matters affecting the land, for example the existence of any council policy that restricts certain development of the land because of the risk of contamination.

With respect to the Contaminated Land Management Act 1997 (CLM Act), the certificate highlighted that:

- Lot 93 is not within land declared to be an investigation area or remediation site under Part 3 of the CLM Act;
- Lot 93 is not subject to an investigation order or a remediation order within the meaning of the CLM act;
- Lot 93 is not the subject of a voluntary investigation proposal (or voluntary remediation proposal) under section 19 or 26 of the CLM Act; and
- Lot 93 is not the subject of a site audit statement within the meaning of Part 4 of the CLM Act.

The certificate also highlighted the following:

- Lot 93 does not include or comprise critical habitat;
- Lot 93 is not in a conservation area;
- An item of environmental heritage is not situated on Lot 93;

- Lot 93 is not affected by the operations of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works;
- Lot 93 is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961;
- Lot 93 is not affected by a policy adopted by council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk;
- Lot 93 has been identified as bush fire prone land;
- When considering any DA Council must have regard to the Threatened Species Conservation Act 1995;
- Lot 93 is affected by a tree preservation order;
- Lot 93 is affected by a right of way and easement for services of variable width. It is Council's policy not to allow development within the easement;
- Lot 93 is affected by an easement for electricity purposes 3 metres wide. It is Council's policy not to allow development within the easement;
- Lot 93 is affected by an easement for water supply over existing line of pipes. It is Council's policy not to allow development within the easement;
- Consent has been given over the subject property for a waste disposal depot (development Notice No. 442/84 issued on 30/7/86); and
- A "deferred commencement" consent under section 91AA of the Environmental Planning and Assessment Act 1979 has been granted over the subject property for the 'construction of industrial buildings for use as vehicle and waste bin service, workshop, depot and administration centre' (DA950002; 7/9/95).

5.3.2 Development Applications

HLA requested Penrith City Council to conduct a full search of DA records and any other present or historical data that may be held for Lot 93 DP838541, 562-568 Mamre Road, Erskine Park. Council provided the following information (refer Appendix B):

Identifier	Date ¹	Description
DA03/0336	4/9/2003	Road System
DA98/0128	2/7/1998	Increase in production of concrete plant
DA97/0261	14/8/1997	Temporary facility for concrete products manufacture (including batching plant for period of 2.5 years from date of commencement)
DA95/0018	9/5/1995	Stone Storage Depot
DA163/92	11/11/1992	Rehabilitation of existing quarry through non-putrescible waste disposal
DA442/84	30/7/1986	Waste Disposal Facility

Note:

1 = Date of Consent

5.4 Historical Certificates of Title

A review of Certificates of Title obtained through the Land Titles Office was undertaken for Lot 93 in DP 838541 to provide details of historical ownership and possible previous use of the Site. The records indicated that Lot 93/DP838541 was identified as Portion 77 and 85 Parish Melville (a) and Lot 9 DP229784 (formerly Portion 78 Parish Melville) (b). Review of the information

indicated that (a) and (b) each occupied (approximately) 50% of the current Site, with (a) representing the northern portion and (b) the southern portion. A summary of historical proprietors is shown below:

Lot 93/DP838541

- 1994 to date: CSR Limited.

Portion 77 & 85 Parish Melville (a)

- 1985 to 1994: CSR Limited;
- 1960 to 1985: National Contractors Pty Limited²;
- Prior to 1960: Crown Land;
- 1946 to 1960: settlement purchase to Arthur Renwick Poolman & Nena Christina Alice Taylor;
- 1934 to 1946: settlement purchase to Percy Samuel Poolman;
- 1923 to 1934: settlement purchase to Horace Walter Chard; and
- 1919 to 1923: settlement purchase to Charles Hely.

Lot 9/DP 229784 (b)

- 1985 to 1994: CSR Limited;
- 1964 to 1985: National Contractors Pty Limited;
- 1964 to 1964 (Portion 78 Parish Melville): Leslie James O'Neill;
- Prior to 1964: Crown Land;
- 1940 to 1964: settlement purchase to Leslie James O'Neill;
- 1924 to 1940: settlement purchase to Herbert Hodges; and
- 1919 to 1924: settlement purchase to Francis Roberts.

Review of provided titles diagrams indicated that Portion 85 (approximately) occupied lands that are now located within Lot 91 (ie: Quarry/Landfill), with a small portion of land extending to (the current intersection of) Erskine Park Road and Lenore Lane. The diagram indicates a number of 'hillock' type features, which presumably represent the location of the quarry.

Portion 77, located to the north and east of Portion 85 was known as "Farm B". Portion 78, located to the south of Portion 85, was known as "Farm C".

Copies of the Certificates of Title reviewed are included in Appendix C.

