



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Preliminary Site Investigation (Contamination)

Proposed Helipad
89 - 151 Old Castlereagh Road, Penrith

Prepared for
Colliers International Pty Ltd

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Integrated Practical Solutions



pp

Executive Summary

Douglas Partners Pty Ltd (DP) has been engaged by Colliers International Pty Ltd to complete this Preliminary Site Investigation for Contamination (PSI) at 89 - 151 Old Castlereagh Road, Penrith (the site). The investigation was initially commissioned to facilitate master planning of a larger development that was meant to occupy the majority of the site. However, based on information provided by the client it is understood that the larger development is on hold and the current development application is for a Helipad with ground disturbance works limited to the central portion of the site as described in Section 1. Whilst noting that the works area that is the subject of the development application is limited to the central portion of the site, this report, nevertheless, presents the results of the investigation for the overall site.

The investigation included a desktop review of site history, a site walkover, development of a preliminary conceptual site model (CSM), intrusive soil sampling from 34 test pits that were placed across the larger site, laboratory analysis for contaminants of potential concern (COPC) and interpretation of results with reference to current NSW EPA endorsed guidelines.

The reviewed site history sources indicate that the site was used for farmland from at least 1913 until 1961, then for sand and gravel quarrying from 1961 until 1989. In 1989 the site was acquired by the Penrith Lakes Development Corporation and was developed for commercial / light industrial purposes. The surrounding land has a similar history, with the majority of surrounding land being used for agricultural purposes until the 1960's, then for quarrying, commercial, industrial and recreational purposes. The site history sources indicate that backfilling has occurred at the site and immediate surrounds following quarrying.

Identified potential sources of contamination at the site include fill, former agricultural and quarrying land uses, hazardous building materials from the buildings and structures on the site, dangerous goods currently stored on site (i.e., flammable liquids, potential underground fuel storage tanks and chemical storage) and surrounding (up-gradient) commercial / industrial land uses including service stations, chemical manufacturing and waste generation facilities.

The investigation encountered two distinct 'types' of fill across the site. Within 'non-quarried' parts of the site, surficial fill comprising sands, gravelly sands, silty clays underlying silty / clayey topsoils or asphaltic pavements, was encountered to maximum depths of about 1 m below the surface. In the 'quarried' parts of the site, material inferred to be possible fill was encountered to significant depths, potentially up to 12.2 m below existing surface levels. The inferred fill typically comprised layers of sands and clays, with gravel. Various anthropogenic materials were encountered in several test pits including timber, asphaltic concrete, PVC pipe, brick rubble, glass and a possible asbestos containing fibre cement pipe. The fill was underlain by natural alluvial sands and clays.

Several fragments of potential asbestos-containing material were observed at the surface near site buildings.

The results of the intrusive soil investigation indicated that levels of contaminants in the analysed fill and natural soil samples are within the adopted site assessment criteria (SAC).

The fill soils at the site have been given a preliminary waste classification of General Solid Waste (non-putrescible). A formal waste classification including additional testing and visual inspection, is necessary

for all soils requiring future off-site disposal. Final classification of soils / gravel which are to be disposed off-site (either to landfill or for re-use) will also be required in accordance with the POEO Act.

Overall, the results of the current investigation have not identified indicators of widespread contamination at the site. Notwithstanding, given the reduced sampling density adopted for this preliminary intrusive investigation and noting that investigations have not been undertaken in the vicinity of the underground fuel tanks identified in the SafeWork NSW records, the potential for unidentified contamination pockets cannot be completely ruled out. As such, it is recommended that a Detailed Site Investigation (Contamination) (DSI) is undertaken. As the works that are the subject of the current development application are limited to the central portion of the site, the DSI could potentially target the proposed works area/s that is the subject of the current development application. Additionally, given that the proposed works area is currently occupied by buildings, the DSI may be more readily undertaken following the demolition of the site buildings / structures. The purpose of the proposed DSI will be to further evaluate the potential contamination status (including testing around PAEC identified during this PSI) and confirm the perceived low potential for widespread contamination. If the DSI identifies contamination, a soil vapour or groundwater investigation may be further recommended. In addition, the DSI should provide recommendations on the need for any further targeted investigation(s) and / or remediation (if deemed necessary).

A hazardous building material (HAZMAT) assessment is required for the existing site buildings. Hazardous materials, if present, will need to be removed in accordance with relevant legislation and guidelines prior to demolition.

Table of Contents

	Page
1. Introduction.....	1
2. Scope of Works.....	2
3. Site Information.....	3
4. Environmental Setting.....	5
4.1 Topography.....	5
4.2 Site Geology.....	6
4.3 Acid Sulphate Soils.....	6
4.4 Surface Water and Groundwater.....	7
5. Previous Investigations.....	8
5.1 (DP, 2013).....	8
5.2 (Coffey, 2014).....	8
5.3 Other DP Investigations.....	9
6. Site History.....	10
6.1 Title Deeds.....	10
6.2 Historical Aerial Photography.....	11
6.3 Public Registers and Planning Records.....	13
6.4 Other Sources.....	14
6.5 Site History Integrity Assessment.....	14
6.6 Summary of Site History.....	15
7. Site Walkover.....	15
8. Preliminary Conceptual Site Model.....	16
9. Sampling and Analysis Quality Plan.....	19
9.1 Data Quality Objectives.....	19
9.2 Soil Sampling Rationale.....	19
10. Site Assessment Criteria.....	20
11. Results.....	20
11.1 Field Work Results.....	20
11.2 Laboratory Analytical Results.....	21
12. Discussion.....	21
12.1 Soils 21	
12.2 Preliminary Waste Classification Assessment.....	22

12.3	Data Quality Assurance and Quality Control	23
13.	Conclusions and Recommendations	23
14.	References	25
15.	Limitations	25

Appendices

Appendix A:	Drawings
Appendix B:	Notes About this Report
Appendix C:	Historical Title Deeds
Appendix D:	Historical Aerial Photographs
Appendix E:	Council Records
Appendix F:	SafeWork Search Results
Appendix G:	Section 10.7 (2 & 5) Planning Certificates [not available at the time of reporting]
Appendix H:	Site Photographs
Appendix I:	Data Quality Objectives
Appendix J:	Field Work Methodology
Appendix K:	Site Assessment Criteria
Appendix L:	Test Pit Logs
Appendix M:	Laboratory Results Tables
Appendix N:	Laboratory Chain of Custody, Sample Receipt Advice and Certificate of Analysis Documentation
Appendix O:	Data Quality Assurance and Quality Control

Report on Preliminary Site Investigation (Contamination)

Proposed Helipad

89 - 151 Old Castlereagh Road, Penrith

1. Introduction

Douglas Partners Pty Ltd (DP) has been engaged by Colliers International Pty Ltd to complete this preliminary site investigation (Contamination) (PSI) at a portion of 89 - 151 Old Castlereagh Road, Penrith (the site). The site is shown on Drawing 1, Appendix A. The investigation was undertaken in accordance with DP's proposal 204635.00 dated 7 May 2021.

