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**I hereby give notice that a Confidential Special Council Meeting will be held on:**

**Date: Monday, 3 June 2019**  
**Time: 5.30 p.m.**  
**Location: Council Chamber**  
**Civic Centre**  
**10 Watson Terrace**  
**Mount Gambier**

# **AGENDA**

## **Confidential Special Council Meeting** **3 June 2019**

**Andrew Meddle**  
**Chief Executive Officer**

**31 May 2019**

**4.5 COMMUNITY AND RECREATION HUB - GEOTECH SURVEY – REPORT NO.  
AR19/27126**

**CONSIDERATION FOR EXCLUSION OF THE PUBLIC**

Pursuant to section 90(2) of the *Local Government Act 1999* the Council orders that all members of the public, except Mayor L Martin, Councillors K Amoroso, M Bruins, B Hood, P Jenner, C Greco, S Mezinec, F Morello and S Perryman and Council Officers A Meddle, B Cernovskis, P Lee, N Serle, S McLean, H Gajic and A Lavia be excluded from attendance at the meeting for the receipt, discussion and consideration in confidence of Agenda Item 4.5 AR19/27126 Community and Recreation Hub - Geotech Survey.

The Council is satisfied that, pursuant to section 90(3) (b) and (k) of the Act, the information to be received, discussed or considered in relation to the Agenda Item is:

- information the disclosure of which could reasonably be expected to confer a commercial advantage on a person with whom the Council is
  - conducting business; or
  - proposing to conduct business; or
  - to prejudice the commercial position of the Council
- tenders for the:
  - supply of goods, or
  - the provision of services, or
  - the carrying out of works

The Council is satisfied that the principle that the meeting be conducted in a place open to the public has been outweighed in the circumstances because the information contained in the report and to be discussed includes detailed costings and other information relevant to the specification and assessment of a tender submission which, if disclosed, is considered to reasonably confer an advantage on tender respondents and accordingly prejudice the commercial position of Council and therefore not be in the public interest as tender submissions may be unduly influenced and detrimental to achieving best value for the community.

**4.5 COMMUNITY AND RECREATION HUB - GEOTECH SURVEY – REPORT NO. AR19/27126**

|                                  |  |
|----------------------------------|--|
| <b>Committee:</b>                | <b>Council</b>   |
| <b>Meeting Date:</b>             | <b>3 June 2019</b>   |
| <b>Report No.:</b>               | <b>AR19/27126</b>  |
| <b>CM9 Reference:</b>            | <b>AF13/64</b>   |
| <b>Author:</b>                   | <b>Heidi Gajic, Community Development and Engagement Officer</b>   |
| <b>Authoriser:</b>               | <b>Barbara Cernovskis, General Manager Community Wellbeing</b>   |
| <b>Summary:</b>                  | <b>Recommendation seeking Council support to provide additional funds to undertake critical site analysis to inform the detailed design and site works for the Community and Recreation Hub.</b> |
| <b>Community Plan Reference:</b> | <b>Goal 1: Our People</b><br><b>Goal 2: Our Location</b><br><b>Goal 3: Our Diverse Economy</b><br><b>Goal 4: Our Climate, Natural Resources, Arts, Culture and Heritage</b>                      |

The Council is satisfied that, pursuant to Section 90(2) & (3) of the *Local Government Act 1999*, the information to be received, discussed or considered in relation to this agenda item is:

- (b) information the disclosure of which could reasonably be expected to confer a commercial advantage on a person with whom the Council is conducting business; or proposing to conduct business; or to prejudice the commercial position of the Council
- (k) tenders for the: supply of goods, or the provision of services, or the carrying out of works.

**REPORT RECOMMENDATION**

1. That Council Report No. AR19/27126 titled 'Community and Recreation Hub - Geotech Survey' as presented on 03 June 2019 be noted.
2. That an additional \$33,415 (ex gst) be made available to DesignInc and Co-op Studios to engage GBG Australia Geotechnical to undertake the detailed site investigations to inform the detailed design and site works for the Community and Recreation Hub.
3. That a variation table be presented as a standing item in the Regional Sport and Recreation Centre subcommittee to monitor variations costs associated with finalising the detailed design.



## BACKGROUND

In preparation for completion of the detailed design for the Community and Recreation Hub the architects, DesignInc and Co-Op Studios have engaged specialised consultants to undertake site investigations.

## DISCUSSION

As work continues on the finalisation off the detail design for the Community and Recreation Hub various site investigations need to be undertaken. An important component of the pre-works investigations is the completion of a Geotechnical Survey of the proposed site.

It is known that the site is composed of layers of soil on top of a limestone base that is susceptible to sinkholes. Information available to date is drawn from visual inspection of the area including an adjacent sinkhole.

DesignInc and Co-Op Studios developed a Geotechnical Survey Brief prepared by the Structural Engineers and received two (2) submissions to complete the required survey. Both submissions addressed the required components of the brief but the cost of works exceeds the \$10,000 allowance included in the contract with DesignInc and Co-Op Studios.

An evaluation of the submissions was completed by the Structural Engineer as per the below table:

|   |          |             |
|---|----------|-------------|
| <i>Geotech allowance in fee</i>   | \$10,000 |             |
| <b>Submission</b>   |          |             |
| GBG Australia Geotechnical  | \$43,415 | Recommended |
| Golders Geotechnical  | \$81,800 |             |
| <i>Both tender prices have Ground Penetrating Rada and MASW Surveys to identify depth and strength of the limestone bedrock and identify sinkholes and voids.</i> |          |             |

As indicated in the table the recommended consultant is GBG Australia with a cost of \$43,352.00 ex GST.

## CONCLUSION

The integrity of the site is a critical component of the pre-work required to be completed prior to any construction activity. It is therefore recommended that an additional \$33,415 be made available to engage GBG Australia Geotechnical to undertake the site investigations. The lack of a comprehensive and contemporary survey will significantly and inappropriately increase Council's risk exposure.

Delays with this work will have a detrimental impact on the detailed design elements and milestones require to be met for funding.

## ATTACHMENTS

1. DesignInc Geotechnical Survey Brief [↓](#)
2. GBG Australia Geotechnical Survey Submission [↓](#)
3. Golders Geotechnical Survey Submission [↓](#)





May 5, 2019



**RE: Mt Gambier Aquatic Centre**

**GEOTECHNICAL SURVEY OUTLINE BRIEF**

To whom it may concern,

This brief outlines the minimum requirements for the delivery of geotechnical survey reporting for the Mt Gambier Aquatic Center development project ('the project').

**Project Background**

The project includes development on the area as shown in **Figure 1**.



Figure 1 - Development areas (new facilities not shown)

It is known that the site is composed of layers of soil on top of a limestone base that is susceptible to sinkholes. Information available to date is drawn from visual inspection of the area including adjacent sinkhole.

**Survey Objective**

The design solution at each of the development areas includes:

- Founding on rock. Understanding the rock depth and strength including any voids and weak veins is critical in the determination of appropriate foundation types and depths;
- Excavation of rock. Given the high cost of rock excavation, obtaining a comprehensive understanding of the existing sub-surface rock levels is important for cost estimation and scope definition;
- Pavement design. CBR values under proposed carpark and roadways will advise appropriate pavement design.



## Scope of Works

The below scope items set out the minimum requirements to be delivered by the Contractor. Survey areas are included in **Appendix A**:

Area 1 – Full extent of proposed works

- Undertake Geophysical Survey/Investigations of all areas shown in Appendix A. The geophysical survey shall accurately identify the sub-surface profile within the nominated survey areas, including soil layers, and rock level. The rock profile must be sufficiently detailed to ensure fissures and deeper voids are documented accurately to inform design. Other sub-surface features (e.g. existing in-ground services) shall also be recorded;
- Undertake Intrusive Survey/Investigation in locations as identified in Appendix A. The contractor shall confirm pit locations with the civil engineer and receive written approval prior to investigations. The intrusive survey shall accurately identify sub-surface profile, rock level, and water table as to accurately calibrate the geophysical data and correlate any anomalies discovered by the geophysical survey;
- Obtain CBR values in locations as indicated in Appendix A; and
- Deliverables to be provided by the contractor (as a minimum) shall include:
  - **Site plan drawings** that accurately record the area and extents surveyed. The drawings shall present rock surface levels and sub-surface features. The drawing shall show the location of cross sections through the surveyed area presented with A1 sheet size at 1:250 scale;
  - **Cross section drawings** showing existing ground level, sub-surface rock level and any other sub-surface features; and
  - **Report** that provides an overview of methodology, site conditions, data interpretation and findings. Sub-surface scanning imagery is to be attached to the report plus any other information that the contractor deems relevant.

## Survey Methodology

The exact methodology for the geophysical survey is the responsibility of the contractor. The contractor shall assess the ground conditions and use a method appropriate for returning the required data. However, as a minimum, the outputs and accuracy of the survey shall equal to that of Ground Penetrating Radar.

The contractor shall include all limitations of proposed geophysical method (such as reduced reliability of GPR in ground conditions with high clay content or high-water table) and provide an alternative method of investigation such as seismic refraction to be used to ensure collection of the required data at no additional cost.

The intrusive survey shall be as deemed appropriate by the contractor to recover the required data.

The contractor is to provide details of their proposed methodology for review within their proposal including a sample output and report representation

## Schedule of Rates

The contractor shall include a schedule of rates within their proposal. These rates will be used for any additional work required beyond that of the scope outlined within this brief.




## Program

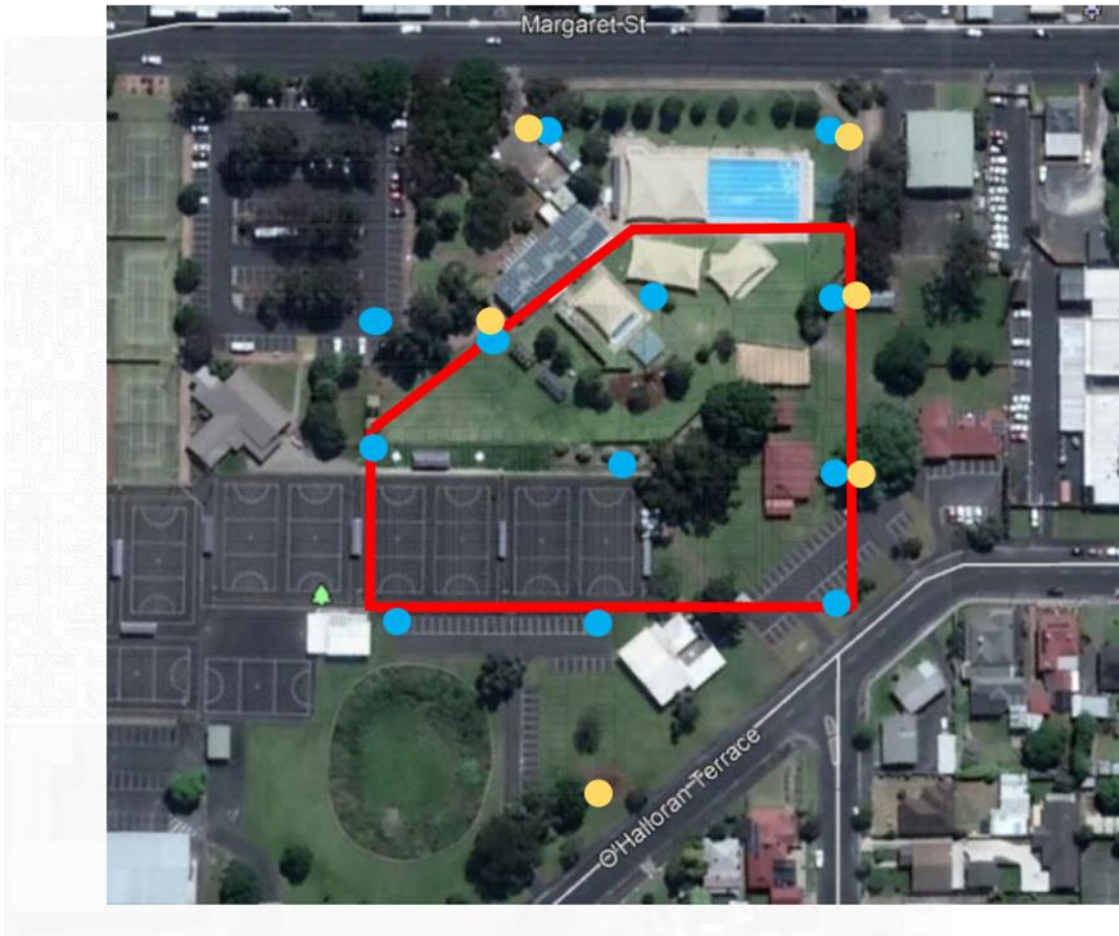
Key dates that must be achieved as defined by the lead architect.



