



Experience Oz Pty Ltd
51 Atkinson Street
LITHGOW NSW 2790

Geotechnical Investigations for Eco Cabin Development
51 Atkinson Street Lithgow NSW (Lot 152 DP 659519)

Introduction

Thank you for your inquiry to Edge Geotechnical Ltd Pty (Edge). Edge is the only dedicated geotechnical consultancy company in the Blue Mountains region owned and operated by an internationally registered and chartered geotechnical engineer with over 25 years' experience. When choosing Edge, you are assured that all field work and reporting will be carried out in accordance with current Australian Standards and industry guidelines.

In response to your email request, Edge Geotechnical Pty Ltd (Edge) is pleased to provide you with a fee proposal for consulting geotechnical engineering services associated with the proposed development at the above address.

Based on the information provided in your email, we understand that **you**:

- 1) Advice on subsurface conditions at proposed cabins sites to provide input into shallow footing design (design by others).
- 2) require a site classification in accordance with AS2780-2011 "Residential Slabs and Footings"
- 3) will submit the above documents to Lithgow City Council (LCC) for the purpose of obtaining development approval and detail design of the new residential dwelling and an associated construction certificate.

Proposed Scope of Work

To provide the information needed and based on our understanding of your needs, **Edge** proposes a staged approach as follows:

Stage 1 - Desk top study and Preliminary Advice for DA Purposes

- Review local geological maps for the area, published historical aerial photographs and other published information including mine subsidence areas.
- Site visit
- Letter report to assist in development application, outlining anticipated site classification for footing design and proposed approach to complete geotechnical investigations to assist in engineering/design prior to application for construction certificate

Stage 2 - Investigation and Advice for CC Purposes

- Health and safety documentation for field work.
- Engage GBG Australia Pty Ltd to complete non-destructive testing using geophysical methods across the site to profile the extent and, where possible, depth of mine spoil/coal chitter across the site. A copy of their proposed is attached.
- Based on the results of the survey by GBG, we will visit your site for the purpose of undertaking 6 excavator test pits in selected locations across the site, in the vicinity of the proposed dwelling locations, and targeted based on the outcomes of the non-destructive testing. Dynamic Cone Penetrometer testing (DCPs) will be carried out adjacent to each test pit. This portion of the field work will be carried out in the full-time presence of one of our Geotechnical Engineers who will provide engineering logs of the subsurface materials encountered, sample the soil

where necessary, describe the materials encountered in accordance with AS1726 “Geotechnical Site Investigations”, 2017. Photographs will be taken and provided with the engineering logs. Depth to groundwater or any seepage observed will be noted and results provided on the engineering logs.

- The test locations will be immediately backfilled with spoil soil. Minor site disturbance will be evident together with a small amount of mounding of soil after completion.
- Provide an electronic report outlining the results of the investigations carried out, including description of subsurface conditions (thickness of chitter fill) across the site, advice on suitable founding depths for footings (or shallow pier or concrete free systems) footings and safe bearing values for footing design, and a site classification in accordance with AS2780-2011 for residential footing design.

The goal of the combined geophysical and test pit investigation will be to gain an understanding on the geotechnical composition of existing fill on the site with the aim of providing geotechnical design advice for shallow footings on the site (in lieu of extending footings for structures through the fill and into natural soil/weathered rock). At this stage, please note that we cannot guarantee that the outcomes of the proposed investigations will confirm that shallow footings will be suitable at this site.

Financial & Exclusions

We propose to carry out the above work for a lump sum fee of \$19,175, excluding GST. A cost breakdown is shown in Table 1 below.

Table 1 – Schedule of Fees – 51 Atkinson Street Geotechnical and Geophysical Investigation

Item	Scope	Modified Lump Sum (excl. GST)
Stage 1	Desk top study, site visit and letter for DA purposes	\$1,500
Stage 1 TOTAL (excluding GST)		\$1,500
Stage 2	Planning, Preparation and Project Management, including DB4UD, and health and safety documentation	\$750
	Geophysical Investigation by GBG Australia.	\$9,250
	Excavation of 6 test pits including one day excavator hire, with DCP testing, over 2-day period between nominated working hours, M-F, full time supervision, engineering logs	\$4,500
	Reporting, Geotechnical Factual and Interpretative Report	\$3,750
Stage 2 TOTAL (excluding GST)		\$18,250

Any additional work will be carried out based on an hourly rate of \$250, excluding GST.

Our offer excludes the following:

- Environmental, heritage, cultural or archaeological approvals, controls, presence or reports.
- Contamination assessment or waste classification of material for offsite disposal.
- Additional work or site inspections, if required, will be charged at \$250/hr including travel (excl. GST).



- Edge is not responsible for project delays outside of its control, including access restrictions or inclement weather, delays to field work due to environmental, heritage or archaeological issues. Standby rate of \$500/hr applies for the field team, including subcontractors.
- Additional fees apply for work outside of normal business hours (Mon-Fri 8am-4pm), Public Holidays or Weekends.
- No detailed survey of the test locations has been included in the pricing schedule. Test locations will be measured off known site features.

Our offer excludes the cost of a service locator and any costs associated with the recovery of plans showing buried services on private land and Sydney Water plans for the site (available via Sydney Water's TapIn service). Edge takes no responsibility whatsoever for damage to buried services on the site, regardless of efforts taken to identify their location.

Timing & Terms and Conditions

We offer to carry out the above work in accordance with our Standard Terms of Business Service, V2, a copy of which is attached. If you wish to accept this Quote, please return a signed copy of the last page of the Terms of Service. Invoice payment terms are strictly 7 days and invoices are usually generated after completion of the field work.

At this stage, GBG Australia requires at least 2 to 3 weeks notice to complete the geophysical component of the work. This would need to be completed and reported before the test pit locations could be chosen and completed. With the current impending festive season shutdown, it is likely that not all of the field work would be able to be completed before Christmas and would likely be completed in January, with reporting by late January/early February.

Thank you for the opportunity to provide a fee proposal to you on this project.

For and on behalf of

Edge Geotechnical Pty Ltd

Karen Allan BEng (Hons), CPEng FIEAust IntPE(Aus) GradDip(Pavements)

Principal Geotechnical Engineer, Director

Attachments: GBG Proposal (22 pages)

Edge Standards Terms of Business Service V2 (3 pages)



Edge Geotechnical

1 Engagement as Company

The Client hereby engages Edge Geotechnical Pty Ltd ("the Company") on a non-exclusive basis to provide the Services to the Client, and the Company hereby accepts that engagement and agrees to provide the Services to the Client, in accordance with the Quote and terms of this agreement.

Commencement and duration

The Company's engagement with the Client will:

- commence on the Start Date; and
- continue indefinitely unless and until it is terminated in accordance with clause 8.

Nature of relationship

The Company is an independent contractor of the Client and nothing in this agreement constitutes a relationship of employer and employee, principal and agent, partnership or joint venture between the parties.

2 Provision of the Services

Quote

In respect of each individual engagement for the Company to provide Services to the Client under this agreement (each an Engagement), the parties must first agree on a Quote. The Company's obligation to provide the Services that are the subject of each Engagement does not arise unless and until the Client has notified the Company of the Client's acceptance of the relevant Quote.

Fees

Fees for the Professional Services are outlined in the Quote. Fees and Hourly Rates provided in the Quote are valid for a maximum period of six (6) months from the date of the Quote.

Safety

Unless stated otherwise in the Quote, the Company is not responsible for any job site safety and does not control any project site. Where site access is required by the Company, its employees will abide by any health and safety procedures provided by the Client for the project site.

3 Pricing and invoicing

Pricing

All prices are subject to change without prior notice. All payments are to be made in accordance with the Invoice.

The Company may issue monthly progress invoices. The Invoice is deemed valid unless notification is received by the Company of any Dispute within seven (7) days of the date of the Invoice.

4 Payment

Timing of payments

The Client must pay to the Company all Charges properly invoiced pursuant to clause 4 in full on or before the

date that is 30 Days after the Client's receipt of the relevant invoice.

Method of payment

All amounts to be paid by a party to the Company under or in connection with this agreement must be paid in cash or by way of bank cheque or electronic funds transfer into the account nominated by the Company.

Default interest

If a party fails to pay any sum payable by it under this agreement to the Company at the time and otherwise in the manner provided in this agreement, it must pay interest on that sum from the due date of payment until that sum is paid in full at the Default Rate of 7% p.a. calculated daily.

5 Confidentiality

As far as the law permits and without express consent, the Company will keep information associated with the Services performed confidential and not share it with third parties.

6 Intellectual Property

The parties agree that all Relevant IP will be owned by, and vest in, the Company.

Assignment

The Client hereby assigns, transfers and conveys to the Company all current and future right, title and interest in all Relevant IP and acknowledges that all future Relevant IP will vest in the Company on and from creation.

Client's duty to assist the Company

The Client must do anything necessary, including executing any documents, for the purpose of effecting, perfecting and/or protecting the Company's title to any Relevant IP, in Australia or in such other countries as the Company may require at its discretion.

Permitted use

The Client may not use or reproduce any Relevant IP or any other Intellectual Property Rights of the Company or any of the Company's customers, clients or suppliers without the Company's prior written approval, except in the performance of its duties under this agreement.

7 Liability and remedies

Indemnity

The Client shall have personal liability for, and hereby irrevocably indemnifies and covenants to hold the Company harmless from and against, any and all Losses that may be suffered by the Company and which arise, directly or indirectly, in connection with any breach of this agreement by the Client and/or any negligent or other tortious conduct in the provision of the Services.

