



Remedial Action Plan
Proposed New Warehouse and Distribution Facility
2 Hume Highway, Chullora NSW

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Prepared for:
Charter Hall Core Plus Industrial Fund
Bieson Pty Limited as trustee of the CPIF Hume Highway Logistics Trust
Commercial & Industrial Property Pty Limited

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This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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Executive Summary

SLR Consulting Australia Pty Ltd (SLR) was engaged by Commercial & Industrial Property Pty Ltd (CIP - the Client) to prepare a remedial action plan (RAP) for the remediation of contaminated fill material identified within the former Fairfax Media printing building located at 2 Hume Highway, Chullora NSW (the site).

This report has been prepared in general accordance with the relevant sections of NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

The objective of this project was to prepare a RAP to address the identified petroleum hydrocarbon impacted soil identified within the Preliminary Site Investigation (PSI) (Peter J Ramsay & Associates, August 2015). This impacted area is located within the immediate vicinity of the fire water diesel pump room located within the north western corner of the site. The PSI indicates that a recent spill of diesel has resulted in a shallow soil petroleum impact above the adopted site criteria. Other areas of the site are not identified as having contamination above adopted site criteria.

SLR undertook the following scope of work to address the project objective:

- Review of available contamination related information pertaining to the site;
- Discussion and appraisal of applicable remediation options, in consideration of factors such as, but not limited to, costs, timing, and impact on proposed re-development work;
- Identification of the preferred remediation option;
- Evaluation of the steps and processes to be followed to successfully implement the preferred remediation option;
- Identification of the validation requirements for the preferred remediation option, to demonstrate that the remediation works have been conducted satisfactorily;
- Preparation of this RAP.

The remedial goal for this site is to remediate soil contamination (where identified) to a level that does not present an unacceptable human health exposure risk, to enable the proposed land use and the proposed re-development.

Based on available data for the site, the inferred extent of remediation required is likely to include the fill material present within the immediate vicinity of the fire water diesel pump room located within the north western corner of the site presented in Figure A3. The actual extent of remediation will be guided by visual observations and laboratory analytical results.

Based on the discussions with the Client and the nature and extent of identified remedial works, the following remedial options have been considered for the site:

- Excavation and removal off site; or
- Onsite treatment and re-use of petroleum hydrocarbon impacted fill.

In consideration of the qualitative scoring and ranking of the remedial option assessment criteria, the objectives of the site development, regulatory requirements, and understanding of the development construction, the preferred remedial option for the site is considered to be excavation and offsite disposal of the petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room.

Based on the information available in the contamination assessment reports, SLR considers that soils on the site can be made suitable for the land use, subject to:

- Implementation of the measures outlined in this remedial action plan; and
- Preparation of a site validation report.

Remediation monitoring, and validation works, should be undertaken by a suitably experienced environmental consultant.

Table of Contents

1	INTRODUCTION	1
1.1	General	1
1.2	Background	1
1.3	Objectives	2
1.4	Scope of Work	3
2	SITE IDENTIFICATION	4
3	SITE DESCRIPTION AND HISTORY	5
3.1	Site Condition	5
3.2	Surrounding Environment	5
3.3	Topography, Geology and Hydrogeology	5
3.4	Hydrology	6
3.5	Site History	6
3.5.1	Search of EPA Records	6
3.5.2	Aerial Photographs	7
3.5.3	WorkCover NSW	7
3.5.4	Historical Titles	7
3.5.5	Site History Summary	8
4	PREVIOUS CONTAMINATION ASSESSMENTS	9
4.1	PSI (PJR 2015) Preliminary Site Investigation	9
4.2	Summary	11
5	SITE CHARACTERISATION	12
6	REMEDIAL ACTION PLAN	13
6.1	Remedial Goal	13
6.2	Extent of Remediation Required	13
6.3	Remedial Options	13
6.4	Preferred Remedial Option	14
6.5	Remedial Sequence of Works	15
6.5.1	Approvals and Notifications	15
6.5.2	Site Establishment	15
6.5.3	Underground and Overhead Services	15
6.5.4	Demolition	15
6.5.5	Structural Stability	15
6.5.6	Remediation Works	16
6.5.7	Backfilling	16
6.6	Remediation Schedule	16
6.7	Unexpected Finds Protocol	16
6.8	Remediation Contingency Plan	17
7	VALIDATION DATA QUALITY OBJECTIVES	18
7.1	Step 1 – State the Problem	18
7.2	Step 2 – Identify the Decision	18
7.3	Step 3 - Identify Inputs to the Decision	18

Table of Contents

7.3.1	Human Health – Direct Contact	18
7.3.2	Human Health – Soil Vapour Intrusion	19
7.3.3	Waste Classification	19
7.4	Step 4 - Define the Study Boundaries	19
7.5	Step Develop a Decision Rule	19
7.6	Step 6 - Specify Acceptable Limits on Decision Errors	20
7.7	Step 7 - Optimise the Design for Obtaining Data	20
7.7.1	Validation of the Remediation	20
7.7.2	Soil Sampling Methodology – Validation	21
7.7.3	Soil Headspace Screening	22
7.7.4	Photographic Records	22
7.7.5	Location Records	22
7.7.6	Sample Identification, Storage and Transport Procedures	22
7.7.7	Laboratory Analysis	23
7.7.8	Fieldwork Quality Assurance / Quality Control	23
7.7.9	Laboratory Quality Assurance / Quality Control	24
8	VALIDATION REPORTING	26
9	SITE MANAGEMENT PLAN	27
9.1	Register of Contacts	27
9.2	Hours of Operation	27
9.3	Site Signage and Contact Numbers	27
9.4	Site Security	27
9.5	Soil and Water Management	27
9.5.1	Site Access and Egress	27
9.5.2	Stockpiles	27
9.5.3	Excavation Pump Out	28
9.5.4	Groundwater	28
9.6	Noise and Vibration	28
9.7	Air Quality	28
9.8	Transport Vehicles	28
9.9	Waste Disposal	28
9.10	Importation of Fill	29
9.11	Occupational Health and Safety	29
9.11.1	Hazard Identification and Risk Assessment	29
9.11.2	Personnel Decontamination	29
9.11.3	Personal Protective Equipment	29
9.12	Emergency Preparedness	29
9.13	Community Relations	30
10	CONCLUSION	31
11	REFERENCES	32
12	LIMITATIONS	33

Table of Contents

TABLES

Table 1	Conceptual Site Model for Identified Asbestos Impacted Soil	12
Table 2	Remedial Option Assessment Scoring Criteria	13
Table 3	Remedial Options – Petroleum Hydrocarbon Impacted Soil	14
Table 4	Remediation Contingency Measures	17
Table 5	Health-Based Investigation Level and Health Screening Level for Soil Contamination (mg/kg)	19
Table 6	Soil HSLs for Vapour Intrusion (mg/kg)	19
Table 7	Validation Sampling Density	21
Table 8	Sample Storage and Preservation Requirements	22
Table 9	Laboratory Analytical Quantities	23
Table 10	Laboratory Data Quality Indicators	25
Table 11	Limits of Reporting, Methods and Holding Times	25
Table 12	Register of Contacts	27
Table 13	Emergency Response Contacts	30

FIGURES

Figure A1	Site Locality Plan
Figure A2	Site Layout Plan
Figure A3	Extent of Remediation

APPENDIX

Appendix A	Findings of Previous Contamination Assessments Referenced in PSI (PJR 2015)
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1 INTRODUCTION

1.1 General

SLR Consulting Australia Pty Ltd (SLR) was engaged by Commercial & Industrial Property Pty Ltd (the Client) to prepare a remedial action plan (RAP) for the remediation of contaminated fill material identified within the former Fairfax Media printing building located at 2 Hume Highway, Chullora NSW (the site).

This report has been prepared in general accordance with the relevant sections of NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

1.2 Background

Based on the information provided to SLR, we understand the following:

- The site is identified as Lot 12 in DP 834734 and occupies a calculated area of 10.28 hectares (ha);
- The site is presently occupied by a decommissioned printing facility formerly owned by Fairfax Media and is proposed to be re-developed into a warehouse and distribution facility;
- The proposed re-development includes placement of up to 9.5m of fill on top of concrete hardstand within approximately 80% of the site. The remaining 20% of the site will be residual site;
- A number of previous environmental assessments have been undertaken at the site between 1990 and 2015;
- As part of the construction of the existing decommissioned printing building in the early 1990s, the site was subject to extensive remediation work. The remedial work comprised of excavation and offsite disposal of TPH, heavy metals and PAH impacted soils from the identified areas;
- A RAP (prepared by Australian Defence Industries (ADI) in 1993) was referenced in the Preliminary Site Investigation (PSI) prepared by Peter J Ramsay & Associates (PJR)¹ in August 2015. The PSI (PJR 2015) states that the site was considered as appropriately remediated in December 1993 in accordance with the ADI's RAP. An environmental data review (EDR) (prepared by WSP Environmental Pty Ltd (WSP) in August 2014) was referenced in the PSI (PJR 2015). The PSI (PJR 2015) states that the EDR was undertaken to collate information regarding historical earthworks and commercial development of the site in the 1990s. Based on the review of EDR by PSI (PJR 2015), PSI (PJR 2015) states that a letter between the remedial contractor and the Bankstown City Council dated 11 January 1994 indicated that the remedial works were completed in late 1993. It further states that the letter makes a provision for the 'on site containment' of asbestos sheets that may be encountered during the remedial excavation;
- The PSI (PJR 2015) further states that the EDR prepared by WSP indicate that significant earthwork occurred across the site during the mid-1990s. During the earthworks and reshaping of the site, some low level contaminated fill, fill material impacted by historical rail yard maintenance practices, was likely to have been placed or reused within areas of the site that required filling. No surveys were provided that may indicate where any fill or asbestos may have been buried within the site. The fill material may have remained in-situ following the remedial works;
- Following the decommissioning of the printing facility, PJR was engaged to prepare a PSI with limited soil and groundwater sampling and identified areas of environmental concern requiring remediation;
- The PSI (PJR 2015) identified the following two areas of environmental concerns:

¹ PSI (PJR 2015), "Preliminary Site Investigation, Former Fairfax Printing Building, 2 Hume Highway, New South Wales" dated 27 August 2015

- Asbestos in soil at a single sample location at a depth of 2.0m below ground level (bgl) within the car park in the eastern portion of the site; and
- Petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room located within the north western corner of the site.

The PSI (August 2015) represents the integration of the previous site assessments undertaken at the site and develops the conceptual site model on which this RAP is based.

The development plans for the proposed re-development indicates significant filling will be undertaken to raise site levels. Information obtained from the Client indicates that there will be minor excavation as part of the site clearance and the majority of the site will be under fill to a maximum of 9.5m. Based on this, the identified asbestos encountered at a single sample location at 2.0m bgl in borehole BH04 in PSI (PJR 2015) and the presence of existing capping layer above the identified impacted depth, it is considered the identified asbestos which was encountered is unlikely to pose any risk to current and future site users based on the current configuration or the proposed future configuration of the site. However, an Unexpected Finds Protocol (UFP) has been compiled to enable management of unexpected contamination issues (including asbestos in soil) encountered during the site development construction phase.

