



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Desktop Study for Contamination

Proposed Commercial Tower
Westfield Parramatta, 175 Church Street, Parramatta

Prepared for
Scentre Group Ltd

Project 99750.01
October 2020

Integrated Practical Solutions



Document History

Document details

Project No.	99750.01	Document No.	R.001.Rev1
Document title	Report on Desktop Study for Contamination Proposed Commercial Tower		
Site address	Westfield Parramatta, 175 Church Street, Parramatta		
Report prepared for	Scentre Group Ltd		
File name	99750.01.R.001.Rev1		



Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	David Walker	Paul Gorman	21 July 2020
Revision 1	David Walker	David Walker	15 October 2020

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1	0	Steve Mitchell, Scentre Group Ltd
Revision 1	1	0	Steve Mitchell, Scentre Group Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		15 October 2020
Reviewer		15 October 2020



Douglas Partners Pty Ltd
 ABN 75 053 980 117
www.douglaspartners.com.au
 96 Hermitage Road
 West Ryde NSW 2114
 PO Box 472
 West Ryde NSW 1685
 Phone (02) 9809 0666

Table of Contents

	Page
1. Introduction.....	1
2. Scope of Works.....	1
3. Site Identification and Description.....	2
4. Published Geology and Hydrogeology Information	3
5. EPA Registers	3
6. Aerial Photographs.....	3
7. WorkCover NSW Records	4
8. Planning Certificate	5
9. Geotechnical Desktop Assessment	5
10. Discussion	6
11. Conclusion.....	7
12. Limitations	7
 Appendix A: Drawing and Notes About this Report	
Appendix B: Site Photographs	
Appendix C: Aerial Photographs	

Report on Desktop Study for Contamination

Proposed Commercial Tower

Westfield Parramatta, 175 Church Street, Parramatta

1. Introduction

This report presents the results of a Desktop Study for Contamination undertaken for a proposed commercial tower at Westfield Parramatta, 175 Church Street, Parramatta. The investigation was commissioned in an email dated 15 July 2020 by Steve Mitchell of Scentre Group Ltd and was undertaken in accordance with Douglas Partners' email proposal dated 15 July 2020.

It is understood that the proposed development of the site includes a 210 m high commercial tower with three basement levels at the corner of Argyle Street and Marsden Street, Parramatta (which is part of Parramatta Westfield at 175 Church Street, Parramatta). The location of the proposed tower is shown in Drawing 1, Appendix A.

The aim of the desktop study was to assess the potential for contamination at the site based on a site walkover and readily available information including aerial photographs, previous relevant reports and other published information.

The report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Scope of Works

The scope of works for the desktop study was as follows:

- Conduct a site walkover to observe site features and possible sources of contamination;
- Review published geology, soil, topography and groundwater maps and data;
- Review the NSW EPA website for listed contaminated sites, Environment Protection licences and notices;
- Review historical aerial photographs;
- Review information presented in previous reports including WorkCover NSW records, Council Planning Certificate, and sub-surface data; and
- Preparation of this report which provides an assessment of the potential of contamination and recommendations for future works.

3. Site Identification and Description

The site is located at the corner of Argyle Street and Marsden Street, Parramatta and is part of Lot 2 in Deposited Plan 851525 which is occupied by Parramatta Westfield shopping mall and, according to NSW SIX Maps, has multiple primary street addresses including 175 Church Street, 2-22 Aird Street, 15-19 Aird Street, 26 Campbell Street and 21 Campbell Street. The site covers a rectangular area of approximately 3400 m² as shown in Drawing 1, Appendix A. Parramatta City Council is the local government authority and the site is zoned for (B2) Mixed Use.

