

Geotechnical Report



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Date: 25 November 2022

Ausino Group Pty Ltd

No.71-73 Thomas Street Parramatta, NSW 2150

Email: robinsang@ausino.com.au

Dear Robin,

**Re: Short-term Groundwater Monitoring Programme for Proposed Boarding House
71-73 Thomas Street, Parramatta, NSW 2150**

1 Introduction

At the request of Mr Robin Sang from Ausino Group (the Client), Geofirst Pty Ltd (GF) carried out a short-term groundwater monitoring programme for a proposed boarding house development at No.71 – 73 Thomas Street (Lot 15 in Deposited Plan 9551) in Parramatta, New South Wales 2150.

Based on the project brief, it is understood that Parramatta City Council requires the Client to provide more groundwater information prior to confirming the type of basement construction.

2 Fieldwork

A Geotechnical Engineer from Geofirst Pty Ltd visited the site on 16 November 2022 to install two groundwater monitoring wells into the previous machine-drilled boreholes (BH1 – Well 1 and BH5 – Well 2) to depths of 3.45m (Well 1) and 2.8m (Well 2) below the existing grade.

Following the installation of the wells, tap water was used to clean out mud and debris inside the boreholes. All water was pumped out using an electrical pump to the bottom of the wells after the completion of the well installations. The approximate well locations are shown in the following aerial image (Photo 1).



Photo 1: Approximate Well Locations

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3 Monitoring Results

Our engineer revisited the site between 17 and 22 November 2022 to conduct short-term groundwater monitoring. The results are summarised in Table 1 below:

Table 1: Summary of Groundwater Monitoring

Well	Date	Time	Groundwater Depth (m)*	Weather Condition / Comments
1	16/11/2022	3 pm	-	Hole cleaning, no measurement was undertaken. Few showers around 5 pm
	17/11/2022	11:30 am	3.10	Sunny, water was pumped out to 3.42m after the measurement
	17/11/2022	12:30 pm	3.42	After 1 hour of waiting
	17/11/2022	1 pm	3.40	After 1.5 hours of waiting
	18/11/2022	9:30 am	3.40	Sunny, water was pumped out to 3.42m after the measurement
	18/11/2022	10 am	3.42	After 0.5 hours of waiting
	18/11/2022	10:30 am	3.42	After 1 hour of waiting
	21/11/2022	1:30 pm	2.10 ^{See note 1}	Sunny, water was pumped out to 3.42m after the measurement
	21/11/2022	2:45 pm	3.40	After 1 hour of waiting
	22/11/2022	9:15 am	3.35	Sunny, water was pumped out to 3.42m after the measurement
	22/11/2022	10 am	3.40	After 45min of waiting
2	16/11/2022	4 pm	-	Hole cleaning, no measurement was undertaken. Few showers around 5pm
	17/11/2022	12pm	2.72	Sunny, water was pumped out to 2.75m after the measurement
	17/11/2022	12:45 pm	2.77	After 0.75 hour of waiting
	17/11/2022	1:15pm	2.76	After 1 hour and 15 min of waiting
	18/11/2022	9:45am	2.70	Sunny, water was pumped out to 2.75m after the measurement
	18/11/2022	10:15am	2.74	After 0.5 hours of waiting
	18/11/2022	10:45am	2.68	After 1 hour of waiting

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Table 1: Summary of Groundwater Monitoring - Continue

Well	Date	Time	Groundwater Depth (m)*	Weather Condition / Comments
2	21/11/2022	1:45pm	1.62 See note 1	Sunny, water was pumped out to 2.75m after the measurement
	21/11/2022	2:50pm	2.72	After 1 hour of waiting
	22/11/2022	9:15am	2.70	Sunny, water was pumped out to 2.75m after the measurement
	22/11/2022	10:15am	2.74	After 1 hour of waiting

Note 1: Based on the Australian Government – Bureau of Meteorology, it is understood that Parramatta had 1.8mm rainfall on 20/11/2022, which may show the groundwater level increase.

It must be noted that Shale bedrock was encountered at 1.3m (BH1) and 1.2m (BH5) below the existing grade; the Shale bedrock is considered impermeable.

4 Comment and Discussion

No groundwater was encountered during the short-term groundwater monitoring. Hence, it is assessed that no evidence of a groundwater table will be encountered on-site during excavation. Allowance should be made for some seepage, especially during or following rainfall periods during/after the basement excavation, as discussed below:

- We expect that localised seepage may possible occur into the excavation along the soil/bedrock boundary and along existing defects, such as bedding planes and joints, which exist in the rock. Localised seepage may also occur through the fill and permeable zones in the soils, especially during and following periods of heavy rainfall.
- The extent of groundwater flow cannot be accurately predicted from two boreholes, which only represent a very limited portion of the site. An assessment of likely seepage, its quality, and required pumping capacity would best be made following the completion of the bulk excavation when seepage could be observed.
- We anticipate that any groundwater seepage should decrease substantially when excavations have initially drained the local area. Seepage volumes into the excavations are expected to be controlled by the use of surface drains and sump and pump systems at the basement level during construction.
- We recommend that complete and permanent drainage be provided behind the basement walls. Appropriate waterproofing will also be required for the permanent walls in contact with the excavated areas.

Please do not hesitate to contact the undersigned should you have any queries.

