
Report on Geotechnical Investigation

Proposed Residential Subdivision

**The Sanctuary Stages 5 and 6A, Lot 300 DP
1307775 John Oxley Drive, Thrumster NSW**

Prepared for Bird In The Hand 2 Pty Ltd

Project 209310.06

25 September 2026

Document History

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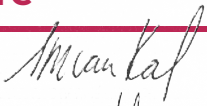
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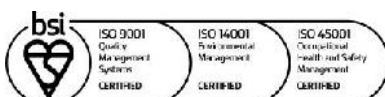
The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author		25 September 2026
Reviewer		25 September 2026

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.



Douglas Partners operates a management system certified to ISO 9001 Quality Management, ISO 14001 Environmental Management, and ISO 45001 Occupational Health and Safety Management | Certificate Nos. FS 604853, EMS 821989, and OHS 744275. These certifications apply to the management systems and do not apply to the results, conclusions, or technical content presented in this report.

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Report on Geotechnical Investigation Proposed Residential Subdivision The Sanctuary Stages 5 and 6A, Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW

1. Introduction

This report, prepared by Douglas Partners Pty Ltd (Douglas), presents the results of a geotechnical investigation undertaken for a proposed residential subdivision at The Sanctuary Stages 5 and 6A, Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW (the site). The investigation was commissioned by Bird In The Hand 2 Pty Ltd and was undertaken in accordance with Douglas' proposal 209310.06.P.001.Rev0 dated 6 July 2026.

Stages 5 and 6A comprise forty-three (43) residential lots (Lots 501 to 538 and 603 to 607). The site location is shown on Figure 1. The proposed subdivision is shown on Drawing 1, Appendix D.



Figure 1: Site location plan (image source: Metromap Image dated 8 April 2026)

The aim of the investigation was to provide comment on the following:

- Subsurface soil and groundwater conditions at test locations;
- Site geology; and
- Site classification in accordance with AS 2870 (2011) of the proposed lots.

The investigation included the drilling of twenty-four boreholes, twenty-eight dynamic penetrometer tests and laboratory testing of selected samples. The details of the field work are presented in this report, together with comments and recommendations on the items listed above.

This report must be read in conjunction with all appendices.

2. Site description

The site comprises forty-three (43) residential lots (Lots 501 to 538 in Stage 5 and Lots 603 to 607 in Stage 6A) with associated sealed access roads and concrete footpaths. The proposed residential lots have been terraced with construction of retaining walls up to approximately 2.4 m high along lot boundaries (refer Figures 2 to 4). At the time of the investigation, the lots were being dressed with topsoil. Very little vegetation was present on the site at the time of the investigation. Mature trees were present in the south-western part of the site.

Overall ground surface levels across the eastern and central parts of site fall towards the north-west with an approximate gradient of 6%. Ground surface levels appear to range from approximate RL 9 (above Australian Height datum) in the central part to RL 19.5 in the south-east.

The overall ground surface levels across the western part of the site fall towards the east with an approximate gradient of 9%. Ground surface levels appear to range from RL 9 in the central part to RL 18 in the east.

The individual lots have gradients less than 5%.



Figure 2: View facing towards the east showing the western part of the site



Figure 3: View facing towards the north showing the south-eastern part of the site



Figure 4: View facing towards the south-west showing the eastern part of the site

3. Published geology

Published geological mapping indicates that the site is underlain by Thrumster Slate (P_t) (Slate, metasandstone and metagranule conglomerate) and Karikeree Metadolerite (P_k) (massive cleaved metadolerite) (GSNSW, 2019). The geographical distribution of these geological units is shown on Figure 5.

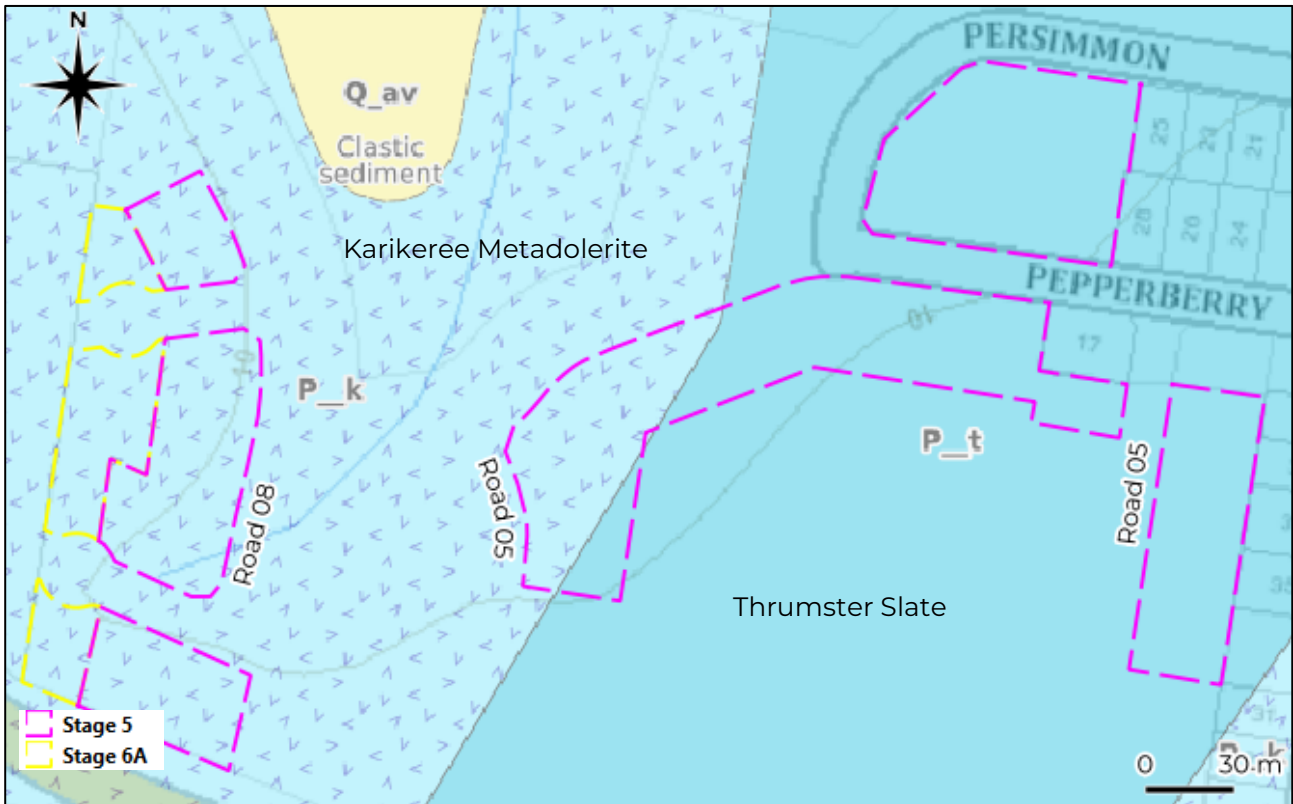


Figure 5: Published site geology (GSNSW, 2019)

4. Fill placement and testing

‘Level 1’ inspections and testing of the larger subdivision referred to as The Sanctuary was undertaken with reference to AS 3798 (2007) by Douglas during bulk earthworks from:

- 15 October 2021 to 18 March 2022 (Douglas, 2022);
- 13 November 2023 to 22 May 2024 (Douglas, 2024);
- 27 August 2024 to 16 September 2024 (Douglas, 2026);
- 2 December 2025 to 10 December 2025 (Douglas, 2026); and
- 20 March 2026 and 4 May 2026 (Douglas, 2026).

The extent of the Level 1 filling is shown on Drawing 1, Appendix D.

Douglas was not provided specifications for compaction. The following criteria were adopted:

- A maximum loose layer thickness of 300 mm;
- Minimum compaction of 98% density ratio (standard); and
- Moisture contents that are generally within 2% dry to 2% wet of optimum moisture content for standard compaction.

The fill material was won from cuttings within the development and consisted of silty clay with variable amounts of sand and gravel. Fill depths ranged from approximately 0.2 m to 3.0 m over the development.

Tests carried out during the Level 1 operation returned density ratios in excess of 98% standard compaction to meet the specifications AS 3798 (2007).

The moisture contents were generally within the moisture specification with the exception of seven tests that were only marginally out of the specification by 1.0% and are considered acceptable due to all other surrounding tests being within the specification.

It is considered that the placement and compaction of fill by Douglas during the periods stated above were undertaken in accordance with the specification for layer thickness, compaction and moisture variation and to a Level 1 Standard, as defined in Section 8 of AS 3798 (2007).

5. Field work

5.1 Field work methods

The field work was undertaken from 1 to 3 September 2026. The investigation comprised the drilling of twenty-four (24) boreholes (designated as Bores 1 to 10, 12, 14, 15, 17, 18, and 20 to 28) to a maximum depth of 1.5 m.

Bores 1 to 3, 5 to 10, 20 to 23, 28 were drilled using a truck-mounted drill rig fitted with 100 mm diameter solid flight augers. Bores 4, 12, 15, 17, 18, 24, 26 and 27 were drilled using a combination of hand auger and hand-portable push tube sampler. Bores 14, 18 and 25, were drilled using a 50 mm diameter push tube sampler.

In situ sampling and testing in the soil profile comprised recovery of disturbed samples and thin-walled undisturbed U50 samples. Pocket penetrometer (PP) testing was carried out on selected samples to provide information on the relative strength of the subsurface soils. In addition, dynamic penetrometer tests (DPTs, with cone tip) were carried out adjacent to the bores from the surface to a maximum depth of 1.5 m.

Four additional DPTs (DPTs 11, 13, 16 and 19) were also undertaken to a maximum depth of 1.5 m.

The bores and DPTs were set out by an engineer from Douglas relative to the lot boundaries and road alignments on site. The Douglas engineer logged the subsurface profile in accordance with AS 1726 (2017) at each test location and took regular samples for laboratory testing and identification purposes. The encountered subsurface ground conditions were logged in accordance with AS 1726, 2017. The test locations are shown on Drawing 1 in Appendix C.

The location of the bores and respective surface levels were recorded using a differential GPS unit, which generally has an accuracy of ± 0.1 m depending on satellite coverage and surrounding site conditions. The location (to GDA2020) and surface elevations (in m AHD) of the bores are presented on the relevant borehole logs in Appendix B. However, it should be noted that a detailed survey by a registered surveyor has not been undertaken for this investigation.