# ATTACHMENT A

## Areas of Work

-  Geophysical Survey extent
-  Intrusive Investigation
-  Obtain CBR Values





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A.B.N. 77 009 550 869

10<sup>th</sup> May 2019

GBG Ref: **18399PRO**

**FAO: Ben Luppino**

Senior Associate  
DesignInc  
Level 1, 151 Pine St  
Adelaide, SA 5000

**RE: REQUEST FOR QUOTATION – GEOPHYSICAL INVESTIGATION TO DETERMINE DEPTH TO BEDROCK AND PRESENCE KARSTIC / SINKHOLE FEATURES AT THE MOUNT GAMBIER AQUATIC CENTRE, SOUTH AUSTRALIA.**

Dear Ben,

Thank you for your enquiry in regards to the geotechnical and geophysical investigation to determine depth to bedrock and the presence of karstic / sinkhole features at the Mount Gambier Aquatic Centre, South Australia. GBG is pleased to provide the following proposal and commercial offer for your consideration.

**1. SCOPE OF WORK**

As we understand it, DesignInc has been engaged to assist in the proposed development of the existing regional sport & recreation centre in Mount Gambier. Under the direction of SCP Engineers, an intrusive geotechnical and geophysical investigation is required within the proposed site.

The objective of the investigation is;

- Obtain the depth to and strength of limestone bedrock
- Identify any karstic (voids) features or sinkholes
- Assist in pavement design through calculating CBR values

GBG propose using a combination of Multi-channel Analysis of Surface Waves (MASW) and Ground Penetrating Radar (GPR) for the geophysical investigation. Refer to Appendix A for additional information on the proposed geophysical methods. Geotechnical intrusive testing will consist of borehole logging and CBR bulk samples.

Figure 1 overleaf outlines the extent of the proposed geotechnical and geophysical investigation and includes as follows:

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**Geophysical Investigation:**

- Delineate the depth and strength of bedrock using MASW. Eight (8) MASW transects are proposed totalling an approximate 645 metres (shown as green lines)
- Identify potential karst, voids and sinkhole features using low frequency GPR, acquired as closely spaced parallel lines across access areas within the investigation site red polygon (shown as a red polygon)

**Geotechnical Investigation:**

- Twelve (12) locations for intrusive testing to log identified subsurface profile, rock level and water table and to calibrate the geophysical dataset (shown as blue circles).
- Six (6) spot locations for Californian Bearing Ratio (CBR) testing to assist in pavement design (shown as yellow circles)

The proposed geotechnical and geophysical test positions in Figure 1 are indicative based on available aerial imagery and site photographs. The final positions will be adjusted on site if obstructions exist, such as; buildings, garden-beds / vegetation, steeply dipping areas and where possible intrusive testing will avoid asphalt or paved areas.



**Figure 1: Proposed Geotechnical and Geophysical Investigation at Mount Gambier Aquatic Centre.**  
(Source: Airbus, Digital Globe - 2019)





## 2. GEOPHYSICAL METHODS

### 2.1 GROUND PENETRATING RADAR

GPR data will be acquired using a low frequency transmit antennas (120 - 300MHz) in order to obtain high resolution reflection imagery to a target depth of 8 - 10m, depending on the local ground conditions.

The propagation of radar wave energy within the subsurface is largely influenced by local subsurface conditions. Although it is likely that overall the subsurface conditions at the site will be conducive to the acquisition of interpretable GPR data, a reduction in imaging depths may be experienced over localised sections due to adverse surface and subsurface conditions.

Limitations inherent to the GPR technique and are listed below:

- A requirement for good coupling between the antenna and the ground. GPR data cannot be collected where surface obstructions are present such as garden beds or street curbs.
- GPR collected over reinforced concrete slabs or some paving materials may adversely affect the data, and hence the reliability of the information obtained may be compromised in such situations.
- Reduction of the penetration is experienced in areas with high clay and/or water content. This is with reference to the dielectric properties of the materials which may result in a significantly higher absorption of radar wave energy.

Processing and analysis of the GPR data will be carried out using ReflexW (v8.5, Sandmeier Software, 2017). Data analysis will involve interrogating the processed GPR data for reflection interfaces relating to stratigraphic boundaries including between topsoil and underlying limestone. Figure 2 below, illustrates a processed radar gram with the interpreted top of limestone in red and identified karst/voids in yellow.

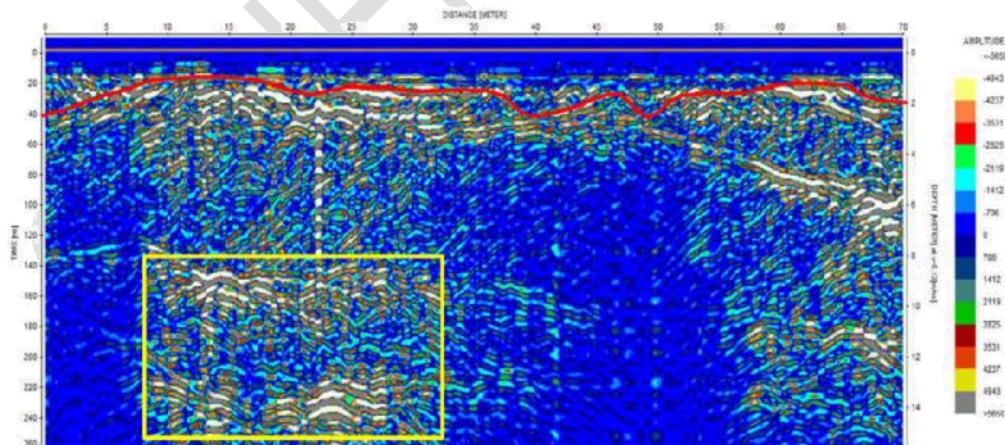


Figure 2: Processed GPR radar gram for a limestone karst investigation.





**2.2 MULTICHANNEL ANALYSIS OF SURFACE WAVES**

GBG propose using MASW in conjunction with GPR. It is GBG’s experience that both methods used together provide a comprehensive analysis of the subsurface material in particular:

- MASW will provide information in the event that the GPR method is adversely affected by clay bearing top soil or surface infrastructure.
- MASW has the capacity to image deeper than GPR, depending on the local site conditions.
- MASW can provide a measure of indicative rock strength.

MASW data will be acquired using a 24 channel seismic land streamer towed behind a 4WD vehicle. The land streamer will be 24 metres in length. Data points are recorded at the middle of the array, and therefore, a lead in of 12 metres is required about each geophysical transect. The towed array is connected to a multichannel digital seismograph positioned in the survey vehicle.

The MASW data will be processed using SurfSeis 6 (Kansas Geological Survey) which analyses the frequency distribution of the seismic record to generate seismic S-wave velocity profiles. The generated velocity profiles will be analysed in order to generate geological cross-sections. An example of a processed seismic 2D profile with intrusive CPT correlation is displayed in Figure 3.

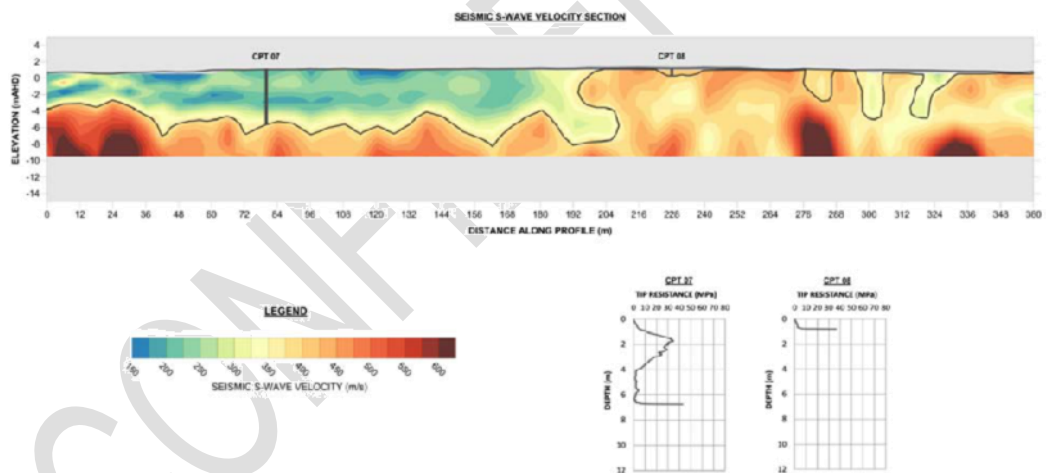


Figure 3: Seismic 2D cross section displaying the depth to bedrock with correlated geotechnical data (CPT).





### 2.3 UTILITY CLEARANCE FOR INTRUSIVE TESTING

GBG own and operate underground utility locating equipment which will be undertaken about each intrusive testing location. The clearance will occupy a 2m x 2m square to ensure no subsurface utilities are present. Identified utilities will be marked up on site using surveyor's spray paint and where multiple utilities exist the geotechnical test location will be moved.

GBG utilises a three pronged approach when conducting underground utility investigations.

1. Desktop study before on-site data collection – Composite Service Mapping (CSM) plans and existing utility provider infrastructure drawings are obtained and collated.
2. Ground Penetrating Radar – GPR data is collected using multiple antenna frequencies between typically 200 and 900 MHz to give a maximum investigation depth of approximately 3 m depending on local ground conditions.
3. Cable/Pipe Locator – Cable/Pipe Locator is conducted across the investigation area in both emission detection and transmission modes.

### 3. GEOTECHNICAL METHODS

Please refer to CMW Geosciences intrusive geotechnical fee proposal for a breakdown of the proposed scope of works, located in Appendix B.

### 4. DELIVERABLES

On completion of the field programme the processed data will be interpreted considering the geotechnical and geophysical dataset as a whole, and any other suitable third party datasets provided such as a topographic survey.

