

Report on
Land Capability Study

Pondicherry, Oran Park, NSW

Prepared for
Department of Planning & Environment
and Camden Council

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Integrated Practical Solutions



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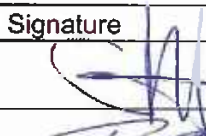
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Report on Land Capability Study

Proposed Land Rezoning

Pondicherry, Oran Park, NSW

1. Introduction

This report presents the results of a land capability study undertaken, by Douglas Partners Pty Ltd (DP), on a 238 ha parcel of land known as “Pondicherry”, (refer Drawing A1 in Appendix A). The work was undertaken for the Department of Planning & Environment and Camden Council. The site has been previously been identified by the former Growth Centres Commission for potential rezoning and urban development under the State Environmental Planning Policy (Sydney Regional Growth Centres) 2006.

This Land Capability Study summarises three individual studies produced as part of the overall assessment. These studies are provided as appendices to this document and must be read in conjunction with this report. The Land Capability Assessment was to address:

- Slope instability (Appendix A – Report on Geotechnical Investigation);
- Soil erosion risks (Appendix A – Report on Geotechnical Investigation);
- Geotechnical factors (Appendix A – Report on Geotechnical Investigation);
- Soil salinity hazard (Appendix B – Report on Salinity Assessment and Salinity Management Plan [SMP]); and
- Site contamination (Appendix C – Report on Preliminary Site Investigation).

2. Scope of Works

To prepare the Land Capability Study the work was divided into three core components. The scopes of works for each component are summarised in the following sections.

2.1 Geotechnical (refer Appendix A – Section 2 for further detail)

The scope of work comprised:

- Site mapping for slope instability and erosion features. A senior geotechnical engineer undertook a site walkover and produced maps based on observations, of current and historic landslips and soil erosion features; and
- Soil testing for geotechnical purposes was undertaken from selected test pits excavated across the site (refer Section 3). This data allowed the development of preliminary recommendations on geotechnical conditions likely to affect footings, pavement design, and site preparation.

2.2 Salinity (refer Appendix B – Section 1 for further detail)

The scope of work comprised:

- Baseline review of regulatory documents, Council requirements, salinity mapping and hydrological landscape data;
- An electromagnetic survey to assess for salinity potential was undertaken. This involved using a DUALEM-42S Profiler, mounted on a quad motorcycle type vehicle which traversed the site collecting ground conductivity, hence salinity data, for salinity mapping. Data were obtained along approximately 107 line kilometres of traverse (38,500 data points) on a grid of primary survey lines approximately 18 m apart, with an average data point spacing of approximately 2.8 m;
- Samples were collected from 11 test pits to ground truth the DUALEM-42S Profiler data and process the EM dataset that has been correlated with the findings of the soil sampling and analysis; and
- Samples were analysed and the results interpreted to estimate soil salinities.

2.3 Contamination (refer Appendix C – Section 2 for further detail)

The scope of work comprised:

- Site walkover and interviews completed by an environmental scientist to identify potential constraints to development, with respect to the contamination status of the site;
- Desk top study of regional data to assess site conditions as well as possible current and historical land practises that may impact the proposed development of the site; and
- Compilation of a list of Potential Areas of Environmental Concern (PAEC) for the site based on the findings of the PSI, with each PAEC assessed individually to determine likely presence of and risk from contamination. Certain PAEC have been determined to be Areas of Environmental Concern (AEC) that will require further investigation and/or management.

3. Current Site Conditions

The site is located within the local government area of Camden Council and comprises an irregular shaped area of approximately 238 ha and is bound by vacant rural land to the north, South Creek and rural land to the east, Oran Park Precinct to the south and The Northern Road to the west and beyond by further rural residential and agricultural land. The site currently forms part of an active grazing and crop farming property which includes two large farm dams in the eastern/south eastern portion of the site and several smaller dams throughout the site.

4. Constraint Maps

Based on the geotechnical, salinity and contamination investigations, maps were developed for:

- Geotechnical Constraint (refer Drawing A5, attached): This map shows areas of constraint with respect to geotechnical factors such as filling and erosion;
- Aggressivity Constraints (refer Drawings B3 and B4, attached). Soils at the Precinct have been shown to be aggressive and dispersive, with risk areas by depth shown on the maps. Response strategies to these constraints are provided in Appendix B, Sections 12 to 14; and
- Salinity Constraint (refer Drawing B5, attached): These maps show areas of constraint based on preliminary EM survey findings with respect to very saline soil conditions and moderately saline soil conditions. Management strategies for both soil types are provided in Appendix B, Sections 12 and 13; and
- Identified Areas of Environmental Concern [AEC] (refer Drawing C8, attached) have been mapped which are cross referenced to Table C3 (Section 10) in the Preliminary Site Investigation (PSI) Report.

Copies of the above referenced extracted drawings are attached to the rear of this report as well as provided with their respective reports (Appendices A to C).

5. Summary of Land Capability for Site Development

5.1 Geotechnical

Assessment of the urban capability of the study area has been carried out on the basis of geotechnical considerations, specifically risk of slope instability, soil erodibility and foundation conditions.

General development considerations will require the classification of residential lots to comply with the requirements of AS 2870 - 2011 (Ref 4). The requirements of AS 1170 - 2002 *Structural Code* (Ref 8) are particularly noted in relation to earthquake loading requirements for commercial or industrial development.

The distribution of the geotechnical constraints is summarised in Drawing A5.

As no landslide or creep activity was identified within steeper hillsides (refer Drawing A5) of the site, any minor slope instability will be addressed by good engineering practices

Other than erosion-triggered slumping of a material (probably a few cubic metres at any event) from the low height banks of the gullies within the alluvium infilled valley floors, there does not appear to be a significant risk of stream bank instability. It is considered that stream bank instability impose only minor constraints on development readily managed by good engineering practice.

It is considered that the erosion hazard within the areas proposed for development would be within usually accepted limits which could be managed by good engineering and land management practices (refer Sections 8.4 and 8.5).

The engineering and management practices applicable to erosion control will also be required to address localised waterlogging limitations of soils along the courses of South Creek and associated tributaries, its associated gullies and localised areas about existing farm dams. These hazards are considered to impose minor geotechnical constraints to development (i.e. limited to significant placement of new engineered filling and drainage) to development of residential development or extensive building complexes.

Suspected uncontrolled filling was identified in several locations across the site. It is considered that the presence of uncontrolled filling will impose a minor geotechnical constraint to development and will generally involve the removal of uncontrolled filling (and if in situ materials are considered geotechnically suitable) replacement under controlled conditions.

5.2 Salinity

The inferred constraints to development related to soil salinity are:

- The non-aggressive to moderate aggressivity to concrete, the non-aggressive to moderate aggressivity to steel, the presence of moderate to occasionally very to highly saline materials and the highly sodic soils are naturally occurring features of the local landscape and are not considered significant impediments to the proposed development, provided appropriate remediation or management techniques are employed (refer to Section 13; Appendix B);
- Salinity and aggressivity affects the durability of concrete and steel by causing premature breakdown of concrete and corrosion of steel. This has impacts on the longevity of structures in contact with these materials. As a result management will be required (refer to Sections 13 and 14; Appendix B); and
- Sodic soils have low permeability due to infilling of interstices with fine clay particles during the weathering process, restricting infiltration of surface water and potentially creating perched water tables, seepage in cut faces or ponding of water in flat open areas. In addition, sodic soils tend to erode when exposed. Management of sodic soils is therefore required to prevent these adverse effects as detailed in Appendix B, Section 13.

5.3 Contamination

- Based on the findings of the PSI, a total of 17 PAEC were identified and considered further with respect to the associated potential risks to receptors associated with the development. Of the 17 PAEC identified, 13 were identified as AEC requiring targeted investigation during future investigations to inform future subdivision for the development of the site. The 13 identified AECs are detailed, below and in Appendix C, Section 10 and shown on Drawing C9; and
- Based on the findings of the PSI, the potential for contamination constraints to the proposed development for the site excluding the AECs is considered to be low. The potential for contamination constraints for identified AECs is considered to be low to medium.

The AECs are summarised in Table 1 on the following page.

Table 1: Identified AEC

Description	PAEC #	AEC #	Outcome
Market Gardens	2	1	Limited targeted sampling during DSI ¹
Former Structures – Structure 1	3	2	Targeted sampling during DSI ²
Localised Filling – Dam 4	4	3	
Localised filling – house footprint	5	4	
Localised filling – suspected fill mounds	6	5	
Localised filling – walls in silage area	7	6	
Localised filling – mulch area pad	8	7	
Localised filling – Dam 9 (no longer present)	9	8	
Structure 4	10	9	
Structure 5	11	10	
Ground disturbance	12	11	
Power Poles	15	12	Targeted sampling next to slab only ²
Use of fuel / oil	17	13	

¹: While pesticide use on market gardens can occur, DP experience in similar land use is such impact to sites in the region is rare.

²: Targeted sampling recommended to be carried out during future investigations to inform subdivision of the site.

6. Further Investigation

Further investigation will be required as conceptual design/planning progresses together with additional work during the construction phase. Specific investigations would include but not necessarily be limited to those described in the following sections.

6.1 Geotechnical

Site specific investigations would include:

- Detailed geotechnical investigations on a stage-by-stage basis for determination of pavement thickness designs and lot classifications; and
- Routine inspections and earthworks monitoring during construction.

6.2 Salinity

Site specific investigations would include:

- Additional investigation should be undertaken in development areas which are to be excavated deeper than 3 m or into rock at shallower depth, where direct sampling and testing of salinity has not been carried out. Salinity management strategies given herein may need to be modified or extended following additional investigation by deep test pitting and/or drilling, sampling and testing for soil and water pH, electrical conductivity, total dissolved solids (TDS), sodicity, sulphates and chlorides; and
- The salinity investigation has been undertaken for the purpose of providing preliminary advice. A detailed salinity investigation will be required prior to construction in order to provide more detailed recommendations for individual lots.

6.3 Contamination

Site specific investigations would include:

- Further intrusive investigation works in the form of a Detailed Site Investigation (DSI) in accordance with SEPP 55 and NSW EPA guidelines will be necessary prior to development applications for the purpose of subdivision;
- The DSI should include targeted sampling of identified AECs as well as low density sampling over the remaining balance of the site at a typical rate of 1 test pit per hectare. Further assessment of the AEC areas will determine appropriate remediation requirements, if any, to render the site suitable for the proposed development; and
- Based on the findings of the PSI and DPs experience on similar sites in the region, there is the potential that hidden, below ground structures (such as fuel tanks, septic tanks, filled gullies, ACM pipes and ACM fence footings) may be present at the site and this should be considered accordingly during the DSI and subsequently during bulk earthworks for the proposed development. Based on DP's experience on similar sites, below ground ACM features (ACM pipes in particular) are commonly encountered during earthworks and subsequent remediation works can delay site formation and general construction. An Unexpected Finds Protocol will therefore need to be established for use during earthworks during redevelopment, in order to ensure that due process is carried out in the event of a possible contaminated find.

7. Conclusion

In conclusion, it is noted that the site known as Pondicherry and as defined herein is considered suitable for urban redevelopment and is not constrained by geotechnical, salinity or contamination factors to such an extent as to render the land undevelopable.

8. References

1. Australian Standard AS 2870 – 2011 Residential Slabs and Footings.
2. Australian Standard AS 1170 – 2002 *Structural Code*.

9. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Pondicherry, Oran Park in accordance with DP's proposal dated MAC170014.P.001.Rev1 dated 6 February 2017 and acceptance received from Greenfields Development Company No. 2 Pty Ltd dated 27 February 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of the Department of Planning & Environment, Camden Council and GDC2 for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

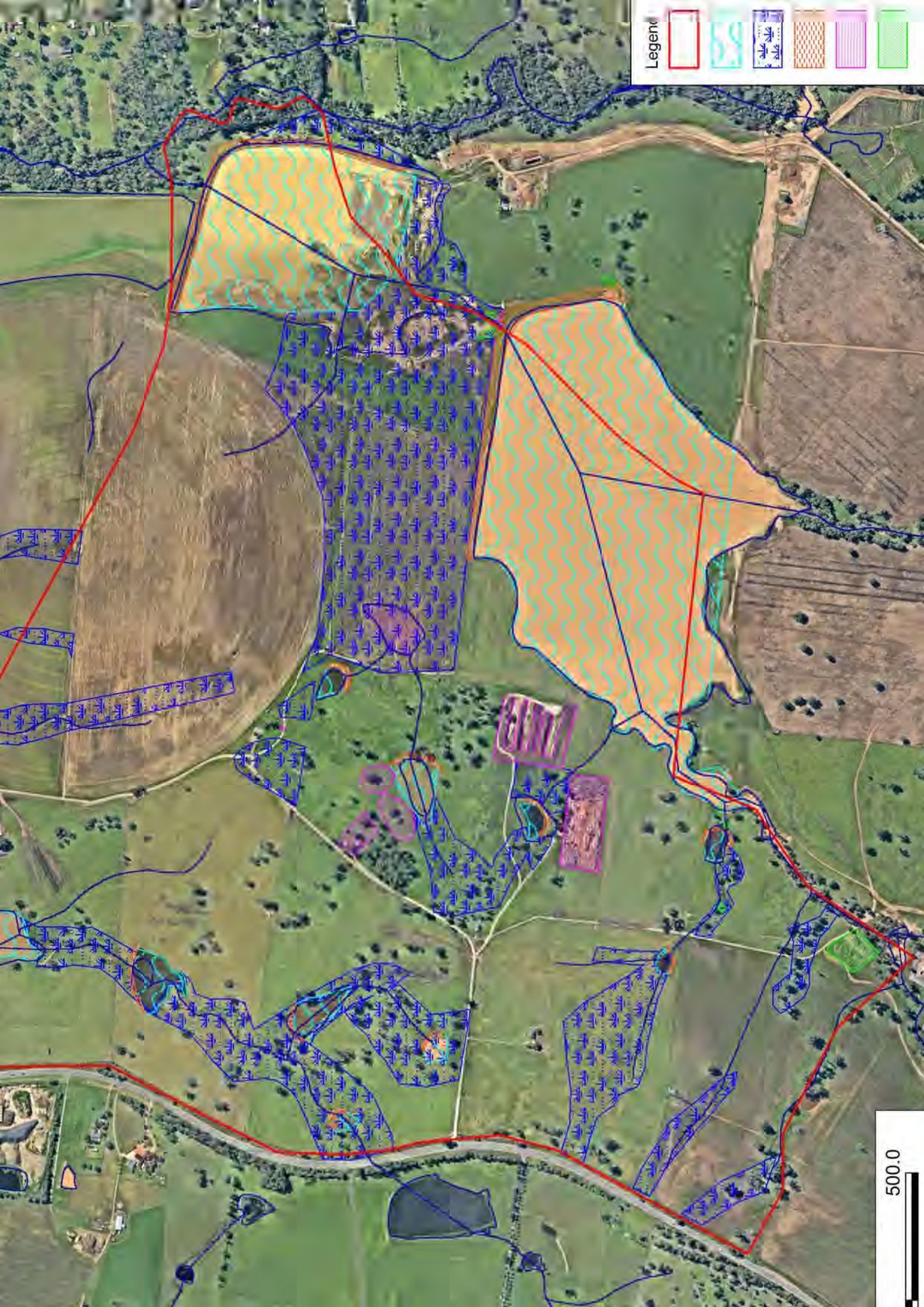
DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations.

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

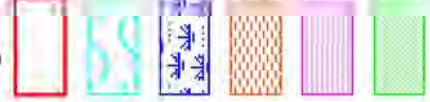
This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Douglas Partners Pty Ltd

Extracted Drawings

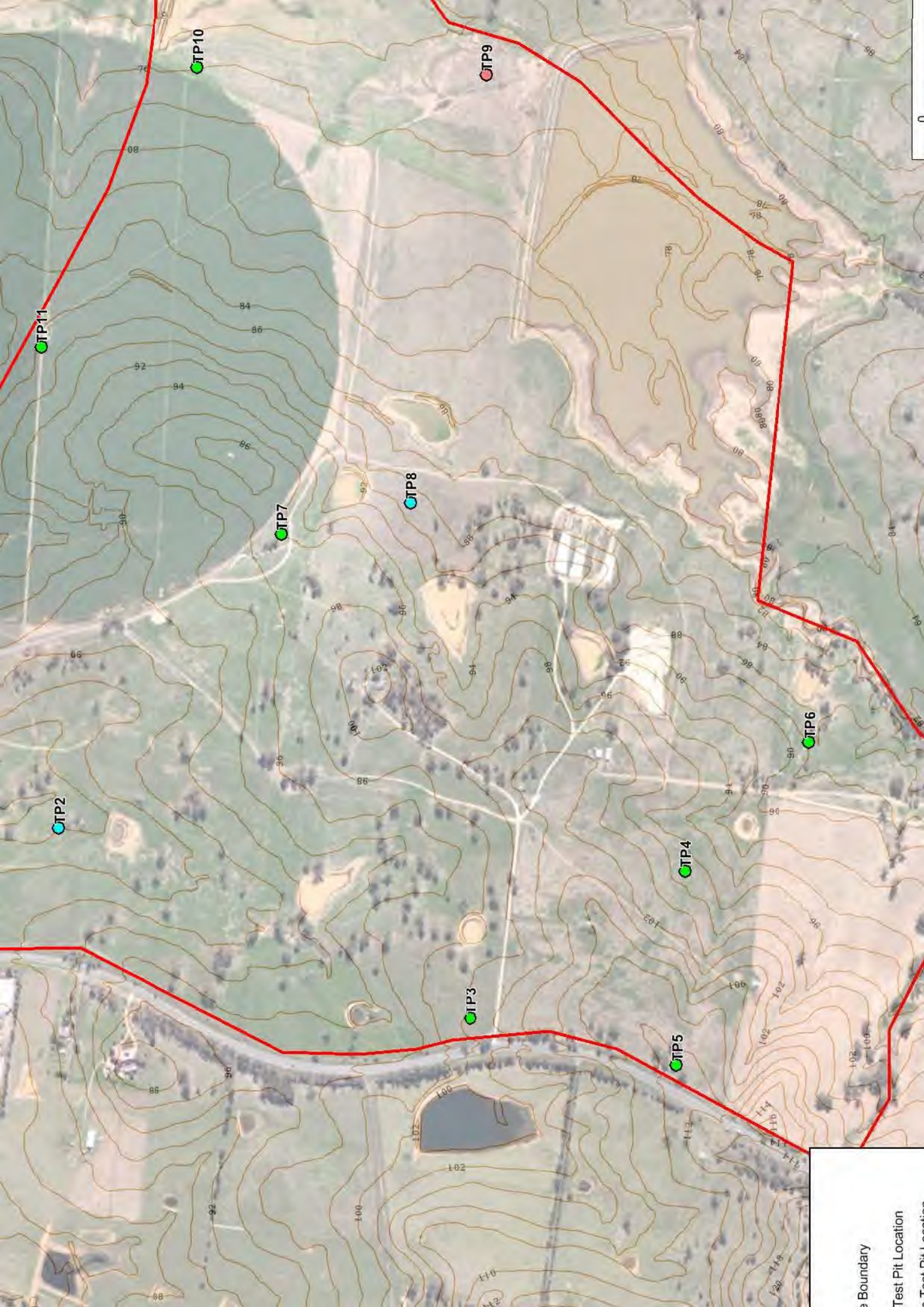


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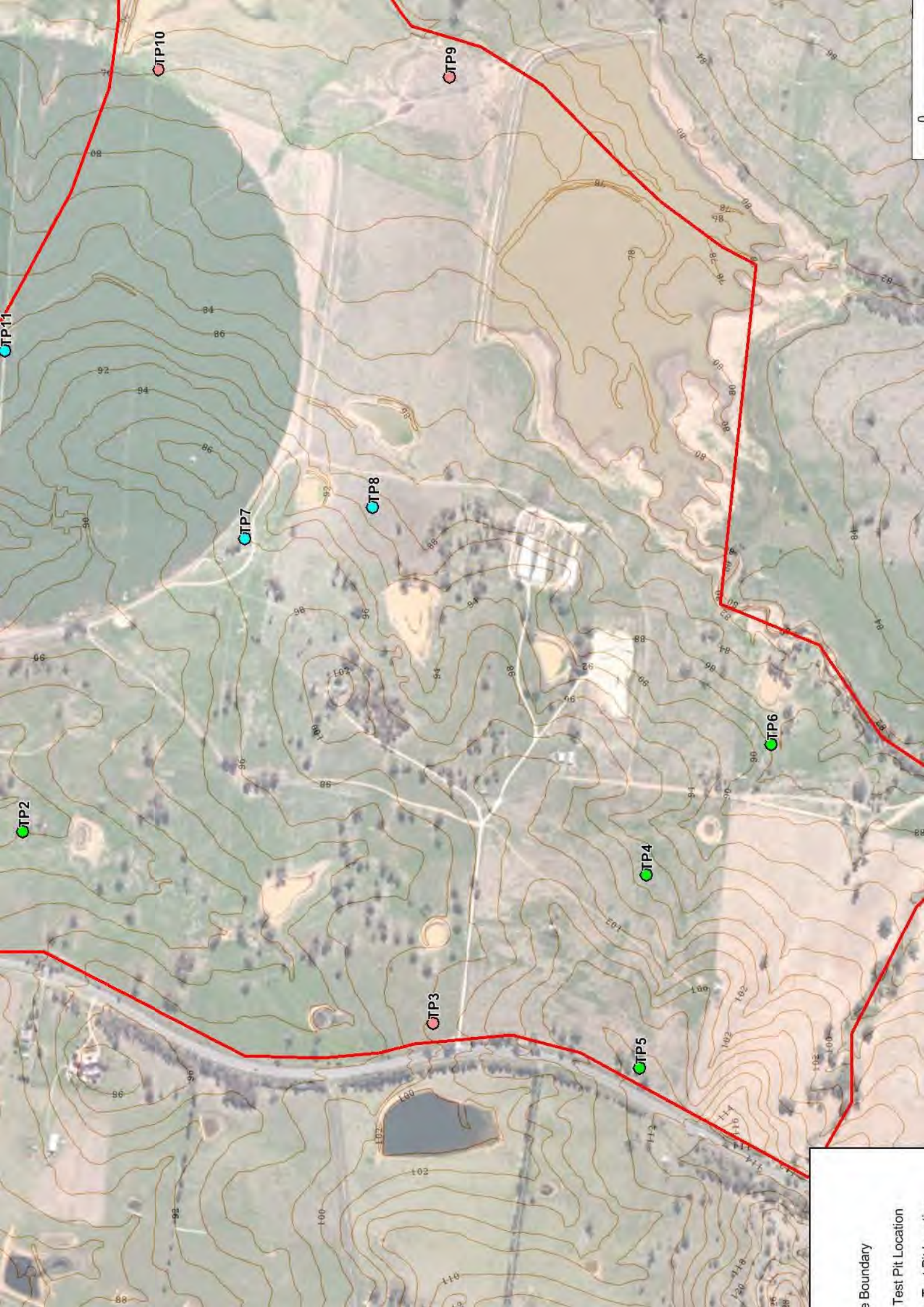




Boundary

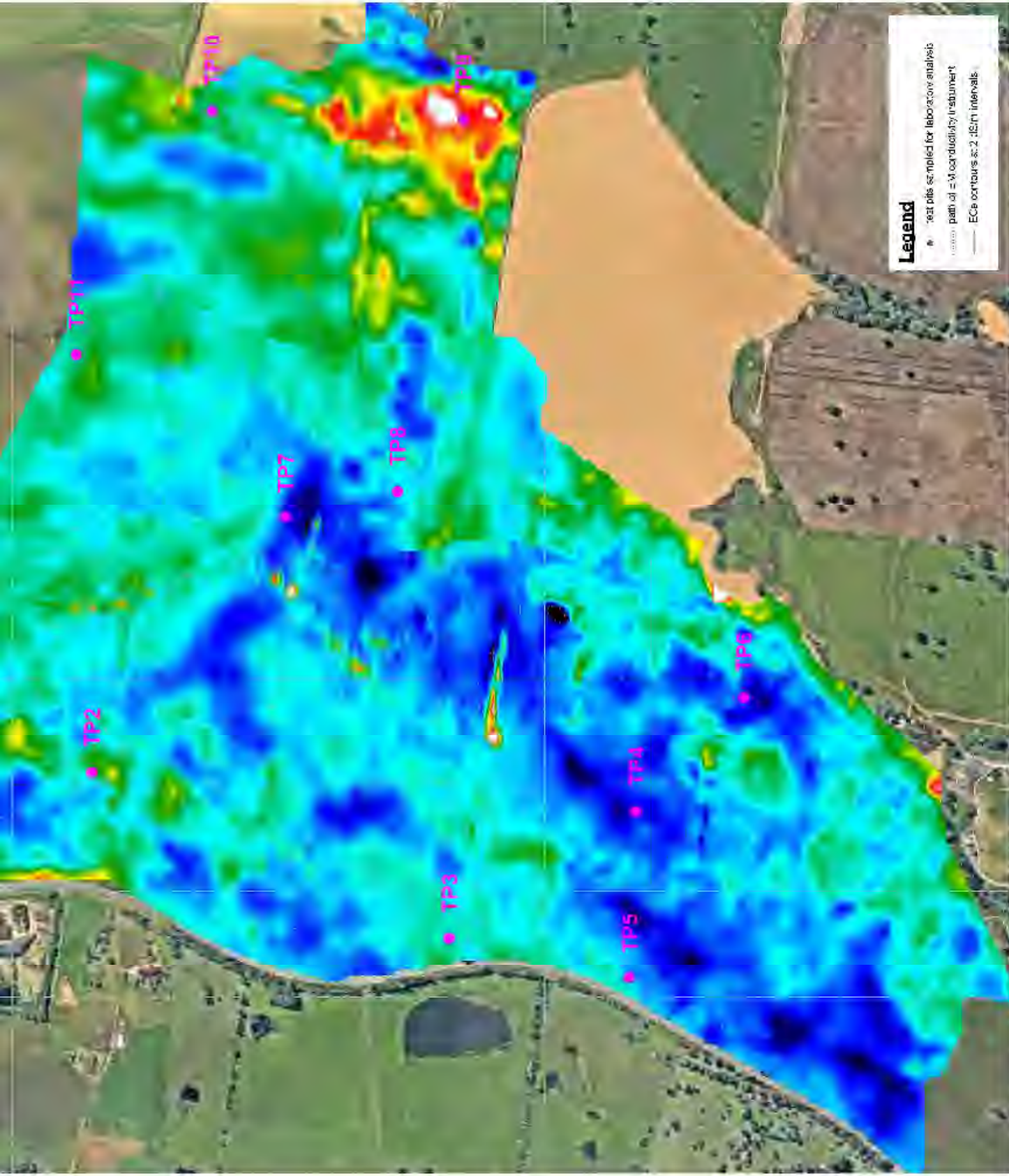
Test Pit Location

Test Pit Location



Boundary

Test Pit Location

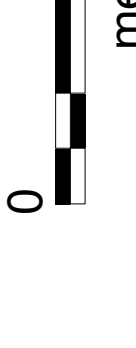


Very

Mod

Slight

Non-



Boundary

Appendix A

Report on Geotechnical Investigation

Report on
Geotechnical Investigation

Pondicherry Residential Rezoning
Pondicherry, Oran Park, NSW

Prepared for
Department of Planning and Environment
And Camden Council

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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 	31 August 2017
Reviewer 	31 August 2017



Executive Summary

Douglas Partners Pty Ltd carried out a Geotechnical Investigation for the proposed rezoning of the Pondicherry site at Oran Park. The area is to be developed by Greenfields Development Company 2 Pty Ltd. The objective of the investigation is to evaluate the suitability of the site for rezoning with regard to the geotechnical constraints on the site.

The site is located within the local government area of Camden Council and comprises an irregular shaped area of approximately 238 ha and is bound by vacant rural land to the north, South Creek and rural land to the east, Oran Park Precinct to the south and The Northern Road to the west and beyond by further rural residential and agricultural land. The site currently forms part of an active grazing and crop farming property which includes two large farm dams in the eastern/south eastern portion of the site and several smaller dams throughout the site. The southernmost large dam provides a stormwater detention function for part of the existing Oran Park Precinct located to the south of the site. A major transmission line and associated easement runs east-west through the southern portion of the land. While most of the site has been cleared for use as grazing land, there are discontinuous zones of open to densely wooded areas along the creek lines and gullies in the south-western corner of the site.

The western and central portions of the site form the dendritic drainage systems (by way of ridgeline spurs) of the South Creek associated tributaries in the southern portion of the site (with gullies generally flowing east to south-east) and Lowes Creek in the northern portion of the site (with gullies generally flowing northerly) which has entrenched the bedrock forming side slopes mostly to approximately 3 - 5°, but locally steeper towards the crests of ridgelines to approximately 5 - 10°. The gullies have been dammed in most locations for watering of stock. The highest elevation within this portion is RL 116 (in the south-west corner of the site). These areas have been cleared for grazing with scattered open wooded areas.

The remainder of the site comprises alluvium infilled valley floors of the northerly and north-easterly flowing tributaries associated with South Creek and gentler sloping hillsides feeding the creek. Surface levels range from approximately RL 86 to the north-west adjacent the tributaries to RL 76 central eastern edge of the site. While most of the unit has been cleared for use as grazing land, there are discontinuous zones of open to densely wooded areas along the creek lines and gullies in the south-western corner of the site.

Soil landscapes over the site broadly reflect the underlying geology and topography, with the Blacktown and South Creek Soil Landscapes of Hazelton and Tille (1990) being dominant. Thick residual and erosional soil profiles of the Blacktown Soil Landscapes can be prone to slope instability due to slumping and soil creep, particularly on steep south-facing slopes underlain by shale. The majority of naturally occurring slopes in the site have a gradient of less than 15% and, as such, the risk of hill slope instability is considered very low for the site.

Soils of the Blacktown and South Creek Soil Landscapes are of typically moderate erodibility, with calculated potential soil loss for the first 12 months after urban development of up to 135 t/ha for soils on moderate slopes.

The Atterberg limits results indicate that the natural clays are variously of low to high plasticity. The shrink-swell index test results indicate that the natural clays are of low to high shrink-swell potential. The soils tested would be expected to be moderately to highly susceptible to shrinkage and swelling movements with changes in soil moisture content. Dispersion potential, as indicated by the Emerson crumb test, was determined to be Emerson class numbers 1, 2, 4 and 8 (highly to non-erodible). California bearing ratio testing (CBR) indicates that the site clays are likely to range in design values of 2% - 4%.

On the basis of a preliminary assessment of soil erosion hazards and slope stability, it is considered that urban or rural-residential development is generally feasible over the entire site, provided that appropriate soil and water management measures are adopted.

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Report on Geotechnical Investigation

Pondicherry Residential Rezoning

Pondicherry, Oran Park, NSW

1. Introduction

This report presents the results of a geotechnical investigation undertaken by Douglas Partners Pty Ltd (DP) as part of an overall Land Capability Assessment at Pondicherry, Oran Park, NSW. The investigation was commissioned in an email, dated 27 February 2017, from Mr Paul Hume of Greenfields Development Company 2 Pty Ltd (GDC2) on behalf of Department of Planning & Environment and Camden Council and was undertaken in accordance with DP's proposal MAC170014.P.001.Rev1, dated 6 February 2017. The site has previously been identified by the former Growth Centres Commission for potential rezoning and urban development under the State Environmental Planning Policy (Sydney Regional Growth Centres) 2006. The site is currently zoned RU1 (primary production) and is proposed to be rezoned for various purposes, including (and primarily) residential type land use.

DP understands that the geotechnical investigation is required to inform the precinct planning stages of the proposed rezoning of the site. In particular, the investigation will assist in the preparation of the Indicative Layout Plan and the Precinct Planning Report that will be submitted to DPE for rezoning purposes. It is understood that the proposed development is likely to comprise approximately 2,500 residential dwellings and a rail corridor through the site. As the rail corridor construction will not be part of the current proposal we have not provided comment on it.

The investigation comprised a review of published information and field mapping by a senior geotechnical engineer and senior scientist followed by test pit excavation, laboratory testing of selected samples, engineering analysis and reporting. Details of the work undertaken and the results obtained are given in the report, together with comments relating to development potential, conceptual planning, design and construction practice.

A site concept plan was supplied by the client for use in the assessment and selected details have been incorporated into Drawings A1 - A5 (refer Appendix A of this report).

2. Scope of Works

The brief required the identification of geotechnical constraints to urban development, particularly with respect to slope instability and erosion and preparation of a preliminary soil and water management plan (SWMP) to provide guidelines on procedures and development criteria that will apply during subdivision construction. It is noted however that the SWMP is preliminary only and will require further review and refinement once the development footprint is determined.

DP has carried out salinity (Project 76778.29) and contamination (Project 76778.30) investigations in conjunction with the geotechnical investigation. The salinity and contamination investigations are reported separately and a Land Capability Study Report (Project 76778.27) provides an overview of all investigations and results.

Based on the above scope of work, the geotechnical investigation comprised:

- A review of published soils and geological information;
- A scoping study of the site, comprising site inspections to identify potential zones for geotechnical sample collection;
- Site walkover assessments by a senior geotechnical engineer and/or senior scientist identifying areas of potential site instability, erosion risks and other geotechnical constraints;
- A services search via the dial-before-you-dig service;
- Location of the test pits and other site features by a dGPS receiver;
- Excavation and logging of 11 test pits (Test Pits 1 – 11);
- Collection of regular disturbed samples to assist in strata identification and for laboratory testing.
- Laboratory testing (in-house) of selected samples for a range of geotechnical properties, including moisture content, Atterberg limits, shrink-swell index, Emerson Class Number and California bearing ratio (CBR);
- Storage of remaining soil samples pending the need for additional testing and evaluation;
- Preparation of constraints maps, indicating areas of site instability, erosion hazards and areas suitable for urban development; and
- Preparation of this report, outlining the scope of work with details of the results obtained, assessment of constraints, recommendations regarding management and mitigation issues and comments with respect to design and construction practice.

This document represents the details of the findings of the study and is accompanied by technical notes and results within Appendices A to D.

3. Site Description

3.1 Site Identification

The site is located within the local government area of Camden Council and comprises an irregular shaped area of approximately 238= ha. The site is currently registered as nine separate lots as listed below:

- Part Lot E, Deposited Plan (D.P) 438723;
- Part Lot A, D.P. 420694;
- Lot F, D.P. 420694;
- Lot B, D.P. 420694;
- Part Lot 1, D.P. 623190;
- Part Lot 2, D.P. 1066809;
- Lot 71, D.P. 752024;
- Part Lot C, D.P. 391340; and
- Part Lot 9070, D.P. 11225752.

The site location and boundaries are shown on Drawing 1.

3.2 Site Description

The site is bound by vacant rural land to the north, South Creek and rural land to the east, Oran Park Precinct to the south and The Northern Road to the west and beyond by further rural residential and agricultural land. The site currently forms part of an active grazing and crop farming property which includes two large farm dams in the eastern/south eastern portion of the site and several smaller dams throughout the site. The southernmost large dam provides a stormwater detention function for part of the existing Oran Park Precinct located to the south of the site. A major transmission line and associated easement runs east-west through the southern portion of the land. While most of the site has been cleared for use as grazing land, there are discontinuous zones of open to densely wooded areas along the creek lines and gullies in the south-western corner of the site.

The site can be divided into the following topographic features:

1. Two separate surface drainage systems comprising creeks, gullies and dams are located at the site separated by a gently undulating ridgeline running approximately north east to south west through the site. The eastern/south eastern part of the site drains toward South Creek, while the northern/north western part of the site drains towards the north, into Howes Creek.
2. Gullies located at the site have entrenched the bedrock forming side slopes mostly to approximately 3 - 5°, but locally steeper towards the crests of ridgelines to approximately 5 - 10°. The gullies have been dammed in most locations for watering of stock. The highest elevation at the site is 116 m AHD (Australian Height Datum) and is located in the south-west corner of the site.
3. The low lying portions of the site comprise alluvium infilled valley floors associated with South Creek and gentler sloping hillsides feeding the creek. Surface levels range from approximately 86 m AHD to the north-west to 76 m AHD toward the central eastern edge of the site.

4. Regional Geology and Soil Landscapes

4.1 Geology

The site can be broadly divided into two broad geological units comprising sedimentary rocks and alluvial deposits (refer Figure A1 below, for additional detail).

The rolling hills, ridgelines and lower slopes in the northern, western and central portions of the site are underlain by Bringelly Shale (mapping unit Rwb) of the Triassic age Wianamatta Group (Penrith 1:100 000 Geological Series Sheet 9030; Ref 1). The Bringelly Shale in the vicinity of the site includes an unnamed, fine to medium grained quartz-lithic sandstone member, typically comprises shale, carbonaceous claystone, laminite and some minor coaly bands which weather to form clays of high plasticity.

The lower lying eastern portion of the site is generally underlain by Quaternary alluvial deposits (mapping unit Qal) of the Nepean River which are mainly derived from weathering of Permian and Triassic bedrock and typically comprise grey-brown, medium grained quartz sand with layers of silt and humic clay.



Figure A1: Geological Landscapes (Yellow – Quaternary Alluvium and Blue – Bringelly Shale)

4.2 Soil Landscapes

Soil landscapes over the site broadly reflect the underlying geology and topography. With reference to the Soil Landscapes of the Penrith 1:100 000 Sheet (Ref. 2) the site is broadly divided into two distinct soil landscapes, the Blacktown residual soils present over most of the central and western part of the site and the South Creek alluvial soils present in the western portion of the site. The two soil landscapes are further described below (refer Figure A2 below for additional detail):

- The Blacktown Soil Landscape** (mapping unit bt) is a residual soil group associated with the gently undulating slopes and broad rounded crests and ridges on the Wianamatta Group in the eastern part of the site. The unit comprises up to four soil horizons that range from shallow red-brown hard-setting sandy clay soils on crests and upper slopes to deep brown to yellow sand and clay soils overlying grey plastic mottled clay on mid to lower slopes. These soils are typically of low fertility, are moderately reactive and have a generally low wet bearing strength.

- **South Creek Soil Landscape** (mapping unit sc) is an alluvial soil group associated with floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Usually flat with incised channels, mainly cleared, and is mapped along South Creek and associated minor creek extending south and south-west through southernmost dam. Mapping indicates soils associated with this landscape comprise very deep layered sediments over bedrock or relict soils. Red and yellow podsollic soils occur.



Figure A2: Soil Landscapes (Dark Green – Blacktown Soils and Light Green – South Creek Soils)

Groundwater

A detailed groundwater study was not undertaken in the site area as part of this study. However, there are two distinct groundwater settings in the area:

- 1) Groundwater within Wianamatta Group shale; and
- 2) Groundwater within potentially unconsolidated Quaternary deposits of the South Creek flood plain.

