

CIVILTEST ALBURY WODONGA

Soils Engineering Laboratory

16 Kane Road, Wodonga - Postal Address P.O Box 876, Wodonga 3689

Telephone 0260 243960

23.8.2017

Report No. : 17CT1026/45

Summit Group
C/- EDM Group
99 Hume Street
Wodonga, Vic, 3690

**Re: Site Classification for proposed residence
Lot 45 Sienna Ridge Estate
Hamilton Valley, NSW, 2641**

1. INTRODUCTION/DESCRIPTION

In accordance with your request on the 10th of July 2017, an investigation was conducted by Civiltest Albury/Wodonga to provide a site classification for the above site. The site is moderately sloping with good surface drainage.

2. FIELD PROCEDURE

On the 15th of August a Civiltest Albury/Wodonga representative completed two boreholes to assess the subsurface conditions.

Materials encountered during the field investigation are presented in the attached borehole logs and in general consist of **level 1 controlled fill overlaying** silty sands and sandy clays of low-medium plasticity (SM-CL). A classification explanation sheet is attached outlining the terms and symbols used in the preparation of this report.

3. SITE CLASSIFICATION

Based on the results of the investigation the site has been classified as **Class "M" – Moderately Reactive**. The site classification has been undertaken in accordance with **AS 2870-2011** 'Site Classification - Residential Slabs and Footings' – Site Classification by surface movement calculation.

4. RECOMMENDATIONS

The footings system for a conventional slab may be designed as a **Class "M"** site classification with any external beams founded a minimum of **400mm** below existing surface level.

If piers, stumps or strip footings are used on this site they should be founded a minimum of **500mm** below existing surface level.

The footings for a waffle pod slab may be designed for a **Class "M"** site classification with the external beams founded a minimum of **150mm** below existing surface level.

It is suggested the site be stripped of all vegetation and topsoil, with any areas of soft, loose or wet material selectively excavated to provide a consistent and stable working platform.

The allowable bearing pressure for this site is 150kPa from **150mm** in depth.

5. SITE COMMENTS

If a cut and fill operation is to be performed onsite, it is recommended that that any fill be placed under controlled conditions to allow the footings to be placed in the fill.

6. FILL MATERIAL

Some building sites may contain areas of fill, which cannot be visually identified at the time of investigation. It is also often difficult to determine fill from natural insitu materials during a site investigation borehole. If fill is encountered during excavation of footings, and it is not described in the field investigation log, further advice must be obtained.

Where controlled (compacted) fill is encountered, the amount of compacted fill allowable is up to 800mm of "sand" fill or 400mm of "other" fill. AS 2870 - 2011 provides details of additional construction requirements for controlled fill sites.

7. GENERAL NOTE

The following general measures are recommended in reducing the potential of future building damage:

- Maintain a reasonable distance from building when planting trees or damaging vegetation.
- Monitor watering systems and avoid excessive garden watering
- Monitor underground services and attend any damage as soon as required.

8. APPLICATION

This site classification has been prepared specifically for the above mentioned project and any data or opinions that are given should not be used out of context or pertaining to any other job or purpose without analysis and overview from the undersigned. No other investigation work was provided that is not previously described.

This site classification has been based upon field and sample analysis from the locations mentioned, the nature and continuity below borehole depth is inferred and it must be considered that further investigation may be required to assess actual conditions of subsurface undisturbed soils.

During excavation it is suggested that footings are to be inspected carefully and if any irregularities occur further advice shall be sought.



Peter Vella (Manager)

**APPENDIX A
SITE CLASSIFICATION EXPLANATIONS:**

| Class | Expected Surface Movement (Ys) | Explanation |
|--------------|---------------------------------------|---|
| A | 0mm | Includes many sand, gravel and rock sites with little/no clays. These sites have little/no expected movement and as a result zero moisture variation. |
| S | 0 - 20mm | Slightly reactive sites which exhibit only small movements with moisture variation. |
| M | 20 - 40mm | Moderately reactive sites exhibit moderate amounts of movement with moisture variation. These sites commonly include red/brown silty soils, some sandy clays and loamy soils. |
| H1 | 40 - 60mm | Highly reactive sites exhibit high amounts of movement with moisture variation. |
| H2 | 60 - 75mm | Highly reactive sites exhibit high amounts of movement with moisture variation. |
| E | >75mm | Extremely reactive sites which exhibit greater than 75mm of surface movement. Typically, these sites include deep reactive clays, such as black and dark brown soils. These sites typically demand quite expensive footing systems. |

As indicated previously, the Site Classification must consider many aspects of the site, not just the reactivity of the soil. P sites are those that include other factors that need to be brought to the attention of the owner, builder and footing designer. A "P" classification does not indicate a specific Ys value and is described as a "Problem" site.