The boreholes were backfilled using the spoil generated during the drilling process.

The approximate test locations are shown on Drawing 1 in Appendix D.

5.2 Field work results

Details of the subsurface conditions encountered within the test bores are presented in the attached borehole logs in Appendix B. These should be read in conjunction with the accompanying notes in Appendix A, which explain the descriptive terms and classification methods used in the logs. The subsurface profiles are summarised into geotechnical units and presented in Table 1, with a summary of the units at each bore presented in Table 2.

Table 1: Summary of geotechnical unit descriptions

Geotechnical unit	Material type	Description
1a	Fill	Silty clay, with variable sand and gravel content, brown or dark brown, medium plasticity, moderately to poorly compacted. Possibly placed as a growing medium for plants and grass.
1b	Fill	Silty clay, with variable sand and gravel content, generally red brown, medium to high plasticity, well compacted.
2	Residual soil	Generally silty clay, with variable sand and gravel content, medium to high plasticity, red brown, brown or grey, stiff to hard. Medium dense to very dense brown silty sand was encountered in Bore 8 from 1.1 m to 1.5 m.
3	Extremely weathered material	Hard, brown silty clay. Hard brown gravelly clay, low to medium plasticity. Very dense, brown silty sand.

It should be noted that, although not encountered during the investigation, uncontrolled fill may also be present immediately behind the retaining walls.

Table 2: Summary of geotechnical units at bore locations

Bore	Lot number	Depth encountered below existing ground level (m)				Limit of investigation (m)
		Unit 1a: Fill	Unit 1b: Fill	Unit 2: Residual soil	Unit 3: Extremely weathered rock	
1	505 & 506	0 - 0.2	-	0.2 - 0.65	0.65 - 1.5	1.5
2	503 & 504	0 - 0.2	-	0.2 - 0.5	0.5 - 0.9	0.9
3	501 & 502	0 - 0.2	-	0.2 - 1.5	-	1.5
4	507	-	0 - 0.9	0.9 - 1.0	-	1.0
5	508 & 509	0 - 0.2	-	0.2 - 1.5	-	1.5
6	510, 527 & 528	0 - 0.2	-	0.2 - 1.5	-	1.5
7	511 & 512	0 - 0.2	0.2 - 1.5	-	-	1.5
8	525 & 526	0 - 0.2	0.2 - 0.9	0.9 - 1.5	-	1.5
9	513 & 514	0 - 0.2	-	0.2 - 0.4	0.4 - 1.3	1.3
10	515	0 - 0.2	-	0.2 - 0.9	-	0.9
12	516 & 517	0 - 0.2	-	0.2 - 1.5	-	1.5
14	518 & 519	0 - 0.2	-	0.2 - 1.5	-	1.5
15	520 & 521	0 - 0.25	0.25 - 1.5	-	-	1.5
17	522 & 523	0 - 0.15	0.15 - 0.9	0.9 - 1.5	-	1.5
18	524	0 - 0.25	0.25 - 1.5	-	-	1.5
20	529 & 530	0 - 0.2	0.2 - 1.5	-	-	1.5
21	531 & 607	0 - 0.2	-	0.2 - 1.5	-	1.5
22	532 & 533	0 - 0.2	0.2 - 0.4	0.4 - 1.5	-	1.5
23	534, 535 & 536	0 - 0.25	-	0.25 - 1.5	-	1.5
24	537 & 538	0 - 0.2	-	0.2 - 1.0	-	1.0

Bore	Lot number	Depth encountered below existing ground level (m)				Limit of investigation (m)
		Unit 1a: Fill	Unit 1b: Fill	Unit 2: Residual soil	Unit 3: Extremely weathered rock	
25	603	0 - 0.25	-	0.25 - 1.2	-	1.2
26	605	0 - 0.2	-	0.2 - 1.5	-	1.5
27	604	0 - 0.2	-	0.2 - 1.2	-	1.2
28	606	0 - 0.2	-	0.2 - 1.5	-	1.5

Notes to Table 2:

LOI – limit of investigation

Free groundwater was not encountered within the bores whilst they remained open. Groundwater levels are variable and can be affected by factors such as climatic conditions and soil permeability.

6. Laboratory testing

6.1 Shrink swell tests

Shrink-swell index tests were performed on ten (10) undisturbed 50 mm diameter (U50) samples collected during the field work. The laboratory test results are summarised in Table 3. The laboratory test certificate is enclosed as Appendix C.

Table 3: Results of laboratory testing - shrink swell

Bore	Depth (m)	Description	FMC (%)	Shrink (%)	Swell (%)	I _{ss} (% per ΔpF)
1	0.3 - 0.65	Sandy clay, grey (residual soil).	29	5.3	2.8	3.7
3	0.3 - 0.5	Silty clay, red brown (residual soil)	32.7	4.5	1.5	2.9
7	0.4 - 0.7	Silty clay, red brown (fill)	26.4	2.9	1.4	2.0
8	0.45 - 0.67	Silty clay, brown mottled orange (residual soil)	38.1	5.2	0.5	3.0
12	0.4 - 0.5	Silty clay, red brown (residual soil)	24.7	3.7	0.8	2.3
15	0.4 - 0.55	Silty clay, red mottled orange brown (fill)	25.6	2.3	0.2	1.3
18	0.35 - 0.55	Silty clay, brown mottled red (fill)	21.4	2.2	0.2	1.3
20	0.5 - 0.75	Silty clay, brown mottled red (fill)	22.4	2.3	1.2	1.6
23	0.4 - 0.6	Silty clay, red brown (residual soil)	37.7	6.7	-0.1	3.7
25	0.3 - 0.5	Silty clay, red brown (residual soil)	35.3	5	0	2.8

Notes to Table 3:

FMC - field moisture content

I_{ss} - shrink-swell index

PP - pocket penetrometer reading

6.2 Atterberg limits and Linear shrinkage

Atterberg limits and linear shrinkage tests were performed on two (2) samples where undisturbed samples could not be recovered. The laboratory test results are summarised in Table 4. The laboratory test certificate is enclosed as Appendix C.

Table 4: Results of laboratory testing - Atterberg limits

Bore	Depth (m)	Description	FMC (%)	LL (%)	PL (%)	PI (%)	LS (%)
9	0.4 - 0.55	Silty clay, brown (extremely weathered material)	12.5	33	18	15	6
10	0.4 - 0.75	Silty clay, brown (residual soil)	22.4	47	18	29	11

Notes to Table 4:

FMC - field moisture content

LL - liquid limit

PL - plastic limit

PI - plasticity index

LS - linear shrinkage

7. Comments

Site classification of foundation soil reactivity provides an indication of the propensity of the ground surface to move with seasonal variation in moisture. The site classification is based on procedures presented in AS 2870 (2011), the typical soil profiles revealed in the bores, and the results of laboratory testing.

The shrink swell index test results indicate that the natural residual soils are highly reactive, whilst the fill material is moderately reactive. The Atterberg limits and linear shrinkage test results indicate that the extremely weathered material is also highly reactive.

For the purposes of this assessment, an I_{ss} of 2.0% for the fill and 3.7% for the residual soil and extremely weathered rock has been used to calculate the characteristic surface movements.

As controlled fill extends beyond a depth of 0.4 m in some of the bores, the lots are technically classified as Class P, with footing systems requiring design in accordance with engineering principles specific to the subsurface conditions encountered. However, as the fill was placed and tested to Level 1 requirements in accordance with AS 3798 (2007), site reclassification is considered appropriate based on the calculated surface movements.

Based on the sub-surface ground conditions encountered and the laboratory test results, the lot classifications and recommendations are provided in Table 5.

Table 5: Lot classifications and recommendations

Lots	Classification	Recommendations
501 – 506, 508 to 510, 513 – 519, 527, 528, 531 – 538, & 603 – 607	H1	Based on the subsurface conditions encountered in Bores 1 to 3, 5, 6, 9 to 10, 12, 14, and 21 to 28, and assessment of the reactivity of the clay soils, characteristic surface movements (y_s) in the order of 40 mm to 60 mm may be experienced.
507, 511 & 512, 520 – 526, 529, & 530	M	Based on the subsurface conditions encountered in Bores 4, 7, 8, 15, 17, 18 and 20 and assessment of the reactivity of the clay soil, characteristic surface movements (y_s) in the order of 20 mm to 40 mm may be experienced.

It is recommended that all footings be constructed to bear on material of similar stiffness to minimise potential differential settlements. Therefore, all footings should be founded wholly within the within engineered fill, residual soil or extremely weathered material unless sufficient articulation is provided within the structure to cater for possible differential movement of footings founded on material of differing stiffness.

Shallow spread footings may be adopted, founded in stiff (or stronger) silty clay soil or controlled fill with a minimum founding depth of 0.2 m and an allowable bearing pressure of 100 kPa. Alternatively, end-bearing piers could be founded in very stiff (or stronger) residual (natural) clays, or extremely weathered material with an allowable bearing pressure of 200 kPa provided that the pile length at least four times the pile diameter.

The site classifications are based on the information obtained from the bores and laboratory testing. If the conditions encountered during construction are different to those presented in this report, it is recommended that advice be obtained from Douglas.

It should be noted that uncontrolled fill may be present immediately behind retaining walls and may extend approximately 1.0 m from the crest of the retaining walls. Footings should not be taken to found in uncontrolled fill.

The site classifications are based on the information obtained from the bores and laboratory testing. If the conditions encountered during construction are different to those presented in this report, it is recommended that advice be obtained from Douglas.

AS2870 (2011) provides guidance and a method to estimate potential surface movements due to tree induced suction change for existing and possible new trees (e.g. extreme drying effects). Additional surface movements due to drying from trees remaining on or near to the site, within a distance of 0.5 times the height of the tree from the buildings, are estimated from Appendix H4(e) of AS2870 (2011). Based on Douglas' experience, it is expected that additional surface movements due to swelling following removal of trees would be of similar magnitude to that for drying.

It should be noted that the classifications are dependent on proper site maintenance, which should be carried out in accordance with the attached CSIRO (2021), "Foundation Maintenance and Footing Performance" and with AS2870 (2011). Design, construction and maintenance needs to achieve and preserve an equilibrium soil moisture regime beneath and around buildings. Such measures include providing an outward fall in all paved areas around buildings. These and other measures are described in AS2870 (2011) and CSIRO (2021). Further, if trees are planted in the vicinity of a building, the structural engineer should consider the additional potential foundation movements, as described in Appendix H of AS2870 (2011).