- The Client is planning to lodge a Stage Significant development application with the NSW Department of Planning and Environment (DP&E) for the redevelopment of the site and a RAP is considered appropriate to detail the proposed remedial works.

This RAP outlines the proposed remediation works to render the site suitable for the proposed land use and the proposed re-development. Any significant issues identified relating to land contamination (as identified through previous investigations, and integrated within the PSI) have been addressed in the current SLR RAP and none remain unaddressed.

1.3 Objectives

The objective of this project was to prepare a RAP to provide details of remediation and management of contamination issues to facilitate the proposed development. Specifically, the RAP addresses the identified petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room located within the north western corner of the site.

The RAP will aim to:

- Summarise information previously presented on site identification, site history, site condition and surrounding land use;
- Provide a summary of the site characterisation with regards to contamination, showing the extent of remediation works required;
- Present remediation acceptance criteria, to ascertain the success of the remediation works;
- Present the remediation goal and discuss available and applicable remediation options;
- Identify a preferred remediation option, and provide a rationale for the selection;
- Discuss the remediation process and the relevant steps;
- Present a validation strategy to assess the success of the remediation works;
- Provide a remediation contingency plan;
- Provide a site management plan to be followed during the remediation works; and
- Provide an outline of a safety plan for the remediation works, to be prepared by the remediation contractor.

1.4 Scope of Work

SLR undertook the following scope of work to address the project objective:

- review of available contamination related information pertaining to the site;
- discussion and appraisal of applicable remediation options, in consideration of factors such as, but not limited to, costs, timing, and impact on proposed re-development work;
- identification of the preferred remediation option;
- evaluation of the steps and processes to be followed to successfully implement the preferred remediation option;
- identification of the validation requirements for the preferred remediation option, to demonstrate that the remediation works have been conducted satisfactorily;
- preparation of this RAP.

2 SITE IDENTIFICATION

The locality of the site is presented in Figure A1. The layout of the site is presented in Figure A2, which was prepared based on a figure obtained on 24 September 2015 (Nearmap), showing the site features as of 1 September 2015.

The site is legally identified as Lot 12 of DP 834734 and is located at 2 Hume Highway, Chullora NSW. The site covers a calculated area of 10.28ha. The lateral extent of the site is defined by the blue outline on Figure A2.

3 SITE DESCRIPTION AND HISTORY

The site description and history information presented below has been extracted from PSI (PJR 2015)².

3.1 Site Condition

PSI (PJR 2015) states the following in relation to the site setting:

“The site layout, building fabric, nature of works (former), storage of fuels, chemicals and waste materials were described as they were in Prensa’s 2012 Phase 1 ESA and WSP’s 2015 Limited ESA. The site drainage and external features were also described and referenced in previous environmental assessments.”

The PSI (PJR 2015) further states that – “During the site inspection a diesel tank was noted within the fire water diesel pump room (located in the north western portion of the site). This pump serves the fire water tank located adjacent to the building. The water pump and associated infrastructure (both above and below ground) runs from both the building and the water tank. There was a strong odour (hydrocarbon) within the room as well as fuel/oil on the ground surface. Staining was also noted on the outside wall (external) of the room and the concrete surface. The concrete hardstand was noted to be in a good condition, however, a couple of minor cracks were observed.”

This observation was consistent with the observations made by SLR on 22 September 2015.

3.2 Surrounding Environment

The review of PSI (PJR 2015) indicated the following adjoining land uses in relation to surrounding environment:

- To the North – Worth Street, Industrial (rail associated);
- To the South – Hume Highway, Low density residential, Commercial;
- To the East – Hume Highway, Commercial; and
- To the West – Commercial, Light industrial

This observation was consistent with the observations made by SLR on 22 September 2015.

3.3 Topography, Geology and Hydrogeology

PSI (PJR 2015) states the following in relation to the topography of the site:

“Regional topography slopes to the north east and east. On the site, the topography generally slopes to the north east however smaller dips and undulating form within the site.”

PSI (PJR 2015) states the following in relation to the geology of the site:

“The Geological Survey of New South Wales 1:100,000 Sydney Map indicates that the site is underlain by the Middle Triassic Aged Bringelly Shale of the Wianamatta Group, which comprises ‘shale, carbonaceous claystone, laminite, fine to medium-grained lithic sandstone, rare coal’.”

The review of PSI (PJR 2015) regarding the geology of the site further indicates that the fill material within the eastern portion of the site was found to extend to a depth of 10m bgl and was found to extend to a maximum depth of 1.8m bgl within the western portion of the site.

² NOTE – SLR has relied upon the data presented in the PSI (PJR 2015) report.

PSI (PJR 2015) states the following in relation to the hydrogeology of the site:

“Groundwater flow direction is assumed to be towards the Cooks River located approximately 1.0 kilometre (km) to the east of the site.” It further states that “A review of WSP’s 2015 Limited ESA report indicates that there are four (4) groundwater bores located within 500m of the site. WSP report that all four (4) bores are groundwater monitoring wells with groundwater level indicated to be between 3.95m and 5.4m bgl. Relevant bore information is summarised within WSP’s 2015 Limited ESA report. Three (3) of the groundwater bores are located within a former service station to the south east, which is expected to be located down hydraulic gradient of the site.

Two groundwater wells, BH03 and BH08 are located at the site. These are understood to have been installed by WSP in 2015. BH03 is located adjacent to the south eastern corner of the main building, close to two of the diesel powered generators. BH08 is located adjacent to the car park in the central north portion of the site, close to the main building. These groundwater wells were sampled as part of the site investigation undertaken by PJR.

BH03 and BH08 are reported to have been installed into the underlying shale bedrock to depths of 16.0m and 12.0m bgl respectively. Groundwater levels were recorded at 8.88m below top of casing (mb TOC) within BH03 and at 4.86mb TOC within BH08. This information was reported by WSP as part of its 2015 Limited ESA. A review of the relevant information of this report indicates that the wells were installed appropriately and as such were useable in order to assess groundwater quality underlying the site.”

The information available to date is not sufficient to derive the groundwater flow direction at the site. Based on the available data, SLR considers that the groundwater flow at the site is likely to be towards the south or south-east, as indicated by the decrease in elevation of the top of the standing water level in borehole BH3 (approximate RL of 24m AHD) compared to that of borehole BH8 (approximate RL of 28m AHD). Installation of additional groundwater monitoring wells and the detail survey of the wells would be required in order to derive the likely flow direction at the site, though this is not required as part of this RAP.

3.4 Hydrology

PSI (PJR 2015) states the following in relation to the hydrology of the site:

“Information provided in Presna’s 2012 Phase 1 ESA and WSP’s 2015 Limited ESA indicates that the drainage on site is directed to either the waste water treatment plant (WWTP) or to the local stormwater system. Information gained during the PJR site inspection confirms these findings.

There are two retention ponds on the site. One pond is located along the south eastern boundary adjacent to the Hume Highway and the other pond is located in the northern portion adjacent to Worth Street. Stormwater drains across the site discharge to the retention pond adjacent to Hume Highway.”

SLR understands that these stormwater detention ponds will be removed as part of the proposed re-development of the site and replaced with a new stormwater management system.

3.5 Site History

A review of PSI (PJR 2015) indicated the following in relation to the history of the site:

3.5.1 Search of EPA Records

PSI (PJR 2015) states that the site is not listed on, and is not in the vicinity of a site listed on any of the following:

- EPA Contaminated Land Public Register;
- EPA Contaminated Land Record of Notices; and

- EPA POEO Public Register.

This was confirmed by searches undertaken by SLR on 2 October 2015, which indicate that the site is not listed on, and is not in the vicinity of a site listed on any of the aforementioned records.

3.5.2 Aerial Photographs

PSI (PJR 2015) states the following in relation to the findings of the review historical aerial photos of the site:

“Prensa completed a historical aerial photography review as part of its 2012 Phase 1 ESA, which was reviewed and summarised in WSP’s 2015 Limited ESA. PJR reviewed the aerial photography on 13 July 2015 and found that the information is accurate.”

It further states that “The aerial photographs indicate that the site appears to have been vacant land in the 1930s, with some activity noted (possibly rail related) in 1951. In 1961 a railway track was present in the northern section and this is also evident in the 1970 photograph with little change noted. In 1982 the railway is not evident and instead Worth Street is under construction. In 1994 a small building was shown, and the general site appears to be underground development (exposed soils evident). In 1999 the site appears as it currently is with a large building and sealed surfaces noted.”

SLR concurs with this summary.

3.5.3 WorkCover NSW

PSI (PJR 2015) states the following in relation to the findings of the review of the WorkCover NSW records for the site:

“A review of WSP’s 2015 Limited ESA indicated that a WorkCover NSW Dangerous Goods Licence database search was requested on 21 May 2013 and documentation. WorkCover NSW responded to the request with documentation relating to the storage of acid and alkali (hydroxides and caustic soda) of volumes typically less than 1,000L on the site.”

It further states that “Further to the above, WSP carried out an inspection of the site on 29 May 2013 where Fairfax provided more recent WorkCover NSW Notification forms (24 July 2012) in which the two sets of generators with accompanying above ground storage tanks (ASTs) of 20,000L (total) and an ink storage tank of 80,000L were detailed.”

SLR understands that the previous owner of the site (Fairfax) discontinued using the site in 2013. Our site investigation confirms the findings reported in the PSI (PJR 2015).

3.5.4 Historical Titles

PSI (PJR 2015) states the following in relation to the findings of their review historical title record for the site:

“Prensa completed a historical title search as part of its 2012 Phase 1 ESA, which was later reviewed and summarised in WSP’s 2015 Limited ESA. PJR reviewed the title information as part of their report and summarised it below. The title records appear to match the recent site history in that railway associated parties (State Rail and Railway Commissioners of NSW) owned it prior to purchase by Fairfax in 1999.”

Prensa further states that “Fairfax has been listed as the proprietors since 9 March 1999. Previous to this, titles were held in the name of the following:

- From 17 June 1992, Lot 12 DP 792665 was owned by State Rail Authority of NSW;
- From 18 June 1992, Lot 1 DP 112162 was owned by The Commissioner for Railways;

- From 18 June 1992, Lot 60 DP 7741 was owned by Railway Commissioners for NSW;
- From 5 May 1993, a total of thirty nine (39) proprietors (including the above) constituted the site. These were combined to form Lot 1 DP 816759 with the owner listed as State Rail Authority NSW."

SLR understands that the site was identified as a single lot (Lot 12 DP 834734) from 26 November 1993.

3.5.5 Site History Summary

PSI (PJR 2015) summarises the site history as follows:

"The site history review indicates that the site was vacant land until 1950s when railway lines were constructed in the southern portion of the site. The remaining areas of the site appear to have been used for rail related purposes until the early 1990s when the site was sold to Fairfax and redeveloped for a commercial/industrial land use."

