



engineering
new zealand
te ao rangahau

DISCIPLINARY COMMITTEE – UPHELD COMPLAINTS LESSONS TO BE LEARNT

CASE STUDY
FEBRUARY 2023 – BOUNDARY CUT

INTRODUCTION

Engineering New Zealand receives around 50 concerns and complaints about Chartered Professional Engineers and members each year.

Not all complaints are upheld, but they typically relate to:

- miscommunication,
- inattention to client care,
- a misunderstanding over what the engineer has been engaged to do (or what they can't do),
- serious issues of competence, or
- ethical conduct.

Reflections on past complaints that an Engineering New Zealand Disciplinary Committee has upheld can offer valuable lessons for engineers.

We will review an upheld complaint from a past Disciplinary Committee decision every two months. The purpose of this project is not to name and shame, but to provide information so we can learn and grow. Wherever possible, we have anonymised the case.

We invite you to reflect on the lessons to be learnt.

Background

The complainants raised concerns with Engineering New Zealand about an engineer's work with a property developer subdividing land that shared a boundary with their property.

Contract

The engineer was engaged verbally by the property developer and did not have a written contract.

Problem and timeline

The developer made a 1.2–1.7m vertical cut (see figures 1 and 2) on the boundary between the subdivision and the complainants' property, creating a falling hazard and potentially undermining the foundation of the complainants' dwelling (see figures 5 and 6). The complainants were concerned the engineer was either unaware of the cut being made or acted incompetently in allowing the cut to be made. The engineer stated his last site visit was approximately three weeks before the cut was made.

The complainants believed the remedial works the engineer designed and oversaw to repair the cut (see figures 3 and 7) were inadequate and did not resolve the problems caused. They also believe the engineer responded inadequately to their concerns.

2016

In March 2016, the developer undertook earthworks at a new subdivision and made a bulk excavation vertical cut on the boundary between the subdivision and the complainants' property. The complainants say the cut left their property unsafe, unsupported, and unable to be fenced. The complainants communicated frequently with the developer to try and resolve the issue by building a retaining wall. Over time, the bank frattered due to weathering (see figures 3 and 4).

2018

The complainants raised their concerns about the cut with the engineer and their local council in 2018. The Council issued a Notice to Fix to the developer, requiring the installation of a retaining wall along the boundary. A second notice was issued in November 2018 instructing the developer to reinstate the ground. The developer installed soil buttressing along the toe of the cut to "flatten" the grade-line from the bottom of the bank to the adjacent building (see figure 3).

The engineer stated he became aware of the cut in 2018 and verbally advised the developer to put the earth back where it had been removed from. Alternatively, if the developer was unwilling to reinstate the earth, the engineer advised that a permanent retaining wall should be constructed.

The engineer said his instructions to the developer were very clear but accepted that he should have immediately written his advice.

2019

The engineer provided a retaining wall design in November 2019.

2022

As of October 2022, a retaining wall had yet to be built.

Key issues

1. Did the respondent meet the competency standards expected of a reasonable engineer when notified of the cut?
2. Was his response to the remedial action appropriate?
3. Did the engineer's conduct meet the standard reasonably expected of a Chartered Member of Engineering New Zealand or a Chartered Professional Engineer?

Decision

The Disciplinary Committee found:

- The respondent engineer acted inappropriately when he was notified about the cut.
- Although the respondent did not design the remedial action, his response to the works was inadequate.
- The engineer's failures related more to poor communication and failure to document his recommendations.
- The respondent's conduct did not meet the standard reasonably expected of a Chartered Member of Engineering New Zealand nor a Chartered Professional Engineer