Indemnities continuing

Each indemnity contained in this agreement is an additional, separate, independent, and continuing obligation that survives the termination of this agreement despite any settlement of account or other



occurrence and remains in full force and effect until all money owing, contingently or otherwise, under the relevant indemnity has been paid in full and no one indemnity limits the generality of any other indemnity.

Limitation of liability

To the maximum extent permitted by law, the Company and its Representatives expressly:

(Disclaimer of warranties) disclaim all conditions, representations and warranties (whether express or implied, statutory or otherwise) in relation to the Services, including any implied warranty of merchantability, fitness for a particular purpose or non-infringement. Without limitation to the foregoing, the Company and its Representatives make no representation, and provide no warranty or guarantee, that:

- the Client will achieve any particular results from the provision of the Services; or
- any particular individuals will perform the Services on behalf of the Company.

(Limitation of liability) limit their aggregate liability in respect of any and all Claims for any Losses that the Client and/or any of its Representatives may bring against the Company under this agreement or otherwise in respect of the Services to the following remedies (the choice of which is to be at the Company's sole discretion):

- re-supply of the Services;
- payment of the costs of supply of the Services by a third party; or
- the refund of any amounts paid by the Client to the Company under this agreement in respect to the Services,

even if the Company has been advised of the possibility of such Losses, and the Client acknowledges and agrees that the Company holds the benefit of this clause for itself and as agent and trustee for and on behalf of each of its Representatives.

Force majeure

To the maximum extent permitted by law, the Company and its Representatives expressly exclude liability for any damage and/or delay in the performance of any obligation of the Company under this agreement where such damage or delay is caused by circumstances beyond the reasonable control of the Company and the Company shall be entitled to a reasonable extension of time for the performance of such obligations, and the Client acknowledges and agrees that the Company holds the benefit of this clause 10.4 for itself and as agent and trustee for and on behalf of each of its Representatives.

Remedies for breach

Each party acknowledges and agrees that, in the event of any breach by the other party of the provisions of clause

7 (Confidentiality) or clause 11 (Non-solicitation), damages may not be an adequate remedy and the first-mentioned party may, in addition to any other remedies, obtain an injunction restraining any further violation by the other party and other equitable relief, without the necessity of showing actual damage and without any security being required, together with recovery of costs. Any Claims asserted by such other party against the first-mentioned party shall not constitute a defence in any such injunction action, application, or motion.

8 Termination

Termination for breach

The Company may terminate this agreement immediately by notice to the Client if an Event of Default occurs in respect of the Client.

If the Company commits any material or persistent breach of this agreement, the Client may (but is not obliged to) provide the Company with a notice of breach in writing. If the Company fails to remedy the breach within 30 Days after the date of its receipt of such notice, the Client may terminate this agreement with immediate effect upon providing the Company with a further notice of termination in writing.

Termination with notice

The Client may terminate this agreement at any time by giving at least 10 Business Days' notice to the Company. The Company may terminate this agreement at any time by giving at least 10 Business Days' notice to the Client. The Client may waive all or part of such notice period.

Effect of termination

In the event of any termination of this agreement in any circumstances and for any reason whatsoever:

- the Client will remain liable to pay all Charges accrued up to and including the date of termination, whether or not invoiced prior to the date of termination (for the avoidance of doubt, in the event of any termination of this agreement by the Client, including Charges incurred by the Company for the purchase of materials for those Services prior to such termination); and
- the Company will send to the Client a final invoice for the balance of any unbilled Charges accrued up to and including the date of termination and clause 5 will apply in respect thereof.

Partially completed deliverables

Upon the cessation of the Company's engagement under this agreement, the Company will retain any and all partially completed deliverables that are included within the scope of the Services. The Client acknowledges and agrees that it does not have any rights over any partially completed deliverables and that it will not raise a claim to force the Company to terminate or deliver the partially completed deliverables to the Client.



Accrued rights

Termination of this agreement will not affect any rights or liabilities that the parties have accrued under it prior to such termination.

Survival

The obligations of the parties under clause 5 (Confidentiality), clause 6 (Intellectual Property), clause 7 (Liability and remedies) and this clause 8 will survive the termination of this agreement.

9 General

Further assurances

Each party must (at its own expense, unless otherwise provided in this agreement) promptly execute and deliver all such documents, and do all such things, as any other party may from time to time reasonably require for the purpose of giving full effect to the provisions of this agreement.

Third parties

This agreement is made for the benefit of the parties to it and their successors and permitted assigns and is not intended to benefit, or be enforceable by, anyone else.

Entire agreement

This agreement contains the entire understanding between the parties in relation to its subject matter and supersedes any previous arrangement, understanding or agreement relating to its subject matter. There are no express or implied conditions, warranties, promises, representations, or obligations, written or oral, in relation to this agreement other than those expressly stated in it or necessarily implied by statute.

Severability

If a provision of this agreement is invalid or unenforceable in a jurisdiction:

- it is to be read down or severed in that jurisdiction to the extent of the invalidity or unenforceability; and
- that fact does not affect the validity or enforceability of that provision in another jurisdiction, or the remaining provisions.

No waiver

No failure, delay, relaxation, or indulgence by a party in exercising any power or right conferred upon it under this agreement will operate as a waiver of that power or right. No single or partial exercise of any power or right precludes any other or future exercise of it, or the exercise of any other power or right under this agreement.

Amendment

This agreement may not be varied except by written instrument executed by all of the parties.

Assignment

A party must not assign or otherwise transfer, create any charge, trust or other interest in, or otherwise deal in

any other way with, any of its rights under this agreement without the prior written consent of the other party.

Counterparts

This agreement may be executed in any number of counterparts, each of which is an original and which together will have the same effect as if each party had signed the same document.

Guarantee by corporate officers

If you are representing a company/corporate entity, you jointly and severally guarantee all obligations of your company under this Terms of Service; and you jointly and separately indemnify us in respect of any breach or any default under this Terms of Service.

Governing law and jurisdiction

This agreement and any disputes or claims arising out of or in connection with its subject matter or formation (including non-contractual disputes or claims) are governed by, and shall be construed in accordance with, the laws of New South Wales, Australia.

The parties irrevocably agree that the courts of New South Wales, Australia have exclusive jurisdiction to settle any dispute or claim that arises out of, or in connection with, this agreement or its subject matter or formation (including non-contractual disputes or claims).

* * * *

EXECUTION

Client/Company Name:	
Signed by Client Representative(s)	
Date signed	
Start Date	
Edge Quote Reference #	

Proposal

SEISMIC INVESTIGATION – 51 ATKINSON STREET – LITHGOW, NSW

Date: 15 November 2022

Proposal Number: P23170

COMMERCIAL IN CONFIDENCE

SHALLOW



GEOPHYSICAL



INVESTIGATIONS



DETAILS

Proposal Number:	P23170
Document Title:	Seismic Investigation – 51 Atkinson Street, Lithgow, NSW
Site Address:	51 Atkinson Street, Lithgow, NSW
Proposal prepared for:	Karen Allan – Edge Geotech

DOCUMENT HISTORY

Revision	Prepared by	Reviewed by	Date issued
1st	S. Williams	Aaron Tomkins	15/11/2022

DISTRIBUTION

Revision	Electronic	Paper	Issued to
1st	1	0	K Allan – Edge Geotech

FAO: KAREN ALLAN

Principal

EDGE GEOTECHNICAL

PO Box 293

Blackheath, NSW, 2785

Mobile: 0429934987

Email: karen@edgegeotech.com.au**RE: SEISMIC INVESTIGATION AT 51 ATKINSON STREET, LITHGOW, NSW.**

GBG Australia Pty Ltd (Part of GBG Group) is pleased to present this proposal to undertake seismic profiling across the above development site in Lithgow.

1 BACKGROUND

The site 51 Atkinson Street in Lithgow, NSW. Is to be developed as environmentally friendly accommodation with low impact light weight cabin structures making up the majority of the accommodation. The site sits in a valley with the state mine creek in the base of the valley on the west side of the site.

The land in the site was part of a coal mine lease and appears to have been used to stockpile waste spoil from a local coal mine. This material was believed to have been laid down and landscaped some 40 yrs. ago and appears from exposed areas to contain waste shale coal and rock what was termed "Chitter". The site slowly rises heading east and north from the creek with what appears to be a topographic change of between 8 to 10m. the site is grass covered with a few trees in the main area and low scrub vegetation. It also currently contains a few temporary structures set up by the developer. Figure 1 overleaf is an aerial shot of the site courtesy of Google Earth Professional.

In order to better understand the ground compaction and stiffness for foundation design of the near surface coal waste material, there is a requirement to obtain geotechnical information across the site. The more traditional methods of DCP / CPT or boreholes are going to be very difficult to undertake through the waste material which contains very mixed particle size from clay to cobbles and possibly boulders. As a result, the geotechnical engineer is looking at using seismic methods to collect shear wave and P wave velocity profiles to enable assessment of the ground stiffness and thickness of the waste material layer.

In order to achieve this objective GBG is proposing to apply a modified Seismic Refraction Testing (SRT) / Multi channel Analysis of Surface Waves (MASW) to collect the P & S wave data. This proposal sets out the proposed profiles and the methodology.

2 SCOPE OF WORK

Aim: - To supply subsurface information on the stiffness and depth of the waste material covering the development site to inform geotechnical engineering assessment and recommendations on foundation design.

The investigation site is approximately 150m long by 100m wide and grassed it has been landscaped to enable drainage with slopes mounds and swales. Figure 1 below outlines the site and shows the 3-line profiles we expect to collect.



Figure 1: 51 Atkinson Street site and proposed seismic profiles.