The reasons for a P classification include:

- Growth &/or Removal of Trees will cause Abnormal moisture conditions in the subsurface soils;
- P**
- Unusually high moisture conditions caused by water flow, ponds, dams etc;
 - Sites with Loose fill which can be either "controlled" or "uncontrolled". The P Classification depends upon the depth and type of fill;
 - Sites with poor bearing capacity, soft soils, or soils which are prone to collapse;
 - Sites prone to mine subsidence, land slip, piping or coastal erosion;
 - Sites which for one reason or another cannot be classified as normal sites

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Form CT132/3

Borehole/Trench No: 1

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INVESTIGATION LOG
REPORT NO: 17CT1026

| | |
|---|--------------------------------|
| Client: Summit Group | Date Logged: 15.08.2017 |
| Investigation For: Site Classification | Logged By: PJ |
| Location: Lot 45, Stage 3 & 4 Sienna Ridge Estate, Hamilton Valley | Checked By: PCV |
| Borehole/Trench Location: See Lot Plan | Date: 16.08.2017 |

Method: Hand Auger Backhoe Drill Rig Other Alignment: **90°**

| DEPTH mm | MATERIAL DESCRIPTION & CLASSIFICATION | MOISTURE CONDITION | CONSIST. DENSITY INDEX | VS kPa | SAMPLE TAKEN | REMARKS |
|-------------|--|-----------------------|------------------------------|-----------|-----------------|---------|
| 150 | Sandy CLAY, dark brown Fine to medium grained, low plasticity | Moist | Stiff | | | FILL |
| 500 | Gravelly Sandy CLAY, brown Fine to coarse grained Low plasticity | | | | | |
| 1000 | Silty SAND, brown Fine to medium grained Low plasticity | | Medium Dense | | | |
| 1600 | Silty SAND, orange-brown Fine to medium grained Low plasticity | | | | | |
| 2100 | Silty SAND, yellow-brown Fine to medium grained Low plasticity | | | | | |
| | Bore Terminated at 2.1m | | | | | |

ISS - Shrink Swell Index

LL - Liquid Limit

LS - Linear Shrinkage

DRAINAGE: -General Good Fair Poor Free Water Swampy Subject to Flooding

TOPOGRAPHY:

-General Flat Undulating Hilly

-Local Flat Moderate Slope Dip Valley High Flat Low Flat Crest Steep Slope

----W---- - Water Level
 <----- - Water Inflow
MD - Medium Dense
Vst - Very Stiff

D -Disturbed Sample
U50 -Undisturbed Sample 50mm dia
CBR* -9kg Scala Dynamic Cone
MC -Moisture Content Taken

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Form CT132/3

Borehole/Trench No: 2

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| DEPTH mm | MATERIAL DESCRIPTION & CLASSIFICATION | MOISTURE CONDITION | CONSIST. DENSITY INDEX | VS kPa | SAMPLE TAKEN | REMARKS |
|-------------|---|-----------------------|------------------------------|-----------|-----------------|---------|
| 200 | Sandy CLAY, dark brown | Moist | Stiff | | | |
| | Fine to medium grained, low plasticity | | | | | |
| 500 | Sandy CLAY, brown | | | | | |
| | Fine to coarse grained, medium plasticity | | | | | |
| | Tree roots | | | | | |
| 800 | Clayey SAND, brown | | Medium Dense | | | |
| | Fine to medium grained | | | | | |
| | Low plasticity | | | | | |
| 1300 | Silty SAND, yellow-brown | | | | | |
| | Fine to medium grained | | | | | |
| | Low plasticity | | | | | |
| 2100 | Silty SAND, yellow-brown | | | | | |
| | Fine to coarse grained | | | | | |
| | Low plasticity | | | | | |
| | Trace fine gravel | | | | | |
| | Bore Terminated at 2.1m | | | | | |

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