Groundwater flow in unconsolidated Quaternary deposits is likely to be by porous flow in sandy horizons (however, groundwater was only noted in Pit 9 – refer Drawing 1). Shales of the Wianamatta Group on the other hand have a very low intrinsic permeability, and groundwater flow is likely to be dominated by fracture flow.

5. Field Work Methods

5.1 Horizontal and Vertical Control

All field measurements and mapping for this project have been carried out using the Geodetic Datum of Australia 1994 (GDA94) and the Map Grid of Australia 1994 (MGA94), Zone 56. Digital mapping has been carried out in a Geographic Information System (GIS) environment using Mapinfo software.

The test pit locations were nominated and located on site by DP. The locations of the test pits are shown on Drawing 1 (Appendix B). The surface levels relative to Australian Height Datum (AHD) and coordinates (to MGA94 Zone 56) given on the test pit logs (Appendix B) were determined with the use of a differential GPS for which an accuracy of ± 2 cm is typical.

5.2 Site Mapping

An inspection of Pondicherry was undertaken 10 March 2017 and 13 March 2017 by a senior geotechnical engineer and/or senior scientist to identify geotechnical constraints (such as areas of instability and erosion). Mapping reference points (MRP 1 – 85) shown on Drawing 4 were located to reference surface features shown on a high resolution georeferenced aerial map.

5.3 Test Pitting

The excavation of 11 test pits (Pits 1 – 11) was undertaken to depths of 2.3 m - 3.0 m using a backhoe fitted with a 450 mm wide bucket. The field work was undertaken by a geotechnical engineer who collected disturbed samples, 'undisturbed' samples (in 50 mm diameter thin-walled tubes) and bulk samples to assist in strata identification and for laboratory testing. After backfilling each test pit, the surface was reinstated to its previous level. Dynamic cone penetrometer (DCP) tests were carried out to depths up to 1.2 m adjacent to the pits to assess the penetration resistance of the near-surface soils. The DCP results are given on the test pit logs.

6. Field Work Results

6.1 Field Mapping

The geotechnical and geological observations at various Map Reference Points (MRP) within the Pondicherry site are included in Appendix B, are further detailed on Drawing 4 and summarised below:

Stability

- The landform is predominantly gently sloping undulating terrain of gradual topographical relief. Crests and gullies are mostly broad, although incised gullies to depths of 1 m were noted along some drainage lines (Mapping Reference Point (MRP) 49 shown in Figure A3 and MRP 72, 76);



Figure A3 – Incised gully at MRP 49

- In general the site is considered to be stable with slopes typically less than 10 degrees;
- No areas of hillslope instability were observed during the site walkover (as was expected of such gentle relief);
- Steepened creek banks have the potential for minor instability and localised bank collapse.

Erosion

- Sheet erosion is also locally developed where there has been disruption of the vegetation by previous development (e.g. gullies, or recent clearing) and likely large scale flows following inclement weather. An example of this type of erosion (at MRP 41, 45, 47, 49 and 76), which exposes the underlying clays, is shown in Figure A4 and is located on the southern edges of the northern large dam.



Figure A4 – Sheet erosion at MRP 41

Soil and Rock Profiles

- Soil exposures in the incised drainage lines, MRP 49, 72 and 76, (Blacktown and South Creek soil group) indicated a relatively deep topsoil profile of between 0.2 m to 0.3 m).

- Where observed topsoil was significantly organic and root affected only in the top 150 mm. Below the topsoil, the profile remained quite silty but was not significantly organic.
- Rock profiles observed in the quarry/silage area indicated a typically fine grained shale (MRP 56), refer Figure A5);



Figure A5 – Shale outcropping at MRP 56

Stockpiles and Suspected Uncontrolled Fill

- The largest suspected uncontrolled fill areas observed on site comprised the dam embankment walls with the two larger examples totalling 1,400 m long and up to approximately 8 m high (MRP 5, 9, 24, 25, 31, 35, 37, 39, 41, 60 and 68);
- Many of the drainage depression lines were piped and backfilled to form crossings, whilst some structures and the mulching yard were built up using fill up to depths of approximately 2 m (MRP 1, 3, 4, 26, 29, 43, 48, 57, 73, 74, 75, 78, 81 and 85). A previous dam was filled at MRP 86 to depths unknown;
- The quarry/silage excavations in the centre of the site have been formed partially by excavation and filling (MRP56).
- A small fill mound associated with a cattle loading ramp was noted in the central part of the site (MRP 18);
- There are localised piles of soil and ripped rock within the site, the larger examples being at MRP 45, 46, 53, 54, 69, 70 and 83 and 84. Whilst a mulch stockpile was noted at MRP 83; and
- General filling was noted along all access roads/tracks and dam walls.

Waterlogging and Salinity

- The bases of the unnamed tributaries (and dendritic gullies) are generally infilled with recent alluvium which is characterised by water logging and discontinuous channel erosion. Many areas of waterlogging were noted (including but not limited to MRP 7, 10, 14 – 16, 19 – 22, 28, 30, 34, 58, 59, 63 – 66, 71, 72, 77, 79 and 80).

6.2 Subsurface Investigation

Details of the subsurface conditions encountered in the pits are given in the test pit logs included in Appendix C. The logs should be read in conjunction with the accompanying notes defining classification methods and descriptive terms.

As identified in Section 5.2, the site comprises two distinct soil landscapes with the test pits encountering variable subsurface conditions that were generally consistent with the soil mapping. The general succession of strata is broadly summarised as follows:

- **TOPSOIL** – silty clay and/or clayey silt encountered in all pits to depths in the range 0.2 m - 0.3 m;
ALLUVIAL – firm to hard silty clay and/or sandy silty clay encountered in Pits 6, 9 and 10 to depths in the range 2.3 m - 3.0 m, and to termination depth of 3.0 m in Pit 9;
- **RESIDUAL** – firm to hard silty clay and/or sandy silty clay encountered in Pits 1 – 5, 7, 8 and 11 to depths in the range 0.9 m - 2.3 m;
BEDROCK – variably extremely low up to low to medium strength shale first encountered in most pits, except Pit 9, at depths in the range 0.9 m - 2.3 m. Pits 1 – 7 and 11 were terminated upon refusal of the excavator bucket at depths in the range 2.3 m - 2.9 m.

No free groundwater was observed in most of the pits during excavation for the short time that they were left open with exception of Pit 9. Pit 9 encountered groundwater at a depth 2.9 m.

It must be noted, however, that the pits were immediately backfilled following excavation which precluded longer term monitoring of any groundwater levels that might be present. It must also be noted, groundwater levels are affected by factors such as soil permeability and weather conditions (which will vary with time).

7. Laboratory Testing

Selected samples from the test pits were tested in the laboratory for measurement of field moisture content, Atterberg limits, shrink-swell index and Emerson Class Number. The detailed test report sheets are given in Appendix C, with the results summarised in Table A1 (following pages).

Table A1: Results of Laboratory Testing

Pit No.	Depth (m)	FMC (%)	LL (%)	PL (%)	PI (%)	LS (%)	I _{ss} (%/ΔpF)	ECN (%)	Material
1	0.5	21.2	61	20	41	16.5	-	-	Silty Clay
1	1.0	-	-	-	-	-	-	1	Silty Clay
1	1.4 – 1.8	18.3	-	-	-	-	2.6	-	Extremely Weathered Shale
1	2.5	-	39	16	23	10.5	-	-	Extremely Weathered Shale
2	0.5	-	47	16	31	13.5	-	2	Silty Clay
2	1.0 – 1.4	16.6	-	-	-	-	0.7	1	Sandy Silty Clay
2	2.0	-	32	15	17	19.5	-	-	Sandy Silty Clay
3	0.5	20.7	46	17	29	12.0	-	1	Silty Clay
3	1.3 – 1.7	10.7	-	-	-	-	-	-	Silty Clay
3	2.0	14.8	50	19	31	10.0	-	-	Silty Clay
4	0.5	24.4	65	21	44	15.0	-	8	Silty Clay
4	1.5 – 1.9	17.2	40	15	25	13.0	2.6	-	Interbedded Extremely/Highly Weathered Shale
4	2.0	-	40	15	25	13.0	-	-	Interbedded Extremely/Highly Weathered Shale
5	0.2 – 0.6	12.3	41	19	22	11.5	-	-	Silty Clay
5	0.5	12.3	58	19	39	14.0	-	1	Silty Clay
6	0.5	-	63	25	38	15.5	-	4	Sandy Silty Clay

Table A1: Results of Laboratory Testing (Continued)

Pit No.	Depth (m)	FMC (%)	LL (%)	PL (%)	PI (%)	LS (%)	I _{ss} (%/ΔpF)	ECN (%)	Material
6	1.0 – 1.4	14.6	-	-	-	-	1.5	3	Sandy Silty Clay
6	1.5	-	-	-	-	-	-	1	Sandy Silty Clay
7	0.5	21.0	60	20	40	13.5	-	3	Silty Clay
7	1.0	-	-	-	-	-	-	1	Silty Clay
7	1.0 – 1.4	17.2	50	19	31	13.0	-	-	Interbedded Extremely/Highly Weathered Shale
7	2.5	10.5	48	18	30	9.5	-	-	Interbedded Extremely/Highly Weathered Shale
8	0.5	24.8	73	21	52	20.0	-	4	Silty Clay
8	1.0 – 1.4	18.3	-	-	-	-	2.8	-	Silty Clay
8	2.5	-	53	20	33	14.5	-	-	Extremely Weathered Shale
9	0.5	29.5	78	25	53	19.5	-	4	Silty Clay
9	1.0 – 1.4	24.8	-	-	-	-	3.9	-	Silty Clay
9	2.0	-	-	-	-	-	-	4	Silty Clay
9	3.0	-	43	14	29	13.0	-	-	Sandy Silty Clay
10	0.5	-	50	16	34	13.5	-	2	Silty Clay
10	0.9 – 1.3	19.0	-	-	-	-	1.7	-	Silty Clay
10	3.0	-	46	19	27	12.0	-	-	Extremely Weathered Shale
11	1.0	-	-	-	-	-	-	1	Silty Clay

Where FMC = Field moisture content PL = Plastic limit
 LL = Liquid limit PI = Plasticity Index
 LS = Linear shrinkage I_{ss} = Shrink-swell index
 ECN = Emerson Class Number

The Atterberg limits results indicate that the natural clays are variously of low to high plasticity. The shrink-swell index test results indicate that the natural clays are of low to high shrink-swell potential. The soils tested would be expected to be moderately to highly susceptible to shrinkage and swelling movements with changes in soil moisture content.

The results of the Emerson crumb tests (Emerson Class Numbers ranging from 1 to 8) indicate that the soils tested are highly to non-dispersive.

The CBR tests were carried out on samples compacted nominally to a dry density ratio of 100% relative to standard compaction at approximately standard optimum moisture content. The samples were then soaked for four days under surcharge loadings of 4.5 kg. The results are summarised in Table A2.

Table A2: Summary of CBR Test Results

Pit No	Depth (m)	W _F (%)	OMC (%)	MDD (t/m ³)	Swell (%)	CBR (%)	Material
1	2.0	16.9	17.0	1.81	4.5	2.5	Extremely Weathered Shale
3	2.0	13.0	15.0	1.83	4.0	2.0	Extremely Weathered Shale
4	0.5	24.7	23.5	1.60	2.0	3.5	Silty Clay
5	0.5	22.1	20.0	1.68	3.0	2.5	Silty Clay
6	2.5	12.0	14.0	1.88	3.0	2.0	Highly Weathered Shale
7	2.5	11.0	13.5	1.89	4.0	2.5	Interbedded Extremely/Highly Weathered Shale
8	1.5	17.8	18.5	1.74	2.5	2.5	Silty Clay
9	0.5	28.6	25.0	1.53	1.0	3.5	Silty Clay
10	1.0	23.5	19.5	1.69	3.5	2.0	Silty Clay
11	1.0	16.0	15.5	1.93	0.5	2.5	Silty Clay

Where W_F = Field moisture content
 MDD = Maximum dry density

OMC = Optimum moisture content
 CBR = California bearing ratio

The results of the field moisture content tests (at the time of the sampling) listed in Table A2 indicate the proposed subgrade soils ranged between approximately 0.1% dry to 3.6% wet of standard optimum moisture content (SOMC).

8. Comments

8.1 General

The following comments are based on a review of available information, the results of field mapping, test pitting, laboratory testing and our involvement in similar projects in the South Western Sydney area. Comments are provided on development constraints related to geotechnical and geological factors to assist in the conceptual planning of the proposed development. Further investigations will therefore be required to be undertaken at the appropriate times as the planning, design and construction of the development proceeds and accordingly, this report and the comments given within must be considered as being preliminary in nature.

8.2 Slope Instability

Thick residual soil profiles of the Blacktown Soil Landscape can be prone to slope instability due to slumping and soil creep, particularly on steep south-facing slopes underlain by shale. The high clay content of these soils results in poor drainage, and therefore reduced cohesion during periods of high rainfall or where natural drainage has been disturbed by development. Instability due to slumping is typically associated with thick soils and slopes in excess of 20% gradient (or greater than 11°) as described by Fell (Ref 3). However, no distinct slope instability (slump flow landslides or soil creep) affecting the soil and bedrock profile has been identified within the moderately steep hillslope sections and no areas exceed 20%.

8.3 Erosion Potential

Water erosion hazard forms a landscape limitation for the site. The site inspections identified gullies entrenching of recent alluvial deposits within stream courses and the residual soil and bedrock profiles. Localised areas of sheet and rill erosion were also noted in areas of previous surface disturbance and where over-grazing has occurred. In general, however, existing farm dams across gullies and vegetated areas between gully sections appear to act as effective catch points for eroded soils.

Soils of the Blacktown Soil Landscapes are typically of moderate erodibility (erodibility factor [K] values of 0.02 – 0.04, the value being determined by a combination of laboratory tests as well as soil structure and permeability). The more sodic or saline soils of the Blacktown Soil Landscape can have high erodibility and the erosion hazard for this landscape is estimated as moderate to very high (Ref 2). The soil erosion hazard for the alluvial South Creek Soil Landscape is estimated as moderate to high for non-concentrated flow, and very high for concentrated flow.

It is considered that the erosion hazard within the site would be within usually accepted bounds which may be managed by good engineering and land management practices (refer Sections 8.4 and 8.5).

8.4 General Development Considerations

8.4.1 Site Classification

The plasticity and shrink-swell index test results indicate that the tested materials are expected to exhibit foundation soil reactivity (shrink-swell) movements equivalent to a range of Class M to Class H2 sites using approximate in-house correlation between plasticity and reactivity.

Classification of individual allotments within the site should comply with the requirements of AS 2870 – 2011 *"Residential Slabs and Footings"* (Ref 4). Based on previous experience in similar geological settings, the subsurface profiles would most likely be equivalent to Class M (moderately reactive) or Class H1/H2 (highly reactive), with the possibility of some Class S where cut is taken to rock. The final classifications will dependent on soil reactivity, soil strength and whether or not rock is present within the depth of the design suction change.

Class P conditions may be present in the floodplain/drainage depressions should weak soils be encountered during project-specific subsurface investigation. Re-classification of such areas to M or H1/H2 may be possible subject to the extent of earthworks undertaken during construction.

8.4.2 Site Preparation and Earthworks

Site preparation for the construction of residential structures should include the removal of topsoils and other deleterious materials from the proposed building areas.

In areas that require filling, the stripped surfaces should be test rolled in the presence of a geotechnical engineer. Any areas exhibiting significant deflections under proof rolling should be appropriately treated by over-excavation and replacement with low plasticity filling placed in near horizontal layers no thicker than 250 mm compacted thickness. In accordance with Camden Council requirements, each layer should be compacted to a minimum dry density ratio of 98% relative to standard compaction with placement moisture contents maintained within 3% of standard optimum. The upper 0.5 m in areas of pavement construction should achieve a minimum dry density ratio of 100% relative to standard compaction.

All batters should be constructed no steeper than 3H:1V (horizontal:vertical) and appropriately vegetated to reduce the effects of erosion.

To validate site classifications, sufficient field inspections and in-situ testing of future earthworks should be undertaken in order to satisfy the requirements of a Level 1 inspection and testing service as defined in AS 3798 – 2007 *Guidelines on Earthworks for Commercial and Residential Developments* (Ref 5).

Earthworks required for pavement construction will need to be based on batters formed no steeper than 3H:1V in the residual clays. All batters should be suitably protected against erosion, with toe and spoon drains constructed as a means of controlling surface flows on the batters.

If embankments are proposed for use as water quality control ponds, then the results of testing completed to date indicates that the site soils would be suitable for re-use as embankment materials. Subject to the detailed design, detention basins (ie: short term storage only) could be dimensioned with maximum batter slopes of 4:1 (H:V), with allowance made for accommodating the results of erosion (such as topsoiling and turfing) if soils with an ECN of less than 4 are proposed for use. Subject to design permeability requirements, the use of lines on both the embankments and within parts of the reservoir area may also be necessary.

Site observations have indicated the presence of silty topsoils and silty clays which could be adversely affected by inclement weather. The site soils are typically stiff to very stiff consistency when dry, they can rapidly lose strength during rainfall and saturation (as indicated by firm clays in the attached logs), and result in difficult trafficability conditions. As a result, surface drainage which directs runoff away from work areas should be installed prior to construction, possibly in conjunction with the designation of construction equipment haul routes to minimise trafficking of stripped areas.

Conventional sediment and erosion control measures should be implemented during the construction phase, with exposed surfaces to be topsoiled and vegetated as soon as practicable following the completion of earthworks.

8.4.3 Desilting of Dam Reservoirs

If the existing farm dams are to be drained and filled to design level. The following general procedure is recommended:

- Pump out ponded water and discharge across land a minimum distance of 50 m from any existing waterways;
- Strip all vegetation and other deleterious material (such as saturated silt and clay) to expose the underlying stiff clay/weathered rock;
- Suitably bench the exposed surface to facilitate near-horizontal filling placement;
- Test rolling of the surface to receive filling with six passes of a 10 tonne dead weight roller operating in static mode, with final pass undertaken in the presence of a geotechnical engineer in order to identify areas requiring remedial work;
- Filling should be placed in near horizontal layers no thicker than 250 mm compacted thickness. In accordance with Camden Council requirements, each layer should be compacted to a minimum dry density ratio of 98% relative to standard compaction with placement moisture contents maintained within 3% of standard optimum;
- Saturated '*organic*' soils (as determined by the geotechnical engineer) from the pond base can be spread out and dried. Once dried the material can be blended with stockpiled topsoil and spread across the finished surface of lots; and
- Any saturated '*non-organic*' soils (as determined by the geotechnical engineer) can be spread out and dried. Once moisture conditioned, the materials can be reused as engineered filling (refer Section 8.4.3) subject to inspection and approval.

Prior to discharging, an assessment of the pond water should be undertaken to confirm the adequacy of the above disposal method. The assessment should include (as a minimum) turbidity testing to the satisfaction of Camden Council.

8.4.4 Pavements

8.4.4.1 General

In order to assist in the conceptual design process, preliminary pavement thickness designs for arterial, boulevards, collectors and local access roads are provided in Table A3 (following page). Each category has been determined in accordance with Camden Council's requirements and has been assigned the road categories according to the following:

- Category B (major collector) – ESA = 2×10^6
- Category C (collector) – ESA = 1×10^6
- Category E (local access road / minor collector) – ESA = 5×10^5
- Category F (minor access road) – ESA = 1×10^5
- Category G (shareway) – ESA = 2×10^4

The preliminary pavement thickness designs given in Table A3 are based on the requirements of Camden Council, AUSTROADS – 2012 (Ref 6), the design parameters detailed above and a range of likely CBR values. Additional Investigations will need to be undertaken at the appropriate time to provide a final pavement thickness design.

Table A3: Preliminary Pavement Thicknesses

Design ESA	Total Pavement Thickness (mm) for Design CBR (%)				
	2%	3%	4%	5%	7%
5×10^6	790	650	560	500	420
2×10^6	720	600	520	460	390
1×10^6	670	560	480	430	360
5×10^5	620	520	450	400	340
1×10^5	510	420	370	330	280
2×10^4	460	380	330	300	250

It is anticipated that some pavements will likely encounter a rock subgrade of low strength, or stronger. As a result, a design CBR value of 7% will most likely be feasible for those conditions but will need to be confirmed once geometric design and subdivision layout is finalised.

It is expected that most of the clay subgrades will generally encounter clays of CBR 2 – 4%. Pavement thickness design, however, will be optimised when a detailed subgrade investigation is undertaken.

All pavement subgrades should be moisture conditioned to within 2% of SOMC during subgrade preparation to reduce the risk of cracking due to adverse shrink and swell movements within the pavement post-construction.

It must be noted that given the low CBR results obtained during testing and the large areas affected by possible waterlogging, passing of proof rolls may be difficult resulting in removal and replacement or select/bridging layers to improve subgrades.

8.4.5 Mine Subsidence

A review of the Mine Subsidence Board district mapping indicates the site is located outside existing mine subsidence districts and is not underlain by any registered mines.

8.5 Soil and Water Management Plan

Soil and water management is an integral part of the development process and should adopt a preventative rather than a reactive approach to the site limitations, such that the work can proceed without undue pollution of receiving streams.

Once consent is given, a detailed soil and water management plan (SWMP) developed in accordance with the methods of the NSW Department of Housing (Ref 7) will be required and will be incorporated into the engineering design of the development methods for:

- Minimising water pollution due to erosion of soils or the development of saline conditions;
- Reducing or managing salinity to provide acceptable conditions for building and revegetation works;
- Minimisation of soil erosion during and after construction;
- Maximising the re-use of materials on site; and
- Ensuring that buildings and infrastructure are within acceptable risk of instability (for both property and life).

The following provides a conceptual SWMP with the objectives of controlling site works:

General Instructions: These conditions include methods to ensure compliance with the SWMP, specially:

- the SWMP will be read with the engineering plans and site specific instructions issued in relation to the development;
- contractors will ensure that all soil and water management works are undertaken as instructed in the specification and constructed in accordance with AS 3798 - 2007 (Ref 5); and
- All subcontractors will be informed by the Superintendent of their responsibilities in minimising the potential for soil erosion and pollution of downslope areas.

Land Disturbance: These conditions provide methods to minimise soil erosion, the exposure of potentially or known saline subsoils and direction of overland drainage into areas of potential slope instability, specifically:

- The erosion hazard will be kept as low as possible by limiting of construction area size at any one time and clearly defining the area by barrier fencing upslope and sediment fencing downslope (to be installed before the commencement of construction activities);

- Access areas will be clearly defined and limited in size while being considerate of the needs of efficient work areas. All site workers will clearly recognise these boundaries;
- The prohibition of entry into areas outside physical works except for essential management works;
- Restriction of work in creek lines during periods of rainfall, with programming of works in these areas to be within periods of anticipated lower rainfall;
- The programming of development roadworks and major excavations to minimise the time of soil exposure and to coincide with periods of anticipated lower rainfall;
- Placement of topsoils and subsoils in separate stockpiles (where required) with appropriate sediment fencing and dimensions selected to minimise the surface area of soils exposed to rainfall and hence erosion and leaching of saline materials;
- The creation of larger lots on steeper slope sections to permit the more sensitive development of the individual site;
- Orientation of access roads and services to minimise the requirements of excavation and possible retaining structures;
- Where excavation of filling of batters is required, the construction of these at as low as practical gradient with a maximum 3:1 (H:V) in the clay soil profiles;
- The placement of excavated soils in filled areas in the sequence of excavation (i.e. to place potentially saline or sodic subsoils below a capping of non-saline material);
- During windy conditions, large, unprotected areas will be kept moist by sprinkling with water to keep dust under control. In the event that water is not available in sufficient quantities, soil binders and/or retardants will be used or the surface will be left in a cloddy state that resists removal by wind;
- The inclusion of techniques, such as spray coating or a secured protective turf overly on cut and fill batters to minimise erosion;
- The maximisation and/or replacement of native tree cover and deep-rooted plants, particularly in areas of known or potential slope instability;
- Where vegetation cover is not adequate to control erosion, the improvement of soil resistance to erosion by the addition of lime and gypsum (the proportion to be determined by site specific testing);
- Maintenance including watering of lands established with grass cover until an effective cover has been established. Where there has been inadequate vegetation establishment, further application of seed should be carried out. During establishment, trafficking of the treated areas should be minimised;
- The design of stormwater drainage, including lined catch drains at the crest of cut slopes, stormwater pipes and dissipators as required to minimise concentrated runoff and to provide controlled discharge of the collected runoff; and
- The sampling and analysis of groundwater samples from monitoring bores installed prior to construction in order to assess impacts on groundwater quality.

Pollution Control: These conditions provide measures to protect downstream areas for water-borne pollution, specifically:

- The installation of sediment fences to contain the coarser sediment fraction as near as possible to their source;
- Ensuring that stockpiles are not located within hazard areas, including areas of likely high velocity flow, such as waterways, paved areas and driveways;
- The installation of sediment basins downslope of areas to be disturbed, with the design based upon a design storm event;
- The inclusion of one or more pegs in the floor of the sediment basins to indicate the level at which design capacity occurs and when collected sediment will be removed;
- Disposal of trapped materials from sediment basins to locations where further erosion and consequent pollution to downslope lands and waterways will not occur;
- Sampling and laboratory analysis of collected waters to ensure compliance with benchmark parameters prior to discharge;
- The treatment of collected waters by gypsum and settling of flocculated particles before any discharge occurs (unless the design storm event is exceeded); and
- The removal of sediment basins (where not required as part of the on-going site management) only after the lands they are protecting are stabilised.

Site Inspection and Maintenance: These conditions provide for self and external auditing of the performance of construction and pollution protection measures, together with appropriate maintenance of erosion and sedimentation structures, specifically:

- A self-auditing program against an established checklist to be completed by the site manager at least weekly, immediately before site closure and immediately following rainfall events in excess of 5 mm in any one 24 hour period. The audit should include the recording of the condition of temporary sediment and water control devices, any maintenance requirements for these structures, volumes and disposal sites of material removed from sediment retention systems. A copy of the audit should be provided to the project superintendent;
- Provision for periodic inspection of records and site conditions by an external, suitably qualified person, for oversight of soil and water management works. The person will be responsible for ensuring that the SWMP is being implemented correctly, repairs are being undertaken as required and modifications to the SWMP are made if and when necessary. A short written report will be provided at appropriate intervals and will confirm that the works have been carried out according to the approved plans.

9. Summary of Geotechnical Land Capability

Assessment of the urban capability of the study area has been carried out on the basis of geotechnical considerations, specifically risk of slope instability, soil erodibility and foundation conditions.

General development considerations will require the classification of residential lots to comply with the requirements of AS 2870 – 2011 (Ref 4). The requirements of AS 1170 – 2002 *Structural Code* (Ref 8) are particularly noted in relation to earthquake loading requirements for commercial or industrial development.

The distribution of the geotechnical constraints is summarised in Drawing A5.

As no landslide or creep activity has yet been identified within steeper hillsides (refer Drawing A5) of the site, any minor slope instability will be addressed by good engineering practices

Other than erosion-triggered slumping of a material (probably a few cubic metres at any event) from the low height banks of the gullies within the alluvium infilled valley floors, there does not appear to be a significant risk of stream bank instability. It is considered that stream bank instability impose only minor constraints on development readily managed by good engineering practice.

It is considered that the erosion hazard within the areas proposed for development would be within usually accepted limits which could be managed by good engineering and land management practices (refer Sections 8.4 and 8.5).

The engineering and management practices applicable to erosion control will also be required to address localised waterlogging limitations of soils along the courses of South Creek and associated tributaries, its associated gullies and localised areas about existing farm dams. These hazards are considered to impose minor geotechnical constraints to development (i.e. limited to significant placement of new engineered filling and drainage) to development of residential development or extensive building complexes.

Suspected uncontrolled filling was identified in several locations across the site. It is considered that the presence of uncontrolled filling will impose a minor geotechnical constraint to development and will generally involve the removal of uncontrolled filling (and if in situ materials are considered geotechnically suitable) replacement under controlled conditions.

10. Further Investigation

The geotechnical investigation undertaken has indicated that the site will be suitable for residential development, with comments given on geotechnical limitations, development guidelines, likely site classification, stability considerations and indicative pavement thicknesses. Conceptual comments on design and construction aspects are also given in the report. Detailed geotechnical investigation and assessment will be required as the design of the development proceeds and as such, this report must be considered as being preliminary in nature. Specific geotechnical investigation would include (but not necessarily be limited to):

- Detailed geotechnical investigations on a stage-by-stage basis for determination of pavement thickness designs and lot classifications.
- Routine inspections and earthworks monitoring during construction.

11. References

1. Geological Survey of New South Wales, 1991. Geology of 1:100 000 Penrith Geological Series Sheet 9030 (Edition 1).
2. Bannerman, S. M and Hazelton, P. A. Soil Landscapes of the Penrith 1:100 000 Sheet. Soil Conservation Service of NSW, Sydney.
3. Australian Standard AS 2870 – 2011 Residential Slabs and Footings.
4. Practice Note Guidelines for Landslide Risk Management, Australian Geomechanics Society Landslide Taskforce (2007).
5. Australian Standard AS 3798 – 2007 Guidelines on Earthworks for Commercial and Residential Developments.
6. Austroads 2012. Pavement Design – A Guide to the Structural Design of Road Pavements.
7. NSW Department of Housing, 1998. Managing Urban Stormwater, Soils and Construction.
8. Australian Standard AS 1170 – 2002 *Structural Code*.

12. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Pondicherry, Oran Park in accordance with DP's proposal dated MAC170014.P.001.Rev1 dated 6 February 2017 and acceptance received from Greenfields Development Company No. 2 Pty Ltd dated 27 February 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of the Department of Planning & Environment, Camden Council and GDC2 for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

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

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

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

The scope for work for this investigation/report did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of filling of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such filling may contain contaminants and hazardous building materials.

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

DP. Any such risk assessment would, however, be necessarily restricted to the geotechnical components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A1

About This Report

About this Report

Douglas Partners



Introduction

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

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

Copyright

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

Borehole and Test Pit Logs

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

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

Groundwater

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

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

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

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

Reports

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

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

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

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

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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



Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low

reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:
4,6,7
N=13
- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:
15, 30/40 mm

Sampling Methods

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Symbols & Abbreviations

Douglas Partners



Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core Drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U ₅₀	Undisturbed tube sample (50mm)
W	Water sample
pp	pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

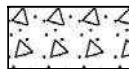
General



Asphalt



Road base



Concrete



Filling

Soils



Topsoil



Peat



Clay



Silty clay



Sandy clay



Gravelly clay



Shaly clay



Silt



Clayey silt



Sandy silt



Sand



Clayey sand



Silty sand



Gravel



Sandy gravel



Cobbles, boulders



Talus

Sedimentary Rocks



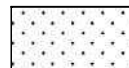
Boulder conglomerate



Conglomerate



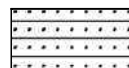
Conglomeratic sandstone



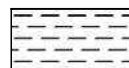
Sandstone



Siltstone



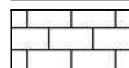
Laminite



Mudstone, claystone, shale

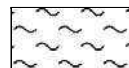


Coal

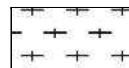


Limestone

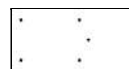
Metamorphic Rocks



Slate, phyllite, schist

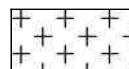


Gneiss



Quartzite

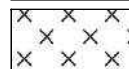
Igneous Rocks



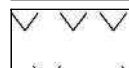
Granite



Dolerite, basalt, andesite



Dacite, epidote



Tuff, breccia



Porphyry



Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 - 5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.



Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and longer sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq 100 \text{ mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

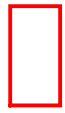
Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Appendix B1

Drawings
Appendix Table B1 –
Summary of Observations at Mapping Reference Points



Legend



500.0



metres

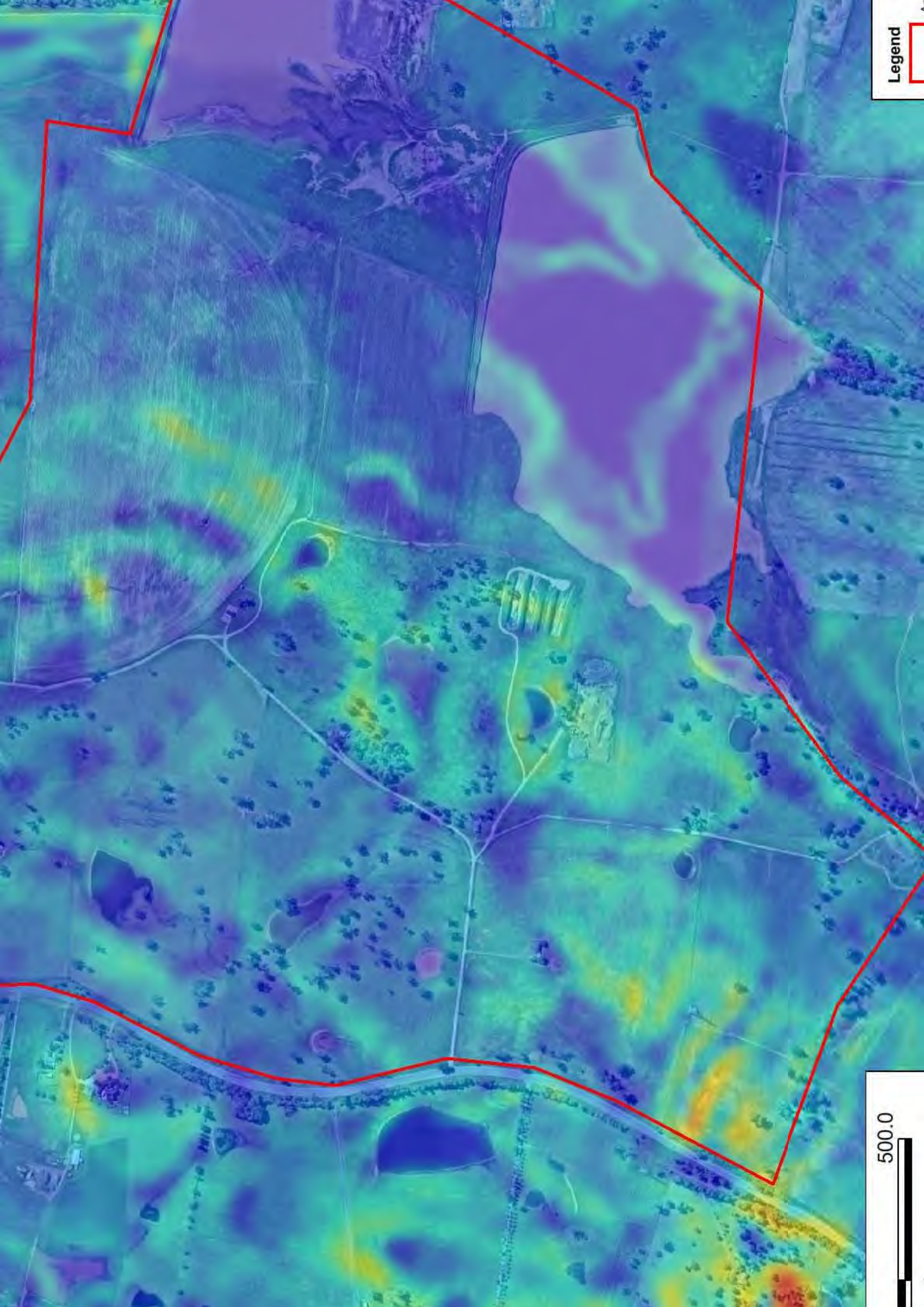


Legend



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Legend

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See Inset

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Legend

Appendix Table B1 - Mapping Reference Points

MRP	Observations
1	Concrete pipe with surrounding fill
2	Suspected stock water bore
3	Occupied residence constructed with brick concrete and slate tiles. Garden includes landscaping and tennis court.
4	Two reinforced concrete pipes each approximately 500 mm diameter located under road and draining into dam.
5	Dam wall up to approximately 3 - 4 m height comprising gravelly silty clay with piped culvert spillway through western abutment
6	Algae growth
7	Water logged area along drainage line
8	Cattle feeding area
9	Dam wall filling comprising gravelly silty clay with shale. Dam wall up to approximately 1 m height and formed at approximately 2(H):1(V)
10	Water logged area along drainage line
11	Occupied residence with some possible ACM in construction materials
12	Mobile phone transmission tower
13	Suspected stock water bore
14	Water logged area along drainage line
15	Water logged area along drainage line
16	Water logged area along drainage line
17	Fuel powered motor driving water distribution to crop area
18	Cattle feeding area
19	Water logged area along drainage line
20	Water logged area along drainage line
21	Water logged area along drainage line
22	Water logged area along drainage line
23	Cattle feeding area
24	Dam wall filling comprising light brown / red gravelly silty clay.
25	Dam wall filling light red / grey gravelly silty clay. Dam wall up to approximately 2 m height and formed at between 2(H):1(V) and 3(H):1(V)
26	Occupied residence with possible ACM in eaves and walls. House on fill bed up to approximately 1 m height
27	Corrugated steel sheds
28	Water logged field
29	Concrete pipe approximately 500 mm diameter with surrounding sandstone fill
30	Water logged area in field
31	Dam wall up to approximately 3 - 4 m height comprising gravelly silty clay
32	Grass covered mound possibly constructed with uncontrolled fill
33	Grass covered mound possibly constructed with uncontrolled fill
34	Water logged area along drainage line
35	Dam wall filling comprising clays with ironstone gravels. Dam wall is up to approximately 5 m height and formed at between 2(H):1(V) and 3(H):1(H)
36	Notched stillway
37	Dam wall up to approximately 5 m height and formed at 2(H):1(V) comprising gravelly silty clay
38	Dam wall height increases to approximately 6 m height
39	Dam wall up to approximately 4.5 m height and formed at 3(H):1(V) comprising gravelly silty clay

Appendix Table B1 - Mapping Reference Points

MRP	Observations
40	Efflorescence observed on ground surface
41	Dam wall up to approximately 7 - 8 m height and formed at 2(H):1(V) comprising gravelly silty clay
42	Steel pump out point from dam
43	Concrete pipe approximately 500 mm diameter with approx. 1 m surrounding sandstone fill
44	Man made gully
45	Stockpile
46	Stockpiles
47	Gully
48	Steel pipe approximately 0.5 m in diameter surrounded with approximately 1 m sandstone crushed rock
49	Eroded gully approximately 1 m
50	Slight terracing of surface approximately up to 1 m
51	Area suspected to have historically been part of the current dam to the north
52	Possible man made channel
53	Stockpiles
54	Stockpiles
55	Water logged field
56	Active fill storage area exhibiting a sweet / foul suspected urea odour. Walls comprise partial uncontrolled filling. Other cells to the south not in use at the time.
57	Mulching area on a fill platform.
58	Water logged field
59	Water logged field
60	Dam wall up to approximately 5 m height and formed at 2(H):1(V) comprising gravelly silty clay
61	Suspected stock water bore
62	Occupied residence constructed with possible ACM
63	Water logged
64	Water logged
65	Water logged
66	Water logged
67	Stockpile
68	Dam wall up to approximately 2.5 m height and comprising gravelly silty clay
69	Stockpile
70	Stockpile
71	Water logged
72	Water logged area surrounding erosion gully
73	Uncontrolled fill in embankment
74	Uncontrolled fill in embankment
75	1:1 grading steep embankment comprising uncontrolled fill
76	Erosion gully up to 1 m depth
77	Water logged area
78	Concrete pipe approximately 750 mm diameter
79	Water logged
80	Water logged
81	750 mm diameter concrete pipe under road

Appendix Table B1 - Mapping Reference Points

MRP	Observations
82	Mulch stockpile
83	Stockpile containing light red brown gravelly silty clays
84	Stockpiles of quarried sandstone
85	Black coated steel pipe culvert
86	Backfilled prior farm dam

Appendix C1

Test Pit Logs
Laboratory Test Results

Material Test Report



Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189

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Approved Signatory: Tim White
 NATA Accredited Laboratory Number: 828

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	17-189A	17-189B	17-189D	17-189F	17-189AA
Sampling Method	Sampled by Engineering Department	Sampled by Engineering Department	Sampled by Engineering Department	Sampled by Engineering Department	Sampled by Engineering Department
Date Sampled	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017
Date Tested	04/08/2017	04/08/2017	04/08/2017	04/08/2017	14/08/2017
Material Source	**	**	**	**	**
Sample Location	TP 1 (1.4-1.8 m)	TP 2 (1.0-1.4 m)	TP 4 (1.5-1.9 m)	TP 6 (1.0-1.4 m)	TP 8 (1.0-1.4 m)
Inert Material Estimate (%)	0	0	0	0	1
Pocket Penetrometer before (kPa)	440	600	590	570	210
Pocket Penetrometer after (kPa)	290	410	350	220	160
Shrinkage Moisture Content (%)	18.3	16.6	17.2	14.6	18.3
Shrinkage (%)	3.8	1.3	3.8	2.0	4.2
Swell Moisture Content Before (%)	17.7	16.8	12.1	15.0	20.7
Swell Moisture Content After (%)	21.3	17.7	21.1	20.5	24.0
Swell (%)	1.7	0.1	1.6	1.6	1.6
Shrink Swell Index Iss (%)	2.6	0.7	2.6	1.5	2.8
Visual Description	Shale - grey shale	Sandy silty clay - grey mottled light br	Shale - grey sandy shale	Sandy Silty Clay - grey mottled red & li	Silty Clay - Red mottled brown
Cracking	Slightly Cracked	Highly Cracked	Slightly Cracked	Moderately Cracked	Slightly Cracked
Crumbling	No	No	No	No	No
Remarks	**	**	**	**	**

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.

NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



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Project Location: Pondicherry, Oran Park
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Shrink Swell Index AS 1289 7.1.1 & 2.1.1		
Sample Number	17-189AB	17-189AC
Sampling Method	Sampled by Engineering Department	Sampled by Engineering Department
Date Sampled	10/06/2017	10/06/2017
Date Tested	14/08/2017	14/08/2017
Material Source	**	**
Sample Location	TP 9 (1.0-1.4 m)	TP 10 (0.9 - 1.3m)
Inert Material Estimate (%)	0	2
Pocket Penetrometer before (kPa)	150	220
Pocket Penetrometer after (kPa)	110	210
Shrinkage Moisture Content (%)	24.8	19.0
Shrinkage (%)	7.1	2.9
Swell Moisture Content Before (%)	26.5	23.9
Swell Moisture Content After (%)	28.7	26.0
Swell (%)	0.0	0.3
Shrink Swell Index Iss (%)	3.9	1.7
Visual Description	SILTY CLAY - grey mottled light brown silty clay	SILTY CLAY - grey mottled red , light brown & dark grey silty clay
Cracking	Uncracked	Moderately Cracked
Crumbling	No	No
Remarks	**	**

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
 NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



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Moisture Content AS 1289 2.1.1			
Sample Number	Sample Location	Moisture Content	Material
17-189C	TP 3 (1.3-1.7 m)	10.7 %	Shale - red, grey shale
17-189E	TP 5 (0.2-0.6 m)	12.3 %	Silty Clay - red mottled grey silty clay with iron induration
17-189G	TP 6 (2.50 m)	13.3 %	SHALE - Grey, sandy shale.
17-189J	TP 7 (2.5 m)	10.5 %	SHALE - grey shale
17-189P	TP 3 (0.5 m)	20.7 %	SILTY CLAY - red mottled grey silty clay
17-189Q	TP 4 (0.5 m)	24.4 %	SILTY CLAY - red silty clay
17-189R	TP 5 (0.5 m)	12.3 %	SILTY CLAY - red mottled grey silty clay
17-189S	TP 7 (0.5 m)	21.0 %	SILTY CLAY - red mottled grey and dark grey silty clay
17-189T	TP 8 (0.5 m)	24.8 %	SILTY CLAY - red mottled brown silty clay
17-189U	TP 9 (0.5 m)	29.5 %	SILTY CLAY - light brown mottled grey and red silty clay
17-189Z	TP 7 (1.0 - 1.4 m)	17.2 %	SHALE - grey shale
17-189AD	TP 1 (0.5 m)	21.2 %	SILTY CLAY - grey mottled red silty clay
17-189AI	TP 3 (2.0 m)	14.8 %	**

Material Test Report

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 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189AD
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 1 (0.5 m)
Material: SILTY CLAY - grey mottled red silty clay



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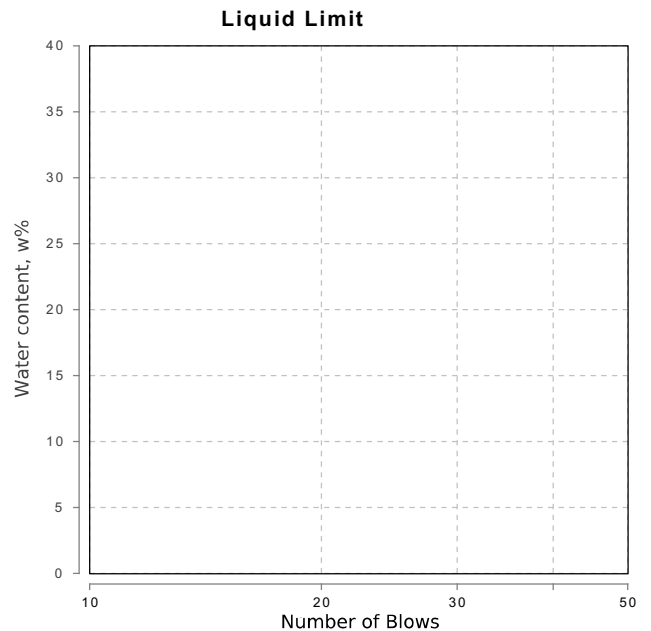
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	61		
Plastic Limit (%)	20		
Plasticity Index (%)	41		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	16.5		
Cracking Crumbling Curling	Curling		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189N
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 1 (1.0 m)



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Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189AG
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 1 (2.5 m)



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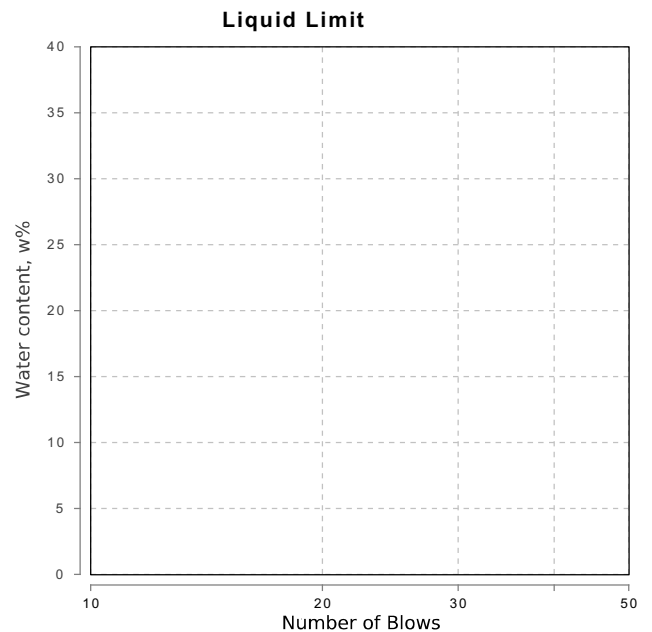
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	39		
Plastic Limit (%)	16		
Plasticity Index (%)	23		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	10.5		
Cracking Crumbling Curling	None		



Material Test Report

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 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189O
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 2 (0.5 m)
Material: SILTY CLAY - light brown mottled grey and red silty clay



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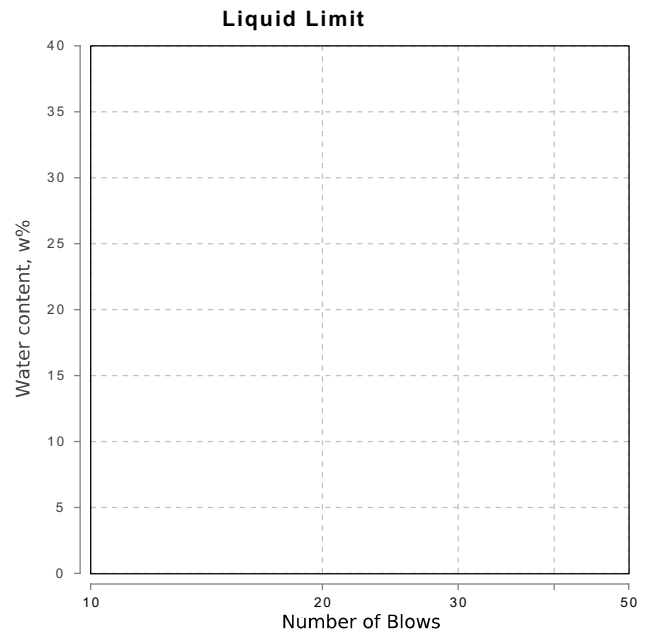
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NATA Accredited Laboratory Number: 828

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	47		
Plastic Limit (%)	16		
Plasticity Index (%)	31		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.5		
Cracking Crumbling Curling	Curling		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	2		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189B
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 2 (1.0-1.4 m)



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A handwritten signature in black ink, appearing to read 'Tim White', is written over a light grey rectangular background.

Approved Signatory: Tim White

NATA Accredited Laboratory Number: 828

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
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Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189AH
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 2 (2.0 m)



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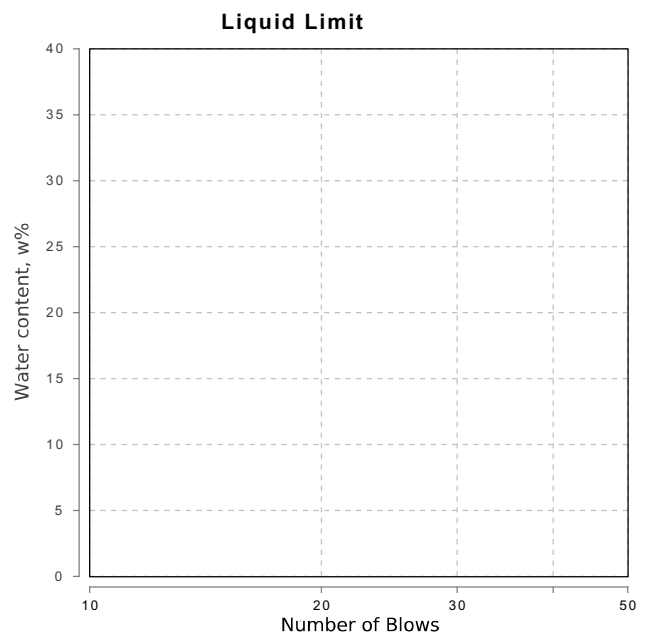
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Oven Dried		
Liquid Limit (%)	32		
Plastic Limit (%)	15		
Plasticity Index (%)	17		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	9.5		
Cracking Crumbling Curling	Curling		

Material Test Report

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 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189P
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 3 (0.5 m)
Material: SILTY CLAY - red mottled grey silty clay



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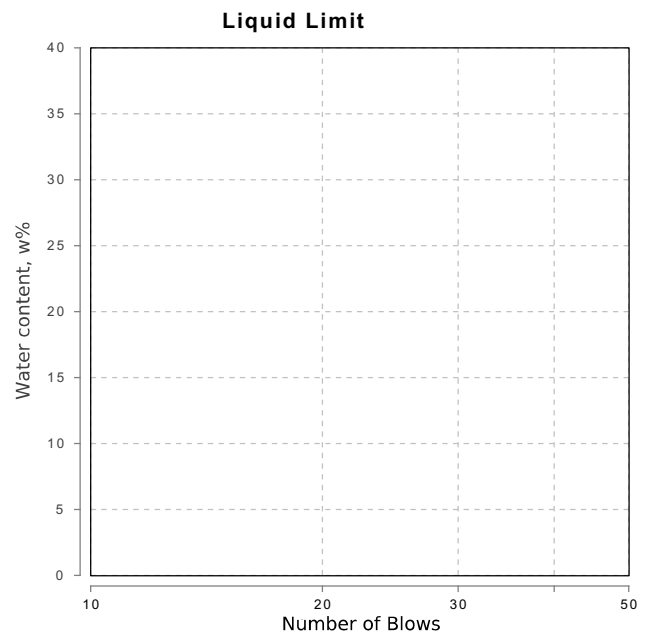
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	46		
Plastic Limit (%)	17		
Plasticity Index (%)	29		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	12.0		
Cracking Crumbling Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		



Material Test Report

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Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189Al
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 3 (2.0 m)



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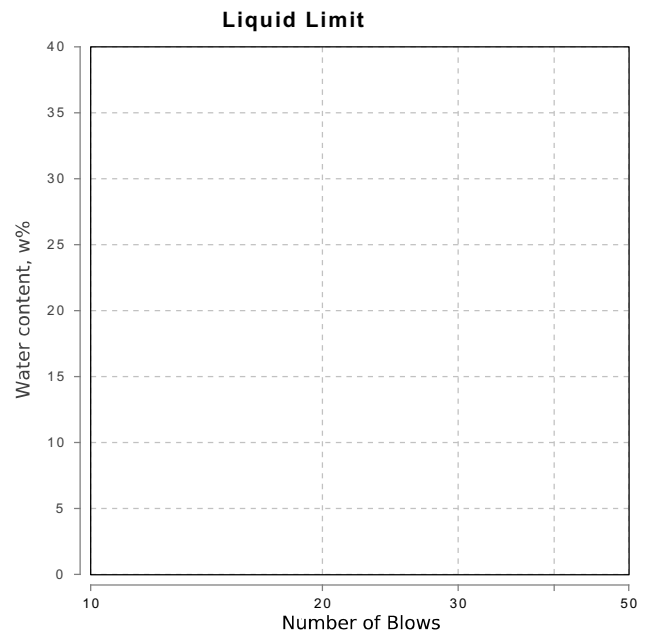
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Oven Dried		
Liquid Limit (%)	50		
Plastic Limit (%)	19		
Plasticity Index (%)	31		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	10.0		
Cracking Crumbling Curling	Curling		



Material Test Report

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 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189Q
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 4 (0.5 m)
Material: SILTY CLAY - red silty clay



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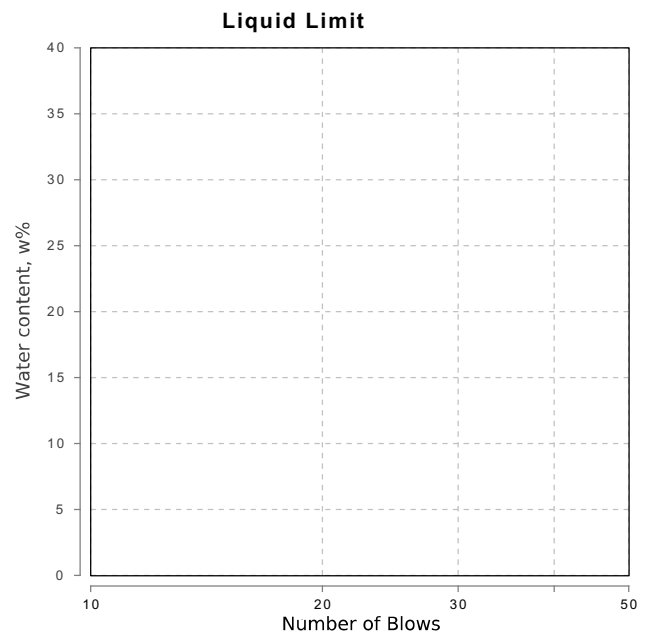
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Tim White

Approved Signatory: Tim White

NATA Accredited Laboratory Number: 828

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	65		
Plastic Limit (%)	21		
Plasticity Index (%)	44		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	15.0		
Cracking Crumbling Curling	None		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	8		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		



Material Test Report

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 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189L
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 4 (2.0 m)
Material: SHALE - grey sandy shale



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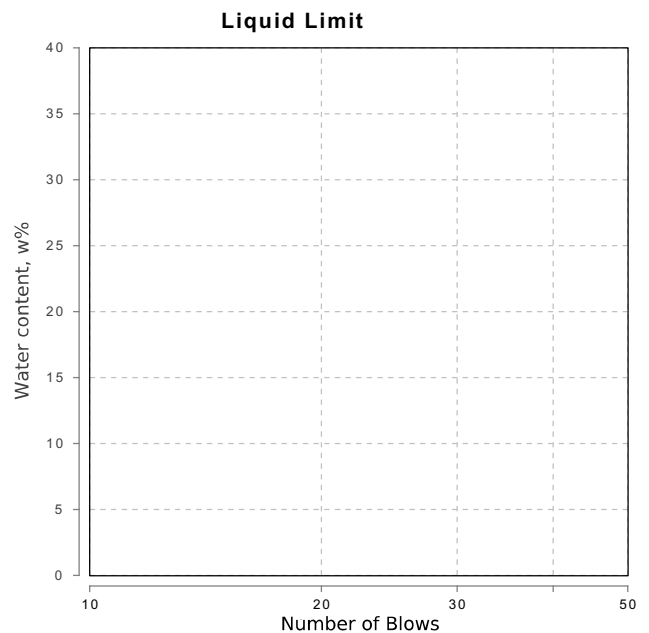
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	40		
Plastic Limit (%)	15		
Plasticity Index (%)	25		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	Curling		

Material Test Report

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Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189R
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 5 (0.5 m)
Material: SILTY CLAY - red mottled grey silty clay



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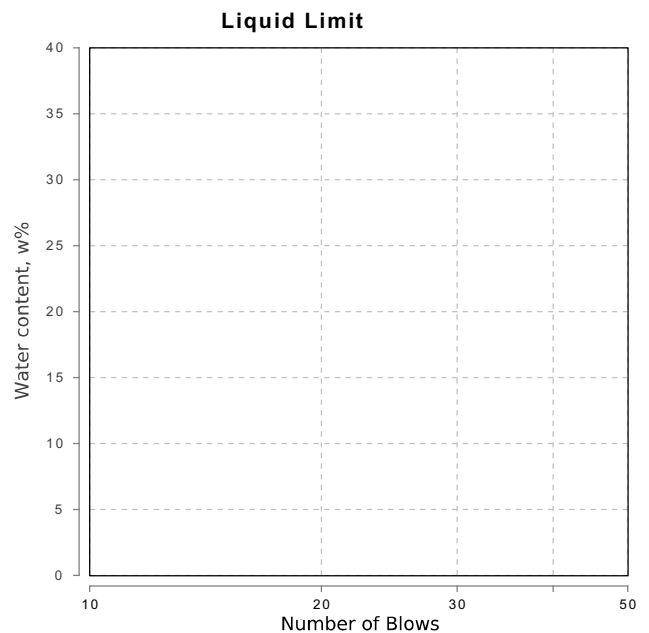
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Oven Dried		
Liquid Limit (%)	58		
Plastic Limit (%)	19		
Plasticity Index (%)	39		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	14.0		
Cracking Crumbling Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		

Material Test Report



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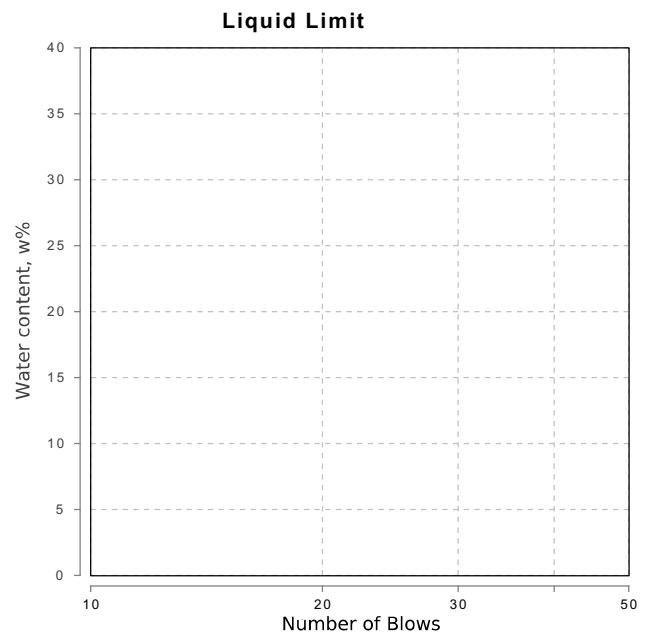
Tim White

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Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189E
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 5 (0.2-0.6 m)
Material: Silty Clay - red mottled grey silty clay with iron induration

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	41		
Plastic Limit (%)	19		
Plasticity Index (%)	22		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	11.5		
Cracking Crumbling Curling	Curling		



Material Test Report

Report Number: 76778.29-1
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Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189AE
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 5 (2.5 m)
Material: SHALE - grey shale



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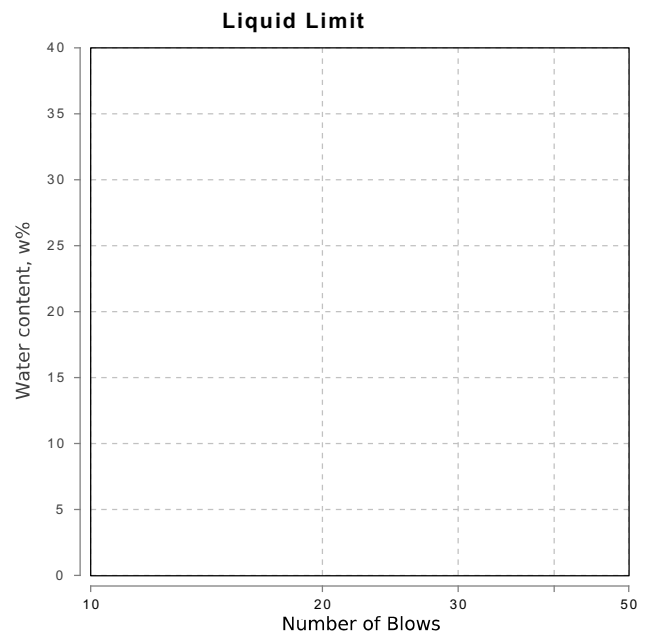
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	44		
Plastic Limit (%)	17		
Plasticity Index (%)	27		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	11.0		
Cracking Crumbling Curling	Curling		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189I
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 6 (0.5 m)
Material: SANDY SILTY CLAY - stiff, red mottled grey and light brown sandy , silty clay



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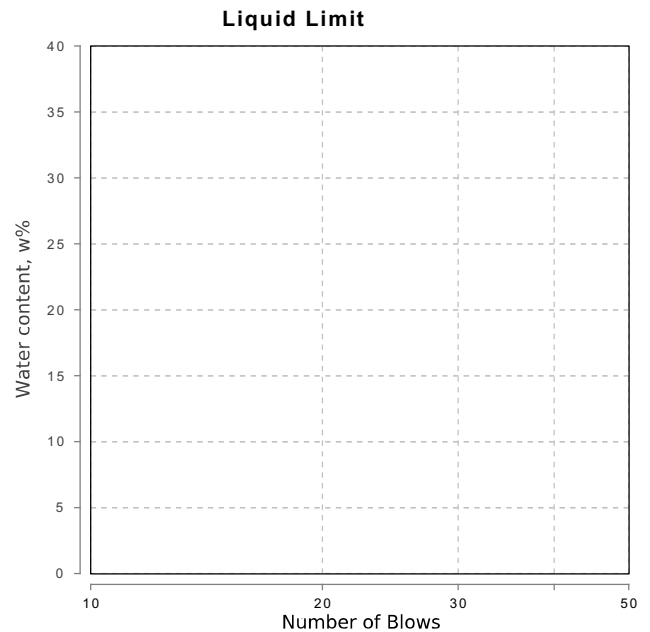
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	63		
Plastic Limit (%)	25		
Plasticity Index (%)	38		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	15.5		
Cracking Crumbling Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		
* Mineral Present	Carbonate		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189F
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 6 (1.0-1.4 m)



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Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	3		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189H
Date Sampled: 16/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 6 (1.5 m)



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Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189G
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 6 (2.50 m)
Material: SHALE - Grey, sandy shale.



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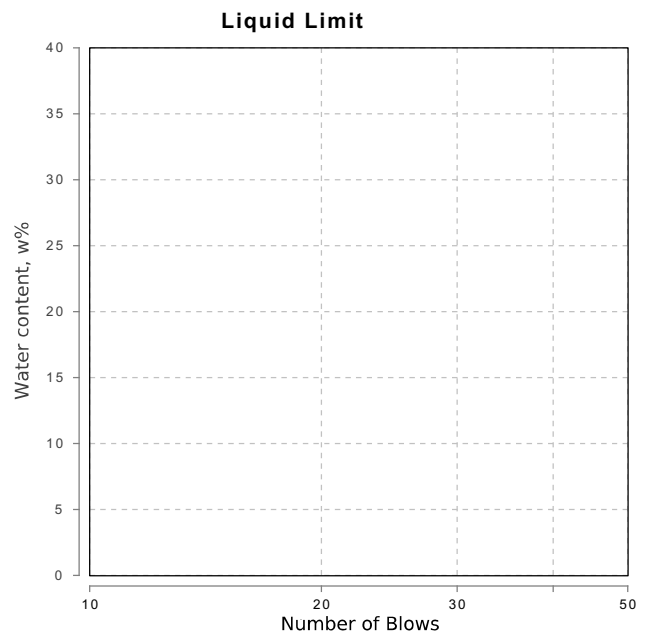
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	50		
Plastic Limit (%)	16		
Plasticity Index (%)	34		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	10.0		
Cracking Crumbling Curling	Curling		

Material Test Report



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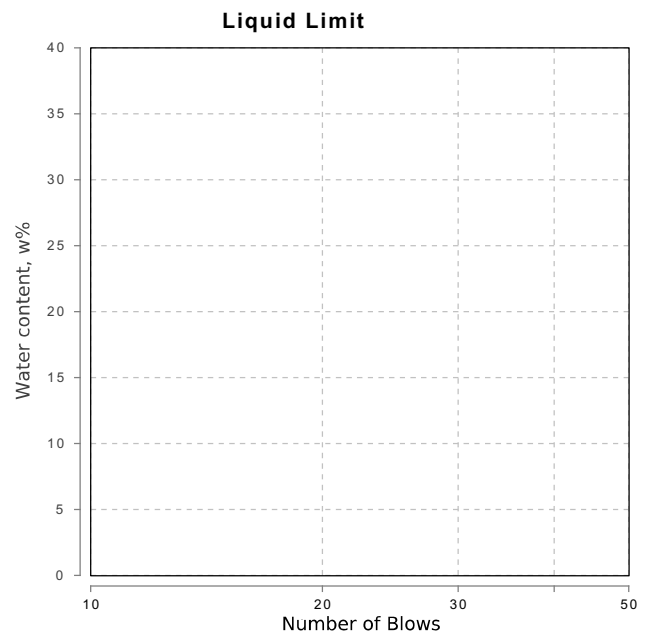
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Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189S
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 7 (0.5 m)
Material: SILTY CLAY - red mottled grey and dark grey silty clay

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	60		
Plastic Limit (%)	20		
Plasticity Index (%)	40		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.5		
Cracking Crumbling Curling	Curling		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	3		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		



Material Test Report



Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189W
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 7 (1.0 m)
Material: SILTY CLAY - red mottled grey silty clay with some ironstone gravel

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Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled Water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189Z
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 7 (1.0 - 1.4 m)
Material: SHALE - grey shale



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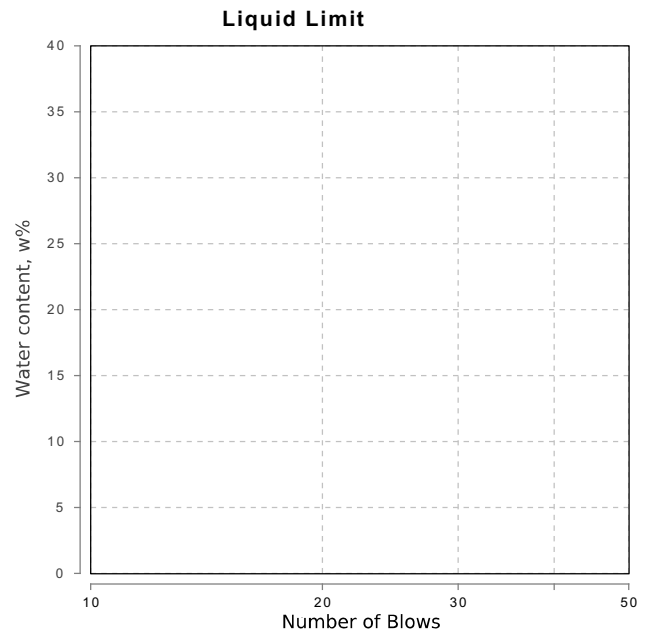
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	50		
Plastic Limit (%)	19		
Plasticity Index (%)	31		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	Curling		



Material Test Report

Report Number: 76778.29-1
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Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189J
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 7 (2.5 m)
Material: SHALE - grey shale



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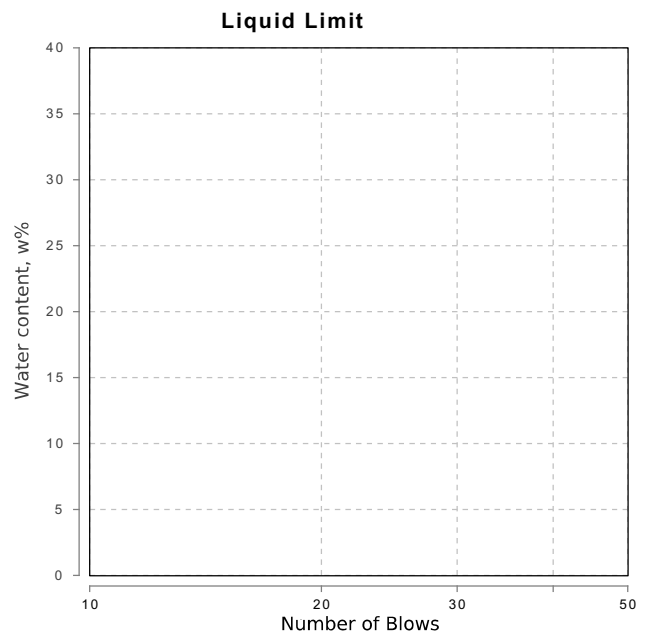
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	48		
Plastic Limit (%)	18		
Plasticity Index (%)	30		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	9.5		
Cracking Crumbling Curling	Curling		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189T
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 8 (0.5 m)
Material: SILTY CLAY - red mottled brown silty clay



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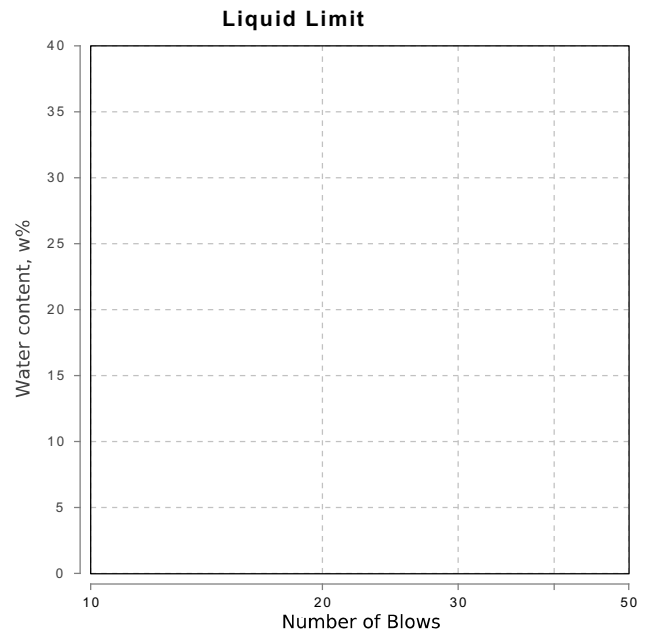
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	73		
Plastic Limit (%)	21		
Plasticity Index (%)	52		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	20.0		
Cracking Crumbling Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		
* Mineral Present	Carbonate		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189AF
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 8 (2.5 m)
Material: SHALE - grey shale



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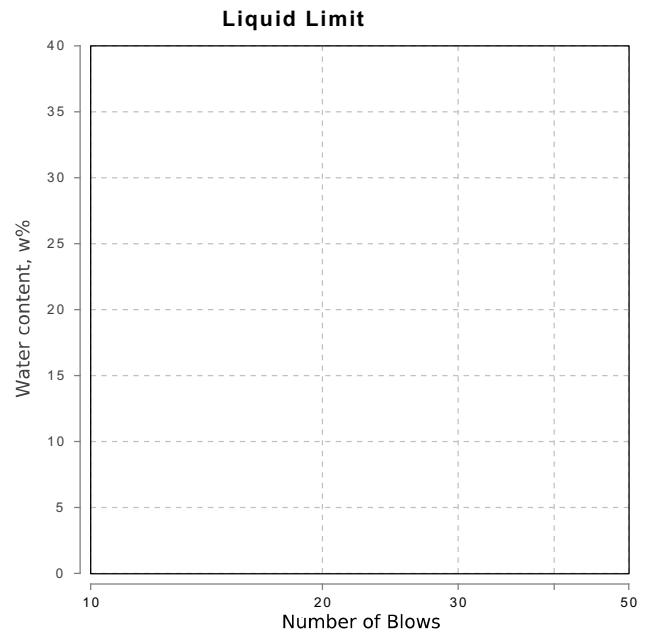
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	53		
Plastic Limit (%)	20		
Plasticity Index (%)	33		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	14.5		
Cracking Crumbling Curling	None		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189U
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 9 (0.5 m)
Material: SILTY CLAY - light brown mottled grey and red silty clay



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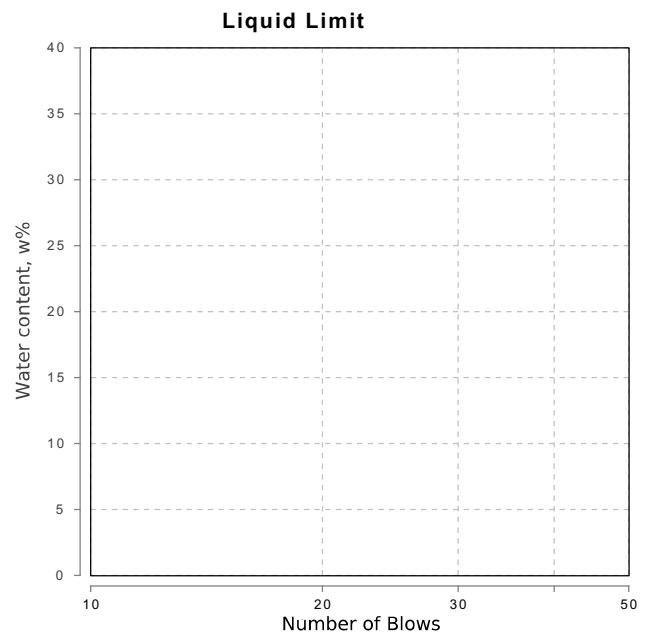
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	78		
Plastic Limit (%)	25		
Plasticity Index (%)	53		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	19.5		
Cracking Crumbling Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description			
Nature of Water	Distilled water		
Temperature of Water (°C)	20		
* Mineral Present	Carbonate		



Material Test Report



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Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189X
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 9 (2.0 m)
Material: SILTY CLAY - light brown mottled grey and red silty clay



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Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description			
Nature of Water	Distilled Water		
Temperature of Water (°C)	20		
* Mineral Present	Carbonate		

Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189M
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 9 (3.0 m)
Material: SANDY SILTY CLAY - grey mottled light brown



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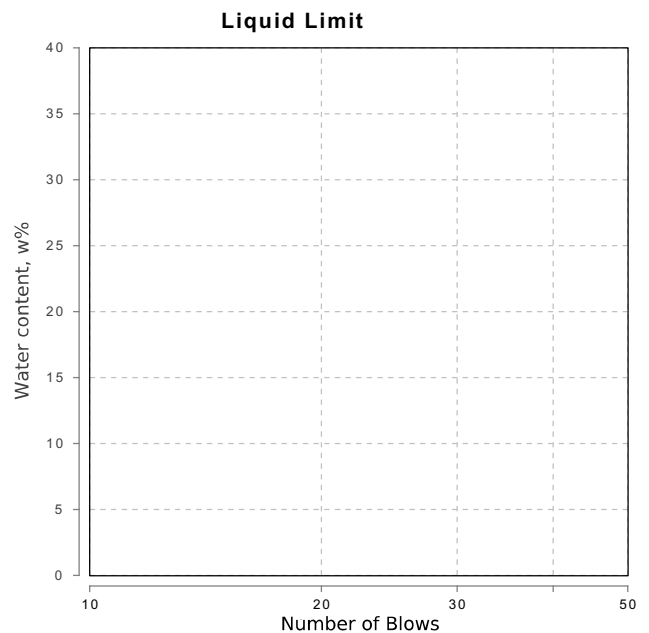
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Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	43		
Plastic Limit (%)	14		
Plasticity Index (%)	29		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	Curling		

Material Test Report



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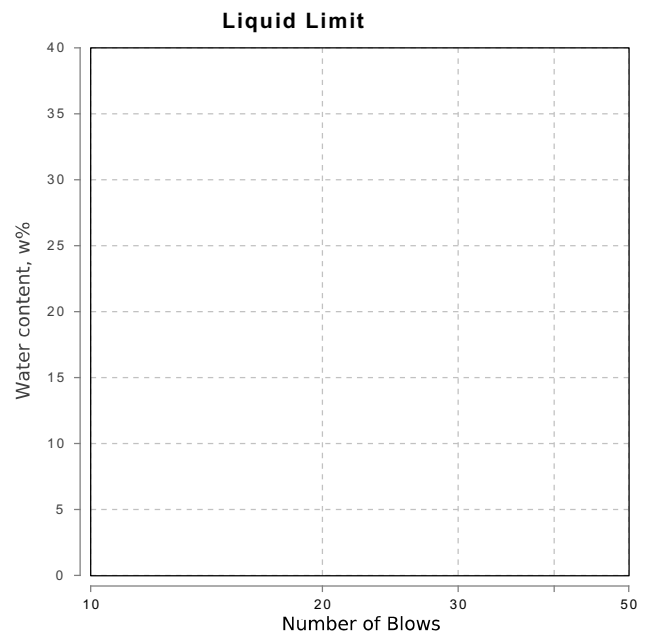
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Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189V
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 10 (0.5 m)
Material: SILTY CLAY - light brown mottled grey and red silty clay