3 METHODOLOGY

3.1 Field Methodology

The following is the expected methodology for data collection:

Collection will be modified Seismic Refraction and MASW profiles collected using 24 channel, 2 or 3m spaced geophone array where we will collect a full SRT profile and up to 6 MASW soundings per profile to provide 2d refraction profiles to image bedrock and increasingly dense / hard material and the MASW 1D soundings to provide Shear wave layer models at specific locations along the profile that will provide shear wave velocities that directly correlate to stiffness along with depth.

3.2 Seismic Methods

The attached information sheets provide information on both the methods recommended here to be collected from one profile using the same equipment.

GBG will use the following acquisition parameters:

- A receiving array consisting of 24, 10 Hz geophones set with 2 or 3m spacing between phones
- Complete seismic refraction profile with off-end hammer shots to provide profile depth equivalent to 12m maximum Soundings at 10 m centres along the profile lines also at 10 m offsets creating a 10 x 10 m grid.
- MASW soundings at 12 geophone intervals along each profile to achieve 1d Shear wave soundings to a depth of 12m.

The seismic source will be a sledgehammer on a plate and each shot will be stacked at least three times to provide the best signal to noise available. The position of each shot and the position of geophones will be recorded using corrected GPS to provide horizontal accuracy of 50mm and vertical accuracy of 30mm.



Figure 2: Collection of MASW Data Using a Land Streamer with 24 Geophones

LIMITATIONS:

Seismic data quality can be impacted significantly by noise and vibration close to the array or the energy source. Noise sources include:

- Vehicle and or plant traffic. Trucks and trains and light vehicles. Tracked vehicles are significantly problematic.
- Simultaneous operations – drilling, test pitting
- Construction works
- Strong wind and rain

If any of the above conditions are expected to be present, please advise prior to mobilization so GBG can advise on the likely impact based on distance and frequency of interruption to data collection. If a site is unprepared or unsuitable for surveying then fieldwork may need to be abandoned, or data coverage will be limited. Abandoning fieldwork or changing to night or weekend works are likely to incur additional costs.

4 DELIVERABLES

Data processing will be undertaken in our GBG Sydney office. Data will be stored digitally for processing and analysis. Our data collection, storage and processing steps will also be documented and follow our Quality Assurance (QA) and Control (QC) procedures. **GBG Australia will supply a full draft report including any drawings within 20 business days, unless otherwise agreed.** GBG Australia will supply a draft report where the client can make two revisions prior to a final report being issued. All reports (including drawings) will be supplied in portable document format unless requested otherwise. Additional revisions will be charged at an hourly rate. GBG Australia references all data to GDA2020 and AHD where applicable, unless requested otherwise.

Deliverables include.

1. Plan view drawings showing location of profiles and tests
2. Modelled sections for Seismic refraction to provide depth to bedrock and the MASW 1D soundings to provide geotechnical information on the waste coal layer
3. P & S wave data at the 1d sounding points to provide Dynamic Moduli, Youngs Moduli Poisson ration estimates.

Digital data can be supplied if required. Data requests after job completion, may require georeferencing, formatting or compiling and can incur additional costs at an hourly rate as set out in the table of fees and costs.

5 TIMING AND MOBILISATION

We will require a Purchase Order or contract prior to organising any site work. Based on our current workloads we will require at least two to three weeks' notice prior to the start of site work to organise staff and equipment.

Table 1: Fieldwork schedule

Item	Field Acquisition – Days	Staff Members	Hour per day
Mob / preparation	0.25	2	10
Field Work	1	2	10

6 ASSUMPTIONS

GBG Australia assumes the following:

- All required access permits and public notifications will have been undertaken by the Client prior to arrival onsite.
- If the Client or their consultants wish to vary this proposal or undertake further investigation based upon results gathered in the field, GBG Australia reserves the right to vary this proposal.
- The price for staff on site will increase by 20% for work outside normal work hours, such as, night or weekend work. Inductions of longer than an hour will attract a fee as set out in the table of fees and costs.
- No allowance has been made in the schedule of rates for delays to the proposed works arising from causes outside the control of GBG Australia. Delays that stop data collection on site for longer than 1 hour, will incur a standby rate up until a maximum of an 8-hour day. Charges for delays will be based on an hourly standby rate as set out in the table of fees and costs, plus extra disbursement costs and all expenses as required.
- If testing is abandoned on site, the minimum call out fee is one day of data acquisition as set out in the table of fees and costs, plus all mobilization/demobilisation costs and any cancellation costs for accommodation, airfares and hire vehicles.
- This quote is valid for three (3) months from the date of this proposal.
- Our terms and conditions can be found in Appendix A, attached. Payment terms are 14 days from date of invoicing.

- GBG Australia will need confirmation of engagement in the form of a purchase order, signed contract or letter of engagement prior to organising staff and equipment.

7 HEALTH SAFETY AND ENVIRONMENT

GBG is committed to providing a high standard of health safety and environmental practices. GBG have been incident free for 7 years with no time lost on site. All GBG field staff hold current first aid training and several staff have remote first aid training. All GBG Staff hold General Construction Induction certificates. **Costs for medicals, inductions and training certificates required specifically to work on the site will be charged back to the client.**

8 STAFFING / EQUIPMENT

For this investigation we will provide two staff members - a senior geophysicist and a geophysicist or an experienced field hand. In addition, we will provide all geophysics equipment along with a site vehicle. Equipment and staff will be mobilised from our Sydney office.

9 INSURANCES

GB Geotechnics (Aust) P/L Trading as GBG Australia Pty Ltd has professional indemnity insurance to a maximum of \$20 million, public liability insurance to \$20 million and all staff are covered under the NSW Work Cover insurance. We also have corporate travel insurance to cover medical and travel costs for all employees working overseas (this insurance may not cover pandemic related claims), and comprehensive motor vehicle insurance. Copies of all currency certificates can be provided on request.

10 ESTIMATE OF FEES AND COSTS

The table below provides a breakdown of costs for this investigation.

Table 2: Cost of Investigation and Reporting

Item	Unit	Unit Cost	Quantity	Total
Project Management and Planning	Lump sum	\$450.00	1	\$450.00
Site Establishment	Lump sum	\$300.00	1	\$300.00
Data Acquisition: two staff equipment and vehicle	Per day	\$3,850.00	1	\$3,850.00
Processing, Analysis and Drafting	Lump Sum	\$3,200.00	1	\$3,200.00
Reporting and QA	Lump sum	\$1,450.00	1	\$1,450.00
Staff & Equipment Standby up to a maximum of 8 hours per day	Per hour	\$305.00		
Additional Staff Hours (Inductions, Medicals, Report Revisions etc.)	Per person / per hour	\$160.00		
Total (Ex. GST)				\$9,250.00

No allowance has been made for working nights if required. No allowance has been made in the rates below for standby time arising from situations outside of GBG Staff control. No allowance has been made for onsite delays due to inclement weather.

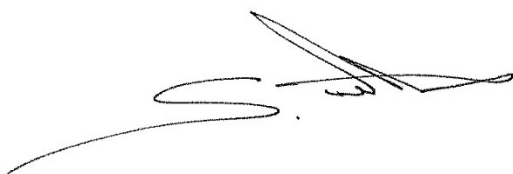
11 QUALITY ASSURANCE

The company is a subsidiary of GBG UK and has been operating within Australia since 1992. The parent company is quality assured to ISO standard 9002 and although not independently verified, GBG Australia operates under the parent companies' quality assurance guidelines.

I hope that this proposal provides you with the information required. If you require clarification on any points, please contact the undersigned on (02) 9890 2122 or 0403 153 651.

For and on behalf of

GBG Australia



Simon Williams

Director / Principal Geophysicist

1. Definitions

- 1.1 “Contract” means the terms and conditions contained herein, together with any quotation, order, invoice or other document or amendments expressed to be supplemental to this Contract.
- 1.2 “Consultant” means GB Geotechnics (Australia) Pty Ltd T/A GBG Australia its successors and assigns or any person acting on behalf of and with the authority of GB Geotechnics (Australia) Pty Ltd T/A GBG Australia.
- 1.3 “Client” means the person/s, entities or any person acting on behalf of and with the authority of the Client requesting the Consultant to provide the Services as specified in any proposal, quotation, order, invoice or other documentation, and:
- (a) if there is more than one Client, is a reference to each Client jointly and severally; and
 - (b) if the Client is a partnership, it shall bind each partner jointly and severally; and
 - (c) if the Client is a part of a Trust, shall be bound in their capacity as a trustee; and
 - (d) includes the Client’s executors, administrators, successors and permitted assigns.
- 1.4 “Incidental Items” means any goods, documents, designs, drawings or materials supplied, consumed, created or deposited incidentally by the Consultant in the course of it conducting, or supplying to the Client, any Services.
- 1.5 “Services” mean all Services supplied by the Consultant to the Client at the Client’s request from time to time.
- 1.6 “Confidential Information” means information of a confidential nature whether oral, written or in electronic form including, but not limited to, this Contract, either party’s intellectual property, operational information, know-how, trade secrets, financial and commercial affairs, contracts, client information (including but not limited to, “**Personal Information**” such as: name, address, D.O.B, occupation, driver’s license details, electronic contact (email, Facebook or Twitter details), medical insurance details or next of kin and other contact information (where applicable), previous credit applications, credit history) and pricing details.
- 1.7 “Cookies” means small files which are stored on a user’s computer. They are designed to hold a modest amount of data (including Personal Information) specific to a particular client and website and can be accessed either by the web server or the client’s computer. **If the Client does not wish to allow Cookies to operate in the background when ordering from the website, then the Client shall have the right to enable / disable the Cookies first by selecting the option to enable / disable provided on the website, prior to ordering Services via the website.**
- 1.8 “Price” means the price payable (plus any GST where applicable) for the Services as agreed between the Consultant and the Client in accordance with clause 5 of this Contract.
- 1.9 “GST” means Goods and Services Tax as defined within the “A New Tax System (Goods and Services Tax) Act 1999” (Cth).