Masonry walls should be articulated in accordance with TN 61 CCAA (2008) to reduce the effects of differential movement.

The above classifications should be revised if any additional cutting or filling is proposed, as required by AS2870 (2011).

8. References

Douglas. (2022). *The Sanctuary Level 1 John Oxley Drive, Thrumster. Ref. 209310.00.R.001.Rev0 dated 10 November 2022.* Douglas Partners Pty Ltd.

Douglas. (2024). *Report on Level 1 Earthworks Inspection and Testing The Sanctuary Stage 3 and 4 John Oxley Drive, Thrumster. Ref 209310.02.R.001.Rev0 date 24 August 2024.* Douglas Partners Pty Ltd.

Douglas. (2026). *Report on Level 1 Earthworks Inspection and Testing The Sanctuary Stage 3,4,5 and 6A John Oxley Drive, Thrumster. Ref. 209310.02.R.002.Rev0 dated 24 August 2026.* Douglas Partners Pty Ltd.

GSNSW. (2019). *NSW Seamless Geology.* Geological Survey NSW Web Map Service.

9. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at The Sanctuary Stages 5 and 6A, Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW in line with Douglas' proposal dated 6 July 2026 and acceptance received from Massimo Raniolo of Bird In The Hand 2 Pty Ltd dated 13 July 2026. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Bird In The Hand 2 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 Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas 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 Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas 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 geotechnical 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. Douglas 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 Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

About this Report

Terminology, Symbols and Abbreviations

Soil Descriptions

Sampling, Testing and Excavation Methodology

Introduction

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

Douglas' 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.

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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 Engagement Terms 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, Douglas 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, Douglas 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, Douglas 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, Douglas 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. Douglas 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.

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Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style **XW**. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when augering in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

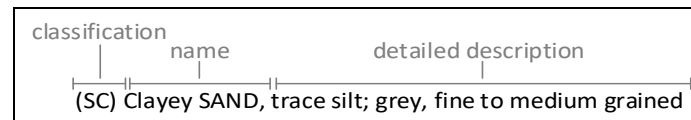
Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Introduction

All materials which are not considered to be “in-situ rock” are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The “classification” comprises a two character “group symbol” providing a general summary of dominant soil characteristics. The “name” summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either “fine grained” (also known as “cohesive” behaviour) or “coarse grained” (“non cohesive” behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as “oversize”	
Cobble	63 - 200		
Gravel ¹	2.36 - 63	Coarse	>65%
Sand ¹	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

¹ – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer “component proportions” below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a “Sandy CLAY”, this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a “primary”, “secondary”, or “minor” component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition ¹	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor ²	Present in the soil, but not significant to its engineering properties	All other components	All other components

¹ As defined in AS1726-2017 6.1.4.4

² In the detailed material description, minor components are split into two further sub-categories. Refer “identification of minor components” below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, “INTERBEDDED Silty CLAY AND SAND”.

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component ¹	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

¹ – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type	Particle size (mm)	
	Coarse	Fine
Gravel	19 - 63	6.7 - 19
	6.7 - 19	2.36 - 6.7
	2.36 - 6.7	0.6 - 2.36
Sand	0.6 - 2.36	0.21 - 0.6
	0.21 - 0.6	0.075 - 0.21
	0.075 - 0.21	

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code **NDF**, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as “extremely weathered material” in reports and by the abbreviation code **XWM** on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than ‘very low’ as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be “oversize” may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with “MIXTURE OF”.

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Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:

SAMPLE			DEPTH (m)	TESTING	
SAMPLE REMARKS	TYPE	INTERVAL		TEST TYPE	RESULTS AND REMARKS
	SPT		1.0 1.45	SPT	4,9,11 N=20

Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U ¹
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

¹ – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y = x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear Vane Test x/y (kPa) where: x = undisturbed shear strength y = remoulded shear strength UTP = test attempted, vane unable to penetrate ground	SV
Unconfined compressive strength, (MPa)	UCS
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(-)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150
Dynamic probe super heavy, followed by blow count penetration increment in mm	DPSH/100

Groundwater Observations

	Water seepage/inflow
	Water seepage/outflow
	Standing or observed water level
NFGWO	No free groundwater observed
OBS	Observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD ¹
Air Track	AT
Diatube	DT ¹
Hand auger	HA ¹
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA ¹
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT ¹
Ripping tyne/ripper	R
Rock roller	RR ¹
Rock breaker/hydraulic hammer	EH
Mud/blade bucket	MB ¹
Outer Drive Extension	ODEX
Simultaneous Casing	SIMCAS
Sonic drilling	SON ¹
Toothed bucket	TB ¹
Vibrocore	VC ¹
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB ¹

¹ – numeric suffixes indicate tool diameter/width in mm

Appendix B

Borehole Logs (Bores 1 to 10, 12, 14, 15, 17, 18, and 20 to 28)

Dynamic Penetrometer Test Results (DPTs 11, 13, 16 and 19)

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 17.8 AHD
COORDINATE: E:485232.9, N:6519733.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 1
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS																
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°) ■ DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS												
01/09/26 No free groundwater observed	17.5	0.20	FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to medium sand; organics and rootlets present.		FILL	MC	w<PL		D		0.10	DCP9/150	S	10	15										
		0.5	Sandy CLAY with gravel: grey; high plasticity; fine to coarse sand; fine to medium gravel.		RS	St	w<PL	U50	D	0.50	PP					250kPa remoulded									
																	0.65	Silty SAND: yellow brown; fine.		VD	w<PL	D	0.65	PP	230kPa
		1.5	Borehole discontinued at 1.50m depth. Limit of investigation.				D	1.50																	
	18.0																								

NOTES: [■]Soil origin is "probable" unless otherwise stated. [°]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 19.5 AHD
COORDINATE: E:485240.6, N:6519765.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 2
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
01/09/26 No free groundwater observed	19.0	0.20	FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to medium sand; organics and rootlets present.		FILL	PC	w<PL			D	0.10	PP DCP9/150 bouncing 25/125mm 190kPa remoulded		5	10	15
			CLAY with silt: brown; high plasticity.		RS	St to VSt	w<PL			D	0.40					
		0.50	Gravelly CLAY with silt trace sand: brown; medium plasticity; fine to medium gravel; fine to coarse sand; organics / rootlets.		XWM	H	w<PL			D	0.50					
			From 0.70m: becoming low strength													
	18.5	1.0	Borehole discontinued at 0.90m depth. Refusal.						D		0.90					
	18.0	1.5														
	17.5															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:485246.3, N:6519806.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 3
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
RL (m)	5											10	15		
01/09/26 No free groundwater observed	16.5	FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to medium sand; organics and rootlets present.		FILL	MC				D	0.10					
	0.20	Silty CLAY trace sand: red brown; high plasticity; fine sand.						D	0.25	PP	310kPa remoulded				
									0.30						
								U50							
	0.5							D	0.50	PP	>400kPa				
										PP	290kPa remoulded				
	14.0			RS	VSt	w<PL									
	1.0							D	1.00	PP	300kPa remoulded				
	1.20	Silty CLAY trace sand: red brown; low to medium plasticity.													
				RS	VSt	w=PL									
1.5	Borehole discontinued at 1.50m depth. Limit of investigation.							D	1.50	PP	260kPa remoulded				
13.0															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 16.3 AHD
COORDINATE: E:485205.1, N:6519811.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 4
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS							
02/09/26 No free groundwater observed	18.0	0.5	FILL / Silty CLAY trace sand: orange mottled brown; fine to coarse sand.		FILL	WC	w<PL			D		0.10	PP		5	10	15				
		0.90	Silty CLAY trace sand: brown; organics.		RS	VSt	w<PL			D		0.50	PP		5	10	15				
1.0	Borehole discontinued at 1.00m depth. Refusal.									1.00	PP										
	13.0	1.5																			
		14.5																			

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler

OPERATOR: Douglas (Mckeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.7 AHD
COORDINATE: E:485193.2, N:6519878.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 5
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS							
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
RL (m)	5												10	15		
01/09/26 No free groundwater observed	0.20	FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to medium sand; organics and rootlets present.		FILL	PC	w<PL			D		0.10					
	0.50	Silty CLAY trace sand: brown mottled orange; high plasticity; fine sand.		RS	St to VSt	w<PL			D		0.50	PP	210kPa remoulded			
	0.70	Silty CLAY trace sand: red; high plasticity; fine sand.		RS	VSt	w<PL										
	1.00			RS	VSt	w<PL			D		1.00	PP	330kPa remoulded			
	1.50			RS	VSt	w<PL			D		1.50	PP	270kPa remoulded			
	1.0	Borehole discontinued at 1.50m depth. Limit of investigation.														

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.1 AHD
COORDINATE: E:485169.8, N:6519893.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 6
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS				
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
RL (m)	5												10	15			
01/09/26 No free groundwater	12.0	FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to coarse sand; organics and rootlets present.		FILL	MC					D	0.10						
	0.20	Silty CLAY trace sand: orange mottled brown; high plasticity; fine sand.					w<PL										
	0.5			RS	St to VSt				D	0.50	PP	270kPa remoulded					
	1.0										1.0	PP	150kPa remoulded				
	1.5						w=PL										
	1.0																
	1.0																
	1.0																
	1.0																
	1.0																
	1.0																
	1.5																
10.5		Borehole discontinued at 1.50m depth. Limit of investigation.							D		1.50	PP	160kPa				

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:485148.0, N:6519888.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 7
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
RL (m)	5												10	15			
01/09/26 No free groundwater		FILL / Silty CLAY trace sand: dark brown; fine to coarse sand; organics and rootlets present.		FILL			w<PL		D		0.10	DCP9/150 PP					
	0.20	FILL / Silty CLAY trace sand: red brown; high plasticity; fine sand.															
	0.5								D		0.50				190kPa remoulded		
									U50								
													0.70			>400kPa	
	0.70																
	1.0									D			1.00				
	1.5									D			1.50				
	Borehole discontinued at 1.50m depth. Limit of investigation.																