4 PREVIOUS CONTAMINATION ASSESSMENTS

SLR has relied upon PSI (PJR 2015) as the basis of the assessment of any potential contamination and contamination sources, and the subsequent identification of any contaminated soil likely to be impacted by the development. The PSI (PJR 2015) referenced the following contamination assessments that have been undertaken for the site:

- Prensa 2012, "Phase 1 Environmental Site Assessment and Hazardous Materials Assessment, prepared for Fairfax Media Limited by Prensa, 13 November 2012 (2012 Phase 1 ESA and Hazmat Assessment)". SLR was not provided this report, though mentioned in PSI (PJR 2015).
- Prensa 2013, "Asbestos Building Materials Assessment, Fairfax Media, 2 Hume Highway, Chullora, NSW 2190, prepared for International Property Group by Prensa Pty Ltd (Prensa), May 2013 (2013 Asbestos Building Material Assessment)". SLR was not provided this report, though mentioned in PSI (PJR 2015).
- WSP 2014, "Environmental Data Review at Fairfax Chullora – 2 Hume Highway, Chullora NSW, prepared for Fairfax Print Holdings Pty Limited by WSP Environmental Pty Ltd (WSP), 14 August 2014 (2014 Environmental Data Review)". SLR was not provided this report, though mentioned in PSI (PJR 2015).
- WSP 2015, "Limited Environmental Site Assessment, 2 Hume Highway, Chullora, NSW, prepared for Fairfax Media Limited by WSP, March 2015 (2015 Limited ESA)". SLR was not provided this report, though mentioned in PSI (PJR 2015).
- WSP 2015A, "Settlement Environmental Report (SER) – Decommissioning Process Review and Supervision for Fairfax Printing Facility, 2 Hume Highway Chullora, NSW, prepared for Fairfax Print Holdings Pty Ltd by WSP, March 2015 (2015 Decommissioning Environmental Report)". SLR was not provided this report, though mentioned in PSI (PJR 2015).

The findings of the reports referenced in PSI (PJR 2015) are presented in Appendix A.

4.1 PSI (PJR 2015) Preliminary Site Investigation

The objective of this PSI was to evaluate the environmental condition of the site and to provide advice on the key potential environmental liabilities at the site.

PSI (PJR 2015) undertook the following scope of work to address the project objective:

- Review of relevant documentation provided;
- Site inspection of 10 July 2015;
- Review of previous environmental reports prepared in relation to the site;
- Update historical searches (NSW EPA online database searches, review in detail existing information in detail regarding requests to third parties);
- Development of a conceptual site model (CSM) including an assessment of the potential for the historical and current use of the site and surrounding land uses to cause site contamination;
- Preparation of safe work method statement (SWMS) for the project which considered specific EH&S issues for the site;
- Dial before you dig (DBYD) and underground services search;
- Site attendance on 27 July 2015 to undertake field based activities as follows:
 - Supervision of a qualified service locator to locate underground services;
 - Drilling of seven (7) boreholes using a truck mounted geoprobe drill rig and a decontaminated hand auger to facilitate the collection of soil samples for laboratory analysis;
 - Sampling of groundwater from two (2) existing groundwater wells on site;

- Delivery of all samples to a National Association of Testing Authorities (NATA) accredited laboratory;
- Laboratory analysis of soil and groundwater samples for a suite of pre-determined analytes (organic and inorganic); and
- Reinstatement of the soil sampling locations.
- Implementation of a quality assurance (QA) program in accordance with EPA guidelines;
- Assessment of analytical data and QA; and
- Preparation of a report on the results of the PSI.

PSI (PJR 2015) concluded that:

- “The site history review indicates that the site was vacant land until the 1950s when railway lines were constructed in the southern portion of the site. The remaining areas of the site appear to have been used for rail related purposes until the early 1990s when the site was sold to Fairfax and redeveloped for a commercial/industrial land use.
- A review of previous reports indicates that the site was previously subject to remediation to remove heavy metal, TPH and PAH impacted soil. Low level contaminated material is indicated to have been re-used on site as fill, however, the exact location of the contaminated fill that was reused is not known. Recent sampling undertaken by WSP indicates that significant soil contamination is not present, however, there is a paucity of data relating to several portions of the site which was subsequently addressed during this PSI.
- The results of the soil sampling and analysis undertaken for this PSI indicate that diesel from a fuel tank and/or pump has migrated into the soil beneath the pump room and concrete hardstand immediately adjacent. There is the potential for risks to occur to workers involved in sub-surface works in this area due to vapour inhalation. The potential risk from these soils can be managed through the implementation of an EMP. Alternatively, remediation would be necessary. The diesel contamination is indicated to currently be localised, and extensive on-site migration or off-site migration are considered unlikely.
- The results of the soil sampling also indicate that the fill is variably contaminated with heavy metals and asbestos. The heavy metal contamination would not pose a risk to current and future site users based on the current site configuration. In view of the potential risks to human health due to the presence of asbestos, site management measures, including maintenance of the existing capping layer and implementation of an EMP are necessary. The procedures that would need to be included in the EMP are routine and are not considered to be onerous.
- If the site configuration were to change with redevelopment or similar, then the risks to current and future site users may increase. This is of particular importance in relation to the asbestos detected at the car park and the petroleum hydrocarbon contamination at the diesel pump room.
- In view of the presence of soil contamination at the site, off-site disposal costs would be incurred in addition to transportation costs should it be necessary to dispose of contaminated soil off-site during any subsurface works or redevelopment.
- Overall, it is considered that the site is suitable for an ongoing commercial/industrial land use in its current configuration subject to the implementation of an EMP for the ongoing management of the hydrocarbon impacted soil in the vicinity of the pump room and asbestos in the fill, and repair of the diesel leak within the fire water diesel pump room.”

PSI (PJR 2015) also made the following recommendations:

- “The diesel leak within the fire water diesel pump room should be repaired as a matter of priority if this has not already occurred.
- An EMP should be prepared for the ongoing management of the hydrocarbon impacted soil in the vicinity of the pump room and asbestos in the fill.

- Advice should be sought from a suitably qualified environmental consultant regarding the implications of any redevelopment of the site which results in a reduction in sealed areas of the site.
- Any soil to be disposed of off-site during any future redevelopment works should be appropriately tested and classified for off-site disposal.
- It would be prudent to implement a regular inspection regime of the site (if this is not already in place) to check for potential leaks and spillages, confirm the integrity of the sealed surfaces and to ensure that any major spillages that could impact the underlying soil and groundwater, and/or stormwater, are promptly addressed.

4.2 Summary

Based on the review of PSI (PJR 2015) and all other relevant information, SLR considers that the site is suitable for ongoing commercial and industrial land use subject to the remediation and validation of petroleum hydrocarbon impacted soil as a result of diesel leak within the fire water diesel pump room located within the north western corner of the site. SLR understands that the leak has been repaired and this RAP addresses the remediation of the in-situ petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room.

5 SITE CHARACTERISATION

The site has been subject to significant earthworks and review of previous reports by PSI (PJR 2015) also indicates that the site was previously subject to remediation to remove heavy metals, TPH and PAH impacted soil. Low level contaminant impacted material was indicated to have been re-used on site as fill. However, the PSI (PJR 2015) states that recent sampling by WSP indicates that significant soil contamination is not present.

As such, SLR has reviewed information presented in PSI (PJR 2015) and considers petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room located within the north western corner of the site is to be remediated to render the site suitable for the proposed re-development.

The vertical extent of petroleum hydrocarbon impacted soil is considered to be up to 0.7m bgl within the area immediately surrounding borehole BH5 in the north western corner of the site. The lateral extent of petroleum hydrocarbon impacted soil will be guided by the visual observation, presence of odour and the Photoionisation Detector (PID) screening. This is likely to include the area presented in Figure A3.

No other potential contaminants of concern that are considered likely to pose an unacceptable risk to human health or the environment were identified within the site.

A conceptual site model is presented below, identifying the contamination, receptors and exposure pathways that are likely. The area of environmental concern (AECs) is presented in Figure A3.

Table 1 Conceptual Site Model for Identified Asbestos Impacted Soil

Area of Concern (AEC)	Contaminants Identified	Potential Receptors	Potential Exposure Scenarios
AEC01	TRH	- Construction workers - Future site users and visitors - Future maintenance workers	- Inhalation of petroleum hydrocarbon vapour during sub-surface work (if any) - Vapour intrusion inside the proposed building

6 REMEDIAL ACTION PLAN

6.1 Remedial Goal

The remedial goal for this site is to remediate soil contamination (where identified) to a level that does not present an unacceptable human health exposure risk, to enable the proposed land use and the proposed re-development.

6.2 Extent of Remediation Required

Based on the available data for the site, the lateral extent of remediation required is likely to include the areas highlighted red in Figure A3.

The vertical extent of remediation required for the site is considered to be up to 0.7m bgl within the area immediately surrounding borehole BH5 in PSI (PJR 2015) in the north western corner of the site.

The **extent of remediation** will also need to be governed largely by visual observations (aesthetic and discoloration of soil) by environmental consultants and the remediation contractor, PID screening and the laboratory analytical results.

6.3 Remedial Options

Based on the discussions with the Client and the nature and extent of identified remedial works, the following remedial options have been considered for the petroleum hydrocarbon soil within the fire water diesel pump room located within the north western corner of the site:

- Excavation and removal off site; or
- Onsite treatment and re-use of petroleum hydrocarbon impacted fill.

For the purpose of assessing remedial options, a selection of qualitative option scoring criteria has been adopted. These criteria and the ranking / scoring system are presented in Table 2.

Table 2 Remedial Option Assessment Scoring Criteria

		Score				
Criteria		0	1	2	3	4
Applicability	Not applicable	←-----	-----	-----	-----	Widely available
Technical Feasibility	Unfeasible	←-----	-----	-----	-----	Feasible
Effectiveness	Limited effectiveness for intended purpose	←-----	-----	-----	-----	Highly effective for intended purpose
Stakeholder Acceptance	Unlikely acceptable to stakeholders (EPA, Council and community)	←-----	-----	-----	-----	Highly likely to be acceptable to stakeholders
Cost	Likely highest	←-----	-----	-----	-----	Likely lowest
Sustainability	Unsustainable	←-----	-----	-----	-----	Sustainable in terms of environmental management and corporate / social responsibility
Duration	Long term	←-----	-----	-----	-----	Short term

The options considered, along with a qualitative ranking / scoring is presented in Table 3.