The investigation was initially commissioned to facilitate master planning of a larger development that was meant to occupy the majority of the site. However, based on information provided by the client it is understood that the larger development is on hold and the current development application is for a Helipad with limited ground disturbance works in the central portion of the site as follows:

- Demolition of 2x single storey sheds and integrated hardstand extending beyond the footprint of the sheds;
- Demolition of 1 small single storey shed and associated pavement;
- Removal of 1 inground stormwater tank;
- Removal of 1 flood light;
- Removal of less than 10 trees;
- Reinstatement of grass turf in locations of removed hardstands and pavement;
- New concrete hardstand in location of existing concrete hardstands; and
- New lighting as required for the final approach and take-off (FATO) pad.

Whilst noting that the works area that is the subject of the development application is limited to the central portion of the site, this report, nevertheless, presents the results of the investigation for the overall site.

The objective of the PSI is to assess the potential for contamination at the site based on past and present land uses and to comment on the need for further investigation and / or management with regard to the proposed development. The PSI is required to address the Standard Secretary's Environmental Assessment Requirements (SEARs) for the development.

The investigation was undertaken concurrently with a geotechnical investigation¹, reported separately.

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

¹ DP, *Report on Geotechnical Investigation, Proposed Helicopter Facility, 89 - 151 Old Castlereagh Road, Penrith*, dated September 2021, DP Reference: 204635.00.R.001.Rev1.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

2. Scope of Works

The NSW *Sampling Design Guidelines* 1995 recommends a minimum of 135 systematic grid-based sampling locations for a site area of 11.3 ha. A reduced / limited sampling density comprising 25% of the recommended sampling density (i.e., 33 test locations) has been adopted for this PSI to obtain preliminary data on the contamination status of the site.

The scope of works for this PSI included the following:

- Review of published site information, including:
 - o Historical aerial photographs of the site and immediate surrounds;
 - o Soil, geological, topographical, hydrogeological and acid sulphate soils (ASS) maps; and
 - o Registered groundwater bore records.
- Review of previous reports prepared by DP for the site and immediate surrounds;
- Review of historical land title deed information;
- Review of NSW EPA records to determine the existence of statutory notices for the site, or adjacent land, under the *Contaminated Land Management Act 1997* and the *Protection of the Environment Operations Act 1997*;
- Review of publicly available Council Records available under the Government Information (Public Access) (GIPA) Act;
- Review of SafeWork NSW Records for the storage of dangerous goods and chemicals [not available at the time of reporting];
- Review of Council Section 10.7 (2 and 5) Planning Certificate [not available at the time of reporting];
- A site walkover to identify current site features and Potential Areas of Environmental Concern (PAEC);
- Preparation of a safe work method statement (SWMS) and field work safety environmental plan (FWSEP);
- Review of service plans obtained from a dial-before-you-dig (DBYD) services search, electronic scanning for services at the test locations and surveying of each test location using a differential GPS;
- Excavation of 20 test pits using an excavator to a depth of 0.1 m into natural soil, a maximum depth of 3.0 m bgl or prior refusal;
- Recording of pertinent field information including soil descriptions on test pit logs;

- Collection of soil samples from the 20 environmental test pits and the 14 test pits excavated for the geotechnical investigation (i.e., 34 locations) at regular depth intervals, at changes in strata and upon signs of contamination (i.e., odours or staining) to a depth of at least 1.0 m into natural soils;
- Recording of pertinent field information including soil descriptions on test pit logs;
- Screening of all soil samples with a photo-ionisation detector (PID) to assess the likely presence or absence of volatile organic compounds (VOC);
- Laboratory of selected soil samples for a range of commonly encountered contaminants including:
 - o 8 heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - o Total recoverable hydrocarbons (TRH);
 - o Benzene, toluene, ethylbenzene and xylenes (BTEX);
 - o Polycyclic aromatic hydrocarbons (PAH);
 - o Organochlorine pesticides (OCP);
 - o Organophosphorus pesticides (OPP);
 - o Polychlorinated biphenyls (PCB);
 - o Total phenols;
 - o Per- and polyfluoroalkyl substances (PFAS); and
 - o Asbestos (40 g soil screen).
- Field sampling and laboratory analysis in compliance with standard environmental protocols, including a Quality Assurance and Quality Control (QA / QC) Plan consisting of 10% replicate sampling, trip spikes, trip blanks, appropriate chain-of-custody procedures and in-house laboratory QA / QC testing;
- Development of a preliminary conceptual site model (CSM); and
- Preparation of this PSI report outlining the methodology and results of the assessment.

3. Site Information

Site Address	89 - 151 Old Castlereagh Road, Penrith
Legal Description	Lot 2, Deposited Plan 1013504
Area	The site: 11.3 ha Development area: 5 ha
Zoning	"Tourism" under the State Environmental Planning Policy (Penrith Lakes Scheme) 1989
Local Council Area	Penrith City Council
Current Use	Commercial The site forms part of the Penrith Lakes Site and is where the Penrith Lakes Development Corporation office is situated.

Surrounding Uses	North - Recreational - the Sydney International Regatta Centre ('Rowing Lake') East - Mostly landscaped areas. Beyond that are rural residential properties and a surface water body. South - Commercial / Industrial West - Commercial / Industrial comprising mostly open space
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Figure 1: Site Location

The development area covers a portion of the site at 89 – 151 Old Castlereagh Road, Penrith as shown in Drawing 1, Appendix A. The site is currently occupied by several warehouse type buildings, storage sheds and office buildings. There is a man-made lake (Duck Pond) in the north-west corner of the site.

4. Environmental Setting

4.1 Topography

Regional topography slopes downwards to the west and north-west. Regional topography is shown on Figure 2.

Site topography slopes downwards to the north, sitting at 25.4 m relatively to Australian Height Datum (AHD) at the south site boundary to 17.4 m AHD at the north site boundary. Site topography is shown on Figure 3.