2. Acceptance

- 2.1 The Client is taken to have exclusively accepted and is immediately bound, jointly and severally, by these terms and conditions if the Client places an order for, or accepts Services provided by the Consultant.
- 2.2 In the event of any inconsistency between the terms and conditions of this Contract and any other prior document or schedule that the parties have entered into, the terms of this Contract shall prevail.
- 2.3 Any amendment to the terms and conditions contained in this Contract may only be amended in writing by the consent of both parties.
- 2.4 The Client acknowledges that the supply of Services on credit shall not take effect until the Client has completed a credit application with the Consultant and it has been approved with a credit limit established for the account.
- 2.5 In the event that the supply of Services request exceeds the Clients credit limit and/or the account exceeds the payment terms, the Consultant reserves the right to refuse delivery.
- 2.6 Electronic signatures shall be deemed to be accepted by either party providing that the parties have complied with Section 9 of the Electronic Transactions Act 2000 or any other applicable provisions of that Act or any Regulations referred to in that Act.
- 2.7 If after the date of this Contract there is any change to the laws, by-laws, regulations or ordinances of Australia or any statutory authority and that change directly or indirectly increases or decreases the costs or reimbursable expenses incurred by the Consultant in performing the Services then the fee and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly.

3. Errors and Omissions

- 3.1 The Client acknowledges and accepts that the Consultant shall, without prejudice, accept no liability in respect of any alleged or actual error(s) and/or omission(s):
- (a) resulting from an inadvertent mistake made by the Consultant in the formation and/or administration of this Contract; and/or
 - (b) contained in/omitted from any literature (hard copy and/or electronic) supplied by the Consultant in respect of the Services.
- 3.2 In the event such an error and/or omission occurs in accordance with clause 3.1, and is not attributable to the negligence and/or wilful misconduct of the Consultant; the Client shall not be entitled to treat this Contract as repudiated nor render it invalid.

4. Change in Control

- 4.1 The Client shall give the Consultant not less than fourteen (14) days prior written notice of any proposed change of ownership of the Client and/or any other change in the Client’s details (including but not limited to, changes in the Client’s name, address, contact phone or fax number/s, change of trustees, or business practice). The Client shall be liable for any loss incurred by the Consultant as a result of the Client’s failure to comply with this clause.

5. Role of the Consultant

- 5.1 The Consultant shall exercise reasonable skill, care and diligence in the performance of the Services in accordance with the ethics of the engineering profession.
- 5.2 If the Consultant is required to exercise their professional judgment between the Client and a third party with whom the Client has a Contract, then he shall do so independently and as required by the terms of that contract.
- 5.3 The Consultant shall use all reasonable efforts to inform themselves, of the Client’s requirements for the Services and for that purpose he shall consult the Client throughout the performance of the Services.

- 5.4 If the Consultant considers that the information, documents and other particulars made available to him by the Client are not sufficient to enable the Consultant to provide the Services in accordance with this Contract. The Consultant may advise the Client who shall then provide such further assistance, information, or other particulars as necessary in the circumstances.
- 5.5 If the Consultant becomes aware of any matter which will change or which has changed the scope or timing of the Services then the Consultant will give notice to the Client and the notice will contain, as far as practicable in the circumstances, particulars of the change.
- 5.6 The Consultant shall perform the Services in a timely manner to the extent that it is within his/her control to do so.

6. Role of the Client

- 6.1 The Client shall as soon as practicable make available to the Consultant all information, documents and other particulars relating to the Client's requirements for the Services.
- 6.2 The Client shall as soon as practicable make arrangements to enable the Consultant to enter upon the site and other lands as necessary to enable the Consultant to perform the Services.
- 6.3 Unless the parties specifically agree otherwise, the Client shall as soon as practicable obtain all approvals, authorities, licenses and permits which are required from governmental, municipal or other responsible authorities for the lawful implementation and completion of the Services.
- 6.4 The Client agrees that the Services do not include any services which are properly carried out by other professions such as legal or accounting and if other such professional services are required the Client shall obtain these services at his own cost.
- 6.5 The Client shall make available to the Consultant at the place and at the time specified in the Quotation or proposal, the equipment and facilities specified in the proposal.
- 6.6 The Client may appoint a person or persons to act as their representative and shall give written notice to the Consultant of the name of the person(s) so appointed. The Client agrees that the person(s) appointed shall have full authority to act on behalf of the Client for all purposes in connection with this Contract.
- 6.7 If the Client becomes aware of any matter which may change the scope or timing of the Services or the project, then the Client will give written notice of same to the Consultant.
- 6.8 The Client shall carry out any additional special obligations set out in the proposal/quote.
- 6.9 The Client shall co-operate with the Consultant and shall not interfere with or obstruct the proper performance of the Services.
- 6.10 The Client shall indemnify the Consultant from and against all liability (including, without limitation, all costs, loss, and damage) whatsoever for the failure of the Client to follow or correctly implement advice, recommendations, or procedures recommended by the Consultant.

7. Price and Payment

- 7.1 At the Consultant's sole discretion, the Price shall be either:
- (a) as indicated on any invoice provided by the Consultant to the Client; or
 - (b) the Consultant's quoted price (subject to clause 7.2) which will be valid for the period stated in the quotation or otherwise for a period of thirty (30) days.
- 7.2 The Consultant reserves the right to change the Price:
- (a) if a variation to the Services which are to be supplied is requested; or
 - (b) if a variation to the Services originally scheduled (including any applicable plans or specifications) is requested; or
 - (c) where additional Services are required due to the discovery of hidden or unidentifiable difficulties (including, but not limited to, poor weather conditions, limitations to site access, prerequisite work by a third party not being completed, inaccurate measurements, hard rock or other barriers below the surface, iron reinforcing rods in concrete, hidden pipes and wiring, safety considerations including discovery of contaminants or hazardous materials or geological and archaeological interest etc.) which are only discovered on commencement of the Services; or
 - (d) for any delays beyond thirty (30) minutes caused by circumstances beyond the reasonable control of the Consultant (including, but not limited to delays in accessing the site). These delays will be charged for by the Consultant at the Consultant's standard hourly rate; or
 - (e) in the event of increases to the Consultant in the cost of labour or materials which are beyond the Consultant's control.
- 7.3 Variations will be charged for on the basis of the Consultant's quotation, and will be detailed in writing, and shown as variations on the Consultant's invoice. The Client shall be required to respond to any variation submitted by the Consultant within ten (10) working days. Failure to do so will entitle the Consultant to add the cost of the variation to the Price. Payment for all variations must be made in full at the time of their completion.
- 7.4 At the Consultant's sole discretion, a deposit may be required.
- 7.5 Time for payment for the Services being of the essence, the Price will be payable by the Client on the date/s determined by the Consultant, which may be:
- (a) on completion of the Services.
 - (b) seven (7) days following the end of the month in which a statement is posted to the Client's address or address for notices.
 - (c) the date specified on any invoice or other form as being the date for payment; or
 - (d) failing any notice to the contrary, the date which is seven (7) days following the date of any invoice given to the Client by the Consultant.
- 7.6 Payment may be made by, cheque, bank cheque, electronic/on-line banking, or by any other method as agreed to between the Client and the Consultant.
- 7.7 The Consultant may in its discretion allocate any payment received from the Client towards any invoice that the Consultant determines and may do so at the time of receipt or at any time afterwards. On any default by the Client the Consultant may re-allocate any payments previously received and allocated. In the absence of any payment allocation by the Consultant, payment will be deemed to be allocated in such manner as preserves the maximum value of the Consultant's Purchase Money Security Interest (as defined in the PPSA) in the Services.
- 7.8 The Client shall not be entitled to set off against, or deduct from the Price, any sums owed or claimed to be owed to the Client by the Consultant nor to withhold payment of any invoice because part of that invoice is in dispute.