Table 3 Remedial Options – Petroleum Hydrocarbon Impacted Soil

Criteria	Remediation Option		Comment
	Offsite Disposal	Onsite Treatment and Re-use	
Applicability	4	2	Offsite disposal is a widely available option to remediate petroleum hydrocarbon impacted soil compared to onsite treatment. However, the cost of offsite disposal could be a significant down factor and with potential disposal costs increasing over time. However, onsite treated soil may result in residual odour and may not be suitable for beneficial re-use on site, despite attaining clean up levels.
Technical Feasibility	4	3	Onsite treatment technically achievable, however, may not be suitable for beneficial re-use on site.
Effectiveness	4	1	Excavation and offsite disposal is considered the most effective way to remove petroleum hydrocarbon impacted soil.
Stakeholder Acceptance	3	3	Both options are likely to be acceptable to relevant stakeholders.
Cost	1	4	Based on inferred landfill costs and cost of importing clean backfill material versus onsite treatment cost.
Sustainability	1	4	Onsite treatment option is consistent with sustainability principles, in minimising waste management.
Duration	4	1	Offsite disposal option is the fastest way to remediate the site.
Score	21	18	

6.4 Preferred Remedial Option

In consideration of the qualitative scoring and ranking of the remedial option assessment criteria, the objectives of the site development, regulatory requirements, and understanding of the development construction, the preferred remedial option for the site is considered to be excavation and offsite disposal of the petroleum hydrocarbon impacted soil within the immediate vicinity of the fire water diesel pump room.

6.5 Remedial Sequence of Works

6.5.1 Approvals and Notifications

The proposed remediation work will include a notification of intent to remediate the petroleum hydrocarbon impacted soil to be submitted to the Bankstown City Council and Strathfield City Council at least 30 days prior to the commencement of the proposed work in accordance with the State Environmental Planning Policy No. 55 (SEPP 55) – Remediation of Land

The above notification will include:

- Copies of relevant contamination assessment reports for the site and this RAP; and
- Contact details for the remediation contractor and party responsible for ensuring compliance of remediation work with all relevant regulatory requirements (if different to the remediation contractor).

Records of notification will be maintained by the remediation contractor.

6.5.2 Site Establishment

The remediation contractor will mobilise plant and equipment appropriate to the nature and extent of the project.

Site establishment will include the setup of a remediation works zone, with appropriate signage and fencing / barriers, to delineate the zone from other work areas (if required).

6.5.3 Underground and Overhead Services

All services on the site will be identified, and terminated or re-directed (as appropriate).

6.5.4 Demolition

Demolition of the fire water tank and diesel pump room is required as part of the remediation works. All demolition work must be undertaken by a licenced demolition contractor and conducted in a safe way.

As part of the demolition work, the following should be considered as a minimum:

- A destructive hazardous building materials survey (DHBMS) should be undertaken prior to any demolition or refurbishment works;
- Where asbestos removal works are required, the person undertaking the works must ensure that they are conducted by an appropriately licenced asbestos removalist and a clearance inspection is conducted at completion of the removal works; and
- During refurbishment works, if any materials that were not previously identified and the material that are suspected of containing ACM are encountered, then works must cease and an asbestos hygienist should be notified.

6.5.5 Structural Stability

The structural stability of any walls/footings on and adjacent to the site will be assessed prior to subsurface remedial works. Consideration will also be given to temporary shoring of excavations, if required.

6.5.6 Remediation Works

6.5.6.1 Excavation of Petroleum Hydrocarbon Impacted Fill Material

The fill material within the impacted portion of the site will be excavated and removed for offsite disposal, in accordance with the relevant waste classification.

In-situ waste classification will be conducted by the environmental consultant prior to commencing the remedial excavations, such that the material could be excavated and loaded directly for offsite disposal, without multiple handling.

6.5.6.2 Waste Disposal

Excavated impacted material will be loaded directly into waterproof, sealed trucks and trailers, for transport and disposal offsite to a licenced facility. Where required, material may be excavated and stockpiled for short durations to promote efficiency.

The PSI (PJR 2015) analytical results suggest that the impacted soil that requires offsite disposal is classified as Restricted Solid Waste (non-Putrescible). The excavated impacted material will thus be disposed to landfill that is licensed by the NSW EPA to accept Restricted Solid Waste unless further tests re-classify the material.

The transport of the waste soils will be conducted by contractors who are licensed to transport subject waste. The movement of waste material will be tracked using a material tracking system, to be implemented by the remediation contractor and checked by the environmental consultant. All disposal dockets will be retained for reconciliation against the material tracking records, and for inclusion in the validation report, to demonstrate that the waste was appropriately disposed to licensed facilities.

6.5.7 Backfilling

At the completion of the excavation of petroleum hydrocarbon impacted soil from the site, the excavation will be backfilled with:

- Virgin excavated natural material (VENM); or
- Excavated natural material (ENM);

Consideration will be given to compaction and other geotechnical engineering requirements (to be specified by others), to suit the land use activities.

6.6 Remediation Schedule

It is anticipated that, based on the nature and extent of the proposed works, remediation will be undertaken over a period of approximately three weeks.

Further detail regarding remediation timing will become available upon appointment of the remediation contractor and the contractor's proposed staging.

6.7 Unexpected Finds Protocol

The contamination assessments to date have not indicated the presence of significant soil contamination that is unacceptable for the proposed land use beyond the area of remediation described in this RAP. However, it is possible that yet unidentified contamination is present within the fill material. To this end an Unexpected Finds Protocol has been compiled, and is summarised herein. Potentially hazardous substances could include, but are not limited to:

- Underground storage tanks;
- Buried containers and drums;

- Phase separated hydrocarbons;
- Powders and other suspicious buried material; and
- Evidence of contamination including significant staining, odours and discolouration.

In the event that any material suspected of containing potentially hazardous substances is found during remediation works, the following steps will be followed:

1. The environmental consultant will be consulted immediately for assessment and advice.
2. The area of concern will be cordoned off.
3. Appropriate environmental management measures will be implemented until the assessment is completed and further advice is received from the consultant.
4. The environmental consultant will undertake any necessary assessment and provide advice on a strategy to manage the identified unexpected contamination.
5. The RAP may require revision depending on the findings and proposed management strategy.

6.8 Remediation Contingency Plan

There is inherent uncertainty in remediation works. Based on likely uncertainties associated with soil remediation works of this nature, the situations and contingencies presented in Table 4 will be considered during remediation works.

Table 4 Remediation Contingency Measures

Situation	Contingency Measure	Potential for Situation Occurring
Encountering yet unidentified contamination	The identified contamination (the nature and extent) will be assessed by a qualified and experienced environmental consultant, such that it can be appropriately remediated.	Low to Moderate potential to encounter yet unidentified contamination
Volumes of contaminated material being significantly greater than anticipated, causing the remediation works to be financially unviable	Consideration of onsite treatment and reuse strategies within the site.	Low potential

7 VALIDATION DATA QUALITY OBJECTIVES

Data quality objectives (DQO) have been developed using the seven step processes described in NSW DEC 2006, Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition).

7.1 Step 1 – State the Problem

The objective is to assess whether the remedial goal has been achieved and whether the site presents an unacceptable human health exposure risk for the proposed land use.

The main problems are:

- How should relevant site media be assessed?
- What sampling layout should be used? and
- What contaminants should be analysed for and by what method to be useful for assessment?

7.2 Step 2 – Identify the Decision

The decisions that need to be made during this project include:

- Is the field and laboratory analytical data suitable for validating the quality of the media being assessed; and
- Does residual petroleum hydrocarbon in soil (if any) contamination present an unacceptable exposure human health exposure risk for the proposed land use scenario.

7.3 Step 3 - Identify Inputs to the Decision

The primary inputs to assessing the above include:

- The site history made available;
- Location, distribution and intervals of sampling at the site;
- Data collected during the assessment, including field measurements, field observations and laboratory analysis results;
- Outcomes of the assessment of the quality of collected data;
- Adopted human health exposure risk assessment criteria.

To assist with assessing whether remediation works have adequately addressed contamination risks, validation acceptance criteria have been adopted. These criteria are discussed in Section 7.3.1 and Section 7.3.2.

7.3.1 Human Health – Direct Contact

As no Health-Based Investigation Levels (HILs) exist for TRH and BTEX compounds within National Environment Protection (Assessment of Site Contamination Measure 1999 (NEPC 1999)), based on the proposed land use of the site (distribution centre), SLR has adopted the Health Screening Levels (HSLs) for direct contact, for commercial/industrial land use, developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care) in 2011.

The HSLs for commercial/industrial land use are presented in **Table 5** below.

Table 5 Health-Based Investigation Level and Health Screening Level for Soil Contamination (mg/kg)

Contaminant	Health Screening Level (HSL D) ⁽¹⁾
Benzene	430
Toluene	99,000
Xylenes	81,000
Naphthalene	11,000
C6-C10	26,000
>C10-C16	20,000
>C16-C34	27,000
>C34-C40	38,000

1. CRC Care Technical Report No. 10 Health Screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: technical development document.

7.3.2 Human Health – Soil Vapour Intrusion

The NEPC 1999 also provides health screening level for vapour intrusion in different soil medium. Based on the soil profile present within BH05, we have assessed the soil results against the most stringent Health Screening Level (HSLs) for Vapour Intrusion, in **Clayey GRAVEL**³ (at depths of 0m to 1m and 1m to 2m).

The soil HSLs for vapour intrusion are presented below in **Table 6**.

Table 6 Soil HSLs for Vapour Intrusion (mg/kg)

Chemical	HSL D – Commercial/Industrial	
	0m to <1m	1m to <2m
Toluene	NL	NL
Ethylbenzene	NL	NL
Xylenes	230	NL
Napthalene	NL	NL
Benzene	3	3
F1(TPH C6-C10 minus BTEX concentration)	260	370
F2 (TPH C10-C16 minus Napthelene)	NL	NL

NL: non limiting

7.3.3 Waste Classification

Wastes to be removed from the site will be classified in accordance with NSW EPA (2014).

7.4 Step 4 - Define the Study Boundaries

The horizontal boundary of the project is defined as illustrated on Figure A3.

The vertical boundary of the project for soils is defined by the depth of impacted fill material.

7.5 Step Develop a Decision Rule

The decision rules for the project will be as follows:

³ PSI (PJR, 2015) suggests that the soil at the borehole BH05 comprise of clayey gravel clay.

- If the results of the validation data and field data quality assessment are acceptable, then the data will be considered suitable for the purposes of the project. Data will be assessed for completeness, comparability, representativeness, precision and accuracy.
- If the results of the laboratory analytical data are within the adopted assessment criteria and fieldwork observations are acceptable, then the level of contamination in the media assessed will be considered an acceptable exposure risk.
- If the results of validation data exceed the adopted assessment criteria or the fieldwork observations are unacceptable, then the level of contamination in the media assessed may require further assessment, management or remediation.

7.6 Step 6 - Specify Acceptable Limits on Decision Errors

There are two types of error:

- Deciding that contamination on the site is an acceptable risk for the proposed land use when it is not; and
- Deciding that contamination on the site is not an acceptable risk for the proposed land use when it is.

Confidence in the reliability of other assessment methods (e.g. field observations, laboratory analysis and data review) will be based on appropriate levels of qualification and/or experience in the personnel undertaking the relevant task.