A site walkover was conducted on 16 July 2020 by a DP environmental engineer. The following was observed during the walkover:

- The south-western part of the site is part of a loading dock (accessible via Marsden Street). Waste compactors and numerous skip bins were present in this area (Photographs 1 and 2, Appendix B). An electrical substation was located at the rear of the loading dock (Photograph 3, Appendix B);
- To the east of the loading dock were some below-ground and above-ground grease traps which were accessible from the loading dock (Photographs 4 and 5, Appendix B and shown on Drawing 1, Appendix A);
- Lifts and a fire escape corridor were at the eastern site boundary;
- A below ground fire escape corridor is present at the western part of the site;
- 'Shops' fronting Argyle Street were tenanted by a dentist, a pharmacy, a medical centre and a pathology clinic. There were two untenanted shops, one of which was used for storage of Christmas decorations for the mall (Photograph 6, Appendix B);
- Adjacent land to the east and south of the site is part of the mall and includes a department store (east) and the loading dock (south);
- Argyle Street is adjacent to the north of the site. A rail corridor is on the opposite side of Argyle Street;
- Marsden Street is adjacent to the west of the site. Commercial buildings are present on the opposite side of Marsden Street;
- Lawrence dry cleaners occupies a shop within the mall, approximately 90 m to the east of the site (as shown on Drawing 1, Appendix A). It appears that dry cleaning was not undertaken at the shop, but rather was used as a 'drop-off' and 'pick-up' outlet. No other dry cleaners were listed on the mall directory;
- Ground surfaces (where observable) comprised concrete slabs or pavers. No exposed soil was observed at the site; and
- The site and nearby land is relatively level. Land further to the south slopes up to the south.

It was understood from the Westfield Facilities Coordinator that there were no underground storage tanks at the site or in close proximity to the site. It was noted that land adjacent to the east of the site included the old basement substation for the former Grace Brothers / Myer department store which dates back to the 1970s.

4. Published Geology and Hydrogeology Information

The Sydney 1:100, 000 Geology Sheet indicates that the site is underlain by Ashfield Shale which comprises black to dark grey shale and laminate. The Sydney 1:100, 000 Soils Landscape Sheet indicates that the site is within the Blacktown soil landscape which comprises residual soils.

NSW Acid Sulfate Soil Risk Data indicates that the site is not within an area associated with a risk of acid sulfate soils. Approximately 100 m to the north of the site is an area mapped as 'Disturbed Terrain' where soil investigations are required to assess for acid sulfate soils. According to the Parramatta Local Environmental Plan 2011, the site is within a Class 5 area where development consent is required for works by which the water table is likely to be lowered below 1 m Australian Height Datum (AHD) on adjacent Class 1, 2, 3 or 4 land. Class 4 land is located approximately 100 m to the north of the site.

According to the WaterNSW website (<https://realtimedata.waternsw.com.au/water.stm>) for registered groundwater bores, there are no registered groundwater bores within 500 m of the site.

The site is at approximately 10 m AHD at a relatively level area. Rainfall at the site is likely run-off to the local stormwater system. The nearest water body is Parramatta River which is located approximately 600 m to the north of the site. Groundwater at the site is expected to flow to the north or north-east towards Parramatta River.

5. EPA Registers

According to the NSW website on 16 July 2020:

- There are four notified contaminated sites in the Parramatta suburb as of 13 July 2020. These include the BP service station at 435 Church Street; the Coleman Oval Embankment at the corner of Pitt Street and Macquarie Streets; the 7-Eleven service station at 81 Victoria Road; and the Crescent Toilet Block at Parramatta Park. None of these contaminated sites are located in close proximity to the subject site;
- There are no listings on the contaminated land record for the suburb of Parramatta;
- There are numerous Environment Protection licences, applications, notices, audits or pollution studies listed for the suburb of Parramatta, however, none of these relate to the site. Many of the listings are associated with infrastructure projects (e.g., M4 motorway, rail corridor, etc.). A licence (10744) is listed for the storage and generation (0 to 10 tonnes) of hazardous, industrial, or Group A waste at Terrace House, 6/128 Marsden Street which is a nearby property to the west. The licensee is listed as The Hospitals Contribution Fund of Australia Ltd. The licence appears to have been originally issued in 2000 and surrendered in 2002.