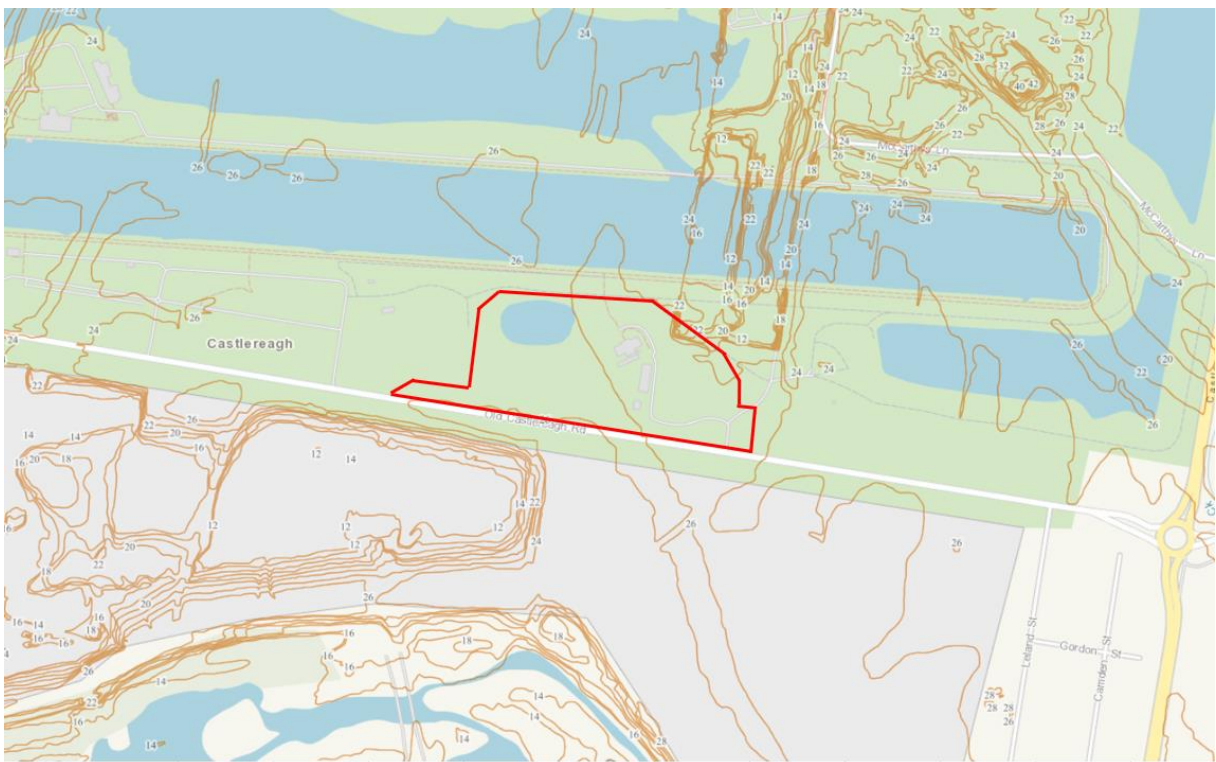


Figure 2: Regional Topography with 2 m Elevation Contours



Figure 3: Site Topography (surface levels obtained using dGPS)

4.2 Site Geology

The Sydney 1:100,000 Geology Sheet indicates that the site is underlain by Quaternary age alluvial sediment of the Cranebrook formation. The alluvium group comprises channel and flood plain alluvium; gravel, sand, silt and clay. The alluvial sediment is underlain by Bringelly Shale bedrock.

The Sydney 1:100,000 Soils Landscape Sheet indicates that the site is underlain by Richmond alluvial soils. The Richmond soils landscape group comprises poorly structured orange to red clay loams, clays and sands. Texture may increase with depth and ironstone nodules may be present. Plastic Clays are present in drainage lines. Deep acid non-calciic brown soils, red earths and red podzolic soils occur on terrace surfaces with earthy sands on terrace edges.

4.3 Acid Sulphate Soils

The site is not within a region of mapped acid sulphate soil risk. It is noted that acid sulphate soils mostly occur in low lying coastal areas, typically below RL 5 m AHD, and rarely above RL 10 m AHD. The nearest mapped region is the Nepean River to the south, where there is no known occurrence of acid sulphate soils.

4.4 Surface Water and Groundwater

The site is located over the Nepean River floodplain.

There is a pond located in the north-west portion of the site (known as Duck Pond). Based on site topography, surface water on the site is anticipated to flow into Duck Pond and the Regatta Centre 'Rowing Lake' north of the site.

A search of the publicly available registered groundwater bore indicated that there are 80 registered groundwater bores within 1 km of the site. The bores were registered for various purposes including domestic, monitoring, remediation and irrigation. The 7 groundwater bores that had recorded standing water level data are summarised in Table 1.

Table 1: Summary of Available Information from Nearby Registered Groundwater Bores

Bore ID Authorised Purpose	Location Relative to Site	Final Depth (m)	Standing Water Level (m bgl)
GW100913 Domestic	370 m east	14.0	1.2
GW100914 Domestic	275 m east	Not recorded	1.5
GW101892 Domestic	675 m north	14.3	6.7
GW107307 Monitoring	995 m south-east	13.2	7.5
GW107899 Monitoring Bore	1 km south-east	10.0	7.0
GW107900 Monitoring Bore	1 km south-east	10.0	7.0
GW108898 Monitoring Bore	1 km south	9.5	14.6

Based on the site regional topography, the anticipated flow direction of groundwater beneath the site is to the west and north-west, towards Duck Pond and the Rowing Lake north of the site, then the Hawkesbury River, the likely receiving surface water body for the groundwater flow path.

Given the local geology (i.e., alluvial sediment), the groundwater beneath the site is anticipated to be relatively fresh. Accordingly, potential beneficial uses could include irrigation or drinking water, although the future use of the groundwater for these purposes in the vicinity of the site is considered unlikely given the commercial / industrial setting.

5. Previous Investigations

DP has previously undertaken geotechnical investigations at the site. Reports relevant to this PSI summarised below are as follows:

- DP (2013), *Report on Desktop Assessment, Penrith Lakes Master Plan, Castlereagh*, Report Reference 73162, dated 21 February 2013. ‘
- Coffey (2014), *Landform Appraisal - Old Castlereagh Road Land Parcel*, Report Reference GEOTLCOV24000HB-CT, dated 12 June 2014.

5.1 (DP, 2013)

DP (2013) was undertaken for the development of the Penrith Lakes Master Plan directly north of the site. The report indicated that the pre-quarried subsurface profile around the site comprised fluvial sands, clays and silty sands to depths of between 6 m and 8 m, underlain by clayey gravel to depths of between 12 m and 20 m, underlain by shale or sandstone bedrock. Groundwater was understood to be between RL 10 m and RL 16 m AHD.

The report stated that the quarried areas of the site appeared to have been backfilled with overburden spoil, shaped into lakes / dams or used to store tailings.

The report also noted that rehabilitation works were understood to have occurred in quarried areas, particularly since 2001. The rehabilitation works were understood to have comprised earthworks including placement and compaction of imported fill.