Drawings can be presented in digital (PDF), and/or AutoCAD (DWG) formats as required by the client. Typically drawings are provided as the following:

- Site plan drawings outlining the location and extent of the acquired geophysical profiles and geotechnical test locations
- Interpreted 2D cross-sections along the acquired profiles showing the modelled level to the top of bedrock and identified karst / void / sinkhole features
- 3D map showing the contoured depth to modelled top of limestone bedrock
- Borehole / CPT data logs
- Tables listing the CBR test results







Drawings will be produced relative to Australian Height Datum (AHD) and with Easting and Northing locations in GDA94 or other local survey datum as required.

Reporting will include a factual report detailing the logistics of the geophysical investigation, presenting and discussing the results including limitations and exclusions.

## 5. INSURANCE

GBG currently has all required insurances as outlined in the table below. Insurance Certificates of Currency are available on request.

| Type                          | Insurer                   | Policy Number     | Insured Amount | Expiry Date |
|-------------------------------|---------------------------|-------------------|----------------|-------------|
| Public and Products Liability | NRMA                      | EB 2111319 / MSA  | \$20,000,000   | 03/03/2020  |
| Professional Indemnity        | Acapella & Markel (UK) XL | B0509FINPA1700022 | \$10,000,000   | 03/08/2019  |
| Workers Compensation          | icare                     | 129140501         | -              | 29/02/2020  |
| Commercial Motor Vehicle      | CGU Insurance             | 24F2627776        | \$30,000,000   | 30/09/2019  |

## 6. OCCUPATIONAL HEALTH AND SAFETY

The proposed investigation methods on request will be carried out under approved Job Hazard Identification and Safe Work Method Statements. All personnel attending site will be required to wear mandatory PPE including high visibility clothing, long sleeve shirts and pants, steel cap boots, and sun protection and other PPE as required.

All GBG field personnel have current White Card accreditation for construction industry and are St John Senior First Aid trained as a minimum. All personnel have Work Cover Occupational Health and Safety General Inductions, Situational Safety Awareness Test (SSA) and 4WD training.

## 7. TIMING AND MOBILISATION

We would expect to commence mobilisation within 2 weeks of receipt of commission to start. GBG require a purchase order prior to mobilisation. An allowance for four (4) days of site work has been made to acquire the geophysical investigation and two (2) days for the geotechnical investigation.

Issue of draft results including report and drawings will be available within 10 business days after completion of the site work. A final report will be available after receipt of comments and required amendments by the client.





The costs for carrying out the geotechnical and geophysical investigation at the Mount Gambier Aquatic Centre as outlined in this proposal are provided in the attached commercial offer.

I trust this proposal provides you with the information required. If you require clarification on any points please contact the undersigned on (03) 7002 2207.

**For and on behalf of  
GBG AUSTRALIA PTY LTD**

A handwritten signature in black ink, appearing to read "Tavis Lavell".

**TAVIS LAVELL**

Operations Manager, Victoria

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GBG Australia Pty Ltd





**COMMERCIAL OFFER**

**Commercial in Confidence**

The costs for carrying out the geotechnical and geophysical investigation as outlined in the GBG's proposal 18399PRO dated 9<sup>th</sup> May 2019 are provided in the tables below.

GBG will provide two (2) Geophysicists with geophysical testing equipment required to carry out the investigation.

**1. GEOPHYSICAL INVESTIGATION – MOUNT GAMBIER AQUATIC CENTRE**

**Table 1.1: Project Management and Mobilisation / Demobilisation:**

| Item                                       | Unit     | Unit Cost  | Quantity | Total             |
|--|----------|------------|----------|-------------------|
| Project Management & Equipment Preparation | Lump sum | \$2,035.00 | 1        | \$2,035.00        |
| Mobilisation & Demobilisation              | Lump sum | \$4,435.00 | 1        | \$4,435.00        |
| <b>Total (ex GST)</b>                      |          |            |          | <b>\$6,470.00</b> |

**Table 1.2: Ground Penetrating Radar Investigation:**

| Item                                   | Unit     | Unit Cost  | Quantity | Total              |
|--|----------|------------|----------|--------------------|
| Data Acquisition (Staff and Equipment) | Per day  | \$3,150.00 | 2        | \$6,300.00         |
| Disbursements                          | Per day  | \$550.00   | 2        | \$1,100.00         |
| RTK Survey                             | Lump sum | \$725.00   | 1        | \$725.00           |
| Processing, Analysis and Drafting      | Lump sum | \$3,060.00 | 1        | \$3,060.00         |
| Reporting and QC                       | Lump sum | \$722.50   | 1        | \$722.50           |
| <b>Total (ex GST)</b>                  |          |            |          | <b>\$11,907.50</b> |

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**Table 1.3: Multi-channel Analysis of Surface Waves Investigation:**

| Item                                   | Unit     | Unit Cost  | Quantity | Total             |
|--|----------|------------|----------|-------------------|
| Data Acquisition (Staff and Equipment) | Per day  | \$3,350.00 | 1        | \$3,350.00        |
| Disbursements                          | Per day  | \$550.00   | 1        | \$550.00          |
| RTK Survey                             | Lump sum | \$365.00   | 1        | \$365.00          |
| Processing, Analysis and Drafting      | Lump sum | \$2,295.00 | 1        | \$2,295.00        |
| Reporting and QC                       | Lump sum | \$722.50   | 1        | \$722.50          |
| <b>Total (ex GST)</b>                  |          |            |          | <b>\$7,282.50</b> |

## 2. GEOTECHNICAL INVESTIGATION – MOUNT GAMBIER AQUATIC CENTRE

The cost for the intrusive geotechnical investigation will be as outlined in CMW Geosciences Fee estimate plus 10%. Refer to Appendix B for a breakdown of the cost outlined in Table 2.1.

**Table 2.1:**

| Item                                     | Unit       | Unit Cost   | Quantity | Total              |
|--|------------|-------------|----------|--------------------|
| CMW Intrusive Geotechnical Investigation | Cost + 10% | \$14,542.00 | 1        | \$14,542.00        |
| <b>Total (ex GST)</b>                    |            |             |          | <b>\$14,542.00</b> |

**Table 2.2: Underground Utility Clearance Prior to Intrusive Testing:**

| Item                          | Unit     | Unit Cost  | Quantity | Total             |
|-------------------------------|----------|------------|----------|-------------------|
| Underground Utility Clearance | Lump sum | \$3,150.00 | 1        | \$3,150.00        |
| <b>Total (ex GST)</b>         |          |            |          | <b>\$3,150.00</b> |





The commercial offer is valid for 90 days. Revised rates will be made if acceptance of the proposal is made after this period.

No allowance has been made for standby time arising from situations outside of GBG control. Standby rates will be charged as a results of an inability to operate safely and/or record high quality data or gain access to survey area and would be initiated under (but not limited to) the following situations:

- Restrictions in accessing survey areas due to locked gates, blocked or limited access
- Waiting on Client or Land Owner approvals to commence any part of the works, once on site.
- Reduction in data quality due to conditions (such as adverse weather, or geophysical background noise) preventing the collection of high quality data suitable for processing and interpretation.
- Safety issues raised by field staff
- Inadequate clearance of site
- On-site client requested audits or safety initiatives

Standby rates will be charged at \$390/hour ex GST plus additional disbursements as required to complete the investigation.

The rate of data acquisition for the site work component on the investigation is based on having adequate access (as deemed by the GBG personnel once on-site) for the duration of the investigation. Reduction in data acquisition rates may be due to reasons including (but not limited to) steep or undulating ground topography, thick vegetation, uneven or soft surfaces or difficulty in accessing the investigation sites by 4WD vehicle. GBG reserves the right to increase the time required to complete the investigation and to adjust final costs accordingly.

Costing for required site inductions and medicals has not been included in the totals. Hourly rates per person for inductions/medical are \$135 per person per hour plus associated costs.

Invoicing will be issued on submission of the draft report to the client. GBG billing terms are 21 days from date of issue.





**APPENDIX A.  
GEOPHYSICAL METHODS**

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## GROUND PENETRATING RADAR



### APPLICATIONS

- ✓ Stratigraphic mapping including depth to bedrock
- ✓ Locating karst features, sinkholes, voids or cave systems
- ✓ Depth to water table
- ✓ Archaeology (location of graves and artifacts)
- ✓ Location of underground infrastructure, including UST's and utilities
- ✓ Assessment of internal condition and defects of engineered structures
- ✓ Assessment of road and rail infrastructure, including asphalt and ballast condition
- ✓ Slab thickness, reinforcement placement and void detection

### METHOD

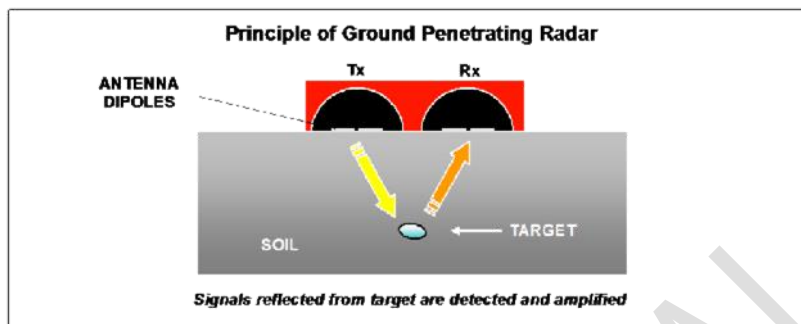
Ground Penetrating Radar (GPR) is a non-destructive and non-invasive geophysical technique for rapidly imaging the shallow subsurface and producing high-resolution colour sections in real time. The method works by transmitting electromagnetic energy into the material being tested (most usually the ground). Typically 100,000 impulses per second are transmitted which are of very short duration and contain a wide spectrum of frequencies.

The transmitted electromagnetic energy propagates through the subsurface as a function of the subsurface material's electrical properties, which are in turn dependent on its physical and chemical properties. Reflection of radar energy occurs at boundaries between differing stratigraphic layers or inclusions which have contrasting electrical properties. Conversely, no reflections occur from a homogenous material where there are no internal reflectors. The reflections are detected by the receiving antenna placed adjacent to the transmitter. The depth to the target is proportional to the time (in nanoseconds) taken for the signal to travel from the transmitting antenna at the surface to the target and back to the receiver.





## GROUND PENETRATING RADAR

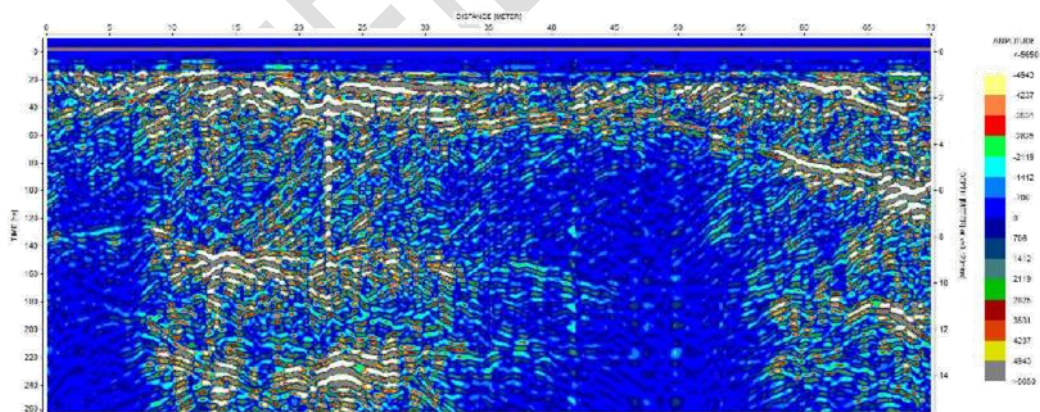


Schematic illustration of the principle behind ground penetrating radar

### DATA ANALYSIS & PRESENTATION

A radar-gram profile is built up of continuous scans along a selected line path, see below. These are 2D cross-sections of the subsurface showing variations in reflection amplitude as a colour scale. The recorded reflections can be analysed in terms of shape, phase, travel time and signal amplitude to provide information about a target's size, depth and orientation in relation to the material around it.