6. Aerial Photographs

Historical aerial photographs were reviewed to determine possible previous site uses. A copy of the aerial photographs is provided in Appendix C.

The 1928 and 1943 images show that the site was largely vacant with a small commercial (possibly also residential) building at the north-west corner. The rail corridor was present to the north and nearby surrounding properties to the east, south and west appear to have been used for residential purposes.

The 1951 image shows that the site was subject to construction activities. The building at the north-west corner, present in 1943, had been removed. Neighbouring properties appear to have been used for residential purposes.

The 1961 image shows that the site comprised numerous buildings, presumably used for commercial purposes. Some of the nearby land appears to have transitioned from residential to commercial use since 1951.

The 1970 image shows that the site had remained relatively unchanged since 1961, however, houses at the neighbouring properties to the east and south had been removed and replaced by a ground level car park.

The 1982 and 1986 images show that the site had remained relatively unchanged since 1970, however, land to the east and south had been developed into the shopping mall by 1982. Land to the west had also been subject to commercial development since 1970.

The 1991 image shows that buildings at the site (present between the 1950s and 1980s) had been demolished. The site was vacant land. A ramp had been constructed between the mall and a car park on the western side of Marsden Street. Neighbouring land uses were otherwise similar to that in 1986.

The 2002 image shows that the site was developed into part of the mall (similar to its current configuration). The mall had also been expanded at land to the south and south-west of the site since 1991.

7. WorkCover NSW Records

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover NSW (now SafeWork NSW) was undertaken in October 2012 for DP, *Report on Phase 1 Contamination Assessment, Proposed Westfield Shopping Centre Upgrade, Campbell Street and Marsden Street, Parramatta*, Project 14594.08, November 2012 (DP, 2012). The search revealed two Dangerous Goods Licences:

- Licence 35/030926: for K-Mart Australia (Coles Myer Ltd) to keep approximately 600 kg of chlorine (hypochlorite) at a roofed packaged store. According to the plan attached to the licence application, the chlorine was stored in the K-mart store, on the third floor of the shopping centre, located between Marsden Street and O'Connell Street. It is noted that this part of the shopping centre is not in close proximity to the site. The application was dated 26 October 1995;
- Licence 35/019495: for Grace Bros Pty Ltd to keep fireworks in a roofed package store at the department store. The applications were dated 20 May 1982 and 19 May 1983. No plan for the roofed package store location was attached to the applications.

8. Planning Certificate

For DP (2012), the Council (Section 149) Planning Certificate for Lot 2 in Deposited Plan 851525 was obtained for review. The certificate, dated 25 October 2012, indicated that the land was not affected by any matters contained in Clause (2), as amended, in the *Contaminated Land Management Act 1997*.

9. Geotechnical Desktop Assessment

DP, *Report on Geotechnical Desktop Assessment, Proposed Tower Development, Westfield Blocks 1B & 2B, 159-175 Church St, Parramatta*, Project 99750.00, September 2020 (DP, 2020) included a desktop review of ground conditions in the area to provide preliminary advice for the proposed commercial tower. The (reviewed) available geotechnical data included data from previous investigations that included bores drilled at or close to the site. One previous investigation was carried out in 1973 by Ground Test Pty Ltd (a subsidiary of DP) and included three bores (3307/1, 3307/3 and 3307/4) within 20 m of the site (i.e., at areas to the east and south, beyond the site boundary). Another investigation was carried out by DP in 1991 and included one bore (14594/9) at the site.