5.2 (Coffey, 2014)

A Landform Appraisal was undertaken by Coffey (2014) which included a review of site history. The report indicated that alluvial sand and gravel extraction (i.e., quarrying) commenced at the site in about 1965 with material being excavated to bedrock. The report also indicated that the quarrying ceased about 30 m north of Old Castlereagh Road, except for a finger of land about 50 m wide beneath the current Muru Mittigar Aboriginal Cultural and Education Centre, as shown on Figure 4.



Figure 4: Historically Quarried Area of the Site [updated from Figure 2, Coffey (2014)]

The site history review found that backfilling of the quarried land commenced at the end of 1984 and the general landform profile at completion in March 1987 was summarised as scraper compacted fill (10 m - 13 m thick) over roller compacted fill (2 m - 4 m thick) over shale bedrock at about 11 m AHD. Previous intrusive investigations undertaken by Coffey at the site encountered fill that matched this profile. No records have been provided or reviewed which confirm the provenance or quality of the materials.

The report stated that the Muru Mittigar buildings were constructed at the site circa 1988, mostly located on the unmined portion of the site. The Penrith Lakes Development Corporation Site Office was constructed in 1993.

5.3 Other DP Investigations

Other DP investigations undertaken in the vicinity of the site, including intrusive investigations, have encountered fill to depths of up to 1.5 m underlain by natural clay or silty clay. Reports have estimated, however, that backfilled 'quarry overburden' could be present to depths of 10 m to 15 m at the site.

6. Site History

6.1 Title Deeds

A historical title deeds search was used to obtain ownership and occupancy information including company names and the occupations of individuals. The title information can assist in the identification of previous land uses by the company names or the site owners and can, therefore, assist in establishing whether there were potentially contaminating activities occurring at the site. A summary of the title deeds and possible land uses (with reference to the aerial photographs and other historical searches) is presented in Table 2a-2b. A copy of the title deeds is included in Appendix C.

Table 2a: Historical Title Deeds - part of site numbered (1) on attached Charting Map Extract, Appendix C

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations	Inferred Land Use
15.09.1913 (1913 to 1945)	Alan Long (Farmer)	Farmland
27.02.1945 (1945)	Elizabeth Ann Long (Widow)	Farmland
14.03.1945 (1945 to 1948)	Edward Lionel Shepherd (Dairyman)	Farmland
30.09.1948 (1948 to 1950)	Albert Milton Luck (Milk Vendor)	Farmland
25.01.1950 (1950 to 1953)	Evelyn Maude McKay (Married Woman)	Farmland
30.12.1954 (1954 to 1961)	Russell James Brown (Grazier)	Farmland
04.04.1961 (1961 to 1989)	River Sand and Gravel Pty Limited	Mining
13.10.1989 (1989 to date)	Penrith Lakes Development Corporation Limited #	Commercial / Industrial / Recreational

#: Denotes current registered proprietor

Table 3b: Historical Title Deeds - part of site numbered (2) on attached Charting Map Extract, Appendix C

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations	Inferred Land Use
25.01.1929 (1929 to 1937)	Josiah Stanton (Farmer)	Farmland
02.03.1937 (1937)	Lindsay John Stanton (Farmer) William Wellesley Lennox (Clerk)	Farmland
02.03.1937 (1937 to 1939)	Clarice Nation Broadbent (Married Woman)	Farmland
22.11.1939 (1939 to 1949)	David Broadbent (Farmer) Reginald Stanton Broadbent (Farmer)	Farmland
12.12.1949 (1949 to 1961)	Reginald Stanton Broadbent (Farmer)	Farmland
18.02.1961 (1961 to 1989)	River Sand and Gravel Pty Limited	Mining
13.10.1989 (1989 to date)	Penrith Lakes Development Corporation Limited #	Commercial / Industrial / Recreational

#: Denotes current registered proprietor

6.2 Historical Aerial Photography

Several historical aerial photographs were obtained from public databases. Extracts of the aerial photographs are included in Appendix D. A summary of key features observed for the site and surrounding land is presented in Table 4.

Table 4: Summary of Historical Aerial Photographs

Year	Site	Surrounding Land Use
1955	The site was covered by farmland. Plantations or orchards extended onto the east side of the site. Eight small buildings, likely residential dwellings and sheds were present in the middle of the site. The remainder of the site was appeared to be landscaped for agricultural purposes.	<p>The surrounding land was used for agricultural purposes, with several plantations or orchards and possible grazing land. Small residential dwellings were present on some adjacent lots, although the surrounding land was largely absent of buildings.</p> <p>The Nepean River was visible approximately 650 m south of the site. A separate creek or river was visible approximately 500 m north-east of the site. No other water bodies were present on the surrounding land.</p> <p>Old Castlereagh Road ran along the south site boundary, consistent with its current orientation.</p>
1975	<p>The plantation or orchard that extended onto the site was no longer present and the site no longer appeared to be used for agricultural purposes.</p> <p>A diagonal cutting went through the centre of the site, possibly associated with sand / gravel mining or quarrying, or an ephemeral water body.</p>	<p>Many of the surrounding plantations or orchards and agricultural lots were cleared and appeared vacant / undeveloped.</p> <p>Mines or quarries were present approximately 50 m east, 600 m north-east and 500 m south-west of the site.</p>
1979	The diagonal cutting through the site appeared to have been filled in.	The remaining plantations or orchards at surrounding lots were removed, although some agricultural land use was still apparent.
1986	All the buildings on the site except three were demolished. The site had significant ground disturbance with some tracks and appeared to have a possible extractive use.	The ground disturbance and possible mining use at the site extended to the site's adjacent lots, with no apparent agricultural land use remaining. Six mining / quarry pits were present to the south (across Old Castlereagh Road), west and north of the site.

