

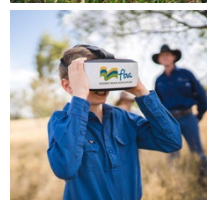
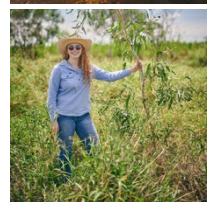
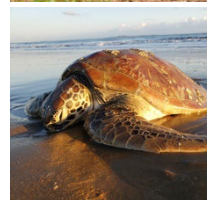
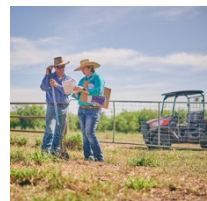


# Invitation to Tender (ITT)

## Six Mile Creek Bank Stabilisation

Release Date: 24 April 2024

Close Date: 4pm Tuesday 14 May 2024





## Prepared By

Ben Reimers  
Business Systems Leader

A handwritten signature in black ink, appearing to read 'Ben Reimers', written over a horizontal line.

Signature

Apr 24, 2024

Date

## Approval

This document is authorised for release once all signatures have been obtained.

In signing this approval, I agree that this and associated documents meet the Fitzroy Basin Association standards and procedures and have been checked against the Project Scope of Works.

Elyse Riethmuller  
Chief Executive Officer

A handwritten signature in black ink, appearing to read 'Elyse Riethmuller', written over a horizontal line.

Signature

Apr 24, 2024

Date

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## Part I: Tender Particulars

#	Item	Details
1.1	Program Name	Department of Environment and Science (DES) – Streambank Remediation Program
1.2	Tender Description	<p>Fitzroy Basin Association (FBA) invites tenders to deliver civil construction services for the DES Streambank Remediation Program.</p> <p>Through this tender invitation, FBA seeks to engage a skilled construction firm to provide the services outlined in Schedule I –Scope of Works.</p> <p>The project involves stabilizing the banks of 6 Mile Creek to fight erosion and improve the stability of the surrounding area.</p> <p>The location of the site is in Raglan, Queensland (Lat/Long -23.85399, 150.74749).</p> <p>Works are anticipated to commence in June/July 2024 during the “dry season”.</p>
1.3	Invitation Documents	Part 1: Tender Particulars Part 2: Tender Conditions Part 3: Evaluation of Tenders Part 4: Scope of Works Part 5: Returnable Schedules Part 6: Draft Contract
1.4	Contact Details	Ben Reimers Business Systems Leader <a href="mailto:Tenders@fba.org.au">Tenders@fba.org.au</a>
1.5	Mandatory Site Inspection	Thursday 2 May, 2024 10am
1.6	Clarifications Close	4pm 13 May 2024
1.7	Tender Close	4pm 14 May 2024
1.8	Method of Lodgement	Electronic lodgement via email to <a href="mailto:Tenders@fba.org.au">Tenders@fba.org.au</a>
1.9	Conforming Tender	<p>A Conforming Tender is a Tender which:</p> <ul style="list-style-type: none"> <li>a) is lodged by the Tender Close date and time required in Section 1.7;</li> <li>b) is lodged in the manner required by Section 1.8;</li> <li>c) is signed by an authorised representative of the Tenderer; and</li> <li>d) includes all of the documents outlined in Part 5: Returnable Schedules.</li> </ul> <p>FBA may, but is under no obligation to, consider or refuse to consider any Tender which:</p>

		<ul style="list-style-type: none"> <li>a) is lodged after the Tender Close date and time required in Section 1.7;</li> <li>b) is lodged in a manner other than as required in Section 1.8;</li> <li>c) does not strictly conform to the Invitation to Tender in any respect;</li> <li>d) includes assumptions, clarifications or exclusions; or</li> <li>e) is otherwise non-conformant with the requirements of the Invitation to Tender.</li> </ul>
<b>1.10</b>	Tender Validity Period	A Tender shall remain valid and able to be accepted for 120 days from the Tender Close date and time.

## Part 2: Tender Conditions

### 2.1 Definitions and Interpretation

2.1.1 In this Invitation to Tender (ITT), unless the context otherwise requires, the following definitions apply:

- a. Agreement means the proposed form of agreement between Fitzroy Basin Association and the successful Tenderer (if any), as identified in Part 6: Draft Contract;
- b. Alternative Tender means a Tender proposal which is non-conforming to the requirements outlined in Part 4: Scope of Works that the Tenderer believes will achieve the same or better outcomes for FBA.
- c. Business Day means any day other than:
  - i. a Friday, Saturday or Sunday;
  - ii. a public holiday in Rockhampton, Queensland;
  - iii. 20 to 31 December inclusive; and
  - iv. 1 to 5 January inclusive.
- d. Conflict of Interest means any relationship or other interest between parties that may actually, potentially, or be perceived to compromise judgements, decisions, or actions;
- e. Contract means the Agreement, the Scope of Works and all Scope of Works attachments and specifications;
- f. Contract Work means anything which the successful Tenderer (if any) is or may be required to do under the Contract as described in the Scope of Works or as directed by FBA under and per the Contract;
- g. FBA means Fitzroy Basin Association Ltd. (ABN 30 802 469 401);
- h. Invitation to Tender (ITT) means the Invitation Documents specified in clause 1.3;
- i. Tender means the response to this ITT and the firm Tender to enter into the Contract submitted by a Tenderer to FBA;
- j. Tender Close means the date and time, as identified in clause 1.7, by which Tenderers are to lodge their Tenders, as varied by FBA per clause 1.9e;
- k. Site means the site on which the Contract Work is to be carried out, as specified in Part 4: Scope of Works;
- l. Validity Period means the period specified in clause 1.10, commencing from the Tender Close, for which the Tenderers' Tenders will be valid for acceptance by FBA as extended from time to time; and
- m. Work means the package of works that is the subject of this ITT as described in Part 4: Scope of Works.

2.1.2 The following rules apply unless the context requires otherwise:

- a. the singular includes the plural, and the converse also applies;
- b. a gender includes all genders;
- c. if a word or phrase is defined, its other grammatical forms have a corresponding meaning;
- d. if a party comprises more than one person, each of them is referred to separately, and each is bound severally, and any two or more of them are bound jointly;
- e. headings are for convenience only and shall not affect interpretation;
- f. a reference to writing includes any method of representing or reproducing words, figures, drawings or symbols in a visible and tangible form;
- g. a reference to conduct includes an omission, statement or undertaking, whether or not in writing;



- h. a reference to dollars and \$ is to Australian currency exclusive of GST;
- i. a reference to a person includes a corporation, trust, partnership, unincorporated body or other entity, whether or not it comprises a separate legal entity;
- j. all references to time are to Rockhampton, Queensland time;
- k. mentioning anything after includes, including, for example, or similar expressions, does not limit what else might be included;
- l. correspondence and documentation connected with this ITT will be in English; and
- m. in drawings and technical documentation, the English language, the metric system of measures, and the SI unit system should be used.

## 2.2 Overview of the ITT

### Purpose of this Invitation to Tender

- 2.2.1 This document, which includes Parts 1 to 6 and all Schedules, seeks an Invitation to Tender (ITT).
- 2.2.2 This ITT is issued by Fitzroy Basin Association (FBA) who is seeking Tenders from parties interested in supplying the solution described in the Part 4: Scope of Works. The ITT is a contestable and competitive process. FBA is seeking Tenders from parties who can supply economic, efficient and effective goods, services, or works that represents the best value for money over the whole-of-life of a contract and that can be delivered in a timely manner.
- 2.2.3 The purpose of this ITT is to invite suitably qualified and experienced Tenderers to submit a Tender stating their interest and capability to deliver the goods, services or works described in the Part 4: Scope of Works.
- 2.2.4 This ITT sets out the process that each Tenderer must follow in preparing and submitting its Tender. It also details the process that FBA will use to evaluate Tenders.

## 2.3 ITT requirements

### FBA's terms

- 2.3.1 This ITT, including all Schedules, sets out FBA's terms upon which Tenderers must submit Tenders. These terms are non-negotiable.
- 2.3.2 Any suitably qualified and experienced Tenderer may submit a Tender to this ITT.
- 2.3.3 Each Tenderer should carefully read this ITT to ensure that its Tender complies with FBA's terms. By submitting a Tender, the Tenderer accepts that it is bound, without reservation or variation, by the terms set out in this ITT.
- 2.3.4 FBA is not required to accept any Tender for evaluation that does not comply with these terms.

### Indicative timeline

- 2.3.5 The indicative timeline for this ITT is stated in clauses 1.5, 1.6 and 1.7 of Part 1: Tender Particulars at the start of this document. Please note that these dates and times may be subject to change at the sole discretion of FBA. FBA will notify Tenderers of any changes to these dates or times by email to each Tenderer who has uplifted a copy of this ITT (to the email address provided by each Tenderer to FBA).

### FBA's Contact Person





- 2.3.6 All enquiries regarding this ITT must be directed to FBA's contact person whose details are provided in clause 1.4 of Part 1: Tender Particulars. FBA requests that email be used for all communications in relation to this ITT.
- 2.3.7 Only the FBA contact person and/or any person authorised by the FBA contact person are authorised to communicate with Tenderers regarding any aspect of this ITT. Where a Tenderer has an existing contract with FBA then business as usual communication, for the purpose of that contract, will continue using the usual contacts. Tenderers must not use business as usual contacts to lobby FBA, solicit information, or discuss aspects of this ITT.
- 2.3.8 FBA will not be bound by any written or oral statement made by any person other than FBA's authorised contact person.
- 2.3.9 FBA may change FBA's contact person at any time. FBA will notify Tenderers of any such change by providing notice to each Tenderer who has uplifted a copy of this ITT.

#### **FBA's obligations**

- 2.3.10 FBA's obligations to any Tenderer (including as to any aspect of the Tender process):
- are limited to only those obligations expressly set out in this Invitation to Tender; and
  - exclude (to the maximum extent permitted by law) any obligations which may otherwise be implied or imposed on FBA under contract, at law, in equity, by statute or otherwise.

#### **Tenderers' obligations**

- 2.3.11 Each Tenderer will be considered to have:
- examined the ITT and any documents referenced in the ITT and any other information provided by FBA.
  - satisfied themselves as to the correctness and sufficiency of their Tender.

#### **Ethics/Canvassing**

- 2.3.12 Tenderers must not, in relation to any representative of FBA, directly or indirectly:
- approach, contact, lobby or solicit information concerning any aspect of this ITT, or
  - attempt to influence, or provide any form of personal inducement, reward or benefit.
- 2.3.13 A representative of FBA includes any employee, consultant, contractor or advisor engaged by FBA. Any Tenderer, who attempts to do anything prohibited by the above clause, may be disqualified from this ITT.
- 2.3.14 Every Tenderer must:
- prior to lodging any Tender, obtain or procure any approval, qualification, registration or licence required to be held by the Tenderer to enable it lawfully to lodge any Tender and carry out the Contract Work;
  - in preparing and lodging any Tender (including accessing the Site) comply with all applicable laws and legal requirements;
  - without limiting paragraph b):
    - not collude with, accept any commission from, Tender any commission to, or inflate its Tendered price for the benefit of, any other Tenderer;
    - without limiting any other provision of this ITT, not disclose any part of its Tender to any other Tenderer;

- iii. not enter into any contract, arrangement or understanding with any other Tenderer or any trade, industry or other association to the effect that the Tenderer, if successful, will confer any benefit on any other person;
- iv. not enter any other improper or anticompetitive contract, arrangement or understanding with any other person in connection with the Tender or the Contract Work;
- v. immediately notify FBA, in writing, if at any time it becomes aware of any conflict of interest or any matter that may give rise to a conflict of interest and such notice shall include the steps the Tenderer intends to take to address such conflict of interest or matter;
- vi. address any conflict of interest, or any matter that may give rise to a conflict of interest, to FBA's satisfaction;
- vii. without limiting subparagraph (vi), sign any document (including any statutory declaration) required by FBA in respect of conflicts of interest; and
- viii. comply with FBA's probity and conflicts requirements, as notified in writing from time to time.

### **Access to Site**

#### **2.3.15 Every Tenderer must:**

- a. if applicable, attend the Site at the time and date set out for the Scheduled Site Inspection identified in clause 1.5 for the purposes of carrying out such inspection or investigation of the Site as the Tenderer requires;
- b. not access the Site at any time without prior written arrangement of such, confirmed and agreed by FBA, unless it is a publicly accessible site; and
- c. comply with any conditions imposed by FBA in connection with the Tenderer's access to the Site.