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	50		
Plastic Limit (%)	16		
Plasticity Index (%)	34		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	13.5		
Cracking Crumbling Curling	Curling		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	2		
Soil Description			
Nature of Water	Distilled Water		
Temperature of Water (°C)	20		



Material Test Report

Report Number: 76778.29-1
Issue Number: 2 - This version supercedes all previous issues
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189K
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 10 (3.0 m)
Material: SHALE - grey shale



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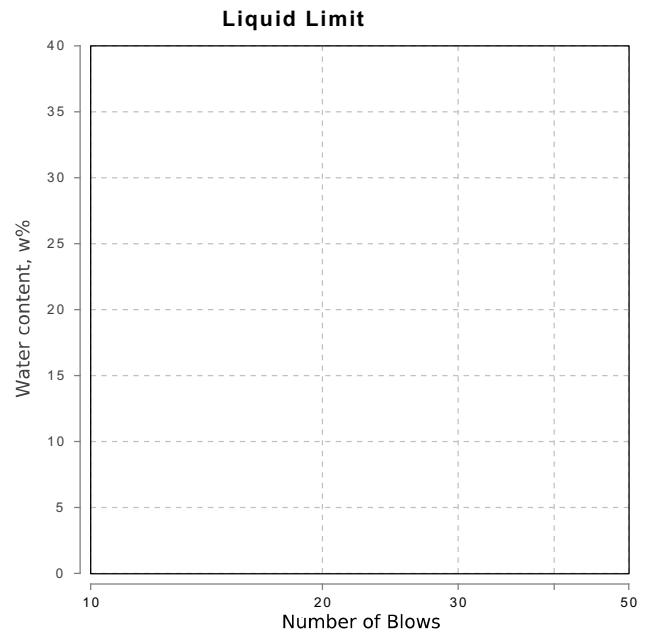
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Approved Signatory: Tim White

NATA Accredited Laboratory Number: 828

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Preparation Method	Dry Sieve		
Sample History	Air Dried		
Liquid Limit (%)	46		
Plastic Limit (%)	19		
Plasticity Index (%)	27		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	12.0		
Cracking Crumbling Curling	Curling		



Material Test Report



Douglas Partners Pty Ltd

Macarthur Laboratory

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Accredited for compliance with ISO/IEC 17025 - Testing

Report Number: 76778.29-1
Issue Number: 2 - *This version supercedes all previous issues*
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 189
Sample Number: 17-189Y
Date Sampled: 10/06/2017
Sampling Method: Sampled by Engineering Department
Sample Location: TP 11 (1.0 m)
Material: SILTY CLAY - red mottled grey silty clay with trace ironstone gravel



Approved Signatory: Tim White

NATA Accredited Laboratory Number: 828

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description			
Nature of Water	Distilled Water		
Temperature of Water (°C)	20		

Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354A
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 1 (2.0m)
Material: SHALE - grey shale



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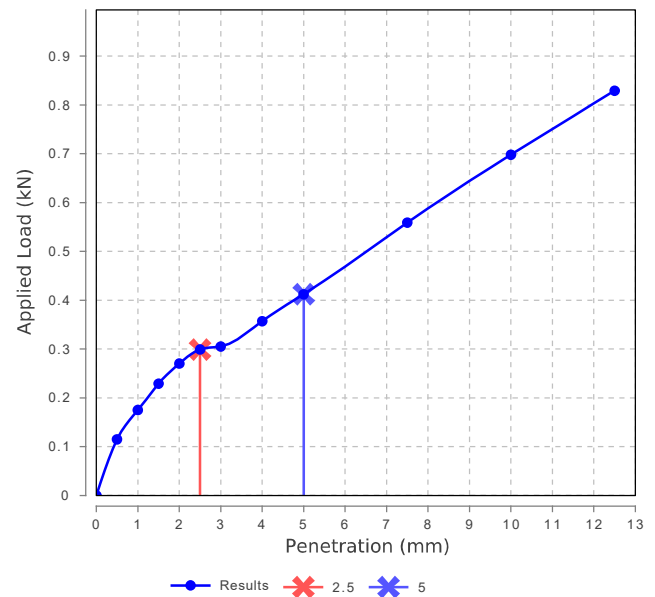


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.81		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m^3)	1.72		
Field Moisture Content (%)	16.9		
Moisture Content at Placement (%)	17.0		
Moisture Content Top 30mm (%)	24.1		
Moisture Content Rest of Sample (%)	18.7		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	4.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354B
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 3 (2.0m)
Material: SHALE - grey shale



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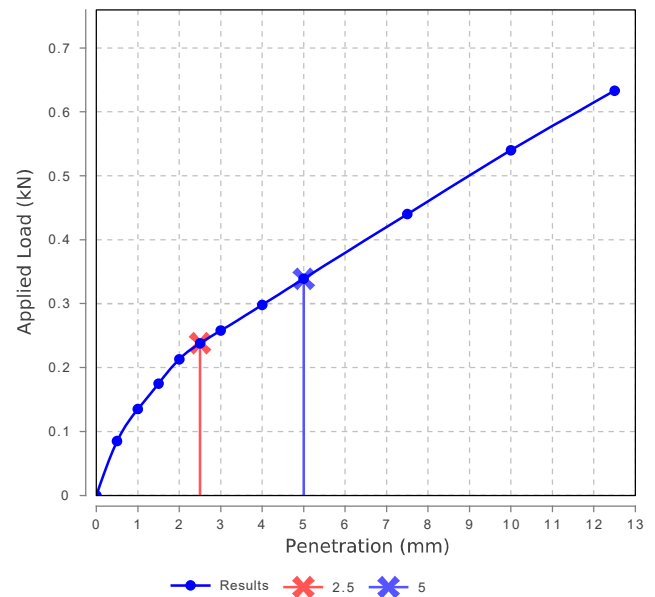


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.83		
Optimum Moisture Content (%)	15.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m^3)	1.75		
Field Moisture Content (%)	13.0		
Moisture Content at Placement (%)	15.1		
Moisture Content Top 30mm (%)	22.7		
Moisture Content Rest of Sample (%)	17.8		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	4.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio

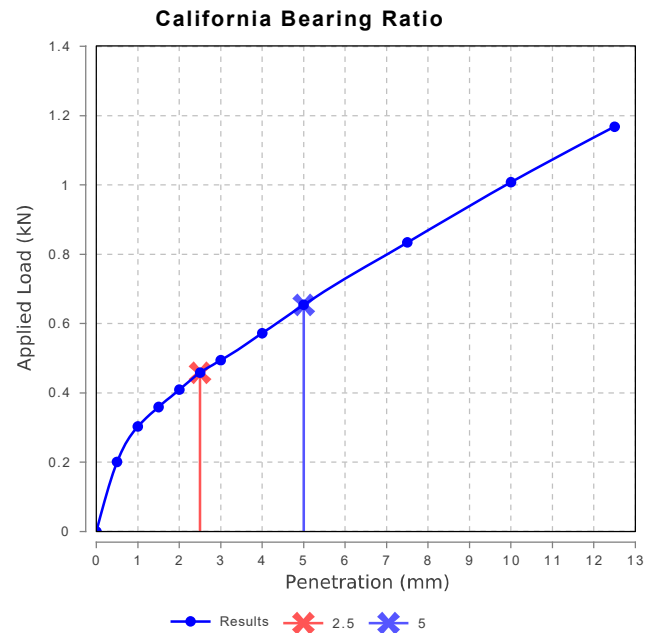


Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354C
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 4 (0.5m)
Material: SILTY CLAY - red silty clay



California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.60		
Optimum Moisture Content (%)	23.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	101.0		
Dry Density after Soaking (t/m^3)	1.56		
Field Moisture Content (%)	24.7		
Moisture Content at Placement (%)	23.5		
Moisture Content Top 30mm (%)	27.0		
Moisture Content Rest of Sample (%)	23.9		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354D
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 5 (0.5m)
Material: SILTY CLAY - red mottled grey silty clay



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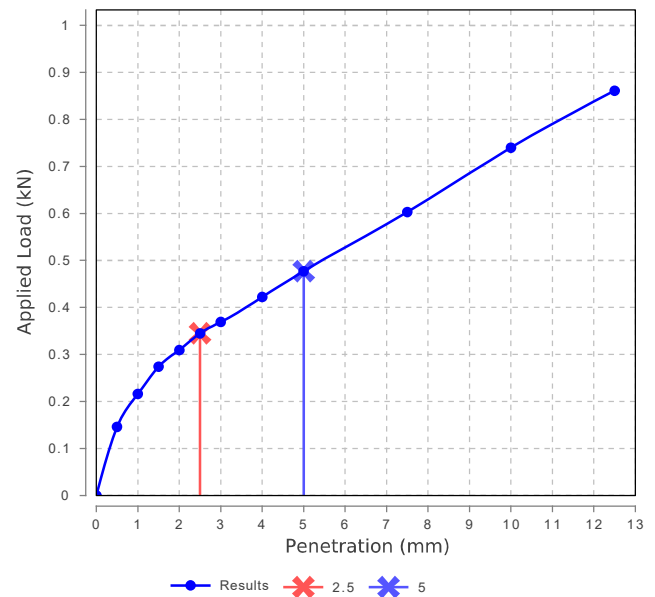


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.68		
Optimum Moisture Content (%)	20.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	101.5		
Dry Density after Soaking (t/m^3)	1.63		
Field Moisture Content (%)	22.1		
Moisture Content at Placement (%)	20.3		
Moisture Content Top 30mm (%)	25.4		
Moisture Content Rest of Sample (%)	22.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	3.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354E
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 6 (2.5m)
Material: SHALE - grey sandy shale



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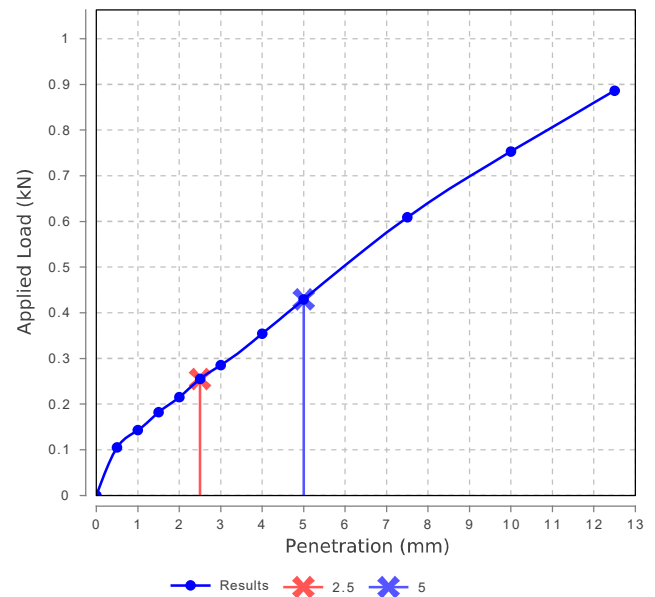


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.88		
Optimum Moisture Content (%)	14.0		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	98.0		
Dry Density after Soaking (t/m^3)	1.83		
Field Moisture Content (%)	12.0		
Moisture Content at Placement (%)	13.9		
Moisture Content Top 30mm (%)	21.5		
Moisture Content Rest of Sample (%)	17.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	3.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	5		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354F
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 7 (2.5m)
Material: SHALE - grey shale



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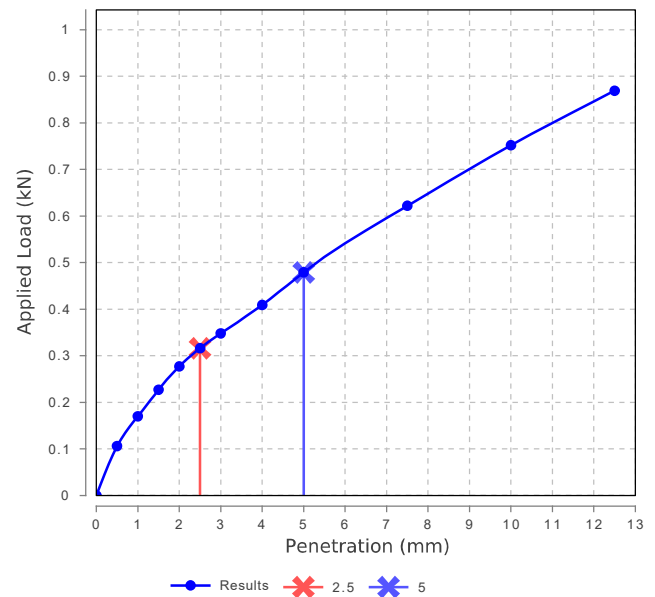


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.89		
Optimum Moisture Content (%)	13.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m^3)	1.82		
Field Moisture Content (%)	11.0		
Moisture Content at Placement (%)	13.6		
Moisture Content Top 30mm (%)	19.6		
Moisture Content Rest of Sample (%)	16.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	4.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	6		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1

Issue Number: 1

Date Issued: 22/08/2017

Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570

Contact: Paul Hume

Project Number: 76778.29

Project Name: Proposed Residential Subdivision

Project Location: Pondicherry, Oran Park

Work Request: 354

Sample Number: 17-354G

Date Sampled: 10/08/2017

Sampling Method: Sampled by Engineering Department

Sample Location: 8 (1.5m)

Material: SILTY CLAY - grey mottled red and light brown silty clay



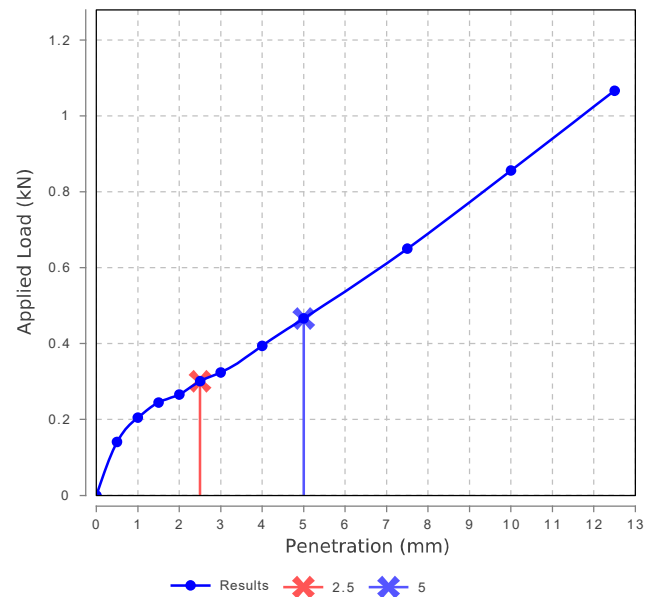
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Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.74		
Optimum Moisture Content (%)	18.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	98.5		
Dry Density after Soaking (t/m^3)	1.70		
Field Moisture Content (%)	17.8		
Moisture Content at Placement (%)	18.2		
Moisture Content Top 30mm (%)	23.3		
Moisture Content Rest of Sample (%)	20.5		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	2.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1

Issue Number: 1

Date Issued: 22/08/2017

Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570

Contact: Paul Hume

Project Number: 76778.29

Project Name: Proposed Residential Subdivision

Project Location: Pondicherry, Oran Park

Work Request: 354

Sample Number: 17-354H

Date Sampled: 10/08/2017

Sampling Method: Sampled by Engineering Department

Sample Location: 9 (0.5m)

Material: SILTY CLAY - light brown mottled grey and red silty clay



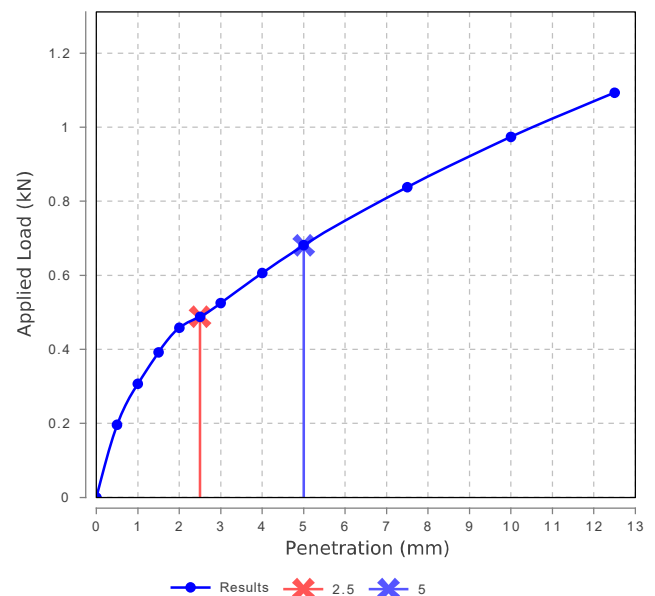
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Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.53		
Optimum Moisture Content (%)	25.0		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m^3)	1.52		
Field Moisture Content (%)	28.6		
Moisture Content at Placement (%)	25.1		
Moisture Content Top 30mm (%)	28.5		
Moisture Content Rest of Sample (%)	26.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



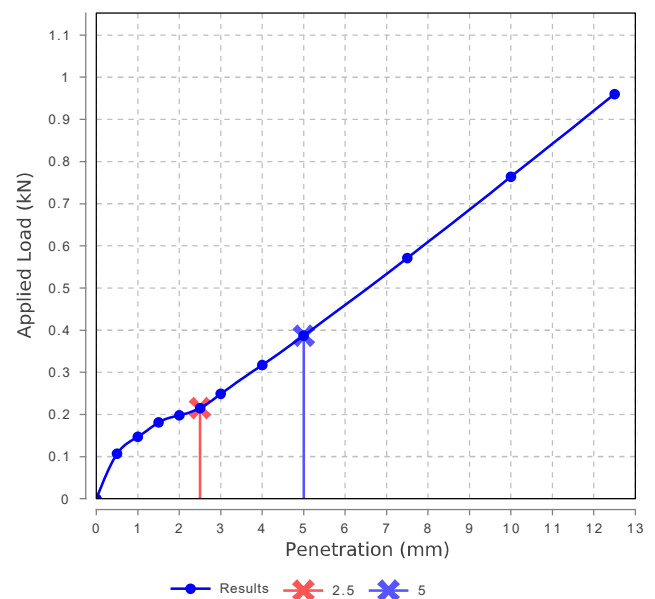
Material Test Report



Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354I
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 10 (1.0m)
Material: SILTY CLAY - grey mottled red, light brown and dark grey silty clay

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.69		
Optimum Moisture Content (%)	19.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	99.0		
Dry Density after Soaking (t/m^3)	1.64		
Field Moisture Content (%)	23.5		
Moisture Content at Placement (%)	19.4		
Moisture Content Top 30mm (%)	24.0		
Moisture Content Rest of Sample (%)	20.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



Material Test Report

Report Number: 76778.29-1
Issue Number: 1
Date Issued: 22/08/2017
Client: Greenfields Development Company 2 Pty Ltd
 5 Peter Brock Drive, Oran Park NSW 2570
Contact: Paul Hume
Project Number: 76778.29
Project Name: Proposed Residential Subdivision
Project Location: Pondicherry, Oran Park
Work Request: 354
Sample Number: 17-354J
Date Sampled: 10/08/2017
Sampling Method: Sampled by Engineering Department
Sample Location: 11 (1.0m)
Material: SILTY CLAY - red mottled grey silty clay



Douglas Partners Pty Ltd
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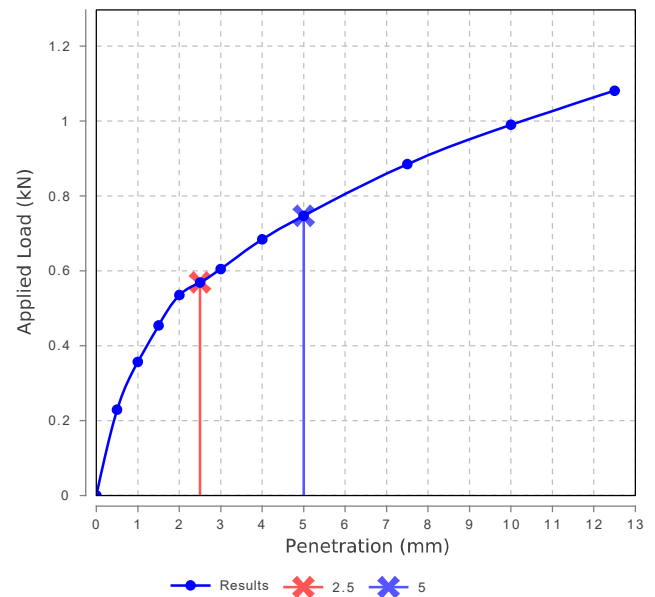


Approved Signatory: Dan Byrnes

NATA Accredited Laboratory Number: 828

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	4.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Maximum Dry Density (t/m^3)	1.93		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	102.0		
Dry Density after Soaking (t/m^3)	1.91		
Field Moisture Content (%)	16.0		
Moisture Content at Placement (%)	15.6		
Moisture Content Top 30mm (%)	17.7		
Moisture Content Rest of Sample (%)	16.1		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		

California Bearing Ratio



Appendix D1

CSIRO Publication

Foundation Maintenance and Footing Performance: A Homeowner's Guide



BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpendes).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

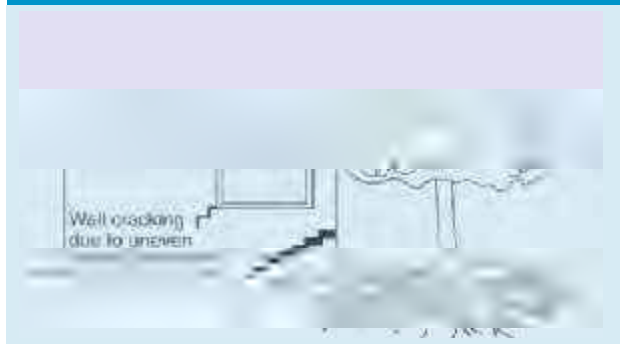
Seasonal swelling/shrinkage in clay

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

Trees can cause shrinkage and damage



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

Protection of the building perimeter

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS		
Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4



should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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Appendix B

Report on Salinity Assessment and
Salinity Management Plan

Report on
Salinity Investigation and Salinity Management Plan

Pondicherry Residential Rezoning
Pondicherry, Oran Park, NSW

Prepared for
Department of Planning and Environment
And Camden Council

Project 76778.29
August 2017

Integrated Practical Solutions



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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 	31 August 2017
Reviewer  pp for cck	31 August 2017



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Report on Salinity Investigation and Salinity Management Plan

Pondicherry Residential Rezoning

Pondicherry, Oran Park, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Greenfields Development Company No. 2 Pty Ltd (GDC2) on behalf of NSW Department of Planning and Environment (DPE) and Camden Council to undertake a Salinity Investigation and Salinity Management Plan (SMP) for a land parcel referred to as Pondicherry Lands, located within Oran Park, NSW (the site, as shown on Drawing B1). The works were carried out in accordance with DP's proposal MAC170014 dated 6 February 2017.

Saline soils affect much of the Western Sydney region. Buildings and infrastructure located on shales of the Wianamatta Group are particularly at risk. Salinity can affect urban structures in a number of ways, including corrosion of concrete, break down of bricks and mortar, corrosion of steel (including reinforcement), break up of roads, attack on buried infrastructure, reduced ability to grow vegetation and increased erosion potential.

It is understood that a residential subdivision is proposed and that an assessment of soil salinity is required to support a rezoning application.

The investigation comprised the completion of an electromagnetic survey (EM survey) of the site, followed by excavation of test pits, laboratory testing of selected samples, engineering analysis and reporting. Details of the work undertaken and the results obtained are given within this report, together with preliminary comments relating to design and construction practice for minimising the effects of salinity.

The field work was undertaken concurrently with a geotechnical investigation (Project 76778.28) and a contamination assessment (Preliminary Site Investigation - PSI) (Project 76778.30), which have been reported separately. A Land Capability Study Report (Project 76778.27) provides an overview of all investigations and results for this investigation, the geotechnical and contamination investigations.

2. Scope of Works

The scope of works for the current investigation comprised two parts as detailed below:

1. Salinity assessment of the site:
 - Inspection of the site for signs of salinity;
 - Excavation of 11¹ test pits across the site to a minimum depth of 3 m below ground level (bgl) or prior refusal ;

¹ DP were engaged by GDC to carry out 10 test pits, however in assessing the site conditions DP considered there was significant benefit in conducting an additional test pit.

- Collection of soil samples at regular 0.5 m depth intervals (i.e. 0.5 m to 3 m);
 - Laboratory analysis of selected soil and rock samples (60 samples) for electrical conductivity (EC1:5), pH and texture by a NATA accredited laboratory for classification of salinity and aggressivity;
 - Laboratory analysis of selected soil and rock samples for chloride and sulphate concentrations (15 samples) for further assessment of aggressivity; and analysis for sodicity (7 samples) and dispersibility (3 samples) as an indicator of erodibility; and
 - Assessment of the results with respect to potential for salinity impacts on the development.
2. Preparation of a Salinity Management Plan (SMP):
- Review of the salinity investigation results;
 - Review of the following documents detailing Council requirements:
 - o 'Map of Salinity Potential in Western Sydney', DNR (2002);
 - o 'Guidelines to Accompany Map of Salinity Potential in Western Sydney', DNR (2002);
 - o 'Western Sydney Salinity Code of Practice' (amended January 2004), Rebecca Nicholson for WSROC, DNR and Natural Heritage Trust;
 - o 'Guide to Residential Slabs and Footings in a Saline Environment', Cement, Concrete and Aggregates, Australia (2005);
 - o 'Introduction to Urban Salinity', DNR (2003);
 - o 'Building in a Saline Environment' DNR (2003);
 - o 'Roads and Salinity', DNR (2003);
 - o 'Indicators of Urban Salinity', DNR (2002);
 - o 'Site Investigations for Urban Salinity', DNR (2002);
 - o 'Urban Salinity Processes', DNR (2004);
 - o 'Waterwise Parks and Gardens', DNR (2004); and
 - o 'Broad Scale Resources for Urban Salinity Assessment' DNR (2002).
 - Providing management strategies to reduce the impact of saline material on the proposed development.

3. Site Description

3.1 Site Identification

The site is located within the local government area of Camden Council and comprises an irregular shaped area of approximately 238 ha. The site is currently registered as nine separate lots as listed below and shown on Drawing B1, Appendix A.

- Part Lot E, Deposited Plan (D.P) 438723;
- Part Lot A, D.P. 420694;
- Lot F, D.P. 420694;
- Lot B, D.P. 420694;
- Part Lot 1, D.P. 623190;
- Part Lot 2, D.P. 1066809;
- Lot 71, D.P. 752024;
- Part Lot C, D.P. 391340; and
- Part Lot 9070, D.P. 11225752.

The site location and boundaries are shown on Drawing B1, Appendix A.

3.2 Site Description

The site is bound by rural land to the north, South Creek and rural land to the east, Oran Park Precinct to the south and The Northern Road to the west and beyond by further rural residential and agricultural land (Bringelly). The site currently forms part of an active farming property which includes two large farm dams in the eastern/south eastern portion of the site and several smaller dams throughout the site. The southernmost large dam provides a storm water detention function for part of the existing Oran Park Precinct located to the south of the site. A major transmission line and associated easement runs east-west through the southern portion of the land. While most of the site has been cleared for use as grazing land, there are discontinuous zones of open to densely wooded areas along the creek lines and gullies in the south-western corner of the site.

A rail corridor is currently proposed through the site and may require associated cut/fill.

The site can be divided into the following topographic features:

1. Two separate surface drainage systems comprising creeks, gullies and dams are located at the site separated by a gently undulating ridgeline running approximately north east to south west through the site. The eastern/south eastern part of the site drains toward South Creek, while the northern/north western part of the site drains towards the north, into Howes Creek.
2. Gullies located at the site have entrenched the bedrock forming side slopes mostly to approximately 3 - 5°, but locally steeper towards the crests of ridgelines to approximately 5 - 10°. The gullies have been dammed in most locations for watering of stock. The highest elevation at the site is 116 m AHD (Australian Height Datum) and is located in the south-west corner of the site.

3. The low lying portions of the site comprise alluvium infilled valley floors associated with South Creek and gentler sloping hillsides feeding the creek. Surface levels range from approximately 86 m AHD to the north-west to 76 m AHD toward the central eastern edge of the site.

4. Regional Geology and Soil Landscapes

4.1 Geology

The site can be broadly divided into two broad geological units comprising sedimentary rocks and alluvial deposits (refer Figure B1 below, for additional detail).

The rolling hills, ridgelines and lower slopes in the northern, western and central portions of the site are underlain by Bringelly Shale (mapping unit Rwb) of the Triassic age Wianamatta Group (Penrith 1:100 000 Geological Series Sheet 9030). The Bringelly Shale in the vicinity of the site includes an unnamed, fine to medium grained quartz-lithic sandstone member, typically comprises shale, carbonaceous claystone, laminite and some minor coaly bands which weather to form clays of high plasticity.

The lower lying eastern portion of the site is generally underlain by Quaternary alluvial deposits (mapping unit Qal) of the Nepean River which are mainly derived from weathering of Permian and Triassic bedrock and typically comprise grey-brown, medium grained quartz sand with layers of silt and humic clay.



Figure B1: Geological Landscapes (Yellow – Quaternary Alluvium and Blue – Bringelly Shale)

4.2 Soil Landscapes

Soil landscapes over the site broadly reflect the underlying geology and topography. With reference to the Soil Landscapes of the Penrith 1:100 000 Sheet (Ref 2), the site is broadly divided into two distinct soil landscapes, the Blacktown residual soils present over most of the central and western part of the site and the South Creek alluvial soils present in the western portion of the site. The two soil landscapes are further described below (refer Figure B2 below for additional detail):

Soil landscapes over the site broadly reflect the underlying geology and topography. With reference to the Soil Landscapes of the Penrith 1:100 000 Sheet, the site is broadly divided into two distinct soil landscapes, the Blacktown residual soils present over most of the central and western part of the site and the South Creek alluvial soils present in the western portion of the site. The two soil landscapes are further described below (refer Figure B2 below for additional detail):

- **The Blacktown Soil Landscape** (mapping unit bt) is a residual soil group associated with the gently undulating slopes and broad rounded crests and ridges on the Wianamatta Group in the eastern part of the site. The unit comprises up to four soil horizons that range from shallow red-brown hard-setting sandy clay soils on crests and upper slopes to deep brown to yellow sand and clay soils overlying grey plastic mottled clay on mid to lower slopes. These soils are typically of low fertility, are moderately reactive and have a generally low wet bearing strength.
- **South Creek Soil Landscape** (mapping unit sc) is an alluvial soil group associated with floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Usually flat with incised channels, mainly cleared, and is mapped along South Creek and associated minor creek extending south and south-west through southernmost dam. Mapping indicates soils associated with this landscape comprise very deep layered sediments over bedrock or relict soils. Red and yellow podsollic soils occur.



Figure B2: Soil Landscapes (Dark Green – Blacktown Soils and Light Green – South Creek Soils)

4.3 Groundwater

A detailed groundwater study was not undertaken in the site area as part of this study. However, there are two distinct groundwater settings in the area:

- 1) Groundwater within Wianamatta Group shale; and
- 2) Groundwater within unconsolidated Quaternary deposits of the Nepean River flood plain.

Groundwater flow in unconsolidated Quaternary deposits is likely to be by porous flow in sandy horizons, however, groundwater was only noted in one test pit carried out as part of the geotechnical and salinity investigations (refer to Section 1). Shales of the Wianamatta Group on the other hand have a very low intrinsic permeability, and groundwater flow is likely to be dominated by fracture flow.

4.4 Salinity Potential

Additional reference to the Map of Salinity Potential in Western Sydney (Ref 3) indicates that the site is predominantly located in an area of “*Moderate salinity potential*” where “*saline areas may occurwhich have not yet been identified or may occur if risk factors change adversely*”. South Creek and associated minor creeks and dam areas in the east / south east and northern portion of the site is located in an area of “*high salinity potential*” where “*conditions are similar to areas of known salinity*” and some portions of South Creek to the east of the site are mapped as areas of “*Known salinity potential*”. These classifications are based on the landform and geology and it is noted that due to the resolution at the scale of the mapping, it is not possible to delineate the zone boundaries with precision.

5. Investigation Methods

5.1 Horizontal and Vertical Control

All field measurements and mapping for this project have been carried out using the Geodetic Datum of Australia 1994 (GDA94) and the Map Grid of Australia 1994 (MGA94), Zone 56. Digital mapping has been carried out in a Geographic Information System (GIS) environment using MapInfo and AutoCAD software.

All reduced levels are given in relation to Australian Height Datum (AHD). All reduced levels have been interpolated from state survey data (with 2 m contour intervals), as such, the reduced levels should be considered approximate only.

5.2 Electromagnetic (EM) Profiling

EM profiling was undertaken as part of the examination of the soil salinity potential, allowing rapid continuous measurement of electrical conductivity of the upper soil profile. This enabled the targeting of areas for soil sampling, thereby reducing the sample density for laboratory testing of soils for salinity assessment purposes.

Electrical conductivity is variously referred to as ground conductivity, terrain conductivity, bulk conductivity or bulk electrical conductivity and is generally designated as σ_a or ECa (apparent). Although measurement of electrical conductivity can include contributions from a variety of sources including groundwater, conductive soil and rock minerals and metals, it has been estimated (Ref 4) that in 75% - 90% of cases in Australia, electrical conductivity anomalies in the upper soil profile can be explained by the presence of soluble salts. The apparent conductivity can therefore be considered, in the majority of cases, a good indicator of soil salinity. The ECa dataset for the site was correlated with the ECe laboratory-analysed data for the site, refer Drawing B5.

Most portable instruments measure apparent conductivity in milliSiemens per metre (mS/m) and typical measurement ranges (Table B1) have been suggested as indicative of salinity classes (after Ref 5).

Table B1: Salinity Classes in Relation to Apparent Conductivity (Ref 5)

Class	ECa (mS/m)
Non-Saline	<50
Slightly Saline	50 – 100
Moderately Saline	100 – 150
Very Saline	150 – 200
Extremely Saline	>200

The survey instrument employed was the DUALEM-42S Profiler, mounted on a quad motorcycle type vehicle. The Profiler (pictured on the following page) incorporates an electromagnetic (EM) transmitter that operates at a fixed frequency (9 KHz) and paired EM receivers. The theoretical depth of investigation (response to ground conductors) typically reaches up to approximately 4 m below the coils, however this is dependent on actual soil conductivities and most of the conductivity response was expected to be in the depth range of 2 m below the coils. Some depth discrimination (within the above range) is provided by concurrent measurements at two coil spacings and two coil orientations.

A Hemisphere R130 Differential Global Positioning System was used to continuously record position and to navigate and both positional data and ECa data were acquired at 1 Hz (1 second intervals) to the Profiler's data logger.

Data were obtained along approximately 107 line kilometres of traverse (38,500 data points) on a grid of primary survey lines approximately 18 m apart, with an average data point spacing of approximately 2.8 m.



Figure B3: DUALEM Profiler extended across quad bike, with DGPS system visible at rear

5.3 Test Pit Excavation

The test locations were nominated and located on site by DP during the investigation using a handheld GPS for which an accuracy of ± 4 m is typical. The locations of the test locations are shown on Drawing B1 (Appendix A) and are coordinates are given on the logs (Appendix B).

The excavation of 11 test pits (Pits 1 - 11) was undertaken to depths of 2.3 m - 3.0 m using a backhoe fitted with a 450 mm wide bucket. The field work was undertaken by a geotechnical engineer who collected disturbed samples, 'undisturbed' samples (in 50 mm diameter thin-walled tubes) and bulk samples to assist in strata identification and for laboratory testing. As discussed in Section 2, an additional test pit (Pit 11) was completed to inform the SMP; ten of the eleven test pits were subject to sampling and analysis as per our proposal. After backfilling each test pit, the surface was reinstated to its previous level.

6. Field Work Results

6.1 EM Profiling Data Processing and Presentation

Data processing included a layback correction to align positional data with EM data, due to Profiler to GPS antenna separation. The apparent conductivity, quadrature and phase data were despiked, interpolated or truncated and filtered to remove responses from electric fences and known large metallic objects. The line data were subsequently processed in MapInfo to generate gridded data for map making.

Drawing B2 presents the location of the electromagnetic survey lines, survey points and apparent conductivities as colour images with continuous colour spectral scales in m AHD and mS/m, respectively. Areas of most interest are those at the red end of the spectrum representing the highest apparent conductivities and potentially the highest salinities. Apparent conductivities ranged from approximately 10 - 250 mS/m, potentially indicating soils covering the non-saline to extremely saline range based on Chhabra's typical measurement ranges (refer Table B1). The value of EM profiling, with high along-line sampling density and appropriate line spacings is the ability to identify local variations in the salinity distribution which are not visible in the broader-scale salinity potential map.

Based on the mapped distribution of apparent conductivities, test pit locations were selected to enable soil sampling, to provide real data for the range of apparent conductivities that were observed in the survey findings across the site.

The in-phase measurements are generally insensitive to soil conductivity but respond to subsurface metallic conductors and were mapped to assess the degree of interference with the apparent conductivity data.

6.2 Test Pit Excavation

Soil test pit logs are provided in Appendix B. The logs should be read in conjunction with the accompanying notes defining classification methods and descriptive terms.

As identified in Section 4.2, the site comprises two distinct soil landscapes with the test pits encountering variable subsurface conditions that were generally consistent with the soil mapping. The general succession of strata is broadly summarised as follows:

- TOPSOIL – silty clay and/or clayey silt encountered in all pits to depths in the range 0.2 m - 0.3 m;
- RESIDUAL – firm to hard silty clay and/or sandy silty clay encountered in Pits 1 - 5, 7, 8 and 11 to depths in the range 0.9 m - 2.3 m;
- ALLUVIAL – firm to hard silty clay and/or sandy silty clay encountered in Pits 6, 9 and 10 to depths in the range 2.3 m - 3.0 m, and to termination depth of 3.0 m in Pit 9; and
- BEDROCK – variably extremely low up to low to medium strength shale first encountered in most pits, except Pit 9, at depths in the range 0.9 m - 2.3 m. Pits 1 - 7 and 11 were terminated upon refusal of the excavator bucket at depths in the range 2.3 m - 2.9 m.