For and on behalf of

GEOFIRST PTY LTD

Prepared by:



Long Tsang

Principal Geotechnical Engineer

Encl: Information About The Report
Australian Government – Bureau of Meteorology Parramatta Nov 2022 Daily Weather Observations

Information About The Report

General information

This report has been prepared for the project described. The sole purpose of this report is to assess the condition of the site in accordance with the scope of works set out between GEOFIRST PTD LTD and the Client.

In preparing this report, GEOFIRST PTD LTD has not attempted to verify the accuracy or completeness of any information provided by the Client and/or from other sources. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Site Condition

This report is considered accurate at the date of issue with regards to the current conditions of the site. The engineering logs presented herein are based on geological interpretation of the subsurface condition subjects to method of drilling or excavation. The results provided in the report are indicative of the subsurface conditions on the site only at the specific sampling locations, and then only to the depths investigated and at the time of work was carried out. Subsurface conditions between the test locations may vary significantly from conditions encountered at the test locations.

Groundwater

Water table levels recorded / shown on the engineering logs may vary from time to time with seasons or recent weather changes. No matter what, allowance should be made for dewatering during the construction stages as the groundwater level may not be the same at the time of construction.

Soil Description

The methods of description and classification of subsurface profile used in this report are in according with Australian Standard AS1726:2017.

Reports

The reports are prepared by a qualified engineer and are based on the information found and on current engineering standards of interpretation and analysis. Duty of Care has been taken with the report in relation to interpretation of subsurface, recommendation and comments for design and construction, but not limit to the following:

- Subsurface condition change between the test points;
- Changes in policy or interpretation of policy by statutory authorities;
- The actions of persons or contractors responding to commercial pressures.

The company obtain a right to assist with further investigation or advice to resolve the matter.

Site Inspection

The Company recommends to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that ground conditions are similar description to the report.

Responsibility

Reporting relies on interpretation of factual information based on opinion and judgement and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants. The client /designer should consult with the GEOFIRST PTY LTD to interpret the geotechnical information prior to commencement of their projects in order to obtain an adequate geotechnical information for the construction. This will reduce the potential risk to misinterpretations of the reports by the client / designer at the initial stage, resulted in logging a claim against consultants. Haven GEOFIRST explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

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Limitation

GEOFIRST accepts no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full or properly tested, inspected and documented.

GEOFIRST has prepared this report in accordance with the usual care and diligence of consulting engineers. However, no other warranty or guarantee, whether expressed or implied, is made or intended.

If there is any change in the proposed development described in this report, then all recommendations should be reviewed.

This report should be read in full, and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GEOFIRST for use of any part of this report in any other context. This report has been prepared on behalf of, and for the exclusive use of the Client of GEOFIRST. GEOFIRST accepts no liability or responsibility for any use of this report by any third party.

This report valid for one year from date of issue. The report will be automatically withdrawn after two weeks from date of issue if no payment received. Hence, Geofirst accepts no liability or responsibility for any use of this report.

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Parramatta, New South Wales November 2022 Daily Weather Observations

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9 am					3 pm						
		Min	Max				Dir	Spd	Time	Temp	RH	Cld	Dir	Spd	MSLP	Temp	RH	Cld	Dir	Spd	MSLP
		°C	°C	mm	mm	hours	km/h	local	°C	%	g th	km/h	hPa	°C	%	g th	km/h	hPa			
1	Tu	17.0	23.2	1.0						19.8	45	4	NW	22							
2	We	9.8	20.0	0.2						14.0	49	4	WSW	22							
3	Th	8.4	21.3	0						16.0	48	1	WSW	9							
4	Fr	11.5	20.5	0.2						18.0	64	6	SE	2							
5	Sa	11.4	22.4	0.2						18.2	64	6	NE	2							
6	Su	10.2	24.5	0						19.5	68	4	NE	7							
7	Mo	11.8	24.2	0						19.8	78	6	ENE	2							
8	Tu	13.0	23.0	0						19.8	69	6	NE	4							
9	We	12.5	24.0	0						19.6	69	5	N	2							
10	Th	11.4	24.2	0						19.4	68	5	ESE	2							
11	Fr	12.0	27.5	0						20.0	64	5	N	4							
12	Sa	13.8	27.0	0.4						22.2	72	0	NE	2							
13	Su	17.0	27.4	0						20.3	81	8	WNW	2							
14	Mo	17.8	27.5	30.0						22.0	67	2	WNW	6							
15	Tu	13.0	24.2	0						21.0	57	5	WSW	6							
16	We	11.0	20.2	0						16.0	43	2	WSW	15							
17	Th	8.2	20.8	0						15.8	54	2	WSW	4							
18	Fr	11.2	21.0	0						17.0	52	2	SW	9							
19	Sa	10.8	24.7	0						19.2	66	5	N	4							
20	Su	16.2	26.0	1.8						24.6	47	2	WSW	19							
21	Mo	15.2	23.5	0						22.0	36	3	WSW	28							
22	Tu	10.6	23.2	0						15.2	38	1	WSW	22							
23	We	10.0		0						19.2	49	1	WSW	9							
Statistics for the first 23 days of November 2022																					
Mean		12.3	23.6							19.1	58	3		8							
Lowest		8.2	20.0	0						14.0	36	0	#	2							
Highest		17.8	27.5	30.0						24.6	81	8	WSW	28							
Total				33.8																	

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