PLANT: DT100 **OPERATOR:** Ground Test (Hickman) **LOGGED:** Mckeown
METHOD: Solid flight auger **CASING:** Uncased
REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 10.6 AHD
COORDINATE: E:485198.6, N:6519907.9
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 8
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%) DENSITY (%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
01/09/26 No free groundwater observed	10.5		FILL / Silty CLAY trace sand: dark brown; medium plasticity; fine to coarse sand; organics and rootlets present.		FILL	VL					0.10			5	10	15	
	0.20		FILL / Silty CLAY trace sand: brown mottled orange; high plasticity; fine sand.				w<PL										
	0.5				FILL	PC to WC					0.45						
	10.0										0.50	PP	260kPa				
												0.67	PP	>400kPa			
	0.90		Silty CLAY: red; high plasticity.		RS	St to VSt					1.00	PP	330kPa				
	1.10		Silty SAND: brown; fine to medium.		RS	D											
						VD	w<PL										
	1.5																
												</					

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.4 AHD
COORDINATE: E:485168.3, N:6519833.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 9
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
01/09/26 No free groundwater observed	12.0	0.20	FILL / Silty CLAY with sand: dark brown; medium plasticity; fine to coarse sand; organics and rootlets present.		FILL	PC	w<PL		D		0.10	PP	 340kPa DCP9/150 25/75mm >400kPa
			Silty CLAY trace sand: red mottled brown; high plasticity; fine sand.		RS	VSt	w=PL		D		0.30		
			Silty CLAY: brown; medium plasticity.		XWM	H	w<PL		U50		0.40		
								D		0.50			
										0.55	PP		
							D		1.00				
									D		1.30		
			Borehole discontinued at 1.50m depth. Refusal.										
					</								

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 11.6 AHD
COORDINATE: E:485149.3, N:6519836.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 10
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	SAMPLE		DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
										TYPE	INTERVAL			5	10	15	
01/09/26 No free groundwater observed	11.5	0.20	FILL / Silty CLAY trace sand: dark brown grey; medium plasticity; fine to coarse sand; organics and rootlets present.		FILL	PC		w=PL			D	0.10	PP	190kPa			
		0.30	Silty CLAY trace sand: red mottled brown; medium plasticity; fine sand.		RS	St		w=PL			D	0.25	PP	150kPa			
		0.50	Silty CLAY: brown; medium plasticity.		RS	St to VSt					U50	0.40					
		0.75			RS	H		w<PL			D	0.75	PP	>400kPa			25/145mm
		0.80									D	0.80					
		0.90									D	0.90					
		1.00	Borehole discontinued at 0.90m depth. Refusal.														
		1.05															
		1.50															
		1.60															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 10.8 AHD
COORDINATE: E:485120.2, N:6519844.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 12
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

GROUNDWATER	CONDITIONS ENCOUNTERED					SAMPLE				TESTING AND REMARKS						
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (1) DENSITY (2)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
03/09/26 No free groundwater observed		FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	MC	w<PL		D		0.10						
	0.20	Silty CLAY trace sand: red brown; high plasticity; fine to coarse sand.		RS	St	w<PL										
	0.5		VSt													
			H													
	1.0		VSt													
	1.30		Silty CLAY trace sand: grey green; high plasticity; fine sand.				RS	VSt	w=PL							
	1.5				Borehole discontinued at 1.50m depth. Limit of investigation.											

NOTES: (1) Soil origin is "probable" unless otherwise stated. (2) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by Geroc - Soil Log

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler and hand tools

OPERATOR: Douglas (McKeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube and 75mm Ø hand auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 11.2 AHD
COORDINATE: E:485086.4, N:6519832.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 14
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

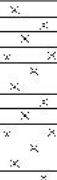
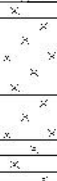
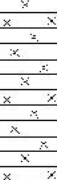
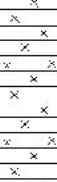
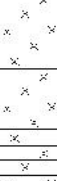
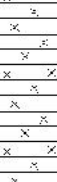
CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°) DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
02/09/26 No free groundwater observed	11.0	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	PC	w<PL		D		0.10	PP	320kPa	5	10	15
	0.20	Silty CLAY trace sand: red brown mottled orange; medium to high plasticity; fine sand.													
	0.5														

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.2 AHD
COORDINATE: E:485046.7, N:6519813.9
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 15
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS							
02/09/26 No free groundwater observed			FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	VC	w=PL			D		0.10									
		0.25	FILL / Silty CLAY trace sand: red mottled orange brown ; medium plasticity; fine to coarse sand.																		
		0.5								U50			0.40								
													0.5								
													0.55	PP	400kPa						
		1.5																			
																					
		1.0									D		1.00	PP	270kPa						
																					
		1.5									D		1.50	PP	320kPa						
			Borehole discontinued at 1.50m depth. Limit of investigation.																		
		10.5																			

NOTES: ^aSoil origin is "probable" unless otherwise stated. ^bConsistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.1 AHD
COORDINATE: E:485034.4, N:6519785.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 17
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS							
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
RL (m)	5											10	15			
03/09/26 No free groundwater observed	12.0	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	PC	w<PL		D		0.10						
	0.15	FILL / Silty CLAY trace sand: red brown mottled orange ; medium to high plasticity; fine to coarse sand.														
	0.5															
	0.90															
	1.0	Silty CLAY trace sand: dark red; medium to high plasticity; fine sand.		RS	VSt	w<PL		D		1.00	PP		250kPa			
	1.5															
	1.5															
	1.5															
	1.5															
	1.5															
16.5	Borehole discontinued at 1.50m depth. Limit of investigation.															
NOTES: ^(*) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																

BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 13.6 AHD
COORDINATE: E:485029.8, N:6519759.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 18
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
03/09/26 No free groundwater observed	13.5	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	MC		w<PL		D		0.10					
	0.25	FILL / Silty CLAY trace sand: brown mottled red; medium to high plasticity; fine to coarse sand.							U50		0.35					
	0.5								D		0.50	PP	200kPa			
	1.0										0.55	PP	>400kPa			
	1.5															
	1.0								D		1.00	PP	300kPa			
	1.5															
	1.5															
	1.5															
	1.5															
	1.5	Borehole discontinued at 1.50m depth. Limit of investigation.							D		1.50	PP	>400kPa			
	1.5															
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NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler and hand tools

OPERATOR: Douglas (Mckeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube and 75mm Ø hand auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 13.9 AHD
COORDINATE: E:484896.3, N:6519712.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 20
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
02/09/26 No free groundwater observed			FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand; organics and rootlets present.		FILL	PC		w<PL			D	0.10					
		0.20	FILL / Silty CLAY trace sand: brown mottled red; medium plasticity; fine to coarse sand.														
		0.5									D	0.50	PP	210kPa			
											U50						
			FILL		WC			w<PL			D	1.00	PP	230kPa			
	</																

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 14.1 AHD
COORDINATE: E:484866.9, N:6519727.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 21
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
02/09/26 No free groundwater observed	14.0		FILL / Silty CLAY trace sand: brown; medium plasticity; fine to coarse sand; organics and rootlets present.		FILL	VC		w<PL		D		0.10			5	10	15	
		0.20	Silty CLAY trace sand: red; medium to high plasticity; fine sand.		RS	St to VSt		w<PL										
		0.5				D	0.50	PP	240kPa									
13.5		Silty CLAY trace sand: brown red; medium to high plasticity; fine sand.		RS	VSt		w<PL											
	1.0									D	1.00	PP	250kPa					
13.0		Silty CLAY trace sand: brown red; medium to high plasticity; fine sand.		RS	St		w<PL											
	1.40									D	1.45	PP	400kPa					
12.5	1.5	Borehole discontinued at 1.50m depth. Limit of investigation.																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100 **OPERATOR:** Ground Test (Hickman) **LOGGED:** Mckeown
METHOD: Solid flight auger **CASING:** Uncased
REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 14.7 AHD
COORDINATE: E:484887.9, N:6519773.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 22
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS											
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (¹)		DENSITY. (¹)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS														
						■	■								5	10	15												
02/09/26 No free groundwater observed	14.5	0.20	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	MC			w<PL		D	0.10	PP	DCP9/150	400kPa														
		0.40	FILL / Silty CLAY trace sand: brown mottled red; medium to high plasticity; fine to coarse sand.		FILL	WC	w<PL	D	0.30																				
		0.5	Silty CLAY trace sand: red; medium to high plasticity; fine sand.		RS	St to VSt	w<PL	D	0.50																				
		1.0																											
		1.5																											
		1.40	Silty CLAY trace sand: brown red; medium to high plasticity; fine sand.		RS	VSt	w<PL																						
1.5	Borehole discontinued at 1.50m depth. Limit of investigation.								D	1.50																			
	15.0																												

NOTES: ¹Soil origin is "probable" unless otherwise stated. ¹Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 13.3 AHD
COORDINATE: E:484902.1, N:6519803.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 23
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
RL (m)	5											10	15	
02/09/26 No free groundwater observed		FILL / Silty CLAY trace sand: brown; medium plasticity; fine to coarse sand.		FILL	WC	w<PL		D		0.10				
	0.25	Silty CLAY trace sand: red brown; high plasticity; fine sand.			VSt									
	0.5				St to VSt				U50		PP	210kPa		
									D		PP	250kPa		
	1.0							D		1.00	PP	140kPa		
	1.20													
	1.5													
	1.5	Borehole discontinued at 1.50m depth. Limit of investigation.												
	1.5													

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 13.3 AHD
COORDINATE: E:484899.3, N:6519871.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 24
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

GROUNDWATER	CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS							
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
03/09/26 No free groundwater observed	0.20	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	PC		w<PL		D		0.10	PP	300kPa	5	10	15	
		Silty CLAY trace sand: red; high plasticity; fine sand.		RS	St												
										D		0.50	PP	350kPa			
	1.00	Borehole discontinued at 1.00m depth. Refusal.							D		1.00	PP	350kPa				
	1.50																

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler

OPERATOR: Douglas (Mckeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 16.0 AHD
COORDINATE: E:484877.0, N:6519864.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 25
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS		
GROUNDWATER DEPTH (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
03/09/26 No free groundwater observed	18.0	FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	WC	w<PL				0.10	PP		5	10	15
	0.25	Silty CLAY: red; high plasticity.		RS	VSt	w<PL				0.30	PP		5	10	15
0.5			RS	H	w<PL				0.50	PP		5	10	15	
1.0			RS	H	w<PL				1.00	PP		5	10	15	
1.20	Borehole discontinued at 1.20m depth. Refusal.		RS	H	w<PL				1.20	PP		5	10	15	
1.5			RS	H	w<PL										

NOTES: (*) Soil origin is "probable" unless otherwise stated. (**) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by Geroc - Soil Log

PLANT: Push tube sampler and hand tools

OPERATOR: Douglas (McKeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube and 75mm Ø hand auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 16.9 AHD
COORDINATE: E:484866.8, N:6519819.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 26
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
RL (m)																
03/09/26 No free groundwater observed		FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	VC	w<PL			D		0.10	PP		5	10	15
	0.20	Silty CLAY trace sand: red; high plasticity; fine sand.			St to VSt				D		0.50	PP				
	0.5			RS	VSt	w<PL			D		1.00	PP				
	1.0				H				D		1.50	PP				
	1.5								D							
	1.5								D							
	1.5								D							
	1.5								D							
	1.5								D							
	1.5								D							
Borehole discontinued at 1.50m depth. Limit of investigation.																

