STA CONSULTING ENGINEERS

SOIL TESTING & FOUNDATION DESIGN

Engineering Services

SOIL TESTING & SITE CLASSIFICATION

Before foundations can be designed, subsurface conditions must be validated via soil testing. This prerequisite for every residential and commercial building development is a critical step that has significant implications for the rest of the build.

Soil Testing

Soil samples are taken on site by qualified staff to determine how reactive the soil is to moisture and movement. We take more soil samples than most, to ensure an accurate site classification:

- Atterberg
- Shrink swell
- Liquid limit level
- Linear shrinkage
- Salinity (where required)

Analysis in our NATA Lab

We have our own NATA-accredited laboratory in which we undertake thorough testing and analysis of materials using the most up-to-date testing standards. We maintain full control over the testing process, with experts on our team to deliver highly reliable data for every project.

Mapping regional soil profiles

More than 25 years experience has enabled STA to develop local and regional profiles of soil compositions, built on our comprehensive database of hundreds of thousands of soil tests. This information is mapped using Google Earth, along with wind ratings, bushfire assessments and other “site estate specific” data.

Slope Stability Assessment Services

Some development sites are more challenging than others. Ground conditions can be inadequate to build on, due to slope stability issues, fill and clay concerns or piling requirements. That’s where geotechnical services are used to determine the correct course of action before construction starts.

FOUNDATION DESIGN

Foundation engineering is intrinsically connected to soil testing & site classification.

Being experts in soil testing provides us with extremely reliable data, which we use to create the most appropriate foundation design - for your structure, the specific conditions and features of the land - and tailor the design to suit client specific needs.

FOUNDATION TYPES

PolyVoid Slab

The “PolyVoid” system is an AS3600 ‘deemed to comply’ piled suspended slab design. The system is seated on top of steel Katana Screw Piles, supporting a fully suspended slab. The screw piles are engaged below a nominated zone of influence (Hs Zone), anchoring them in position for tension and compression loads when hogging/swelling occurs. The void former isolates clay soils during periods of swelling or shrinkage.

Conventional

Conventional Foundations are the typical footing and slab type foundation which have been in use for many years in QLD and NSW. The main disadvantage with this type of system is it can be difficult to estimate the concrete quantities used due to “blow out” within the soils. It is also a regional foundation system used specifically in QLD.

OVER 1200 JOBS EVERY MONTH

Residential & Commercial

Cupolex Slab

The Cupolex Concrete Slab system is is a more environmentally friendly and cost effective alternative to a Waffle Pod or slab on grade concrete foundation. Made from recycled polypropylene, Cupolex can provide significant reductions in the volume of concrete, reinforcing steel and labour required to install.

Waffle Pod

Waffle Pod Foundation system is the most common foundation used for residential structures. They are designed to be a raft foundation type system, prepared with minimal excavation into the soil, and allowing for greater accuracy in estimating material quantities.

Monolithic

Monolithic Foundations are similar to Conventional Foundations except the edge beam, internal beams and slab are poured as one. This type of foundation system is only really suitable for lower reactive sites.

SERVICE OVERVIEW

STA provide a complete suite of soil test and foundation design services. With more than 25 years experience, we are experts on soil compositions, the impact they have on foundation design, and how to engineer site-specific foundations for structurally sound residential and commercial buildings.

Experts In Site Classification

- 25 years soil testing experience
- NATA accredited laboratory
- Soil profile database and mapping

Site-Specific Foundation Design

- Ground conditions
- Structure requirements
- Surrounding land features

Getting Foundation Design Right.

When foundations are appropriately designed to soil conditions, there are dual benefits for the builder and building owner alike. An under-engineered foundation can result in structural problems; an over-engineered foundation adds unnecessary costs to the building project. This is why our expertise both in soil testing and foundation design provides confidence for all our clients.

Clear Communication. Comprehensive Reporting.

From order placement through to job completion, STA make it easy for clients to track the status of each project and manage their own workflow and teams accordingly. Regular updates on projects are provided via weekly progress reports.

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