Based on a review of the data, the sub-surface profile was summarised as follows:

Pavement / Filling Unit 1	In all bores from the surface to a depth of 0.5 m to 1.7 m. The pavements included concrete, roadbase (gravel) and bitumen. The filling was variable and included clay, sand, bricks and rubble.
Natural Soils Unit 2	In all bores to depths of up to about 16 m. The natural soils typically comprised firm to hard clay / silty clay / sandy clay / shaly clay interbedded with sand and sand lenses/layers; the sand is variable in density. Some zones of ironstone gravel were also encountered.
Weathered Shale / Laminite Unit 3	To depths of up to 16 m for bore 3307/3 and 18 m for bore 3307/1 and typically only between 1 m and 2 m thick. The weathered shale / laminite typically comprised highly weathered, fragmented to fractured and variable strength shale / laminite which increased in quality (i.e., less fractures and greater strength) with depth.
Medium to High Strength / High Strength Shale / Laminite Unit 4	Bores 3307/1 and 3307/3 were terminated in typically slightly fractured, medium to high strength / high strength shale. Infrequent zones of lower quality rock encountered within this Unit in some bores. Whilst bore BH14594/9 encountered high strength at the termination depth, it has been downgraded to Unit 3 as it was highly fractured and had a relatively low rock quality designation (RQD).
Dyke Unit 5	A dyke was encountered at a depth of 14.3 m in BH3307/4. Approximately 1.5 m thickness of stiff clay was derived from the dyke (highly decomposed igneous rock) was encountered at the rockhead (i.e., top of rock) level, over high strength igneous dyke material to the termination depth of the borehole at a depth of approximately 17.1 m.

Long term groundwater monitoring data was not available at the site. Free groundwater was encountered in all of the bores. A summary of free groundwater levels encountered during the previous investigations is provided in Table 1.

Table 1: Summary of Free Groundwater Levels During Investigations

Location	Surface Level (m AHD)	Free Groundwater Depth (m)	Free Groundwater Level RL (m AHD)
3307/1	10.9	4.3	6.6
3307/3	9.8	6.7	3.1
3307/4	11.9	5.2	6.7
14594/9	11.2	4.7	6.5

10. Discussion

According to the aerial photographs the site appears to have been vacant land, apart from a building at the north-west corner, up until circa 1950. From the 1950s to the 1980s, it appears that the site was occupied by commercial buildings. The use of these buildings is not known. During this period, much of the surrounding land transitioned from residential use to commercial use. In the 1990s, the site was developed into part of the Westfield Parramatta shopping mall.

Information from WorkCover NSW in regard to dangerous goods licence records at the site revealed that licences related to the retail of chlorine and fireworks within department stores at the shopping centre. The retail of chlorine and fireworks is considered not to be a potential source of contamination. The records did not reveal the presence or former presence of fuel storage tanks.

The only identified dry cleaners at the shopping centre was the small shop at the north of the shopping centre (outside the site boundary). Given that the shop only appeared to be used as a drop-off location, as opposed to an on-site dry-cleaning operation, and given the distant proximity of the shop in relation to the site, the dry cleaning outlet is not considered to be a source of potential site contamination.

The potential sources of contamination for the site, based on the information summarised in this report, include:

- The placement of contaminated fill to form and level the site. Based on DP (2020), fill is anticipated to be present at the site. Various contaminants can be associated with fill. Bricks and rubble in fill were identified in the previous investigations (see Section 9), and asbestos contamination can sometimes be associated with building rubble in fill;
- The demolition of buildings containing potentially hazardous materials. Potential contaminants include asbestos, lead and polychlorinated biphenyls (PCB);
- Leaks of oil from the on-site grease traps;
- Oil leaks from the on-site substation (if oil is present). It is noted that the substation was probably constructed in the 1990s (or later) and, therefore, PCB is not considered to be a potential contaminant given that the import of PCB was banned in Australia in circa 1980; and

- Previous commercial site uses at the site and nearby land (which are largely unknown).

Given that the proposed commercial tower is considered to be a non-sensitive land-use, overall, the potential for human health risk associated with contamination at the site is considered to be low. Any contamination of soils is likely to be localised, for example, contaminated filling beneath concrete slabs or directly beneath grease traps.