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler

OPERATOR: Douglas (Mckeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:484881.4, N:6519801.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 27
PROJECT No: 209310.06
DATE: 03/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
03/09/26 No free groundwater observed	15.5		FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	WC		w<PL									
		0.20	Silty CLAY trace sand: red brown; medium to high plasticity; fine sand.														
		0.5			RS	St to VSt											
		1.0				St											
		1.4.5				St to VSt											
			Borehole discontinued at 1.20m depth. Refusal.														
		1.5															
		14.0															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push tube sampler

OPERATOR: Douglas (Mckeown)

LOGGED: Mckeown

METHOD: 50mm Ø push tube

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 15.3 AHD
COORDINATE: E:484863.6, N:6519783.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 28
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (¹)	DENSITY. (²)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
RL (m)	5												10	15		
02/09/26 No free groundwater observed		FILL / Silty CLAY trace sand: brown; medium plasticity; fine sand.		FILL	VC	w<PL			D		0.10					
	0.20	Silty CLAY trace sand: red brown; high plasticity; fine sand.														
	0.5								D		0.50	PP	200kPa			
									U50							
											0.70	PP	>400kPa			
	1.0								D		1.00	PP	310kPa			
	1.40															
	1.5															

PLANT: DT100

OPERATOR: Ground Test (Hickman)

LOGGED: Mckeown

METHOD: Solid flight auger

CASING: Uncased

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

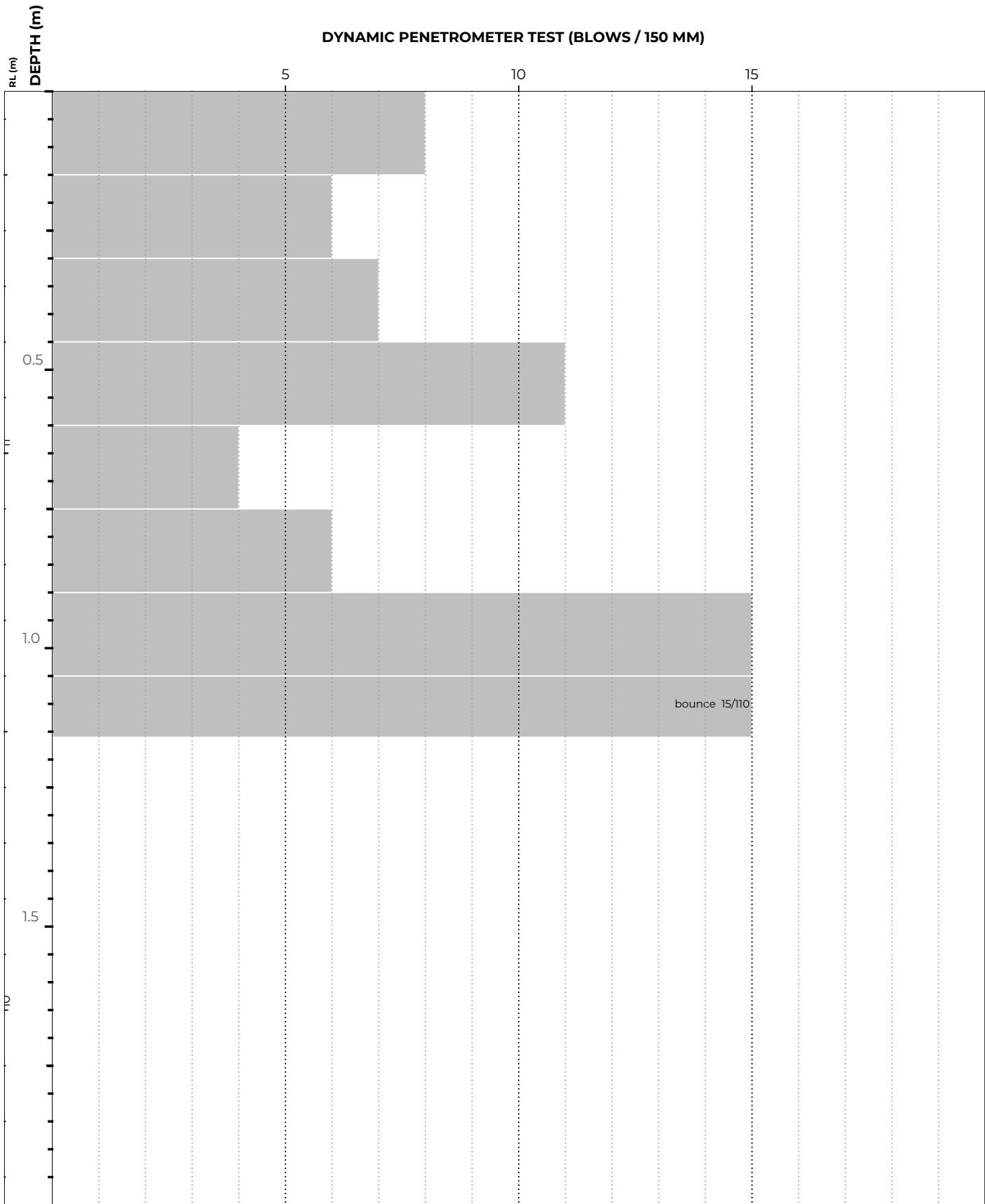
Refer to explanatory notes for symbol and abbreviation definitions

DYNAMIC CONE PENETROMETER LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 11.7 AHD
COORDINATE: E:485141.3, N:6519832.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 11
PROJECT No: 209310.06
DATE: 01/09/26
SHEET: 1 of 1



METHOD: AS1289.6.3.2 Cone Penetrometer
REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

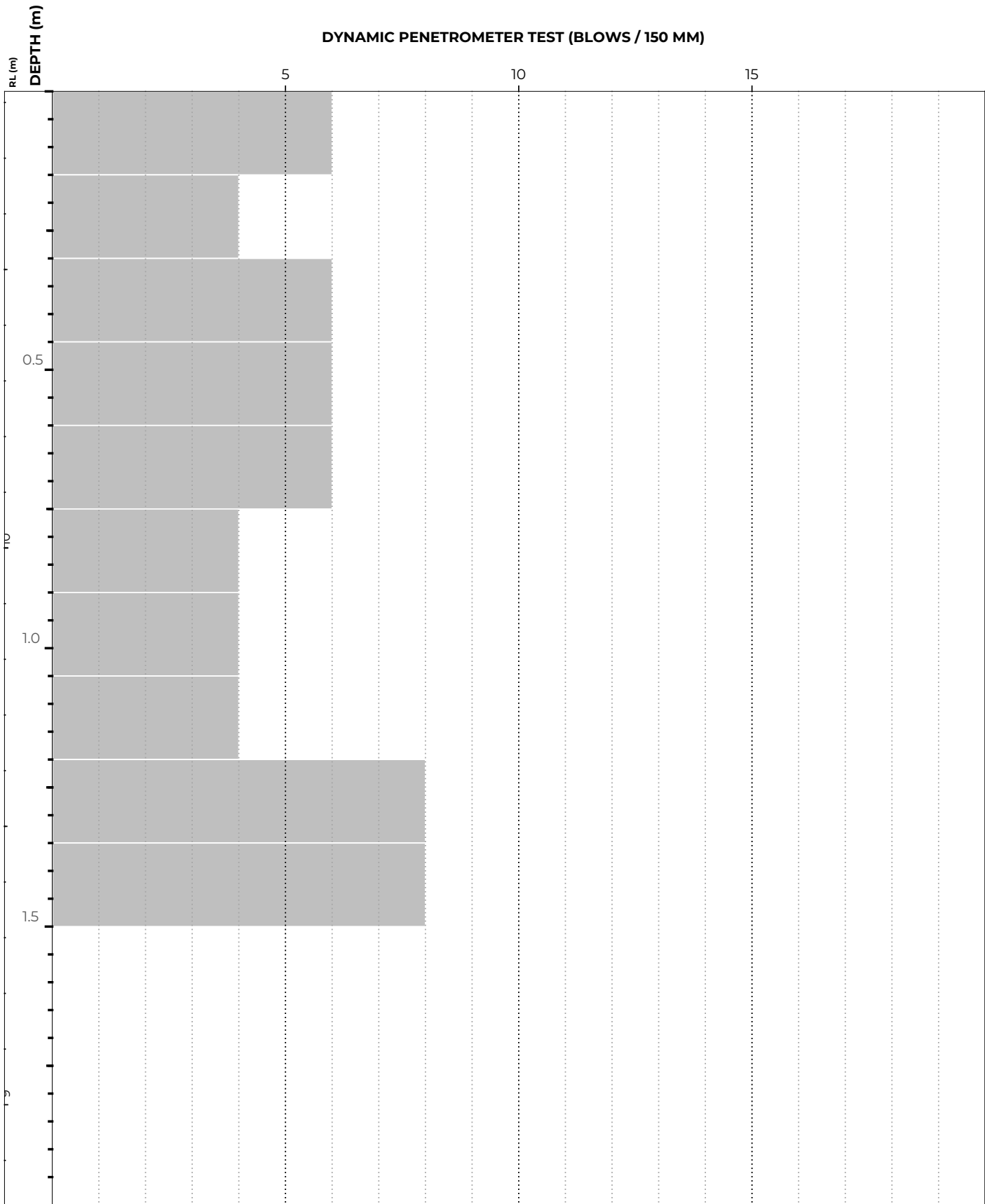
OPERATOR: Douglas (Mckeown)

DYNAMIC CONE PENETROMETER LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 10.8 AHD
COORDINATE: E:485110.8, N:6519843.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 13
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1



Ref = Refusal, 24/110 indicates 24 blows for 110mm penetration.