Year	Site	Surrounding Land Use
		Several medium-sized, possible commercial buildings were constructed approximately 600 m south-east of the site.
1991	<p>A large (500 m by 700 m) water body extended onto the north side of the site. The disturbed land on the site appeared to be at least partially restored and covered with new vegetation.</p> <p>The buildings formerly on the site were removed and replaced by one medium-sized commercial building (Muru Mittaggar building). A new road or track was paved along the south site boundary.</p>	<p>Land to the north of the site was covered by the large mining / quarry pit or water body that extended onto the site.</p> <p>Surrounding pits and excavations to the south and east of the site changed in shape and orientation. The land to the west of the site appeared to be undergoing mining with significant ground disturbance and tracks.</p>
2000	<p>The pit or water body on the north side of the site was replaced by a smaller man-made lake (Duck Pond) in the north-west corner of the site.</p> <p>Several new commercial buildings were constructed on the east side of the site, including the Penrith Lakes Development Corporation office, along with a parking lot and paved road.</p> <p>The site appeared to be consistent with the current site layout.</p>	<p>The surrounding land underwent significant development with the north and east sides of the site being transformed into the Penrith Lakes Regional Park and Development. The park had several marinas, lines of trees and commercial buildings. The west side of the site was developed into parkland.</p> <p>A new road was constructed around the pits / water bodies south of the site (across Old Castlereagh Road).</p>
2011	A road was extended to the west side of the site. A small building was constructed along the south site boundary.	<p>The pit / water body south of the site (across Old Castlereagh Road) changed in shape, with several new tracks and disturbances.</p> <p>Land approximately 700 m south-east of the site underwent significant development for a commercial / industrial land use, and land approximately 600 m east of the site (across Castlereagh Road) was developed for a residential land use.</p>

6.3 Public Registers and Planning Records

<p>EPA Notices available under Section 58 of the Contaminated Lands Management Act (CLM Act)</p> <p>Database searched 3 June 2021</p>	<p>There were no records of Notices for the site.</p> <p>There was one site with an EPA notice within a 1.5 km search radius:</p> <ul style="list-style-type: none"> Crane Enfield Metals - 2115 Castlereagh Road, Penrith [1.5 km south-east] - metal industry - land declared as significantly contaminated land and is subject of an ongoing maintenance order.
<p>Sites notified to EPA under Section 60 of the CLM Act</p> <p>Database searched 3 June 2021</p>	<p>The site was not listed as a notified contaminated site.</p> <p>There were four sites notified to the EPA within a 1.5 km search radius:</p> <ul style="list-style-type: none"> 7-Eleven Service Station - 212-222 Andres Road, Penrith [1.1 km south-east] - regulation under CLM act not required; Caltex Service Station - Castlereagh Road, corner of Lugard Street, Penrith [1.2 km south-east] - regulation under the CLM act not required; Crane Enfield Metals - 2115 Castlereagh Road, Penrith [1.5 km south-east] - metal industry - ongoing maintenance under the CLM Act required to manage residual contamination; and Mirvac Industrial Site - 2101 Castlereagh Road, Penrith [1.4 km south-east] - regulation under the CLM act not required.
<p>Licences listed under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act)</p> <p>Database searched 3 June 2021</p>	<p>There were no licences issued to the site.</p> <p>There were seven sites with licences within a 1.5 km search radius:</p> <ul style="list-style-type: none"> 5R Solutions Pty Ltd - 2115-2131 Castlereagh Road, Penrith [1.5 km south-east] - waste storage - POEO licence surrendered; Capral Limited - 2115 Castlereagh Road, Penrith [1.5 km south-east] - metal waste generation - licence issued 2014; Crane Enfield Metals - 2114 Castlereagh Road, Penrith [1.5 km south-east] - metal waste generation and processing - licence issued 2003; Dorf Clark Industries Limited - 2101 Castlereagh Road, Penrith [1.4 km south-east] - POEO licence surrendered; Meyer Timbers - 2101-2113 Castlereagh Road, Penrith [1.2 km south-east] - wood preservation - licence issued 2019; Penrith Sewage Treatment System - 2151 Castlereagh Road, Penrith [1.5km south-east] - sewage treatment - licence issued 2000; and Virbac - 2152 Castlereagh Road, Penrith [1.5 km south-east] - chemical production and waste generation - licence issued 2000.

SafeWork NSW	A SafeWork NSW search was ordered on 15 June 2021. The results of the search showed that the licenses for a 3000L underground petrol storage tank was renewed up to February 2006. Additionally, the records suggest that up to two other underground tanks may have also been installed at the site in 1964. However, based on the sketches provided in the SafeWork NSW results, it is not possible to identify the exact locations of the tanks. Copies of the SafeWork NSW are provided in Appendix F.
Planning Certificate(s)	Section 10.7 (2&5) were not available at the time of reporting.
Council Records	<p>Several public records were available from Penrith City Council. The following relevant information was included in the records:</p> <ul style="list-style-type: none"> • A Development Application (DA) submitted in 2014 (JBA Urban Planning Consultants Pty Ltd, February 2014) for the Penrith Lakes (which includes the site). The DA indicated that the surrounding area was mined for sand and gravel from the 1880's, with quarrying away from the Nepean River from the late 1950's. The Penrith Lakes Scheme concept was launched and implemented in the 1980's, which involved rehabilitation sections of the Castlereagh floodplain with quarrying operations. To implement the Scheme, four large lakes and water-related areas are being formed, with 75% of these works having been completed. <p>A copy of the DA from the records is included in Appendix E.</p>

6.4 Other Sources

A 1985 article accessed through the Trove digital database² indicated that the site and surrounding area was subject to the Penrith Lakes Scheme. The article stated that the area was acquired from farmland for sand and gravel extraction.

6.5 Site History Integrity Assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments / agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data at all.

In particular, aerial photographs provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and / or year at which they were taken, as well as specific events, such

² The Soil Conservation Service of NSW, *The Penrith Lakes Scheme*, Journal of Soil Conservation New South Wales Volume 41, No. 1, January 1985, available at <<https://nla.gov.au/nla.obj-761064000/view?sectionId=nla.obj-762647424&searchTerm=penrith+lakes&partId=nla.obj-761067012#page/n0/mode/1up>>, accessed 3 June 2021.

as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

6.6 Summary of Site History

Information on historical aerial photographs, council records and publicly available sources and historical leases suggest the site was divided into two separate lots and was used as farmland from at least 1913 until 1961, when it was acquired by River Sand and Gravel Pty Limited. From 1961 until 1989 it was used for alluvial sand and gravel quarrying. In 1989 the site was acquired by Penrith Lakes Development Corporation and was incorporated into the Penrith Lakes Scheme. Several commercial / light industrial buildings, including the Muru Mittigar building, the Penrith Lakes Development Corporation office and a paved road were constructed on the site at this time, developing it into its current commercial land use.

The site surrounding has a similar history, with agricultural land use until the 1950's, followed by a sand and gravel quarrying land use and incorporation into the Penrith Lakes Scheme from the early 1990's. The Penrith Lake Scheme is still being developed at this time, and it appears that some mining is still occurring south of the site. Residential and commercial developments were constructed east and south-east (up-gradient) of the site following the mining land use in that area. Some of these developments have been notified or licenced as contaminated for land uses such as service stations, waste storage, sewage treatment and chemical production.

Based on council records, restoration (rehabilitation) and redevelopment likely occurred at the site and surrounds following quarrying, however remediation records have not been provided and are not reviewed herein.