PHOTOS

Figure 1: Image taken late March 2016



Figure 2: Image taken early April 2016



Figure 3: Image taken February 2019 – note remedial fill at the toe



Figure 4: Images taken February 2019 – soil cracking at the top of the cut



DRAWINGS

Figure 5: Section 1

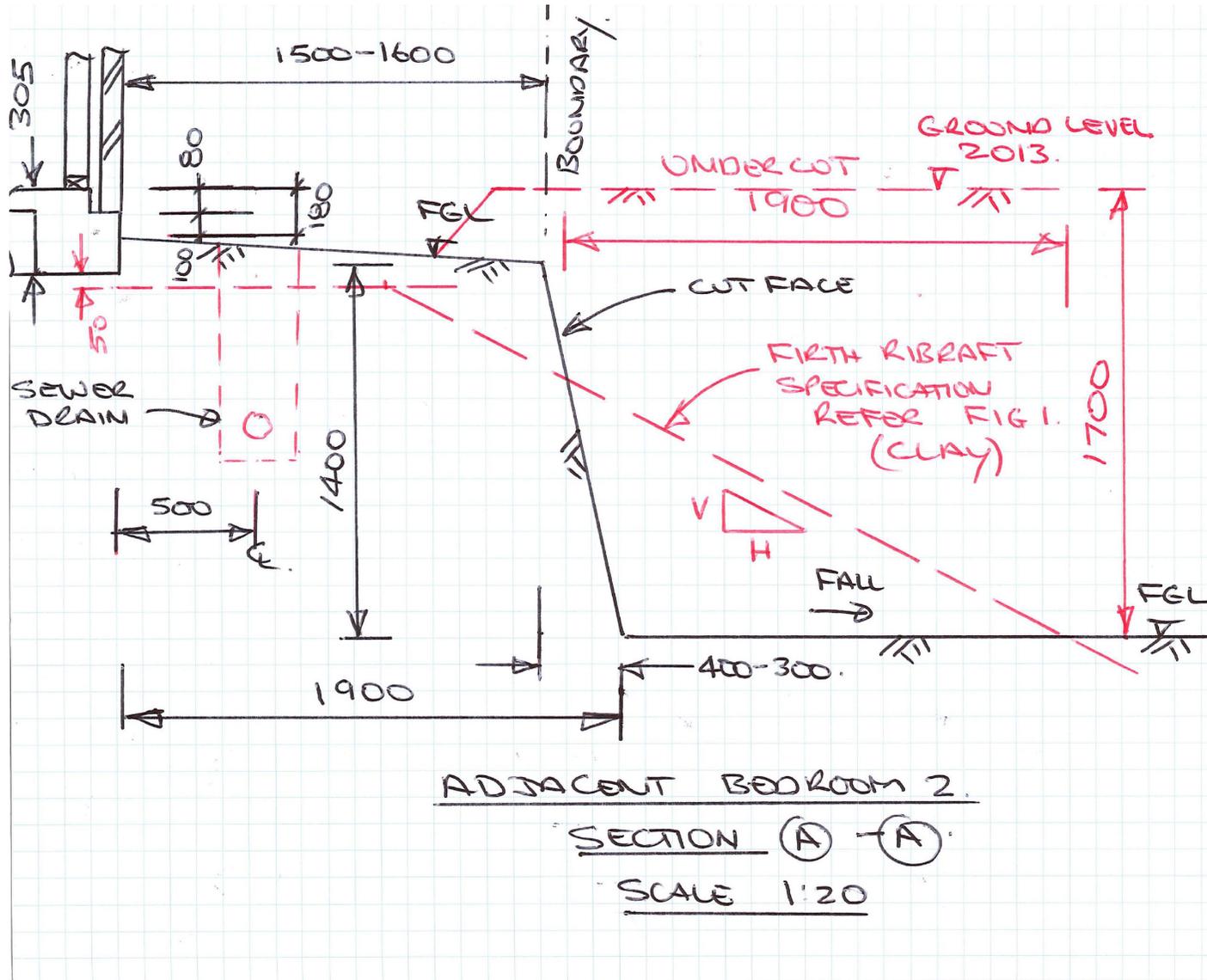
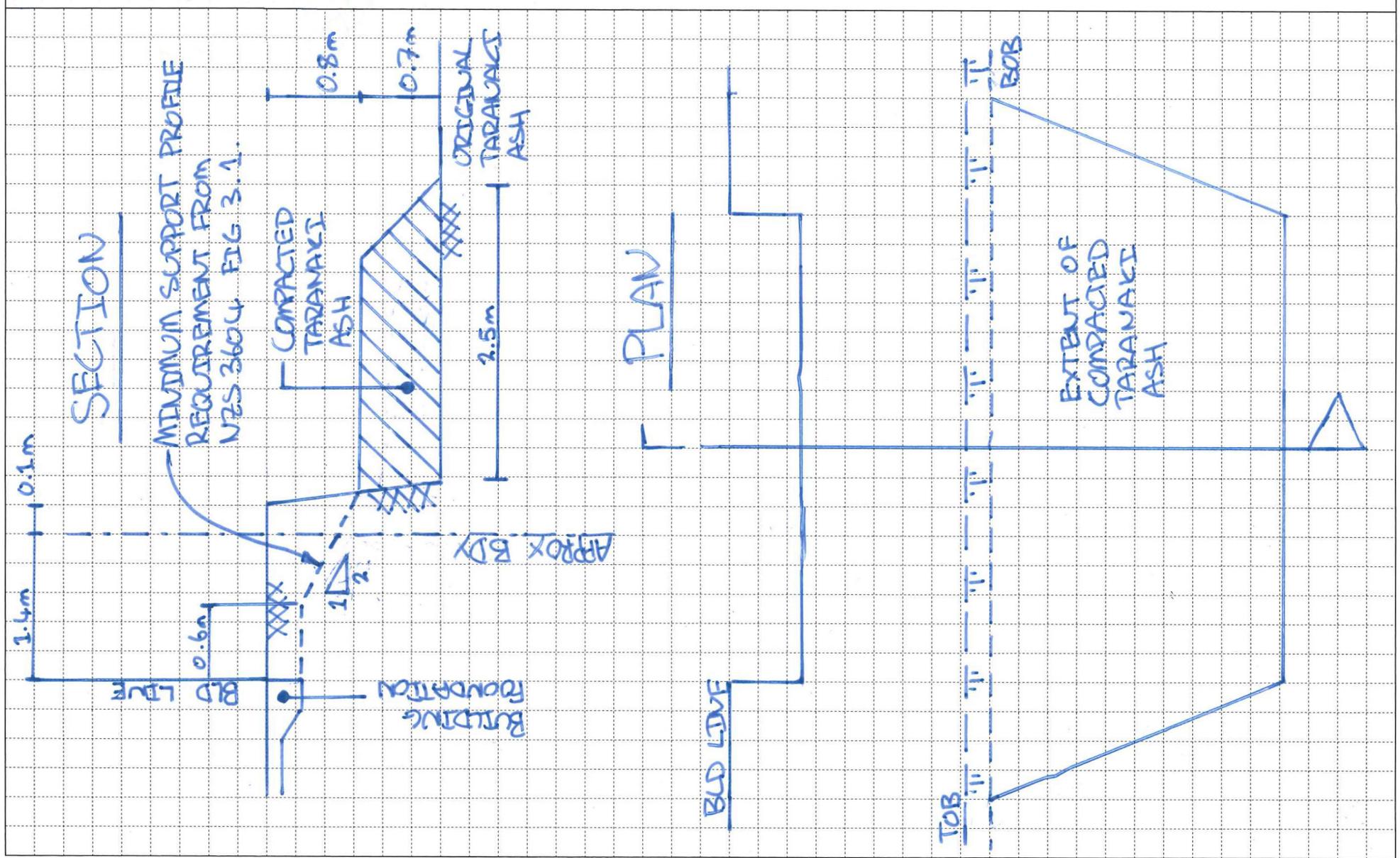