- 7.9 Unless otherwise stated the Price does not include GST. In addition to the Price, the Client must pay to the Consultant an amount equal to any GST the Consultant must pay for any supply by the Consultant under this or any other agreement for providing the Consultant's Services. The Client must pay GST, without deduction or set off of any other amounts, at the same time and on the same basis as the Client pays the Price. In addition, the Client must pay any other taxes and duties that may be applicable in addition to the Price except where they are expressly included in the Price.
- 8. Provision of the Services**
- 8.1 At the Consultant's sole discretion delivery of the Services shall take place when the Services are supplied to the Client at the Client's nominated address.
- 8.2 Delivery of the Services to a third party nominated by the Client is deemed to be delivery to the Client for the purposes of this Contract.
- 8.3 Both parties agree that they shall make every endeavour to enable the Services to be supplied at the time and place as was arranged between both parties. In the event that the Consultant is unable to supply the Services as agreed solely due to any action or inaction of the Client then the Consultant shall be entitled to charge a reasonable fee for re-supplying the Services at a later time and date.
- 9. Field Work**
- 9.1 Access for site visits or field work are to be made during normal working hours unless otherwise agreed to prior to acceptance by the Client of any proposal or quotation submitted by the Consultant.
- 9.2 Prior to the Consultant commencing any work the Client must advise the Consultant of the precise location of all underground services on the site and clearly mark the same. The underground mains & services the Client must identify include, but are not limited to, electrical services, gas services, sewer services, pumping services, sewer connections, sewer sludge mains, water mains, irrigation pipes, telephone cables, fibre optic cables, oil pumping mains, and any other services that may be on site.
- 9.3 Whilst the Consultant will take all care to avoid damage to any underground services the Client agrees to indemnify the Consultant in respect of all and any liability claims, loss, damage, costs and fines as a result of damage to services not precisely located and notified as per clause 9.2.
- 9.4 Unless otherwise requested or specified, any soil samples and/or rock core obtained during any investigatory processes, shall be stored by the Consultant for a period of two (2) months following the submission of any reports. The Client accepts that any storage of soil samples or rock core that extends beyond the two (2) month period may be subject to additional costs to cover such storage.
- 9.5 In the event that during the course of the Services the Consultant discovers any fossils, artefacts or any other remains of geological or archaeological interest then the Consultant reserves the right to halt all Services and immediately notify the Client. The Client accepts and agrees that all additional costs that may be incurred by the Consultant as a result of any such delays shall be borne by the Client and shall be treated as a variation in accordance with clause 7.2 above.
- 10. Risk**
- 10.1 Irrespective of whether the Consultant retains ownership of any Incidental Items all risk for such items shall pass to the Client as soon as such items are delivered to the Client and shall remain with the Client until such time as the Consultant may repossess the Incidental Items in accordance with clause 14.3(c). The Client must insure all Incidental Items on or before delivery.
- 10.2 The Consultant reserves its right to seek compensation or damages for any damage, destruction or loss suffered in relation to the Incidental Items as a result of the Client's failure to insure in accordance with clause 10.1.
- 11. Insurance**
- The Consultant shall have public liability insurance of at least \$5m. It is the Client's responsibility to ensure that they are similarly insured.
- 12. Compliance with Laws**
- 12.1 The Client and the Consultant shall comply with the provisions of all statutes, regulations and bylaws of government, local and other public authorities that may be applicable to the Services.
- 12.2 Unless the parties specifically agree otherwise, the Client shall as soon as practicable obtain (at the expense of the Client) all approvals, authorities, licenses, and permits which are required from governmental, municipal, or other responsible authorities for the lawful implementation and completion of the Services.
- 12.3 The Client agrees that the site will comply with any work health and safety (WHS) laws relating to the Services and any other relevant safety standards or legislation and provide the Consultant with free, clear, and safe access to the site to enable the Consultant to perform the Services. The Consultant shall not be liable for any loss or damage to the site unless due to the negligence of the Consultant.
- 13. Plans and Specifications**
- 13.1 The plans, specifications (including CAD plans) and other information provided by the Client to the Consultant are accurate. The Client acknowledges and agrees that in the event that any plans, specifications (including CAD plans) or information provided by the Client is inaccurate:
- (a) the Consultant accepts no responsibility or liability for any loss, damages, or costs however resulting from these inaccurate plans, specifications or other information; and
 - (b) the Consultant is entitled to suspend or terminate the supply of Incidental Items or Services to the Client if there is a material change to the scope of Services as a result of inaccurate plans, specifications or other information; and
 - (c) the Client shall be liable for the Consultant's costs of de-mobilisation or re-mobilisation of any plant, equipment or staff to or from the site, upon the re-commencement of the Services at the site, if applicable; and
 - (d) the Consultant will not be liable to the Client for any loss or damage the Client suffers because the Consultant has exercised its rights under this clause.
- 14. Title to Incidental Items**
- 14.1 The Consultant and the Client agree that where it is intended that the ownership of Incidental Items is to pass to the Client that such ownership shall not pass until:

- (a) the Client has paid the Consultant all amounts owing for the Services; and
 - (b) the Client has met all other obligations due by the Client to the Consultant in respect of all contracts between the Consultant and the Client.
- 14.2 Receipt by the Consultant of any form of payment other than cash shall not be deemed to be payment until that form of payment has been honoured, cleared or recognised and until then the Consultant's ownership or rights in respect of the Incidental Items shall continue.
- 14.3 It is further agreed that, until ownership of the Incidental Items passes to the Client in accordance with clause 14.1:
- (a) the Client is only a bailee of the Incidental Items and must return the Incidental Items to the Consultant immediately upon request by the Consultant.
 - (b) the Client holds the benefit of the Client's insurance of the Incidental Items on trust for the Consultant and must pay to the Consultant the proceeds of any insurance in the event of the Incidental Items being lost, damaged or destroyed.
 - (c) the Client irrevocably authorises the Consultant to enter any premises where the Consultant believes the Incidental Items are kept and recover possession of the Incidental Items.
- 15. Personal Property Securities Act 2009 ("PPSA")**
- 15.1 In this clause financing statement, financing change statement, security agreement, and security interest has the meaning given to it by the PPSA.
- 15.2 Upon assenting to these terms and conditions in writing the Client acknowledges and agrees that these terms and conditions constitute a security agreement for the purposes of the PPSA and creates a security interest in:
- (a) all Incidental Items previously supplied by the Consultant to the Client.
 - (b) all Incidental Items will be supplied in the future by the Consultant to the Client; and
 - (c) all the Client's present and after acquired property being a charge, including anything in respect of which the Client has at any time a sufficient right, interest or power to grant a security interest in for the purposes of securing repayment of all monetary obligations of the Client to the Consultant for Services – that have previously been provided and that will be provided in the future by the Consultant to the Client.
- 15.3 The Client undertakes to:
- (a) promptly sign any further documents and/or provide any further information (such information to be complete, accurate and up to date in all respects) which the Consultant may reasonably require to:
 - (i) register a financing statement or financing change statement in relation to a security interest on the Personal Property Securities Register.
 - (ii) register any other document required to be registered by the PPSA; or
 - (iii) correct a defect in a statement referred to in clause 15.3(a)(i) or 15.3(a)(ii);
 - (b) indemnify, and upon demand reimburse, the Consultant for all expenses incurred in registering a financing statement or financing change statement on the Personal Property Securities Register established by the PPSA or releasing any Incidental Items charged thereby.
 - (c) not register a financing change statement in respect of a security interest without the prior written consent of the Consultant.
 - (d) not register, or permit to be registered, a financing statement or a financing change statement in relation to the Incidental Items in favour of a third party without the prior written consent of the Consultant.
- 15.4 The Consultant and the Client agree that sections 96, 115 and 125 of the PPSA do not apply to the security agreement created by these terms and conditions.
- 15.5 The Client waives their rights to receive notices under sections 95, 118, 121(4), 130, 132(3)(d) and 132(4) of the PPSA.
- 15.6 The Client waives their rights as a grantor and/or a debtor under sections 142 and 143 of the PPSA.
- 15.7 Unless otherwise agreed to in writing by the Consultant, the Client waives their right to receive a verification statement in accordance with section 157 of the PPSA.
- 15.8 The Client must unconditionally ratify any actions taken by the Consultant under clauses 15.3 to 15.5.
- 15.9 Subject to any express provisions to the contrary (including those contained in this clause 15), nothing in these terms and conditions is intended to have the effect of contracting out of any of the provisions of the PPSA.
- 16. Security and Charge**
- 16.1 In consideration of the Consultant agreeing to supply Services, the Client charges all of its rights, title and interest (whether joint or several) in any land, realty or other assets capable of being charged, owned by the Client either now or in the future, to secure the performance by the Client of its obligations under these terms and conditions (including, but not limited to, the payment of any money).
- 16.2 The Client indemnifies the Consultant from and against all the Consultant's costs and disbursements including legal costs on a solicitor and own client basis incurred in exercising the Consultant's rights under this clause.
- 16.3 The Client irrevocably appoints the Consultant and each director of the Consultant as the Client's true and lawful attorney/s to perform all necessary acts to give effect to the provisions of this clause 16 including, but not limited to, signing any document on the Client's behalf.
- 17. Defects, Warranties and the Competition and Consumer Act 2010 (CCA)**
- 17.1 The Client must inspect the Consultant's Services on completion of the Services and must within seven (7) days notify the Consultant in writing of any evident defect in the Services or Incidental Items provided (including the Consultant's workmanship) or of any other failure by the Consultant to comply with the description of, or quote for, the Services which the Consultant was to supply. The Client must notify any other alleged defect in the Consultant's Services or Incidental Items as soon as is reasonably possible after any such defect becomes evident. Upon such notification the Client must allow the Consultant to review the Services or Incidental Items that were provided.
- 17.2 Under applicable State, Territory and Commonwealth Law (including, without limitation the CCA), certain statutory implied guarantees and warranties (including, without limitation the statutory guarantees under the CCA) may be implied into these terms and conditions (**Non-Excluded Guarantees**).
- 17.3 The Consultant acknowledges that nothing in these terms and conditions purports to modify or exclude the Non-Excluded Guarantees.