### **No Associations warranties or representations**

#### **2.3.16 All information provided to date and provided by FBA in relation to this ITT, is released on the following basis:**

- a. such information provides a background only;
- b. FBA makes no representation or warranty other than as expressly set out in this ITT document;
- c. Tenderers rely on all information provided by FBA at their own risk and must seek their own professional advice as appropriate; and
- d. the information may not form part of any subsequent contract documents other than as specified in this ITT.

#### **2.3.17 Tenderers will be responsible for verifying the accuracy and adequacy of information supplied by or on behalf of FBA at their own cost. Should a Tenderer find any discrepancy, inconsistency, error or omission in this ITT, the Tenderer should notify the FBA contact person in writing as soon as reasonably practicable.**

### **Errors and omissions**

#### **2.3.18 FBA is under no obligation to check any Tender for errors. Shortlisting of a Tender that contains errors will not invalidate that Tender.**

#### **2.3.19 FBA may provide subsequent correspondence if it is found that errors, omissions or further clarification of this document is required. Any subsequent correspondence will be provided (via email) to all Tenderers who have requested this ITT and provided with the ITT documents on the FBA website.**

## Confidentiality

- 2.3.20 FBA and each Tenderer will keep confidential all information provided by the other. No confidential information will be provided to a third party without the other's prior written consent (other than for the purpose of the preparing or evaluating the Tenderers' Tender).
- 2.3.21 Where a Tenderers' Tender contains information such as intellectual property that it considers should be held confidential the Tenderer must clearly identify the information and mark it confidential or commercially sensitive. The Tenderer may be asked by FBA to indicate the reason why such information should be held as confidential.
- 2.3.22 Tenderers acknowledge that FBA is subject to the Queensland Right to Information Act 2009 ("Act") and information provided by Tenderers may be required to be disclosed under that Act or under any other law or by any court.
- 2.3.23 No advertisement or other information relating to this ITT process or any contract that may arise out of it shall be published in any newspaper, magazine, journal or other advertising medium, or broadcast/dissemination by radio, television or other electronic media without the prior written approval of FBA.

## 2.4 Preparing a Tender

### Clarification Period

- 2.4.1 Each Tenderer must satisfy itself as to the interpretation of the ITT and should, where there is any perceived ambiguity or uncertainty in the ITT documents, seek clarification from FBA's contact person.
- 2.4.2 During the period from the date the ITT is issued to the deadline for Tenderers' questions, stated in clause 1.6 of Part I: Tender Particulars, Tenderers may email FBA's contact person to request clarification of any matter regarding the ITT or to request additional information.
- 2.4.3 All such requests must be by email to FBA's contact person whose details are provided in clause 1.4 of Part I: Tender Particulars of the ITT. In sending the email the Tenderer should receive a receipt email to say that their request been received and read by FBA. Please allow a reasonable period of time for FBA to respond to a request. Requests will be dealt with during FBA's standard working days, Monday to Thursday, excluding days outlined in clause 2.1.1(c).
- 2.4.4 FBA may decide not to respond to any request received after the Clarification Period, although it reserves the right to do so.
- 2.4.5 FBA will issue any clarification or change to this ITT by way of notice by email. A copy of each amendment notice will be emailed to all known Tenderers receiving this ITT and included on the FBA website. All amendment notices will become part of this ITT.
- 2.4.6 FBA will not be bound by any statement, written or verbal made by any person other than FBA's contact person or a person authorised by FBA's contact person.
- 2.4.7 Tenderers may be asked by FBA's contact person to revise or clarify their Tender or provide additional information during the ITT process. These requests will require immediate action and must be responded to in writing within two (2) working days, or the time specified in the request. Otherwise, FBA reserves the right to mark down or not consider the original Tender.

## **Preparing a Tender**

- 2.4.8 Tenders must follow the format set out in Part 5: Returnable Schedules. Tenderers must provide in their Tender all information requested, and in the format specified by FBA, including information stated in clause 1.3 of Part 1: Tender Particulars.
- 2.4.9 Tenderers should limit their Tenders to less than 30 pages, although more pages will not constitute a non-conforming proposal.
- 2.4.10 Failure to provide all information required by FBA will normally result in the Tenderers' Tender being rejected as non-conforming.

## **Joint Tenders**

- 2.4.11 Tenderers may submit joint Tenders, so long as the requirements of this ITT are met. Any joint Tender must clearly:
- identify all of the parties;
  - nominate a single point of contact for joint Tenders;
  - outline the nature of the relationship between the parties for the purpose of the joint Tender;
  - confirmation that all parties are committed to the relationship and the joint Tender;
  - the specific parts of the Part 4: Scope of Works each party will be responsible for delivering;
  - the structures set up by the parties that support good governance and accountability and financial and contract management;
  - any perceived or actual conflicts of interest, and
  - be signed by all parties.

## **FBA's Consideration of Tenders**

- 2.4.12 Subject to the terms of this ITT, FBA shall consider any Tender which complies with and is lodged in accordance with the Invitation Documents.
- 2.4.13 FBA may, in its discretion and without being under any obligation to do so, consider any non-conforming Tender.
- 2.4.14 FBA may consider Alternative Tenders at its sole discretion when accompanied by a Conforming Tender and all documentation outlined in Part 5: Returnable Schedules.
- 2.4.15 Any Alternative Tender should be clearly identified as an 'Alternative ITT Tender' and clearly outline the commercial advantage and value add Tendered to FBA.

## **Language**

- 2.4.16 Responses must be in English.

## **Tender costs**

- 2.4.17 Each Tenderer must meet all its own costs associated with the preparation and presentation and submission of its Tender including any negotiations, site visits or other matters in respect of its Tender.

## **Reliance on the Tenders**

- 2.4.18 Each Tenderer must ensure that all information provided to FBA is complete and accurate. FBA may rely upon all information provided by a Tenderer in its Tender and in any correspondence or negotiations with FBA, or FBA's representatives.

### **Ownership of documents**

- 2.4.19 All documents forming the Tenders will, when delivered to FBA, become the property of FBA. Tenders will not be returned to Tenderers at the end of the process.
- 2.4.20 Ownership of intellectual property rights does not pass to FBA when a Tender is delivered to FBA. However, the Tenderers grant to FBA a license to retain, use, disclose and copy information contained in the Tender for any purpose related to this ITT process [or any subsequent process] – this may include FBA's provision of information to state or commonwealth agencies.
- 2.4.21 All documents comprising this ITT, including all its parts, appendices, attachments, schedules, annexures, variations and addenda and other requirements, remain the property of FBA, but each Tenderer is permitted to use them for the purposes only of compiling its Tender.

## **2.5 Submitting a Tender**

### **Submitting a Tender**

- 2.5.1 Responses must be presented and submitted to FBA in the manner set out in clause 1.9 of Part 1: Tender Particulars.
- 2.5.2 Responses must be delivered by email to FBA by the deadline for Tenders (closing date and time) stated in clause 1.7 of Part 1: Tender Particulars.
- 2.5.3 Only Tenders lodged via the method outlined by clause 1.8 of Part 1: Tender Particulars will be accepted by FBA. A confirmation of receipt email will be sent.
- 2.5.4 By submitting a Tender each Tenderer warrants that all information provided by it to FBA, is complete and accurate in all material respects. Each Tenderer also warrants that the provision of that information, or its use by FBA, will not breach any third party intellectual property rights.

### **Non-conforming Tenders**

- 2.5.5 Without limiting clause 1.9:
  - a. a Tenderer must, in any non-conforming Tender, expressly state in detail the extent to which the Tender:
    - i. does not comply in any respect with the requirements of the Tender Documents or relies upon any assumptions;
    - ii. is for the carrying out and completion of the Contract Work on terms which differ from the terms of the Tender Documents (including the Contract); and
    - iii. will benefit or disadvantage FBA by the proposed non-conformity (including the effect on the Tendered price).
  - b. except to the extent expressly stated in the Tender, any Tender shall be deemed to be for the carrying out and completion of the Contract Work on the terms of the Tender Documents (including the Contract).

### **Alternative form of Tender**

- 2.5.6 FBA will accept any alternative form of Tender outside of the Part 5: Returnable Schedules if accompanied by a conforming Tender and conforming aspects of Part 5: Returnable Schedules.



## **Late Responses**

- 2.5.7 FBA does not intend to accept any Tender that it receives after the closing date other than in exceptional circumstances.

## **Conflict of Interest**

- 2.5.8 Please detail any known conflict of interest you may have with FBA e.g. working for other government organisations, for media organisations, personal relationship with any FBA staff or consultants, business relationships with FBA staff or consultants other than providing services to FBA.

## **2.6 Evaluation**

### **Evaluation**

- 2.6.1 FBA will convene an evaluation team comprising members chosen for their relevant expertise and experience.
- 2.6.2 FBA will evaluate each Tender (including any information gathered from presentations, workshops or site visits) in accordance with the methodology set out in Evaluation of Tenders (Part 3).
- 2.6.3 FBA may direct the evaluation team to undertake due diligence relating to any Tender at any time during the evaluation process. FBA may, at its sole discretion, invite independent advisors to evaluate any Tender, or any aspect of any Tender.
- 2.6.4 Tenderers should note that, while FBA may conduct interviews, site visits and reference checks, it intends to base its evaluation primarily on the written Tender submitted in Tender to this ITT. Tenderers are therefore encouraged to submit their best Tender in the first instance.

### **Clarification**

- 2.6.5 FBA may request clarification and additional information from any Tenderer about any aspect of their Tender. FBA is not required to request the same clarification or information from each Tenderer.
- 2.6.6 The Tenderer must provide the clarification or additional information in writing and within the reasonable time notified by FBA. The evaluation team will take such clarification or additional information into account in evaluating the Tender.
- 2.6.7 If a Tenderer fails to respond adequately or in a timely manner to any request for clarification or additional information, FBA reserves the right not to consider the original Tender or may mark down the Tender as a consequence due to a lack of clarity.

### **Collection of further information**

- 2.6.8 Each Tenderer authorises FBA to collect any information (except commercially sensitive pricing information) from any relevant third parties (such as a referee, previous or existing client or any other third party) and to use that information as part of its evaluation of the Tenderer's Tender.
- 2.6.9 Each Tenderer must ensure that all referees provided in support of its Tender agree to provide a reference and are appropriately briefed on the Tender. To facilitate discussions between FBA and referees, each Tenderer waives any confidentiality obligations that would otherwise apply to information held by any referee.
- 2.6.10 FBA is not obliged to contact the Tenderers' referees.

### **Shortlisted Tenderers**

- 2.6.11 Following the evaluation process, the evaluation team may shortlist preferred Tenderers. The preferred Tenderers will be notified and advised by FBA that they have been shortlisted. Such notification does not:
- a. constitute acceptance by FBA of any Tender;
  - b. imply or create any obligation on FBA to enter into negotiations with, or award a contract to any shortlisted party and
  - c. obligate FBA to proceed with any further procurement process in respect of the solution.
- 2.6.12 Each Tenderer that has not been shortlisted will be notified by FBA that its Tender has been unsuccessful.
- 2.6.13 FBA is not obliged to publicise the name of the shortlisted Tenderers, but it may do at its discretion.

### **Tender validity**

- 2.6.14 As a minimum, Tenders shall remain valid, and capable of being accepted by FBA, for the Validity Period specified in clause 1.10.
- 2.6.15 The Validity Period can be extended with the relevant Tenderer's consent, which must not be unreasonably withheld or delayed (in which case, this ITT applies to the Validity Period as extended).
- 2.6.16 The Tenderer must not withdraw, change (including by way of addition or qualification) or otherwise do anything which affects its Tender before the expiration of the Validity Period.

## **2.7 General terms and conditions of this ITT**

### **Status of ITT**

- 2.7.1 Neither the ITT, nor the ITT process shall create any legal relationship between FBA and a Tenderer. Nothing in this ITT will be construed to create any binding contract (express or implied) between FBA and any Tenderer until a written contract is entered into with a successful Tenderer (if any). Any conduct or statement whether prior to or subsequent to the issuance of the ITT is not, and this ITT is not, and must not be deemed to be:
- a. a Tender to contract; or
  - b. a binding undertaking of any kind by FBA.
- 2.7.2 If there is any conflict, or inconsistency between the terms and conditions set out in this ITT and the terms contained in a Tenderer's Tender, the terms and conditions set out in this ITT shall prevail.