No free groundwater was observed in the pits during excavation for the short time that they were left open with exception of Pit 9. Pit 9 encountered groundwater at a depth 2.9 m. It must be noted, however, that the pits were immediately backfilled following excavation which precluded longer term monitoring of any groundwater levels that might be present. It must also be noted, groundwater levels are affected by factors such as soil permeability and weather conditions (which will vary with time).

Evidence of efflorescence was noted on the site surface in the eastern portion of the site, between the two large dams here. Efflorescence was also visible on part of the paddock with the pivot irrigator in the northern part of the site, however this is likely as a result of fertilizers added to the site here.

7. Laboratory Test Results

Soil samples from the test pits were tested in a NATA-accredited laboratory for parameters related to salinity:

- Electrical Conductivity (EC1:5) of a 1:5 soil:water extract (all samples);
- pH (all samples);
- chloride and sulphate concentrations (selected samples);
- exchangeable sodium content, cation exchange capacity (CEC) and exchangeable sodium potential (ESP or sodicity) (selected samples); and
- Dispersion (Emerson Crumb test) (selected samples).

Laboratory analytical results are included in Appendix C and a Summary Table showing all analytical results and their corresponding calculated aggressivity, sodicity and salinity class values are presented in Appendix D.

A textural classification, using the method of the former Department of Land and Water Conservation (DLWC - Ref 6), was undertaken on each sample tested for EC1:5, to allow determination of the appropriate Textural Factor (M) for conversion of EC1:5 to soil salinity ECe (electrical conductivity of a saturated extract). These factors are included in the Summary Table, along with the soil texture groups indicated by the factors, ranging from heavy clays (M=6) to loams (M=10) and rock at depth (assumed textural class=7, i.e. medium clay).

The total test sample numbers and the range of test results obtained are summarised in Table B2, below.

Table B2: Summary of Test Results

Parameter		Units	Samples	Minimum	Maximum
pH		pH units	61	4.5	7.8
Chlorides		(mg/kg)	15	<10	2700
Sulphates		(mg/kg)	15	<10	220
Aggressivity	to Concrete	[AS2159]	63	Non-Aggressive	Moderate
	to Steel	[AS2159]	63	Non-Aggressive	Moderate
Exchangeable Sodium (Na)		(meq/100g)	7	0.12	3.9
CEC (cation exchange capacity)		(meq/100g)	7	5.9	15
Sodicity [Na/CEC]		(ESP%)	7	1	32
Sodicity Class		[after DLWC – Ref 6]	7	Non-Sodic	Highly Sodic
EC1:5 [Lab.]		(uS/cm)	61	13	2,700
Resistivity		Ω.cm	61	370	76,923
ECe [M x EC1:5] ¹		(dS/m)	61	0.104	16.2
Salinity Class		[after Richards 1954 – Ref 7]	61	Non-Saline	Highly Saline

1 M is soil textural factor

8. Assessment of Soil Aggressivity to Concrete and Steel

Figure B4 presents variations of aggressivity with depth, based on pH profiles at all test pit locations, together with the aggressivity class ranges as indicated in Australian Standard AS 2159 - 2009 (Ref 8). The absence of free groundwater from all test pits and the impermeability of the sampled clay-rich soils indicate that soils at all test pits are in Condition "B".

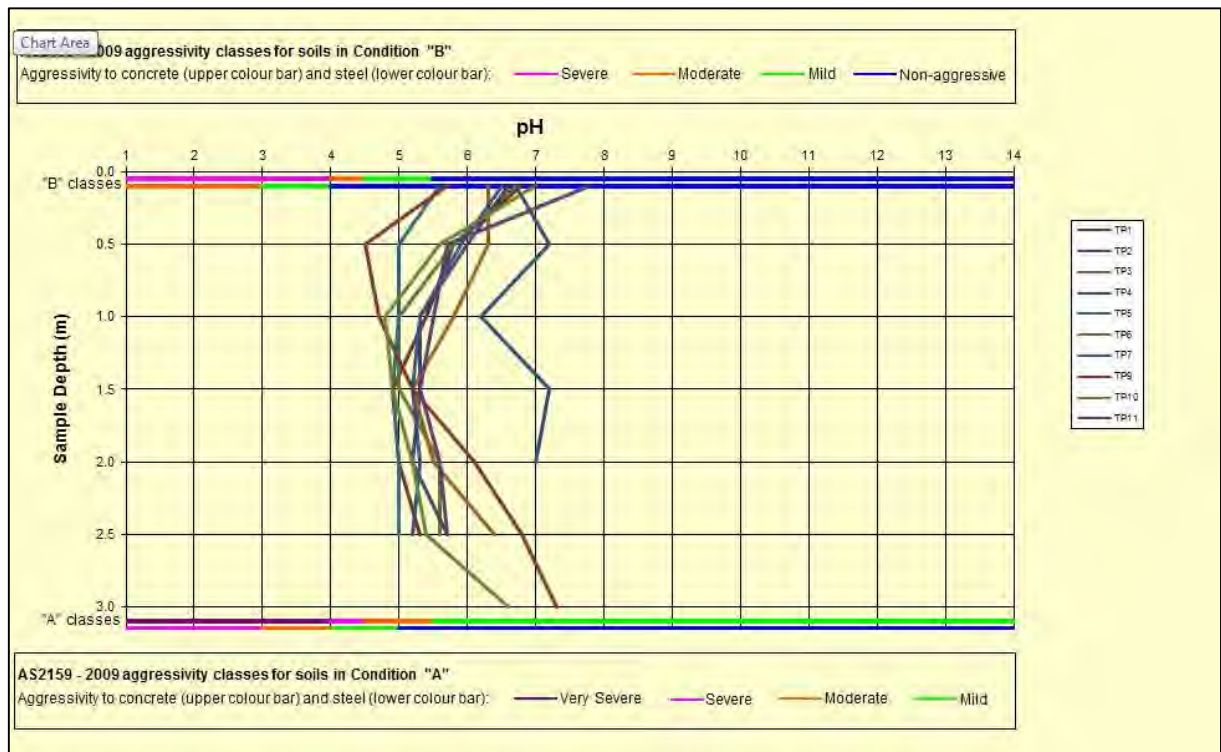


Figure B4: Vertical Soil pH Profiles and Aggressivity

The pH profiles (Figure B4) indicate that the materials throughout the site, at all investigation depths are generally non to mildly aggressive to concrete (with the exception of TP9 - moderately aggressive) and non to moderately aggressive to steel. Where measured, the sulphate and chloride concentration indicates that the soil is non-aggressive to concrete and steel respectively. However, based on sample resistivity data, samples were classified as non-aggressive, mildly aggressive to moderately aggressive to steel. Calculated worst-case soil resistivities for concrete and steel were interpolated to define areas of non-aggressive, mildly aggressive and moderately aggressive soil, as presented in Drawings B3 and B4, respectively (Appendix A).

The Summary Table (refer Appendix D) indicates that 52% of all samples were non-aggressive to concrete, 46% were mildly aggressive to concrete and 2% were moderately aggressive to concrete. Approximately 59% of all samples were non-aggressive to steel, 28% were mildly aggressive and 13% were moderately aggressive to steel.

9. Salinity Assessment from Laboratory Results

The DLWC guideline for salinity investigations (Ref 6) applies the method of Richards (Ref 7) and Hazelton and Murphy (Ref 9) in the classification of soil salinity on the basis of E_{Ce}. The implications of the resulting salinity classes on agriculture are described in Table B3.

Table B3: Soil Salinity Classification

Class	E _{Ce} (dS/m)	Implication
Non-Saline	<2	Salinity effects mostly negligible
Slightly Saline	2 – 4	Yields of sensitive crops affected
Moderately Saline	4 – 8	Yields of many crops affected
Very Saline	8 – 16	Only tolerant crops yield satisfactorily
Highly Saline	>16	Only a few very tolerant crops yield satisfactorily

Salinity measurements on 61 samples from 11 test pits (Pit 8 was not subject to salinity testing - refer to Section 2), including areas of elevated apparent conductivity determined by EM profiling, are distributed throughout the salinity classes as shown in detail in the Summary Table (Appendix D) and graphically in Figure B5.

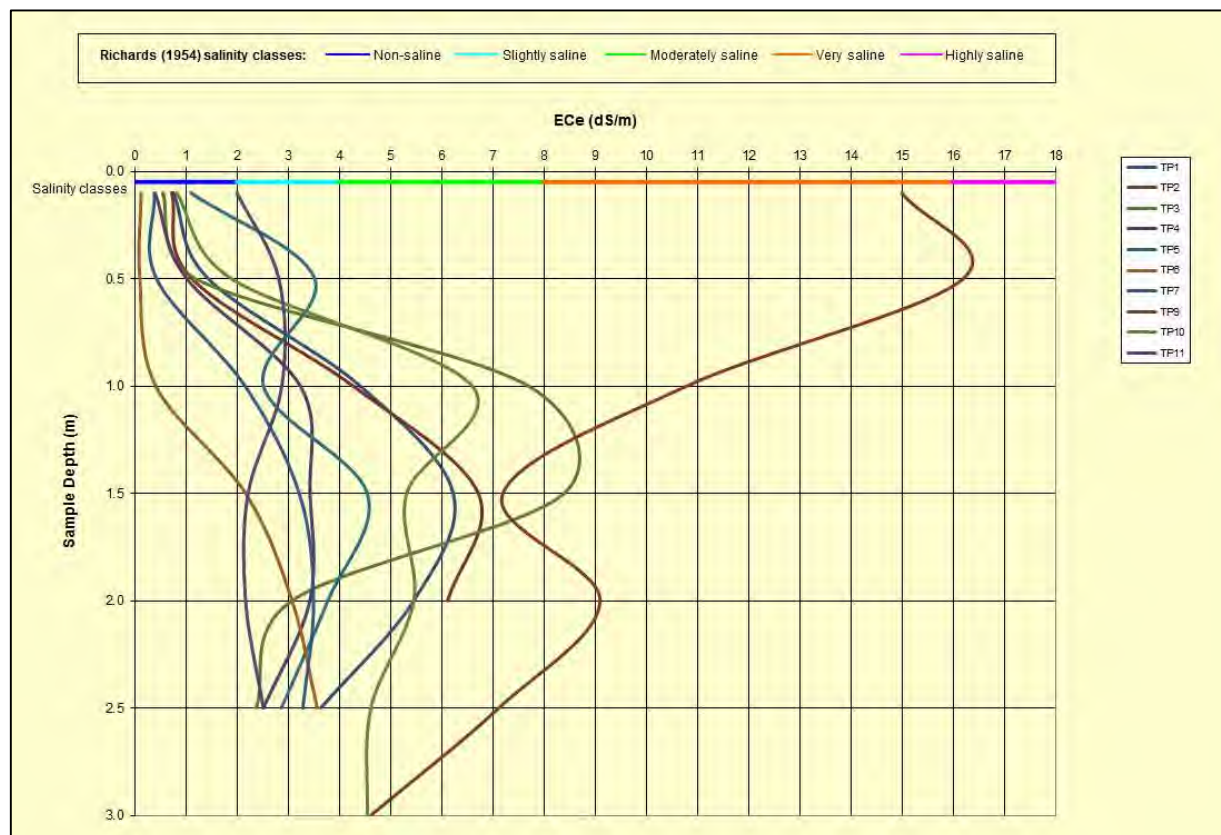


Figure B5: Vertical Soil Salinity Profiles

The Summary Table (Appendix D) indicates that 31% of all soil samples were non saline, 34% were slightly saline, 26% were moderately saline, 7% were very saline and 2% were highly saline.

10. Salinity Assessment Incorporating EM Results

The DLWC salinity investigation guideline allows for a reduction in the density of test locations and the number of laboratory tests, when an EM investigation is carried out and the ECa results are correlated with the laboratory ECe results, enabling interpolation of data throughout the EM survey area at the high spatial density of that data.

To carry out the required correlations, the ECa gridded line data was evaluated at the nearest test pit locations and the ECa values were plotted in a scattergram (Figure B6, below) against bulk ECe values. A reasonably strong positive linear trend between these parameters (correlation coefficient of 0.93) indicates that the EM system is responding to soil salinity and that the EM data obtained provides a good relative measure of the site salinity.

The line of best fit defines the ECe / ECa trend and provides an equation by which to convert apparent conductivities (ECa in mS/m), to estimate apparent salinities (ECe in dS/m) throughout the data set.

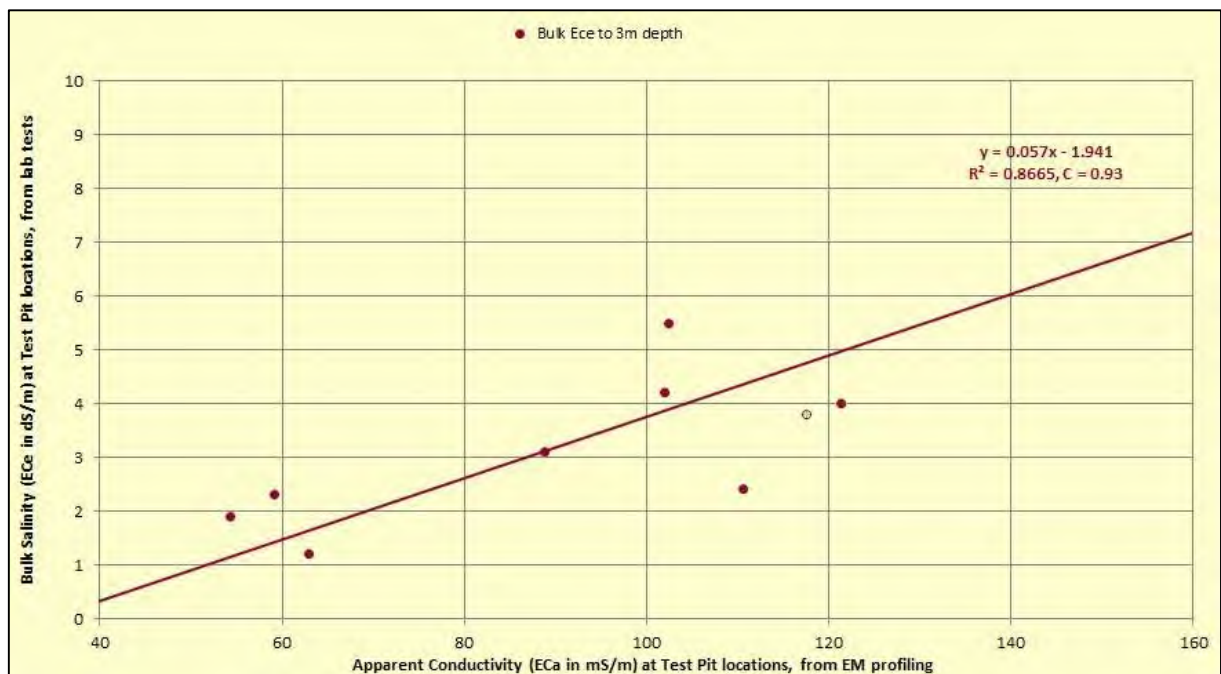


Figure B6 - Correlation of Bulk ECe and ECa data

The correlation equation ($ECe = 0.057 \times ECa - 1.941$) has been applied to all apparent conductivity gridded data for presentation as a correlated salinity image with continuous colour spectral scales in dS/m (refer to Drawing B5).

Give a description of what these means, ie highly saline in the east around the dams non to slightly in the south west etc.

11. Assessment of Soil Sodicity and Dispersibility

The sodicity test reported in the Summary Table (Appendix D) shows non-sodic to highly sodic soils, indicating some potential for erodibility of soils left exposed.

Dispersion potential, tested on twelve samples at depths of 0.5 and 1 m by the Emerson Crumb Test (Appendix D) shows much of the silty clay/sandy silty clay observed at the site exhibit dispersibility between no dispersion to complete dispersion. Therefore soils at the site have the potential to exhibit poor drainage and the tendency for water logging to occur.

12. Impacts of the Site Materials on the Proposed Development

The non-aggressive to moderate aggressivity to concrete, the non-aggressive to moderate aggressivity to steel, the presence of moderate to occasionally very to highly saline materials and the highly sodic soils are naturally occurring features of the local landscape and are not considered significant impediments to the proposed development, provided appropriate remediation or management techniques are employed.

Salinity and aggressivity affects the durability of concrete and steel by causing premature breakdown of concrete and corrosion of steel. This has impacts on the longevity of structures in contact with these materials. As a result management will be required (refer to Section 13).

Sodic soils have low permeability due to infilling of interstices with fine clay particles during the weathering process, restricting infiltration of surface water and potentially creating perched water tables, seepage in cut faces or ponding of water in flat open areas. In addition, sodic soils tend to erode when exposed. Management of sodic soils is therefore required to prevent these adverse effects.

13. Preliminary Salinity Management Plan

The current salinity investigation indicates that materials within the site range from non-saline to highly saline. Testing of other parameters associated with salinity indicates that the materials are non-aggressive to moderately aggressive to steel and non-aggressive to moderately aggressive to concrete. In addition, shallow soils were in places highly sodic.

The following preliminary management strategies are confined to the management of those factors with a potential to impact on the development, this SMP will need to be updated based on the results of more detailed testing on each stage of the development:

- A. Management should focus on capping of the upper surface of the sodic soils, both exposed by excavation and placed as filling, with a more permeable material to prevent ponding, to reduce capillary rise, to act as a drainage layer and to reduce the potential for erosion.

- B. When possible, the placement of excavated soils in fill areas with similar salinity characteristics (i.e. to place material on to in-situ soils with a similar or higher aggressivity or salinity classification) should be carried out. With respect to imported fill material, testing should be undertaken prior to importation, to determine the salinity characteristics of the material. Drawing B5 shows the salinity classifications across the site.
- C. Sodic soils can also be managed by maintaining vegetation where possible and planting new salt tolerant species. Topsoil added at the completion of bulk earthworks is, in effect, also adding organic matter which may help infiltration and leaching of sodium.
- D. Avoiding water collecting in low lying areas, in depressions, or behind fill. This can lead to water logging of the soils, evaporative concentration of salts, and eventual breakdown in soil structure resulting in accelerated erosion.
- E. Any pavements should be designed to be well drained of surface water. There should not be excessive concentrations of runoff or ponding that would lead to waterlogging of the pavement or additional recharge to the groundwater through any more permeable zones in the underlying filling material.
- F. Surface drains should generally be provided along the top of batter slopes to reduce the potential for concentrated flows of water down slopes possibly causing scour.
- G. Salt tolerant grasses and trees should be considered for landscaping, to reduce soil erosion as in Strategy A above and to maintain the existing evapotranspiration and groundwater levels. Reference should be made to an experienced landscape planner or agronomist.

The following additional strategies are recommended for completion of service installation and for building construction. These strategies should be complementary to standard good building practices recommended within the Building Code of Australia, including cover to reinforcement within concrete and correct installation of a brick damp course, so that it cannot be bridged to allow moisture to move into brick work and up the wall.

- H. Where soils are classified as non-aggressive to concrete, piles should nevertheless have a minimum strength of 32 MPa and a minimum cover to reinforcement of 45 mm (as per AS 2159).
- I. Where soils are classified as mildly aggressive to concrete, piles should have a minimum strength of 32 MPa and a minimum cover to reinforcement of 60 mm (as per AS 2159) to limit the corrosive effects of the surrounding soils (in accordance with AS 2159).
- J. Where soils are classified as moderately aggressive to concrete, piles should have a minimum strength of 40 MPa and a minimum cover to reinforcement of 65 mm (as per AS 2159) to limit the corrosive effects of the surrounding soils (in accordance with AS 2159).
- K. With regard to concrete structures, for non-saline and slightly saline soils (soils with salinities less than 4 dS/m):
 - Where soils are classified as non-aggressive to concrete (AS 3600 - 2009 [Ref 10] - exposure classification A1), slabs and foundations should have a minimum strength of 20 MPa, and should be allowed to cure for a minimum of three days (as per AS 3600) to limit the corrosive effects of the surrounding soils; and
 - Where soils are classified as mildly aggressive to concrete (AS 3600 – exposure classification A2), slabs and foundations should have a minimum strength of 25 MPa, and should be allowed to cure for a minimum of three days (as per AS 3600) to limit the corrosive effects of the surrounding soils.

- L. With regard to concrete structures, for moderately saline soils (soils with salinities of 4 dS / m to 8 Ds / m) that are classified as non-aggressive to mildly aggressive to concrete, slabs and foundations should have a minimum strength of 25 MPa, a minimum cover to reinforcement of 45 mm from unprotected ground and should be allowed to cure for a minimum of three days (as per AS 3600) to limit the corrosive effects of the surrounding soils.
- M. With regard to concrete structures, for very saline soils (soils with salinities of 8 dS / m - 16 dS / m) slabs and foundations should have a minimum strength of 32 MPa, a minimum cover to reinforcement of 50 mm from unprotected ground and should be allowed to cure for a minimum of three days (as per AS 3600) to limit the corrosive effects of the surrounding soils.
- N. With regards to concrete structures, for highly saline materials with salinities of >16 dS/m:
- Where materials are classified as non-aggressive to concrete (refer AS3600 - A1 and Drawing B2), slabs and foundations should have a minimum strength of 40 MPa, a minimum cover to reinforcement of 55 mm from unprotected ground and should be allowed to cure for a minimum of seven days (as per AS3600) to limit the corrosive effects of the surrounding materials; and
 - Where materials are classified as mildly aggressive to concrete (refer AS3600 - A2 and Drawing B2), slabs and foundations should have a minimum strength of 40 MPa, a minimum cover to reinforcement of 55 mm from unprotected ground and should be allowed to cure for a minimum of seven days (as per AS3600) to limit the corrosive effects of the surrounding materials.
- O. Wet cast concrete pipes and currently manufactured spun concrete pipes are understood to have estimated compressive strengths of 50 MPa and 60 - 70 MPa, respectively, in excess of the requirements for mass concrete in K, L, M and N above. Reference to the maximum and minimum test results of Table B1 (Section 6 of this report) and to Tables E1 and 3.1 of AS 4058 - 2007 (Ref 11) indicates that the site falls within the AS 4058 Clay/Stagnant (low sulphate) soil type (chlorides $\leq 20\,000$ ppm, $\text{pH} \geq 4.5$ and sulphates ≤ 1000 ppm) and (in the absence of tidal water flow) falls within the AS 4058 Normal durability environment. Under these conditions, AS 4058 - compliant reinforced concrete pipes of general purpose Portland cement, with a minimum cover to reinforcement of 10 mm, are expected to have a design life in excess of 100 years. Any concrete pipes installed within the site should employ AS 4058-compliant steel reinforced pipes of general purpose Portland cement, with minimum cover to reinforcement of 10 mm, or should be fibre reinforced.
- P. Resistivity results indicate soils that are moderately aggressive to steel. For these areas of soil identified as mildly and moderately aggressive to steel, the following corrosion allowances (as per AS 2159 - 2009) should be taken into account by the designer:
- Mild: uniform corrosion allowance 0.01 - 0.02 mm / year; and
 - Moderate: uniform corrosion allowance 0.02 - 0.04 mm / year.
- Q. In instances where a coating is applied to the pile, if the design life of the pile is greater than the design life for the coating, consideration must be given to corrosion of the pile in accordance with the above list.

14. Additional Recommendations and Conclusions

Additional investigation should be undertaken in development areas which are to be excavated deeper than 3 m, where direct sampling and testing of salinity has not been carried out. Salinity management strategies may need to be modified or extended following additional investigations by deep test pitting and/or drilling, sampling and testing for soil and water pH, electrical conductivity, TDS, sodicity, sulphates and chlorides. Such works, if required, could be conducted when final cut and fill requirements have been determined.

It is considered that the management strategies described herein when incorporated into the design and construction works are appropriate to mitigate the levels of salinity, aggressivity and sodicity identified at the site.

This salinity investigation has been undertaken for the purpose of providing preliminary advice. A detailed salinity investigation will be required prior to construction in order to provide more detailed recommendations for individual lots.

15. References

1. Geological Survey of New South Wales, 1991. *Geology of 1:100 000 Penrith Geological Series Sheet 9030* (Edition 1).
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3. DIPNR, 2002 Department of Infrastructure, Planning and Natural Resources, New South Wales (DIPNR) 2002, *Salinity Potential in Western Sydney*.
4. Spies, B. and Woodgate, P. 2004, *Technical Report Salinity Mapping Methods in the Australian Context*, Natural Resource Management Ministerial Council.
5. Chhabra, R. 1966, *Soil Salinity and Water Quality*, A. Bakema/Rotterdam/Brookfield, New York, 284 pp.
6. DNR, 2002, *Site Investigations for Urban Salinity* (now managed by DPI).
7. Richards, L. A. (ed.) 1954, *Diagnosis and Improvement of Saline and Alkaline Soils* USDA Handbook No 60, Washington D.C.
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9. Hazelton, P. A. and Murphy B. W. 2007, *Interpreting Soil Test Results* Department of Natural Resources
10. Standards Australia 2009, AS3600 - 2009 *Concrete Structures*
11. Standards Australia 2007, AS 4058 - 2007 *Precast Concrete Pipes*

16. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Pondicherry Lands, Oran Park, NSW in accordance with DP's proposal MAC170014 dated 6 February 2017 and acceptance received from Greenfields Development Company No. 2 Pty Ltd dated 27 February 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Greenfields Development Company No. 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 DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

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

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

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

Douglas Partners Pty Ltd

Appendix A

About This Report
Drawings B1 – B5

About this Report

Douglas Partners



Introduction

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

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

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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 Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

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

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

Groundwater

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

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

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

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

Reports

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

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

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

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

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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



Lot E DP 438723

Lot A DP 420694

Lot F DP 420694

Lot B DP 420694

Lot C DP 391340

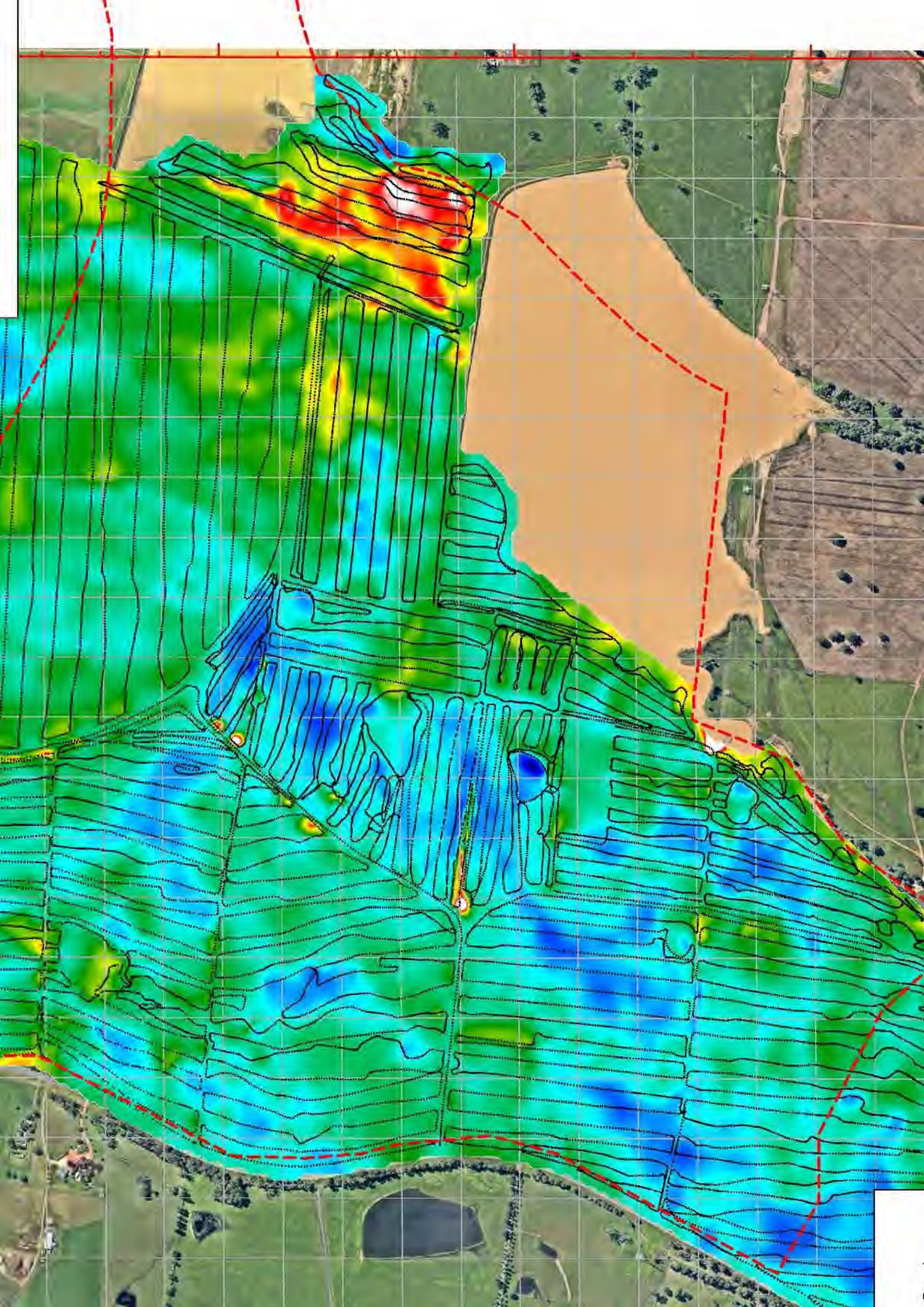
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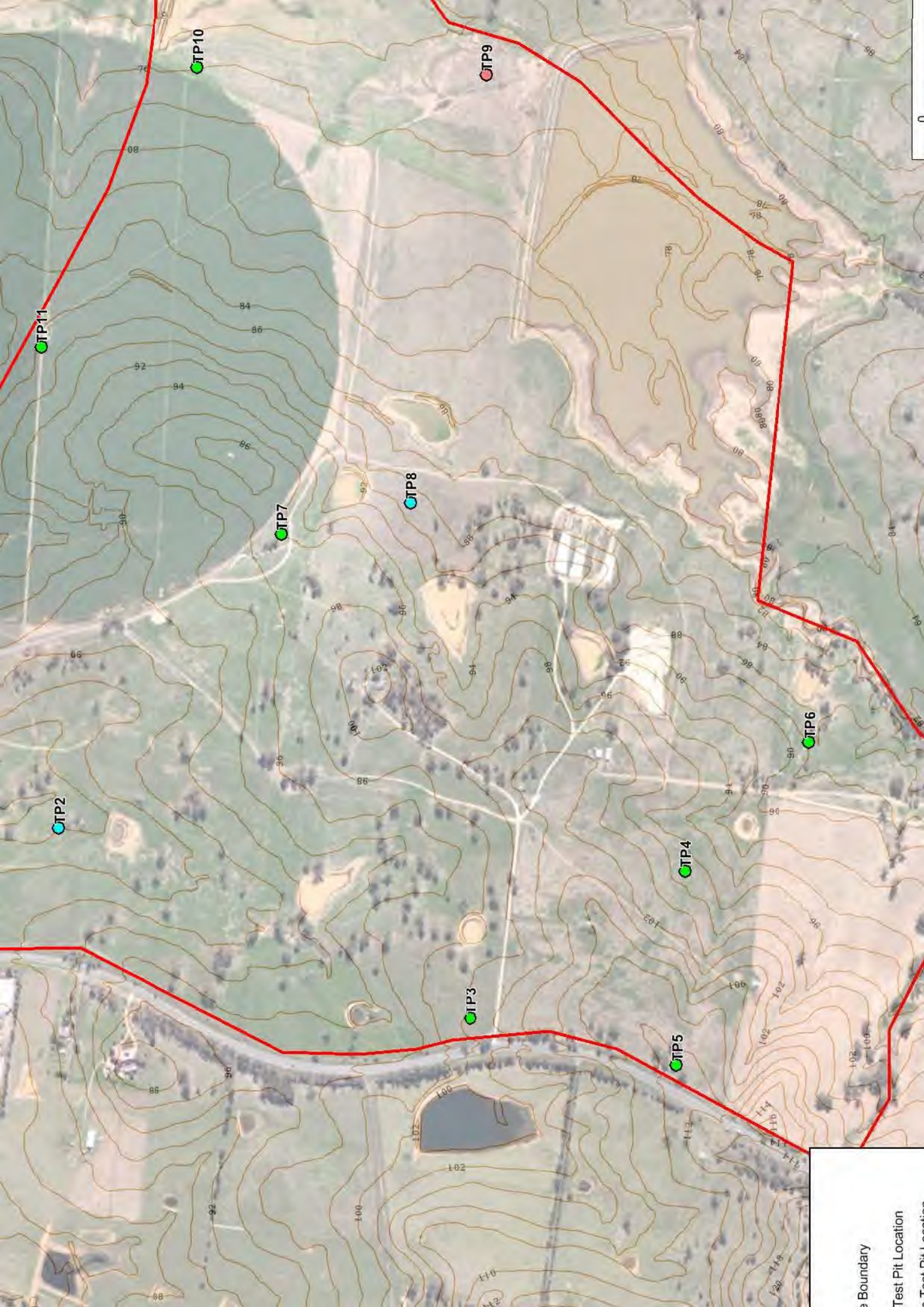
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Lot 9070 DP 1225752

Lot 71 DP 752024



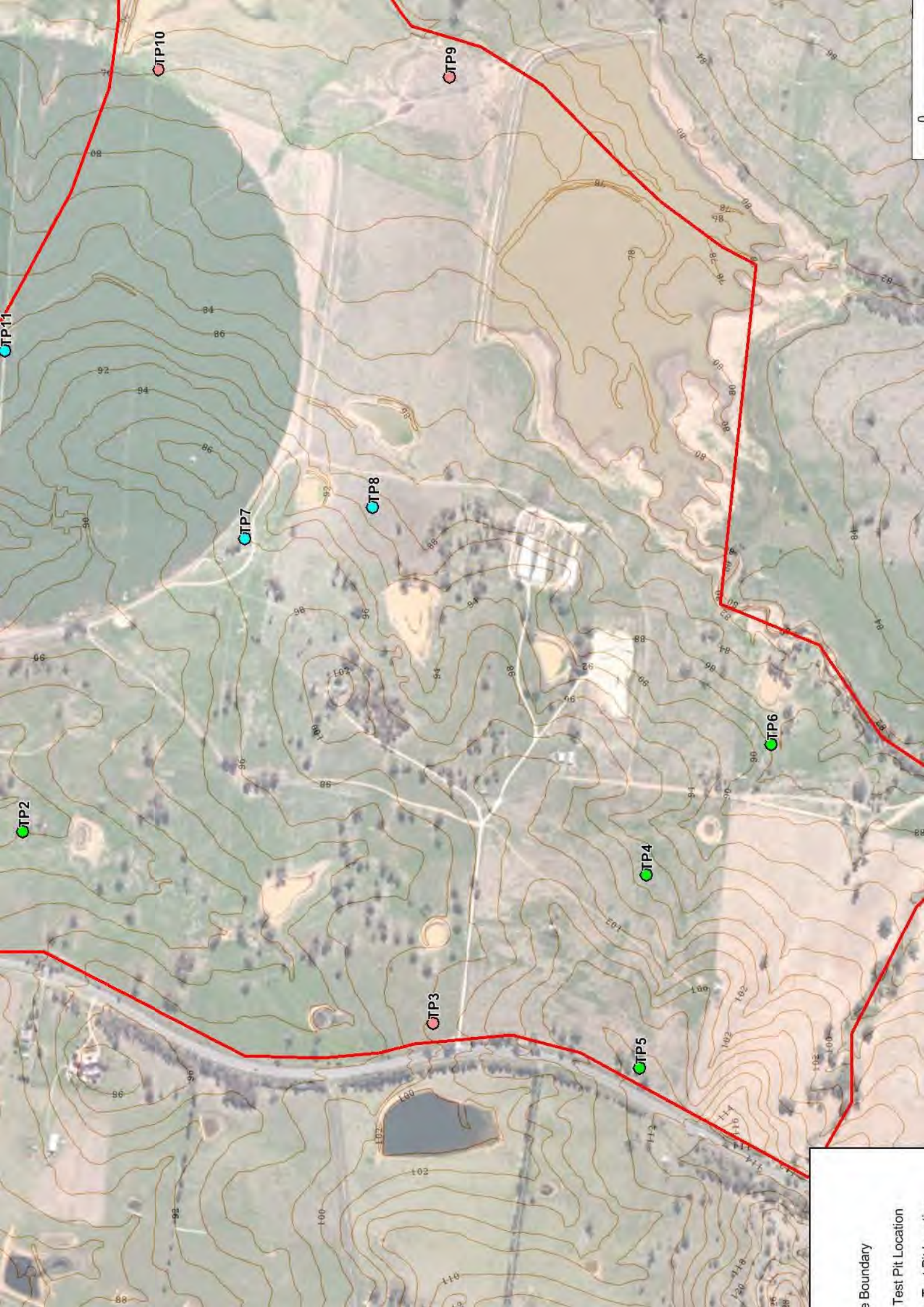


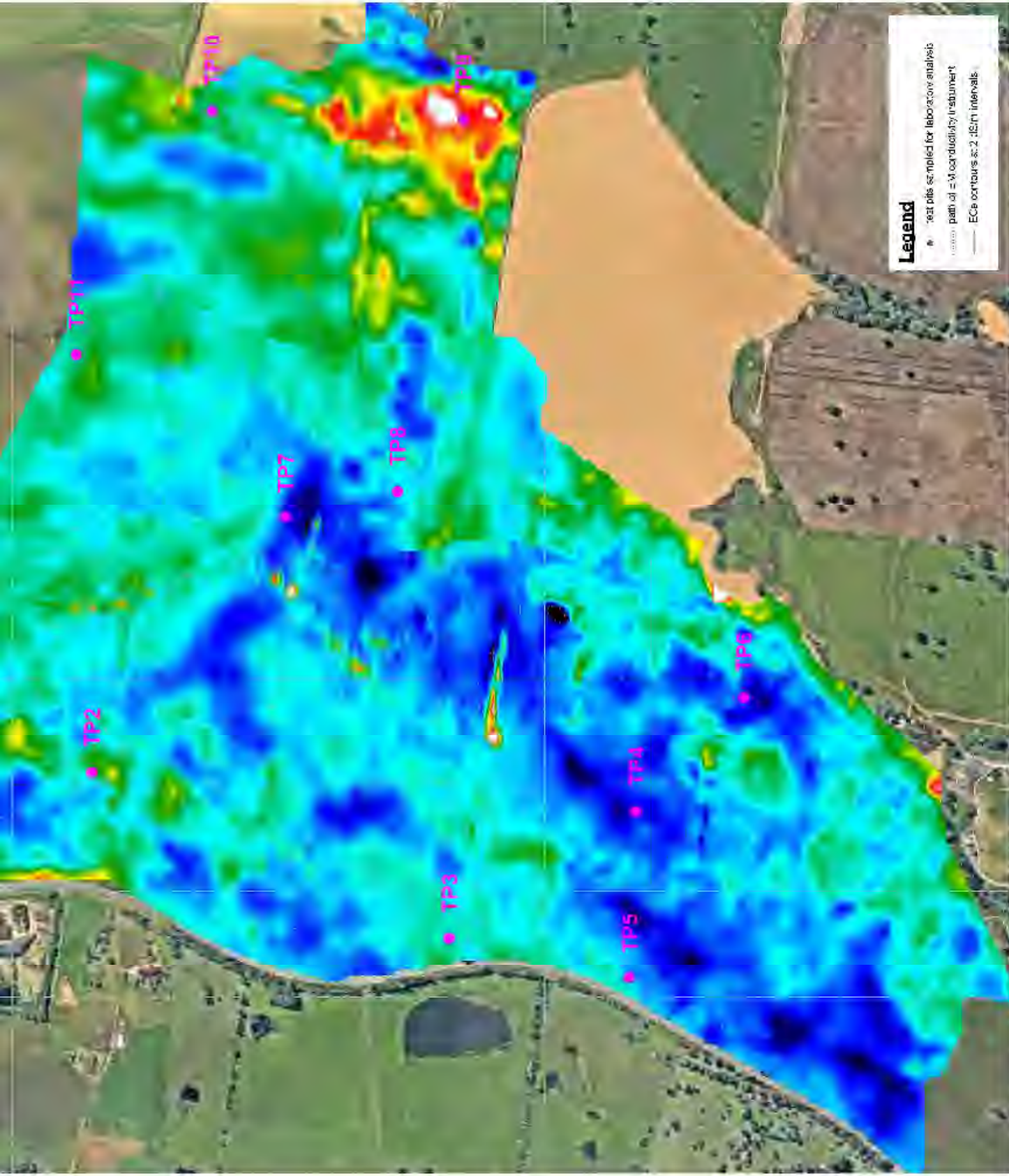


Boundary

Test Pit Location

Test Pit Location





Legend

- test pits sampled for laboratory analysis
- - - path of EM conductivity instrument
- ECe contours at 2.5m intervals