7. Site Walkover

A site walkover was undertaken by an environmental scientist on 24 May 2021. The general site topography was consistent with that described in Section 4.1. The site layout appears to have remained unchanged from the 2000 aerial photograph. The following key site features pertinent to the PSI were observed (refer to photographs in Appendix H). A map showing the photograph locations for reference is included as Drawing 3, Appendix A.

- The site was occupied by several warehouse type buildings, storage sheds and office buildings including the Muru Mittigar Aboriginal Cultural and Education Centre;
- An access road runs through the site, which had some cracking;
- A pond (Duck Pond) was located in the north-west portion of the site;
- The site had a commercial / light industrial use;
- Several general waste bins, drums and rubbish were observed around the site buildings;
- A buried pipe was observed in the south-west corner of the site beside the access road (photo 1);
- A telecom pit was observed along the south site boundary. It was presumed to not contain ACM based on visual appearance (photo 2);

- A gravel and concrete stockpile was present beside Duck Pond. No ACM or other anthropogenic material was observed in the stockpile (photo 3);
- A pumphouse with an electrical backing board (EBB) presumed to contain asbestos was located beside Duck Pond (photos 4 and 5);
- A chemical storage shipping container near the middle-south site boundary, with herbicide storage drums directly outside (photos 6 and 7). The trailer was locked and a detailed inspection was not undertaken. The trailer had a sign that read 'PLDC chemical store';
- An industrial garage with plant machinery and gas cylinders was observed in the middle of the site (photo 8);
- A flammable liquids storage locker was located near the main site buildings (photo 9);
- An embankment with an EPA Point notification sign with located near the north-east site boundary (photo 10);
- Potential ACM fragments were observed at the surface outside the Muru Mittaggar building (photo 11);
- A telecom pit with suspected ACM lining was observed in the south-east corner of the site (photo 12); and
- The site was bounded by the Sydney International Regatta Centre ('Rowing Lake') to the north, Old Castlereagh Road to the south, a landscaped open space area with several commercial buildings and a lake to the east and an area with a light industrial use and racecourse to the west.

8. Preliminary Conceptual Site Model

A Conceptual Site Model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source - pathway - receptor linkages (complete pathways).

Potential Sources

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Fill: Associated with levelling and backfilling of quarries for site development. It is estimated that up to 15 m of fill could be present at the site, although no records have been provided or reviewed which confirm the provenance or quality of the materials.
 - o COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), phenols and asbestos.

- S2: Former agricultural land use³.
 - o COPC include metals, TRH, BTEX, OCP and OPP.
- S3: Former quarrying activities on site.
 - o COPC include metals, TRH and BTEX.
- S4: Dangerous goods kept on site (i.e., flammable liquids and chemical storage identified during the site walkover and from SafeWork NSW records)
 - o COPC include metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and herbicides.
- S5: Buildings / structures on the site (present on site, possibly constructed between 1955 and 1975).
 - o COPC include asbestos, synthetic mineral fibres (SMF), lead (in paint), PCB and herbicides.
- S6: Surrounding (up-gradient) commercial / industrial land uses such as service stations, chemical manufacturing and waste generation.
 - o COPC include metals, TRH, BTEX, PAH and VOC,

Potential Receptors

The following potential human receptors have been identified:

- R1: Current and end users [commercial];
- R2: Construction and maintenance workers; and
- R3: Adjacent site users [commercial and recreational].

The following potential environmental receptors have been identified:

- R4: Surface water [lake on site and adjacent to site];
- R5: Groundwater; and
- R6: Terrestrial ecology.

Potential Pathways

The following potential pathways have been identified:

- P1: Ingestion and dermal contact;
- P2: Inhalation of dust and/or vapours;
- P3: Surface water run-off;
- P4: Lateral migration of groundwater providing base flow to water bodies;
- P5: Leaching of contaminants and vertical migration into groundwater; and
- P6: Contact with terrestrial ecology.

³ Given the time since the agricultural site use (est. 1955) and the short half-life of some pesticides such as carbamates, thiocarbamates, dithiocarbonates and synthetic pyrethroids (i.e., less than one year), these have not been listed as contaminants of concern associated with the site's former agricultural land use.

Summary of Potentially Complete Exposure Pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S4) and receptors (R1 to R7) are provided in below Table 5.

Table 5: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill Metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos.	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current and end users [commercial] R2: Construction and maintenance workers	An intrusive investigation to identify the presence and nature of fill (included in this PSI). Additional soil sampling for site coverage consistent with sampling design guidelines, The DSI should including soil sampling and analysis for herbicides, which have been identified as a COPC in this investigation. Intrusive investigation of groundwater and / or soil vapour (if required) based on the results of the soil investigation.
	S2: Former agricultural land use Metals, TRH, BTEX, OCP and OPP.	P2: Inhalation of dust and/or vapours	
S3: Former quarrying activities Metals, TRH and BTEX.	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R4: Surface water [lakes on and adjacent to site]	
S4: Dangerous goods / chemicals on site Metals, TRH, BTEX, PAH, PCB, OCP, OPP, PCB, phenols and herbicides.	P5: Leaching of contaminants and vertical migration into groundwater	R5: Groundwater	
	P6: Contact with terrestrial ecology	R6: Terrestrial ecology	
S5: Site buildings / structures Asbestos, SMF, lead, PCB and herbicides.	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current and end users [commercial] R2: Construction and maintenance workers	
S6: Surrounding industrial / commercial land uses	P5: Leaching of contaminants and vertical migration into groundwater [and onto site]	R1: Current and end users [commercial] R2: Construction and maintenance workers	

Source and COPC	Transport Pathway	Receptor	Risk Management Action
Metals, TRH, BTEX and PAH		R4: Surface water [lakes on and adjacent to site] R5: Groundwater	

Notes:

1. Non-persistent herbicides and pesticides associated with former agricultural site use have not been listed as potential contaminants of concern due to the short half-life of those contaminants and their likely biodegradation.

9. Sampling and Analysis Quality Plan

9.1 Data Quality Objectives

The DSI was devised with reference to the seven-step data quality objective process which is provided in Appendix B Schedule B2, NEPC (2013). The DQO process is outlined in Appendix I.

9.2 Soil Sampling Rationale

Based on the CSM and DQO the following sampling rationale was adopted.

A systematic sampling strategy based on NSW EPA *Contaminated Sites, Sampling Design Guidelines* (NSW EPA, 1995) to determine test pit locations which was adopted based on areas of access. Test pit locations are shown on Drawing 2, in Appendix A.