### **Acceptance of Tender**

- 2.7.3 Notification (in writing or otherwise) from FBA to any Tenderer that it is a preferred, selected or successful Tenderer will not constitute an acceptance or rejection of any Tender and is not authorisation for that Tenderer to commence the Contract Work.
- 2.7.4 A Tender is not and will not be deemed to be accepted by FBA unless and until a Contract (in a form acceptable to FBA) is executed by both FBA and a Tenderer.
- 2.7.5 The successful Tenderer shall execute the Contract within ten (10) Business Days of the date that the Contract (in a form capable of execution) is emailed to that Tenderer by FBA.



- 2.7.6 Without affecting the successful Tenderer's obligations, until the Contract is signed by both the Tenderer and FBA, there shall not be a binding contract between the parties for the carrying out of the Work as outlined in the Scope of Works.

### **FBA's rights**

- 2.7.7 In addition to any other term described in this ITT, FBA reserves the unrestricted rights, at any time to:
- a. amend, suspend or cancel this ITT;
  - b. vary the Tender Closing Date & Time and notify the Tenderers accordingly;
  - c. waive any irregularities or informalities in this ITT process;
  - d. delete, change or add to any requirement contained in the Part 4: Scope of Works prior to the closing date on the proviso that such changes are minor and Tenderers are notified by a notice provided for in this ITT;
  - e. reject all Tenders;
  - f. reject or accept any non-conformant Tender;
  - g. reject or accept any alternative Tender;
  - h. not proceed to evaluation of Tenders;
  - i. exclude any Tenderer from this ITT process where the Tenderer has breached a term or condition of this ITT;
  - j. liaise with any Tenderer to clarify a Tender, or negotiate with any shortlisted Tenderer without disclosing this to, or doing the same with, any other Tenderer;
  - k. seek clarification on any aspect of any Tender from any Tenderer to the exclusion of other Tenderers and seek further information from such Tenderer/s in respect of that clarification;
  - l. readvertise this ITT process;
  - m. shortlist Tenderers based on their Tender;
  - n. directly negotiate with any shortlisted Tenderer and enter into a final contract with a Tenderer without having to continue with any subsequent procurement process;
  - o. provide, or withhold from any Tenderer information in relation to any question arising in relation to this ITT. Information will only be withheld if it is deemed unnecessary or inappropriate to supply it at the time of the request and/or
  - p. deal separately with any divisible element/s of the Scope of Works (Part 4), or any Tender.

### **Conflict of Interest**

- 2.7.8 Tenderers warrant that, except as notified to FBA under clause 2.5.8, at the time of submitting their Tender, no conflict of interest exists, or is likely to arise, which would affect the performance of their obligations of any contract that may be entered into with FBA arising out of this ITT.
- 2.7.9 In the event of a conflict of interest being identified FBA may, in its sole and absolute discretion, exclude the Tender from any further consideration.

### **Negotiations**

- 2.7.10 Acceptance of a Tender may be subject to negotiations at the sole and absolute discretion of FBA. In any negotiation process, FBA may require the submission of any additional written documents or information that may be required for the purposes of the contract to be entered into under this ITT.
- 2.7.11 Without limiting its other rights under this ITT if, in the sole and absolute opinion of FBA, during final negotiations a Tenderer has retracted, or attempts to retract, representations under which material business, financial, technical and legal issues were resolved during negotiations, FBA may reject the



Tender, discontinue negotiations with that Tenderer, and exercise any other right FBA has under this ITT, at law or otherwise.

### **No Liability**

2.7.12 This ITT process does not form a process contract. FBA, its officers, employees, agents or advisors will not be liable in contract or tort or in any other way for any direct or indirect damage, loss or cost incurred by any Tenderer or other person in respect of this ITT process.

### **Queensland law**

2.7.13 The laws of Queensland shall govern this ITT and each Tenderer agrees to submit to the exclusive jurisdiction of the Queensland courts, including arbitration and mediation, in respect of any dispute concerning this ITT or the ITT process.

## **2.8 Acknowledgement by Tenderers**

2.8.1 Every Tenderer accepts that the Tenderer:

- a. has not relied, and will not rely, upon any FBA-Supplied Information for any purpose (including determining whether or not to lodge a Tender, preparing its Tender, entering into the Contract or performing its obligations under the Contract);
- b. has been or will be provided with FBA-Supplied Information only for the Tenderer's convenience and FBA does not assume any responsibility or duty of care in respect of, give any warranty or guarantee or make any representations as to, FBA-Supplied Information (including its accuracy or adequacy);
- c. shall have no claim of any kind whatsoever and howsoever arising against FBA or any employee, agent or contractor of FBA (whether in contract, tort (including negligence), equity, under statute or otherwise) from or in connection with FBA-Supplied Information (including the provision of, or failure to provide any FBA-Supplied Information); and
- d. must satisfy itself as to and take into account any matter or thing disclosed by any FBA-Supplied Information relevant to the Tender and the carrying out of the Contract Work.

2.8.2 The Tenderer shall have no claim of any kind whatsoever and howsoever arising against FBA or any employee, agent or contractor of FBA (whether in contract, tort (including negligence), equity, under statute or otherwise) arising from or in connection with:

- a. any costs, expenses or other liabilities incurred by the Tenderer in preparing a Tender or otherwise in connection with the Tenderer's Tender (whether or not a Tender is lodged by the Tenderer or the Tenderer's Tender is accepted) including any costs, expenses, or other liabilities incurred by the Tenderer in providing any further information or in carrying out any further work at the request of FBA or any of its employees, agents or contractors;
- b. FBA or any of its employees, agents or contractors exercising in its absolute discretion, any discretion or right it has under this ITT or in connection with the Contract Work; and/or
- c. any of the matters or things relevant to the Contract Work in respect of which the Tenderer must satisfy itself under this ITT.

## Part 3: Evaluation of Tenders

### 3.1 Evaluation Process

#### Evaluation panel

The objective in evaluating each Tender is to obtain the best value for money and not necessarily the lowest Tendered price. If FBA considers any Tender to be ambiguous, erroneous or incomplete, FBA may in its absolute discretion:

- a. consider, or refuse to consider, the Tender;
- b. request further information from the Tenderer; or
- c. request the Tenderer to amend its Tender.

Tenders will be evaluated by a panel of staff chosen for their relevant experience. Evaluation will take place against the Evaluation Criteria outlined in Section 3.2.

#### Tenderer debrief

Following the successful awarding of the ITT (if any) FBA will offer to debrief the Tenderers who have not been successful. The debrief will be conducted by teleconference or email as requested. The debrief will aim to:

- a. provide the reasons why a Tender was not successful;
- b. explain how the Tender performed against the evaluation criteria, i.e. the strengths and weaknesses of the Tender; and
- c. answer any relevant concerns or questions from the respective Tenderers.

Tenderers should keep in mind the terms of this ITT regarding confidentiality and privacy considerations when requesting information during the debrief. FBA will not provide any information that is comparative to the successful (or any other) Tender or any other commercial-in-confidence information.

### 3.2 Evaluation Criteria

Criteria	Key Indicators	Weighting
<b>Price</b>	- Fixed and variable costs	30%
<b>Methodology</b>	- Program of works - Subcontracts - Procedures used - Reporting and recording systems	20%
<b>Capacity</b>	- Proven capacity to deliver similar scale works - Technical expertise and resources available - Ability to deliver in the proposed timeline or reasonably suggested timeline	20%
<b>Experience</b>	- Demonstrated relevant experience - Meets quality standards	15%
<b>Management Systems</b>	- WHS systems and procedures - Quality and project management - Environmental management	10%
<b>Environmental and Social Governance</b>	- Locally based contractor - Environmental sustainability and social initiatives	5%

## Part 4: Scope of Works

### 4.1 Introduction

FBA has an outstanding reputation locally, across Queensland and nationally for developing and delivering effective and efficient programs that work with local community, stakeholders, and investors to protect our region's natural assets. FBA is uniquely placed geographically, strategically, and operationally to deliver priority environmental and agricultural outcomes.

FBA is the organisation that can bridge the gap between knowledge and action, and bring projects that combine environmental awareness, increased profitability, and improved production to life.

We are the experts of our region. We translate complex information - explaining legislation, new technologies and changes in best practice in a way that becomes tangible, practical actions land managers and the community can do. We work with all parts of our community to implement evidence-based, accessible solutions that are relevant to our region.

FBA is proud to be one of Queensland's leading natural resource management organisations.

When it comes to the environment, landholders and our local community, FBA is well placed to lead and support projects that protect the future prosperity and resilience of our land and sea.

### 4.2 Inclusions

The scope includes, but is not limited to:

- Supplying and delivering materials (unless specified otherwise), equipment, labour, site office, supervision, and everything needed for groundworks, earthmoving, pile fields and revegetation activities.
- Contractor responsible for sourcing construction water, including related costs and permissions.
- Two potential water sources identified by FBA off-site, but contractor must assess and decide.
- One potential water source on-property is being ground-truthed, and if feasible, FBA will work towards installing a bore, a solar pump, and tanks.
- Setting up the site, along with mobilization and demobilization.
- Confirming the line and level of services if identified in "Dial Before You Dig."
- Protecting existing services if necessary.
- Clearing the site, demolishing, removing, and reinstating existing structures like fences as needed to facilitate the work.
- Conducting all necessary excavation and backfilling according to the design for the execution of the works.
- Ensure that erosion and sediment control measures are implemented during construction activities according to best practices or as instructed by project management.
- Seeding cover crops (approved grasses by the landholder) on disturbed areas as needed.
- Carrying out additional minor tasks that support the main project.
- Restoring disturbed areas' surfaces to a standard at least as good as before construction.
- Completing all work required to fulfill the contract per the detailed design drawings and referenced specifications.
- Providing "As-Constructed" drawings, including layout, as-constructed survey information, and elevation model (DEM, DTM, Imagery) before demobilization.
- Adherence to the project execution plan outlined below

### 4.3 Exclusions

The following items listed are excluded from the scope of works:

- Design, supply, install and commission irrigation system
- Supply and plant tubestock
- Future maintenance
- 

If the contractor has capacity to include any of the excluded services listed above, the contractor is requested to provide provisional rates for performing such tasks. These rates will be used for estimation purposes only to assess the potential value-added contribution of these works to the project.

### 4.4 Project Execution Plan

The following comprehensive project execution plan meets FBA's requirements for the project:

#### **General Project Costs And Management Of Excess Cut Materials**

##### **Wash-down machinery to meet biosecurity requirements**

- Ensure all exterior surfaces, undercarriages, and attachments are adequately cleaned and free from soil, debris, and organic matter.
- Pay special attention to hard-to-reach areas where soil and contaminants may accumulate.(e.g. belly plates, centre hitches, interiors)
- Maintain detailed records of the wash-down activities, including dates, times, locations, a log of where the machine has been, and methods used.
- Ensure all relevant documentation is completed accurately and submitted to the FBA project management team.
- Complete Weed and Seed declaration form. Example included as attachment *Visitor – Weed and Seed Declaration Template.docx*.
- Any deviations from the agreed-upon scope of work must be approved by the project management team in writing.
- Non-compliance will result in the denial of site access for the equipment.

##### **Mobilisation**

- Install safety signage and barriers to demarcate work zones and ensure site safety.
- Implement comprehensive safety protocols and procedures to mitigate risks associated with excavation and earthmoving activities.
- Provide comprehensive training on equipment operation, safety procedures, and project-specific requirements.
- Implement a site induction process for all personnel to familiarize them with project objectives and safety protocols.
- Conduct regular safety inspections and toolbox talks to reinforce safe work practices among the workforce.
- Implement environmental protection measures to mitigate potential impacts on surrounding ecosystems and waterways.

##### **Construction of creek crossing**

- Clarify with FBA project management how the excavated soil should be managed, whether it needs to be removed from the site or can be repurposed elsewhere.
- Install woven geofabric as per manufacturers instructions

- Ensure proper compaction and alignment of the rock to withstand water flow and vehicular traffic.