METHOD: AS1289.6.3.2 Cone Penetrometer

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

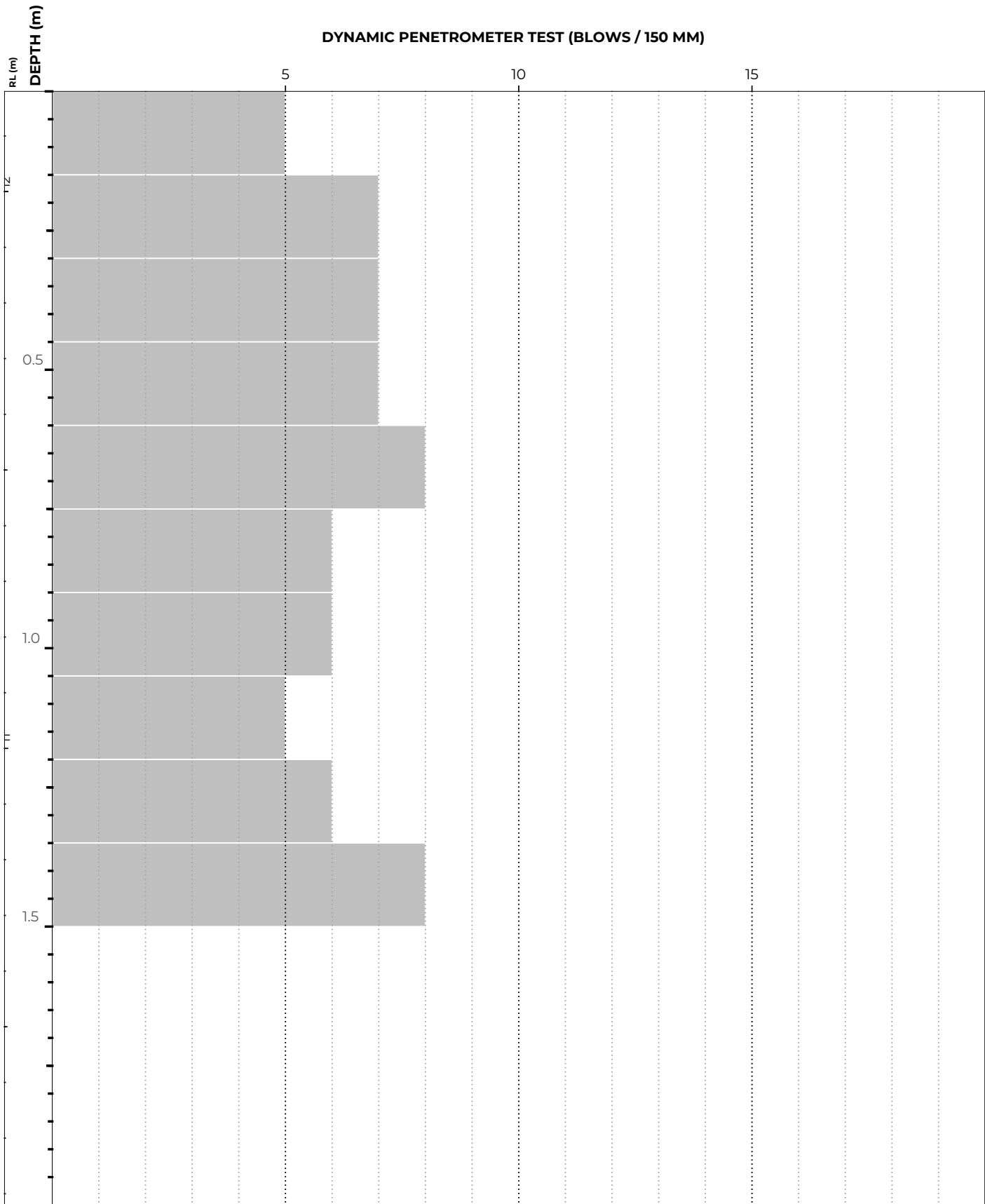
OPERATOR: Douglas (Mckeown)

DYNAMIC CONE PENETROMETER LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 12.2 AHD
COORDINATE: E:485036.1, N:6519807.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 16
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1



Ref = Refusal, 24/110 indicates 24 blows for 110mm penetration.

METHOD: AS1289.6.3.2 Cone Penetrometer

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

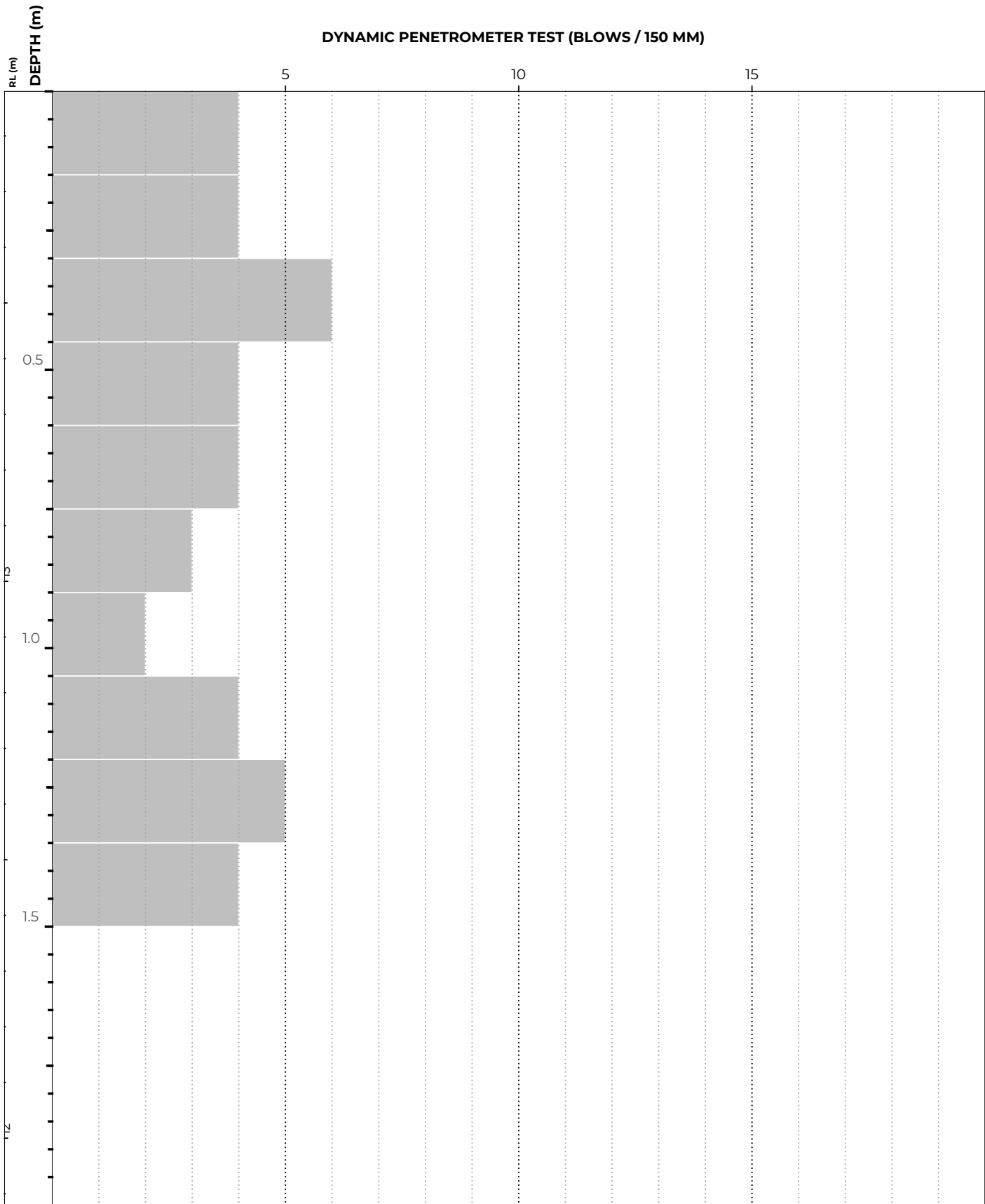
OPERATOR: Douglas (Mckeown)

DYNAMIC CONE PENETROMETER LOG

CLIENT: Bird In The Hand 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Lot 300 DP 1307775 John Oxley Drive, Thrumster

SURFACE LEVEL: 13.9 AHD
COORDINATE: E:484911.8, N:6519706.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 19
PROJECT No: 209310.06
DATE: 02/09/26
SHEET: 1 of 1



Ref = Refusal, 24/110 indicates 24 blows for 110mm penetration.

METHOD: AS1289.6.3.2 Cone Penetrometer

OPERATOR: Douglas (Mckeown)

REMARKS: Coordinates and elevations measured by dGPS with accuracy dependant on satellite coverage and site condition.