The depth of investigation achievable with the GPR method is largely a function of the antenna frequency used. Lower frequencies in the order of 100 MHz are typically used for geological mapping to a maximum depth of approximately 20 m, whilst high frequencies in the order of 1 GHz are used for high resolution investigations of structures including building, bridges and tunnels.



Processed GPR cross-section imaging a karst formation illustrated by the variations in the radar-wave reflection amplitudes. This enables the detailed analysis of voids or caves within limestone bedrock.





## MULTI-CHANNEL ANALYSIS OF SURFACE WAVES



### 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.

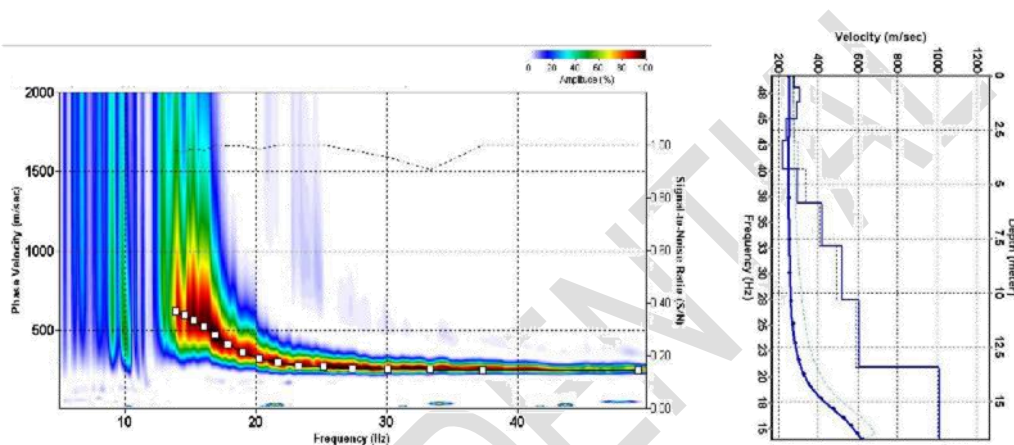


## MULTI-CHANNEL ANALYSIS OF SURFACE WAVES

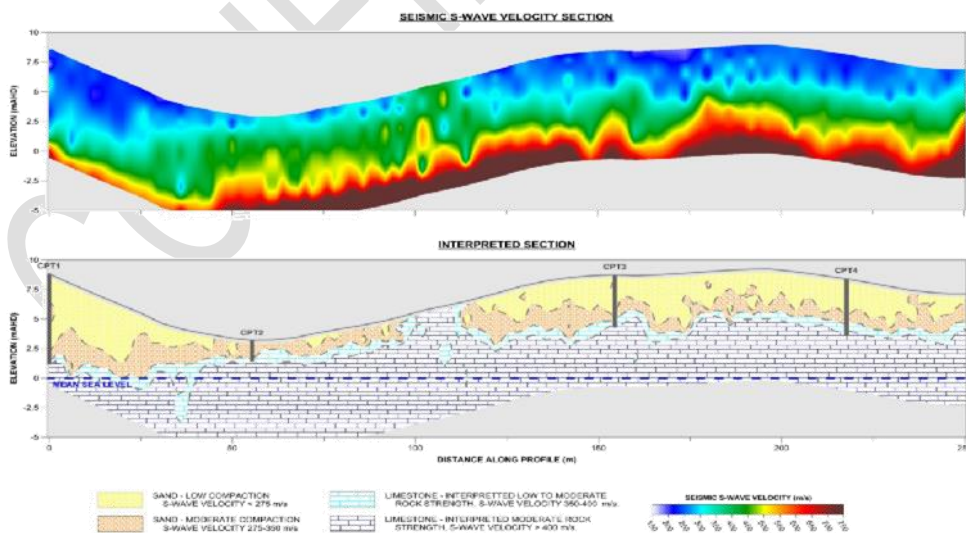


### DATA ANALYSIS & PRESENTATION

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.





**APPENDIX B.**  
**CMW GEOSCIENCES - GEOTECHNICAL FEE PROPOSAL**

CONFIDENTIAL

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GBG Australia Pty Ltd





10 May 2019

Document Ref ADL2019-0120AA Rev0

GBG Australia  
8/34 Wirraway Drive  
Port Melbourne VIC 3207

**Attention: Tavis Lavell**

**RE: GEOTECHNICAL SERVICES PROPOSAL FOR MT GAMBIER AQUATIC CENTRE**

**Dear Tavis**

## **1 INTRODUCTION**

Thank you for inviting CMW Geosciences to undertake a geotechnical investigation for the proposed upgrades to Mt Gambier Aquatic Centre Development.

It is understood that the project requires advice on the following;

- Foundations on underlying limestone;
- Excavatability of underlying limestone;
- Pavement Design CBR;
- Voids/Karstic features of the underlying limestone

We understand that GBG Australia would undertake the geophysical components of the investigation and provide this information to CMW, and vice versa. The geotechnical information collected by CMW would be fed into the GBG Australia geophysical model and the geophysical model would be used by CMW to provide advice on the excavatability and foundations for the project.

## **2 PROPOSED SCOPE OF WORKS**

### **2.1 Field Investigation**

We proposed to perform the investigation by undertaking:

- 12x boreholes to a depth of 6 metres below ground level, or earlier refusal;
- 6x boreholes to a depth of up to 1.0 metre below ground level for collection of CBR bulk samples;
- Conduct a Dynamic Cone Penetrometer Test (DCP's) adjacent to the nominated borehole locations to a target depth of 4.0m or prior refusal;

The borehole would be drilled using a 4WD mounted drilling rig employing push tube and solid auger drilling techniques.

Upon completion, boreholes will be backfilled with the excavated spoil tamped in place using hand tools.

The fieldwork will be performed in the presence of a geotechnical engineer from CMW who will locate the boreholes, nominate sampling and testing depths, recover samples and prepare engineering logs

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MT GAMBIER AQUATIC CENTRE

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describing the subsurface conditions encountered. The borehole locations will be recorded with a handheld GPS.

## 2.2 Laboratory Testing

Selected samples recovered from across the investigated road alignment would be submitted to a NATA accredited laboratory for testing to assist in assessing the engineering characteristics of the subgrade material.

We propose to undertake the following testing on soil samples recovered from the borehole:

- 6 x 4-day soaked California Bearing Ration (CBR) test with associated maximum dry density and optimum moisture content determinations;
- 2x pH, Cl, SO<sub>4</sub>, Resistivity tests.

## 2.3 Reporting

The results of the investigation would be provided in a geotechnical report providing the following information:

- Summary of investigation performed;
- Results of the investigation including site layout plan, engineering logs, insitu test results and laboratory test reports;
- Summary of the subsurface conditions encountered, including depth of fill, existing pavement layers and depth of water (if encountered);
- Provide comments, soil design parameters and recommendations for the footing design including shallow and/or deep foundations as required. This includes but not limited to allowable soil bearing pressures for shallow foundations, skin friction & end bearing capacities for deep foundations based on AS 2159;
- Concrete and Steel durability based on AS 2159;
- Recommendations for site preparation works, including the need to dewater excavations, excavatability and re-use of soil material;
- Provide recommendations for the excavations, hardstand formation, subgrade preparation, pavement CBR design values
- Excavatability recommendations for the rock, where encountered in the proposed excavation areas

## 3 FEE ESTIMATE

The fees and expenses for the specific scope of work to be undertaken on a lump sum basis, as described in this proposal:

| Item                      | Cost (\$)          |
|---------------------------|--------------------|
| Project Management        | \$400.00           |
| Drilling Subcontractor    | \$3,960.00         |
| CMW Geotechnical Engineer | \$3,960.00         |
| Laboratory Testing        | \$1,900.00         |
| Reporting                 | \$3,000.00         |
| <b>Total</b>              | <b>\$13,220.00</b> |



MT GAMBIER AQUATIC CENTRE

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#### 4 SCHEDULE

We can work under the timelines provided for this project. We can begin the site investigation on the week beginning 27<sup>th</sup> May 2019.

#### 5 TERMS AND CONDITIONS

This work will be completed in accordance with CMW's Terms and Conditions. By returning a signed copy of the terms and conditions, we will commence work on this project.

The proposal is valid for 90 days from the date of this proposal and is based on the programme noted in the Scope of Work.

If you require any further information or clarification, please do not hesitate to contact undersigned. We look forward to being of assistance to you on this project.

**For and on behalf of**  
**CMW Geosciences**



David Argent  
**Project Geotechnical Engineer**  
[davida@cmwgeo.com](mailto:davida@cmwgeo.com)







17 May 2019

P19123667-001-L-Rev0

**Mr Ben Luppino**

DesignInc  
Level 1, 151 Pirie Street  
Adelaide SA 5000

**PROPOSAL FOR GEOTECHNICAL INVESTIGATION  
FOR THE MT GAMBIER AQUATIC CENTRE DEVELOPMENT PROJECT**

Dear Ben,

**1.0 INTRODUCTION AND PROJECT UNDERSTANDING**

DesignInc requires a geotechnical investigation to be undertaken for the Mt Gambier Aquatic Centre Development project in Mt Gambier. DesignInc has provided a geotechnical investigation brief for the development, prepared by the civil and structural design consultants for the project, SCP Consulting Pty Ltd (SCP).

The site plan indicates the development area is approximately 190 m by 200 m in plan area, and currently comprises a swimming pool, netball courts, car parking and a number of buildings and other landscaped areas.

Golder Associates Pty Ltd (Golder) is pleased to provide this proposal for the provision of a combined geotechnical and geophysical investigation. A summary of Golder's proposed scope, method and cost is outlined below.

**1.1 Karstic Risk**

Limestone is known to be present throughout the Mt Gambier area. This material is known to be karstic, meaning that it can contain cavities (caves and pipes) where the rock has been dissolved by groundwater in the geological past.

The presence of karst features within the limestone presents a range of geotechnical risks that require consideration during design and construction. Potential impacts associated with these features include the loss of ground support.

**1.2 Objectives and Limitations**

The SCP brief requires a combined geotechnical test pit investigation and geophysical survey to identify the sub-surface profile within the nominated areas, including soil and rock level and indicates that the rock profile must be sufficiently detailed to ensure fissures and deeper voids are documented accurately to inform design. Other sub-surface features (e.g. existing in-ground services) shall also be recorded.

---

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To our knowledge there isn't any remote sensing geophysics technique that can unequivocally assess karstic ground conditions such as anticipated at this site, including subsurface voiding, without verification with intrusive tests. There are however a number of tests that can be done to screen an area for potential fissure/voids although all methods have certain limitations which are largely governed by site characteristics and are not unambiguous. These limitations include depth penetration, resolution of subsurface imagery and interferences by site conditions. A combination of non-intrusive methods with intrusive tests are always recommended.