7.7 Step 7 - Optimise the Design for Obtaining Data

7.7.1 Validation of the Remediation

Validation sampling densities for remedial works are presented in Table 7.

Table 7 Validation Sampling Density

Area of Environmental Concern	Validation Requirement/Sampling Density	Sampling Rationale
Remedial Excavation Base and walls – where all petroleum hydrocarbon impacted fill material has been removed exposing virgin soil	A systematic visual assessment of the base and walls of the excavation will be undertaken by an environmental consultant. PID screening will be conducted on samples collected on a 10 grid on the floor and at a rate of 1 sample per 10 linear meters for walls. The samples will also be analysed for TRH and BTEX. In addition, samples will be collected at multiple depths (a minimum of 2 depths per wall) depending on soil profiles and observed soil condition/material types. Based on the visual observations, PID screening below 20PPM and laboratory analysis meeting the adopted RAC, a site validation report will be issued by an environmental consultant.	Given the presence of petroleum hydrocarbon, it is possible that the virgin soil could be subjected to cross contamination by the excavation works. In such circumstances, visual inspections are not able to identify petroleum hydrocarbon impact in soil. Sampling is thus required to identify petroleum hydrocarbon impact in soil. Assuming a total of 20 sample locations on a 10m grid (over an area of approximately 2,000m²) a hotspot of 6m radius will likely be detectable (NSW EPA, 1995)
Remedial Excavation Base and walls – where fill material remains in-situ and is suspected to be not impacted by petroleum hydrocarbon	A systematic visual assessment of the base and walls of the excavation will be undertaken by an environmental consultant. PID screening will be conducted on samples collected on a 10 grid on the floor and at a rate of 1 sample per 10 linear meters for walls. The samples will also be analysed for TRH and BTEX. In addition, samples will be collected at multiple depths (a minimum of 2 depths per wall) depending on soil profiles and observed soil condition/material types. Based on the visual observations, PID screening below 20PPM and laboratory analysis meeting the adopted RAC, a site validation report will be issued by an environmental consultant.	Given the presence of petroleum hydrocarbon, it is possible that the virgin soil could be subjected to cross contamination by the excavation works. In such circumstances, visual inspections are not able to identify petroleum hydrocarbon impact in soil. Sampling is thus required to identify petroleum hydrocarbon impact in soil. Assuming a total of 20 sample locations on a 10m grid (over an area of approximately 2,000m²) a hotspot of 6m radius will likely be detectable (NSW EPA, 1995)
Stockpiles - Waste Classification	Quantity dependent – refer to Section 7.5.2 in Schedule B2 of NEPC (1999)	
Imported Fill – VENM	1 per 100m ³ or 3 samples per stockpile / site	
Imported Fill – ENM	Quantity dependent - refer to The NSW EPA excavated natural material (ENM) exemption 2014 and the ENM order 2014 for further details.	

7.7.2 Soil Sampling Methodology – Validation

Soil samples will be collected from each sampling point directly from the base and walls of each excavation, as grab samples. Depending on the depth of the excavation, an excavator may be required to obtain samples. In these instances, samples will be collected from soils in the centre of the excavator bucket, to avoid cross contamination from the excavator bucket.

Sampling will be guided by evidence of staining, odours and soil headspace screening.

Observations of the materials encountered during sampling will be recorded on the relevant field observation log.

Each sample being collected for validation will be a 250ml sample for the purpose of laboratory analysis (refer to Section 7.7.7 for laboratory analysis).

7.7.3 Soil Headspace Screening

Soil samples will be screened in the field for ionisable volatile organic compounds (VOC) using a calibrated PID. Screening results will be recorded on the relevant field observation log.

7.7.4 Photographic Records

Photographs will generally be taken of the remediation activities and the finished excavations.

7.7.5 Location Records

The location of each sampling location will be recorded using a handheld GPS unit and plotted on a sketch plan.

7.7.6 Sample Identification, Storage and Transport Procedures

Samples will be identified using unique sample identifiers and sample depths.

Samples will be placed in laboratory prepared containers and zip lock bags, as appropriate. The sample containers will then be placed directly into an insulated container with ice, for transportation to the NATA accredited analytical laboratory with the chain of custody (COC) form recording the following information:

- project job number;
- date of sampling;
- sample identifier;
- sample matrix and container type;
- preservation methods used;
- analysis requirements for each sample;
- turnaround times required for analysis; and
- names and signatures of sender and receiving laboratory.

A copy of the chain of custody will be kept in the job file. Samples will be transported to the laboratory with sufficient time to perform analysis within the applicable holding period.

The proposed sample storage and preservation requirements for the likely contaminants of potential concern are presented in Table 8.

Table 8 Sample Storage and Preservation Requirements

Analyte	Sample Volume and Container Type	Sample Container Preservative	Storage and Transport
TRH C6-C10	1 x 250mL glass	Nil	Ice and insulated container
TRH >C10-C40	1 x 250mL glass	Nil	Ice and insulated container
BTEX	1 x 250mL glass	Nil	Ice and insulated container
VCH	1 x 250mL glass	Nil	Ice and insulated container
PAH	1 x 250mL glass	Nil	Ice and insulated container
Phenol	1 x 250mL glass	Nil	Ice and insulated container
OCP	1 x 250mL glass	Nil	Ice and insulated container
Metals	1 x 250mL glass	Nil	Ice and insulated container
Asbestos (ACM)	1 x 50-100g zip lock bag	Nil	Nil

7.7.7 Laboratory Analysis

Selected samples will be scheduled for TRH and BTEX analysis in a NATA accredited laboratory based on field observations (including staining and odours) and headspace screening results.

Proposed analytical quantities are presented in Table 9.

Table 9 Laboratory Analytical Quantities

Area of Environmental Concern	Analytical Quantities
Remedial Excavation Wall	TRH/BTEX for each sample collected
Remedial Excavation Base	TRH/BTEX for each sample collected
Stockpiles - Waste Classification	TRH, BTEX, PAH, metals, asbestos for each sample collected
Imported Fill – VENM	TRH, BTEX, metals, OCP, PCB, asbestos for each sample collected
Imported Fill - ENM	TRH, BTEX, PAH, metals, electrical conductivity, pH, foreign materials and asbestos for each sample collected

If visual/olfactory assessment indicates other soil contamination may be present, then analysis for other contaminants of concern will be considered.

7.7.8 Fieldwork Quality Assurance / Quality Control

7.7.8.1 Decontamination Procedures

Non-disposable sampling equipment will be decontaminated before and between sampling events to reduce the potential for cross contamination to occur between samples. Decontamination will include the following procedure:

- Washing non-disposable sampling equipment in a solution of phosphate free detergent (e.g. Decon 90) and potable water; and
- Rinsing with distilled water.

7.7.8.2 Intra-laboratory Duplicates

Intra-laboratory duplicate samples will be collected and analysed at the rate of 10% (i.e. 1 duplicate for every 10 samples collected and/or analysed) with a minimum of one per batch (excluding samples collected for asbestos analysis). The analytical results of the two split samples will be compared to assess the precision of the sampling protocol, and provide an indication of variability in the sample source. The relative percentage difference (RPD) acceptance limits will be:

- No limit analytical results <10 times LOR
- 50% analytical results 10-20 times LOR
- 30% analytical results >20 times LOR

The RPD exceedances (if any) will be assessed to determine whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.8.3 Inter-Laboratory Duplicates

Inter-laboratory duplicate samples will be collected and analysed at the rate of 10% (i.e. 1 duplicate for every 10 samples collected and/or analysed) with a minimum of one per batch (excluding samples collected for asbestos analysis). The analytical results of the two split samples will be compared to assess the precision of the sampling protocol, and provide an indication of variability in the sample source. The relative percentage difference (RPD) acceptance limits will be:

- No limit analytical results <10 times LOR
- 50% analytical results 10-20 times LOR
- 30% analytical results >20 times LOR

The RPD exceedances (if any) will be assessed to determine whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.8.4 Rinsate Samples

A rinsate sample will be collected and analysed for each day of field work carried out, where non-disposable sampling equipment has been used. The rinsate sample will be analysed for generally the same contaminants of potential concern that the samples are being analysed for (excluding asbestos).

The acceptance limit shall be the detected concentrations of the contaminants of concern analysed for in the sample, are less than the applicable LOR. The environmental consultant will assess the significance of the acceptance limit exceedance and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.8.5 Trip Blanks

Trip blanks will be used and analysed for a batch of samples provided to the laboratory, where the contaminants being analysed for, are volatile in nature (e.g. BTEX or TPH C₆-C₁₀). The trip blank will be analysed for BTEX. Should multiple batches of samples be submitted using the same preservation, storage and transport procedures, then the frequency of blank analysis will be reduced.

The acceptance limit shall be the detected concentrations of BTEX in the trip blank, are less than the applicable LOR. The environmental consultant will assess the significance of acceptance limit exceedances and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.8.6 Trip Spikes

Trip spikes will be used and analysed for a batch of samples provided to the laboratory, where the contaminants being analysed for, are volatile in nature (e.g. BTEX or TPH C₆-C₁₀). The trip spike will be analysed for BTEX. Should multiple batches of samples be submitted using the same preservation, storage and transport procedures, then the frequency of spike analysis will be reduced.

The acceptance limit shall be the BTEX recoveries in the trip spike are between 60% and 140%. The environmental consultant will assess the significance of acceptance limit exceedances and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.9 Laboratory Quality Assurance / Quality Control

7.7.9.1 Laboratory Selection

The primary and secondary laboratories used for this project will be NATA-accredited for the analyses being undertaken.

7.7.9.2 Laboratory Data Quality Indicators

The laboratory data quality will be assessed by checking the following:

- Laboratory methods used are NATA accredited;
- Laboratory limits of reporting are less than adopted assessment criteria;
- Samples are extracted and analysed within holding times; and
- Results of method blanks, surrogate, lab control sample, spike recoveries relative percentage differences (RPDs) between primary and duplicate laboratory samples.

Data quality indicators (DQI) that will be adopted for quality control samples are presented in Table 10.

Table 10 Laboratory Data Quality Indicators

Type of Quality Control Sample	Control Limit	
Method Blank	Analytical result < LOR	
Surrogate % Recovery	50% - %150%	
Labe Control Sample % Recovery	70% - 130%	
Spike % Recovery	70% - 130% for inorganics 60% - 140% for organics	
RPD	No limit	Analytical results <10 times LOR
	50%	Analytical results 10-20 times LOR
	30%	Analytical results >20 times LOR

Should the results of a laboratory quality control sample exceed the relevant adopted control limit, the laboratory will be requested assess the significance of the exceedance on the quality of the laboratory analytical data for the relevant batch. The environmental consultant will assess the significance of the control limit exceedance and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

7.7.9.3 Laboratory Limits of Reporting, Analytical Methods and Holding Times

Laboratory limits of reporting, analytical methods and holding times are presented in Table 11.