- 17.4 Except as expressly set out in these terms and conditions or in respect of the Non-Excluded Guarantees, the Consultant makes no warranties or other representations under these terms and conditions including, but not limited to, the quality or suitability of the Services. The Consultant's liability in respect of these warranties is limited to the fullest extent permitted by law.
- 17.5 If the Client is a consumer within the meaning of the CCA, the Consultant's liability is limited to the extent permitted by section 64A of Schedule 2.
- 17.6 If the Consultant is required to rectify, re-supply, or pay the cost of re-supplying the Services under this clause or the CCA, but is unable to do so, then the Consultant may refund any money the Client has paid for the Services but only to the extent that such refund shall take into account the value of Services and Incidental Items which have been provided to the Client which were not defective.
- 17.7 If the Client is not a consumer within the meaning of the CCA, the Consultant's liability for any defective Services or Incidental Items is:
- (a) limited to the value of any express warranty or warranty card provided to the Client by the Consultant at the Consultant's sole discretion.
 - (b) otherwise negated absolutely.
- 17.8 Notwithstanding clauses 17.1 to 17.7 but subject to the CCA, the Consultant shall not be liable for any defect or damage which may be caused or partly caused by or arise as a result of:
- (a) the Client failing to properly maintain or store any Incidental Items.
 - (b) the Client using the Incidental Items for any purpose other than that for which they were designed.
 - (c) the Client continuing to use any Incidental Items after any defect became apparent or should have become apparent to a reasonably prudent operator or user.
 - (d) interference with the Services by the Client or any third party without the Consultant's prior approval.
 - (e) the Client failing to follow any instructions or guidelines provided by the Consultant.
 - (f) fair wear and tear, any accident, or act of God.
- 18. Intellectual Property**
- 18.1 Copyright in all designs, reports, specifications, documents, and other materials provided to the Client by the Consultant shall remain vested in the Consultant. The Consultant hereby grants to the Client an irrevocable, non-exclusive and non-transferable licence to use and reproduce these materials for the purposes of this Contract only.
- 18.2 The Client warrants that all designs, specifications or instructions given to the Consultant will not cause the Consultant to infringe any patent, registered design or trademark in the execution of the Client's order and the Client agrees to indemnify the Consultant against any action taken by a third party against the Consultant in respect of any such infringement.
- 18.3 The Client agrees that the Consultant may (at no cost) use for the purposes of marketing or entry into any competition, any Incidental Items which the Consultant has created for the Client.
- 18.4 If during the course of providing the Services, the Consultant develops, discovers, or first introduces a practice or concept, product or process which is capable of being patented, then:
- (a) such concept, product or process shall be and remain the property of the Consultant, and the Client shall not use, infringe or otherwise appropriate the same without first obtaining the written consent of the Consultant.
 - (b) the Client shall be entitled to a royalty free licence to use the same during the course of the Services.
- 19. Confidentiality**
- 19.1 Subject to clause 19.2, each party agrees to treat as confidential the other party's Confidential Information, and agree not to divulge it to any third party, without the other party's written consent.
- 19.2 Both parties agree to:
- (a) use the Confidential Information of the other party only to the extent required for the purpose it was provided; and
 - (b) not copy or reproduce any of the Confidential Information of the other party in any way; and
 - (c) only disclose the other party's Confidential Information to:
 - (i) employees and contractors who need access to the information and who have agreed to keep it confidential; and
 - (ii) its legal advisers and insurance providers if those persons undertake to keep such information confidential.
- 19.3 Either party must promptly return or destroy all Confidential Information of the other party in its possession or control at the other party's request, unless required by law to retain it.
- 19.4 Confidential Information excludes information:
- (a) generally available in the public domain (without unauthorised disclosure under this Contract); or
 - (b) required by law, any stock exchange or regulatory body to be disclosed; or
 - (c) received from a third party entitled to disclose it; or
 - (d) that is independently developed.
- 19.5 The obligations of this clause 19 shall survive termination or cancellation of this Contract.
- 20. Default and Consequences of Default**
- 20.1 Interest on overdue invoices shall accrue daily from the date when payment becomes due, until the date of payment, at a rate of two and a half percent (2.5%) per calendar month (and at the Consultant's sole discretion such interest shall compound monthly at such a rate) after as well as before any judgment.
- 20.2 If the Client owes the Consultant any money the Client shall indemnify the Consultant from and against all costs and disbursements incurred by the Consultant in recovering the debt (including but not limited to internal administration fees, legal costs on a solicitor and own client basis, the Consultant's contract default fee, and bank dishonour fees).
- 20.3 Further to any other rights or remedies the Consultant may have under this Contract, if a Client has made payment to the Consultant, and the transaction is subsequently reversed, the Client shall be liable for the amount of the reversed transaction, in addition to any further costs incurred by the Consultant under this clause 19 where it can be proven that such reversal is found to be illegal, fraudulent or in contravention to the Client's obligations under this Contract.

- 20.4 Without prejudice to the Consultant's other remedies at law the Consultant shall be entitled to cancel all or any part of any order of the Client which remains unfulfilled and all amounts owing to the Consultant shall, whether or not due for payment, become immediately payable if:
- (a) any money payable to the Consultant becomes overdue, or in the Consultant's opinion the Client will be unable to make a payment when it falls due.
 - (b) the Client has exceeded any applicable credit limit provided by the Consultant.
 - (c) the Client becomes insolvent, convenes a meeting with its creditors or proposes or enters into an arrangement with creditors, or makes an assignment for the benefit of its creditors; or
 - (d) a receiver, manager, liquidator (provisional or otherwise) or similar person is appointed in respect of the Client or any asset of the Client.

21. Cancellation

- 21.1 Without prejudice to any other remedies the Consultant may have, if at any time the Client is in breach of any obligation (including those relating to payment) under these terms and conditions the Consultant may suspend or terminate the supply of Services to the Client. The Consultant will not be liable to the Client for any loss or damage the Client suffers because the Consultant has exercised its rights under this clause.
- 21.2 The Consultant may cancel any contract to which these terms and conditions apply or cancel delivery of Services at any time before the Services are commenced by giving written notice to the Client. On giving such notice the Consultant shall repay to the Client any money paid by the Client for the Services. The Consultant shall not be liable for any loss or damage whatsoever arising from such cancellation.
- 21.3 In the event that the Client cancels delivery of the Services the Client shall be liable for any and all loss incurred (whether direct or indirect) by the Consultant as a direct result of the cancellation (including, but not limited to, any loss of profits).

22. Privacy Policy

- 22.1 All emails, documents, images or other recorded information held or used by the Consultant is Personal Information, as defined and referred to in clause 22.3, and therefore considered Confidential Information. The Consultant acknowledges its obligation in relation to the handling, use, disclosure and processing of Personal Information pursuant to the Privacy Act 1988 ("the Act") including the Part IIIC of the Act being Privacy Amendment (Notifiable Data Breaches) Act 2017 (NDB) and any statutory requirements, where relevant in a European Economic Area ("EEA"), under the EU Data Privacy Laws (including the General Data Protection Regulation "GDPR") (collectively, "EU Data Privacy Laws"). The Consultant acknowledges that in the event it becomes aware of any data breaches and/or disclosure of the Client's Personal Information, held by the Consultant that may result in serious harm to the Client, the Consultant will notify the Client in accordance with the Act and/or the GDPR. Any release of such Personal Information must be in accordance with the Act and the GDPR (where relevant) and must be approved by the Client by written consent, unless subject to an operation of law.
- 22.2 Notwithstanding clause 22.1, privacy limitations will extend to the Consultant in respect of Cookies where transactions for purchases/orders transpire directly from the Consultant's website. The Consultant agrees to display reference to such Cookies and/or similar tracking technologies, such as pixels and web beacons (if applicable), such technology allows the collection of Personal Information such as the Client's:
- (a) IP address, browser, email client type and other similar details.
 - (b) tracking website usage and traffic; and
 - (c) reports are available to the Consultant when the Consultant sends an email to the Client, so the Consultant may collect and review that information ("collectively Personal Information")
- In order to enable / disable the collection of Personal Information by way of Cookies, the Client shall have the right to enable / disable the Cookies first by selecting the option to enable / disable, provided on the website prior to proceeding with a purchase/order via the Consultant's website.
- 22.3 The Client agrees for the Consultant to obtain from a credit reporting body (CRB) a credit report containing personal credit information (e.g. name, address, D.O.B, occupation, driver's license details, electronic contact (email, Facebook or Twitter details), medical insurance details or next of kin and other contact information (where applicable), previous credit applications, credit history) about the Client in relation to credit provided by the Consultant.
- 22.4 The Client agrees that the Consultant may exchange information about the Client with those credit providers and with related body corporates for the following purposes:
- (a) to assess an application by the Client; and/or
 - (b) to notify other credit providers of a default by the Client; and/or
 - (c) to exchange information with other credit providers as to the status of this credit account, where the Client is in default with other credit providers; and/or
 - (d) to assess the creditworthiness of the Client including the Client's repayment history in the preceding two (2) years.
- 22.5 The Client consents to the Consultant being given a consumer credit report to collect overdue payment on commercial credit.
- 22.6 The Client agrees that personal credit information provided may be used and retained by the Consultant for the following purposes (and for other agreed purposes or required by):
- (a) the provision of Services; and/or
 - (b) analysing, verifying and/or checking the Client's credit, payment and/or status in relation to the provision of Services; and/or
 - (c) processing of any payment instructions, direct debit facilities and/or credit facilities requested by the Client; and/or
 - (d) enabling the collection of amounts outstanding in relation to the Services.
- 22.7 The Consultant may give information about the Client to a CRB for the following purposes:
- (a) to obtain a consumer credit report.
 - (b) allow the CRB to create or maintain a credit information file about the Client including credit history.
- 22.8 The information given to the CRB may include:
- (a) Personal Information as outlined in 22.3 above.
 - (b) name of the credit provider and that the Consultant is a current credit provider to the Client.
 - (c) whether the credit provider is a licensee.