Appendix B

Test Pit Logs

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.6 mAHD
EASTING: 290877
NORTHING: 6238063

PIT No: 1
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
	0.3	SILTY CLAY - stiff, grey mottled red silty clay with a trace of ironstone gravel, MC~PL		D	0.5		pp = 300-400					
	1	- becoming MC>PL below 0.9m		D	1.0		pp = 200-300					
	1.5	SHALE - extremely low strength, extremely weathered, grey shale with iron induration		D	1.4							
				U ₅₀	1.5							
					1.8							
	2			D/B	2.0							
		- becoming very low strength, highly weathered below 2.5m		D	2.5							
	2.8	Pit discontinued at 2.8m - refusal on low to medium strength shale										
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.4 mAHd
EASTING: 291021
NORTHING: 6237851

PIT No: 2
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council **SURFACE LEVEL:** 100.4 mAHD
PROJECT: Land Capability Study **EASTING:** 290712
LOCATION: Pondicherry, Oran Park, NSW **NORTHING:** 6237180

PIT No: 3
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 96.4 mAHD
EASTING: 290947
NORTHING: 6236825

PIT No: 4
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
	0.3	SILTY CLAY - stiff, red silty clay, MC>PL		D/B	0.5		pp = 150-250					
	1	- becoming red mottled grey and light brown, MC~PL below 0.9m		D	1.0		pp = 150-300					
	1.4	SHALE - interbedded very low strength and extremely low strength, highly weathered and extremely weathered, grey sandy shale with iron induration		D	1.5							
				U ₅₀								
	2			D	2.0							
	2.5	Pit discontinued at 2.5m - refusal on low to medium strength shale		D	2.5							
	3											
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 110.7 mAHD
EASTING: 290636
NORTHING: 6236839

PIT No: 5
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - red silty clay with a trace of rootlets										
	0.2	SILTY CLAY - stiff to very stiff, red mottled grey silty clay with iron induration, MC<PL		U ₅₀	0.2							
				D/B	0.5							
					0.6							
110	0.9	SHALE - very low strength, highly weathered, grey shale with iron induration and extremely low strength, extremely weathered bands from 0.9 - 2.2m		D	1.0							
1												
				D	1.5							
109												
				D	2.0							
2												
				D	2.5							
108												
	2.9	Pit discontinued at 2.9m - refusal on low to medium strength shale										
3												
107												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 87.8 mAHD
EASTING: 291162
NORTHING: 6236631

PIT No: 6
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown clayey silt with a trace of rootlets										
	0.3	SANDY SILTY CLAY - stiff, red mottled grey and light brown silty clay with iron induration, MC~PL		D	0.5		pp = 250-350					
		- becoming grey mottled red and light brown below 0.8m										
	1			D	1.0		pp = 200-300					
		- becoming hard, grey with iron induration, MC<PL below 1.4m										
				U ₅₀	1.4							
				D	1.5		pp >600					
		- with very low strength, highly weathered shale bands below 1.9m										
	2			D	2.0		pp >600					
	2.3	SHALE - very low strength, highly weathered, grey sandy shale with iron induration and extremely low strength, extremely weathered bands		D/B	2.5							
	2.8	Pit discontinued at 2.8m - refusal on low to medium strength shale										
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council **SURFACE LEVEL:** 95.7 mAHD
PROJECT: Land Capability Study **EASTING:** 291505
LOCATION: Pondicherry, Oran Park, NSW **NORTHING:** 6237485

PIT No: 7
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 88.3 mAHD
EASTING: 291554
NORTHING: 6237275

PIT No: 8
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
88	0.3	SILTY CLAY - stiff, red mottled brown silty clay with a trace of ironstone gravel, MC>PL		D	0.5		pp = 300-400					
		- becoming red mottled grey below 0.7m										
1				D	1.0		pp = 200-300	1				
		- becoming hard, grey mottled red and light brown with iron induration, MC<PL below 1.3m		U ₅₀	1.4							
				D/B	1.5		pp >600					
1.8		SHALE - extremely low strength, extremely weathered, grey shale with iron induration and very low strength, highly weathered bands										
2				D	2.0			2				
				D	2.5							
3	3.0	Pit discontinued at 3.0m - limit of investigation						3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 77.9 mAH
EASTING: 292250
NORTHING: 6237153

PIT No: 9
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with some rootlets										
	0.3	SILTY CLAY - firm to stiff, light brown mottled grey and red silty clay, MC>PL		D/B	0.5		pp = 250-300					
77	1	- becoming grey mottled light brown below 1.0m		D	1.0		pp = 200-300	1				
				U ₅₀	1.4							
		- with iron induration below 1.5m		D	1.5		pp = 200-250					
76	2	- becoming MC~PL below 2.0m		D	2.0		pp = 200-300	2				
	2.5	SANDY SILTY CLAY - stiff, grey mottled light brown with iron induration, MC~PL		D	2.5		pp = 200-300					
75		- becoming MC>PL below 2.7m										
74	3	Pit discontinued at 3.0m - limit of investigation		D	3.0		pp = 150-200	10-07-17 3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Free groundwater observed at 2.9m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

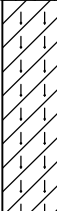
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 74.9 mAHD
EASTING: 292265
NORTHING: 6237625

PIT No: 10
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
74 1 73 2 72 3		TOPSOIL - brown silty clay with some rootlets											
	0.3	SILTY CLAY - firm to stiff, light brown mottled grey and red silty clay with a trace of ironstone gravel, MC>PL		D	0.5		pp = 150-250						
		- becoming grey mottled red, light brown and dark grey with some iron induration below 1.0m		D/B	0.9								
				U ₅₀	1.0		pp = 100-250	1					
		- becoming stiff to very stiff, MC~PL below 1.3m			1.3								
				D	1.5		pp = 200-300						
	2.0	SHALE - extremely low strength, extremely weathered, grey shale with iron induration and very low strength, highly weathered bands		D	2.0			2					
				D	2.5								
	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0				3				
	71												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Dept of Planning & Environment/Camden Council
PROJECT: Land Capability Study
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.6 mAHD
EASTING: 291806
NORTHING: 6237875

PIT No: 11
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



Appendix C

Laboratory Reports



12 Ashley Street, Chatswood, NSW 2067
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email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

171224

Client:

Douglas Partners Pty Ltd Smeaton Grange

18 Waler Crescent

Smeaton Grange

NSW 2567

Attention: Tom Mrdjen

Sample log in details:

Your Reference:	<u>76778.29, Proposed Residential Development</u>
No. of samples:	68 soils
Date samples received / completed instructions received	12/07/17 / 12/07/17

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 19/07/17 / 19/07/17

Date of Preliminary Report: Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing **Tests not covered by NATA are denoted with *.**

Results Approved By:


David Springer
General Manager

Envirolab Reference: 171224

Revision No: R 00

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-1 TP1	171224-2 TP1	171224-3 TP1	171224-4 TP1	171224-5 TP1
Depth	-----	0.1	0.5	1.0	1.5	2.0
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	6.8	5.8	5.4	4.9	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	76	240	630	890	780
Chloride, Cl 1:5 soil:water	mg/kg	<10	[NA]	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	20	[NA]	[NA]	[NA]	[NA]

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-6 TP1	171224-7 TP2	171224-8 TP2	171224-9 TP2	171224-10 TP2
Depth	-----	2.5	0.1	0.5	1.0	1.5
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.3	6.7	7.2	6.2	7.2
Electrical Conductivity 1:5 soil:water	µS/cm	520	52	160	610	960

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-11 TP2	171224-12 TP3	171224-13 TP3	171224-14 TP3	171224-15 TP3
Depth	-----	2.0	0.1	0.5	1.0	1.5
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	7.0	6.7	5.8	5.0	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	720	55	170	1,100	1,200
Chloride, Cl 1:5 soil:water	mg/kg	960	[NA]	71	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	65	[NA]	160	[NA]	[NA]

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-16 TP3	171224-17 TP3	171224-18 TP4	171224-19 TP4	171224-20 TP4
Depth	-----	2.0	2.5	0.1	0.5	1.0
Date Sampled		10/07/2017	10/07/2017	11/07/2017	11/07/2017	11/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.6	5.6	6.6	6.0	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	440	340	40	170	540
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	380	[NA]	[NA]	680
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	170	[NA]	[NA]	210

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-21 TP4	171224-22 TP4	171224-23 TP4	171224-24 TP5	171224-25 TP5
Depth	-----	1.5	2.0	2.5	0.1	0.5
Date Sampled		11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.3	5.2	5.7	5.6	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	490	490	360	110	440
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	24	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	39	[NA]

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-26 TP5	171224-27 TP5	171224-28 TP5	171224-29 TP5	171224-30 TP6
Depth	-----	1.0	1.5	2.0	2.5	0.1
Date Sampled		11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.0	4.9	5.0	5.0	6.3
Electrical Conductivity 1:5 soil:water	µS/cm	360	650	540	410	13
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	680	[NA]	[NA]	<10
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	220	[NA]	[NA]	<10

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-31 TP6	171224-32 TP6	171224-33 TP6	171224-34 TP6	171224-35 TP6
Depth	-----	0.5	1.0	1.5	2.0	2.5
Date Sampled		11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	6.3	5.8	5.2	5.5	6.4
Electrical Conductivity 1:5 soil:water	µS/cm	13	59	310	440	510
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	300	[NA]	540
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	30	[NA]	72

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-36 TP7	171224-37 TP7	171224-38 TP7	171224-39 TP7	171224-40 TP7
Depth	-----	0.1	0.5	1.0	1.5	2.0
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	6.5	5.9	5.3	5.3	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	39	61	360	440	500
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	370	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	130	[NA]

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-41 TP7	171224-46 TP8	171224-49 TP9	171224-50 TP9	171224-51 TP9
Depth	-----	2.5	2.0	0.1	0.5	1.0
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.2	[NA]	5.7	4.5	4.7
Electrical Conductivity 1:5 soil:water	µS/cm	470	[NA]	1,500	2,700	1,700
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	370	[NA]	[NA]	2,600
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	100	[NA]	[NA]	200

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-52 TP9	171224-53 TP9	171224-54 TP9	171224-55 TP9	171224-56 TP10
Depth	-----	1.5	2.0	2.5	3.0	0.1
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.2	6.1	6.8	7.3	7.0
Electrical Conductivity 1:5 soil:water	µS/cm	1,200	1,300	890	770	82

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-57 TP10	171224-58 TP10	171224-59 TP10	171224-60 TP10	171224-61 TP10
Depth	-----	0.5	1.0	1.5	2.0	2.5
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.6	4.8	4.9	5.2	5.4
Electrical Conductivity 1:5 soil:water	µS/cm	270	1,100	760	780	660
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	1,100	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	150	[NA]	[NA]

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-62 TP10	171224-63 TP11	171224-64 TP11	171224-65 TP11	171224-66 TP11
Depth	-----	3.0	0.1	0.5	1.0	1.5
Date Sampled		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	6.6	7.8	5.7	5.5	5.3
Electrical Conductivity 1:5 soil:water	µS/cm	650	200	470	360	370

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	171224-67 TP11	171224-68 TP11
Depth	-----	2.0	2.5
Date Sampled		10/07/2017	10/07/2017
Type of sample		Soil	Soil
Date prepared	-	14/07/2017	14/07/2017
Date analysed	-	14/07/2017	14/07/2017
pH 1:5 soil:water	pH Units	5.6	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	310	360

Misc Inorg - Soil	UNITS	171224-67	171224-68
Our Reference:	-----	TP11	TP11
Your Reference	-		
Depth	-----	2.0	2.5
Date Sampled		10/07/2017	10/07/2017
Type of sample		Soil	Soil
Chloride, Cl 1:5 soil:water	mg/kg	280	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	110	[NA]

ESP/CEC Our Reference: Your Reference	UNITS ----- -	171224-9 TP2	171224-17 TP3	171224-18 TP4	171224-31 TP6	171224-34 TP6
Depth	-----	1.0	2.5	0.1	0.5	2.0
Date Sampled		10/07/2017	10/07/2017	11/07/2017	11/07/2017	11/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/07/2017	14/07/2017	14/07/2017	14/07/2017	14/07/2017
Date analysed	-	17/07/2017	17/07/2017	17/07/2017	17/07/2017	17/07/2017
Exchangeable Ca	meq/100g	0.5	<0.1	7.2	1.4	<0.1
Exchangeable K	meq/100g	<0.1	0.2	0.9	0.1	<0.1
Exchangeable Mg	meq/100g	4.0	11	4.0	5.9	6.8
Exchangeable Na	meq/100g	1.3	3.9	0.12	0.84	3.2
Cation Exchange Capacity	meq/100g	5.9	15	12	8.3	10
ESP	%	23	27	<1	10	31

ESP/CEC Our Reference: Your Reference	UNITS ----- -	171224-44 TP8	171224-61 TP10
Depth	-----	1.0	2.5
Date Sampled		10/07/2017	10/07/2017
Type of sample		Soil	Soil
Date prepared	-	14/07/2017	14/07/2017
Date analysed	-	17/07/2017	17/07/2017
Exchangeable Ca	meq/100g	0.2	<0.1
Exchangeable K	meq/100g	0.1	0.1
Exchangeable Mg	meq/100g	9.2	9.0
Exchangeable Na	meq/100g	3.1	3.5
Cation Exchange Capacity	meq/100g	13	13
ESP	%	25	27

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

Client Reference: 76778.29, Proposed Residential Development

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Misc Inorg - Soil						Base Duplicate %RPD		
Date prepared	-			14/07/2017	171224-1	14/07/2017 14/07/2017	LCS-1	14/07/2017
Date analysed	-			14/07/2017	171224-1	14/07/2017 14/07/2017	LCS-1	14/07/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	171224-1	6.8 6.8 RPD: 0	LCS-1	103%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	171224-1	76 82 RPD: 8	LCS-1	98%
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	171224-1	<10 <10	LCS-1	93%
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	171224-1	20 20 RPD: 0	LCS-1	111%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
ESP/CEC						Base Duplicate %RPD		
Date prepared	-			14/07/2017	[NT]	[NT]	LCS-1	14/07/2017
Date analysed	-			17/07/2017	[NT]	[NT]	LCS-1	17/07/2017
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	102%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	102%
Exchangeable Mg	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	98%
Exchangeable Na	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	100%
ESP	%	1	Metals-009	[NT]	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
Misc Inorg - Soil				Base + Duplicate + %RPD				
Date prepared	-	171224-11		14/07/2017 14/07/2017		LCS-2	14/07/2017	
Date analysed	-	171224-11		14/07/2017 14/07/2017		LCS-2	14/07/2017	
pH 1:5 soil:water	pH Units	171224-11		7.0 7.1 RPD: 1		LCS-2	102%	
Electrical Conductivity 1:5 soil:water	µS/cm	171224-11		720 960 RPD: 29		LCS-2	100%	
Chloride, Cl 1:5 soil:water	mg/kg	171224-11		960 1300 RPD: 30		LCS-2	90%	
Sulphate, SO4 1:5 soil:water	mg/kg	171224-11		65 84 RPD: 26		LCS-2	100%	
QUALITY CONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
Misc Inorg - Soil				Base + Duplicate + %RPD				
Date prepared	-	171224-20		14/07/2017 14/07/2017		LCS-3	14/07/2017	
Date analysed	-	171224-20		14/07/2017 14/07/2017		LCS-3	14/07/2017	
pH 1:5 soil:water	pH Units	171224-20		5.3 5.4 RPD: 2		LCS-3	101%	
Electrical Conductivity 1:5 soil:water	µS/cm	171224-20		540 580 RPD: 7		LCS-3	96%	
Chloride, Cl 1:5 soil:water	mg/kg	171224-20		680 600 RPD: 12		LCS-3	94%	
Sulphate, SO4 1:5 soil:water	mg/kg	171224-20		210 190 RPD: 10		LCS-3	102%	

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QUALITY CONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	171224-30	14/07/2017 14/07/2017	LCS-4	14/07/2017
Date analysed	-	171224-30	14/07/2017 14/07/2017	LCS-4	14/07/2017
pH 1:5 soil:water	pH Units	171224-30	6.3 6.3 RPD: 0	LCS-4	103%
Electrical Conductivity 1:5 soil:water	µS/cm	171224-30	13 13 RPD: 0	LCS-4	102%
Chloride, Cl 1:5 soil:water	mg/kg	171224-30	<10 <10	LCS-4	97%
Sulphate, SO4 1:5 soil:water	mg/kg	171224-30	<10 <10	LCS-4	104%
QUALITY CONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	171224-39	14/07/2017 14/07/2017	171224-13	14/07/2017
Date analysed	-	171224-39	14/07/2017 14/07/2017	171224-13	14/07/2017
pH 1:5 soil:water	pH Units	171224-39	5.3 5.2 RPD: 2	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	171224-39	440 460 RPD: 4	[NR]	[NR]
Chloride, Cl 1:5 soil:water	mg/kg	171224-39	370 400 RPD: 8	171224-13	76%
Sulphate, SO4 1:5 soil:water	mg/kg	171224-39	130 150 RPD: 14	171224-13	127%
QUALITY CONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	171224-51	14/07/2017 14/07/2017	171224-33	14/07/2017
Date analysed	-	171224-51	14/07/2017 14/07/2017	171224-33	14/07/2017
pH 1:5 soil:water	pH Units	171224-51	4.7 4.7 RPD: 0	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	171224-51	1700 1800 RPD: 6	[NR]	[NR]
Chloride, Cl 1:5 soil:water	mg/kg	171224-51	2600 2700 RPD: 4	171224-33	105%
Sulphate, SO4 1:5 soil:water	mg/kg	171224-51	200 200 RPD: 0	171224-33	100%
QUALITY CONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	171224-59	14/07/2017 14/07/2017	171224-46	14/07/2017
Date analysed	-	171224-59	14/07/2017 14/07/2017	171224-46	14/07/2017
pH 1:5 soil:water	pH Units	171224-59	4.9 4.8 RPD: 2	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	171224-59	760 780 RPD: 3	[NR]	[NR]
Chloride, Cl 1:5 soil:water	mg/kg	171224-59	1100 1100 RPD: 0	171224-46	#
Sulphate, SO4 1:5 soil:water	mg/kg	171224-59	150 140 RPD: 7	171224-46	#

Client Reference: 76778.29, Proposed Residential Development

QUALITYCONTROL Misc Inorg - Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	171224-67	14/07/2017
Date analysed	-	[NT]	[NT]	171224-67	14/07/2017
pH 1:5 soil:water	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	[NR]	[NR]
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]	171224-67	#
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	171224-67	97%
QUALITYCONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	171224-9	14/07/2017 14/07/2017		
Date analysed	-	171224-9	17/07/2017 17/07/2017		
Exchangeable Ca	meq/100 g	171224-9	0.5 0.3 RPD: 50		
Exchangeable K	meq/100 g	171224-9	<0.1 <0.1		
Exchangeable Mg	meq/100 g	171224-9	4.0 3.8 RPD: 5		
Exchangeable Na	meq/100 g	171224-9	1.3 1.3 RPD: 0		
ESP	%	171224-9	23 24 RPD: 4		

Report Comments:

Chloride/Sulphate:

Percent recovery is not possible to report due to the high concentration of the analyte/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier:

Not applicable for this job

Asbestos ID was authorised by Approved Signatory:

Not applicable for this job

INS: Insufficient sample for this test

PQL: Practical Quantitation Limit

NT: Not tested

NR: Test not required

RPD: Relative Percent Difference

NA: Test not required

<: Less than

>: Greater than

LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Project Name: Proposed residential development		To: EnviroLab Services	
Project No: 767778.29		Sampler: Ludvig Arentz-Hansen	
Project Mgr: Tom Mriden		12 Ashley Street, Chatswood NSW 2067	
Email: tom.mriden@douglaspartners.com.au		Attn: Tania Notaras	
Date Required: Standard		Phone: (02) 9910 6200 Fax: (02) 9910 6201	
		Email: tnotaras@envirolabservices.com.au	

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes								Notes/preservation
			S - soil W - water	G - glass P - plastic	pH	EC	Chloride	Sulphate	Sodium	Hard			
TTP1/0.1	1	10/07/17	S	P	X	X	X	X					
TTP1/0.5	2	10/07/17	S	P	X	X							
TTP1/1.0	3	10/07/17	S	P	X	X							
TTP1/1.5	4	10/07/17	S	P	X	X							
TTP1/2.0	5	10/07/17	S	P	X	X							
TTP1/2.5	6	10/07/17	S	P	X	X							
TTP2/0.1	7	10/07/17	S	P	X	X							
TTP2/0.5	8	10/07/17	S	P	X	X							
TTP2/1.0	9	10/07/17	S	P	X	X			X				
TTP2/1.5	10	10/07/17	S	P	X	X							
TTP2/2.0	11	10/07/17	S	P	X	X	X	X					
TTP3/0.1	12	10/07/17	S	P	X	X							
TTP3/0.5	13	10/07/17	S	P	X	X	X	X					

Lab Report No:		Send Results to: Douglas Partners Pty Ltd		Address 18 Water Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by: Ludvig Arentz-Hansen		Transported to laboratory by:							
Signed: <i>[Signature]</i>		Date & Time: 12/07/2017		Received by: <i>[Signature]</i> 12/7/2017					

Project Name: Proposed residential development		To: Envirolab Services	
Project No: 76778-29		Envirolab Services	
Project Mgr: Tom Mirdien		12 Ashley Street, Chatswood NSW 2067	
Email: tom.mirdien@douglaspartners.com.au		12 Ashley Street, Chatswood NSW 2067	
Date Required: Standard		Attn: Tania Notaras	
Date Required: Standard		Phone: (02) 9910 6200	
		Fax: (02) 9910 6201	
		Email: tnotaras@envirolabservices.com.au	
		Envirolab Services	

Sample ID	Lab ID	Date Sampled	Sample Type S - soil W - water	Container Type G - glass P - plastic	Analytes										Notes/preservation Notes/preservation
					pH	EC	Chloride	Sulphate	Sediment	Heavy					
TP3/1.0	14	10/07/17	S	P	X	X									
TP3/1.5	15	10/07/17	S	P	X	X									
TP3/2.0	16	10/07/17	S	P	X	X									
TP3/2.5	17	10/07/17	S	P	X	X	X	X	X						
TP4/0.1	18	11/07/17	S	P	X	X				X					
TP4/0.5	19	11/07/17	S	P	X	X									
TP4/1.0	20	11/07/17	S	P	X	X	X	X							
TP4/1.5	21	11/07/17	S	P	X	X									
TP4/2.0	22	11/07/17	S	P	X	X									
TP4/2.5	23	11/07/17	S	P	X	X									
TP5/0.1	24	11/07/17	S	P	X	X	X	X							
TP5/0.5	25	11/07/17	S	P	X	X									

Lab Report No:		Address: 118 Water Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Send Results to: Douglas Partners Pty Ltd		Transported to laboratory by:		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by: Ludvig Arentz-Hansen		Received by: P. Ray					
Signed:		Date & Time: 11/07/2017					

12/12/24

Project Name: Proposed residential development		To: Envirolab Services	
Project No: 76778289	Sampler: Ludvig Arentz-Hansen	12 Ashley Street, Chatswood NSW 2067	
Project Mgr: Tom Mriden	Web. Phone: 0447 447 404	Attn: Tania Notaras	
Email: tom.mriden@douglaspartners.com.au		Phone: (02) 9910 6200	Fax: (02) 9910 6201
Date Required: Standard		Email: tnotaras@envirolabservices.com.au	

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes								Notes/preservation
			S = soil W = water	G = glass P = plastic	pH	EC	Chloride	Sulphate	Sodicity	Hold			
TP551100	26	11/10/7/17	S	P	X	X							
TP551155	27	11/10/7/17	S	P	X	X	X	X					
TP552200	28	11/10/7/17	S	P	X	X							
TP552255	29	11/10/7/17	S	P	X	X							
TP660011	30	11/10/7/17	S	P	X	X	X	X					
TP660055	31	11/10/7/17	S	P	X	X			X				
TP661100	32	11/10/7/17	S	P	X	X							
TP661155	33	11/10/7/17	S	P	X	X	X	X					
TP662200	34	11/10/7/17	S	P	X	X			X				
TP662255	35	11/10/7/17	S	P	X	X	X	X					
TP770011	36	10/07/17	S	P	X	X							
TP770055	37	10/07/17	S	P	X	X							
TP771100	38	10/07/17	S	P	X	X							

Lab Report No:		Send Results to: Douglas Partners Pty Ltd		Address: 18 Water Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Requisitioned by: Ludvig Arentz-Hansen		Transported to laboratory by:							
Signed:		Date & Time: 12/07/2017		Received by: Ray		12/7/2017			

171224

Project Name: Proposed residential development		To: Envirolab Services	
Project No: 7677829		Envirolab Services	
Project Mgr: Tom Mirdien		12 Ashley Street, Chatswood NSW 2067	
Sample: Ludwig Arentz-Hansen		12 Ashley Street, Chatswood NSW 2067	
Mobile Phone: 0442 442 404		Attn: Tania Notaras	
Email: tom.mirdien@douglaspartners.com.au		Phone: (02) 9910 6200	
Date Required: Standard		Fax: (02) 9910 6201	
		Email: tnotaras@envirolabservices.com.au	

Sample ID	Lab ID	Date Sampled	Sample	Container	Analytes								Notes preservation Notes/preservation		
			Type	Type											
			S - soil W - water	G - glass P - plastic	pH	EC	Chloride	Sulphate	Sodicity	Hold					
TP7/1.5	39	10/07/17	S	P	XX	XX	XX	XX							
TP7/2.0	40	10/07/17	S	P	XX	XX									
TP7/2.5	41	10/07/17	S	P	XX	XX									
TP8/0.1	42	10/07/17	S	P						X					
TP8/0.5	43	10/07/17	S	P						X					
TP8/1.0	44	10/07/17	S	P					X	X					
TP8/1.5	45	10/07/17	S	P						X					
TP8/2.0	46	10/07/17	S	P			X	X		X					
TP8/2.5	47	10/07/17	S	P						X					
TP8/3.0	48	10/07/17	S	P						X					
TP9/0.1	49	10/07/17	S	P	X	X									
TP9/0.5	50	10/07/17	S	P	X	X									
TP9/1.0	51	10/07/17	S	P	X	X	X	X							
Lab Report No:															
Send Results to:				Douglas Partners Pty Ltd				Address 18 Water Crescent, Smeaton Grange 2567				Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by:				Ludvig Arentz-Hansen								Transported to laboratory by:		Fax: (02) 4646 1886	
Signed:				Date & Time:				12/07/2017				Received by: P. Ray 12/7/2017			

171224

Project Name: Proposed residential development		To: EnviroLab Services	
Project No: 7077829		Sampler: Ludwig Arentz-Hansen	
Project Mgr: Tom Mirden		Web Phone: 04477447404	
Email: tom.mirden@douglaspartners.com.au		Attn: Tania Nolasca	
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		Email: tnolasca@envirolabservices.com.au	

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/Preservation
			S - soil W - water	G - glass P - plastic	pH	EC	Chloride	Sulphate	Sodium	Hard					
TPP09/15	52	10/07/17	S	P	X	X									
TPP09/20	53	10/07/17	S	P	X	X									
TPP09/25	54	10/07/17	S	P	X	X									
TPP09/30	55	10/07/17	S	P	X	X									
TPP10/01	56	10/07/17	S	P	X	X									
TPP10/05	57	10/07/17	S	P	X	X									
TPP10/10	58	10/07/17	S	P	X	X									
TPP10/15	59	10/07/17	S	P	X	X	X	X							
TPP10/20	60	10/07/17	S	P	X	X									
TPP10/25	61	10/07/17	S	P	X	X			X						
TPP10/30	62	10/07/17	S	P	X	X									
TPP11/01	63	10/07/17	S	P	X	X									
TPP11/05	64	10/07/17	S	P	X	X									

Lab Report No:		Send Results to: Douglas Partners Pty Ltd		Address: 18 Water Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Requested by: Ludwig Arentz-Hansen		Transported to laboratory by:							
Signed:		Date & Time: 12/07/2017		Received by: <i>Elly</i> 12/7/2017					

171224

Project Name:	Proposed residential development	To:	EnviroLab Services
Project No: 76778-29			EnviroLab Services
Project Mgr: Tom Mirdien	Sampler: Ludwig Areta-Hansen		12 Ashley Street, Chatswood NSW 2067
Project Mgr: Tom Mirdien	Mobile Phone: 004474474004		12 Ashley Street, Chatswood NSW 2067
Email: tom.mirdien@douglaspartners.com.au		Attn:	Pamela Notaras
Date Required: Standard		Phone:	(02) 9910 6200
Date Required: Standard		Fax:	(02) 9910 6201
		Email:	tnotaras@envirolabservices.com.au

[illegible]

Lab Report No:		Address 18 Water Crescent, Smeaton Grange 2567	Phone: (02) 4694 7007	Fax: (02) 4694 1886
Sending To:	Douglas Partners Pty Ltd			
Sending Results to:	Douglas Partners Pty Ltd			
Relinquished by:	Ludvig Arentz-Hansen	Transported to laboratory by		
Signed:		Date & Time: 12/07/2017	Received by PRAS	Date & Time: 12/07/2017

Ellen Wandala Gamage

From: Tom Mrdjen <Tom.Mrdjen@douglaspartners.com.au>
Sent: Thursday, 13 July 2017 12:44 PM
To: Ellen Wandala Gamage
Subject: RE: 76778.29, Proposed Residential Development

Ellen,

Undertake the sodicity.

Regards,

Tom Mrdjen | Associate / Geotechnical Engineer
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
18 Waler Crescent Smeaton Grange NSW 2567
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ENVIRONMENTAL REVIEW
CLIENT CHOICE
WINNER

From: Ellen Wandala Gamage [<mailto:EWandalaGamage@envirolab.com.au>]
Sent: Wednesday, 12 July 2017 8:03 PM
To: Tom Mrdjen
Subject: 76778.29, Proposed Residential Development

Hi Tom,
Hope you have been well, sample TP8/1.0 has been indicated for both hold & sodicity can you let me know which is required?
Thanks
Ellen

Regards,

Ellen Wandala Gamage | Customer Service (12pm - 8pm) | Envirolab Services Pty Ltd

Great Science, Great Service.

Chatswood NSW 2067

E EWandalaGamage@envirolab.com.au | W

#171224

Appendix D

Summary Table

[illegible]

Appendix C

Report on Preliminary Site Investigation

Report on
Preliminary Site Investigation

Pondicherry Residential Rezoning
Pondicherry, Oran Park, NSW

Prepared for
Department of Planning and Environment
and Camden Council

Project 76778.30
August 2017

Integrated Practical Solutions



Document History

Document details

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File name	76778.30.R.001.Rev1		

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Status	Prepared by	Reviewed by	Date issued
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Status	Electronic	Paper	Issued to
Revision 0	1	0	Greenfields Development Company 2 Pty Ltd - Mr Paul Hume
Revision 1	1	0	Greenfields Development Company 2 Pty Ltd - Mr Paul Hume

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.

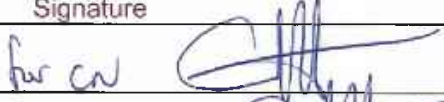
	Signature	Date
Author		31 August 2017
Reviewer		31 August 2017



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Report on Preliminary Site Investigation

Pondicherry Residential Rezoning

Pondicherry, Oran Park, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Greenfields Development Company No. 2 Pty Ltd (GDC2) on behalf of NSW Department of Planning and Environment (DPE) and Camden Council to undertake a Preliminary Site Investigation (PSI) for a land parcel referred to as Pondicherry, located within Oran Park, NSW (the site, as shown on Drawing C1). The works were carried out in accordance with DP's proposal MAC170014 dated 6 February 2017.

DP understands that the PSI is required to inform the precinct planning stages of the proposed rezoning of the site. In particular, the PSI will assist in the preparation of the Indicative Layout Plan and the Precinct Planning Report that will be submitted to DPE for rezoning purposes. It is understood that the proposed development is likely to comprise approximately 2,500 residential dwellings and a rail corridor through the site.

DP is not aware of any previous contamination investigations undertaken at the site. DP have undertaken a geotechnical and salinity investigation of the site separately as reported in:

- DP Report on Salinity Assessment and Salinity Management Plan, Pondicherry Lands, Oran Park, NSW, Project 76778.29, August 2017 (DP, 2017a); and
- DP Report on Preliminary Geotechnical Investigation, Pondicherry Lands, Oran Park, NSW, Project 76778.28, August 2017 (DP, 2017b).

The sub-surface conditions encountered in the above DP investigations (DP, 2017a and DP, 2017b) have been incorporated in this report (refer to Section 6).

2. Scope of Works

DP carried out the following scope of work as part of the PSI:

- Review of regional geology, hydrogeology and topography;
- Review of site geology, as observed during the salinity and geotechnical investigations (DP, 2017a and DP, 2017b);
- Review of historical aerial photography obtained through NSW Land and Property Information;
- Search of the NSW EPA public register established under the Contaminated Land Management Act 1997 (CLM) and the Protection of the Environment Operations Act 1997 (POEO);
- Review of Council records and the Section 149(2) and (5) Planning Certificates for the site;

- A detailed site walkover and mapping of Potential Areas of Environmental Concern (PAEC); and
- Preparation of this PSI report detailing the findings of the desktop study and the site walkover in order to assess the potential for soil and groundwater impact at the site with respect to the proposed development.

3. Site Description

3.1 Site Identification

The site is located within the local government area of Camden Council and comprises an irregular shaped area of approximately 238 ha. The site is currently registered as nine separate lots as listed below and shown on Drawing C1, Appendix A.

- Part Lot E, Deposited Plan (D.P) 438723;
- Part Lot A, D.P. 420694;
- Lot F, D.P. 420694;
- Lot B, D.P. 420694;
- Part Lot 1, D.P. 623190;
- Part Lot 2, D.P. 1066809;
- Lot 71, D.P. 752024;
- Part Lot C, D.P. 391340; and
- Part Lot 9070, D.P. 11225752.

The site location and boundaries are shown on Drawing C1.

3.2 Site Description

The site is bounded by vacant rural land to the north, South Creek and rural land to the east, Oran Park Precinct to the south and The Northern Road to the west and beyond by further rural residential and agricultural land (Bringelly). The site currently forms part of an active grazing and crop farming property which includes two large farm dams in the eastern / south eastern portion of the site and several smaller dams throughout the site. The southernmost large dam provides a storm water detention function for part of the existing Oran Park Precinct located to the south of the site. A major transmission line and associated easement runs east-west through the southern portion of the land. While most of the site has been cleared for use as grazing land, there are discontinuous zones of open to densely wooded areas along the creek lines and gullies in the south-western corner of the site.

The site can be divided into the following topographic features:

1. Two separate surface drainage systems comprising creeks, gullies and dams are located at the site separated by a gently undulating ridgeline running approximately north east to south west through the site. The eastern/south eastern part of the site drains toward South Creek, while the northern/north western part of the site drains towards the north, into Howes Creek.
2. Gullies located at the site have entrenched the bedrock forming side slopes mostly to approximately 3 - 5°, but locally steeper towards the crests of ridgelines to approximately 5 - 10°. The gullies have been dammed in most locations for watering of stock. The highest elevation at the site is 116 m AHD (Australian Height Datum) and is located in the south-west corner of the site.
3. The low lying portions of the site comprise alluvium infilled valley floors associated with South Creek and gentler sloping hillsides feeding the creek. Surface levels range from approximately 86 m AHD to the north-west to 76 m AHD toward the central eastern edge of the site.

Site photographs are presented in Appendix B and the site conditions encountered during the site walkover are further detailed in Section 5.

4. Regional Geology and Soil Landscapes

4.1 Geology

The site can be broadly divided into two broad geological units comprising sedimentary rocks and alluvial deposits (refer Figure C1 below, for additional detail).

The rolling hills, ridgelines and lower slopes in the northern, western and central portions of the site are underlain by Bringelly Shale (mapping unit Rwb) of the Triassic age Wianamatta Group (Penrith 1:100 000 Geological Series Sheet 9030). The Bringelly Shale in the vicinity of the site includes an unnamed, fine to medium grained quartz-lithic sandstone member, typically comprises shale, carbonaceous claystone, laminite and some minor coaly bands which weather to form clays of high plasticity.

The lower lying eastern portion of the site is generally underlain by Quaternary alluvial deposits (mapping unit Qal) of the Nepean River which are mainly derived from weathering of Permian and Triassic bedrock and typically comprise grey-brown, medium grained quartz sand with layers of silt and humic clay.