Although the potential for contamination at the site is considered to be low, some intrusive investigations should be undertaken to determine the contamination status of the site prior to site development. Prior to undertaking intrusive investigations, the previous uses of the site (prior to 1990) should also be investigated (by reviewing historical title deeds and / or Council records) to determine the potential for contamination and potential contaminants (if any) that could be associated with these previous site uses.

11. Conclusion

Based on the information summarised in this report, it is considered that the site has a generally low risk of contamination. It is recommended that the previous uses of the site should be further investigated, and some intrusive investigations should be undertaken to assess the contamination status of the site prior to site development.

12. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project at Westfield Parramatta, 175 Church Street, Parramatta in accordance with DP's email proposal dated 15 July 2020 and acceptance received from Steve Mitchell of Scentre Group Ltd dated 15 July 2020. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of 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.

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.

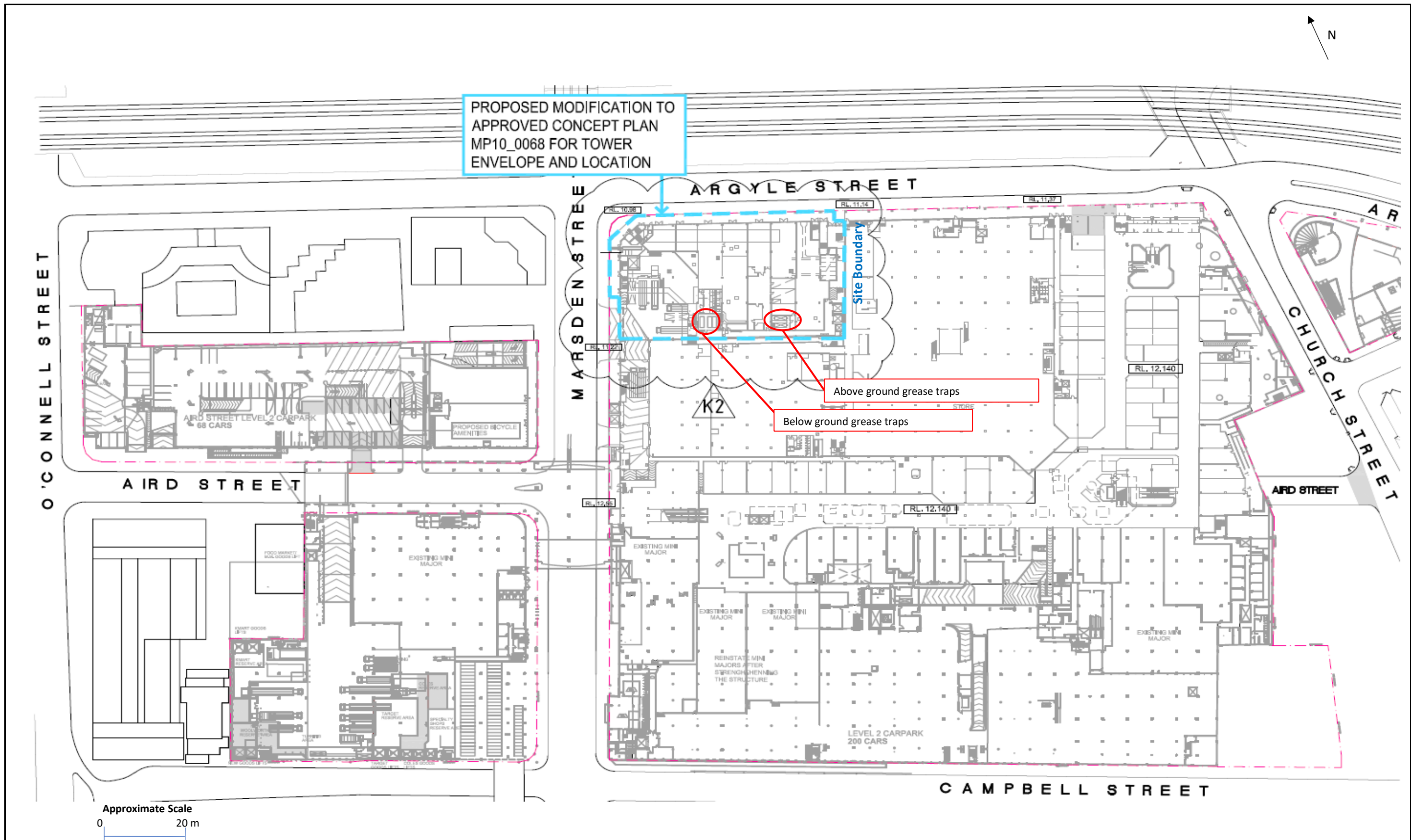
This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawing
and Notes About this Report