- (d) type of consumer credit.
 - (e) details concerning the Client's application for credit or commercial credit (e.g., date of commencement/termination of the credit account and the amount requested).
 - (f) advice of consumer credit defaults, overdue accounts, loan repayments or outstanding monies which are overdue by more than sixty (60) days and for which written notice for request of payment has been made and debt recovery action commenced or alternatively that the Client no longer has any overdue accounts and the Consultant has been paid or otherwise discharged and all details surrounding that discharge (e.g. dates of payments);
 - (g) information that, in the opinion of the Consultant, the Client has committed a serious credit infringement.
 - (h) advice that the amount of the Client's overdue payment is equal to or more than one hundred and fifty dollars (\$150).
- 22.9 The Client shall have the right to request (by e-mail) from the Consultant:
- (a) a copy of the Personal Information about the Client retained by the Consultant and the right to request that the Consultant correct any incorrect Personal Information; and
 - (b) that the Consultant does not disclose any Personal Information about the Client for the purpose of direct marketing.
- 22.10 The Consultant will destroy Personal Information upon the Client's request (by e-mail) or if it is no longer required unless it is required in order to fulfil the obligations of this Contract or is required to be maintained and/or stored in accordance with the law.
- 22.11 The Client can make a privacy complaint by contacting the Consultant via e-mail. The Consultant will respond to that complaint within seven (7) days of receipt and will take all reasonable steps to make a decision as to the complaint within thirty (30) days of receipt of the complaint. In the event that the Client is not satisfied with the resolution provided, the Client can make a complaint to the Information Commissioner at www.oaic.gov.au.
- 23. Service of Notices**
- 23.1 Any written notice given under this Contract shall be deemed to have been given and received:
- (a) by handing the notice to the other party, in person.
 - (b) by leaving it at the address of the other party as stated in this Contract.
 - (c) by sending it by registered post to the address of the other party as stated in this Contract.
 - (d) if sent by facsimile transmission to the fax number of the other party as stated in this Contract (if any), on receipt of confirmation of the transmission.
 - (e) if sent by email to the other party's last known email address.
- 23.2 Any notice that is posted shall be deemed to have been served, unless the contrary is shown, at the time when by the ordinary course of post, the notice would have been delivered.
- 24. Trusts**
- 24.1 If the Client at any time upon or subsequent to entering into the Contract is acting in the capacity of trustee of any trust ("Trust") then whether or not the Consultant may have notice of the Trust, the Client covenants with the Consultant as follows:
- (a) the Contract extends to all rights of indemnity which the Client now or subsequently may have against the Trust and the trust fund.
 - (b) the Client has full and complete power and authority under the Trust to enter into the Contract and the provisions of the Trust do not purport to exclude or take away the right of indemnity of the Client against the Trust or the trust fund. The Client will not release the right of indemnity or commit any breach of trust or be a party to any other action which might prejudice that right of indemnity.
 - (c) the Client will not without consent in writing of the Consultant (the Consultant will not unreasonably withhold consent), cause, permit, or suffer to happen any of the following events:
 - (i) the removal, replacement or retirement of the Client as trustee of the Trust.
 - (ii) any alteration to or variation of the terms of the Trust.
 - (iii) any advancement or distribution of capital of the Trust; or
 - (iv) any resettlement of the trust property.
- 25. Dispute Resolution**
- 25.1 If a dispute arises between the parties to this Contract, then either party shall send to the other party a notice of dispute in writing adequately identifying and providing details of the dispute. Within fourteen (14) days after service of a notice of dispute, the parties shall confer at least once, to attempt to resolve the dispute. At any such conference each party shall be represented by a person having authority to agree to a resolution of the dispute. In the event that the dispute cannot be so resolved either party may by further notice in writing delivered by hand or sent by certified mail to the other party refer such dispute to arbitration. Any arbitration shall be:
- (a) referred to a single arbitrator to be nominated by the President of the Institute of Arbitrators Australia; and
 - (b) conducted in accordance with the Institute of Arbitrators Australia Rules for the Conduct of Commercial Arbitration.
- 26. Scope Of Liability**
- 26.1 Under the Professional Standards Act 1994 and the Scheme approved under that Act, the liability of the Consultant, its partners, associates and employees or contractors is limited to a maximum sum specified by the scheme as in force at the time of the relevant act or omission.
- 26.2 The Scheme does not apply to limit our liability arising from any of the following:
- (a) death of or personal injury to a person.
 - (b) negligence or other fault of a legal practitioner in acting for a client in a personal injury claim.
 - (c) breach of trust.
 - (d) fraud or dishonesty; or
 - (e) liability which is the subject to proceedings under the Real Property Act 1900.
- The exceptions listed above are not exhaustive and may include other situations such as members not meeting the requirements of the Act or the Scheme, for example, non-disclosure of the limitation of their liability, etc.
- 26.3 The Client agrees, to the extent permitted by law, that the liability to the Client of the Consultant, its partners, associates and employees or contractors in any way arising from or connected with this contract including, without limitation, liability for negligence, will be limited to a

maximum of \$1,000,000, \$2,400,000 or \$4,000,000 (depending on the gross annual fees paid by the Consultant to the Institute of Engineers Australia scheme), and the Client realises and indemnifies the Consultant, its partners associates and employees or contractors from all claims arising from or connected with the performance or purported performance of any Services arising from or connected with this agreement to the extent any such claim or claims made exceed that limit.

26.4 At the sole discretion of the Institute of Engineers Australia, on application by a member to whom the scheme applies, to specify in relation to that member, a higher maximum amount of liability up to a maximum amount of \$8,000,000.

26.5 The Consultant shall be under no liability whatever to the Client for any indirect loss and/or expense (including loss of profit) suffered by the Client arising out of a breach by the Consultant of these terms and conditions.

27. General

27.1 The failure by either party to enforce any provision of these terms and conditions shall not be treated as a waiver of that provision, nor shall it affect that party's right to subsequently enforce that provision. If any provision of these terms and conditions shall be invalid, void, illegal or unenforceable the validity, existence, legality and enforceability of the remaining provisions shall not be affected, prejudiced or impaired.

27.2 These terms and conditions and any contract to which they apply shall be governed by the laws of New South Wales, the state in which the Consultant has its principal place of business and are subject to the jurisdiction of the courts in Parramatta, New South Wales.

27.3 The Consultant may licence and/or assign all or any part of its rights and/or obligations under this Contract without the Client's consent.

27.4 The Client cannot licence or assign without the written approval of the Consultant.

27.5 The Consultant may elect to subcontract out any part of the Services but shall not be relieved from any liability or obligation under this Contract by so doing. Furthermore, the Client agrees and understands that they have no authority to give any instruction to any of the Consultant's sub-contractors without the authority of the Consultant.

27.6 The Client agrees that the Consultant may amend their general terms and conditions for subsequent future contracts with the Client by disclosing such to the Client in writing. These changes shall be deemed to take effect from the date on which the Client accepts such changes, or otherwise at such time as the Client makes a further request for the Consultant to provide Services to the Client.

27.7 Neither party shall be liable for any default due to any act of God, war, terrorism, strike, lock-out, industrial action, fire, flood, storm or other event beyond the reasonable control of either party.

27.8 Both parties warrant that they have the power to enter into this Contract and have obtained all necessary authorisations to allow them to do so, they are not insolvent and that this Contract creates binding and valid legal obligations on them.

APPLICATIONS

- ✓ Bedrock mapping
- ✓ Degree of sediment compaction
- ✓ Determination of geotechnical parameters (e.g. shear modulus)
- ✓ Void detection
- ✓ Liquefaction potential
- ✓ Subsurface profiling
- ✓ Imaging velocity inversions (hard layer overlying softer layer)

METHOD

The Multi-channel Analysis of Surface Waves method (MASW) is a non-destructive seismic method which uses the elastic properties of subsurface materials to determine subsurface structure. By analysis of the dispersive properties of varying frequencies from a single seismic source, shear-wave velocity (V_s) and associated geotechnical parameters can be determined.

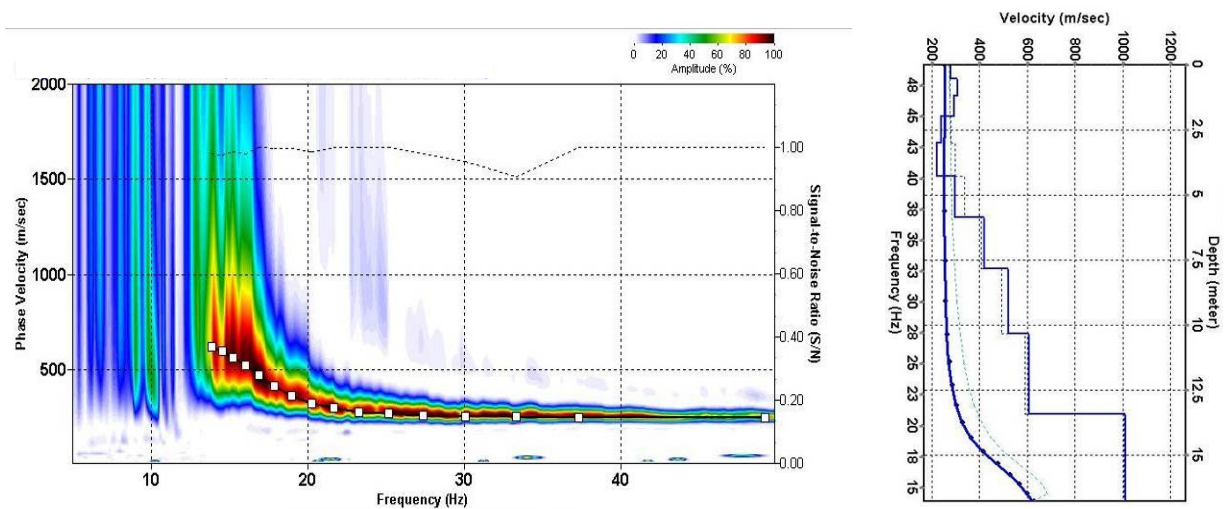
MASW uses an active seismic source such as a hammer or weight drop impact to produce seismic energy consisting predominantly of Pressure (P-) waves and Shear (S-) waves. MASW uses the S-wave dispersion component to provide information on the shear velocity to a depth determined by frequency range of the energy source and array configuration.

