

Risk Insights

Advice for you and your business

Home Building Soil Issues



Building a house on improperly prepared soils can result in significant foundation movement and building damage. The more severe cases can cost hundreds of thousands of dollars to fix.

We've been involved in two large claims (both in excess of \$250,000) where our insured, the home builder, was left to complete the repairs to the house with no recourse against the property developer. Both claims involved building lots that backed onto a ravine and required engineered fill for levelling. The houses settled due to improper soil compaction of the fill.

The builder purchased the developed lots and wasn't involved with the development. The sales contract included a Hold Harmless Agreement that prevented the builder from pursuing the developer for the repair costs to the house. A Hold Harmless Agreement may require the consent of one party to hold the other free from the responsibility for any liability or damage that might arise out of a transaction, such as the sale of land by the developer to the builder.

● Geotechnical reports

- **Geotechnical evaluation report:** required prior to development in some municipalities and highly recommended in other areas. It provides detailed recommendations for development, often including earthworks, grading, compaction, subsurface drainage, erosion control, foundation design, pavement design, storm water pond design and site-specific geotechnical concerns or hazards.
- **Deep fill report:** required by some municipalities when two metres or more of fill is planned. This report often includes information on fill attributes (type, thickness, variations), requirements for site

preparation and the impact the fill may have on the groundwater table.

- **Slope stability report:** used to assess any concerns for slope stability.
- **Material testing report:** assures that all geotechnical requirements described in the previous reports have been completed with the level of care specified. The main results presented are usually the compaction results with compaction test summaries for different soil types and different areas of the property.

● Pre-existing lot issues

A lot may have a pre-existing issue such as pockets of decaying vegetation, or old natural gas well sites that were covered years ago. Both of these conditions may be too deep for a geotechnical test to identify or may be missed in a testing grid.

It's important to research previous land use by reviewing aerial photos for the past several decades to determine any issues that would warrant additional geotechnical testing.

● Lot development

There are three typical ways to develop residential and commercial lots. Each one carries a different level of requirements by planning officials and may vary by location and geographical area.

Home Building Soil Issues *(continued)*

1. Infill situations where a single lot is created between two existing homes or commercial buildings
 - Geotechnical reports aren't always required and simple approaches are often taken
2. Development of two to seven lots off an existing street where lot creation is done by a severance application
 - Geotechnical reports are completed to satisfy the planning requirements and guidelines
3. Development of a larger parcel of land where new streets are created by subdivision
 - Geotechnical reports are completed to satisfy the planning requirements and guidelines
6. If reports aren't available for lots that normally require a geotechnical evaluation such as ravine lots, consider not purchasing the lot
7. If a Hold Harmless Agreement is included with the developer's contract, seek legal advice prior to signing it

🕒 Best practices

The following best practices tips are intended for general information only:

1. Purchase building lots from reputable developers with good track records of developing quality lots
2. Obtain the applicable geotechnical reports from the developer
 - These can include the geotechnical evaluation, deep fill, slope stability and material testing reports
3. The reports should be reviewed by your geotechnical engineer to identify potential problems
 - The review should include aerial photos from several decades to determine previous land use and the potential for buried vegetation, old natural gas wells, etc.
4. If your geotechnical engineer identifies potential problems with soil conditions and the issues can't be fixed, consider not purchasing the lot
5. If geotechnical reports aren't available, ensure that they aren't required

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