5.5 Unexploded Ordnance Search

The Department of defence advises that there is no record of lands within Lot 93/DP838541 having been used for military purposes of a nature that may have resulted in ordnance related contamination (refer Appendix D).

² A CSR subsidiary

5.6 EPA Search

The NSW EPA had no statutory notices on the Site, issued under the provisions of the Contaminated Land Management Act 1997 that includes sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985 (refer Appendix D).

5.7 WorkCover NSW

A search of WorkCover NSW Stored Chemical Information Database records for the storage of dangerous goods was undertaken for Lot 93/DP838541. The information provided by WorkCover NSW (refer Appendix E) is summarised below.

WorkCover NSW Document - Dangerous Goods on 17 October 2003

The document lists 5 depots for the storage of Dangerous Goods, as summarised in the following table:

Depot	Depot Type	Stored Goods	Quantity
1	Underground Storage Tank (UST)	Class 3	9000 L
2	UST	Class 3	20000 L
3	UST	Class 3	20000 L
4	Magazine	Class 1.1	2000 L
5	Cylinder Store	Class 2.1	80 L

The document did not indicate the Licensee.

WorkCover NSW Document – Dangerous Goods on 29 January 2001

The licensee was listed as the Colonial Sugar Refinery Group (trading as Readymix Group (NSW)). The license (35/020783) was for the depots as listed in the above table.

WorkCover NSW Document – Closed File 2001

Within this document, the following was provided:

- Letter to WorkCover NSW from Enviroguard Pty Ltd (26 February 2001) advising that licensable quantities of dangerous goods are no longer stored at the premises. Enviroguard advised that 2 USTs previously identified within the quarry void had been appropriately removed and that since quarrying activities had ceased, the magazine and cylinder store were not used. Enviroguard also advised that a further two USTs identified at the Site were scheduled for removal in March 2001³;
- Copy of Application (by CSR trading as Readymix Group NSW) for Licence for the Keeping of Dangerous Goods (dated 4/4/1985). The document included Depots 1 to 5, which stored petrol (supplied by Esso), nitro-explosives (2000 kg) and 12 x 7 kg acetylene cylinders; and
- Copy of Application for a Licence to keep Explosives (dated 2/3/1977). The applicant was Construction Materials (Aust') Pty Ltd trading as the Readymix Group.

³ The location of the additional two USTs is provided in Section 6.12.

5.8 Aerial Photographs

The following information was derived from reviewing historical aerial photographs for the Site and surrounding area. The photographs are maintained and were reviewed at DIPNR in Sydney.

Photograph Details	Description
January 1947 Run 31 (Figure 3)	<p>The majority of the Site⁴ is agricultural land (series of large paddocks) with areas of scattered bushland, although an area of apparent earth-works related activities are visible in the location of the current landfill. To the north-east of this 'disturbed' area, numerous buildings are visible. These buildings are surrounded by smaller paddocks and an access road with an east-west alignment is present. Small building structures (4) are visible on the southern boundary of the Site, approximately south of the existing landfill. Many building structures are present within and to the west of the 'works' area.</p> <p>Lenore Lane is visible to the north and a creek with two dams noted, located just to the south of the Lenore Lane. Small water courses are present in the southern portion of the Site. The Sydney Water Supply pipeline is visible to the south of the Site. Land use surrounding the Site is a mixture of agricultural and bushland.</p>
1961 ⁵ Run 31 (Figure 4)	<p>Quarrying activities are occurring, with the majority of overburden materials located to the south of the quarry, extending to within close proximity of the southern Site boundary. Up to 5 buildings are visible on the southern Site boundary (east of the creek). A series of three small buildings are present to the immediate west of the creek, connected to the main access road into the quarry by a driveway. A series of small buildings are visible in the centre of the western portion of the Site, and further to the south, a small shed structure is present. Many building structures are present to the west of the quarry. Buildings observed to the north-east of the quarry (1947 photo) are less distinct (possibly removed) and the access track is obscured by grass. A mown section of grass (airstrip) is visible to the east of the quarry, trending NE-SW.</p> <p>Surrounding land uses generally appear unchanged from the 1947 photograph.</p>
July 1970 ⁶ Run 15 (Figure 5)	<p>Quarrying activities occurring and extent of excavation has increased from 1961. Overburden materials present on north side of quarry. The airstrip is visible. Numerous access tracks present across the eastern Site area, which generally is grassland and scattered bushland. A building is present to the east of the quarry, which was not present in 1961.</p> <p>Land use to the north, east and south of the Site appears relatively unchanged from previous years.</p>
April 1978 Run 14 (Figure 6)	<p>Quarrying activities are still occurring. The building located to the east of the quarry (as noted in previous photograph) is now surrounded by overburden (not located with paddock lands). Airstrip is visible and land clearing is</p>