Table A of NSW EPA (1995) recommends a minimum of 135 sampling points for a site of 11.3 ha for site characterisation based on the detection of circular hot spots using a systemic grid sampling pattern. Given the size of the site, a reduced sampling density comprising 25% of the minimum recommended sampling points (i.e., 34 test pits) was adopted to gain preliminary data on the contamination status of the site. Test locations were positioned across accessible parts of the site, excluding the footprints of the existing commercial buildings due to access constraints.

PAEC identified in the CSM, including the site building / structure footprints and dangerous goods / chemicals storage, should be targeted in future site investigations (i.e., the proposed DSI as discussed in Section 13).

Soil samples were collected from each test pit at approximately the surface, 0.5 m, 1.0 m and every 0.5 m thereafter, and changes in lithology or signs of contamination.

The general sampling methods are described in the field work methodology, included in Appendix J.

10. Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in the current investigation are informed by the CSM (Section 8) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic commercial / industrial land use scenario. The derivation of the SAC is included in Appendix K and the adopted SAC are listed on the summary analytical results tables in Appendix M.

11. Results

11.1 Field Work Results

The borehole logs for this assessment are included in Appendix L. A summary of the typical subsurface conditions encountered at the site is presented below (including conditions encountered through cone penetration testing (CPTu) at 16 additional locations undertaken for the geotechnical investigation.

Topsoil / Fill

Generally comprising two distinct 'types' of fill across the site.

Within the region shown as 'non-quarried land' on Figure 4 (Section 5.2), surficial fill, typically comprising sands, gravelly sands, silty clays underlying silty / clayey topsoils or asphaltic pavements, was encountered to maximum depths of about 1 m below the surface. The surficial fill in these areas typically appeared variably compacted.

Generally, beyond the region shown as 'non-quarried land' on Figure 4 (Section 5.2), material inferred to be possible fill was encountered to significant depths, potentially up to 12.2 m below existing surface levels. The inferred fill typically comprised layers of sands and clays, with gravel (possibly site won from nearby quarrying activities), and generally appeared variably compacted.

Various anthropogenic materials were encountered in test pits TP26, TP28, TP29 and TP30 including timber, asphaltic concrete, PVC pipe, brick rubble, glass and a possible asbestos containing fibre cement pipe.

Alluvial Sediments

Underlying the fill, alluvial sediments were typically encountered to the investigation limits or refusal (typically inferred to be on gravel), to depths of between 2.2 m and 8.6 m in the 'non-quarried' areas, and to depths of between 5.9 m and 15 m in the 'quarried' areas.

The alluvial sediments generally comprised interbedded loose to very dense sands, and firm to hard clays.

The PID screening indicated that the sub-surface conditions were generally absent of VOC with all recorded values of less than 1 ppm.

No free groundwater was observed during excavation of test pits. Groundwater was observed in three of the geotechnical CPTu locations, as summarised in Table 5 below.

Table 5: Summary of Groundwater Observations

Location	Date	Depth to Groundwater (m)	Groundwater Elevation (m AHD)
6	19/05/21	5.5	19.9
7	19/05/21	6.1	19.8
12	19/05/21	5.6	17.9

It should be noted that groundwater levels are transient and may fluctuate in response to seasonal and climatic variations.

As noted in Section 7, several fragments of potential ACM were observed at the surface (A01) near site buildings, with one being collected for laboratory analysis.

11.2 Laboratory Analytical Results

The results of laboratory analysis are summarised in the following tables in Appendix M:

- Table M1: Summary of Results of Soil Analysis; and
- Table M2: Summary of Preliminary Waste Classification Assessment.

The laboratory certificate of analysis together with the chain of custody and sample receipt information is provided in Appendix N.

12. Discussion

12.1 Soils

The analytical results for all contaminants tested in all samples were below the SAC.

Reported concentrations of BTEX, OCP, OPP, PCB, phenols and asbestos in all samples were below the laboratory practical quantitation limit (PQL).

Reported concentrations of some metals, TRH and PAH were above the PQL in some fill samples, but below the SAC.

The sample of potential ACM (A01) collected from the surface near the Muru Mittigar building did not contain asbestos. It is noted that the fragment tested was one of several observed and it is considered that the other fragments may contain asbestos.

12.2 Preliminary Waste Classification Assessment

In order to assess the potential waste classification for fill soils, a preliminary waste classification of fill soils in the boreholes was undertaken.

The NSW EPA (2014) *Waste Classification Guidelines* contains a six step procedure for determining the type of waste and the waste classification. Part of the procedure, for materials not classified as special waste or pre-classified waste, is a comparison of analytical data initially against contaminant threshold (CT) values specific to a waste category. Alternatively, the data can be assessed against specific contaminant concentration (SCC) thresholds when used in conjunction with TCLP thresholds.

The CT, SCC, and TCLP values relevant to this preliminary waste classification are shown in Table M2, Appendix M.

The following Table 6 presents the results of the six-step procedure outlined in EPA (2014) for determining the type of waste and the waste classification. This process applies to the fill at the site.

Table 6: Six Step Classification

Step	Comments	Rationale
1. Is it special waste?	No	No Asbestos-Containing Materials (ACM), coal tar, clinical or related waste, or waste tyres were detected in any samples or observed on the site surface or in any of the boreholes. Asbestos was not detected by the analytical laboratory, however, building rubble and potential ACM fragments were observed in the surface and in the fill. Therefore, it is considered possible that asbestos is present at the site.
2. Is it liquid waste?	No	Materials composed of a soil matrix.
3. Is the waste "pre-classified"?	No	The fill is not pre-classified with reference to NSW EPA (2014). The natural material, if classified as VENM, is pre-classified as General Solid Waste (non-putrescible).
4. Does the Waste have hazardous waste characteristics	No	The fill was not observed to contain or considered at risk to contain explosives, gases, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5. Chemical Assessment	Conducted	Refer to Table 2 in Appendix M.
6. Is the waste putrescible or non-putrescible?	Non-putrescible	The fill does not contain materials considered to be putrescible ^a .

Note: a wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forest and crop materials, and natural fibrous organic and vegetative materials (NSW EPA, 2014).

All contaminant concentrations for the analysed fill were within the CT1s for General Solid Waste with the exception of benzo(a)pyrene in TP17/0-0.08, with a concentration of 0.98 mg/kg. TCLP analysis was conducted for PAH on that sample and the SCC and TCLP concentrations were within the contaminant thresholds SCC1 and TCLP1 for General Solid Waste. Consequently, the preliminary classification for the fill material across the site is General Solid Waste (non-putrescible).

Note: The information provided in this section does not constitute a formal waste classification for off-site disposal purposes. Should any fill or soils require off-site disposal a formal waste classification assessment must be undertaken and reported. In addition, if any soil or fill materials are designated for off-site re-use then a formal classification must be undertaken under the appropriate Resource Recovery Order. The preliminary waste classification does not apply to the subsurface pipes and telecom pits identified at the site, which should be assessed and removed by a licenced operator.