About this Report

Douglas Partners



Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

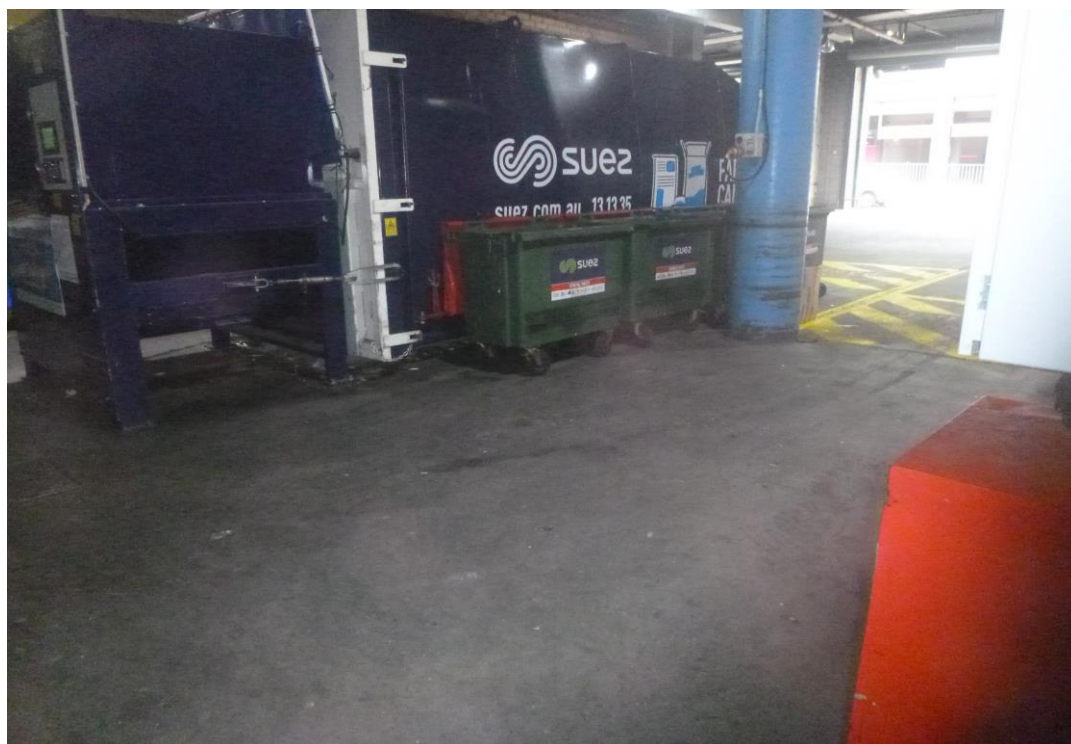
The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix B