⁴ Photograph did not include western most portion of Site

⁵ Photograph does not include eastern most portion of Site

⁶ Photograph does not include western portion of Site

Photograph Details	Description
	<p>visible just to the south of its northern terminus. An area of excavations is visible to the east of the quarry. The location of the series of buildings noted to the north-east of the quarry (refer 1947) appears to be incorporated within the quarry. The overburden to the north of the quarry appears to be undergoing re-vegetation process. An access road is present at the north-east corner of the Site, which leads to cleared area at the eastern Site boundary area. The buildings formerly located along the Site's southern boundary (east of creek) are not visible, whilst buildings to the west of the creek are still present. The Site area to the west of the creek is paddock land. Majority of the eastern Site area is paddock/bushland, although the use of access tracks appears to have diminished. The creek to the west of the quarry has been dammed and a series of small buildings are visible on the western side of the dam.</p> <p>Surrounding land uses appear to be relatively unchanged from previous years.</p>
March 1983 ⁷	<p>Quarrying in progress, with overburden materials accumulating on southern side, extending to within close proximity of southern Site boundary. Northern overburden materials are re-vegetating. Lands to east and west of quarry remain relatively unchanged. A clearly defined access track leads from the quarry to the south-eastern corner of the Site. Towards the southern end of this track two linear scrapes (excavations) are visible.</p> <p>Surrounding land uses appear to be relatively unchanged from previous years.</p>
August 1986 Run 20 (Figure 7)	<p>Quarry is visible but there is a decrease in the number of buildings noted to the (immediate) west, suggesting that quarry activities have slowed down. Land between the quarry and the creek to the west appears to be overburden materials, extending to the southern Site boundary and to the creek. The series of buildings located on the western side of the dam appear to have been removed. Buildings are still present in the western portion of the Site. The shed structures that are present at the entrance to the (current) Concrete Batching plant / Construction staging area are present. The south-eastern portion of the overburden materials appears to be used for storage activities. A series of small buildings are located in the approximate vicinity of the current concrete plant. The area of excavation to the east of the quarry is visible, whilst the clearance near the terminus of the airstrip appears to be re-vegetating.</p> <p>Land use immediately surrounding the Site remains as rural landuse and bushland. A significant increase in residential development has occurred to the north of Erskine Park Road.</p>
October 1994 Run 9 (Figure 8)	<p>Weighbridge building for landfill is present and earthmoving machines visible within quarry (ie: landfill is operating). Land to the south west of the quarry and between the creek is still exposed quarry overburden material with two stockpiles of materials present, one yellow and one white in colour. In addition, 5 smaller stockpiles (black) are visible in the approximate location of the current concrete batching plant. South eastern area of overburden materials appear to be utilised for storage activities. Lands to the east and west of the quarry remain relatively unchanged.</p>

⁷ Erskine Park U7352-6, 1:4000 Series Orthophotomap

Photograph Details	Description
	Land use immediately surrounding the Site remains as rural landuse and bushland. A significant increase in residential development has occurred in Erskine Park.
March 2002 Run 9 (Figure 9)	Lands forming the western portion of the Site (to west of creek) remain as open paddocks and the buildings appear to have been demolished. Cleanaway facility is present, with storage activities visible to the south of the facility. Construction staging area and concrete batching plant are visible. Quarry void is significantly in-filled. South-eastern overburden area utilised for storage purposes. Lands to the east and west of the quarry remain relatively unchanged. Land use immediately surrounding the Site remains as rural landuse and bushland.

5.9 Other Historical Information

The Penrith City Council website provided the following information:

- Erskine Park was the name of a 3000 acre grant made in 1818 to James Erskine (1765-1825). The grant covered an area east of (present) Mamre Road to Rope's Creek, including the current suburbs of St Clair and Erskine Park;
- Erskine Park's history has been largely rural, with some extractive industries in recent years; and
- 1992 – CSR Readymix owners of Erskine Park quarry site plan to rehabilitate the site into parkland

6 SITE CONDITION & SURROUNDING ENVIRONMENT

6.1 Regional Meteorology

The Commonwealth Bureau of Meteorology website provides the following climatic data for the Badgerys Creek weather station (closest station to the Site):

- Mean daily maximum temperatures range from 28.5°C in December, January and February to 17°C in July;
- Mean daily minimum temperatures range from 17°C in January to 4°C in July; and
- Mean rainfall ranges from approximately 95mm in January and February to 33mm in July.