Seismic surface waves have dispersion properties that traditionally utilized body waves lack. Differing wavelengths/frequencies have different depth of penetration, and therefore propagates with different phase velocity, with an increase in wavelength being proportional to increased depth of penetration. As the surface wave is the dominant wave generated from any seismic source, MASW data quality (signal to noise) tends to be higher than other seismic methods such as seismic reflection or refraction.

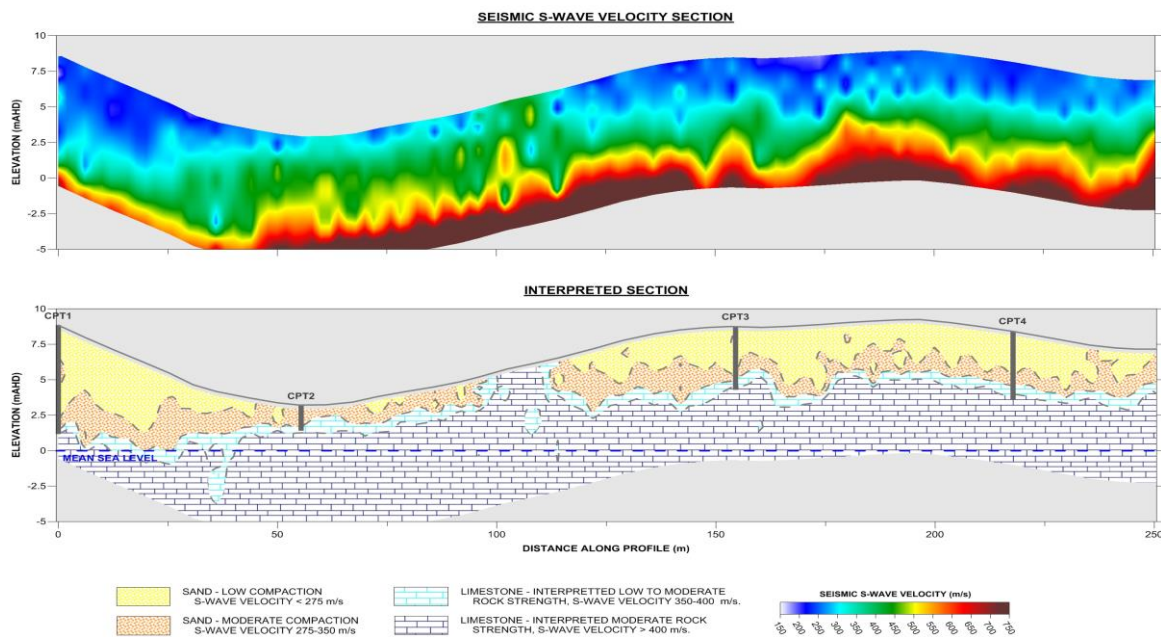


DATA ANALYSIS & PRESENTATION

Analysis of the collected MASW seismic records is concentrated on the S-wave dispersion component. Dispersion curves are extracted for each collected record from the overtone image showing the percentage intensity of phase velocity versus frequency. These curves are then inverted to produce 1D S-wave soundings typically to a depth of up to 20 m. The calculated 1D soundings can then be compiled and gridded to produce 2D sections showing the variation in S-wave velocity both laterally along the profile and with depth.



Dispersion curve generated from an MASW sounding (left image), modelled S-wave velocity sounding generated from inversion of the picked dispersion curve



MASW seismic S-wave 2D velocity section with interpretation.

APPLICATIONS

- ✓ Bedrock mapping
- ✓ Mapping weathered zones
- ✓ Stratigraphic mapping
- ✓ Indicative material hardness for piling, tunnelling and excavation works
- ✓ Identification of fault / fractured zones

METHOD

The Seismic Refraction method involves the measurement of travel times of seismic compressional waves (P-waves) that are generated at the surface, propagate through the subsurface and return to the surface after being refracted at the interface between layers of contrasting seismic velocity. Seismic wave velocities are controlled by the fundamental parameters of elastic strength and density of the material it propagates through.

For near surface investigations seismic energy is generated on the surface using a sledge hammer. More powerful sources such as accelerated drop weight, down-hole airguns, or explosives are required for deeper investigations. The generated seismic waves propagate through the subsurface at a certain velocity. On reaching a geological boundary marked by an increase in seismic velocity, at a specific angle the wave is critically refracted and travels along the top of the lower layer at a greater velocity. This generates head waves in the upper layer which return to the surface where it is detected as vibrations by a linear array of geophones spaced at regular intervals.

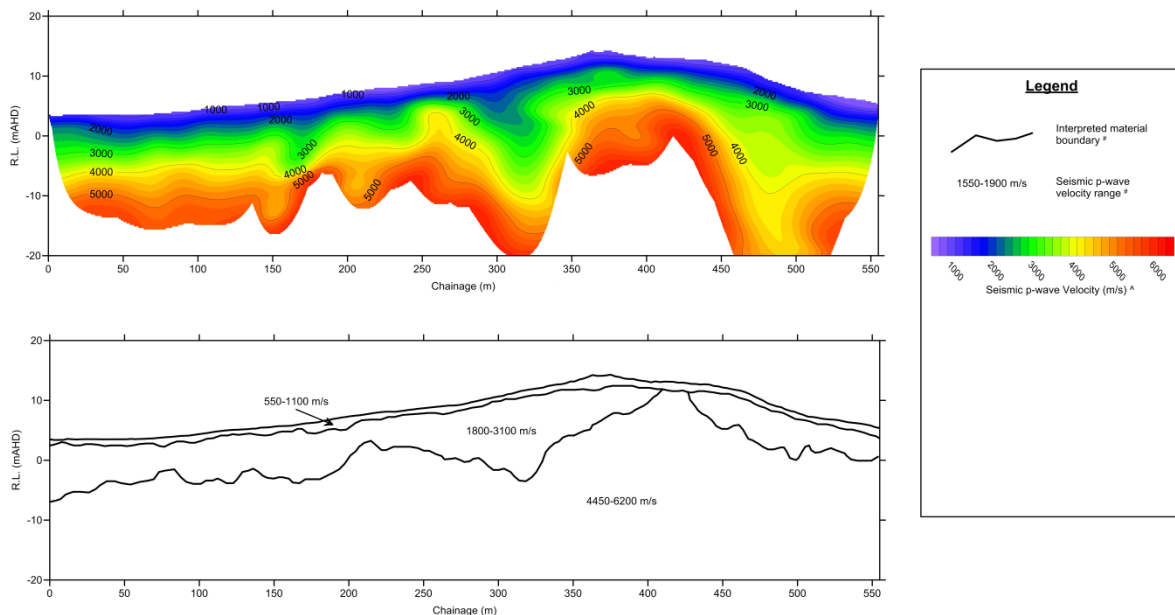
By measuring the travel times of these refracted waves from multiple source points to multiple receivers, the seismic refraction method can resolve lateral changes in the depth to the top of a refracting interface as well as the seismic velocity within it. Furthermore being related to elastic strength and density, the velocities calculated from a seismic refraction survey can be a useful guide to the rippability of a rock for excavation.



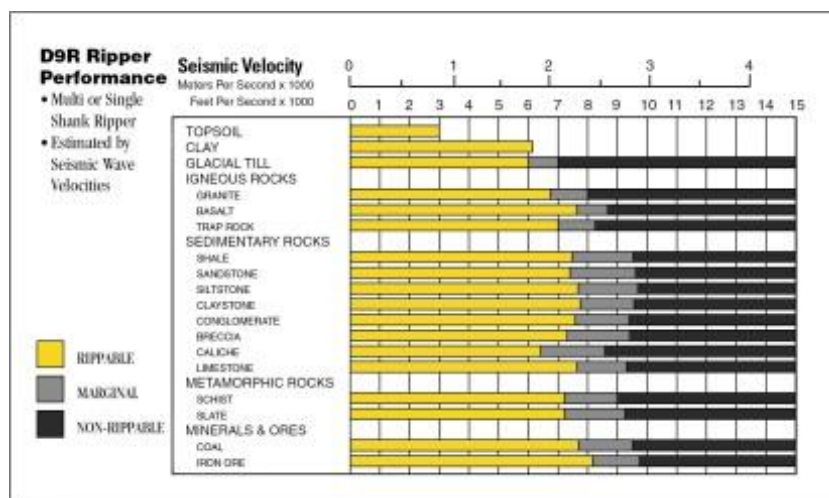
DATA ANALYSIS & PRESENTATION

Processing and analysing seismic refraction data can be carried out using a layered model assuming distinct refractive boundaries or tomographic approach assuming a gradual increase in seismic velocity with depth. Both approaches have benefits and are typically carried out in unison to generate the most detailed geological model possible.

The output is a cross-section showing lateral changes in the depth to the various refracting interfaces and the seismic velocities within them. When correlated with core logs, this information can be related to geological boundaries in the subsurface. This can be particularly useful for planning excavation with the depth to the different layers giving an idea of quantity of rock needed to be removed and the seismic velocities giving an idea of the rock's hardness and hence rippability.



Modelled seismic p-wave velocity section (top) and corresponding layer model section (bottom)



Rippability chart, displays the relationship between rippability and P-wave velocity, taken from Handbook of Ripping, Twelfth Edition, Caterpillar Inc. 2000.