12.3 Data Quality Assurance and Quality Control

The data quality assurance and quality control (QA / QC) results are included in Appendix O. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

13. Conclusions and Recommendations

DP has been engaged by Colliers International Pty Ltd to complete this PSI at 89 - 151 Old Castlereagh Road, Penrith (the site). The investigation was initially commissioned to facilitate master planning of a larger development that was meant to occupy the majority of the site. However, based on information provided by the client it is understood that the larger development is on hold and the current development application is for a Helipad with ground disturbance works limited to the central portion of the site as described in Section 1. Whilst noting that the works area that is the subject of the development application is limited to the central portion of the site, this report, nevertheless, presents the results of the investigation for the overall site.

Based on the site history information reviewed herein, the site is understood to have been used for farmland until 1961, at which time it was acquired by River Sand and Gravel Pty Limited and used for alluvial sand and gravel quarrying. In 1989 the site was acquired by Penrith Lakes Development Corporation and developed into its current commercial / light industrial land use.

The site's surrounding has a similar history, with agricultural land use until the 1950's, followed by a mining land use and incorporation into the Penrith Lakes Scheme from the early 1990's. Residential and commercial developments were constructed east and south-east (up-gradient) of the site following the mining land use in that area. Some of these developments have been notified or licenced as contaminated for land uses.

The results of the SafeWork NSW search showed that a license for a 3000L underground petrol storage tank was renewed up to February 2006. Additionally, the records suggest that up to two other underground tanks may have also been installed at the site in 1964. However, based on the sketches provided in the SafeWork NSW results, it is not possible to identify the exact locations of the tanks.

Section 10.7 (2 & 5) Planning Certificates were not available at the time of reporting. Once received, the results of these records will be included in a revised version of this report if they provide any information pertaining to contamination at the site.

Identified potential sources of contamination at the site include fill, former agricultural and quarrying land uses, hazardous building materials from the buildings and structures on the site, dangerous goods currently stored on site (i.e., flammable liquids, underground tanks and chemical storage) and surrounding (up-gradient) commercial / industrial land uses including service stations, chemical manufacturing and waste generation facilities.

The intrusive investigation including soil sampling from 34 test pits encountered two distinct 'types' of fill across the site. Within 'non-quarried' parts of the site, surficial fill comprising sands, gravelly sands, silty clays underlying silty / clayey topsoils or asphaltic pavements, was encountered to maximum depths of about 1 m below the surface. In the 'quarried' parts of the site, material inferred to be possible fill was encountered to significant depths, potentially up to 12.2 m below existing surface levels. The inferred fill typically comprised layers of sands and clays, with gravel. Various anthropogenic materials were encountered in test pits near the site buildings including timber, asphaltic concrete, PVC pipe, brick rubble, glass and a possible asbestos containing fibre cement pipe. The fill was underlain by natural alluvial sands and clays. Groundwater was observed in three of the geotechnical CPTu locations, with groundwater measured between 5.5 and 6.1 m bgl. Several fragments of potential asbestos-containing material were observed at the surface near site buildings, with one collected for analysis.

Although the fragment of potential ACM collected at the surface and tested did not contain asbestos, other potential ACM fragments and building rubble were observed at the surface. It is therefore considered possible that ACM may be present at the site, particularly within and around site structures.

The results of the intrusive soil investigation indicated that levels of contaminants in the fill and natural soils are within the adopted SAC.

The fill soils at the site have been given a preliminary waste classification of General Solid Waste (non-putrescible). A formal waste classification including additional testing and visual inspection, is necessary for all soils requiring future off-site disposal. The preliminary waste classification does not apply to the subsurface pipes and telecom pits identified at the site, which should be assessed and removed by a licenced operator.

Overall, the results of the current investigation have not identified indicators of widespread contamination at the site. Notwithstanding, given the reduced sampling density adopted for this preliminary intrusive investigation and noting that investigations have not been undertaken in the vicinity of the underground fuel tanks identified in the SafeWork NSW records, the potential for unidentified contamination pockets cannot be completely ruled out. As such, it is recommended that a Detailed Site Investigation (Contamination) (DSI) is undertaken. As the works that are the subject of the current development application are limited to the central portion of the site, the DSI could potentially target the proposed works area/s that is the subject of the current development application. Additionally, given that the proposed works area is currently occupied by buildings, the DSI may be more readily undertaken following the demolition of the site buildings / structures. The purpose of the proposed DSI will be to further evaluate the potential contamination status (including testing around PAEC identified during this PSI) and confirm the perceived low potential for widespread contamination. If the DSI identifies contamination, a soil vapour or groundwater investigation may be further recommended. In addition,

the DSI should provide recommendations on the need for any further targeted investigation(s) and / or remediation (if deemed necessary).

A hazardous building material (HAZMAT) assessment is required for the existing site buildings. Hazardous materials, if present, will need to be removed in accordance with relevant legislation and guidelines prior to demolition.

14. References

- Coffey. (2014). *Landform Appraisal - Old Castlereagh Road Land Parcel*. dated 12 June 2014: Reference GEOTLCOV24000HB-CT.
- CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.
- DP. (2013). *Report on Desktop Assessment, Penrith Lakes Master Plan, Castlereagh*. Douglas Partners Pty Ltd: Reference 73162.
- NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.
- NSW EPA. (1995). *Contaminated Sites, Sampling Design Guidelines*. NSW Environment Protection Authority.
- NSW EPA. (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. NSW Environment Protection Authority.
- NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

15. Limitations

Douglas Partners (DP) has prepared this report for this project at 89 - 151 Old Castlereagh Road, Penrith in accordance with DP's proposal 204635.00.P.001.Rev0 dated 7 May 2021 and acceptance received from Scott Anderson of Colliers International Pty Ltd. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Colliers International Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the

work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in filling materials at the test locations sampled and analysed. Building demolition materials, such as concrete and brick, were, however, observed at the site surface, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

Drawings

Appendix B

Notes About this Report

Appendix C

Historical Title Deeds

Appendix D

Historical Aerial Photographs

Appendix E

Council Records

Appendix F

SafeWork Search Results

Appendix G

Section 10.7 (2 & 5) Planning Certificates [not available at the time of reporting]

Appendix H

Site Photographs

Appendix I

Data Quality Objectives

Appendix J

Field Work Methodology

Appendix K

Site Assessment Criteria

Appendix L

Test Pit Logs

Appendix M

Laboratory Results Tables

Appendix N

Laboratory Chain of Custody, Sample Receipt Advice
and Certificate of Analysis Documentation

Appendix O

Data Quality Assurance and Quality Control