#### Pre-Construction / Site Set Out Survey

- Coordinate with project stakeholders to establish survey control points and coordinate access to the site.
- Use survey data to set out zones and alignment.
- Coordinate with project stakeholders to ensure alignment with design specifications and regulatory requirements.
- Address any discrepancies promptly through data adjustment or re-surveying as necessary to maintain integrity.

#### Clearing Woody Vegetation on Top of Bank

- Implement selective clearing techniques to preserve desirable vegetation and minimize environmental impact.
- Explore opportunities for recycling or repurposing cleared wood materials where feasible to minimize waste generation.
- Coordinate with recycling facilities or biomass processors for sustainable disposal options.
- Implement erosion control measures to mitigate soil erosion and protect exposed earthworks areas.
- Ensure compliance with environmental regulations and guidelines throughout the vegetation clearance process.

#### Renovation of Access Track

- Conduct a site assessment to identify existing track conditions, drainage issues, and potential obstacles.
- Grade the track alignment to achieve a uniform slope
- Excavate any areas with excessive buildup or irregularities to ensure a smooth and even surface.
- Suitable for access to the site by trucks and dog trailers, as well as semitrailers.

#### Placement of Excess Spoil Material to Raise Access Track

- Evaluate the quality and suitability of excess spoil material for use in raising the access track.
- Develop a track elevation design plan that specifies the required height adjustments along the track alignment.
- Implement methods to achieve elevation control and uniform distribution of material.
- Compact the placed spoil material to achieve durability and stability for the landholder.
- Incorporate proper drainage features into the track design to manage surface water runoff and prevent erosion.
- Construct cross-drains, crossings, or ditches as needed to divert water away from the track and maintain track integrity.
- Ensure that drainage structures are properly sized and positioned to accommodate anticipated flow rates and volumes.

#### Landscaping with Spoil (provisional)

- Utilize appropriate equipment to strip the top 100mm layer of topsoil from designated areas.
- Ensure careful handling of the stripped topsoil to prevent contamination and maintain its quality for later replacement.
- Identify low spots or areas requiring elevation adjustments based on site plans and stakeholder specifications.
- Transport overburden material to fill low spots and achieve desired contours and elevations.
- Lightly compact the filled areas to ensure stability and minimize settling over time.

- Distribute the stripped topsoil evenly over the filled areas to replace the removed layer.

#### Paddock Spoil Dumping (provisional)

- Utilize appropriate equipment to strip the top 100mm layer of topsoil from designated areas.
- Spread out the dumped spoil material evenly over the paddock areas to achieve desired land contours and elevations.
- Lightly compact the dumped spoil material to ensure stability and minimize settling over time.
- Distribute the stripped topsoil evenly over the compacted spoil material to replace the removed layer.
- Implement erosion control measures such as straw mulching or sediment barriers to prevent soil erosion and sediment runoff from paddock areas.

#### As Constructed Survey

- Conduct field surveys to accurately measure and document the locations, alignments, and elevations of constructed elements.
- Capture data on key features.
- Process survey data using specialized software to generate accurate as-constructed drawings, plans, and reports.
- Generate digital terrain models (DTMs) and orthomosaic maps to visualize and analyze the final earthworks conditions.
- Compile all survey data and documentation into a cohesive package for submission to the client and project archives.

#### Spread Woody Mulch (provisional)

- Utilize woody mulch from trees cleared on-site. If unavailable, procure woody mulch from reputable suppliers.
- Evenly distribute the woody mulch over the ground surface.
- Ensure uniform coverage and thickness of mulch layer to achieve desired soil protection and moisture retention benefits.
- Pay special attention to critical areas such as slopes, erosion-prone zones, and newly planted areas to maximize erosion control effectiveness.

#### Poly Trenching for Creek Irrigation

- Conduct an assessment of the site to determine the most suitable location for the poly trench crossing.
- Excavate a trench across the creek to accommodate the poly pipe for irrigation.
- Supply and install a single line of poly pipe within the trench to facilitate irrigation of the surrounding area.
- Backfill the trench

#### Supply, Delivery, and Installation of Crusher Dust and Water Tanks

- Conduct an assessment of the site to determine the most suitable locations for the crusher dust and water tanks as per the irrigation design.
- Procure crusher dust from reputable suppliers.
- Spread the crusher dust to create a stable and level surface as per project requirements.
- Procure water tanks of the specified size and capacity as per the irrigation design.
- Transport the water tanks to the designated locations on-site.
- Position the water tanks in accordance with the irrigation design and site specifications.
- Ensure proper alignment and secure placement of the water tanks, for example, by filling them up with water to prevent them from being displaced.

### Demobilization

- Perform site cleanup activities to remove construction debris, waste materials, and temporary structures.
- Need rubbish bins onsite no rubbish to be laying around at any time
- All oil spills to be managed by contractor
- Restore disturbed areas to their original condition by regrading, seeding, and mulching as necessary.
- Address any environmental concerns or hazards resulting from construction activities.
- Complete any final inspections or walkthroughs to verify that all demobilization activities have been completed satisfactorily.

### Design Works

#### Stockpile Batter Topsoil

- Conduct a site assessment to identify suitable areas for topsoil excavation and stockpiling.
- Exercise care to avoid contamination or mixing of soil designated for topsoil with other materials during excavation.
- Segregate topsoil from large debris.
- Monitor the moisture content of the stockpiled topsoil to prevent excessive drying or saturation.
- Implement regular maintenance practices, such as turning or aerating the stockpile, to promote air circulation and prevent compaction. Additionally, avoid building up the topsoil mound too high to retain moisture and preserve organic activity within the soil.

#### Batter Cut

- Implement appropriate stabilization measures such as benching, soil reinforcement, or erosion control to enhance the stability of the batter cut.
- Manage excavated materials in accordance with project requirements and environmental regulations.
- Stockpile or dispose of excess soil and debris responsibly, considering factors such as material quality and site constraints.

#### Batter Fill

- Source suitable fill material from approved sources or onsite excavation.
- Implement appropriate compaction methods and sequences to ensure uniform compaction throughout the fill areas.
- Monitor fill slopes regularly and address any erosion or instability issues promptly to prevent potential safety hazards.

#### Respread Topsoil (175mm Thick)

- Handle topsoil with care to prevent compaction and maintain its structure and fertility during transport and placement.
- Methodically distribute topsoil over the site, following established grading and elevation plans to ensure even coverage and consistent depth.
- Manage moisture levels in the respread topsoil to promote seed germination and establishment of vegetation.
- Implement watering schedules as necessary to maintain optimal moisture conditions for plant growth.

#### Supply and Install 700gsm Coir Matting

- Procure high-quality 700gsm coir matting from reputable suppliers.



- Develop an installation plan outlining the placement, orientation, and anchoring methods for the coir matting strips.
- Lay out the coir matting strips down the bank following the manufacturer's installation guidelines and recommended procedures.
- Secure the matting in place using biodegradable stakes, anchors, or other approved fastening methods to prevent displacement.
- Ensure 150mm overlap and alignment of adjacent matting strips to provide continuous coverage and minimize gaps.
- Upstream mat placed on top of the downstream one when overlapping.
- Anchor the coir matting securely to the soil surface using stakes, pegs, or other suitable anchoring devices at specified intervals.

#### Supply & Install Pile Fields

- Procure high-quality piles and associated materials from suppliers in accordance with project specifications and standards.
- Utilize specialized equipment such as pile drivers or hydraulic hammers to install piles to the specified depth and alignment.
- Monitor pile driving parameters such as penetration depth, alignment, and integrity to ensure proper installation and structural stability.
- In cases where pile driving does not meet acceptable standards (driven to 85% of the required depth), two common methods that can be utilized are pre-augering and excavation.

#### Supply, Delivery, Excavation, and Installation of Rock Beaching

- Procure high-quality rock beaching material as per the specified sizing from reputable suppliers.
- The material must be blue rock or granite, not sandstone. It should be sharp, not rounded.
- Ensure careful excavation to minimize disturbance to surrounding areas and maintain site integrity.
- Grade and level the excavated areas to create a smooth and uniform surface for the placement of rock beaching material.
- Place the rock beaching material in layers or lifts, adhering to best practice installation methods and techniques.
- Achieve optimal stability by interlocking, ensuring resistance to erosion.

#### Revegetation Works

##### Incorporation of Fertilizer Blend into Topsoil (Reveg Option A)

- Identify the required fertilizer blend based on soil analysis, project specifications, and vegetation requirements. Procure the specified fertilizer blend from reputable suppliers.
- Ensure proper handling and storage of the fertilizer blend to prevent contamination, degradation, or loss of effectiveness.
- Spread the fertilizer blend evenly over the prepared topsoil surface using appropriate spreading equipment or techniques.

##### Subsoil Ripping/Scarifying

- Use the selected equipment to rip/scarify the subsoil across the designated areas.
- Operate the equipment systematically, following predetermined patterns or grid layouts to ensure comprehensive coverage and uniform ripping depth.
- Adjust equipment settings or operating parameters as needed to maintain the desired ripping depth and effectiveness.



- It's only required if the ground is hard; otherwise, the ground will be sufficiently disturbed through work activities.

#### Subsoil surface watering in preparation for resspreading topsoil

- Utilise suitable watering equipment such as water trucks, sprinklers, or hoses with sprinkler attachments.
- Use the selected equipment to evenly distribute water over the subsoil surface across the designated areas.
- Control the rate of water application to avoid overwatering or creating waterlogged conditions in the subsoil.
- Monitor soil moisture levels and adjust watering rates as needed to maintain optimal soil conditions.

#### Incorporation of Grass-Pasture-Legume Mix (Reveg Option A)

- Procure the specified grass-pasture-legume mix from reputable suppliers or seed specialists.
- Store the seed mix in a secure and controlled environment to maintain its viability and quality until sowing.
- Use appropriate seeding equipment to spread the grass-pasture-legume mix evenly across the designated areas.

#### Watering of Sown Seed or Hydromulch

- Apply water evenly and gently to the sown seed area to avoid erosion or displacement of seeds.
- Control the rate of water application to prevent overwatering or waterlogging of the soil.
- Monitor soil moisture levels and adjust watering rates as needed to maintain optimal growing conditions for the seeds.

#### Opportunistic Dozer Ripping

- Implement opportunistic dozer ripping across identified areas, adhering to the specified ripping depth of 200mm.
- Control the spacing of ripping tines to a maximum separation of 1 meter to ensure thorough soil penetration and disruption.
- Adopt a systematic ripping approach, considering site topography, soil variability, and project objectives.
- Adjust ripping parameters as needed to optimize soil loosening and achieve desired soil improvement outcomes.

#### Supply and Application of Fertiliser, Seed & Compost with Hydromulcher (Reveg Option B)

- Procure high-quality compost from approved suppliers or composting facilities.
- Verify compost quality, organic content, and nutrient composition to meet the needs of the project and soil conditions.
- Arrange for the deployment and setup of hydromulching equipment at the project site.
- Apply the compost mixture evenly over the battered areas using the hydromulcher equipment.
- Ensure thorough coverage and incorporation of compost into the topsoil to enhance soil fertility and promote vegetation establishment.
- Mix seeds and fertilizer with the compost prior to application in the hydromulcher tank.

#### Post-Revegetation Works

##### Poly Trenching for Creek Irrigation

- Conduct an assessment of the site to determine the most suitable location for the poly trench crossing.
- Excavate a trench across the creek to accommodate the poly pipe for irrigation.