6.2 Topography

Reference to the Erskine Park U7352-6, 1:4000 Series Orthophotomap indicates that:

- The Site has an overall topographic gradient falling from the east (approximately 67mAHD) to the west (approximately 35mAHD) at Mamre Road;
- The level of natural ground immediately to the east of the quarry scarp was recorded as having an elevation of 66mAHD. The base of the quarry had recorded elevations of (approximately) -30mAHD, indicating that the quarry was approximately 90m deep as at 1983.

6.3 Surface Water & Flood Potential

Surface water observed at the Site by HLA during field inspections included stormwater/sediment control dams located to the southern side of the quarry overburden materials and a dam located to the west of the quarry and a small (silted up) dam approximately located in the central portion of lands to the east of the quarry.

Many dam features observed on topographic maps, aerial photographs and the orthophotomap were not identified during HLA's field inspections. These features appear to have been removed.

Small creek channels originate from the eastern side of the Site and flow towards the south west, trend off-Site (due south of quarry) then back on-Site to the west of the quarry. A second creek feature is located along the northern Site boundary, immediately to the south of Lenore Lane. At the time of HLA's field inspections (September, October and November 2003), no water flow was observed within the creek features.

Given the Site topography and apparent ephemeral creek flow regime, the potential for flooding is considered to be low.

6.4 Proximity to Local Sensitive Environments

The creeks present on the Site flow to the west and join South Creek, approximately 1.5km to the north west of the Site. South Creek enters the Hawkesbury River at Windsor, located approximately 25km to the north of the Site. The potential for Site activities to impact upon the water quality of South Creek and the Hawkesbury River is considered to be low.

Rural and bushland areas immediately surrounding the Site represent local sensitive environments within proximity to the Site. These environments are also considered to have a low potential for receiving contamination sourced from the Site.

6.5 Regional & Site Geology

Based on an inspection of the Penrith 1:100,000 Geological Map Sheet (NSW Department of Minerals and Energy, 1991), the regional geology is dominated by carbonaceous claystones and shales of the Wianamatta Group, with localised breccia and basic igneous intrusions.

The expected geology (refer above) was substantiated by review of exploratory boreholes logs by VGT Pty Ltd⁸. This company completed a series of boreholes advanced by diamond HQ coring) to the east of the former quarry and logged the encountered conditions. The boreholes were completed to depths ranging between 25 and 60m below ground surface, which indicated that Site geology (in this area) comprises alternating layers of claystone, siltstone and sandstone. Occasional intrusions of breccia were noted in some borehole locations.

6.6 Site Soils

Soils at the Site generally consist of clays overlying bedrock. Clay soils are residual, derived from the in-situ weathering of the bedrock. Alluvial clays and silty clays are present within the creek beds. This information has been summarised from review of the following information.

ERM Mitchell McCotter Pty Ltd (ERM), March 2003⁹.

ERM completed 7 hand auger soil borings variably located across Lot 93 and one borehole in Lot 92. The borelogs were completed to a maximum depth of 1.2 metres below ground surface (mbgs). Review of the borelogs indicates that soil conditions encountered in Lot 93 comprised brown to light brown clays overlying mottled light brown-yellow-orange clays, whilst the borehole located in Lot 92 comprised fill materials (likely to be quarry overburden).

The presence of clay soils overlying bedrock was also confirmed by the VGT borelogs.

Douglas Partners Pty Ltd (DP), December 2002

DP excavated 6 exploratory test pits within the Lot 93, all located to the east of the quarry/landfill. Test pits were continued to bedrock (logged as siltstone), which was encountered at depths of 0.9 to 3.0 mbgs. Topsoil consisting of clays, silts, some roots and organic matter was encountered to approximately 0.3 mbgs at each test pit location. Stiff, red-brown to grey clays were identified between the topsoil and siltstone.

DP, October 2003¹⁰

DP completed the excavation of 83 test pits and drilling of three bores and reported:

- The western portion of Lot 93 (i.e: west of quarry/landfill) comprises stream alluvium (silty-clayey topsoil, overlying stiff to hard clays, overlying gravely clays with cobbles). Bedrock was intersected at depths of 2.7 mbgs at two locations, logged as sandstone and breccia;

⁸ Borelogs provided by CPG Management Pty Ltd (not referenced to a specific project).

⁹ CPG Management supplied Site Plan and borelogs only (ERM Project # 8030240)

¹⁰ Information summarised from DP letter to CPG, 27 October 2003

- The southern portion of Lot 93 (Construction Staging Area) comprises fill materials (road base, clay, gravel, asphalt, sand, breccia) of varying thickness (0.3 to 3.2m), overlying clay grading to shaley clay; and
- The eastern portion of Lot 93 (ie: east of quarry/landfill) – as described in preceding section. In addition, deeper clay profiles (to approximately 3.5 mbgs) were typically present within the base of the drainage depressions.