Site Photographs



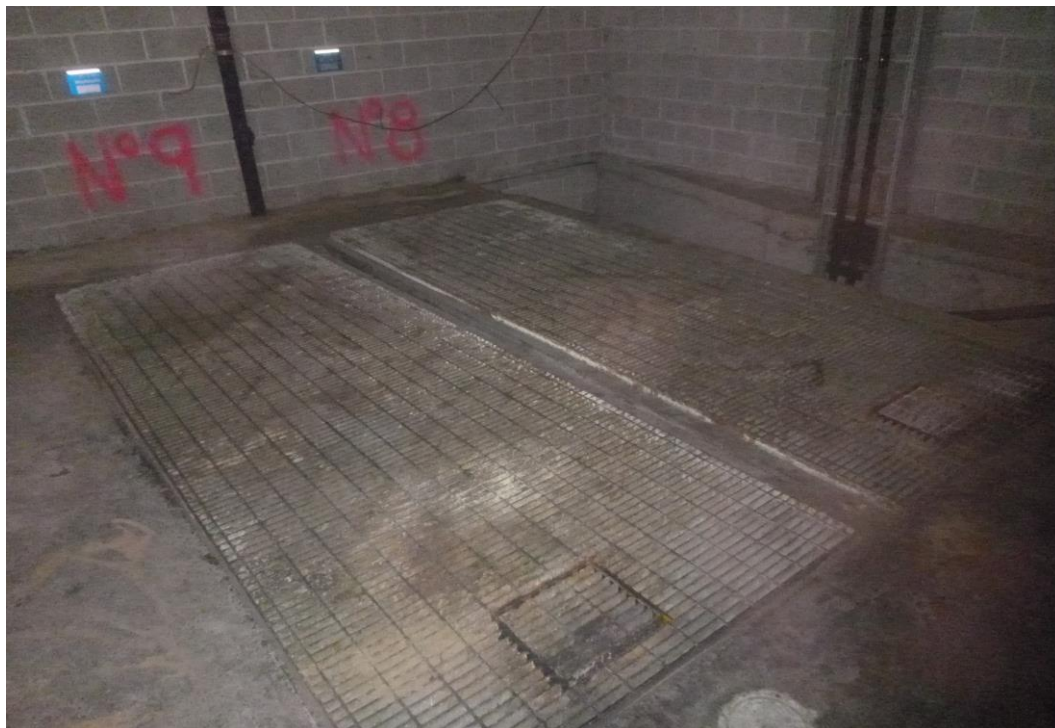
Photograph 1 - Skip bins and waste at loading dock



Photograph 2 - Waste compactor and skip bins at loading dock



Photograph 3 - Door to sustation at rear of loading dock



Photograph 4 - Below ground grease traps



Photograph 5 - Above ground grease traps




Photograph 6 - Front of site (Argyle Street)

Appendix C

Aerial Photographs



 Douglas Partners Geotechnics Environment Groundwater	1928 Aerial Photograph	PROJECT: 99750.01
		PLATE No: C1
	Proposed Commercial Tower	REV: 0
	Westfield Parramatta	DATE: 16-Jul-20
	CLIENT: Scentre Group Ltd	



1943 Aerial Photograph
Proposed Commercial Tower
Westfield Parramatta

CLIENT: Scentre Group Ltd

PROJECT: 99750.01

PLATE No: C2

REV: 0

DATE: 16-Jul-20



1951 Aerial Photograph
Proposed Commercial Tower
Westfield Parramatta

CLIENT: Scentre Group Ltd

PROJECT: 99750.01

PLATE No: C3

REV: 0

DATE: 16-Jul-20



1961 Aerial Photograph
Proposed Commercial Tower
Westfield Parramatta

CLIENT: Scentre Group Ltd

PROJECT: 99750.01

PLATE No: C4

REV: 0

DATE: 16-Jul-20



1970 Aerial Photograph
Proposed Commercial Tower
Westfield Parramatta

CLIENT: Scentre Group Ltd

PROJECT: 99750.01

PLATE No: C5

REV: 0

DATE: 16-Jul-20