Our proposal is for a geophysical survey that can be used to provide supporting data for the intrusive geotechnical investigations and to **broadly** address the subsurface profile between intrusive investigation points. Additionally, the geophysical surveys may serve to identify **potential geotechnical risks** that warrant further targeted intrusive investigations for verification.

It must be noted that due to the complexity of the ground conditions and the limitations of the available technology to fully interrogate karst terrain, residual risk and uncertainty with respect to the actual subsurface conditions will exist. Furthermore, even if not present now, it is not possible to rule out the development of voids or karst features over time.

## 2.0 PROPOSED SCOPE OF SERVICES

The scope of the investigation is based on the SCP brief provided to us. The Areas of Work plan (Attachment A of the SCP brief; presented as Attachment 1 of this letter) shows the geophysical survey extent, location of intrusive investigations and location of CBR samples proposed by SCP. Golder's proposed method and scope of investigation includes the following:

- Preliminaries – Health & Safety; managing the risk of damage to underground services; and a desktop review of available published geotechnical information
- Stage 1 Site Investigations – Geophysical survey
- Stage 2 Site Investigations – Intrusive test pit investigations.

These are outlined in more detail in the sections below.

### 2.1 Preliminaries

#### 2.1.1 Health and Safety

A project specific Health Safety, Security and Environmental Plan (HSSE) will be prepared by Golder prior to commencement of the site works. The HSSE Plan provides a risk assessment tool for Golder personnel and subcontractors to manage on-site occupational health and environmental risks during fieldwork.

We can provide DesignInc with a copy of our HSSE plan and SWMS/JSA prior to commencing the field investigations if required. These documents will be reviewed and updated once on site for site specific hazards, prior to beginning investigations at each location.

Golder staff will undertake a brief daily health and safety focused 'toolbox talk' with our subcontractors which will include a review of the HSSE Plan and SWMS in light of the site conditions on the day. The daily toolbox will also include review of task objectives and approach, identification of site-specific and task-related hazards, measures implemented to control hazards, and safe work practices. Our staff are encouraged to perform frequent 'Take 5' assessments throughout the day to assess their work and environment for changed or unexpected site conditions.



We have not allowed for other online site inductions or on-site inductions; and any inductions or site access requirements beyond this would be charged on a time and expense basis.

### **2.1.2 Managing the Risk of Damage to Underground Services**

Golder will take reasonable steps to identify the locations of potential underground services on-site as part of our intrusive test pit investigations. This will include the following steps, in succession:

- Request information from Dial Before you Dig (DBYD) and immediately surrounding area. This will identify currently available information for underground services located in public areas.
- Request and review all available information from the client/site owner relating to known or potential underground services on the site.
- As far as possible, set out or relocate proposed test pit investigation locations away from known services.
- Prior to commencing intrusive test pit investigations, engage a specialist underground services locator to assess the presence of underground services at the proposed investigation locations and nearby using non-intrusive methods (e.g. electromagnetic induction (EMI) and ground penetrating radar (GPR)).
- Relocate proposed intrusive investigation locations if the available information suggests that there is an unacceptable risk of an underground service at or within specified distances from the proposed location.

### **2.1.3 Desk Study**

Prior to mobilizing to site, we will carry out a brief desktop review of published geotechnical information.

## **2.2 Stage 1 Site Investigations – Geophysical Survey**

### **2.2.1 Scope of Work and Deliverables**

We propose to conduct the geophysics survey at Mt Gambier Aquatic Centre using the Ground Penetrating Radar (GPR) survey method. Due to the inherent limitations with the GPR method, it is possible that the GPR method may not be effective in mapping the rock profile in places. We have also provided an alternative scope and costs for carrying out an investigation using the seismic refraction (SR) and Multi-channel Analysis of Surfaces Waves (MASW) methods if GPR is found to be ineffective at all or parts of the site (see Section 2.2.4). Other geophysical methods such as electromagnetic (EM) surveying, electrical resistivity imaging (ERI) or microgravity, which are also used for subsurface profiling and void or defect investigations, have been deemed unsuitable for the site due to likely interferences and/or high costs. Details of the proposed methodologies and their limitations are discussed in Section 2.2.3.

The proposed scope of work for the GPR survey is as follows:

- Preparation of Health, Safety, Security and Environmental (HSSE) documentation as per Section 2.1.1;
- Mobilisation of one experienced geophysicist from the Golder Brisbane office;
- Undertaking a combined 3 days of GPR surveying at the nominated survey areas, acquiring approximately 12 line-km of data. Data will be quality controlled during and at the end of each field day.
- The GPR data will be interpreted to define soil layers and rock level, and possible fissures and voids. The geophysical results will be correlated with available intrusive data.
- The deliverables will include:
  - Site plan drawings for each area of works that record the area and extents surveyed. We propose to use a GPR system with an integrated DGPS with sub-metre horizontal accuracy. Track plots of the recorded GPR lines will be shown in the site plan drawings. As specified, Golder will provide drawings at A1 size and a scale of 1:250.

- All lines will be interpreted, however, due to the large number of proposed survey lines (see Section 2.2.2), only selected lines shall be presented with interpreted rock surface levels and sub-surface features. Interpreted approximate rock surface levels and other sub-surface features from adjacent lines will be gridded to produce depth below ground level (bgl) surface contours, which can be converted to rock surface elevations using provided topographic survey information. To achieve this, Golder will require client supplied topographical survey. This will preferably be received in advance of mobilising to site and data collection. Golder will not be carrying out topographical or feature surveying as part of the geophysics scope.
- Cross section drawings for each area of works will be provided, showing existing ground level and interpreted approximate sub-surface rock level. These will be provided at selected locations in coordination with the client. Digital outputs can be provided in a format specified by the client.
- The results of the survey will be based on non-intrusive methods, and although calibrated with borehole/test pit data (if available), it will have a level of uncertainty. Verification of the results by intrusive testing will be recommended.
- A brief survey report (electronic copy) that provides an overview of the survey methodology, site conditions at the time of the survey, data interpretation and findings. Selected GPR sections will be provided in an attachment to the report.

An example GPR figure is provided as Attachment 2.

## 2.2.2 Site Conditions and Proposed Survey Quantities

Based on the SCP brief, ground conditions at the site are understood to comprise layers of soil over limestone that is susceptible to sinkholes. Surface conditions at the site include grass, asphalt, concrete, trees/shrubs and buildings/structures.

Table 1 provides the anticipated number of GPR survey lines and their approximate length for the nominated area (refer Attachment 1). We note that the nominated survey area is not a uniform shape and as such line lengths will vary. Lines have been estimated based on the provided plans and an assumed line spacing of 1 m in the northeast to southwest orientation, with tie lines spaced 8m in the northwest to southeast orientation, totalling approximately 12 line-km. The survey will be done where access is safely possible.

**Table 1: GPR Survey Coverage.**

| Orientation  | Number of lines | Length (m)     |
|--------------|-----------------|----------------|
| NE - SW      | 108             | 65 to 140      |
| NW - SE      | 17              | 50 to 107      |
| <b>Total</b> | <b>125</b>      | <b>~12,000</b> |

## 2.2.3 Proposed Methodology

### 2.2.3.1 Ground Penetrating Radar

Ground Penetrating Radar (GPR) is a geophysical method that is used to create high resolution images (sections) of the shallow subsurface. The GPR system consists of two antennas, usually housed in a single unit. The transmitting antenna emits an electromagnetic pulse (in the MHz range) into the ground, which is reflected from subsurface structures/objects, voids and/or any other boundaries with different dielectric constants and/or conductivity. These reflected signals are received at the receiving antenna.



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The antennas are moved stepwise along a traverse, typically mounted on a pushcart (Figure 1), and readings are recorded by an integrated computer-controlled acquisition unit at discrete intervals. At each step, the amplitudes of received radar energies are recorded as a function of time, processed in real-time for display purposes, and the raw data recorded digitally for later processing and presentation. A GPR reflection section (or radargram) is produced which can be interpreted with respect to the investigation objectives. The depth of penetration of the radar signal depends on the frequency of the antennas used and the conductivity of the subsurface materials.

For this survey we propose to have available 160 MHz and 450 MHz (or similar frequency) GPR antennas, to allow flexibility in the depth of penetration and resolution for the given conditions on site. Using these antennas, we would typically expect to achieve depth of penetration of 2 m to 4 m below ground level. The GPR data are recorded in time and intrusive information is used to convert the data to depth sections. Hyperbolic diffraction analysis is also typically carried out to confirm the time-to-depth conversions. An assessment of the effectiveness of each antenna will be made on site during an initial trial and the full survey will be completed using the antenna found to provide the optimal resolution and depth penetration in the site-specific ground conditions.



Figure 1: Example GPR cart setup

A number of factors can affect the performance of a GPR survey. Conductive ground conditions such as clay or high groundwater are of primary concern when collecting GPR data because these often cause an abrupt attenuation of the GPR signal, resulting in limited penetration depth. Similarly, concrete rebar or other near-surface metallic objects are likely to be a hindrance to surveying and data quality because these conditions can cause reverberation and limited penetration of the GPR signal.

Once the percentage of clay exceeds 35%, penetration decreases significantly. If such conditions exist onsite then GPR depth penetration will be much less than what we propose to achieve with the selected antennas. GPR does not provide information on rock strength.

## 2.2.4 Alternative Scope of Work using Seismic Refraction and MASW

### 2.2.4.1 Overview

If GPR is found to be ineffective at all or parts of the site, we propose to carry out a combined seismic refraction and MASW survey but with some caveats on the expected outcomes. The survey will start with GPR and an assessment of the GPR data will be made on Day 1 and will be used to determine the course of action for the remainder of the survey.



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The seismic refraction and MASW methods provide compressional-wave (P-wave) and shear-wave (S-wave) profiles of the subsurface, respectively, which can be interpreted with respect to soil and rock properties, depth to rock and zones of weakness associated with fracturing or voids. Neither of these methods are able to provide the same level of resolution as GPR and production rates are much slower. Where several km's of GPR data can be acquired in a day with a one-person crew, the average production rate for a combined SR and MASW survey is approximately 500 line-m per day and requires two crew members. Unlike GPR, seismic refraction and MASW will provide information on rock levels and possible broad weak zones but will not be able to define discrete voids or anomalies. Resolution is controlled by the geophone spacing and shot density.

Following the initial assessment with GPR, the proposed seismic scope would be to acquire a grid of seismic lines totalling approximately 1500 line-m. This will result in a grid of lines with an average line spacing of between 15 m to 20 m. The combined SR-MASW seismic survey will be carried out using a land streamer with 24 4.5 Hz geophones at 2 m spacing. The land streamer setup allows the seismic array to be towed/pulled across the ground surface to provide surveying efficiencies. Surveying would be carried out by a crew of two geophysicists.

The SR and MASW results will be processed to produce 2D P-wave and S-wave velocity profiles along each survey line. Correlations between seismic velocities and intrusive information will be used to interpret the rock properties and subsurface profile across the site.

#### **2.2.4.2 Seismic Refraction (SR) and MASW Methodologies**

The seismic refraction (SR) method is a geophysical method which is used for stratigraphic assessments such as the determination of the soil-rock interface. The SR method utilises the P-wave (first arrival) signal of the seismic record. The P-wave velocity is directly controlled by the parameters of elasticity (moduli) and density of the subsurface strata. The SR method can yield the subsurface P-wave velocity structure, which can be used to help infer subsurface stratigraphic and structural characteristics.

