

## LEVEL ONE LIMITATIONS

The guidelines for performing level one inspection & testing in accordance with AS3798 was written as a guide to the activities of fill placement. It is not a standard specification although so many adopt it as one. It is important to educate property designers, developers and constructors that a geotechnical specification needs to be written which is specific to their project. This is necessary to ensure the criteria is specific to the site conditions and the end product is fit for its end purpose / use. Level one is generally only applicable to shallow fills of no more than two metres. Deeper fills need specific geotechnical engineering designs. The guide is also specific to residential fills and small industrial projects and not large scale commercial developments, landfill liners or old quarry backfills without professional design criteria.

The process of performing a level one may only take several days or it may take weeks to complete. The process may include: field testing, laboratory testing, subgrade / base assessment, proof rolling of base and subsequent layers, site survey of before and after fill placement, fill material approvals, consideration of surrounding properties and the reporting process of the complete operation.

Once all field work is complete and all site survey has been received from the contractor, the report may be available within one week, depending on the size of the project.

To ensure Ground Science can assist you on your next level one project please provide at least three days notice, a copy of the specification, a face plan and stripped surface survey.

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**Level one Inspection  
& Testing in accordance  
with AS3798 – 2007  
Guideline for Earthworks  
on Residential and  
Commercial  
Developments**



*Your trusted Geotechnical provider*

# SERVICES

## The Role of Level one personnel

The role of level one personnel is often misunderstood, as many consider them as providing instruction and direction. This is not the case, in fact the role is to observe and document the operations that take place. The technical representative is not there to tell the construction team how to do their job. This is not to say that the level one person may not be of assistance, quite the opposite. The whole process is working as a team to provide an end product that complies with the specification. Ground Science staff understand soils and how they may best be compacted. With Victoria having such a diverse range of soil types even over short distances it is often difficult to understand which compaction equipment to use, how many passes to provide, when and where to use vibrations and how much water to add. Off site fill sources may require a EPA screen test to determine if it is classed as clean fill and suitable for use on the project.

On a level one project the field compaction tests are performed as supporting evidence that the fill has been placed in accordance with the specification. It is not necessary to have a test on every lot although an attempt is made to distribute the tests across all areas. A test result may fail even though the test indicated the compaction was achieved. If the moisture content of the fill is too dry or wet then this may also constitute a failure. It is not always good to have a very high result either. A result above 103% density ratio (SMDD) compacted dry of optimum moisture has the potential to swell considerably if suddenly wet in some soils. This may result in substantial swelling of the soils supporting a dwelling and may result in cracks in the substructure.

## Ground Science Projects

### Residential Housing lots

This is the most common project type and generally run from one day to a week. All surface vegetation and top soils require stripping, to provide a stiff base in natural soils and includes any left over roots and stumps of trees. Any old fill materials exposed will require removal back to natural materials before any fill can be placed. The moisture condition of the exposed base is often dry and fissured. This base layer requires ripping, moisture conditioning and compaction in the same manner as any other fill material. The overall moisture homogeneity of the fill layer is critical to the long term stability of the fill and subsequent housing structures.



### Other projects include;

- Landfill Liners & Caps
- Commercial properties
- Service Trench Backfills
- Pit Backfill ( petrol station sites)
- Lakes / Dams / Water channels



The spreading process



Moisture conditioning of the fill



The compaction process