HLA, October 2003

HLA completed 24 exploratory test pits within quarry overburden materials located to the north and south of the quarry/landfill (not part of the Phase 1 study area). This investigation was undertaken to evaluate conditions within the overburden materials. Test pits were excavated to approximately 5m depth. Overburden materials (breccia, clays, gravels, silts etc) were encountered to the maximum depth of the investigation at all test pit locations. Inclusions of anthropogenic materials (44 gallon drums, car parts, scrap steel, concrete and building demolition rubble etc) were noted in overburden materials located to the south-east of the quarry/landfill.

6.7 Hydrogeology

Registered groundwater bore information was requested from the DIPNR, for bores within a 2km radius of the site. Information provided by DIPNR is presented in Appendix F and summarised in the following table:

Bore #	Bore Depth (m)	Screened Interval (m)	SWL	Distance	Comments
GW101082	40.3	30 to 39	12.43	1km – E	Bore BH4-R
GW101083	78	58 to 76	9.12	0.5km – SW	Bore BH-17A
GW101085	99.3	79 to 97	-	0.8km – E	Bore BH-16B
GW101086	69.7	50 to 67	-	0.8km – E	Bore BH-16A
GW101087	90.3	70 to 88	-	0.6km – W	Bore BH-15B
GW101088	60.2	40 to 58	-	0.6km – W	Bore BH-15A
GW102673	78	20 to 76	9.68	0.3km – S	- Water bearing zone from 30 to 78 mbgs in shale, Siltstone and sandstone - Located in Lot 91 - Salinity recorded as 4750ppm
GW102674	71.9	21 to 68	-	0.4km – SE	- Located in Lot 91 -Salinity recorded as 4400ppm
GW102674	71.9	21 to 68	-	0.4km – SE	- Located in Lot 91 -Salinity recorded as 4400ppm

Notes:

SWL = standing water level

Distance = approximate distance and direction from (approximate) centre of quarry/landfill

All bores registered for Monitoring purposes

In summation:

- These bores appear to be related to the licensing agreement with the NSW EPA for the operation of the landfill. Under such a license, regular groundwater sampling would be undertaken to evaluate the integrity of the landfill. Results of monitoring have not been provided to HLA;
- Groundwater occurs within sedimentary bedrock units at depths generally greater than 20 mbs. Review of DP information suggests that shallow groundwater (perched subsurface flow between clay and bedrock interface) is limited in extent at the Site; and
- The recorded salinity measurements indicate that the 'deep' groundwater is relatively fresh.

6.8 Current Site Use

Erskine Park Estate is currently utilised for the following purposes:

Lot 91 (Precinct 4)

Landfill operations by Enviroguard Pty Ltd.

Lot 92 (Part of Precinct 5)

Administrative and maintenance activities associated with the landfill operations (eg: offices, workshop, weighbridge etc).

Lot 93 (Precincts 1 and 5, Western Lands)

Land use includes:

- Vacant land – the majority of Precinct 1 is undeveloped former farmland;
- Cleanaway depot facility – located to the west of the quarry/landfill. Activities include the storage of vehicles and equipment and workshops. An above-ground storage tank containing diesel fuel is present near the eastern perimeter fence. Storage activities are also conducted in areas outside (to the south and east) of the depot's perimeter fence. Observed stored items included: trailers for grease trap tankers, skip bins, oil/sludge tanks, cable reels; old forklifts and trucks and hydraulic rams (for garbage trucks);
- Construction staging area – includes lands to the south and south west of the quarry/landfill. This area is utilised for the concrete construction works and storage of materials associated with construction activities for the Western Sydney Orbital. This area was formerly utilised for similar purposes during construction of the Eastern Distributor;
- Concrete Batching Plant – located to the south of the quarry/landfill and east of the construction staging area; and
- Road construction activities – were in progress at the time of HLA's field inspections on the Western Lands.

Lot 93 (Precinct 4)

- Construction Plant storage – Thiess Services utilise a portion of the quarry overburden area located to the south of the quarry/landfill as a storage area for equipment.

Lot 93 (Precincts 2 and 3, Eastern Lands)

- Clay excavation – an area to the east of the landfill/quarry is utilised for the extraction of clay materials for use in the landfill;

- Model Aeroplane Club – lands at the east of the Site are utilised for the flying of model aeroplanes. Small amenities sheds, barbeque and car parking facilities are also present; and
- Vacant Land – the majority of the Eastern Lands comprise paddocks and bushland and are not utilised for specific purposes. It is noted that an airstrip is present and that sporadic, non-authorized use by members of the general public occurs (eg: use of recreation vehicles) in the eastern portion of the Site.

6.9 Condition of Site Boundary

A wire fence is located on the Site boundary. No visible evidence of soil erosion was noted at the boundary, nor was evidence of potential contamination (eg: stressed vegetation, bare patches of soil, unusual odours etc).