- Supply and install a single line of poly pipe within the trench to facilitate irrigation of the surrounding area.
- Backfill the trench

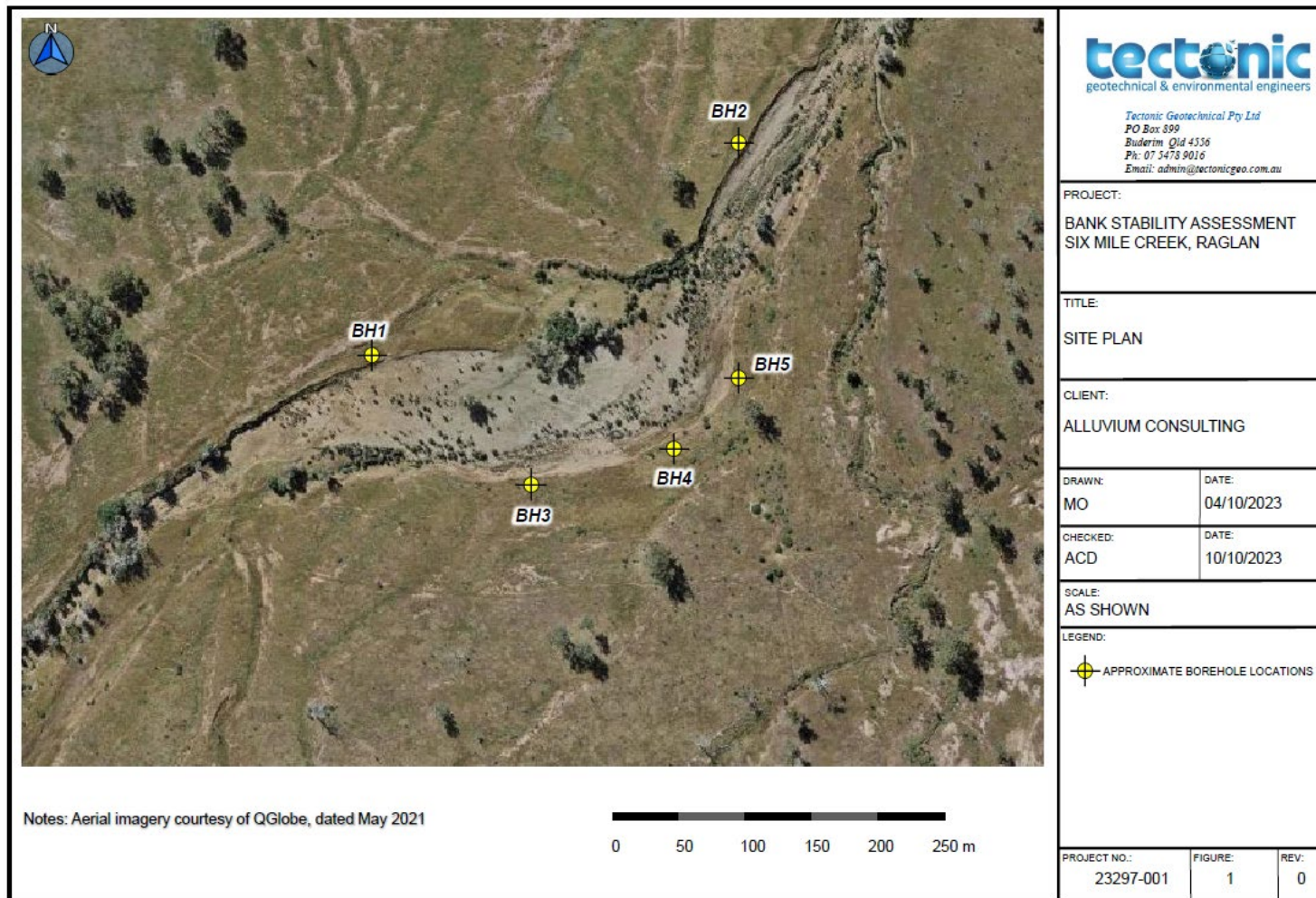
#### Supply, Delivery, and Installation of Crusher Dust and Water Tanks

- Conduct an assessment of the site to determine the most suitable locations for the crusher dust and water tanks as per the irrigation design.
- Procure crusher dust from reputable suppliers.
- Spread the crusher dust to create a stable and level surface as per project requirements.
- Procure water tanks of the specified size and capacity as per the irrigation design.
- Transport the water tanks to the designated locations on-site.
- Position the water tanks in accordance with the irrigation design and site specifications.
- Ensure proper alignment and secure placement of the water tanks, for example, by filling them up with water to prevent them from being displaced.

#### Site Reinstatement

- Remove all construction debris, surplus materials, and temporary structures from the site.
- Restore disturbed soil areas by grading, leveling, and compacting as necessary to match the original or desired contour of the land.
- Re-seed grassed areas and replant native vegetation where it was removed or damaged during construction.
- Apply mulch as required to promote plant growth and soil stability.
- Reinstall any fencing and signage to functional and pre-construction standards.
- Conduct a final site inspection to ensure all reinstatement work is complete.

## 4.5 Geotechnical Report



# Engineering Log - Borehole

Project No.: 23297

Client:	Alluvium Consulting Australia	Commenced:	12/9/2023
Project Name:	Assessment of Bank Stabilisation	Completed:	12/9/2023
Hole Location:	Six Mile Creek, Raglan	Logged By:	JM
Hole Position:	270489.6 m E 7360154.9 m N MGA2020 Zone 56	Checked By:	MCC

Drill Model and Mounting:	Hydrapower Scout	Inclination:	-90°	RL Surface:	70.50 m		
Hole Diameter:	100 mm	Bearing:	360°	Datum:	AHD	Operator:	Drillsure

Drilling Information						Material Description and Observations									
Method	Penetration	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description soil type, plasticity or particle characteristics, secondary and minor components, colour	Moisture Condition	Consistency	Relative Density	Pocket Penetrometer UCS (kPa)	Shear Vane Test (kPa)	Structure and Additional Observations
ADT			SPT 10,8,12 N=20		68.5	1		GP	Silty SAND, (TOPSOIL), fine to coarse grained, pale brown, with rootlets						0.00: TOPSOIL
ADT			DS 1.5-2.0m		68.5	2			Sandy GRAVEL, fine to coarse sized subrounded, pale brown, fine to coarse grained sand, with clay and silt fines						0.10: ALLUVIAL
ADT			SPT 9,18,27 N=45		67.5	3									
ADT			SPT 23,20,10 N=30		66.5	4									
ADT			SPT 21,25,18 N=41		64.5	6									
ADT			SPT 18,22,25 N=45		63.5	7									
ADT					62.5	8									
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ADT					0.0	104									
ADT					0.0	105									
ADT					0.0	106									
ADT					0.0	107									
ADT					0.0	108									
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ADT					0.0	136									
ADT					0.0	137									
ADT					0.0	138									
ADT					0.0	139									
ADT					0.0	140									
ADT					0.0	141									
ADT					0.0	142									
ADT					0.0	143									



# Engineering Log - Borehole

Project No.: 23297

Client: Alluvium Consulting Australia		Commenced: 12/9/2023																					
Project Name: Assessment of Bank Stabilisation		Completed: 12/9/2023																					
Hole Location: Six Mile Creek, Raglan		Logged By: JM																					
Hole Position: 270759.8 m E 7360308.7 m N MGA2020 Zone 56		Checked By: MCC																					
Drill Model and Mounting: Hydrapower Scout		Inclination: -90°																					
Hole Diameter: 100 mm		RL Surface: 69.60 m																					
		Bearing: 360°																					
		Datum: AHD																					
		Operator: Drillsure																					
Drilling Information						Material Description and Observations																	
Method	Penetration	Water	Sample Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description soil type, plasticity or particle characteristics, secondary and minor components, colour	Moisture Condition	Consistency	Relative Density	Pocket Penetrometer UCS (kPa)	Shear Vane Test (kPa)	Structure and Additional Observations								
ADT			SPT 3,1,3 N=4	Not Encountered Above and Not Observed Below 2.5 m BGL	69.6	1		CL-Cl	Silty SAND, (TOPSOIL), fine to medium grained, brown, with rootlets	L	F	XS	30	100	0.00: TOPSOIL 0.10: ALLUVIAL								
					67.6	2			Silty SANDY CLAY, low to medium plasticity, brown, fine to medium grained														
					SPT 4,4,7 N=11		67.6	3	SM								Silty SAND, fine to coarse grained, brown, trace fine to coarse gravel & clay						
							68.6	4	GC								Clayey SANDY GRAVEL, fine to coarse subrounded, orange brown grey, fine to coarse grained, low plasticity fines, interbedded with gravelly sand layers						
					SPT 10,17,17 N=34		69.6	5									with possible cobble/boulders						
							64.6	6															
RR			SPT SQ100mm N*=60		65.6	7			Hole Terminated at 6.00 m Target depth	D to M	D												
					65.6	8																	
					67.6	9																	
<div><div><div>Method</div><div>ADT - Auger Drilling TC Bit ADVA - Auger Drilling V Bit RT - Rotary Tri-cone Bit RD - Rotary Drilling NMLC - Rock Core HA - Hand Auger</div></div><div><div>Penetration</div><div>VE - Very Easy E - Easy F - Firm H - Hard VH - Very Hard</div></div><div><div>Graphic Log/ Core Loss</div><div>Core recovered (hatching indicates material) Core loss</div></div><div><div>Water</div><div>L - Level (Date) I - Inflow P - Partial Loss C - Complete Loss</div></div><div><div>Structure and Tests</div><div>US - Undisturbed Sample (# mm) DS - Disturbed Sample BOS - Bulk Disturbed Sample SPT - Standard Penetration Test</div></div><div><div>Moisture Condition</div><div>D - Dry M - Moist W - Wet</div></div><div><div>Consistency/Relative Density</div><div>VS - Very Soft S - Soft F - Firm VS - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense FI - Friable</div></div><div><div>Plastic Limit</div><div>&lt; PL = PL &gt; PL</div></div><div><div>Classification Symbols and Soil Descriptions</div><div>Based on Unified Soil Classification System</div></div></div>																							





# Engineering Log - Borehole

Project No.: 23297

Client: Alluvium Consulting Australia		Commenced: 12/9/2023														
Project Name: Assessment of Bank Stabilisation		Completed: 12/9/2023														
Hole Location: Six Mile Creek, Raglan		Logged By: JM														
Hole Position: 270600.6 m E 7360054.8 m N MGA2020 Zone 56		Checked By: MCC														
Drill Model and Mounting: Hydrapower Scout		Inclination: -90°														
Hole Diameter: 100 mm		RL Surface: 70.50 m														
		Bearing: 360°														
		Datum: AHD														
		Operator: Drillsure														
Drilling Information					Material Description and Observations											
Method	Penetration	Water	Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description soil type, plasticity or particle characteristics, secondary and minor components, colour	Moisture Condition	Consistency	Relative Density	Pocket Penetrometer UCS (kPa)	Shear Vane Test (kPa)	Structure and Additional Observations	
ADT			SPT 9,8,9 N=17		69.5	1		CI	Sandy SILT, (TOPSOIL), low liquid limit, brown, with rootlets	D to M	SR				0.00: TOPSOIL 0.10: ALLUVIAL	
RD			SPT 7,15,21 N=36		68.5	2			Silty CLAY, medium plasticity, brown, with fine to medium grained sand	H	MD				5.00: RESIDUAL	
			SPT 14,8,6 N=14		67.5	3		SP	Gravelly SAND, fine to coarse grained, yellow brown, fine to coarse sized subrounded gravel, with clay, interbedded with dense sandy gravel layers	M	VSR to H					
			SPT 6,8,11 N=19		66.5	4		CI-CH	Silty CLAY, medium to high plasticity, orange brown, mottled grey, trace fine grained sand							
					65.5	5										
					64.5	6			Hole Terminated at 6.00 m Target depth							
					63.5	7										
					62.5	8										
<div><div><div>Method</div><div>ADT - Auger Drilling TC Bit ADNA - Auger Drilling V Bit RT - Rotary Tri-cone Bit RD - Rotary Drilling NMLC - Rock Core HA - Hand Auger</div></div><div><div>Penetration</div><div>VE - Very Easy E - Easy F - Firm H - Hard VH - Very hard</div></div><div><div>Water</div><div>L - Level (Date) I - Inflow P - Partial Loss C - Complete Loss</div></div><div><div>Graphic Log/ Core Loss</div><div>Core recovered (hatching indicates material) Core loss</div></div><div><div>Sample and Tests</div><div>USP - Undisturbed Sample (# mm) DS - Disturbed Sample BDS - Bulk Disturbed Sample SPT - Standard Penetration Test</div></div><div><div>Moisture Condition</div><div>D - Dry M - Moist W - Wet</div></div><div><div>Consistency/Relative Density</div><div>VS - Very Soft S - Soft F - Firm VSR - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense Fr - Friable</div></div><div><div>Plastic Limit</div><div>&lt; PL = PL &gt; PL</div></div><div><div>Classification Symbols and Soil Descriptions</div><div>Based on Unified Soil Classification System</div></div></div>																