The MASW technique is a seismic method that utilises the dispersive properties of surface waves for the purpose of shear wave (S-wave) velocity profiling. MASW measures variations in surface wave velocity with increasing distance and wavelength and can be used to infer the rock/soil types, stratigraphy and soil conditions.

One advantage of a combined SR and MASW survey is that the SR method alone is unable to define velocity reversals associated with weaker or voided material, whereas MASW does not have the same limitation. SR will typically provide a more accurate rock profile compared to MASW. The P-wave and S-wave information and available/estimated density information can be used to provide elastic moduli values.

However, it should be noted that the seismic methods are limited in their ability to define fissures and voids and will likely only be able to define larger zones of weakness which may be associated with such features.

### **2.3 Stage 2 Site Investigations – Intrusive Test Pit Investigations**

#### **2.3.1 Fieldwork Methodology**

We propose the following method, based on the requirements set out in the SCP brief, to undertake intrusive test pit investigations at the site following completion of the Stage 1 geophysical survey:

- Excavate twelve test pits at the site, to a maximum depth of 3 m (or shallower refusal) using a backhoe/excavator with provision for a rock-breaking attachment to be used at approximately half of these locations. Test pits will be positioned at the approximate locations shown in the brief. However, it should be noted that the final position of the test pits may require adjustment in the field based on site constraints (e.g. access to the location, service, etc.). Immediately following excavation, the test pits will be backfilled with spoil and bucket tamped.

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- Undertake a DCP test from the existing ground surface to a depth of 1.5 m or shallower refusal (as per guidelines given in AS1289.6.3.2) adjacent to each test pit location.

A Golder field engineer will be on site during the investigation to log and photograph the subsurface materials encountered, collect samples for possible laboratory testing, and undertake field testing. Investigation locations will be recorded using a handheld GPS, which is accurate to within  $\pm 5$  m horizontally, and measured from existing site features (if appropriate).

### 2.3.2 Geotechnical Laboratory Testing

We have made an allowance for geotechnical laboratory testing in our costing. The number and type of tests will be confirmed after completion of fieldwork. For budgetary purposes, we have made an allowance for the following testing:

- Atterberg limits (AS1289.3.1.2, 3.2.1, 3.3.1 and 3.4.1) – 4 tests
- Particle Size Distribution (PSD) (AS1289.3.6.1) – 4 tests
- Soaked California Bearing Ratio (CBR) with Standard Compaction (AS1289.6.1.1, AS1289.5.1.1) – 5 tests
- Field Point Load Strength Tests – 6 tests
- Chemical testing for exposure classification – 3 tests.

### 2.4 Geotechnical Assessment and Reporting

Following the completion of laboratory testing, we will prepare a geotechnical report. The following will be included in the report:

- Summary of the scope of works undertaken
- Investigation location plan referencing handheld GPS coordinates
- Site description including photographs
- Test pit logs, including observations of fill and groundwater if encountered
- Results of the field and geotechnical laboratory testing
- Site classification in accordance with AS2870
- Site sub-soil classification in accordance with AS1170.4
- Geotechnical design parameters including shear strength and friction angle
- Design CBR value for pavements
- Allowable bearing capacity for shallow footings and settlement estimates
- Earth pressure coefficients for retaining wall design, and
- Comment on geotechnical construction issues (e.g. site preparation, excavatability, temporary and permanent batter slopes, re-use of site won materials, drainage etc).

The geophysical survey report will be appended to the geotechnical report.

### 3.0 COSTS

#### 3.1 Cost Estimates

We have provided a cost estimate for the above scope of work in Table 2 below.

Provisional sums for a combined SR and MASW surveyed are provided in Table 3. These costs would be in addition to one day of the GPR survey and reporting costs specified in Table 2 plus the costs for the other scope items presented in Table 2.

**Table 2: Cost Estimate**

| Item     | Description  | Cost Estimate (excl. GST) |
|----------|--|---------------------------|
| <b>1</b> | <b><i>Preliminaries &amp; Project Management</i></b>   |                           |
| 1a       | Preliminaries and project management: including preparation of HSSE documents, DBYD, engagement of subcontractors                              | \$2,670                   |
| 1b       | Desktop review of available information (4 hours for senior geotechnical engineer)   | \$1,015                   |
|          | <b><i>Sub-total for Preliminaries &amp; Project Management (excl. GST)</i></b>   | <b>\$3,685</b>            |
| <b>2</b> | <b><i>GPR Survey*</i></b>  |                           |
| 2a       | Mobilisation and demobilisation (from Brisbane)  | \$7,645                   |
| 2b       | GPR Survey (3 days on site)  | \$9,225                   |
| 2c       | GPR Analysis   | \$9,295                   |
| 2d       | Reporting  | \$3,470                   |
|          | <b><i>Sub-total for GPR Survey (excl. GST)</i></b>   | <b>\$29,635</b>           |
| <b>3</b> | <b><i>Geotechnical Test Pit Investigation</i></b>  |                           |
| 3a       | Golder field engineer – mobilisation and demobilisation from Adelaide  | \$1,375                   |
| 3b       | Golder field engineer – field supervision plus expenses, including vehicle and fuel, and field equipment. (22 hours for Golder field engineer) | \$3,905                   |
| 3c       | Service locating subcontractor – services clearance including mobilisation and demobilisation (from Adelaide)                                  | \$4,930                   |
| 3d       | Excavating subcontractor – test pit excavation using backhoe/excavator   | \$3,960                   |
| 3e       | Geotechnical Laboratory testing (provisional sum, based on test schedule presented in Section 2.3.2)   | \$2,555                   |
|          | <b><i>Sub-total for Geotechnical Test Pit Investigation</i></b>  | <b>\$16,725</b>           |

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| Item | Description                              | Cost Estimate (excl. GST) |
|------|--|---------------------------|
| 4    | <i>Geotechnical Report</i>               |                           |
|      | <b>Sub-total for Geotechnical Report</b> | <b>\$4,740</b>            |
|      | <b>Total (excluding GST)</b>             | <b>\$54,785</b>           |

\* Note: the per day GPR survey costs, including data analysis (excluding mobilisation and demobilisation), is \$6,170 (excl. GST).

**Table 3: SR and MASW Provisional Survey Costs (if required)**

| Item | Description   | Cost Estimate (excl. GST) |
|------|---|---------------------------|
| 5    | <i>Seismic Survey**</i>                             |                           |
| 5a   | Mobilisation / Demobilisation                       | \$6,320                   |
| 5b   | SR-MASW Survey                                      | \$11,885                  |
| 5c   | SR-MASW Analysis                                    | \$8,810                   |
|      | <b>Sub-total for SR and MASW Survey (excl. GST)</b> | <b>\$27,015</b>           |

\*\* Note: the per day SR and MASW survey cost, including data analysis (excluding mobilisation and demobilisation), is \$6,900 (excl. GST).

### 3.2 Schedule of Rates

The following rates (excl. GST) will apply for standby or variations in scope requested by the client (refer Table 4). Subcontractors and other expenses will be charged at cost plus 10%.

**Table 4: Schedule of rates**

| Item                                 | Rate (excl. GST) |
|--------------------------------------|------------------|
| Principal Geotechnical Engineer      | \$295/hour       |
| Senior Geophysicist                  | \$225/hour       |
| Senior Geotechnical Engineer         | \$180/hour       |
| Intermediate Geophysicist            | \$165/hour       |
| Junior Geophysicist / Field Engineer | \$125/hour       |
| GPR equipment (multiple antennas)    | \$925/day        |
| SR/MASW equipment                    | \$300/day        |
| Accommodation and meals (per person) | \$250/day        |
| Vehicle hire                         | \$120/day        |

#### 4.0 TIMING

Timing for commencement of the geophysical survey and/or test pit investigation will be dependent on the availability of the equipment, personnel and sub-contractors. We typically require a minimum of 2 weeks' notice prior to mobilising to site, however, we will confirm availability after award.

Our expected fieldwork duration for each stage is as follows:

- geophysics investigation (GPR survey) – 3 days on site
- test pit investigation (including services clearance and test pit excavation) – 2 days on site.

Our report will be available two to three weeks after completion of fieldwork to allow for laboratory testing.

#### 5.0 ASSUMPTIONS AND EXCLUSIONS

Costs are subject to the following assumptions and exclusions. Should conditions not reflect these, the costs may be varied in consultation with DesignInc:

- Permission to access the site to carry out the work will be arranged by others. Any permits/clearances required for environmental, aboriginal heritage or other access requirements will be provided by the client and these will be advised at the time of commission. No responsibility will be accepted for damage other than that arising from negligence of Golder. No responsibility or liability will be accepted for any consequential loss under any circumstances.
- No allowance has been made for any site inductions that may be required to access site.
- It is assumed that there are no restrictions on working hours for fieldwork and that we can work normal weekday working hours.
- Geotechnical investigations and geophysical survey can occur without the need for standby or interruptions caused by other site-based activities or weather conditions.
- Cost for fieldwork delays outside the control of Golder will be invoiced at our standard hourly rates. Our cost and program assume that work can be undertaken in a single mobilisation and does not allow for standing time in the event of weather conditions being unsuitable for drilling or for working if extreme or catastrophic bushfire danger ratings are forecast.
- Investigation locations will be able to be positioned away from road corridors sufficiently such that traffic management will not be required. No allowance has been made for any required traffic management.
- Geophysical survey:
  - The geophysical scan lines will provide results from non-intrusive testing and will be indicative only.
  - Information about the subsurface will only be recorded directly below the geophysical scan line.
  - Should the proposed survey areas not be pegged prior to mobilisation, Golder will locate the provided geophysics survey line start and end points using a hand held GPS to  $\pm 5$  m accuracy. GPR data will be recorded with an integrated DGPS with sub-metre accuracy however it is not possible to navigate to defined locations using this system.
  - We assume that the ground surface along each of the GPR lines will be flat and clear of any surface obstructions.





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DesignInc

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- If the SR survey is deemed necessary, it is assumed that this will be undertaken in the same mobilisation as, and immediately after, the GPR survey.
- In order to process the seismic data, topography information is required. We assume that the client will provide topographic survey data of the site prior to processing of the seismic data is underway.
- Extraneous noise (power lines, vibration from traffic, drilling rigs, underground utilities, rain and winds) interferes with the seismic refraction measurements and reduces data quality. If such conditions are found to exist on site, then the client will be informed before deciding further course of action.
- Geophysical work cannot be completed when it is raining. Costs associated with delays due to weather after mobilisation or other causes outside of Golder's control, will be charged to client at the specified standby rates plus any expenses incurred.
- Intrusive test pit investigation:
  - The Client will provide details of the locations of all underground services within the site and any damage due to inaccurate or incomplete information or failure to provide details will not be Golder responsibility. We have not allowed for non-destructive drilling (NDD) as part of services clearance.
  - No allowance has been made for changes to the scope of work outlined above that may be considered necessary as a result of fieldwork observations or on receipt of the testing results.
  - Test pits will be backfilled with excavated spoil and tamped to reinstate. Excess spoil will be mounded at the surface. No responsibility will be accepted for damage or future repairs other than that arising from negligence of Golder. No responsibility or liability will be accepted for any consequential loss under any circumstances.
  - No allowance has been made for transportation and disposal of excess spoil.
- No allowance has been made for a contamination investigation or for a groundwater assessment.
- Comments relating to excavatability will be based on observations made during the test pit excavations and the results of the geophysical survey. We have made an allowance in our cost estimate for the use of a rock breaker at around half of the test pit locations. However, we have not allowed additional time on site to undertake a standalone excavatability/rippability assessment.