6.10 Condition of Buildings & Roads

Buildings – Western Lands

Inspection of buildings within the Cleanaway compound has not been undertaken (permission for access was not obtained). Based on observations made external to the perimeter fence however, the buildings appeared to be relatively modern.

Three destroyed, derelict buildings were observed on the western portion of the Site (to the west of the creek). The observed building materials included corrugated iron, wood, steel and corrugated asbestos-cement sheeting.

A small portable amenities shed and office shed, two large painted corrugated iron sheds with concrete floor slabs (workshops) and a single storey former residence are located at the entrance to the construction staging area. Detailed inspection of the buildings was beyond the scope of this investigation, although it was noted that the paintwork on the large sheds was flaking and peeling in places. It is possible, given the age of the buildings, that the paint may contain lead.

Buildings – Eastern Lands

One sheet metal building (with no paved floor) was previously present to the south and adjacent to the airstrip. This building was in a state of disrepair and has subsequently been removed.

A shipping container (old, rusted condition) and an 'open walled' shade shelter with concrete floor slab associated with the model aeroplane club, were present on the eastern portion of the Site. In addition, two small amenities buildings constructed of sheet metal with concrete floor slabs were present. The amenities buildings (locked) appear to be pit toilet type, with night soil deposited to the ground.

Further information relating to observations of Site buildings is included in Section 6.12 of this report.

Roads

An asphalt road was present from Mamre Road to the landfill facility. All other roads and access tracks at the Site were unpaved. The majority of the Cleanaway Depot facility is asphalt paved.

6.11 Surrounding Land Use

The Site is bounded by the following:

- North – Lenore Lane, with agricultural and associated residential dwellings. To the north of western portion of the Site, a large warehousing facility is currently under construction;
- East – agricultural land;
- South – predominantly vacant bushland. The Sydney – Prospect Water supply pipeline easement is in close proximity to the south-east corner of the Site; and
- West – Mamre Road, with agricultural lands opposite.

In summation, the potential for contamination to the subject Site sourced from adjacent lands is considered to be low.

6.12 Site Inspection

Detailed inspection of the Site was conducted by an HLA Senior Environmental Scientist (Mr Alex Latham) on 13 October and 6 November 2003 and by an HLA Environmental Scientist (Mr Ben Wackett) on 10 December 2003. The inspections involved a visual assessment to identify indicators of potentially contaminated areas due to past and present Site use. Observations made at the Site are summarised below.

Lot 93 – Eastern Lands, Precincts 2 and 3

- The majority of the eastern portion of the Site is a combination of paddocks and bushland with no identified history of industrial development; and
- At the time of initial inspection in 2003, a number of areas of dumped waste were identified in scattered and isolated locations within the Eastern Lands, including car bodies, fly tipped soil and demolition materials, domestic rubbish, scrap metal and occasional drums. A small sheet metal building adjacent to the airstrip contained small quantities of oil and hydraulic fluid containers, with associated minor surface oil staining. These items were individually limited in extent and were typical of random disposal of small amounts of waste materials and did not indicate the potential for significant contamination. CSR advised HLA (June 2004) that all such materials have now been removed from the Site.

Lot 93 – Western Lands, Precinct 1

- The western portion of the Site (west of the creek/dam) is predominantly vacant paddock land. Road construction activities were in progress at the time of HLA's field inspection. Three separate former building locations were identified in this Site portion (refer B1, B2 and B3 on Figure 2), as summarised below:
 - B1: a demolished (burnt) structure, located on a concrete slab. This building appears to have been demolished by a fire. Significant quantities of damaged corrugated asbestos-cement sheeting (former walls and roof) are present. The location of this building is clearly defined on the 1961 aerial photograph, at the end of the access driveway on the western side of the creek. Approximately 25m to the south of this feature, a small rubbish disposal area is present, which contains empty paint and fuel/oil drums, wire and fencing products and corrugated asbestos-cement sheeting;
 - B2: a demolished shed, predominantly comprised of corrugated iron sheeting and steel framework. Approximate 1m lengths (damaged) of 10cm diameter asbestos-

cement piping were observed. This location likely equates to the small shed structure visible on the southern boundary in the 1961 aerial photograph;

- B3: is visible in the field as a pile of assorted rubbish, located in close proximity to the southern boundary. Materials observed included: corrugated iron, wood, trees, rusted pipes, fragmented asbestos-cement sheeting, general metal scrap and soil. HLA suspects that this pile of assorted rubbish represents the demolition remains of the main building visible in the central area of the western Site portion in the 1961 aerial photograph.