# Engineering Log - Borehole

Project No.: 23297


Client: Alluvium Consulting Australia		Commenced: 12/9/2023													
Project Name: Assessment of Bank Stabilisation		Completed: 12/9/2023													
Hole Location: Six Mile Creek, Raglan		Logged By: JM													
Hole Position: 270722.8 m E 7360087.5 m N MGA2020 Zone 56		Checked By: MCC													
Drill Model and Mounting: Hydropower Scout		Inclination: -90°													
Hole Diameter: 100 mm		RL Surface: 72.50 m													
		Bearing: 360°													
		Datum: AHD													
		Operator: Drillsure													
Drilling Information				Material Description and Observations											
Method	Penetration	Water	Sample Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description soil type, plasticity or particle characteristics, secondary and minor components, colour	Mixture Condition	Consistency	Relative Density	Pocket Penetrometer UCS (kPa)	Shear Vane Test (kPa)	Structure and Additional Observations
ADVT			SPT 9.8, 10 N=18		71.5	1		CI	Sand SILT (TOPSOIL), low liquid limit, brown, with rootlets Silty CLAY, medium plasticity, brown, trace of sand	D to M	VS to H				0.00: TOPSOIL 0.10: ALLUVIAL
						2									
						3									
						4									
RD			SPT 4.3, 3 N=8		69.5	3		SM	Silty Gravelly SAND, fine to coarse grained, orange brown, fine to coarse sized rounded gravel, low liquid limit	M	St to VS				
						4									
						5									
						6									
			SPT 7.8, 7 N=15		68.5	5			trace of clay	D to M	D				
						6									
						7									
						8									
			SPT 27.22, 18 N=38		64.5	9			Hole Terminated at 6.00 m Target depth						
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						181									

# Engineering Log - Borehole

Project No.: 23297

Client: Alluvium Consulting Australia			Commenced: 12/9/2023																				
Project Name: Assessment of Bank Stabilisation			Completed: 12/9/2023																				
Hole Location: Six Mile Creek, Raglan			Logged By: JM																				
Hole Position: 270774.1 m E 7360146.4 m N MGA2020 Zone 56			Checked By: MCC																				
Drill Model and Mounting: Hydrapower Scout		Inclination: -90°		RL Surface: 68.80 m																			
Hole Diameter: 100 mm		Bearing: 360°		Datum: AHD Operator: Drillsure																			
Drilling Information						Material Description and Observations																	
Method	Penetration	Water	Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description soil type, plasticity or particle characteristics, secondary and minor components, colour	Moisture Condition	Consistency	Relative Density	Pocket Penetrometer UCS (kPa)	Shear Vane Test (kPa)	Structure and Additional Observations								
ADT			DS 0.5-0.9m SPT 12,12,11 N=23		67.8	1		CI	Sandy SILT, (TOPSOIL), low liquid limit, brown, with rootlets	H						0.00: TOPSOIL 0.10: ALLUVIAL							
					66.8	2		CI	Silty Sandy CLAY, medium plasticity, brown, fine to medium grained sand														
					65.8	3		GP	Sandy GRAVEL, fine to coarse subangular to subrounded, orange brown, pale grey, fine to coarse grained sand, with clay														
					64.8	4																	
					63.8	5																	
RD			SPT 26,21,18 N=39		62.8	6			Hole Terminated at 6.00 m Target depth	D to M													
					61.8	7																	
					60.8	8																	
<div><div><div>Method</div><div>ADT - Auger Drilling TC Bit ADNA - Auger Drilling V Bit RT - Rotary Tri-cone Bit RD - Rotary Drilling NMDC - Rock Core HA - Hand Auger</div></div><div><div>Penetration</div><div>VE - Very Easy E - Easy F - Firm H - Hard VH - Very hard</div></div><div><div>Water</div><div>L - Level (Date) I - Inflow P - Partial Loss C - Complete Loss</div></div><div><div>Graphic Log/ Core Loss</div><div>Core recovered (hatching indicates material) Core loss</div></div><div><div>Soil Descriptions</div><div>Based on Unified Soil Classification System</div></div><div><div>Moisture Condition</div><div>D - Dry M - Moist W - Wet</div></div><div><div>Consistency/Relative Density</div><div>VS - Very Soft S - Soft F - Firm VSF - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense FI - Friable</div></div></div>																							





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geotechnical & environmental engineers

TERMS USED ON LOGS

DRILLING/EXCAVATION METHOD

AD*	Auger Drilling	RA	Rotary Air	BH	Tractor Mounted Backhoe
ADH	Hollow Auger	RD	Rotary Blade or Drag bit	EX	Tracked Hydraulic Excavator
HA	Hand Auger	RT	Rotary Tri-cone bit	HMLC	Core – 63mm
*T	TC-Bit			HQ	Core – 63mm
*V	V-Bit			NMLC	Core – 47mm
				NQ	Core – 52mm
				R	Ripper
				RH	Rock Hammer

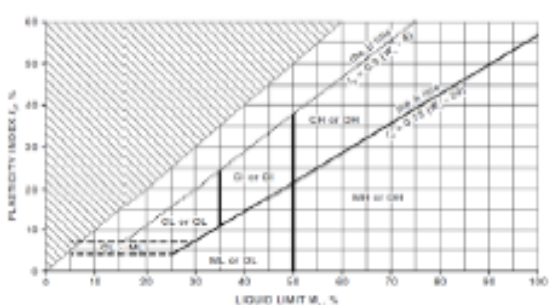
WATER

GROUNDWATER NOT OBSERVED	The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.
GROUNDWATER NOT ENCOUNTERED	The borehole/test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
5,4,10 N=14	5,4,10 = Blows per 150mm. N = Blows per 300mm penetration following 150mm seating
30/65mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed sample
BDS	Bulk disturbed sample
SV	Field shear vane test expressed as uncorrected shear strength ( $s_v$ = peak value, $s_r$ = residual value)
PP	Pocket penetrometer test expressed as instrument reading in kPa
U50	Thin walled tube sample - number indicates nominal sample diameter in millimetres
DCP	Dynamic cone penetration test
CPT	Electronic cone penetration test
CPTu	Electronic cone penetration test with pore pressure (u) measurement

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<div>tectonic</div> <div>geotechnical &amp; environmental engineers</div>			<div>METHOD OF SOIL DESCRIPTION</div> <div>USED ON LOGS</div>			
<div>CLASSIFICATION AND INFERRED STRATIGRAPHY</div> <div>Soil is classified and described in borehole and test pit logs using the preferred method given in AS1726 – 2017. The material properties are assessed in the field by visual/tactile methods.</div>						
<div>Particle Size</div>			<div>Plasticity Properties</div>			
<div>Major Division</div>	<div>Sub Division</div>	<div>Particle Size</div>	<div></div>			
<div>BOULDERS</div>		<div>&gt; 200 mm</div>				
<div>COBBLES</div>		<div>63 to 200 mm</div>				
<div>GRAVEL</div>	<div>Coarse</div>	<div>19 to 63 mm</div>				
	<div>Medium</div>	<div>6.7 to 19 mm</div>				
	<div>Fine</div>	<div>2.36 to 6.7 mm</div>				
<div>SAND</div>	<div>Coarse</div>	<div>0.6 to 2.36 mm</div>				
	<div>Medium</div>	<div>0.21 to 0.6 mm</div>				
	<div>Fine</div>	<div>0.075 to 0.21</div>				
<div>SILT</div>		<div>0.002 to 0.075</div>				
<div>CLAY</div>		<div>&lt; 0.002 mm</div>				
<div>NOTE: The U line is an approximate upper bound for most materials. Data which plot above the U line may represent unusual/problem soil behavior, or unreliable data and should be considered carefully.</div>						
<div>MOISTURE CONDITION</div>			<div>AS1726 - 2017</div>			
<div>Symbol</div>	<div>Term</div>	<div>Description</div>				
<div>D</div>	<div>Dry</div>	<div>Sands and gravels are free flowing. Clays &amp; Silts may be brittle or friable and powdery.</div>				
<div>M</div>	<div>Moist</div>	<div>Soils are darker than in the dry condition &amp; may feel cool. Sands and gravels tend to cohere.</div>				
<div>W</div>	<div>Wet</div>	<div>Soils exude free water. Sands and gravels tend to cohere.</div>				
<div>CONSISTENCY AND DENSITY</div>			<div>AS1726 - 2017</div>			
<div>Symbol</div>	<div>Term</div>	<div>Undrained Shear Strength</div>	<div>Symbol</div>	<div>Term</div>	<div>Density Index %</div>	<div>SPT "N" #</div>
<div>VS</div>	<div>Very Soft</div>	<div>0 to 12 kPa</div>	<div>VL</div>	<div>Very Loose</div>	<div>Less than 15</div>	<div>0 to 4</div>
<div>S</div>	<div>Soft</div>	<div>12 to 25 kPa</div>	<div>L</div>	<div>Loose</div>	<div>15 to 35</div>	<div>4 to 10</div>
<div>F</div>	<div>Firm</div>	<div>25 to 50 kPa</div>	<div>MD</div>	<div>Medium Dense</div>	<div>35 to 65</div>	<div>10 to 30</div>
<div>St</div>	<div>Stiff</div>	<div>50 to 100 kPa</div>	<div>D</div>	<div>Dense</div>	<div>65 to 85</div>	<div>30 to 50</div>
<div>VSt</div>	<div>Very Stiff</div>	<div>100 to 200 kPa</div>	<div>VD</div>	<div>Very Dense</div>	<div>Above 85</div>	<div>Above 50</div>
<div>H</div>	<div>Hard</div>	<div>Above 200 kPa</div>				
<div>In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.</div> <div># SPT correlations are not stated in AS1726 – 2017, and may be subject to corrections for overburden pressure and equipment type.</div>						

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## 4.6 Revegetation Design

Aspect	Zone 3 – Lower Bank	Zone 3A – Lower Bank	Zone 4A – Upper & Overbank	Reference
Length (m)	176	190	202	Table 4
Width (m)	8 <sup>[1]</sup>	2	16	
Area (m²)	1,360 <sup>[1]</sup>	310	3,170	
Grade (assumed)	1V:3H	Natural ground level	Natural ground level	
Soil Management				
Total Fertiliser Blend (kg)	70	16	109	Table 6
Seed Demand				
Tree	-	-	-	Table 12
Grass	0.82	0.19	1.90	
Sedge	0.20	0.05	0.48	
Legume	0.34	0.08	0.79	
Cover crop	1.36	0.31	3.17	
Total Seed (kg)	2.72	0.62	6.34	
Tubestock Demand				
Tree	136	31	238	Table 13
Sedge-Rush	272	62	317	
Total Tubes (stems)	408	93	555	
Approach				
Ground preparation	Strip topsoil. Dozer rip subsoil along the contour to 200mm.	Opportunistically dozer rip to 200mm. Do not disturb existing tree cover.		Table 10
Topsoil application	Spread topsoil to 200mm.	N/A		Table 7
Fertiliser application	Spread fertiliser at prescribed rates. Incorporate to 200mm with offsets/harrows.			Table 6
Seed application	Sow seed mix at prescribed rate. Incorporate to 10mm depth.			Table 12
Water-in sown seed	Water, but avoid runoff.			

<b>Tubestock planting</b>	Plant tubestock at prescribed rate.	<b>Table 13</b>
<b>Fertiliser application</b>	Incorporate 150g of organic fertiliser per seedling (75g in the bottom of the planting hole, 75g around the base of the planted tubestock).	<b>Table 14</b>
<b>Water-in tubestock</b>	Water within four hours, avoid runoff.	
<b>Irrigation</b>	<b>As per irrigation schedule.</b>	<b>Table 16</b>

[1] Reprofiled zone widths and areas are based on batter surface areas and have been estimated from an assumed grade.