Figure C1: Geological Landscapes (Yellow – Quaternary Alluvium and Blue – Bringelly Shale)

4.2 Soil Landscapes

Soil landscapes over the site broadly reflect the underlying geology and topography. With reference to the Soil Landscapes of the Penrith 1:100 000 Sheet, the site is broadly divided into two distinct soil landscapes, the Blacktown residual soils present over most of the central and western part of the site and the South Creek alluvial soils present in the western portion of the site. The two soil landscapes are further described below (refer Figure C2 below for additional detail):

- **The Blacktown Soil Landscape** (mapping unit bt) is a residual soil group associated with the gently undulating slopes and broad rounded crests and ridges on the Wianamatta Group in the eastern part of the site. The unit comprises up to four soil horizons that range from shallow red-brown hard-setting sandy clay soils on crests and upper slopes to deep brown to yellow sand and clay soils overlying grey plastic mottled clay on mid to lower slopes. These soils are typically of low fertility, are moderately reactive and have a generally low wet bearing strength.

- **South Creek Soil Landscape** (mapping unit sc) is an alluvial soil group associated with floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Usually flat with incised channels, mainly cleared, and is mapped along South Creek and associated minor creek extending south and south-west through southernmost dam. Mapping indicates soils associated with this landscape comprise very deep layered sediments over bedrock or relict soils. Red and yellow podsolc soils occur.



Figure C2: Soil Landscapes (Dark Green – Blacktown Soils and Light Green – South Creek Soils)

4.3 Groundwater

A detailed groundwater study was not undertaken in the site area as part of this study. However, there are two distinct groundwater settings in the area:

- 1) Groundwater within Wianamatta Group shale; and
- 2) Groundwater within unconsolidated Quaternary deposits of the Nepean River flood plain.

Groundwater flow in unconsolidated Quaternary deposits is likely to be by porous flow in sandy horizons, however, groundwater was only noted in one test pit carried out as part of the geotechnical and salinity investigations (DP 2017a and DP 2017b). Shales of the Wianamatta Group on the other hand have a very low intrinsic permeability, and groundwater flow is likely to be dominated by fracture flow.

5. Site History

A site history investigation was undertaken by DP to identify PAEC and contaminants of potential concern (COPC) which may arise from previous land uses, the presence of demolished or partly demolished buildings, soil stockpiles, land filling, waste disposal and other potentially contaminating activities. The site history investigation conducted is detailed in Section 4.1 - 4.4 and the results of the site history search are presented in Appendix C.

5.1 Historical Aerial Photograph Review

Historical aerial photographs from 1947 - 1994 are presented in Drawings C2 - C6, Appendix A, and more recent aerial photographs from 2009 to present were reviewed using Nearmap. A drawing showing the location of former and existing dams and structures is presented in Drawing C7, and is further detailed in Section 7. A summary of the findings of the aerial photograph review is given below.

1947 - The aerial photograph is of poor resolution. The site and surrounding land consists largely of rural bushland with scattered trees. A fence line traverses the site, running north to south and east to west, suggesting the site was in use for farming at the time that the aerial photograph was taken. Access paths/tracks can be seen traversing the western portion of the site, and there are two small dams present, one within the mid-western portion of the site (Dam 1), and the other approximately 740 m to the south east (Dam 2). A creek traverses the eastern side of the site, where the large farm dams are currently located, and there appears to be a drainage line within the north western portion of the site, running north to south. South Creek can be seen to the east of the site and The Northern Road can be seen running parallel to the western site boundary.

1961 - The site has undergone some change compared to the 1947 photograph. The land use appears to be agricultural, with additional paddocks created by fencing and clearing, and numerous additional farm dams present, mainly within the central region of the site. It is apparent that Dam 1 has increased in dimension, and an additional 9 dams have been constructed (Dams 3 to Dam 11). Access roads from The Northern Road into the site appear to be more defined, indicating frequent vehicular access. A number of potential market gardens can be seen in several areas across the site including the eastern half, and in the north western portion. A large structure is observed within the south western quadrant of the site (Structure 1), approximately 500 m east of The Northern Road. A structure, likely a homestead can be seen west of the Structure 2. Two other small structures (possible storage sheds) are noted approximately 500 m south of the northern site boundary (Structures 3 and 4), and another small shed-like structure (Structure 5) can be seen approximately 150 m south east of Dam 1. Some localised ground disturbance is evident within the north western quadrant of the site, west of Dam 4. Various paths / tracks can be seen traversing the western half of the site.

1978 - Compared to the 1961 aerial, the most notable difference is that there is a large dam/reservoir in the north eastern portion of the site (Dam 13 - present day dam). The dam within the south eastern region (Dam 11) has expanded in size, compared to 1961, and most of the trees have been cleared as a result. Within the north-western part of the site, it also appears that the trees have been cleared. A house and surrounding area (Structure 6) is evident along the northern site boundary, approximately 400 m east of The Northern Road. A new dam is also observed (Dam 12), immediately west of this structure. All other dams observed in the 1961 aerial appear un-changed. Several new tracks are visible across the site, traversing the northern portion of the site while some of the former tracks in the vicinity of Structure 1 can no longer be seen. It appears as though Structure 5 has been demolished.

1984 - Compared to the 1978 aerial, the most notable difference is the presence of the pivot irrigated paddock area (present at the site currently) within the northern portion of the site. A few of the access paths / tracks that were observed within the north eastern portion of the site are no longer visible. Several of the structures associated with Structure 1 (noted in the 1961 aerial) have been demolished. The house located along the northern boundary is evident with a garden area and adjacent structures (likely a garage and shed). One of the small-shed like structures (Structure 4) noted in the 1961 aerial is no longer there, however an additional shed-like structure is now present south east of Dam 4 (Structure 7). Another structure is also visible to the east of Dam 1 (Structure 8). With the exception of further clearance of some of the bush cover, the remainder of the site appears much the same as in the previous aerial.

1994 - No historical aerial photograph was available for the northern-most part of the site. It seems that the boundary of the pivot irrigator has changed and is now larger in size and is consistent with its current size. The large dams in the north eastern and south eastern portions of the site (Dams 11 and 13) appear to have mostly dried out. It is apparent that the southern dam (Dam 11) has been restructured and now covers a larger area compared to the previous aerial photograph. It is noted that Dam 4 is no longer visible, indicating that it may have been backfilled. To the south east of Structure 1 the platform that comprises the present day mulching business is being constructed.

2009 to present - To the west of Dam 11 the current day silage pits (see Section 6) are visible. Some of the structures associated with Structure 1 appear to be demolished. To the south of the site, it is apparent that earthworks / early stages of development are underway for Oran Park Precinct. An additional dam (Dam 14) has been constructed, within the southern portion of the site. The 2015 aerial shows that Dam 9 has been backfilled, and is no longer visible. Current aerial photographs indicate that Structures 2, 3, 6, 7, 8, and part of Structure 1 still remain; all other structures have been demolished.

5.2 Search of EPA register

A search of the NSW EPA website on 1 March 2017 indicated that:

- The site has not been included in the list of NSW contaminated sites notified to EPA;
- No notices or orders made under the Contaminated Land Management (CLM) Act 1997 have been issued for the site or adjacent properties; and
- No licences under Schedule 1 of the Protection of the Environment Operations (POEO) Act, 1997 have been issued for the site or adjacent properties.

5.3 SafeWork NSW Search

A SafeWork NSW record search was conducted on 16 June 2017 to identify past and current storage of hazardous chemicals on premises. A search of the records held by SafeWork indicated that no records exist for the site.

5.4 Section 149 Certificate

The Section 149 (2 and 5) Certificates for the site was obtained on 7 July 2017 from Camden Council. A review of the certificates indicated that there were no listed site contamination matters relating to Section 59 (2) of the Contaminated Land Management Act 1997.

The site is currently zoned as follows:

- RU1 Primary Production (all lots);
- E2 Environmental Conservation and R1 General Residential (Lot 1 D.P. 623190, Part Lot 2, D.P. 1066809, Part Lot C, D.P. 391340 and Lot A, D.P. 420694); and
- E2, R1 and IN1 General Industrial (Part Lot 9070, D.P. 11225752).

6. Site Walkover

A site walkover was conducted by a DP Environmental Scientist on 10, 13 and 20 March 2017. Photographs taken during the walkover are shown in Appendix B. The following observations were noted:

- The site consisted predominantly of rural agricultural land (Photograph 1) which was in use for crop production and cattle grazing and rural residential purposes;
- Part of the large circular field in the north east part of the site was used for crop growing and subject to generator-powered centre-pivot irrigation. The generator was located on a concrete platform (Photograph 2) with some localised staining observed on the platform and a drum and nearby containers of oil observed;
- Three large dams were located along the eastern site boundary (Photograph 3) and several smaller farm dams were located throughout the site. Based on the appearance of the surface of the dam walls, the walls appeared to comprise reworked natural material. No suspected construction, demolition or anthropogenic material was visible on the surface of the dam walls, however given the size of the three larger dams, imported material may have been utilised to construct the dam walls;
- A number of rural residential properties were located throughout the site and were occupied at the time of the walkover (Photograph 4). Suspected bonded asbestos containing materials (ACM) was observed in the exterior structure (eaves and panels) of most of the houses. The interior of the houses was not accessed as part of the walkover;
- Suspected localised filling was observed in a platform located below a house and in mounds located near the centre of the site (Photograph 5);
- Much of the site, including the pivot field and fields in the south west of the site appeared to be partially waterlogged at the time of the walkover. Based on discussions with the site farmer, much of the south west part of the site typically remains waterlogged throughout the year;
- A mulching and topsoil operation was located near the centre of the site which included a dedicated mulching area located on a raised platform (potentially fill). It was not possible to inspect the content of the platform at the time of the walk over. Near to the mulching area were four elongated silage storage areas, the walls of which comprised fill material above natural. Silage was present in one of the storage areas at the time of the walkover, however the silage pits were not in use at the time of reporting. A strong ammonia-like odour was observed in close proximity to the storage area;

- Stockpiles containing primarily sandstone rock (Photograph 6) and some stockpiles of mulch and gravelly clay (likely natural material) were observed in the southernmost part of the site; and
- Several power lines supported by timber power poles were observed throughout the site. Power poles may be treated with wood preservation chemicals, pesticides and herbicides, which may leach into the surrounding soil.

7. Summary of Site Structures and Dams

Table C1 below details structures and dams observed in recent and historical aerial photographs and during the site walkover. The location of each site feature is shown on Drawing C7, attached.

Table C1: Summary of Current and Historical Site Structures

Site Feature	Aerial Photograph Reference (Year First Appeared)	Currently Present (2017)
Dam 1	1947	Yes
Dam 2	1947	Yes
Dam 3	1961	Yes
Dam 4	1961	No
Dam 5	1961	Yes
Dam 6	1961	Yes
Dam 7	1961	Yes
Dam 8	1961	Yes
Dam 9	1961	No
Dam 10	1961	Yes
Dam 11	1961	Yes
Dam 12	1978	Yes
Dam 13	1978	Yes
Dam 14	2009	Yes
Structure 1	1961	No - however house in the northern part still exists
Structure 2	1961	Yes
Structure 3	1961	Yes
Structure 4	1961	No
Structure 5	1961	No
Structure 6	1978	Yes
Structure 7	1984	Yes
Structure 8	1984	Yes

8. Sub-Surface Site Conditions

Intrusive works were completed as part of the geotechnical and salinity investigations (DP, 2017a and b). The test pit logs are provided in Appendix D. The logs should be read in conjunction with the accompanying notes defining classification methods and descriptive terms.

As identified in Section 4.2, the site comprises two distinct soil landscapes with the test pits encountering variable subsurface conditions that were generally consistent with the soil mapping. The general succession of strata is broadly summarised as follows:

- TOPSOIL – silty clay and/or clayey silt encountered in all pits to depths in the range 0.2 m - 0.3 m;
- RESIDUAL – firm to hard silty clay and/or sandy silty clay encountered in Pits 1 - 5, 7, 8 and 11 to depths in the range 0.9 m - 2.3 m;
- ALLUVIAL – firm to hard silty clay and/or sandy silty clay encountered in Pits 6, 9 and 10 to depths in the range 2.3 m - 3.0 m, and to termination depth of 3.0 m in Pit 9; and
- BEDROCK – variably extremely low up to low to medium strength shale first encountered in most pits, except Pit 9, at depths in the range 0.9 m - 2.3 m. Pits 1 - 7 and 11 were terminated upon refusal of the excavator bucket at depths in the range 2.3 m - 2.9 m.

No free groundwater was observed in the pits during excavation for the short time that they were left open with exception of Pit 9. Pit 9 encountered groundwater at a depth 2.9 m. It must be noted, however, that the pits were immediately backfilled following excavation which precluded longer term monitoring of any groundwater levels that might be present. It must also be noted, groundwater levels are affected by factors such as soil permeability and weather conditions (which will vary with time).

9. Potential Areas of Environmental Concern

Based on the findings of the site history search and the site walkover, a total of 17 PAEC were identified for the site (shown in Table C2 below). Each PAEC was logged on a PAEC Identification & Inspection Log (see Appendix E). After taking into consideration the potential risk of each PAEC with respect to the proposed development, certain PAEC were declared Areas of Environmental Concern (AEC).

Table C2: Identified PAEC

Description	PAEC #	Identified From	Outcome
Farm dams - general	1	Historical aerials	Not an AEC
Agricultural land use	N/A	Historical aerials	AEC*
Market gardens	2	Historical aerials - 1961	AEC
Former Structures – Structure 1 (main original structure area no longer present) – possible filling or residual demolition material	3	Historical aerials	AEC
Localised filling – Dam 4 (no longer present) – possible filling	4	Historical aerials / Site Walkover	AEC
Localised filling – house footprint	5	Site Walkover	AEC
Localised filling – suspected fill mounds	6	Site Walkover	AEC
Localised filling – walls in silage area	7	Site Walkover	AEC
Localised filling – mulch area pad	8	Site Walkover	AEC
Localised filling – Dam 9 (no longer present)	9	1961 aerial	AEC
Structure 4 – possible filling or residual demolition material	10	1961 aerial	AEC
Structure 5 – possible filling or residual demolition material	11	1961 aerial	AEC
Ground disturbance	12	Historical aerials - 1961	AEC
Existing structures	13	Historical aerials / Site Walkover	Not an AEC*
Stockpiles	14	Site Walkover	Not an AEC
Power poles	15	Site Walkover	AEC
Mulching area	16	Site Walkover	Not an** AEC
Use of fuel and oil, possible spillages at centre pivot irrigation point	17	Site Walkover	AEC

Notes

* Refer to Section 11 recommendations

** Refer to Appendix E

10. Areas of Environmental Concern

The site history review and site inspection indicated that the site has predominantly been used for agricultural land use. Following review of the identified PAECs, a total of 13 AEC were identified, as listed in Table C3 and shown on Drawing C9, Appendix A.

Table C3: Identified AEC

Description	PAEC #	AEC #	Outcome
Market Gardens	2	1	Limited targeted sampling during DSI ¹
Former Structures – Structure 1	3	2	Targeted sampling during DSI ²
Localised Filling – Dam 4	4	3	
Localised filling – house footprint	5	4	
Localised filling – suspected fill mounds	6	5	
Localised filling – walls in silage area	7	6	
Localised filling – mulch area pad	8	7	
Localised filling – Dam 9 (no longer present)	9	8	
Structure 4	10	9	
Structure 5	11	10	
Ground disturbance	12	11	
Power Poles	15	12	
Use of fuel / oil	17	13	Targeted sampling next to slab only ²

¹: While pesticide use on market gardens can occur, DP experience in similar land use is such impact to sites in the region is rare.

²: Targeted sampling recommended to be carried out during future investigations to inform subdivision of the site.

With respect to the historic use of the site for agricultural land use, low density sampling shall be required in future investigations to inform subdivision of the site which will inform the contamination status of the site with respect to this PAEC. As such, this land use is not considered to be an AEC.

11. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors (linkages). A preliminary CSM provides a framework to identify potential contamination sources and how potential receptors may be exposed to contamination either in the present or the future (i.e. it enables an assessment of the potential source - pathway - receptor linkages).

11.1 Potential Sources

Based on the review of site history information and the site walkover, the identified potential sources, description of sources and COPC at the site have been summarised in Table C4.

Table C4: Potential Contamination Sources and COPC

Potential Source	Description of Potential Source	Contaminants of Potential Concern
Agricultural Land Use (S1)	The majority of the site consists of agricultural land. Various chemicals and pesticides are often applied to the land as part of agricultural practices.	Metals, OCP, OPP
Market Gardens (S2)	Pesticides and herbicides are often applied in market garden areas.	Metals, OCP, OPP
Building Demolition (S3)	Based on the aerial photograph review, some of the structures present previously have since been demolished. Building demolition rubble is often an indicator of the potential presence of asbestos-containing material (ACM), especially if the structures were constructed before the mid-1980's. Hazardous building materials such as lead and PCB may have also been used during construction.	Asbestos, lead, and PCB
Ground Disturbance (S4)	In the 1961 aerial, a possible ground disturbance was noted.	Metals, TRH, BTEX, PAH, OCP, OPP, PCB, phenols, and asbestos
Import of Fill (S5)	The aerial photograph review indicated that several dams had been backfilled over time. Furthermore, during the site walkover, areas of localised fill were observed.	Metals, TRH, BTEX, PAH, OCP, OPP, PCB, phenols, and asbestos
Power Poles (S6)	Power poles were observed across the site, during the walkover. Power poles may be treated with wood preservation chemicals, pesticides and herbicides, which may leach into the surrounding land.	TRH, PAH, Phenols, OCP, OPP, Arsenic
Use of fuels and oils (S7)	The use of fuels and oils was observed for a generator powering a crop irrigation system. Although a slab was in use, there was no bund present and spillages were observed on the surface of the slab. Localised impact to the surrounding soil may have occurred.	TRH, PAH, BTEX, metals.

Notes

Metals - comprising arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn);
 TRH - Total recoverable hydrocarbons;
 BTEX - Benzene, toluene, ethylbenzene and xylene;
 PAH - Polycyclic aromatic hydrocarbons;
 OCP and OPP - Organochlorine and organophosphorous pesticides;
 PCB - Polychlorinated biphenyls;

11.2 Potential Receptors

The following potential human receptors (R) have been identified for the site:

- R1 – Construction and maintenance workers (during site redevelopment);
- R2 – Future site users following development of the site; and
- R3 – Land users in adjacent areas.

The following potential ecological receptors (R) have been identified for the site:

- R4 – Local groundwater;
- R5 – Surface water bodies (on-site farm dams); and
- R6 – Terrestrial ecology.

11.3 Potential Pathways

Potential pathways for contamination include the following:

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

11.4 Summary of Potential Complete Pathways

A 'source – pathway - receptor' approach has been used to assess the potential risks of harm being caused to human or ecological receptors from contamination sources on or in the vicinity of the site, via exposure pathways. The possible exposure pathways between the above sources (S1 to S6) and receptors (R1 to R6) are provided in Table C5 below. Assessment of the preliminary CSM was used to determine data gaps and the requirement for sampling and analysis to assess the suitability of the site for the proposed development.

Table C5: Preliminary Conceptual Site Model

Source	Exposure Pathway	Receptor	Requirement for Additional Data and / or Management
S1: Agricultural Land Use	P1 – Ingestion and dermal contact; P2 – Inhalation of fibres and/or dust and/or vapours	R1 - Construction and maintenance workers. R2 – Future site users	An intrusive investigation is required to quantify and assess possible contamination including chemical testing of soil (and groundwater if deemed necessary).
S2: Market Gardens	P2 – Inhalation of fibres and/or dust and/or vapours	R3 – Land users in adjacent areas.	
S3: Building Demolition			
S4: Ground Disturbance	P3 – Leaching of contaminants and vertical migration into groundwater.	R4 – Local groundwater.	
S5: Import of Fill			
S6: Power Poles	P4 – Surface water run-off.		
S7: Use of fuels and oils	P5 – Lateral migration of groundwater providing baseflow to watercourses.	R5 – Surface water bodies.	
	P6 – Contact with terrestrial ecology.	R6 – Terrestrial ecology.	

12. Discussion

This PSI included a review of site history information and a detailed site walkover. The historical aerial photograph review indicated that the site was predominately used for agricultural land use, with evidence of market gardens activity in the 1961 aerial. Furthermore, the aerial review identified that certain structures present previously were demolished prior to the execution of the site walk over. Considering that the structures were present prior to and during the 1980s, it is considered likely that ACM was used in the construction materials.

Minor areas of suspected filling were observed during the site walkover, however the majority of the site appeared to comprise topsoil underlain by natural material, as indicated by the sub-surface conditions encountered during the geotechnical and salinity investigations (DP, 2017a, and DP, 2017b).

Based on the findings of the PSI, a total of 17 PAEC were identified and considered further with respect to the associated potential risks to receptors associated with the development. Of the 17 PAEC identified, 13 were identified as AEC requiring targeted investigation during future investigations to inform future subdivision for the development of the site.

13. Conclusions and Recommendations

DP concludes that the potential for contamination constraints to the proposed development for the site excluding the AECs is considered to be low. The potential for contamination constraints for identified AECs is considered to be low to medium. DP recommends that a Detailed Site Investigation (DSI) is carried out prior to subdivision. The DSI should include targeted sampling of identified AECs as well as low density sampling over the remaining balance of the site at a typical rate of 1 test pit per hectare. Further assessment of the AEC areas will determine appropriate remediation requirements, if any, to render the site suitable for the proposed development.

A hazardous material survey should be conducted prior to demolition of the existing buildings. Demolition of structures containing hazardous materials should be carried out by a licenced asbestos removal contractor.

13.1 Unexpected Finds

There is the potential that hidden, below ground structures (such as fuel tanks, septic tanks, filled gullies, ACM pipes and ACM fence footings) may be present at the site and this should be considered accordingly during the DSI and subsequently during bulk earthworks for the proposed development. Based on DP's experience on similar sites, below ground ACM features (ACM pipes in particular) are commonly encountered during earthworks and subsequent remediation works can delay site formation and general construction.

An Unexpected Finds Protocol will therefore need to be established for use during earthworks during redevelopment, in order to ensure that due process is carried out in the event of a possible contaminated find.

14. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Pondicherry Lands, Oran Park, NSW in accordance with DP's proposal MAC170014 dated 6 February 2017 and acceptance received from Greenfields Development Company No. 2 Pty Ltd dated 27 February 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Greenfields Development Company No. 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 DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

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

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

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

Douglas Partners Pty Ltd

Appendix A

About This Report

Drawings

About this Report

Douglas Partners



Introduction

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

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

Copyright

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

Borehole and Test Pit Logs

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

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

Groundwater

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

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

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

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

Reports

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

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

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

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

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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



Lot E DP 438723

Lot A DP 420694

Lot B DP 420694

Lot C DP 391340

Lot F DP 420694

Lot 1 DP 623190

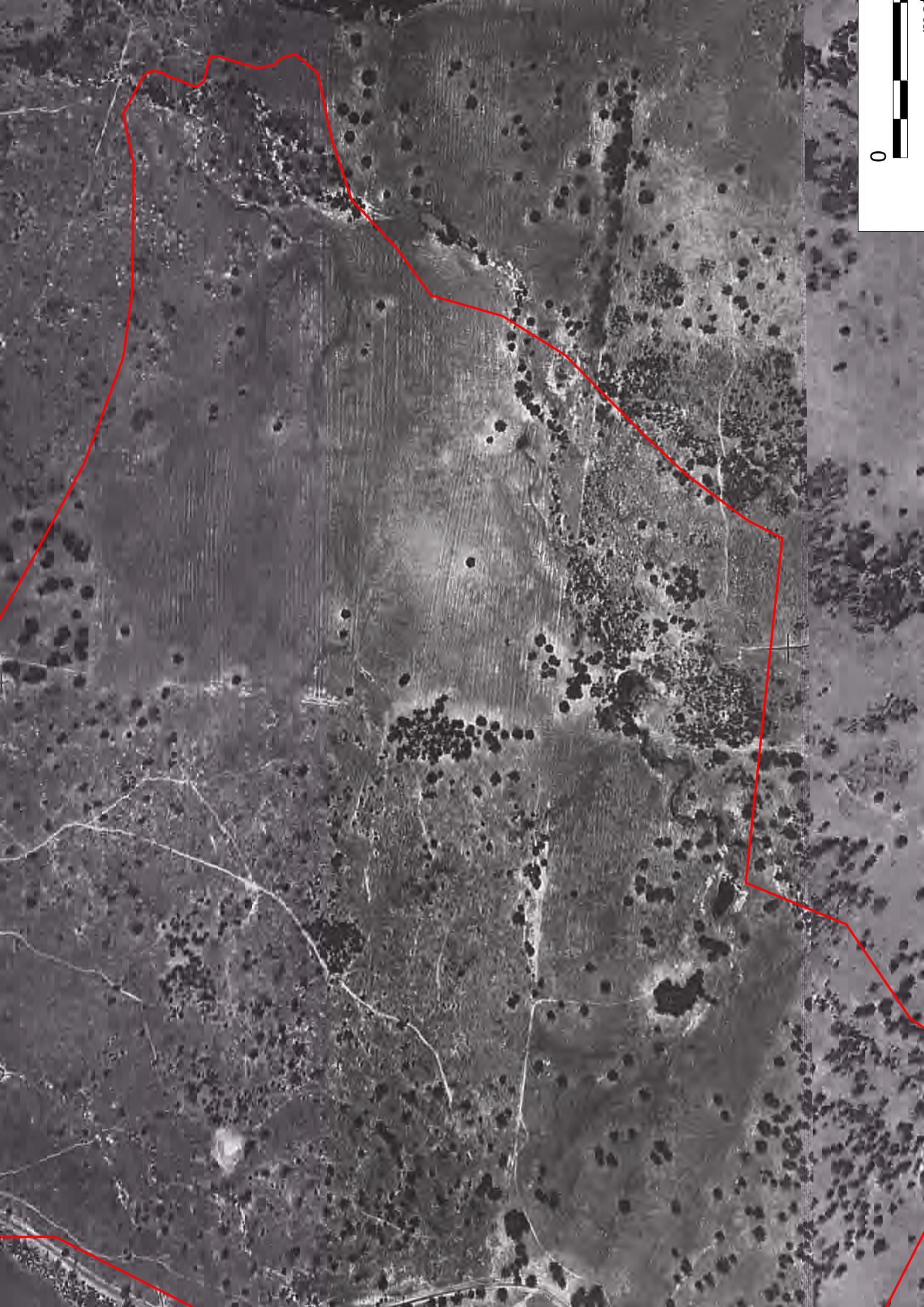
Lot 2 DP 1066809

Lot 9070 DP 1225752

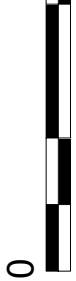
Lot 71 DP 752024



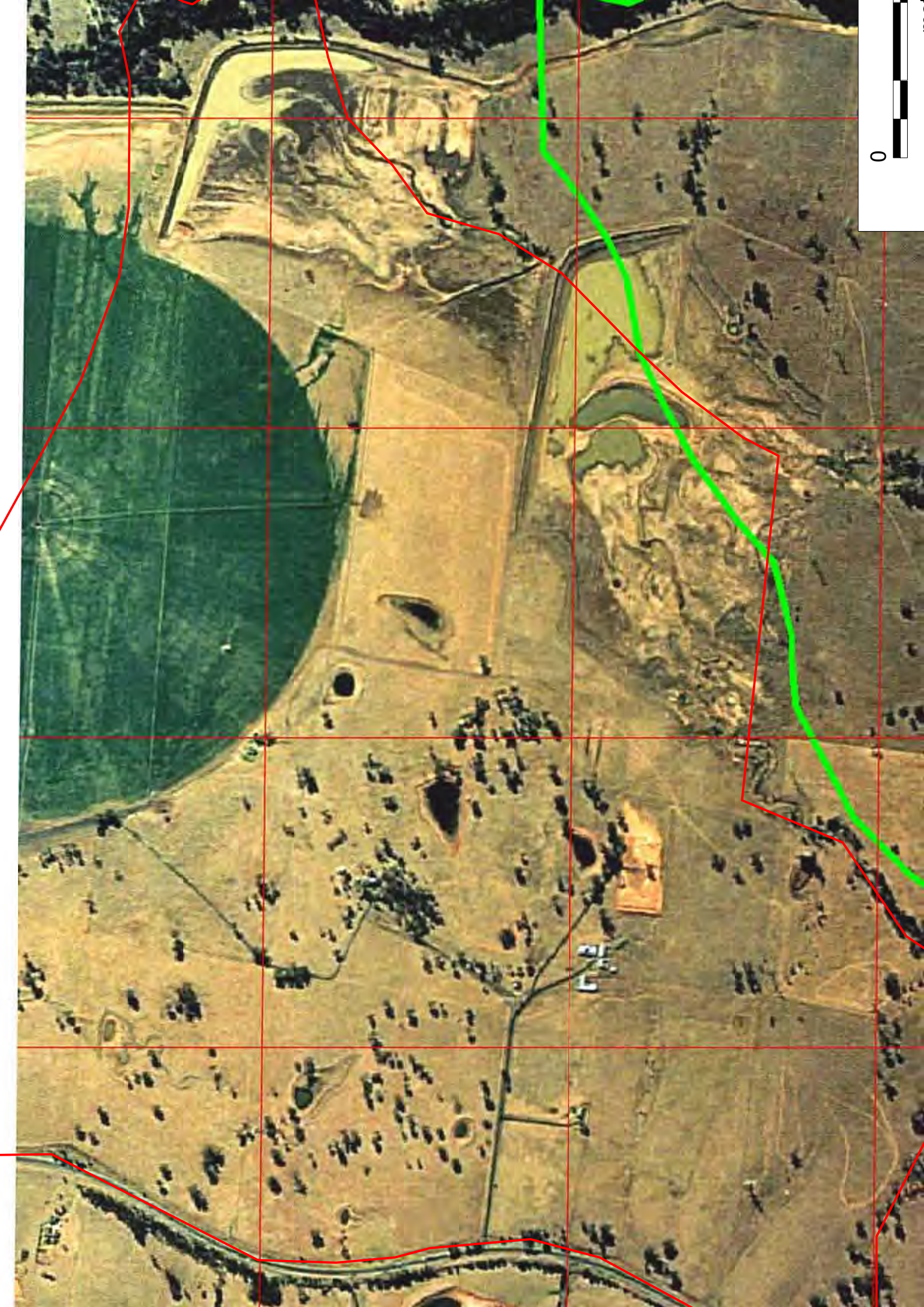
Boundary











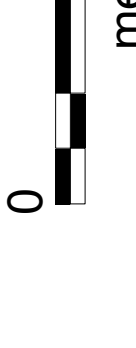
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Boundary



Boundary

Appendix B

Site Photographs



Photo 1 - General site photograph.



Photo 2 - Centre pivot irrigation generator, oil and tank located on concrete platform.



Site Photographs

Preliminary Site Investigation

Pondicherry, Oran Park, NSW

CLIENT: Greenfields Development Company 2 Pty Ltd

PROJ: 76778.30

PLATE: 1

REV: A

DATE: 10.3.2017

Appendix C

Site History Information



SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252

Customer Experience 13 10 50

ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D17/165479
Your Ref: Chamali Nagovithane

23 June 2017

Attention: Chamali Nagovithane
Douglas Partners Pty Ltd
18 Waler Cr
Smeaton grange NSW 2567

Dear Ms Nagovithane

**RE SITE: Lot E DP 438723 Lot A B & F of DP420694 Lot 1 DP 623190 Lot 2 DP 1066809 Oran Park
NSW**

I refer to your site search request received by SafeWork NSW on 16 June 2017 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW



Camden Council
70 Connor Avenue, Camden NSW 2570
PO Box 163, Camden 2570
Telephone: 02 9661 7777
Email: info@camden.nsw.gov.au
Fax: 02 9661 7881
Web: www.camden.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173505
Receipt number: 1638362
Property number: 1173234
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: 9070 DP: 1225752
Property: 600C The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.



1 Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)



Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Housekeeping Amendments)

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Housing Code) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Medium Density Housing Code) 2016

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Oran Park Development Control Plan 2007, as amended

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**



2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D



D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

A. E2 ENVIRONMENTAL CONSERVATION

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- * To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

B. Permitted

Nil.

C. Permitted without consent

Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads; Sewage reticulation systems; Water recycling facilities; Water supply systems; Waterbodies (natural).

D. Prohibited

Any development not specified in item B or C.

A. IN1 GENERAL INDUSTRIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide a wide range of industrial and warehouse land uses.
- * To encourage employment opportunities and to support the viability of centres.
- * To minimise any adverse effect of industry on other land uses.
- * To enable development for the purpose of commercial offices only where it is associated with, and ancillary to, another permissible use on the same land.



- * To enable development for the purpose of retail premises only where it serves convenience needs, or where the goods or materials sold are of a type and nature consistent with construction and maintenance of buildings.

B. Permitted without consent

Any other development not otherwise specified in item B or D.

D. Prohibited

Agriculture; Airports; Airstrips; Attached dwellings; Bio-solid waste applications; Boarding houses; Bulky goods premises; Business premises; Caravan parks; Cemeteries; Community facilities; Correctional centres; Dairies (pasture-based); Dual occupancies; Dwelling houses; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Function centres; Group homes; Hazardous industries; Hazardous storage establishments; Health consulting rooms; Heavy industries; Heliports; Home-based child care; Home businesses; Home industries; Home occupations; Home occupations (sex services); Hospitals; Hostels; Information and education facilities; Mines; Multi dwelling housing; Offensive industries; Offensive storage establishments; Office premises; Public administration buildings; Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential care facilities; Residential flat buildings; Restriction facilities; Retail premises (other than neighbourhood shops and take away food and drink premises); Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Stock and sale yards; Tourist and visitor accommodation; Waste disposal land fill operations

A. R1 GENERAL RESIDENTIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide for the housing needs of the community.
- * To provide for a variety of housing types and densities.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community, including educational, recreational, community, religious and other activities and, where appropriate, neighbourhood shops if there will be no adverse effect on the amenity of proposed or existing nearby residential development.
- * To allow for small scale kiosks, function centres, restaurants and markets that support the primary function and use of recreation areas, public open space and recreation facilities located within residential areas.
- * To allow for small scale intensity tourist and visitor accommodation that does not interfere with residential amenity.
- * To provide for a variety of recreational uses within open space areas.

B. Permitted without consent



Nil

C. Permitted with consent

Any other development not specified in item B or D

D. Prohibited

Agriculture; Airports; Airstrips; Bio-solid waste applications; Bulky goods premises; Business premises; Car parks; Cemeteries; Correctional centres; Crematoria; Dairies (pasture-based); Depots; Entertainment facilities; Extractive industries; Farm buildings; Freight transport facilities; Function centres (other than those within recreation areas or operated in conjunction with recreation areas or recreation facilities); Hazardous storage establishments; Helipads; Heliports; Home occupations (sex services); Industrial retail outlets; Industries; Landscape and garden supplies; Liquid fuel depots; Manor homes; Materials recycling or recovery centres; Mines; Mortuaries; Offensive storage establishments; Office premises; Passenger transport facilities; Public administration buildings; Registered clubs; Retail premises (other than neighbourhood shops and other than kiosks, markets, restaurants or take away food and drink premises within recreation areas or operated in conjunction with recreation areas or recreation facilities); Restricted premises; Restriction facilities; Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Service stations; Sewage treatment works; Sex services premises; Stock and sale yards; Storage premises; Timber and building supplies; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal land fill operations; Waste management facilities; Wholesale supplies.

E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

R1 General Residential: Clause 4.1A of Oran Park and Turner Road Precinct Plan fixes a minimum 300m² for the erection of a dwelling house; however exceptions apply in circumstances as specified under clauses 4.1AC and 4.1AD for land dimensions of minimum 250m² and minimum 225m².

F. Whether the land includes or comprises critical habitat

No.

G. Whether the land is in a conservation area (however described)

No.

H. Whether an item of environmental heritage (however described) is situated on the land.

No



3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.



Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable

4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.



6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

No.

Note: Contact the Roads and Maritime Authority regarding any potential road widening or realignment in relation to the upgrade of the Northern Road. For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.



Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.



9 Contributions plans

The name of each contributions plan applying to the land

Oran Park and Turner Road Section 94 Contributions Plan and Land Value Index.

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at <http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local



Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:



- (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.
- No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.



19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
(c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,
No.
- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,
No.
- (c) that the land to which the certificate relates is the subject of an approved voluntary management



proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of



Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.



DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

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DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173515
Receipt number: 1638362
Property number: 1150803
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: C DP: 391340
Property: 644 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.



www.camden.nsw.gov.au



1 Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Housekeeping Amendments)

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Housing Code) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Medium Density Housing Code) 2016

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Oran Park Development Control Plan 2007, as amended

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**





2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D





D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

A. E2 ENVIRONMENTAL CONSERVATION

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- * To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

B. Permitted

Nil.

C. Permitted without consent

Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads; Sewage reticulation systems; Water recycling facilities; Water supply systems; Waterbodies (natural).

D. Prohibited

Any development not specified in item B or C.

A. R1 GENERAL RESIDENTIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide for the housing needs of the community.
- * To provide for a variety of housing types and densities.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community, including educational, recreational, community, religious and other activities and, where appropriate, neighbourhood shops if there will be no





adverse effect on the amenity of proposed or existing nearby residential development.

- * To allow for small scale kiosks, function centres, restaurants and markets that support the primary function and use of recreation areas, public open space and recreation facilities located within residential areas.
- * To allow for small scale intensity tourist and visitor accommodation that does not interfere with residential amenity.
- * To provide for a variety of recreational uses within open space areas.

B. Permitted without consent

Nil

C. Permitted with consent

Any other development not specified in item B or D

D. Prohibited

Agriculture; Airports; Airstrips; Bio-solid waste applications; Bulky goods premises; Business premises; Car parks; Cemeteries; Correctional centres; Crematoria; Dairies (pasture-based); Depots; Entertainment facilities; Extractive industries; Farm buildings; Freight transport facilities; Function centres (other than those within recreation areas or operated in conjunction with recreation areas or recreation facilities); Hazardous storage establishments; Helipads; Heliports; Home occupations (sex services); Industrial retail outlets; Industries; Landscape and garden supplies; Liquid fuel depots; Manor homes; Materials recycling or recovery centres; Mines; Mortuaries; Offensive storage establishments; Office premises; Passenger transport facilities; Public administration buildings; Registered clubs; Retail premises (other than neighbourhood shops and other than kiosks, markets, restaurants or take away food and drink premises within recreation areas or operated in conjunction with recreation areas or recreation facilities); Restricted premises; Restriction facilities; Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Service stations; Sewage treatment works; Sex services premises; Stock and sale yards; Storage premises; Timber and building supplies; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal land fill operations; Waste management facilities; Wholesale supplies.

E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

R1 General Residential: Clause 4.1A of Oran Park and Turner Road Precinct Plan fixes a minimum 300m² for the erection of a dwelling house; however exceptions apply in circumstances as specified under clauses 4.1AC and 4.1AD for land dimensions of minimum 250m² and minimum 225m².