## 6.0 TERMS AND CONDITIONS

We propose that the work is undertaken in accordance with Golder's Terms and Conditions for Professional Services (LEG01, RL13), provided as Attachment 3.

Prior to commencement of these professional services, we require written acceptance from the client or the authorised agent who is directly responsible for payment of our invoice, prior to commencement of the work. Progress invoices may be issued and payment in full of each invoice is due within 30 days of issue.

This proposal is valid for a period of 60 days.



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## 7.0 CLOSURE

Thank you for the opportunity to submit a geotechnical proposal for this project. We look forward to the opportunity of working with DesignInc on this project. If you have any questions regarding the contents of this proposal, please contact Derek Arnott or Adelaide Harbison on 8213 2100.

Yours Faithfully,

**Golder Associates Pty Ltd**



Adelaide Harbison  
Geotechnical Engineer



Derek Arnott  
Principal Geotechnical Engineer

AMH/DA/jd

Attachments: 1 – Areas of Work plan (provided to Golder by DesignInc)  
2 – Example GPR figure  
3 – Golder's Terms and Conditions for Professional Services (LEG01, RL13)

[https://golderassociates.sharepoint.com/sites/109563/project files/1 proposal and project management/p19123667-001-l-rev0.docx](https://golderassociates.sharepoint.com/sites/109563/project%20files/1%20proposal%20and%20project%20management/p19123667-001-l-rev0.docx)



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**ATTACHMENT 1**

Areas of Work Plan (provided to  
Golder by DesignInc)

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## ATTACHMENT A

### Areas of Work

- Geophysical Survey extent
- Intrusive Investigation
- Obtain CBR Values



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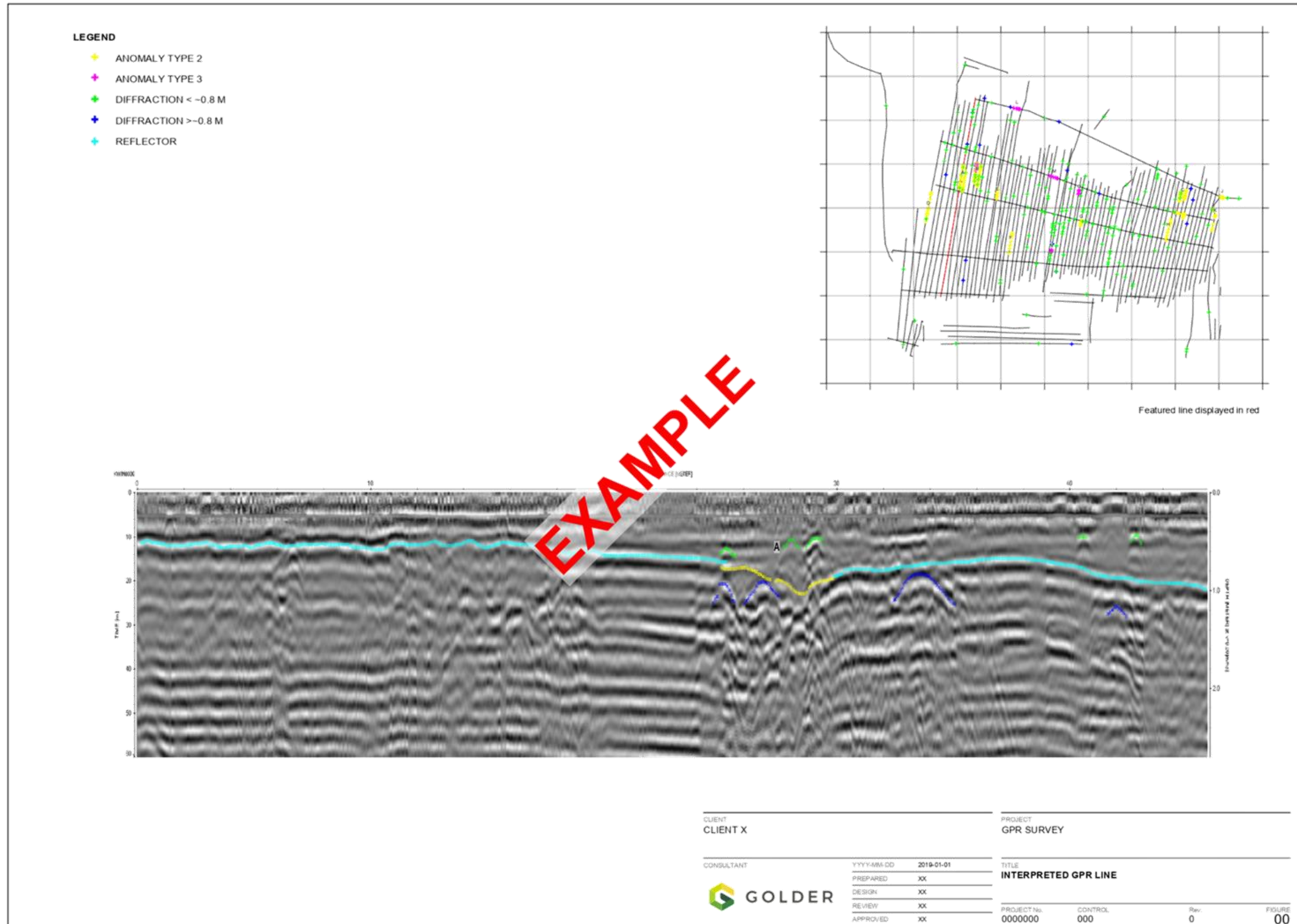
ATTACHMENT 2

Example GPR figure

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**ATTACHMENT 3**

**Terms and Conditions for  
Professional Services**





**GOLDER ASSOCIATES PTY LTD**  
**TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES**

Golder Associates Pty Ltd ("Golder") and its client ("Client") (as described in the proposal ("Proposal") to which these terms and conditions are attached, or in which they are referred to as the case may be) agree that the services to be provided by Golder described in the Proposal, including any variations (collectively, "Services") will be provided under the terms of the Agreement (as that word is defined in the following sentence). Collectively the Proposal and these terms and conditions form the entire contract ("Agreement") between Client and Golder.

1. **Standard of Care** – Golder shall provide the Services with such skill, care and diligence as is ordinarily exercised by consultants in similar circumstances at the time the Services are provided. Golder will allow Client the opportunity to provide feedback regarding the provision of the Services at any time.
2. **Site Disturbance** – Where fieldwork activities are undertaken as part of the Services, in the normal course of work some ground disturbance will occur. Unless expressly described in the Proposal or required by law, Golder's responsibility to make good any such disturbance shall be limited to uncompacted backfilling of test pits and surface-plugging of boreholes not otherwise capped. Any other repair or re-instatement of pavements or other surface finishes shall be Client's responsibility.
3. **Right of Entry, Permits, Site Information and Utilities** - Client shall obtain all necessary permits and licenses and provide right of entry for Golder and its subcontractors to carry out the Services. At its own cost Client shall provide to Golder in advance all relevant and necessary information, documents and other particulars concerning the provision of the Services including, but not limited to, any on-site hazardous materials and underground utilities. Golder shall be entitled to rely on such information.
4. **Health and Safety** – Golder shall comply with all the obligations relating to workplace health and safety that are imposed upon it by law. Unless expressly stated, the Agreement is not intended to impose upon Golder any obligation relating to workplace health and safety in addition to those necessarily imposed upon Golder by law. At no time shall Golder be deemed to be in control of the project site unless by prior written agreement with Client in connection with specific Services. Client shall provide any environmental, health, or safety policies or procedures it requires Golder to abide by during provision of the Services. If no such policies or procedures are provided, Golder will abide by its own policies and procedures in the provision of the Services. If in Golder's opinion it is at any time unsafe to continue to provide Services, Golder may suspend the Services without penalty until the unsafe condition is rectified.
5. **Payment** – Client shall pay to Golder fees and expenses as set out in the Proposal without set off or deduction. Where the Agreement has been entered into or authorised by an agent of Client (or a person appearing to have authority to act as an agent of Client), the agent and Client shall each be jointly and severally liable for payment of all accounts due to Golder under the Agreement. All amounts payable by Client to Golder shall be paid within thirty (30) days of the date of the invoice. Any amount not paid within that period shall attract interest from the date of the invoice until payment at a rate of 1.5% per month plus any debt collection fees. Client shall notify Golder within ten (10) days of receipt of an invoice of any dispute regarding the invoice and the parties will promptly meet to resolve the dispute. Unless timely notification is received by Golder, the invoice will be deemed to be valid and payment due.
6. **Rates** – The rates set out in the Proposal are applicable to the Services for 6 months after the entering into of the Agreement. Thereafter the rates will be reviewed by Golder and may be increased having regard to market conditions or other circumstances relevant to the cost of providing the Services.
7. **Insurance** -
  - (a) Golder shall effect and maintain the following insurances:
    - (i) public liability insurance;
    - (ii) workers' compensation insurance; and
    - (iii) professional indemnity insurance.
  - (b) The public liability insurance shall be for a reasonable amount having regard to the nature and scope of the Services and shall be maintained for the entire duration of the Agreement.
  - (c) The workers' compensation insurance shall be effected and maintained in accordance with the applicable Australian, State or Territory legislation.
  - (d) The professional indemnity insurance shall be for a reasonable amount having regard to the nature and scope of the Services and shall be maintained for the duration of the Agreement and for a period of not less than one (1) year thereafter.
8. **Limitation of Liability (Consumer Guarantees)** – In this clause and in clause 9 below:
  - (a) "The Australian Consumer Law" has the meaning given to it in section 4 of the *Competition and Consumer Act 2010 (Cth)*;
  - (b) "Consumer" has the meaning given to it by section 3 of the Australian Consumer Law; and
  - (c) "Consumer Guarantee" means, in relation to the Services, any guarantee which the Australian Consumer Law requires Golder to provide, or deems Golder to have provided, to Client.If, in relation to the Agreement, Client is a Consumer then:
  - (d) The provisions of the Agreement other than paragraph (e) below are negated and of no effect to the extent that any of them limit or exclude, or might but for this clause be construed to purport to limit or exclude,



**GOLDER ASSOCIATES PTY LTD.  
TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES**

the liability of Golder under the Australian Consumer Law for any failure by Golder to comply with a Consumer Guarantee; and

(e) Golder's liability under the Australian Consumer Law for any failure to comply with a Consumer Guarantee is limited to:

- (i) supplying of the Services again; or
- (ii) payment of the cost of having the Services supplied again.

(f) Unless the Australian Consumer Law requires otherwise, the remedy provided to Client under paragraph (e) above in any particular instance shall be at Golder's reasonable discretion.