Lot 93 – Western Lands, Precinct 5

- The construction staging area (refer HLA August 2003) contained numerous stockpiles of terracotta pipes, scrap wood and steel, fly tipped concrete and rubble waste, hydraulic track mounted crane system, oil drums, fibrous sheeting materials and soil materials;
- Numerous stockpiles of waste materials, including: concrete slurry, quarry overburden, clays with terracotta fragments and steel reinforcing bars and crushed sandstone are present to the south of the CSR Concrete Batch Plant, as depicted on Figure 2;
- The Cleanaway storage area (located outside the Cleanaway depot) was observed to have areas of oil staining on exposed ground surfaces. This staining was predominantly associated with the release of oils from skip bins and from stored machinery. Uncontrolled deposits (of solids) to the ground surface were also observed in the vicinity of dilapidated storage containers of building rubble and soil fill materials and sludge waste trailers. Leakages of hydraulic oils associated with the storage of truck parts (bins, dumpsters etc) were also observed. Areas of general rubbish and scattered occurrences of bonded cement fragments were also observed;
- An above-ground storage tank (AST) of diesel fuel and workshop facilities are present within the Cleanaway depot. The AST is located within a concrete bund (bowser not observed from outside perimeter fence);
- The triangular shaped portion of land between the Cleanaway depot and the creek comprises vacant land. Two pump stations (one disused) are present on the eastern bank of the dam. This area appears to comprise quarry overburden materials, although discarded aluminium sheets, oil filters and steel gauze were observed;
- The Construction Staging Area was inspected by HLA on 1 August 2003 to evaluate baseline conditions prior to the lease of this area. A copy of the report text and photographs is included as Appendix G. In summation, potential contamination sources were identified, including: storage of waste oil in unconfined containers (44 gallon drums); presence of imported soil materials; possible former above ground storage tanks; use of the area by heavy vehicles and hydraulic machinery;
- Two underground storage tanks (USTs) formerly located adjacent to the south west corner of a large shed (refer Figure 2). The USTs (10000 and 20000 litre capacity) were removed in March 2001 by ANC Foster Pty Ltd for Enviroguard. The former contents of the USTs are unknown, although based on the environmental soil tests undertaken (refer Appendix H), diesel and waste oil products are suspected to have been stored;
- The large shed (adjacent to former USTs) was a workshop, with previous activities including the storage of paints, degreasers and electrical parts. This structure is partly constructed of corrugated iron and concrete walls, with a corrugated iron roof. The external walls have visibly flaking paint. Areas of oil staining and significant quantities of possible asbestos-containing fragments were observed within the shed;
- Enviroguard personnel (Ms Rachel Clark) also indicated that two additional USTs may be located on Lot 92 (refer Figure 2);

- An above-ground storage tank (AST) was formerly located adjacent to the north-eastern corner of the large workshop shed and was surrounded by a concrete besser block bund. Oil staining to the concrete surface was observed in the general vicinity. Pipework was observed to be present on the wall of the shed. A vent pipe emanating from the ground was also identified, suggesting that a UST may be present. A bowser point was identified approximately 8m to the west. Subsidence of the concrete platform surrounding the former AST area was observed;
- A warehouse-type shed is present to the east of the former workshop. This shed is constructed from colourbond aluminium (walls), corrugated asbestos cement (gables) and concrete (floor). This shed is currently utilised for the storage of fertilisers (eg: granular urea), paints, fuels, rubbish, cement, waste oil and displayed evidence of car maintenance activities. Surface staining of the concrete floor was observed;
- A small shed is located to the north of warehouse-type shed. The small shed appears to be constructed of asbestos containing materials;
- An amenities building is constructed of materials likely to contain asbestos. Fragments of the asbestos-like materials were present on the ground surface;
- The current workshop building is located in the eastern portion of Lot 92 and is utilised for servicing/repairing vehicles, machinery and equipment associated with the landfill operations. The building is constructed of corrugated iron (paintwork deteriorating) walls and roof and concrete floor slab. The concrete slab extends outside the building. Oil staining to the floor of the workshop building was observed. A drum storage area is located on the southern side of the building on unpaved surface;
- A battery storage area and a waste oil recycling tank are located within the transfer station building (shed) on concrete surfaces. No visible evidence of contamination was noted. The transfer Station is utilised by domestic vehicles for the depositing of materials for the landfill. A concrete bunded wheel wash area is present. No visible evidence of contamination was noted at the wheel wash area; and
- A stormwater dam is located adjacent to the main access road into Enviroguard. The water was observed to have a slight (oil-like) sheen. Fragments of asbestos-like materials were observed on the ground surface in the immediate vicinity of the dam.

Precinct 4

- The Thiess Services storage area (although not located within the study area) was observed to have potentially contaminating activities, such as storage of ASTs of oil and bitumen/tar (with visible leaks to ground), storage of plant and equipment and charcoal related to the partial combustion of copper-chrome-arsenate treated timber.