- F. Whether the land includes or comprises critical habitat**
No.
- G. Whether the land is in a conservation area (however described)**
No.
- H. Whether an item of environmental heritage (however described) is situated on the land.**
No
-

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General





Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable

4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable



5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

No.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation





The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition





Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Oran Park and Turner Road Section 94 Contributions Plan and Land Value Index.

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at <http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land





If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing



If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.





No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and

- (c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,





No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.





2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

In relation to Council's Policy on Contaminated Lands the following report may be relevant:

- Report on Detailed Site Investigation: Part Tranches 25, 26 and 27 Oran Park NSW, Prepared by Douglas Partners, Project No 76618.15, Dated August 2014.

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council
70 Central Avenue, Oran Park NSW 2570 DX 25807
PO Box 183, Camden 2570 ABN: 31 117 341 764
Telephone: 02 4654 7777 Fax: 02 4654 7829
Email: mail@camden.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173508
Receipt number: 1638362
Property number: 107540
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: F DP: 420694
Property: 680 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.





1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.





Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D

D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies





E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

F. Whether the land includes or comprises critical habitat

No.

G. Whether the land is in a conservation area (however described)

No.

H. Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and





Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable





4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority.
For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
 - (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,
- that restricts the development of the land because of the likelihood of land slip, bushfire, tidal





inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to**





flood related development controls.

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**
-

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at

<http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species*





Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision





of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if





there is a certificate, the statement is to include:

- (a) the period for which the certificate is current, and
- (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
- (c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.





Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment





and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager



**Camden Council**

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

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DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173513
Receipt number: 1638362
Property number: 115542
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: 71 DP: 752024
Property: 650 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.





1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Development Control Plan 2011, as amended.

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.





Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D

D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies





E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

F. Whether the land includes or comprises critical habitat

No.

G. Whether the land is in a conservation area (however described)

No.

H. Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and





Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable





4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority.
For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).





Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to**





flood related development controls.

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**
-

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at

<http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>





10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is shown to be bushfire prone land in Council's records.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A





If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental





housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is current, and
- (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
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No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.





Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

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No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

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- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

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- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

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OTHER INFORMATION

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4 Miscellaneous Information

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.





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1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
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Ron Moore
General Manager





Camden Council
70 Central Avenue, Oran Park NSW 2570 DX 25807
PO Box 183, Camden 2570 ABN: 31 117 341 764
Telephone: 02 4654 7777 Fax: 02 4654 7829
Email: mail@camden.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173511
Receipt number: 1638362
Property number: 115628
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: 2 DP: 1066809
Property: 628 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.



www.camden.nsw.gov.au



1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Housekeeping Amendments)

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State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Oran Park Development Control Plan 2007, as amended

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**





2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D





D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

A. E2 ENVIRONMENTAL CONSERVATION

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- * To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

B. Permitted

Nil.

C. Permitted without consent

Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads; Sewage reticulation systems; Water recycling facilities; Water supply systems; Waterbodies (natural).

D. Prohibited

Any development not specified in item B or C.

A. R1 GENERAL RESIDENTIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide for the housing needs of the community.
- * To provide for a variety of housing types and densities.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community, including educational, recreational, community, religious and other activities and, where appropriate, neighbourhood shops if there will be no





adverse effect on the amenity of proposed or existing nearby residential development.

- * To allow for small scale kiosks, function centres, restaurants and markets that support the primary function and use of recreation areas, public open space and recreation facilities located within residential areas.
- * To allow for small scale intensity tourist and visitor accommodation that does not interfere with residential amenity.
- * To provide for a variety of recreational uses within open space areas.

B. Permitted without consent

Nil

C. Permitted with consent

Any other development not specified in item B or D

D. Prohibited

Agriculture; Airports; Airstrips; Bio-solid waste applications; Bulky goods premises; Business premises; Car parks; Cemeteries; Correctional centres; Crematoria; Dairies (pasture-based); Depots; Entertainment facilities; Extractive industries; Farm buildings; Freight transport facilities; Function centres (other than those within recreation areas or operated in conjunction with recreation areas or recreation facilities); Hazardous storage establishments; Helipads; Heliports; Home occupations (sex services); Industrial retail outlets; Industries; Landscape and garden supplies; Liquid fuel depots; Manor homes; Materials recycling or recovery centres; Mines; Mortuaries; Offensive storage establishments; Office premises; Passenger transport facilities; Public administration buildings; Registered clubs; Retail premises (other than neighbourhood shops and other than kiosks, markets, restaurants or take away food and drink premises within recreation areas or operated in conjunction with recreation areas or recreation facilities); Restricted premises; Restriction facilities; Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Service stations; Sewage treatment works; Sex services premises; Stock and sale yards; Storage premises; Timber and building supplies; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal land fill operations; Waste management facilities; Wholesale supplies.

E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

R1 General Residential: Clause 4.1A of Oran Park and Turner Road Precinct Plan fixes a minimum 300m² for the erection of a dwelling house; however exceptions apply in circumstances as specified under clauses 4.1AC and 4.1AD for land dimensions of minimum 250m² and minimum 225m².





- F. Whether the land includes or comprises critical habitat**
No.
- G. Whether the land is in a conservation area (however described)**
No.
- H. Whether an item of environmental heritage (however described) is situated on the land.**
No
-

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General





Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable

4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable



5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority. For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.





Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**





8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Oran Park and Turner Road Section 94 Contributions Plan and Land Value Index.

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at <http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.





11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.



15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State*





Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and

- (c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate





- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,
- No.
- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,
- No.
- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,
- No.
- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,
- No.
- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.
- No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).





Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

In relation to Council's Policy on the Management of Contaminated Lands the following report may be relevant:

- Report on Detailed Site Investigation: Part Tranches 25, 26 and 27 Oran Park NSW, Prepared by Douglas Partners, Project No 76618.15, Dated August 2014.

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council
70 Central Avenue, Oran Park NSW 2570 DX 25807
PO Box 183, Camden 2570 ABN: 31 117 341 764
Telephone: 02 4654 7777 Fax: 02 4654 7829
Email: mail@camden.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173510
Receipt number: 1638362
Property number: 108187
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: 1 DP: 623190
Property: 640 The Northern Road ORAN PARK 2570

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Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

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Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

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- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Oran Park Development Control Plan 2007, as amended

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**





2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D





D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

A. E2 ENVIRONMENTAL CONSERVATION

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- * To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

B. Permitted

Nil.

C. Permitted without consent

Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads; Sewage reticulation systems; Water recycling facilities; Water supply systems; Waterbodies (natural).

D. Prohibited

Any development not specified in item B or C.

A. R1 GENERAL RESIDENTIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide for the housing needs of the community.
- * To provide for a variety of housing types and densities.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community, including educational, recreational, community, religious and other activities and, where appropriate, neighbourhood shops if there will be no





adverse effect on the amenity of proposed or existing nearby residential development.

- * To allow for small scale kiosks, function centres, restaurants and markets that support the primary function and use of recreation areas, public open space and recreation facilities located within residential areas.
- * To allow for small scale intensity tourist and visitor accommodation that does not interfere with residential amenity.
- * To provide for a variety of recreational uses within open space areas.

B. Permitted without consent

Nil

C. Permitted with consent

Any other development not specified in item B or D

D. Prohibited

Agriculture; Airports; Airstrips; Bio-solid waste applications; Bulky goods premises; Business premises; Car parks; Cemeteries; Correctional centres; Crematoria; Dairies (pasture-based); Depots; Entertainment facilities; Extractive industries; Farm buildings; Freight transport facilities; Function centres (other than those within recreation areas or operated in conjunction with recreation areas or recreation facilities); Hazardous storage establishments; Helipads; Heliports; Home occupations (sex services); Industrial retail outlets; Industries; Landscape and garden supplies; Liquid fuel depots; Manor homes; Materials recycling or recovery centres; Mines; Mortuaries; Offensive storage establishments; Office premises; Passenger transport facilities; Public administration buildings; Registered clubs; Retail premises (other than neighbourhood shops and other than kiosks, markets, restaurants or take away food and drink premises within recreation areas or operated in conjunction with recreation areas or recreation facilities); Restricted premises; Restriction facilities; Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Service stations; Sewage treatment works; Sex services premises; Stock and sale yards; Storage premises; Timber and building supplies; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal land fill operations; Waste management facilities; Wholesale supplies.

E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

R1 General Residential: Clause 4.1A of Oran Park and Turner Road Precinct Plan fixes a minimum 300m² for the erection of a dwelling house; however exceptions apply in circumstances as specified under clauses 4.1AC and 4.1AD for land dimensions of minimum 250m² and minimum 225m².





- F. Whether the land includes or comprises critical habitat**
- No.
- G. Whether the land is in a conservation area (however described)**
- No.
- H. Whether an item of environmental heritage (however described) is situated on the land.**
- No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General





Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable

4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable



5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority. For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.





Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition





Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Oran Park and Turner Road Section 94 Contributions Plan and Land Value Index.

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at <http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.





11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is shown to be bushfire prone land in Council's records.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing





If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.





18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
(c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,





No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.





2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

In relation to Council's Policy on the Management of Contaminated Lands the following report may be relevant:

- Report on Detailed Site Investigation: Part Tranches 25, 26 and 27 Oran Park NSW, Prepared by Douglas Partners, Project No 76618.15, Dated August 2014.

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

Email: mail@camden.nsw.gov.au

DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173509
Receipt number: 1638362
Property number: 108200
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: B DP: 420694
Property: 682 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.





1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.





Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D

D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies





E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

F. Whether the land includes or comprises critical habitat

No.

G. Whether the land is in a conservation area (however described)

No.

H. Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and





Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable





4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

No.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).





Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**





Yes.

- (3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.
-

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at

<http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been





notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is shown to be bushfire prone land in Council's records.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.





No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and





- (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
- (c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.





Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport





Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council
70 Central Avenue, Oran Park NSW 2570 DX 25807
PO Box 183, Camden 2570 ABN: 31 117 341 764
Telephone: 02 4654 7777 Fax: 02 4654 7829
Email: mail@camden.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173507
Receipt number: 1638362
Property number: 108186
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: A DP: 420694
Property: 730 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.



www.camden.nsw.gov.au



1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Housekeeping Amendments)

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Housing Code) 2016

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Proposed Medium Density Housing Code) 2016

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Oran Park Development Control Plan 2007, as amended

Camden Development Control Plan 2011, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**





2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D





D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

A. E2 ENVIRONMENTAL CONSERVATION

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- * To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

B. Permitted

Nil.

C. Permitted without consent

Drainage; Earthworks; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads; Sewage reticulation systems; Water recycling facilities; Water supply systems; Waterbodies (natural).

D. Prohibited

Any development not specified in item B or C.

A. R1 GENERAL RESIDENTIAL

ORAN PARK AND TURNER ROAD PRECINCT PLAN

Objectives of zone:

- * To provide for the housing needs of the community.
- * To provide for a variety of housing types and densities.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community, including educational, recreational, community, religious and other activities and, where appropriate, neighbourhood shops if there will be no





adverse effect on the amenity of proposed or existing nearby residential development.

- * To allow for small scale kiosks, function centres, restaurants and markets that support the primary function and use of recreation areas, public open space and recreation facilities located within residential areas.
- * To allow for small scale intensity tourist and visitor accommodation that does not interfere with residential amenity.
- * To provide for a variety of recreational uses within open space areas.

B. Permitted without consent

Nil

C. Permitted with consent

Any other development not specified in item B or D

D. Prohibited

Agriculture; Airports; Airstrips; Bio-solid waste applications; Bulky goods premises; Business premises; Car parks; Cemeteries; Correctional centres; Crematoria; Dairies (pasture-based); Depots; Entertainment facilities; Extractive industries; Farm buildings; Freight transport facilities; Function centres (other than those within recreation areas or operated in conjunction with recreation areas or recreation facilities); Hazardous storage establishments; Helipads; Heliports; Home occupations (sex services); Industrial retail outlets; Industries; Landscape and garden supplies; Liquid fuel depots; Manor homes; Materials recycling or recovery centres; Mines; Mortuaries; Offensive storage establishments; Office premises; Passenger transport facilities; Public administration buildings; Registered clubs; Retail premises (other than neighbourhood shops and other than kiosks, markets, restaurants or take away food and drink premises within recreation areas or operated in conjunction with recreation areas or recreation facilities); Restricted premises; Restriction facilities; Roadside stalls; Rural industries; Rural workers' dwellings; Sawmill or log processing works; Service stations; Sewage treatment works; Sex services premises; Stock and sale yards; Storage premises; Timber and building supplies; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal land fill operations; Waste management facilities; Wholesale supplies.

E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

R1 General Residential: Clause 4.1A of Oran Park and Turner Road Precinct Plan fixes a minimum 300m² for the erection of a dwelling house; however exceptions apply in circumstances as specified under clauses 4.1AC and 4.1AD for land dimensions of minimum 250m² and minimum 225m².





- F. Whether the land includes or comprises critical habitat**
No.
- G. Whether the land is in a conservation area (however described)**
No.
- H. Whether an item of environmental heritage (however described) is situated on the land.**
No
-

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General





Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable

4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable





5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority. For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.



Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition





Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Oran Park and Turner Road Section 94 Contributions Plan and Land Value Index.

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at
<http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.





11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.



15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (a) the period for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.





No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
(c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the





date when the certificate is issued,

No.

- (b) **that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,**

No.

- (c) **that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,**

No.

- (d) **that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,**

No.

- (e) **that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.**

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.

On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at





www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager





Camden Council

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

Email: mail@camden.nsw.gov.au

DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Douglas Partners Pty Ltd
18 Waler Cres
SMEATON GRANGE NSW 2567

Certificate number: 20173506
Receipt number: 1638362
Property number: 108203
Certificate date: 07/07/2017
Certificate fee: \$133.00
Applicant's reference:

DESCRIPTION OF PROPERTY

Title: LOT: E DP: 438723
Property: 772 The Northern Road ORAN PARK 2570

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.





1 Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

Camden Local Environmental Plan 2010.

State Environmental Planning Policies (SEPP's)

SEPP (Sydney Region Growth Centres) 2006

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Miscellaneous Consent Provisions) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP No 19 - Bushland In Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 33 - Hazardous and Offensive Development

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation Of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)





Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

Draft Camden Local Environmental Plan - Amendment 40 (Minor Amendments)

Draft State Environmental Planning Policy (SEPP's)

State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Recycling Equipment as Exempt Development) 2017

State Environmental Planning Policy (Vegetation) 2017

State Environmental Planning Policy No.64 (Advertising and Signage) Amendment (Outdoor Advertising) 2017

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Development Control Plan 2011, as amended.

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.





Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. RU1 PRIMARY PRODUCTION

CAMDEN LOCAL ENVIRONMENTAL PLAN 2010

Objectives of zone:

- * To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- * To encourage diversity in primary industry enterprises and systems appropriate for the area.
- * To minimise the fragmentation and alienation of resource lands.
- * To minimise conflict between land uses within the zone and land uses within adjoining zones.
- * To permit non-agricultural uses which support the primary production purposes of the zone.
- * To maintain the rural landscape character of the land.

B. Permitted without consent

Extensive agriculture; Forestry; Home occupations.

C. Permitted with consent

Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Dwelling houses; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Garden centres; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Open cut mining; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Secondary dwellings; Any other development not specified in item B or D

D. Prohibited

Amusement centres; Car parks; Commercial premises; Correctional centres; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Residential accommodation; Restricted premises; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies





E. Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed

RU1 Primary Production.

Under clause 4.2A of Camden Local Environmental Plan 2010 a minimum lot size applies for the erection of a dwelling house as specified by the Lot Size Maps in Camden Local Environmental Plan 2010, subject to the exceptions as set out in clauses 4.2A(3) and 4.2(4).

F. Whether the land includes or comprises critical habitat

No.

G. Whether the land is in a conservation area (however described)

No.

H. Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Housing Code.

Rural Housing Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and





Complying Development Codes) 2008, Complying Development may be carried out under the Rural Housing Code.

Housing Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Housing Alterations Code.

General Development Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the General Development Code.

Subdivision Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Subdivisions Code.

Demolition Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Demolition Code.

Commercial and Industrial Alterations Code

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial Alterations Code.

Commercial and Industrial New Buildings and Additions

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Commercial and Industrial (New Buildings and Additions) Code.

Fire Safety

Subject to the satisfaction of the relevant criteria in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, Complying Development may be carried out under the Fire Safety Code.

Note: This certificate only addresses matters raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008 (The Codes SEPP). It is your responsibility to ensure that you comply with any other requirements of the Codes SEPP where complying development may be carried out, including requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable





4A Certain information relating to beaches and coasts

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land may be affected by potential road widening or realignment by Roads and Maritime Authority.
For further information refer to: <http://www.rms.nsw.gov.au/projects/sydney-west/>

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).





Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**





Yes.

- (3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.
-

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Contributions Plan 2011.

9A Bio-diversity certified land

If the land is bio-diversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*, a statement to that effect.

The land is not biodiversity certified within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centres State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995. Further information is available at

<http://growthcentres.planning.nsw.gov.au/Environment/BiodiversityCertification.aspx>

10 Bio-banking agreements

If the land is land to which a bio-banking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates, a statement to that effect (but only if the council has been





notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

Council has been supplied by the NSW Rural Fire Service with a Bush Fire Prone Land Map for the purposes of a bush fire risk management plan applying to the land within the Camden Local Government Area. Based on that map, it appears the land referred to in this certificate is partially bushfire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a





stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

- (a) a statement of whether there is a current site compatibility certificate (seniors housing), or which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:
 - (i) that period for which the certificate is current, and
 - (ii) that a copy may be obtained from the head office of the Department and,
- (b) a statement setting out any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007, in respect of the land.

No.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:





- (a) the period for which the certificate is current, and
- (b) that a copy may be obtained from the head office of the Department.
- (2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No.

18 Paper subdivision information

Not Applicable.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of [State Environmental Planning Policy \(Mining, Petroleum Production and Extractive Industries\) 2007](#).

- (b) the date on which the certificate ceases to be current (if any), and
- (c) that a copy may be obtained from the head office of the Department.

No, there is no current site verification certificate, of which council is aware in respect of the land.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.





Note. The following matters are prescribed by section 59 (2) of the [Contaminated Land Management Act 1997](#) as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

- (b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.

- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT:

OTHER INFORMATION

1 Western Sydney Airport - Badgerys Creek

On 15 April 2014 the Federal Government confirmed that the site of Western Sydney's new airport will be Badgerys Creek. A draft Environmental Impact Statement (EIS) and draft Airport Plan were on public exhibition from 19 October to 18 December 2015.

On 15 September 2016 the final EIS was presented to the Commonwealth Minister for the Environment and Energy. On 11 November the Minister provided a notice of environmental conditions to be placed on the airport development.





On 12 December 2016 the Minister for Urban Infrastructure determined the Western Sydney Airport Plan. This determination provides the authorisation to allow the construction and operation of stage 1 of the proposed airport (a single runway facility expected to be operational in the mid-2020s).

Further information on Western Sydney airport is available at www.westernsydneyairport.gov.au, or from the Commonwealth Department of Infrastructure and Regional Development at www.infrastructure.gov.au.

2 Tree Preservation Order

The subject land is affected by provisions of Clause 5.9 of the relevant environmental planning instrument/s that applies to the carrying out of development of the land, in regard to the protection of trees. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully damage or destroy any living tree on this property, except with the consent of Council. Where clearing provisions apply, clearing of vegetation (including native vegetation) may not be carried out except with the consent of Council.

3 South West Rail Link extension corridor

In June 2015, Transport for NSW announced the South West Rail Link Extension Corridor Preservation and Outer Sydney Orbital Corridor Preservation Study which may affect land in the Camden Local Government Area. For further information, contact Transport for NSW, www.transport.nsw.gov.au or phone 1800 837 511.

4 Miscellaneous Information

Additional Flooding Information:

The subject land is affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

Coal Seam Gas Extraction:

Coal Seam Gas Extraction takes place within the Camden Local Government Area. Enquiries may be made to AGL Gas Production (Camden) Pty Limited, or the relevant the licence holder, as to the location of gas wells. In February 2016 AGL announced that it will cease production at the Camden Gas Project in 2023, and that the wells will be progressively decommissioned and the sites rehabilitated.

Western Sydney Airport - Obstacle Limitation Surface:

The land is within the Obstacle Limitation Surface (OLS) to be established within a radius of approximately 15km of Western Sydney Airport, with potential height or development limitations to protect airport airspace.

Further information, including the height of the OLS at any point around the airport, is available on Western Sydney Airport website: www.westernsydneyairport.gov.au.





DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate**.

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager



Appendix D

Test Pit Logs

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.6 mAHD
EASTING: 290877
NORTHING: 6238063

PIT No: 1
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
	0.3	SILTY CLAY - firm to stiff, grey mottled red silty clay with a trace of ironstone gravel, MC~PL		D	0.5		pp = 300-400					
		- becoming MC>PL below 0.9m		D	1.0		pp = 200-300					
	1.5	SHALE - extremely low strength, extremely weathered, grey shale with iron induration		D	1.5							
				U ₅₀	1.8							
	2.0			D/B	2.0							
		- becoming very low strength, highly weathered below 2.5m		D	2.5							
	2.8	Pit discontinued at 2.8m - refusal on low to medium strength shale										

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.4 mAHD
EASTING: 291021
NORTHING: 6237851

PIT No: 2
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 100.4 mAHD
EASTING: 290712
NORTHING: 6237180

PIT No: 3
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 96.4 mAHD
EASTING: 290947
NORTHING: 6236825

PIT No: 4
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
	0.3	SILTY CLAY - stiff, red silty clay, MC>PL		D/B	0.5		pp = 150-250					
	1	- becoming red mottled grey and light brown, MC~PL below 0.9m		D	1.0		pp = 150-300					
	1.4	SHALE - very low strength, highly weathered, grey sandy shale with iron induration and extremely low strength, extremely weathered bands		D	1.5							
				U ₅₀	1.9							
	2			D	2.0							
	2.5	Pit discontinued at 2.5m - refusal on low to medium strength shale		D	2.5							
	3											
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 110.7 mAHD
EASTING: 290636
NORTHING: 6236839

PIT No: 5
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - red silty clay with a trace of rootlets										
	0.2	SILTY CLAY - stiff to very stiff, red mottled grey silty clay with iron induration, MC<PL		U ₅₀	0.2							
				D/B	0.5							
					0.6							
110												
	0.9	SHALE - very low strength, highly weathered, grey shale with iron induration and extremely low strength, extremely weathered bands from 0.9 - 2.2m		D	1.0							
1												
				D	1.5							
109												
				D	2.0							
2												
				D	2.5							
108												
	2.9	Pit discontinued at 2.9m - refusal on low to medium strength shale										
3												
107												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U ₁	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 87.8 mAHD
EASTING: 291162
NORTHING: 6236631

PIT No: 6
PROJECT No: 76778.29
DATE: 11/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown clayey silt with a trace of rootlets										
	0.3	SANDY SILTY CLAY - stiff, red mottled grey and light brown silty clay with iron induration, MC~PL		D	0.5		pp = 250-350					
		- becoming grey mottled red and light brown below 0.8m										
	1			D	1.0		pp = 200-300					
		- becoming hard, grey with iron induration, MC<PL below 1.4m										
				U ₅₀	1.4							
				D	1.5		pp >600					
		- with very low strength, highly weathered shale bands below 1.9m										
	2			D	2.0		pp >600					
		SHALE - very low strength, highly weathered, grey sandy shale with iron induration and extremely low strength, extremely weathered bands		D/B	2.5							
	2.8	Pit discontinued at 2.8m - refusal on low to medium strength shale										
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 95.7 mAHD
EASTING: 291505
NORTHING: 6237485

PIT No: 7
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
	0.3	SILTY CLAY - firm to stiff, red mottled grey and dark grey silty clay with some ironstone gravel and a trace of rootlets, MC~PL		D	0.5		pp = 380-500					
		- becoming very stiff to hard, MC~PL below 0.7m		D	1.0		pp = 200-300					
	1.1	SHALE - very low strength, highly weathered, grey shale with iron induration and extremely low strength, extremely weathered bands		U ₅₀	1.4							
				D	1.5							
	2			D	2.0							
	2.6	Pit discontinued at 2.6m - refusal on low to medium strength shale		D/B	2.5							
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 88.3 mAHD
EASTING: 291554
NORTHING: 6237275

PIT No: 8
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with a trace of rootlets										
88	0.3	SILTY CLAY - stiff, red mottled brown silty clay with a trace of ironstone gravel, MC>PL		D	0.5		pp = 300-400					
		- becoming red mottled grey below 0.7m										
1				D	1.0		pp = 200-300	1				
		- becoming grey mottled red and light brown with iron induration, MC<PL below 1.3m		U ₅₀	1.4							
				D/B	1.5		pp >600					
1.8		SHALE - extremely low strength, extremely weathered, grey shale with iron induration and very low strength, highly weathered bands										
2				D	2.0			2				
				D	2.5							
3	3.0	Pit discontinued at 3.0m - limit of investigation						3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 77.9 mAHD
EASTING: 292250
NORTHING: 6237153

PIT No: 9
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		TOPSOIL - brown silty clay with some rootlets										
	0.3	SILTY CLAY - firm to stiff, light brown mottled grey and red silty clay, MC>PL		D/B	0.5		pp = 250-300					
77	1	- becoming grey mottled light brown below 1.0m		D	1.0		pp = 200-300	1				
		- with iron induration below 1.5m		U ₅₀	1.4							
				D	1.5		pp = 200-250					
76	2	- becoming MC~PL below 2.0m		D	2.0		pp = 200-300	2				
	2.5	SANDY SILTY CLAY - stiff, grey mottled light brown with iron induration, MC~PL		D	2.5		pp = 200-300					
75		- becoming MC>PL below 2.7m										
74	3	Pit discontinued at 3.0m - limit of investigation		D	3.0		pp = 150-200	10-07-17 3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Free groundwater observed at 2.9m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

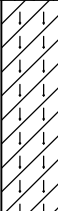
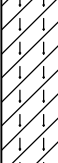
SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 74.9 mAHd
EASTING: 292265
NORTHING: 6237625

PIT No: 10
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74 1	0.3	TOPSOIL - brown silty clay with some rootlets										
		SILTY CLAY - firm to stiff, light brown mottled grey and red silty clay with a trace of ironstone gravel, MC>PL		D	0.5		pp = 150-250					
		- becoming grey mottled red, light brown and dark grey with some iron induration below 1.0m		D/B	0.9							
				U ₅₀	1.0		pp = 100-250					
		- becoming stiff to very stiff, MC~PL below 1.3m			1.3							
73 2	2.0	SHALE - extremely low strength, extremely weathered, grey shale with iron induration and very low strength, highly weathered bands		D	2.0							
				D	2.5							
72 3	3.0	Pit discontinued at 3.0m - limit of investigation		D	3.0							

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Greenfields Development Company 2 Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Pondicherry, Oran Park, NSW

SURFACE LEVEL: 85.6 mAHD
EASTING: 291806
NORTHING: 6237875

PIT No: 11
PROJECT No: 76778.29
DATE: 10/7/2017
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: LAH

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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Appendix E

PAEC Identification & Inspection Log



PAEC Identification & Inspection Log

Client: GDC 2
Project: PSI
Location: Pondicherry, Oran Park

Project Number: 7677830
Date: 10/3/17
Logged: EMG / CUN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	1	Northing:	

Identified from:

Site Inspection ☒ Interviews ☐ Other (list below): ☐
Title Deed info. ☐ Aerial Photography ☒ ☐
Geotechnical ☐ Year: ☐
Council Records ☐

Details: Farm Dams

Farm dams were noted in the historical aerial photo review.
During the site inspection, the dams walls were inspected
d appeared to comprise reworked natural material. No suspected
anthro. material was visible on the surface.

Follow up:

None required

Inspection Details:

Inspected by:	EMG	Photographed:	
Date Inspected:	10/3/17		
Inspection Method:	Walkover		

Observations:

None

Reasoning:

No suspected anthro; walls appeared
to comprise reworked natural material

Classified as an AEC ?

Yes

No



PAEC Identification & Inspection Log

Client: GOC 2

Project Number: 76778 30

Project: PSI

Date: 10/3/17

Location: pondicherry

, oran Park Logged: EMG/CLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	2	Northing:	

Identified from:

Site Inspection

☒

Interviews

☐

Other (list below):

Title Deed info.

☐

Aerial Photography

☒
☐

Geotechnical

☐

Year:

1961

☐

Council Records

☐

Details:

Market Gardens

A number of potential market gardens can be seen in several areas across the site, in the 1961 aerial.

No market gardens ~~are~~ currently exist.

Follow up:

Further investigation required (~~targeted~~ ^{limited} sampling)

Inspection Details:

EMG

Inspected by:	EMG	Photographed:	
Date Inspected:	10/3/17		
Inspection Method:	walkover		

Observations:

Reasoning:

Pesticides + herbicides are often applied in market gardens, therefore there is a potential for contamination (historic use)

Classified as an AEC ?

Yes

No



PAEC Identification & Inspection Log

Client: *ADC 2*

Project Number: *76778-30*

Project: *PSI*

Date: *1/3/17*

Location: *Pondicherry*

, Oran Park

Logged: *EMG/CLN*

Location:

Property:	<i>Pondicherry</i>	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	<i>3</i>	Northing:	

Identified from:

- | | | | | | |
|------------------|--------------------------|--------------------|-------------------------------------|---------------------|--------------------------|
| Site Inspection | ☐ | Interviews | ☐ | Other (list below): | ☐ |
| Title Deed info. | ☐ | Aerial Photography | ☒ | | ☐ |
| Geotechnical | ☐ | Year: | | | ☐ |
| Council Records | ☐ | | | | |

Details:

Former structures

Based on the aerial photograph review, some structures present previously have since been demolished.

Follow up:

Targeted sampling required - specifically for asbestos, lead + PCB

Inspection Details:

N/A

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Building demo rubble is often an indicator of potential presence of ACM.

Hazardous building materials as (eg Lead/PCB) may have also been used during construction

Classified as an AEC ?

☒ Yes
☐ No



PAEC Identification & Inspection Log

Client: GDC 2
Project: PSI
Location: Pondicherry, Aran Park

Project Number: 76778-30
Date: 4/8/17
Logged: CLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	4/9	Northing:	

Identified from:

☐ Site Inspection ☐ Interviews ☐ Other (list below):
☐ Title Deed info. ☐ Aerial Photography ☒ 1961, 1994, 2015
☐ Geotechnical Year: ☐
☐ Council Records ☐

Details:

The 1961 aerial shows Dam 9, which is backfilled in the year 2015. (PAEC 9)

Dam 4 is also no longer visible in 1994 (PAEC 4)

Follow up:

Targeted Sampling

Inspection Details:

N/A

Inspected by:		Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

The material used to backfill the dam needs to be tested for a standard contaminant site.

Classified as an AEC ?

Yes
No

PAEC Identification & Inspection Log

Client: GDC 2
 Project: PS1
 Location: Pondicherry, Aran Park

Project Number: 71778.30
 Date: 13/3/17
 Logged: EMA/CLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	5/6	Northing:	

Identified from:

☒ Site Inspection ☐ Interviews ☐ Other (list below):
☐ Title Deed info. ☐ Aerial Photography ☐
☐ Geotechnical Year: ☐
☐ Council Records ☐

Details:

Suspected localised filling was observed in a platform located below a house (PAEC 5), 4 in mounds located near the centre of the site (PAEC 6)

Follow up:

Targeted sampling

Inspection Details:

Inspected by:	EMA	Photographed:	
Date Inspected:	13/3/17		
Inspection Method:	walkover		

Observations:

Reasoning:

Potentially imported fill - need to test for standard contamination suite

Classified as an AEC ?

☒ Yes
☐ No



PAEC Identification & Inspection Log

Client: GDC 2
Project: PSI
Location: Pondicherry, Oran Park

Project Number: 76778-36
Date: 13/3/17
Logged: EMA/ELN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	7/8	Northing:	

Identified from:

Site Inspection ☒ Interviews ☐ Other (list below): ☐
Title Deed info. ☐ Aerial Photography ☐
Geotechnical ☐ Year: ☐
Council Records ☐

Details: Mulching area / silage area

- Not possible to inspect the content of the raised platform, on top of which was a dedicated mulching area (PAEC 5)
- Near the mulching area were 4 elongated silage storage areas - walls comprised fill. Silage present in one of the storage areas - (PAEC 7)

Follow up:

Targeted sampling

Inspection Details:

Inspected by:	EMG	Photographed:	
Date Inspected:	13/3/17		
Inspection Method:	Walkover		

Observations:

Reasoning:

Potentially imported fill - need to test for standard contam. suite

Classified as an AEC ?

Yes
No



PAEC Identification & Inspection Log

Client: GDC 2
Project: PSI
Location: Pondicherry, oran park

Project Number: 76778-30
Date: 1/3/17
Logged: EMG/LLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	10/11	Northing:	

Identified from:

☐ Site Inspection ☐ Interviews ☐ Other (list below):
☐ Title Deed info. ☐ Aerial Photography ☒ 1961, 1978, 1984 ☐
☐ Geotechnical Year: _____ ☐
☐ Council Records

Details: Former structures

The aerial review indicated that structures 4 and 5 were demolished in ~~1984~~ 1984 & 1978, respectively,

Follow up:

Vd Detailed walkover (targeted sampling)

Inspection Details:

Inspected by:	N/A	Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Inspect for possible -filling /residual demolition material

Classified as an AEC ?

☒ Yes
☐ No



PAEC Identification & Inspection Log

Client: GDC 2
Project: PS1
Location: Pondicherry, Dran Park

Project Number: 76778.30
Date: 1/3/17
Logged: EMA/CLW

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	4 12	Northing:	

Identified from:

☐ Site Inspection ☐ Interviews ☐ Other (list below):
☐ Title Deed info. ☐ Aerial Photography ☒ 1961
☐ Geotechnical Year: _____
☐ Council Records

Details: Ground Disturbance

1961 aerial photo - A localized ground disturbance can be seen within the north western quadrant of the site, west of the northern-most dam.

Follow up:

Targeted sampling required

Inspection Details:

Inspected by:	N/A	Photographed:	
Date Inspected:			
Inspection Method:			

Observations:

Reasoning:

Test for Sample from ground disturbance area + test for general contam. site

Classified as an AEC ?

Yes

No

PAEC Identification & Inspection Log

Client: GDC 2
Project: PSI
Location: Pondicherry, Oran Park

Project Number: 76778-30
Date: 13/3/17
Logged: EMG/LLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	13	Northing:	

Identified from:

Site Inspection ☒ Interviews ☐ Other (list below): ☐
Title Deed info. ☐ Aerial Photography ☐
Geotechnical ☐ Year: ☐
Council Records ☐

Details: Existing structures

During the site walkover, a number of rural residential properties were present. Suspected bonded ACM was observed in the exterior structure of most houses.

Follow up:

A hazardous building material survey (HAZMAT) should be conducted prior to demolition of structures.

Inspection Details:

Inspected by:	EMG	Photographed:	Yes
Date Inspected:	13/3/17		
Inspection Method:	walkover		

Observations:

Reasoning:

- HAZMAT to be completed & any demolition work should be carried out by a licensed asbestos removal contractor.

Classified as an AEC ?

Yes

No



PAEC Identification & Inspection Log

Client: GDC 2

Project: PSI

Location: Pondicherry, Oran Park

Project Number: 76778-30

Date:

Logged: EMG/CLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	4	Northing:	

Identified from:

- | | | | | | |
|------------------|-------------------------------------|--------------------|--------------------------|---------------------|--------------------------|
| Site Inspection | ☒ | Interviews | ☐ | Other (list below): | |
| Title Deed info. | ☐ | Aerial Photography | ☐ | | ☐ |
| Geotechnical | ☐ | Year: | | | ☐ |
| Council Records | ☐ | | | | |

Details: Stockpiles

Stockpiled, containing primarily sandstone rock & a few
SPs of mulch + gravelly clay were observed during the
walkover

Follow up:

None required

Inspection Details:

Inspected by:	EMG	Photographed:	Yes
Date Inspected:	10/3/17		
Inspection Method:	Site Walkover		

Observations:

Reasoning:

No anthro material noted in SPs

Classified as an AEC ?

Yes

No



PAEC Identification & Inspection Log

Client: GDC 2

Project Number: 76778-30

Project: PSI

Date: 13/3/17

Location: Pondicherry

, Oran Park

Logged: EMU/CLV

Location: ~~Power poles~~

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	15	Northing:	

Identified from:

Site Inspection



Interviews



Other (list below):

Title Deed info.



Aerial Photography



Geotechnical



Year:



Council Records



Details: Power poles

Several timber power poles were observed throughout the site

Follow up:

Targeted sampling required of surrounding soil

Inspection Details:

Inspected by:	EMG	Photographed:	
Date Inspected:	13/3/17		
Inspection Method:	Walkover		

Observations:

Reasoning:

Power poles may be treated with wood preservation chemicals, pesticides + herbicides, which may leach into surrounding land.

Classified as an AEC ?

Yes
No



PAEC Identification & Inspection Log

Client: ADC 2
Project: PSI
Location: Pondicherry, Oran Park

Project Number: 76718-30
Date: 13/3/17
Logged: EMG/CLW

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	16	Northing:	

Identified from:

Site Inspection ☒ Interviews ☐ Other (list below): ☐
Title Deed info. ☐ Aerial Photography ☐
Geotechnical ☐ Year: ☐
Council Records ☐

Details:

Mulching area

Operational mulching + topsoil business was located near the centre of the site. Near mulching area, 4 elongated storage areas were present. A strong ^{urea/natural fertilizer} ~~chemical~~ like odor was observed in the vicinity of the storage area.

Follow up:

Inspection Details:

Inspected by:	EMG	Photographed:	
Date Inspected:	13/3/17		
Inspection Method:	Walker		

Observations:

Elevated nutrients unlikely to be an issue for residential redevelopment

Reasoning:

None

Classified as an AEC ?

Yes

No

PAEC Identification & Inspection Log

Client: CDC 2
 Project: PSI
 Location: Pondicherry, Oran Park

Project Number: 76778-30
 Date: 13/3/17
 Logged: EMA/CLN

Location:

Property:	Pondicherry	GPS Coordinates	
Grid Ref:		Easting:	
PAEC #:	17	Northing:	

Identified from:

Site Inspection ☒ Interviews ☐ Other (list below): ☐
 Title Deed info. ☐ Aerial Photography ☐
 Geotechnical ☐ Year: ☐
 Council Records ☐

Details:

Fuel + oil

Use of fuels + oils was observed for a generator powering a crop irrigation system. Although a slab was in use, there was no bund present + spillages were observed on the surface of the slab

Follow up:

Targeted sampling next to slab

Inspection Details:

Inspected by:	EMA	Photographed:	yes
Date Inspected:	13/3/17		
Inspection Method:	Walkover		

Observations:

Reasoning:

Localised impact to the surrounding soil may have occurred

Classified as an AEC ?

☒ Yes
☐ No