**9. Limitation of Liability (other than Consumer Guarantees)** – Except for any failure by Golder to comply with a Consumer Guarantee, to the extent permitted by law:

(a) Golder shall not be liable to Client for, or in connection with, any indirect, consequential or special losses (including, without limitation, loss of revenue, loss of profit, loss of business opportunity, payment of liquidated damages under any other agreement or payment of any penalty) however arising (including arising out of any negligence); and

(b) To the extent that liability is not excluded by paragraph (a) above, the liability of Golder to Client arising out of performance or non-performance of the Services, whether under law of contract, tort (including negligence) or otherwise, shall be limited in aggregate to the cost of rectifying the Services (including, if necessary, supplying all or part of the Services again), or the amount of \$300,000, whichever is the lesser; and

(c) In any event, Golder is deemed discharged from all liability to Client for and in connection with the Services, whether under the law of contract, tort, or otherwise, on the expiration of one (1) year from; completion of the Services, the date of invoice in respect of the final amount claimed pursuant to Clause 5, or termination of the Agreement, whichever is earliest to occur. Client shall not thereafter be entitled to commence any action or claim whatsoever against Golder in respect of the Services.

In this clause 9, references to Golder shall be construed as references to, collectively, Golder, its employees, officers, directors, agents, sub-consultants and sub-contractors.

**10. Ownership and Use of Work Product** - Intellectual property and copyright ("IP") in all drawings, reports, specifications, calculations, software, and other documents created or provided by Golder as part of the Services shall remain the property of Golder. Subject to Client complying with its obligations under the Agreement, Client shall upon payment own all deliverables provided to it as part of the Services and Golder grants to Client a non-exclusive, non-transferable license to use IP for the purposes described in the Proposal. Client shall not use or make copies of the deliverables in connection with any work not included in the Proposal without prior written consent from Golder. If Client is in breach of any obligation to make a payment to Golder, Golder may revoke the license to use the IP and Client shall return to Golder all originals of deliverables provided under the Services and any copies thereof.

**11. Third party reliance** - Unless expressly agreed by Golder, Golder's obligations under the Agreement and otherwise in connection with the provision of the Services are owed to Client only and to the extent permitted by law the Agreement negates and prevents the existence of any obligation upon Golder to any person other than Client in connection with the Services. Client indemnifies Golder against any claim arising from unlicensed use of or reliance on the Services including any deliverable. For the purposes of the Services under this Agreement Golder agrees to the Client disclosing any deliverables produced under this Agreement to third parties such disclosure to be conditional on the third parties entering into a reliance agreement with Golder and the Client on terms and conditions which have the effect that the liability of Golder collectively to the Client and the third parties, shall not be more than the liability Golder would have had to the Client in connection with the provision of the Report under this Agreement.

**12. Confidentiality** – Subject to Clause 13 below, neither Client nor Golder shall disclose to any third party any confidential information provided by the other unless; required by law, the information is already available to the public, or the other consents to the disclosure.

**13. Publicity** – Client consents to Golder's use of a general description of the Services and general images of the Services in Golder's internal and external marketing materials including resumes, proposals, and promotional materials.

**14. Dispute** - Any dispute between Client and Golder shall be notified in writing by the aggrieved party to the other within 7 days of the onset of the dispute. Within 7 days of notification, the senior representatives of the parties shall meet, without legal representation, and in good faith attempt to resolve the dispute. If the dispute cannot be resolved the parties will refer the dispute to mediation. Notwithstanding the existence of any dispute, the parties agree to continue to perform all obligations under the Agreement other than those genuinely in dispute.

**15. Termination** - Either party may terminate its obligations under the Agreement either in the event of a substantial breach by the other party of its obligations if the breach has not been remedied within 30 days of a written notice to do so, or without cause upon giving the other party 30 days' written notice of its intention to do so. Golder may suspend or terminate its obligations under the Agreement in the event of any amount payable to Golder for the Services being outstanding for more than 30 days.



**GOLDER ASSOCIATES PTY LTD.  
TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES**

- 16. Assignment** - Neither party may assign the Agreement without the prior written consent of the other party . .
- 17. Sub-consultants** - If Golder considers it appropriate to do so, it may engage any one or more sub-consultants to assist Golder in providing the Services. Any such sub-consultant may be related to Golder. Client acknowledges and agrees that it will not have any legal recourse to, and waives any claim, demand or cause of action against any of Golder's related companies and their employees, officers and directors and agents, engaged in performing part or all of the Services, provided that; Golder will remain liable to Client in accordance with the terms of the Agreement for the negligent acts and omissions of a related sub-consultant committed in performing the Services.
- 18. Illegal Conduct** - if Golder believes that under any law in relation to fraud, bribery or corruption (whether or not that law is the law of the jurisdiction in which the Services are performed) Golder is required, or it is prudent for Golder, to take action of any kind, Golder shall be entitled to take such action and, provided that Golder acts in good faith, in taking such action Golder shall not incur any liability (including any penalty) under the Agreement or otherwise. The action that may be taken by Golder under this clause includes, but is not limited to:
- (a) Alerting Client to any fact or matter of which Golder becomes aware;
  - (b) Informing any government or other body or officials of any fact or matter; and
  - (c) Terminating the Agreement upon either any period of notice or immediately as appears to Golder to be appropriate in the circumstances.
- 19. Miscellaneous –**
- (a) The Agreement shall be subject to either the laws of the State of Australia where the Services are provided or, if the Services are provided outside of Australia, the laws of the State of Australia which is the location of the Golder office that is the source of the Proposal.
  - (b) The Agreement is the entire agreement between the parties for the provision of the Services in the Proposal and supersedes all other agreements, representations, correspondence, and discussions in connection with the Services. In particular, no terms incorporated into or referenced by any purchase order, however and whenever presented, shall at any time operate to add to, amend or substitute for the terms of the Agreement.
  - (c) An interpretation of the Agreement that results in all of its provisions being enforceable is preferred to an interpretation that does not so result. Any provision which could be given an interpretation which would cause it or any other part or all of the Agreement to be void or unenforceable shall, so far as possible, be read down to the extent necessary to permit all parts of the Agreement to be enforceable. If, despite the application of this clause, a provision of the Agreement is void or unenforceable, such provision shall be severed from the Agreement and the rest of the Agreement remain in force.
  - (d) Nothing in the Agreement or in the performance of the Services shall be construed as creating a relationship of agency, partnership, or other relationship other than that of client and consultant between the parties.
  - (e) If there is any inconsistency between the terms of the Proposal and these terms and conditions, these terms and conditions shall prevail unless the relevant part of the Proposal expressly states or necessarily implies that it is to prevail, in which case it shall prevail.

This agreement is executed on behalf of the Parties by their authorised representatives and is effective as of the date of execution.

**GOLDER ASSOCIATES PTY LTD**

**Per:**

**Per:**

\_\_\_\_\_  
**Authorised Representative**

\_\_\_\_\_  
**Authorised Representative**

**Name:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_





**CONSIDERATION FOR KEEPING ITEMS CONFIDENTIAL**

1. In accordance with Sections 91(7) and 91(9) of the *Local Government Act 1999* the Council orders that the report 4.5 AR19/27126 Community and Recreation Hub - Geotech Survey and its attachments, the discussion and the resolution/s and minutes arising from the report, having been considered by the Council in confidence under Section 90(2) & (3) (b) and (k) be kept confidential and not available for public inspection until until a contract has been executed in relation to the matter..
2. Further that Council delegates the power of review revoke, but not the extension, of the confidential order to the Chief Executive Officer on a monthly basis in accordance with the provisions of Section 91(9)(c) of the *Local Government Act 1999*.

CONFIDENTIAL

**MINUTES OF CONFIDENTIAL SPECIAL COUNCIL MEETING  
HELD AT THE COUNCIL CHAMBER, CIVIC CENTRE,  
10 WATSON TERRACE, MOUNT GAMBIER  
ON MONDAY, 3 JUNE 2019 AT 5.35 P.M.**

**PRESENT:** Mayor Lynette Martin (OAM), Cr Kate Amoroso, Cr Max Bruins, Cr Ben Hood (arrived at 5:52 pm), Cr Sonya Meziniec, Cr Frank Morello, Cr Steven Perryman (arrived at 5:39 pm)

**OFFICERS  
IN ATTENDANCE:**

|  |   |                 |
|--|---|-----------------|
| Chief Executive Officer                      | - | Mr A Meddle     |
| General Manager Community Wellbeing          | - | Ms B Cernovskis |
| General Manager Council Business Services    | - | Mrs P Lee       |
| General Manager City Infrastructure          | - | Mr N Serle      |
| Manager Executive Administration             | - | Mr M McCarthy   |
| Community Development and Engagement Officer | - | Mrs H Gajic     |
| Executive Administration Officer             | - | Ms A Lavia      |

**4.5 COMMUNITY AND RECREATION HUB - GEOTECH SURVEY – REPORT NO. AR19/27126**

**RESOLUTION 2019/137**

Moved: Cr Max Bruins

Seconded: Cr Steven Perryman

**CONSIDERATION FOR EXCLUSION OF THE PUBLIC**

Pursuant to section 90(2) of the *Local Government Act 1999* the Council orders that all members of the public, except Mayor L Martin, Councillors K Amoroso, M Bruins, B Hood, S Mezinac, F Morello and S Perryman and Council Officers A Meddle, B Cernovskis, P Lee, N Serle, H Gajic, M McCarthy and A Lavia be excluded from attendance at the meeting for the receipt, discussion and consideration in confidence of Agenda Item 4.5 AR19/27126 Community and Recreation Hub - Geotech Survey.

The Council is satisfied that, pursuant to section 90(3) (b) and (k) of the Act, the information to be received, discussed or considered in relation to the Agenda Item is:

- information the disclosure of which could reasonably be expected to confer a commercial advantage on a person with whom the Council is
  - conducting business; or
  - proposing to conduct business; or
  - to prejudice the commercial position of the Council
- tenders for the:
  - supply of goods, or
  - the provision of services, or
  - the carrying out of works

The Council is satisfied that the principle that the meeting be conducted in a place open to the public has been outweighed in the circumstances because the information contained in the report and to be discussed includes detailed costings and other information relevant to the specification and assessment of a tender submission which, if disclosed, is considered to reasonably confer an advantage on tender respondents and accordingly prejudice the commercial position of Council and therefore not be in the public interest as tender submissions may be unduly influenced and detrimental to achieving best value for the community.

**CARRIED**



**RESOLUTION 2019/138**

Moved: Cr Ben Hood  
Seconded: Cr Frank Morello

1. That Council Report No. AR19/27126 titled 'Community and Recreation Hub - Geotech Survey' as presented on 03 June 2019 be noted.
2. That an additional \$37,352 (ex gst) be made available to DesignInc and Co-op Studios to engage GBG Australia Geotechnical to undertake the detailed site investigations to inform the detailed design and site works for the Community and Recreation Hub.
3. That a variation table be presented as a standing item in the Regional Sport and Recreation Centre Committee to monitor variations costs associated with finalising the detailed design.

**CARRIED**

**RESOLUTION 2019/139**

Moved: Cr Sonya Mezinec  
Seconded: Cr Steven Perryman

**CONSIDERATION FOR KEEPING ITEMS CONFIDENTIAL**

1. In accordance with Sections 91(7) and 91(9) of the *Local Government Act 1999* the Council orders that the report 4.5 AR19/27126 Community and Recreation Hub - Geotech Survey and its attachments, the discussion and the resolution/s and minutes arising from the report, having been considered by the Council in confidence under Section 90(2) & (3) (b) and (k) be kept confidential and not available for public inspection until a contract has been executed in relation to the matter.
2. Further that Council delegates the power of review revoke, but not the extension, of the confidential order to the Chief Executive Officer on a monthly basis in accordance with the provisions of Section 91(9)(c) of the *Local Government Act 1999*.

**CARRIED**