Table 11 Limits of Reporting, Methods and Holding Times

Analyte	Limit of Reporting (mg/kg)	Limit of Reporting (µg/L)	Method	Holding Time
BTEX and TRH C6-C10	0.2-0.5	0.5-1.0	USEPA 5030, 8260B and 8020	14 days
TRH >C10-C40	20-100	50-500	USEPA 8015B & C	14 days
PAH	0.1-0.2	0.01-0.02	USEPA 8270	14 days
Metals	1	0.1-5	USEPA 200	6 months
OCP	0.2-1	n/a	USEPA 8270	14 days
PCB	0.2	n/a	USEPA 8270	14 days
VOC	0.1-2.0	n/a	USEPA 8260	14 days
Asbestos	0.01%	n/a	AS4964:2004	No limit

8 VALIDATION REPORTING

Following the completion of remediation activities, a validation report will be prepared by SLR, in accordance with NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites'.

The validation report will include the following:

- executive summary;
- scope of work;
- site identification;
- summary of site history;
- summary of site condition and surrounding environment;
- summary of geology and hydrogeology;
- information on remediation works;
- results of field and laboratory work;
- field and laboratory quality assurance/control information and evaluation;
- site validation discussion;
- ongoing site monitoring requirements (if any); and
- conclusions and recommendations.

9 SITE MANAGEMENT PLAN

9.1 Register of Contacts

A register of contacts for the remedial works is presented in Table 12.

Table 12 Register of Contacts

Project Role	Person	Company	Contact Number
Project Director	Robert Blazley	Commercial & Industrial Property Pty Ltd	0438 708 345
Planning Consent Authority	TBA	TBA	TBA
Remediation Contractor	TBA	TBA	To be advised
Environmental Consultant	Abanish Nepal	SLR Consulting Australia	0448 178 915

TBA – to be announced

9.2 Hours of Operation

The hours of operation for the proposed remediation work will be 24/7.

9.3 Site Signage and Contact Numbers

A sign displaying the contact details at which the remediation contractor may be contacted outside working hours (and site facilitator if different to the remediation contractor) will be displayed at the perimeter of the parcel of land being remediated. The sign will be displayed throughout the duration of the remediation works.

9.4 Site Security

The site will be secured with appropriate fencing to prevent unauthorised access.

9.5 Soil and Water Management

9.5.1 Site Access and Egress

Vehicle access and egress will be stabilised to prevent tracking of sediment onto roads and footpaths. Soil, earth, mud or similar materials will be removed from the roadway by sweeping, shovelling or a means other than washing, on a daily basis or as required.

Trucks will be loaded immediately adjacent to remediation excavation. Spillages of excavated soil will be scraped / swept up and combined with the soil being disposed offsite.

Soil and sediment will be broomed or washed off vehicle/plant tyres and tracks, prior to vehicles/plant leaving the remediation works zone. This soil and sediment will be scraped / swept up and managed onsite or disposed of, depending on its contamination status.

A site specific sediment and erosion control plan will be implemented for the site.

9.5.2 Stockpiles

The management of stockpiles of soil or other material on site will be managed in accordance with the approval from the Bankstown City Council (early works development application) for the building demolition and earthworks.

9.5.3 Excavation Pump Out

Should excavations require pumping out, water will be analysed for total suspended solids, pH, metals and petroleum hydrocarbons. Should analytical results be less than relevant marine ecosystem groundwater investigation levels in ANZECC (2000), excavation water may be discharged to stormwater.

Should analytical results exceed ANZECC (2000) criteria, other options for disposal will be considered, including:

- discharge to sewer (with prior approval from Sydney Water with a Trade Waste Agreement);
- removal and offsite disposal by a liquid waste contractor.

9.5.4 Groundwater

Whilst not envisaged for the proposed remediation works, should dewatering of the site be required, dewatering may require approvals from the NSW Department of Planning and Environment, and the NSW Office of Water.

9.6 Noise and Vibration

The management of noise and vibration emanating from the proposed remediation works will be managed in accordance with the project noise and vibration report⁴.

9.7 Air Quality

The management of air quality resulting from the proposed remediation work will be in accordance with the Air Quality and Odour Impact Assessment report prepared by SLR⁵.

9.8 Transport Vehicles

Haulage routes for trucks transporting soil, materials, equipment or machinery to and from the parcel of land will be selected by the remediation contractor and will meet the following objectives:

- compliance with all traffic road rules;
- minimisation of noise, vibration and odour to adjacent premises; and
- utilisation of State Roads and minimisation of use of local roads.

The remediation contractor will ensure that all site vehicles:

- conduct deliveries of soil, materials, equipment or machinery during the hours of remediation work identified in Section 9.2;
- securely cover all loads to prevent dust or odour emissions during transportation;
- exit the site in a forward direction; and
- do not track soil, mud or sediment onto the road.

9.9 Waste Disposal

Materials removed from the site for recycling / disposal shall have regard to the provisions of the Protection of the Environment Operations Act (1997) and NSW EPA (2014).

⁴ At the time of preparing this RAP, the report was not available. An update to this RAP or an addendum to this RAP will be provided once the noise and vibration report is available.

⁵ SLR 2015, 'Air Quality and Odour Impact Assessment, 2 Hume Highway, Chullora', prepared by SLR Consulting Australia Pty Ltd, dated 7 October 2015, Report Number 610.15679-R1

The remediation contractor will track the movement of waste material using material tracking system, to be implemented by the remediation contractor and checked by the environmental consultant. All disposal dockets will be retained for reconciliation against the material tracking records, and for inclusion in the validation report, to demonstrate that the waste was appropriately disposed to licensed facilities.

9.10 Importation of Fill

Only soils classified as VENM or ENM will be imported to the site. Imported soils will be validated as specified in Table 7 in Section 7.7.1.

The remediation contractor will maintain detailed records of all fill imported to the site, including details of the supplier, the source of the fill, the quantities of the fill, vehicle registration numbers and the dates/times the fill was received on site.

9.11 Occupational Health and Safety

9.11.1 Hazard Identification and Risk Assessment

Each party working within the remediation works zone will prepare a project specific safe work method statement (SWMS) or job safety analysis (JSA), which will include:

- identification of hazards associated with work tasks;
- a risk assessment undertaken against each hazard identified; and
- identification of control measures to mitigate or eliminate risks associated with the hazards identified.

9.11.2 Personnel Decontamination

Personnel working at the site are required to be decontaminated prior to leaving the remediation works zone. Decontamination will include:

- cleaning down of boots
- washing of hands

9.11.3 Personal Protective Equipment

The minimum personal protective equipment (PPE) required to be worn by persons entering the remediation works zone will comprise of the following:

- Hard hats;
- Steel cap boots; and
- Hi-vis vest;

9.12 Emergency Preparedness

An emergency muster point will be established at the egress point of the site, to assemble workers in the event of an emergency. This muster point will be communicated to all workers during the project induction process.

Fire extinguishers and spill control kits will be available on site.

A register of contacts to be utilised in the event of an emergency is presented in Table 13.

Table 13 Emergency Response Contacts

Project Role	Person	Company	Contact Number
Emergency Services	-	Fire / Police / Ambulance	000
OH&S Regulatory Authority	-	WorkCover NSW	13 10 50
Environmental Regulatory Authority	-	NSW EPA Pollution Line	131 500
Project Director	Robert Blazely	Commercial & Industrial Property Pty Ltd	0438 708 345
Remediation Contractor	To be advised	To be advised	To be advised
Environmental Consultant	Abanish Nepal	SLR Consulting Australia	0448 178 915

9.13 Community Relations

The owners/occupants of premises adjoining, and across the road, from the parcel of land being remediated will be notified at least two days prior to the commencement of remediation works.

Communication and complaints received for the remediation works will be reported to the Project Director. All communications and complaints will be assessed and an appropriate response, corrective and/or preventative action implemented (as necessary).

A communication and complaints register will be operated on site to ensure that concerns of local residences and businesses are recorded and addressed.

10 CONCLUSION

Based on the information available in the contamination assessment reports, SLR considers that soils on the site can be made suitable for the land use, subject to:

- Implementation of the measures outlined in this remedial action plan; and
- Preparation of a site validation report.

Remediation monitoring, and validation works, should be undertaken by a suitably experienced environmental consultant.

This report must be read in conjunction with the limitations set out in Section 12.

11 REFERENCES

National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013'.

NSW DEC 2006, 'Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition)'.

NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites'.

PSI (PJR, 2015), 'Preliminary Site Investigation, Former Fairfax Printing Building, 2 Hume Highway, New South Wales, prepared for Charter Hall by Peter J Ramsay & Associates, August 2015.

WA DOH 2009, 'Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia' dated May 2009

SLR 2015, 'Air Quality and Odour Impact Assessment, 2 Hume Highway, Chullora', prepared by SLR Consulting Australia Pty Ltd, dated 7 October 2015, Report Number 610.15679-R1

12 LIMITATIONS

This report is for the exclusive use of . No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting.

This report has been prepared based on the scope of services (see below). SLR Consulting cannot be held responsible to the Client and/or others for any matters outside the agreed scope of services. Other parties should not rely upon this report and should make their own enquiries and obtain independent advice in relation to such matters.