Appendix C

Laboratory Test Results

Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268A
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 1, Depth: 0.3 - 0.65
Material: Sandy clay, grey



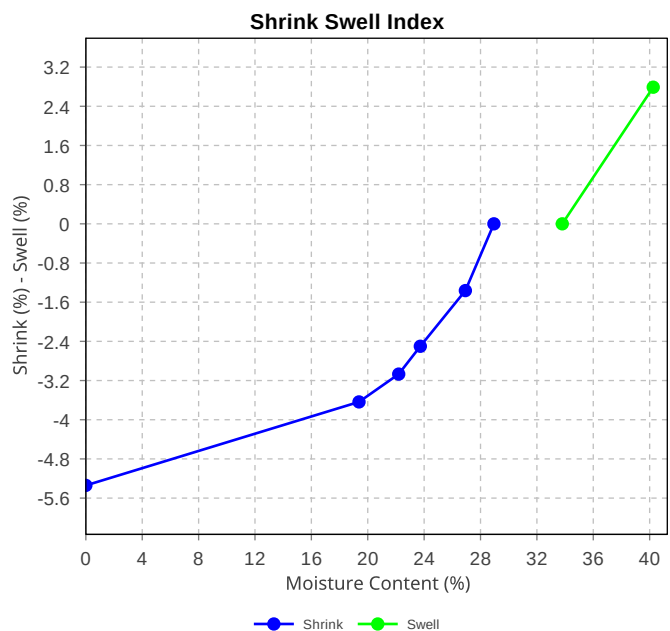
Douglas Partners Pty Ltd
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Unit 2, 32 Geebung Drive Port Macquarie NSW 2444
Phone: (02) 6581 5992
Email: luke.hetherington@douglaspartners.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
I _{ss} (%)*	3.7		
Visual Description	Sandy clay, grey		
* Shrink Swell Index (I _{ss}) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		5.3	
Extent of Cracking		Moderate	
Extent of Crumbling		None	
Moisture Content (%)		29.0	
Initial Bulk Density (t/m ³)		1.939	
Swell Test			
Initial Pocket Penetrometer (kPa)*		260	
Final Pocket Penetrometer (kPa)*		140	
Initial Moisture Content (%)		33.8	
Final Moisture Content (%)		40.3	
Total Swell Strain (%)		2.8	
Initial Bulk Density (t/m ³)		1.830	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268B
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 3, Depth: 0.3 - 0.5
Material: Silty clay, red brown



Douglas Partners Pty Ltd
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Email: luke.hetherington@douglaspartners.com.au



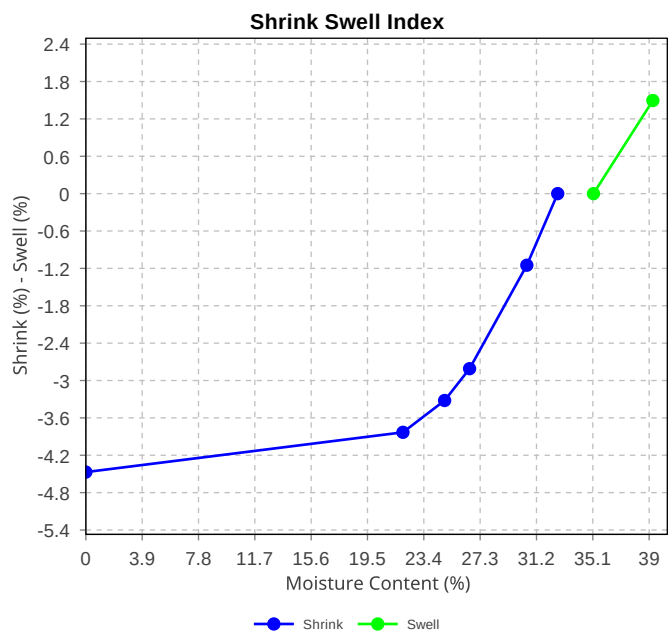
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	2.9		
Visual Description	Silty clay, red brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			

Core Shrinkage Test	
Total Shrinkage Strain (%)	4.5
Extent of Cracking	Minor
Extent of Crumbling	None
Moisture Content (%)	32.7
Initial Bulk Density (t/m ³)	1.906

Swell Test	
Initial Pocket Penetrometer (kPa)*	>400
Final Pocket Penetrometer (kPa)*	360
Initial Moisture Content (%)	35.1
Final Moisture Content (%)	39.3
Total Swell Strain (%)	1.5
Initial Bulk Density (t/m ³)	1.867
* scope of accreditation does not cover the performance of pocket penetrometer readings.	



Core Sample



Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268C
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 7, Depth: 0.4 - 0.7
Material: Silty clay, brown mottled orange



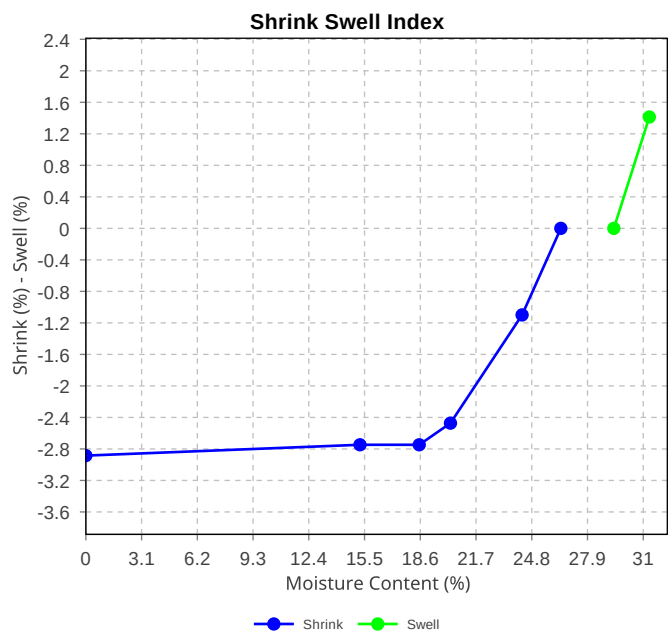
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Port Macquarie Laboratory
Unit 2, 32 Geebung Drive Port Macquarie NSW 2444
Phone: (02) 6581 5992
Email: luke.hetherington@douglaspartners.com.au



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Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	2.0		
Visual Description	Silty clay, brown mottled orange		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		2.9	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		26.4	
Initial Bulk Density (t/m ³)		1.872	
Swell Test			
Initial Pocket Penetrometer (kPa)*		370	
Final Pocket Penetrometer (kPa)*		260	
Initial Moisture Content (%)		29.4	
Final Moisture Content (%)		31.3	
Total Swell Strain (%)		1.4	
Initial Bulk Density (t/m ³)		1.989	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268D
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 8, Depth: 0.45 - 0.67
Material: Silty clay, red brown

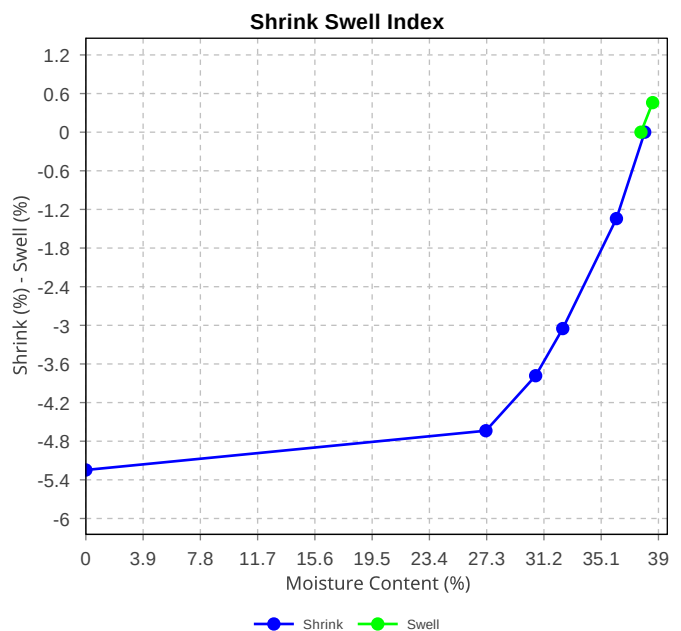
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Unit 2, 32 Geebung Drive Port Macquarie NSW 2444
Phone: (02) 6581 5992
Email: luke.hetherington@douglaspartners.com.au



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Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	3.0		
Visual Description	Silty clay, red brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		5.2	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		38.1	
Initial Bulk Density (t/m ³)		1.859	
Swell Test			
Initial Pocket Penetrometer (kPa)*		>400	
Final Pocket Penetrometer (kPa)*		>400	
Initial Moisture Content (%)		37.8	
Final Moisture Content (%)		38.6	
Total Swell Strain (%)		0.5	
Initial Bulk Density (t/m ³)		1.899	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268E
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 9 , Depth: 0.4 - 0.55
Material: Silty clay, brown



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Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	33		
Plastic Limit (%)	18		
Plasticity Index (%)	15		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	6.0		
Cracking Crumbling Curling	Cracking		
Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	12.5		

Material Test Report

Report Number: 209310.06-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Amended Material Descriptions
Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268F
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 10 , Depth: 0.4 - 0.75
Material: Silty clay, brown



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Approved Signatory: Luke Hetherington
Laboratory Manager
Laboratory Accreditation Number: 828

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	47		
Plastic Limit (%)	18		
Plasticity Index (%)	29		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	11.0		
Cracking Crumbling Curling	Curling		
Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	22.4		

Material Test Report

Report Number: 209310.06-1
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Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268G
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 12 , Depth: 0.4 - 0.5
Material: Silty clay, red brown



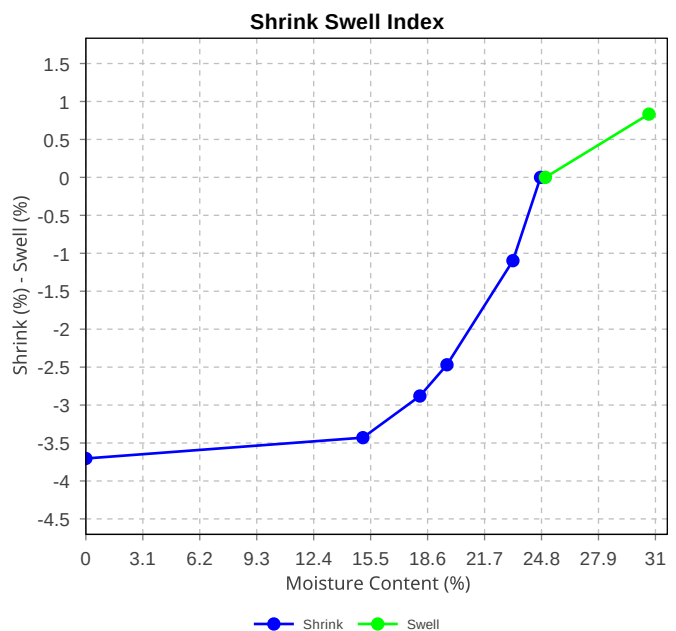
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Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	2.3		
Visual Description	Silty clay, red brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		3.7	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		24.7	
Initial Bulk Density (t/m ³)		1.963	
Swell Test			
Initial Pocket Penetrometer (kPa)*		320	
Final Pocket Penetrometer (kPa)*		310	
Initial Moisture Content (%)		25.0	
Final Moisture Content (%)		30.6	
Total Swell Strain (%)		0.8	
Initial Bulk Density (t/m ³)		1.868	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