Aspect	Zone 5 – Lower Bank	Zone 5A – Lower Bank	Zone 6A – Upper & Overbank	Referen ce
Length (m)	350	350	382	Table 4
Width (m)	10 <sup>[1]</sup>	2	15	
Area (m²)	3,420 <sup>[1]</sup>	530	5,860	
Grade (assumed)	1V:3H	Natural ground level	Natural ground level	
Soil Management				
Total Fertiliser Blend (kg)	175	27	202	Table 6
Seed Demand				
Tree	-	-	-	Table 12
Grass	2.05	0.32	3.52	
Sedge	0.51	0.08	0.88	
Legume	0.86	0.13	1.47	
Cover crop	3.42	0.53	5.86	
Total Seed (kg)	6.84	1.06	11.72	
Tubestock Demand				
Tree	342	53	440	Table 13
Sedge-Rush	684	106	586	
Total Tubes (stems)	1,026	159	1,026	
Approach				

Ground preparation	Strip topsoil. Dozer rip subsoil along the contour to 200mm.	Opportunistically dozer rip to 200mm. Do not disturb existing tree cover.	Table 10
Topsoil application	Spread topsoil to 200mm.	N/A	Table 7
Fertiliser application	Spread fertiliser at prescribed rates. Incorporate to 200mm with offsets/harrows.		Table 6
Seed application	Sow seed mix at prescribed rate. Incorporate to 10mm depth.		Table 12
Water-in sown seed	Water, but avoid runoff.		
Tubestock planting	Plant tubestock at prescribed rate.		Table 13
Fertiliser application	Incorporate 150g of organic fertiliser per seedling (75g in the bottom of the planting hole, 75g around the base of the planted tubestock).		Table 14
Water-in tubestock	Water within four hours, avoid runoff.		
Irrigation	As per irrigation schedule.		Table 16

<sup>[1]</sup> Reprofiled zone widths and areas are based on batter surface areas and have been estimated from an assumed grade.

### Revegetation Zone Characteristics

The bank stabilisation design has works and revegetation zones stratified by their relative bank position. Civil work zones for the rock toe protection at the creek bed interface are included in the revegetation approach. These zones, including the area to be re-profiled, are shown in Figure 12 and Figure 13.



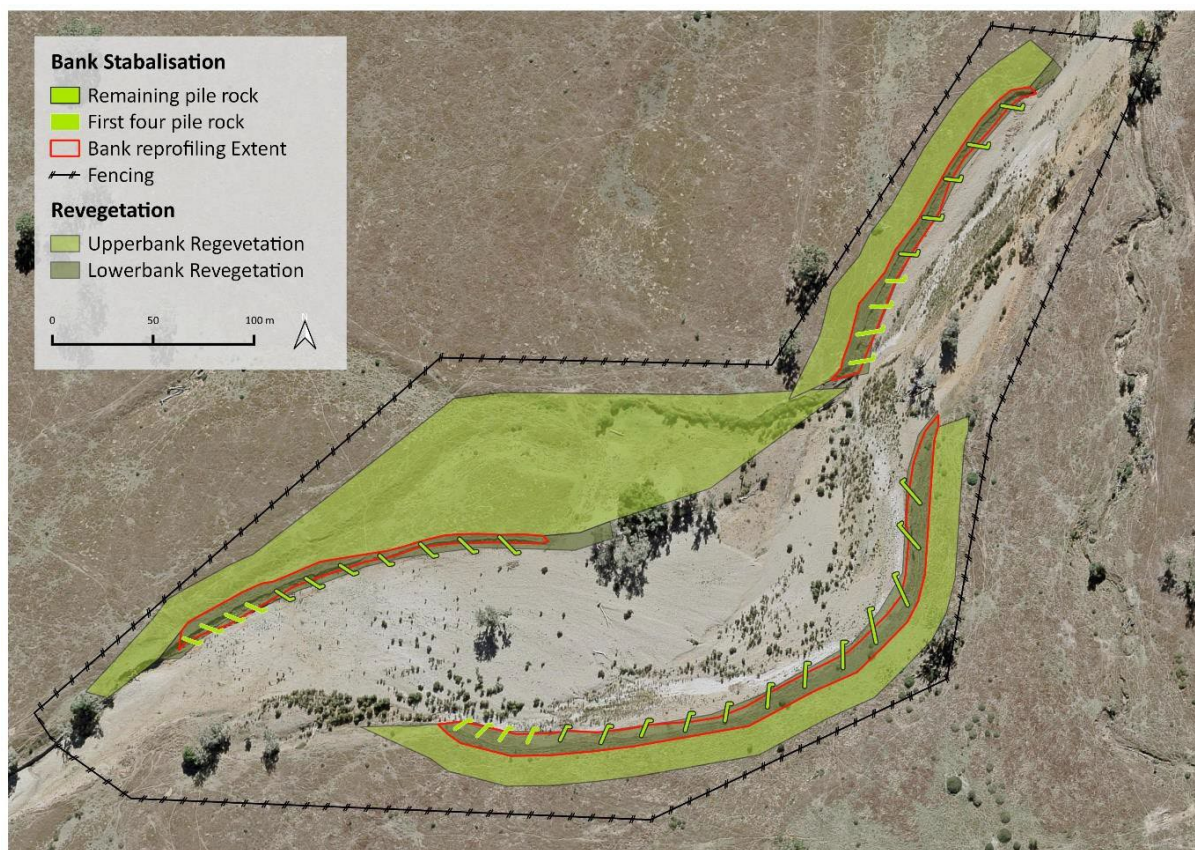
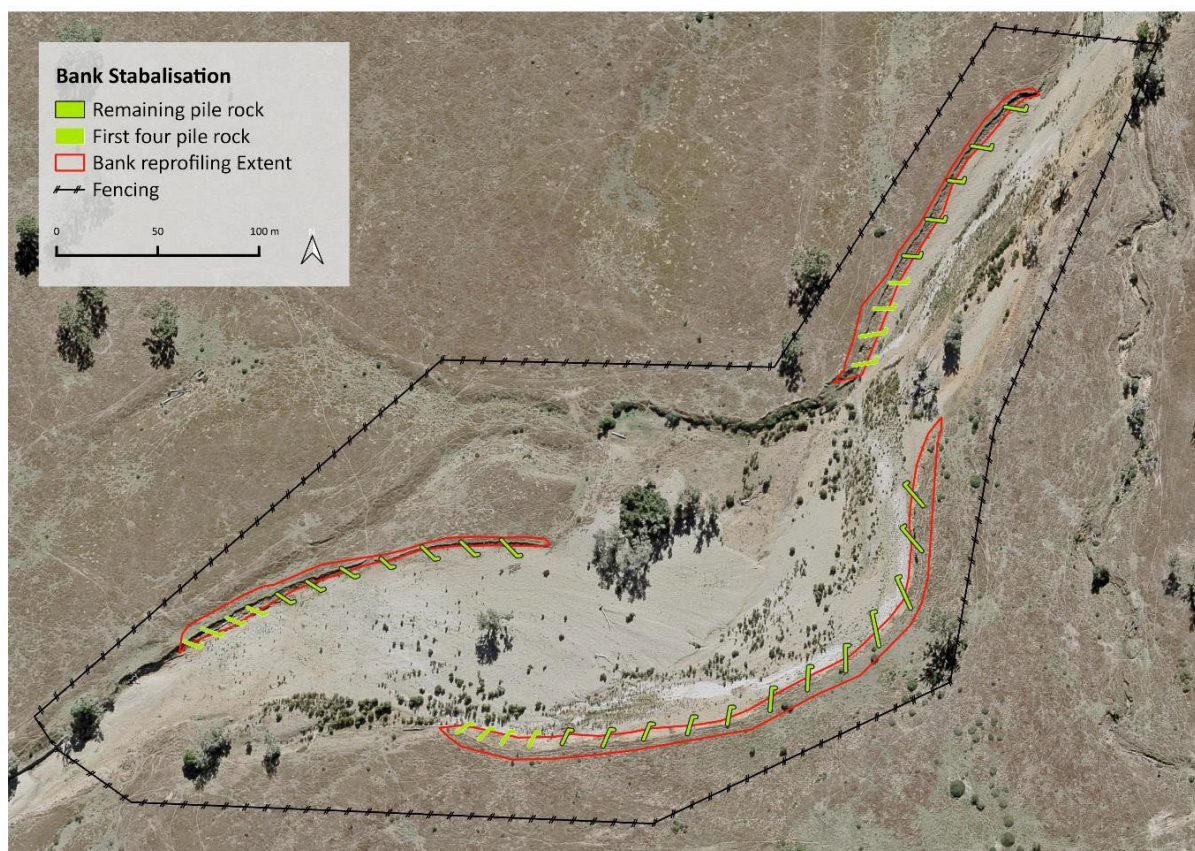


Figure 12: Concept design plan view (provided by Alluvium)



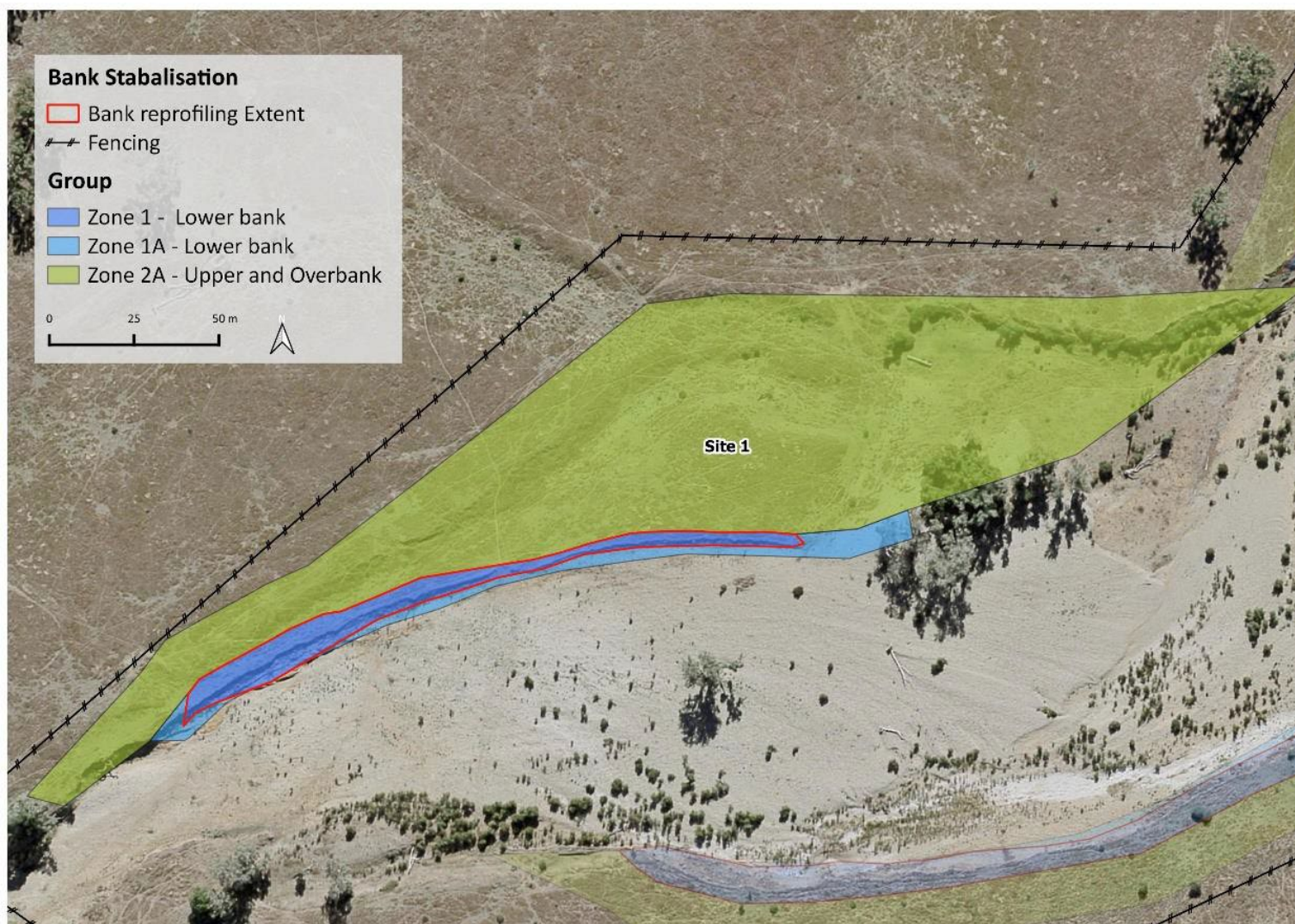
**Figure 13: Concept design plan view with revegetation (provided by Alluvium)**

Table 4 designates unique zone numbers to each of the revegetation zones, and clearly identifies their location, gradient and treatment area. Zones 1, 3 and 5 are contained within the planned reprofiling area, whereas Zones 1A, 2A, 3A, 4A, 5A, and 6A are outside. Zones are illustrated in Figure 14– Figure 16 and Appendix 1.