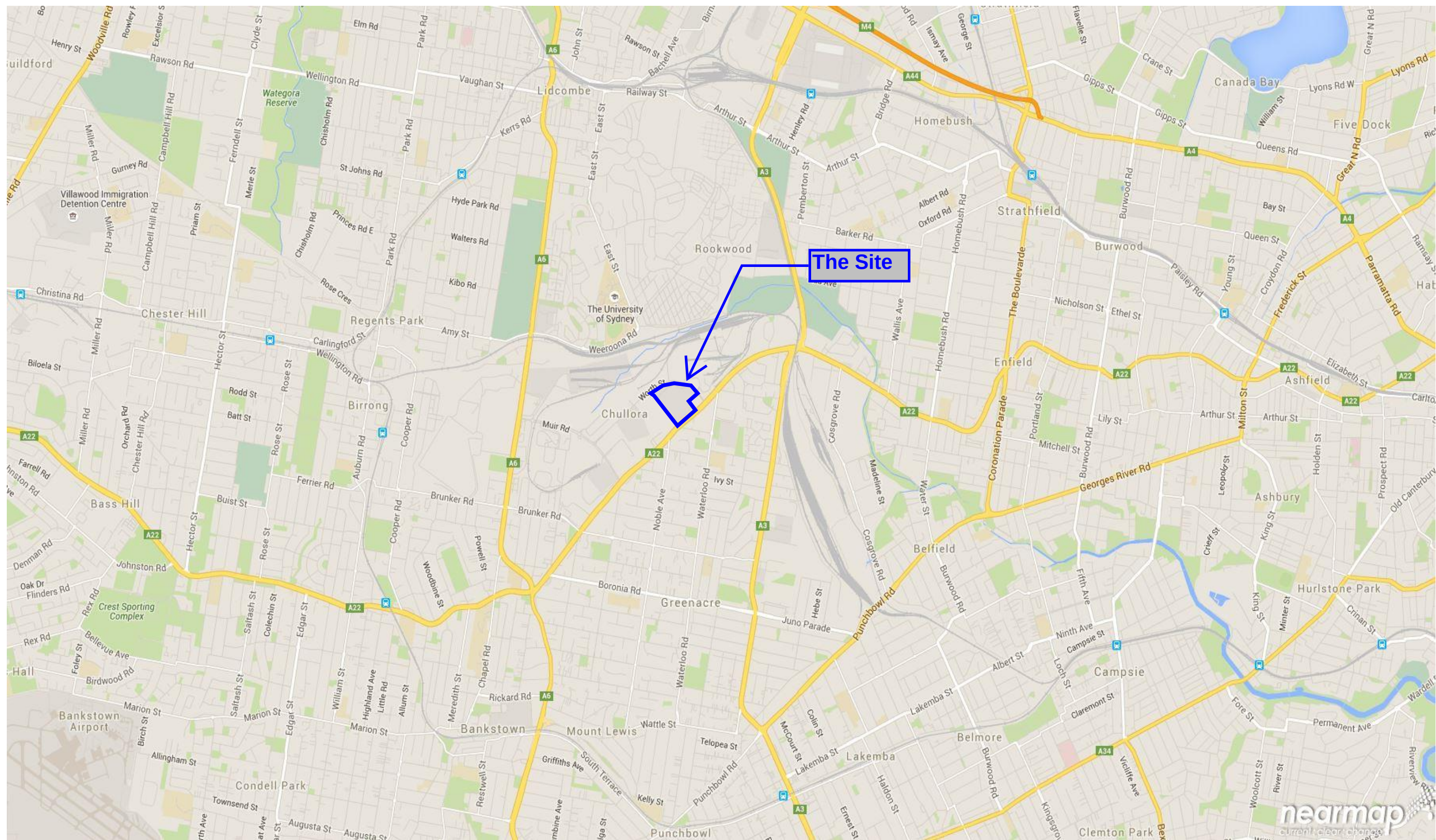
This report has been prepared by SLR Consulting with reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected (data, surveys, analyses, designs, plans and other information), which has been accepted in good faith as being accurate and valid.

It should be noted that many investigations are based upon an assessment of potentially contaminating processes which may have occurred historically on the site. This assessment is based upon historical records associated with the site. Such records may be inaccurate, absent or contradictory. In addition documents may exist which are not readily available for public viewing.

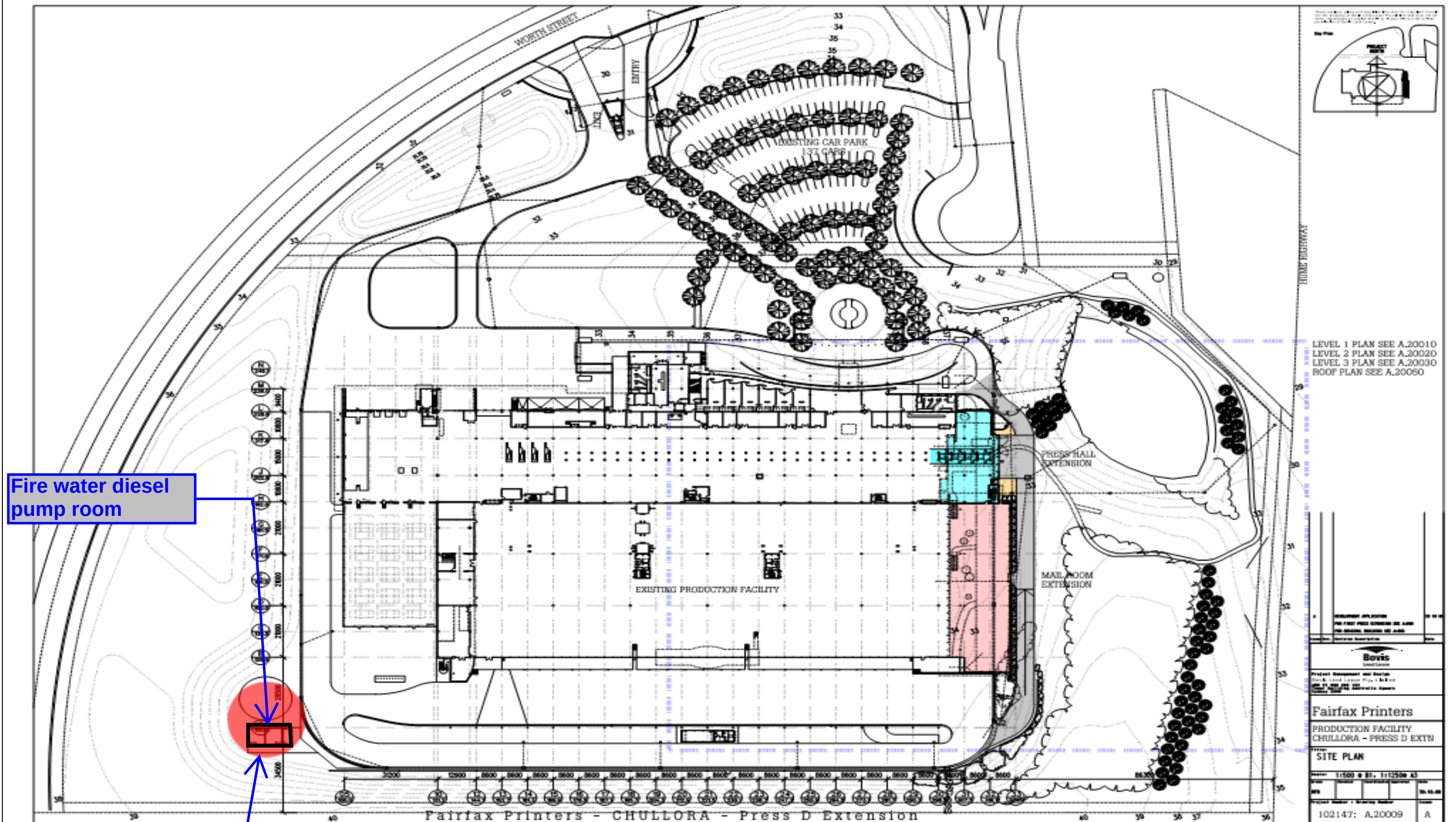
Except where it has been stated in this report, SLR Consulting has not verified the accuracy or completeness of the data relied upon. Statements, opinions, facts, information, conclusions and/or recommendations made in this report ("conclusions") are based in whole or part on the data obtained, those conclusions are contingent upon the accuracy and completeness of the data. SLR Consulting cannot be held liable should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to SLR Consulting leading to incorrect conclusions.

Should the report be reviewed for any reason, the report must be reviewed in its entirety and in conjunction with the associated Scope of Services. It should be understood that where a report has been developed for a specific purpose, for example a due diligence report for a property vendor, it may not be suitable for other purposes such as satisfying the needs of a purchaser or assessing contamination risks for classifying the site. The report should not be applied for any purpose other than that originally specified at the time the report was issued.

Report logs, figures, laboratory data, drawings, etc. are generated for this report by SLR consultants (unless otherwise stated) based on their individual interpretation of the site conditions at the time the site visit was undertaken. Although SLR consultants undergo training to achieve a standard of field reporting, individual interpretation still varies slightly. Information should not under any circumstances be redrawn for inclusion in other documents or separated from this report in any way.







Source: Existing Site Plan – prepared by Bovis Lend Lease
Figure is not to scale

FINDINGS OF PREVIOUS CONTAMINATION ASSESSMENTS REFERENCED IN PSI (PJR 2015)

Prensa 2012 – Phase 1 ESA

PSI (PJR 2015) summarised the findings of the Prensa 2012 as follows:

- “Chemicals were stored in many locations across the site including a solvent store (ink classified as C2 combustible liquids was stored in seven (7) above ground storage tanks (ASTs);
- Four (4) generators (2 pairs) fuelled by diesel were located in the north east and northwest sections of the building. The diesel was stored in a 5,000L AST;
- Minor quantities of Class 2.1 (flammable gas), Class 3 (flammable liquid), Class 8 (corrosive) and diesel (C1 combustible liquid) were observed throughout the site;
- At the time of the site inspection a hazardous chemicals register was not available for review. However, Prensa sighted notification forms provided to WorkCover NSW by Fairfax regarding the presence of chemicals on the site. The notification forms were dated 12 July 2014;
- Spill kits were observed throughout the site;
- The site operates a WWTP, which has a consent (provided by Sydney Water) to discharge to sewer. A reverse osmosis (RO) plant also exists on site which treats town water for use in some printing processes. The waste generated from this discharges to an on-site pond, which then discharges to stormwater;
- Prensa indicated that most of the operations on the site were unlikely to significantly impact stormwater. Some areas on site however were indicated to have the potential to drain to the local stormwater network (backup solvent stores, liquid waste stored in bulk and the fuel storage for diesel generators);
- All stormwater on the site flows to the on-site pond prior to discharge to the local stormwater network;
- Solid and liquid wastes generated at the site were collected in bins and containers which were managed by Transpacific Industries;
- Prensa reviewed the contamination potential of the site and indicated that it was located on land previously used for railway related activities. This corroborated the historical aerial photography which showed evidence of railway associated infrastructure. Prensa indicated that based on this former use, there was potential for historical contamination to be present, possibly associated with imported fill material and railway activities;
- It was noted that as part of construction of the existing Fairfax facility, the site would have been subject to cut and fill as indicated by the steep walls on the northern and western sections of the site;
- Prensa also indicated that a significant concrete slab was required as part of the engineering specifications for construction and that a significant volume of engineered subgrade would likely be present beneath the building; and
- The most significant potential source of contamination was indicated to be the WWTP. Liquid storage across the site was considered to be unlikely contamination sources.”

With regard to the Hazardous Materials Assessment, Prensa 2012 made the following conclusions:

- “Prensa indicated that no asbestos assessments were completed at the site. Prensa indicated that it is possible that equipment and components of plant could contain ACM, such as gaskets, brake lining etc. An asbestos survey was subsequently recommended;
- Synthetic Mineral Fibres (SMF) were observed within the wall and roof insulation, acoustic ceiling tiles in office areas, insulation to various pipework and ductwork throughout the building and insulation to domestic hot water;

FINDINGS OF PREVIOUS CONTAMINATION ASSESSMENTS REFERENCED IN PSI (PJR 2015)

- Polychlorinated Biphenyls (PCBs) and lead based paints were unlikely to be present due to the age of the building.”

Prensa 2013 Asbestos Building Material Assessment

PSI (PJR 2015) summarised the findings of the Prensa 2013 as follows:

“The Asbestos Building Materials Assessment (ABMA) was undertaken at the site to identify and assess the health risk posed by asbestos building materials within the structures and fabric of the building. The assessment consisted of a visual inspection for suspected asbestos containing materials (ACMs) within nominated and accessible areas of the site.