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Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268H
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 07/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 15 , Depth: 0.4 - 0.55
Material: Silty clay, red mottled orange brown



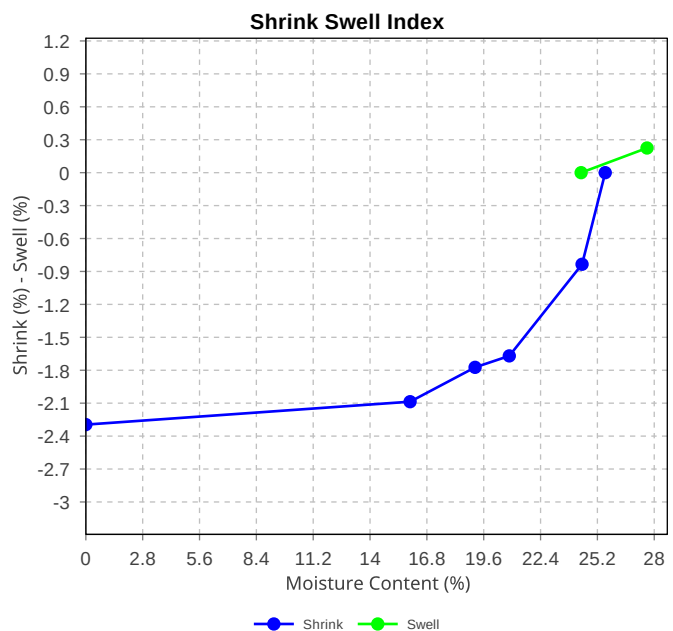
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Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	1.3		
Visual Description	Silty clay, red mottled orange brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		2.3	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		25.6	
Initial Bulk Density (t/m ³)		1.993	
Swell Test			
Initial Pocket Penetrometer (kPa)*		>400	
Final Pocket Penetrometer (kPa)*		300	
Initial Moisture Content (%)		24.4	
Final Moisture Content (%)		27.6	
Total Swell Strain (%)		0.2	
Initial Bulk Density (t/m ³)		2.011	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

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Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268I
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 18 , Depth: 0.35 - 0.55
Material: Silty clay, brown mottled red



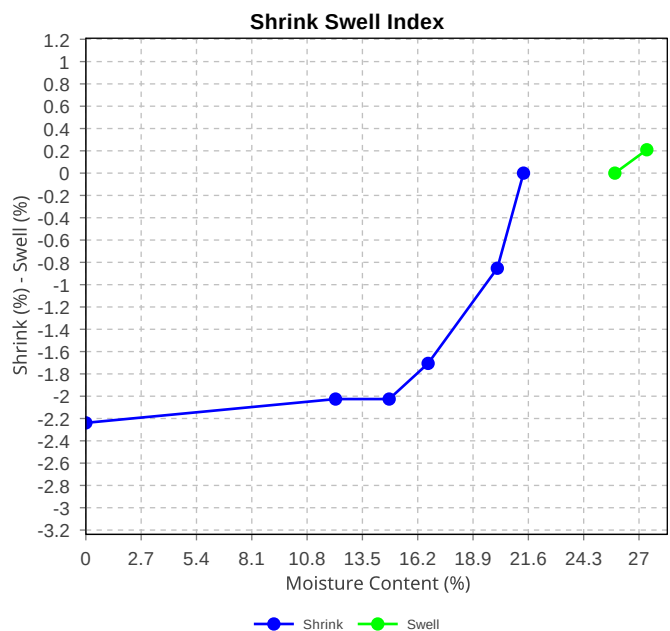
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Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	1.3		
Visual Description	Silty clay, brown mottled red		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		2.2	
Extent of Cracking		Minor	
Extent of Crumbling		Minor	
Moisture Content (%)		21.4	
Initial Bulk Density (t/m ³)		2.003	
Swell Test			
Initial Pocket Penetrometer (kPa)*		>400	
Final Pocket Penetrometer (kPa)*		380	
Initial Moisture Content (%)		25.8	
Final Moisture Content (%)		27.4	
Total Swell Strain (%)		0.2	
Initial Bulk Density (t/m ³)		1.941	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

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Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268J
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 20 , Depth: 0.5 - 0.75
Material: Silty clay, brown mottled red



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Laboratory Manager
Laboratory Accreditation Number: 828

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	1.6		
Visual Description	Silty clay, brown mottled red		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		2.3	
Extent of Cracking		Minor	
Extent of Crumbling		Minor	
Moisture Content (%)		22.4	
Initial Bulk Density (t/m ³)		1.977	
Swell Test			
Initial Pocket Penetrometer (kPa)*		>400	
Final Pocket Penetrometer (kPa)*		380	
Initial Moisture Content (%)		20.5	
Final Moisture Content (%)		28.1	
Total Swell Strain (%)		1.2	
Initial Bulk Density (t/m ³)		1.939	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

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Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268K
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 23, Depth: 0.4 - 0.6
Material: Silty clay, red brown



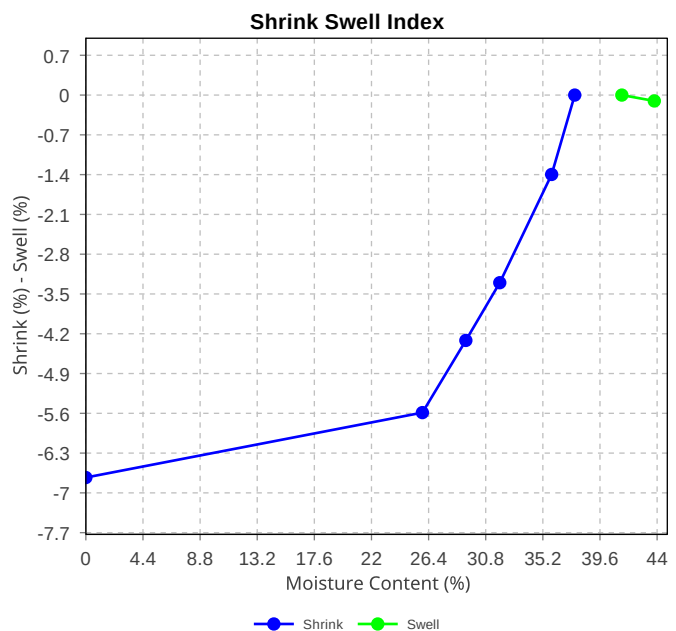
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Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	3.7		
Visual Description	Silty clay, red brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		6.7	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		37.7	
Initial Bulk Density (t/m ³)		1.875	
Swell Test			
Initial Pocket Penetrometer (kPa)*		300	
Final Pocket Penetrometer (kPa)*		290	
Initial Moisture Content (%)		41.3	
Final Moisture Content (%)		43.8	
Total Swell Strain (%)		-0.1	
Initial Bulk Density (t/m ³)		1.800	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Material Test Report

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Date Issued: 17/09/2026
Client: Bird In The Hand 2 Pty Ltd
Suite 103, 2 Miami Key, Broadbeach QLD
Contact: Massimo Raniolo
Project Number: 209310.06
Project Name: Proposed Residential Subdivision
Project Location: Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW
Work Request: 19268
Sample Number: PM-19268L
Date Sampled: 01/09/2026
Dates Tested: 03/09/2026 - 09/09/2026
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: 25 , Depth: 0.3 - 0.5
Material: Silty clay, red brown



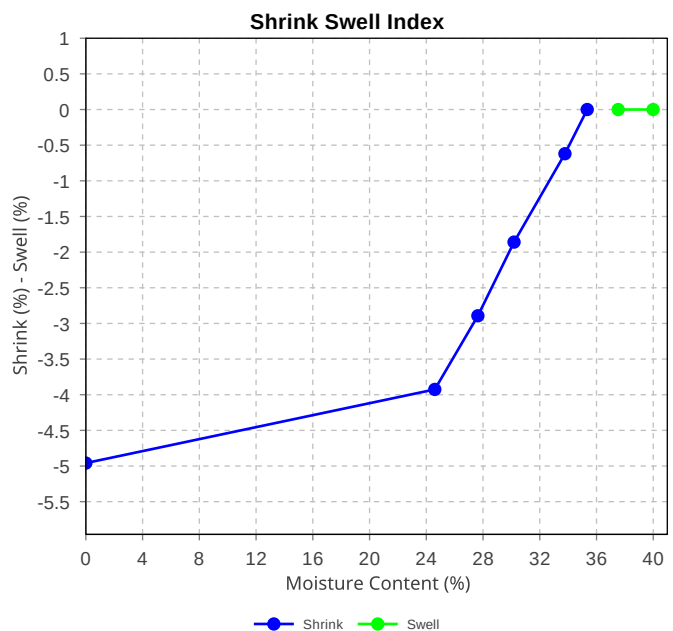
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Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)		Min	Max
Iss (%)*	2.8		
Visual Description	Silty clay, red brown		
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.			
Core Shrinkage Test			
Total Shrinkage Strain (%)		5.0	
Extent of Cracking		Minor	
Extent of Crumbling		None	
Moisture Content (%)		35.3	
Initial Bulk Density (t/m ³)		1.843	
Swell Test			
Initial Pocket Penetrometer (kPa)*		>400	
Final Pocket Penetrometer (kPa)*		>400	
Initial Moisture Content (%)		37.5	
Final Moisture Content (%)		40.0	
Total Swell Strain (%)		0.0	
Initial Bulk Density (t/m ³)		1.851	
* scope of accreditation does not cover the performance of pocket penetrometer readings.			



Core Sample



Appendix D

Drawing 1 – Test Location Plan

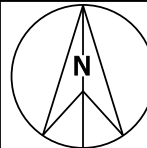


NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from Metromap dated 8 April 2026,
2. Test locations are approximate only and were located using differential GPS typically accurate to ± 0.1 m depending on satellite coverage



CLIENT: Bird In The Hand 2 Pty Ltd	
OFFICE: Port Macquarie	DRAWN BY: SvK
SCALE: 1:1500 @A3	DATE: 24.September.2026

TITLE: **Test Location Plan**
The Sanctuary Stages 5 and 6A
Lot 300 DP 1307775 John Oxley Drive, Thrumster NSW



PROJECT:	209310.06
DRAWING No:	1
REVISION:	0