Figure 7: Defendant's proposed solution



YOUR REFLECTION

Based on the information provided, consider your answers to the following three questions.

What do you identify as the problem?

**If you were engaged to resolve the problem, how would you do so?
Sketch on the drawings and describe your thought process.**

How would you have stopped this from occurring in your own company?

RESPONSE FROM THE ENGINEER

In the disciplinary hearing, the engineer admitted he should have done more after he became aware of the cut. He conceded he should have:

- recorded in writing the advice he gave to the developer about retaining the cut,
- clarified his scope of engagement in his assessment of the buttressing work the developer completed
- stated that a permanent retaining wall or other solution was required,
- been more courteous and helpful to the complainants when they contacted him, and
- engaged with Engineering New Zealand earlier in the complaints process.

AN EXPERT'S VIEW

The safety of people and property is vital. Once we know the problem, we're ethically obliged to resolve it. In this case, there is a:

- hazard to the safety of people. There is no protection from falling. Immediate action to provide an appropriate barrier is required.
- hazard to property. By visual observation, the extent of the excavation is of concern.

In these circumstances, prompt and clear communication is key to resolving the issues.

The engineer on the job should have:

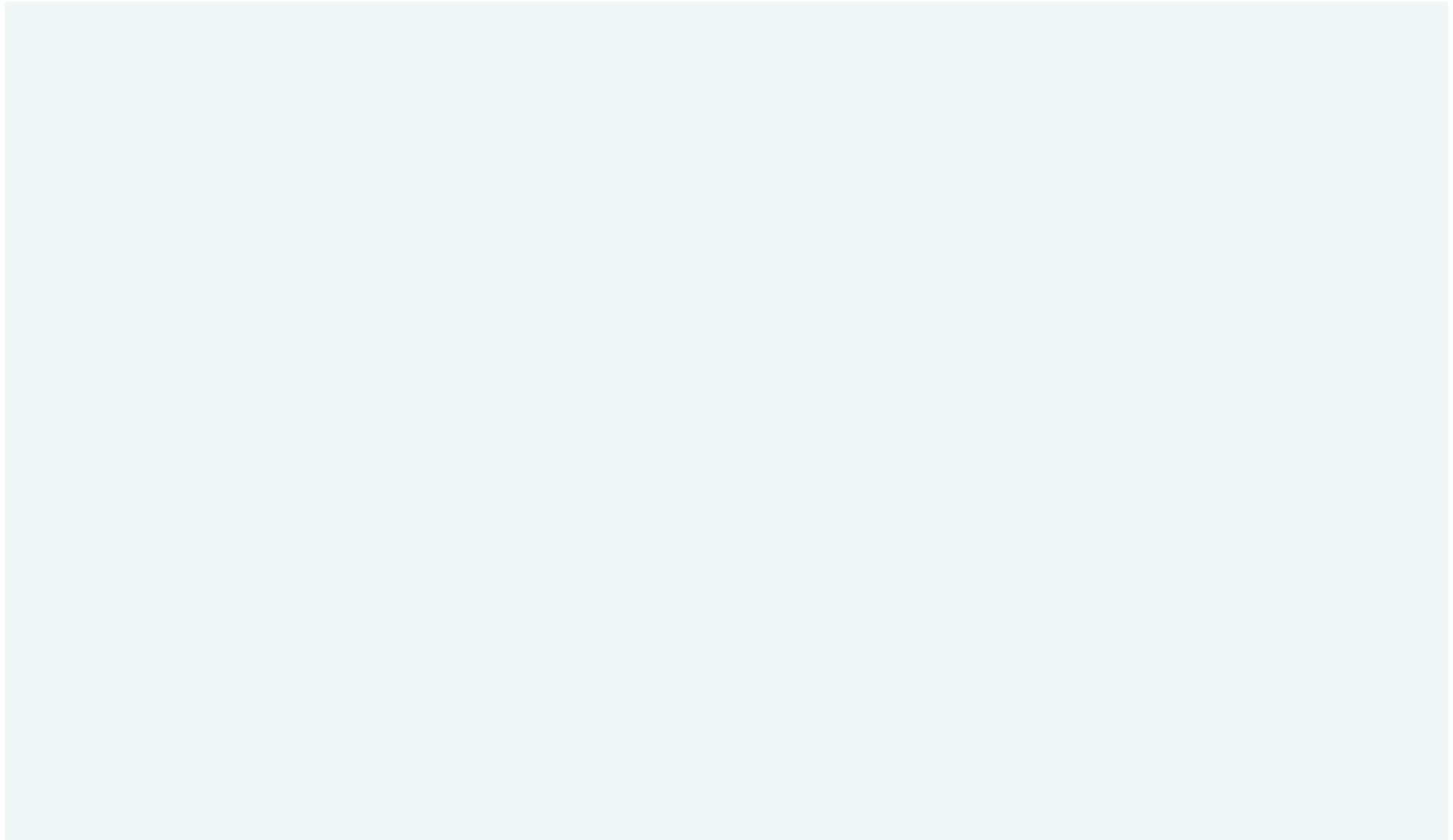
- ensured there was a written contract before the work started. Engineering New Zealand provides contract templates for free.
- insisted on appropriate levels of construction monitoring. For most work, CM3 should be the minimum level used. That allows for checking of the contractor's work at critical times.
- acted to safeguard people. A barrier should have been erected to negate a falling hazard. The contractor should have been notified immediately and ensured the neighbour was aware of the proposed solution. If the contractor was unwilling to provide a barrier, the building consent authority could've been approached and, if necessary, WorkSafe.
- acted to safeguard property. Urgent detailed geotechnical investigations are required to establish the short- and long-term stability of the soils and the effect on the existing structure and design mitigating works. Buttressing the cut with compacted soil may be an acceptable solution in the short term while a permanent solution is designed. However, a retaining wall was required for long-term stability. A permanent handrail or fence could be attached to or in front of the wall. Because of the surcharge from the barrier and the house, the wall would need to be specifically designed.

In situations like this, it is vital for all engineers to be aware of and respond to their legal and ethical responsibilities.

If the appropriate response from the client/contractor is not obtained, the engineer needs to take further action, including advising the building consent authority and other affected parties.

LESSONS TO BE LEARNT

What lessons can be learnt after reflecting on this upheld complaint?





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