During the course of the assessment, Prensa 2013 collected three (3) samples of suspected ACMs. The samples were submitted to a NATA accredited laboratory for analysis. A gasket within the Unlimited Power Supply (UPS) room returned a positive result for chrysotile asbestos. Prensa concluded that it should assume that this and other gasket materials within the pipework could contain ACM.

Generally, the ABMA found that ACM is unlikely to be present as the building was constructed post 1990 when the ban on manufacture and use of all forms of ACMs was introduced across Australia.

Prensa 2013 made the following recommendations:

- Caution must be used around the boilers and fire doors until the presence/absence of ACM is confirmed;
- ACM that may be disturbed should be removed prior to commencement of any works;
- A destructive hazardous building materials survey (DHBMS) was recommended to be undertaken prior to any demolition or refurbishment works;
- Where asbestos removal works are required, the person undertaking the works must ensure that they are conducted by an appropriately licenced asbestos removalist and a clearance inspection is conducted at completion of the removal works; and
- During refurbishment works, if any materials that are not referenced in the ABMA report and are suspected of containing ACM are encountered, then works must cease and an asbestos hygienist should be notified.”

Prensa 2013 also stated that “Based on our review, it is considered that there is a low risk to the environment due to the presence of ACM within the fabric of the existing building at the site.”

WSP 2014 Environmental Data Review

PSI (PJR 2015) summarised the findings of the WSP 2014 as follows:

“The environmental data review was undertaken to collate information regarding historical earthworks and commercial development of the site in the 1990s and to review information regarding the former railway land use. The information was to be utilised to support supplementary soil and groundwater investigations at the site prior to divestment. WSP indicated in the report that it had previously undertaken site investigative works in 2013 and a draft report has been produced. The environmental data review included a review of information provided by the following sources:

- Rail Corporation NSW;
- Urbangrowth NSW
- Douglas Partners Pty Ltd;
- Thales Australia;

FINDINGS OF PREVIOUS CONTAMINATION ASSESSMENTS REFERENCED IN PSI (PJR 2015)

- Previous consultants reports;
- Liaison with Site Auditor (Mr Andrew Lau of JBS&G Pty Ltd); and
- Fairfax (site layout information to assess 'as built' conditions).

These reports and related information has been reviewed by PSI (PJR 2015). Key information from the WSP report is summarised following:

- Information held by Fairfax provided detail on the subsurface infrastructure under the printing presses and warehouse structure. WSP's review indicates that the printing presses have extensive piers that penetrate to at least 10 metres (m) below the presses into the natural shale bedrock underlying the site. WSP also report the presence of a sub-surface fire exit tunnel which runs east to west under the warehouse.
- Logs provided by Coffey (September 1993) provide details of the soil profile associated with the pier design (beneath printing press). The logs indicate the presence of fill materials to 6.0 m below ground level (BGL) (including sand, clay with timber and ash pockets), with residual clays and shale underlying this.
- WSP report include 'as built' plans that indicate the layout of the site in the 1990s and provide detail of an extension in 2003 (printing press area and offices). WSP report that Civil and Civic Pty Ltd (Civil and Civic) was engaged as the earthwork contractors for the development of the site in the 1990s.
- WSP provide a summary of the information obtained from Rail Corporation NSW which revolves around environmental investigations undertaken by Johnstone Environmental Technology (JET), which include and ESA undertaken in 1990 and Environmental Management Plan (EMP) prepared in 1991.
- The JET ESA encompassed a wider area which included the site. Test pits were progressed across the investigation area, with shallow soils, shale, ashy fill and mixed fill encountered. JET reported that methane and volatile compounds were not encountered. ACM was noted at the surface across the wider area, however, soil samples did not record the presence of ACM. Some organic and heavy metal contamination was encountered. Remediation proposed by JET included removal or burial as part of the development works.
- The JET EMP (1991) for land in addition to subject site provided management considerations to minimise risks to human health and the environment. The EMP included an outline of the civil works and removal of identified contaminated fill materials from the State Rail Authority (SRA) lands. The destination of the removed material was a proposed detention basin near Lots 22 and 24 (approximately 1 km to the west of the site).
- Correspondence from NSW EPA (22 April 1993) indicated that they were not satisfied with earlier soil investigation JET ESA in 1990 and an EMP prepared by JET in 1991. Australian Defence Industries (ADI) was subsequently engaged in 1993 to conduct further investigations.
- The findings of ADI's investigations indicate that heavy metals (copper, chromium and arsenic), total petroleum hydrocarbons (TPH) (C10-C36) up to 15,200 mg/kg, polycyclic aromatic hydrocarbons (PAHs) up to 65 mg/kg and asbestos impacts (at locations 23, 30, 32, and 40) were recorded at the site. The NSW EPA, at that time, recommended on-site treatment or burial as the preferred remedial strategy.
- Information which relates to NSW Environmental Protection Authority (EPA) correspondence (19 August 1993) in relation to site contamination was reviewed. Further correspondence (25 October 1993) between NSW EPA and Civil and Civic indicates that a remediation action plan (RAP) was prepared for the site by ADI, which was subsequently approved by NSW EPA on 12 October 1993.
- ADI's RAP is reported to have outlined the process for remediation of the contaminated soil. The remedial approach was to remove the contaminated soil from the site.

FINDINGS OF PREVIOUS CONTAMINATION ASSESSMENTS REFERENCED IN PSI (PJR 2015)

- It is reported that Civil and Civic (letter dated 11 January 1994) provided a brief statement on the earthworks and validation works at the site in that remediation of the soil was being carried out and stage 2 works will be completed by mid-January 1994.
- ADI's 1993 validation report indicates the TPH impacted soils were land farmed prior to off-site disposal (location unknown). The PAH, asbestos and heavy metal impacted soil was reported as being removed off-site for disposal (location unknown). However, residual contamination is indicated to be present at the site with concentrations of the following remaining at the respective remediation area:
 - PAHs (total) at 149 mg/kg (location 18);
 - TPH at 9,100 mg/kg (location 42);
 - Copper at 286 mg/kg (location 23);
 - Arsenic at 12 and 24 mg/kg (locations 41 and 30); and
 - Chromium at 100 mg/kg (location 41).
- WSP further report that a letter from the NSW EPA (December 1993) indicates that it agreed with ADI's opinion that the remedial areas located at the site had been remediated successfully in accordance with the RAP.
- A summary of a letter between Civil and Civic and Bankstown Council (11 January 1994) is also provided, which states that part of remedial works were completed in late 1993. WSP also note that the letter makes reference to the RAP and that it makes provision for the 'on site containment' of asbestos sheets that may be encountered during the general excavation.
-
- In its conclusions, WSP summarise the findings of all sources of information reviewed and state that significant earthworks across the site occurred during the mid-1990s. During the earthworks and reshaping of the site, some low level contaminated material is likely to have been emplaced or reused within areas of the site that required filling and that these may remain insitu following remedial works.
- The filling of land with low level contaminated material was unlikely to have occurred under the building and printing presses due to the engineering requirements and geotechnical specification of the subgrade which was required.
- WSP recommended that a Sampling Analysis Quality Plan (SAQP) be prepared that outlines the supplementary investigations necessary to evaluate the risk associated with the buried fill at the site."

WSP 2015 Limited ESA

PSI (PJR 2015) summarised the findings of the WSP 2015 as follows:

"The 2015 Limited ESA involved progressing fifteen (15) boreholes within the soil profile at targeted locations around the site. The objective was to investigate and assess the quality of the soil and groundwater at the site.

The results of the ESA indicate that fill material was encountered to various depths within all boreholes overlying natural soils (clay or shale). The maximum depth of fill at the site was 6.7 m BGL in the northeastern portion of the site. In the northern and western portions of the site the fill was not as deep and only extended to a depth of 2.0 m BGL.

FINDINGS OF PREVIOUS CONTAMINATION ASSESSMENTS REFERENCED IN PSI (PJR 2015)

The fill was characterised by dark brown – grey gravelly clay with crushed sandstone, sand and concrete. Charcoal and ashy inclusions were encountered within fill in boreholes BH01 to BH07 in the eastern and southern portions of the site. A slight hydrocarbon odour was noted at deeper depths in BH06 (2.5 to 4.0 m BGL) and BH07 (1.7 to 6.5 m BGL) in the central eastern portion of the site. WSP report that no significant inflow from groundwater was noted in the shallower depths. Groundwater was encountered within the deeper bedrock in two groundwater monitoring wells installed at the site.

WSP compared the analytical results to the guideline values specified in the ASC NEPM 1999, which were superseded by a set of new risk-based guidelines in April 2013. The phase in period for the ASC NEPM (as amended 2013) ceased in April 2014. Therefore, comparison to the ASC NEPM 1999 criteria was inappropriate.”

However, PSI (PJR 2015) found the heavy metal, PAH, PCB, TPH, BTEX and OCP concentrations were below the health-based guidelines applicable for a commercial/industrial land use. The copper (up to 2,800 mg/kg, nickel (up to 100 mg/kg) and zinc (up to 5,900 mg/kg) are above the ecological-based guideline values for a commercial/industrial land use, which are only applicable in areas of open accessible soil. No asbestos fibres were detected in any of the soil samples collected and analysed.

The results of the groundwater assessment identified elevated concentrations of cadmium, copper, and zinc above the guidelines applicable for the protection of aquatic ecosystems, which apply at the point of groundwater discharge into the nearest receiving water body. Results of the remainder of the analytes indicate that they were recorded at concentrations below the adopted site criteria of below the laboratory detection limit.

WSP concluded that the site “is suitable, from a human health perspective, for ‘commercial / industrial’ land use for areas of the site not covered by hard stand. WSP also concludes that the site is not having a deleterious effect on environmental/ecological receptors or surrounding properties in regards to contamination.

WSP 2015A Decommissioning Environmental Report

PSI (PJR 2015) summarised the findings of the WSP 2015A as follows:

“The scope of the works included a summary of the historical environmental investigation works at the site, a review of the site decommissioning plan works methodologies (with a view towards environmental liabilities) and a review of the licencing and compliance documentation provided by Fairfax relating to the site (MSDS, trade waste information etc). Other aspects of the work included ensuring adequate processes are in place such as emergency response procedures and on-site supervision during key decommissioning plan.

WSP supervised the decommissioning and decanting of the seven (7) ink tanks (23 to 25 July 2014), which were transported in 1,000 L totes to the Fairfax printing facility in North Richmond, NSW for reuse.

WSP also supervised the removal of the seven (7) ink tanks (1 to 4 December 2014) which were transported to Coopers Environmental Waste Recycling Pty Ltd (St. Marys, NSW) for reuse. Empty press wash solvent tanks were sent to a licenced waste facility (SITA) for disposal. Waste gear oil used in the printing presses was removed from the site (approximately 7,000L) to Coopers Environmental Waste Recycling Pty Ltd. WSP noted that no significant spills or incidents were observed during the removal process.

Overall, WSP noted that no significant impact to the environment was noted during the decommissioning processes and that all works were undertaken by suitably qualified contractors.”