7 CONTAMINANTS OF POTENTIAL CONCERN (COPC)

Based on the available Site history and Site inspection information, there appears to be a low potential for significant or widespread contamination to have occurred in Precinct 1 (Western Lands) and Precincts 2 and 3 (Eastern Lands). However, within the industrially developed Precinct 5, a number of potentially contaminating activities have been identified. The following COPC may be present within Precinct 5:

COPC	Rationale
Heavy Metals	<p>May occur in fill originating from industrial sites or be inherently present (eg: chromium and nickel) within basalts and breccia associated with Site geology. Heavy metals may also be associated with waste materials collected and stored by Cleanaway. Heavy metals can also be associated with waste oils, sourced from workshop activities.</p> <p>Lead may be associated with painted surfaces on older building structures at the Site.</p> <p>Commonly targeted heavy metal contaminants include arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc</p>
Petroleum Hydrocarbons	<p>Occur in fuels, solvents and oils and may be present within fill materials originating from industrial sites. Hydrocarbons are commonly used as propellants in aerosol cans.</p> <p>Petroleum hydrocarbons are generally quantified by analytical laboratories as total petroleum hydrocarbons (TPH). Monocyclic Aromatic Hydrocarbons, including benzene, toluene, ethylbenzene and xylenes (BTEX) are found in fuels and are used as solvents.</p>
Polycyclic aromatic hydrocarbons (PAHs)	<p>Related to some petroleum hydrocarbon use, waste and lubricating oils and are components of bitumen/asphalt and ash. PAHs are also potentially present in fill materials.</p>
Organochlorine & Organophosphate Pesticides	<p>Related to pest control and commonly found within construction spoil fill.</p> <p>Organochlorine pesticides (OCPs) are generally targeted due to their toxicity, whilst organophosphate pesticide (OPPs) concentrations are often not determined due to their low half-life (often less than 2-3 months) and low solubility in water.</p> <p>Pesticides may have been used near the buildings and site boundary fence or may potentially be present in fill material. In addition, pesticides may have been utilised during former agricultural activities at the Site.</p>
Solvents	<p>Commonly utilised in workshops as metal cleaners (eg: degreasers) and paint thinners. Can also occur in soil fill materials.</p>
Phenols	<p>Can be naturally occurring compounds (eg: saps and resins in timber) and are often used as timber preserving agents (eg: pentachlorophenol and light organic solvent preservatives).</p>
Polychlorinated biphenyls (PCB)	<p>Historically present in electrical equipment including transformers and light fittings and may be present in fill material containing construction spoil or industrial waste. PCBs may be present in fill materials.</p>



COPC	Rationale
Herbicides	Herbicides may have been utilised during former agricultural activities at the Site. May be present in rubbish disposal pits where herbicide containers (eg: Roundup) identified.
Explosives	Historically present as residue from the detonation and/or storage of explosive materials associated with the former quarry.
Asbestos	Associated with former building construction materials (eg: B1 and B3), observed within fly-tipped stockpiles, observed on ground surface of construction staging area and Cleanaway storage area.

8 CONCLUSIONS

The Phase 1 investigation of the CSR Erskine Park site involved a review of historical data and a Site inspection to evaluate the potential for contamination to have occurred that could affect the future industrial development of the Site. Based on the available information, the findings of the study are summarised below by Precinct area as outlined in Section 1.

WESTERN LANDS

Precinct 1

The area between Mamre Road and the creek line is currently pasture and has not previously been subject to significant development. There are three derelict buildings in this area and a small rubbish disposal area however, there is no evidence of any significant contamination-related constraint to future industrial development. Investigation for the presence of hazardous building materials (in both current and destroyed buildings and stockpiles of building materials) and targeted Phase 2 contamination investigation may be required prior to Site preparation.

Precinct 5

Precinct 5 incorporates extensive industrial activity and contains a number of potentially contaminating activities. It is likely that this area would be generally suitable for the intended commercial/industrial land use. However, due to past potentially contaminating activities in specific areas at the Site, a targeted Phase 2 contamination investigation may be required to confirm the suitability of soils in these areas. Similarly, investigation for the presence of hazardous building materials (in both current and destroyed buildings and stockpiles of building materials) should be carried out prior to Site preparation.

EASTERN LANDS

Precinct 2 and Precinct 3

The eastern lands have been predominantly undeveloped other than in relation to clay extraction, dam construction and low-impact activities such as farming and aero club operation. There is no evidence of any significant contamination-related constraint to future industrial development in these areas.

9 REFERENCES

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Figures



Appendix A



Appendix B



Appendix C



Appendix D



Appendix E



Appendix F



Appendix G



Appendix H