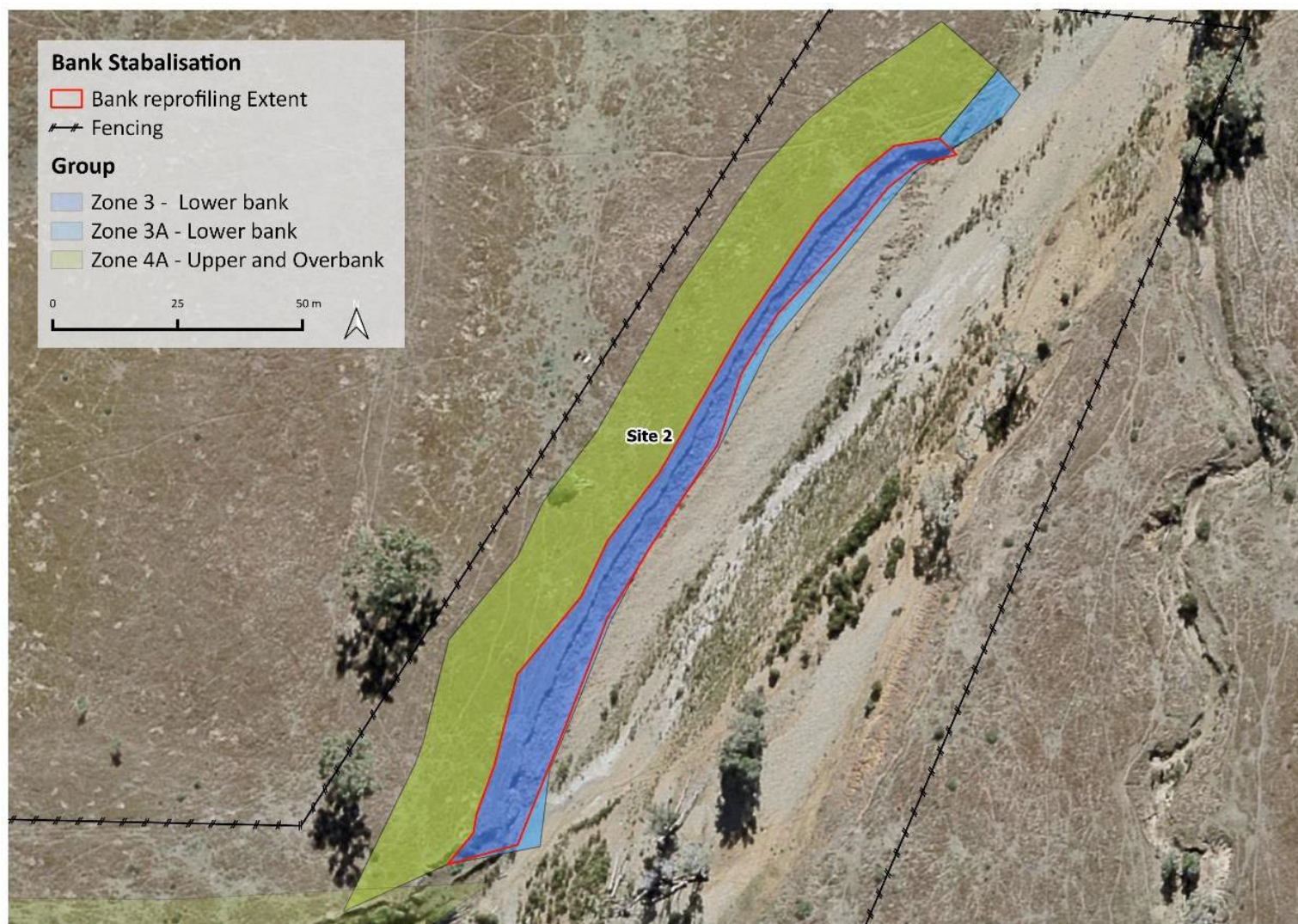
Zone Number	Zone Location	Grade	Treatment Area (m <sup>2</sup> )
<b>Site 1</b>			
<b>1</b>	Lower Bank	1v:3h (assumed)	<b>1,197<sup>[1]</sup></b>
<b>1A</b>	Lower Bank	Natural ground level	<b>788</b>
<b>2A</b>	Upper & Overbank	Natural ground level	<b>15,085</b>
<b>Site 2</b>			
<b>3</b>	Lower Bank	1v:3h (assumed)	<b>1,358<sup>[1]</sup></b>
<b>3A</b>	Lower Bank	Natural ground level	<b>317</b>
<b>4A</b>	Upper & Overbank	Natural ground level	<b>3,180</b>
<b>Site 3</b>			
<b>5</b>	Lower Bank	1v:3h (assumed)	<b>3,418<sup>[1]</sup></b>
<b>5A</b>	Lower Bank	Natural ground level	<b>532</b>
<b>6A</b>	<b>Upper &amp; Overbank</b>	<b>Natural ground level</b>	<b>5,860</b>

<sup>[1]</sup> Reprofiled treatment areas are batter surface areas and have been estimated based on assumed grade.

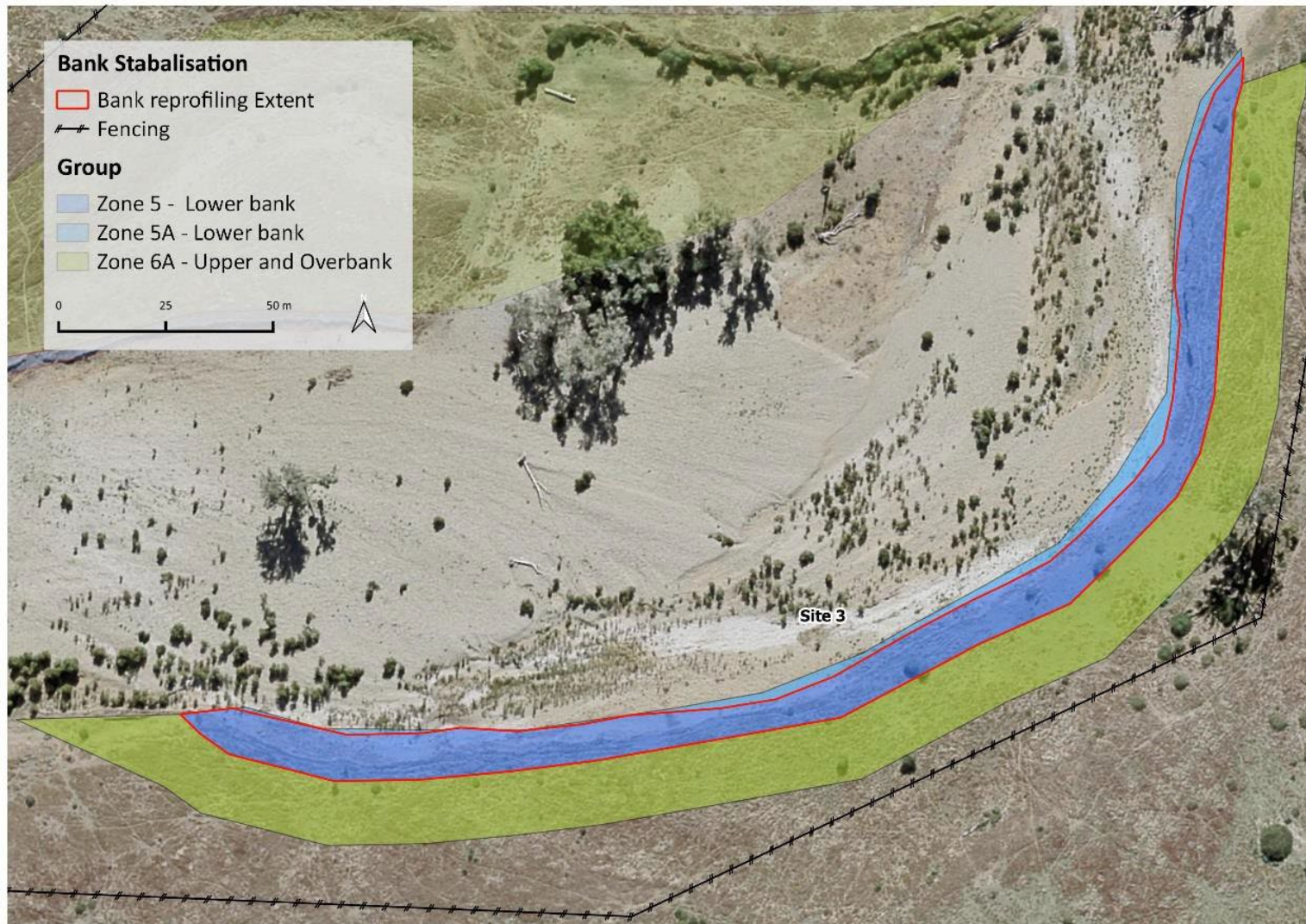












## Topsoil management

### Amelioration

To address the topsoil nutrient deficiencies, the following fertiliser blends are recommended:

- Lower Bank blend: 97.4 % NPKS + 2.4 % Boron + 0.2% Zinc
  - NPKS product with approximately 15 : 4 : 12 : 14 (e.g., CK 88);
  - Product with approximately 14.3% boron content (e.g., Granubor); plus
  - Product with approximately 33% zinc content (e.g., Zinc Sulfate Monohydrate).
- Upper & Overbank blend: 96.8 % NPKS + 3.2 % Boron
  - NPKS product approximately 21 : 3 : 8 : 4 (e.g., Cal-Gran Aftergraze); plus
  - Product with approximately 14.3% boron content (e.g., Granubor).

Table 5 summarises the fertiliser application rates. Total fertiliser demand is detailed in Table 6.

**Table 5: Recommended fertiliser application rates by revegetation zone**

Revegetation Zone	Fertiliser Blend	Application Rate (kg/ha)
Zones 1, 1A, 3, 3A, 5 and 5A	Lower Bank blend	512
Zones 2A, 4A and 6A	Upper & Overbank blend	345

**Table 6: Approximate fertiliser demand by revegetation zone**

Revegetation Zone	Area (ha)	Fertiliser Blend	Fertiliser Rate (kg/ha)	Fertiliser Demand (kg)
<b>Site 1</b>				
Zone 1	0.120 <sup>[1]</sup>	Lower Bank blend	512	61
Zone 1A	0.078	Lower Bank blend	512	40
Zone 2A	1.508	Upper & Overbank blend	345	520
<b>Site 2</b>				
Zone 3	0.136 <sup>[1]</sup>	Lower Bank blend	512	70
Zone 3A	0.031	Lower Bank blend	512	16
Zone 4A	0.317	Upper & Overbank blend	345	109
<b>Site 3</b>				

<b>Zone 5</b>	0.342 <sup>[1]</sup>	Lower Bank blend	512	<b>175</b>
<b>Zone 5A</b>	0.053	Lower Bank blend	512	<b>27</b>
<b>Zone 6A</b>	0.586	Upper & Overbank blend	345	<b>202</b>
<b>Total Demand</b>	<b>0.760<sup>[1]</sup></b>	<b>Lower Bank blend</b>	<b>512</b>	<b>389</b>
	<b>2.411<sup>[1]</sup></b>	<b>Upper &amp; Overbank blend</b>	<b>345</b>	<b>832</b>

<sup>[1]</sup> Reprofiled zone areas are batter surface areas and have been estimated based on assumed grade.

## Demand

All available topsoil will be returned to the project area. All reprofiled zones require topsoil spreading to a minimum of 200mm. Topsoil demand is summarised in Table 7. Noting, this is subject to detailed construction design.

**Table 7: Topsoil demand**

Revegetation Zone	Area (m <sup>2</sup> )	Topsoil demand for 200mm depth (m <sup>3</sup> )	Topsoil demand for 300mm depth (m <sup>3</sup> )
<b>Zone 1</b>	1,197 <sup>[1]</sup>	239.4	<b>359.1</b>
<b>Zone 3</b>	1,358 <sup>[1]</sup>	271.6	<b>407.4</b>
<b>Zone 5</b>	3,418 <sup>[1]</sup>	683.6	<b>1,025.4</b>
<b>Total</b>	<b>5,973</b>	<b>1,194.6</b>	<b>1,791.9</b>

<sup>[1]</sup> Reprofiled zone areas are batter surface areas and have been estimated based on assumed grade.

## Recovery and treatment

Topsoil stripping, stockpiling and re-spreading will be considered as part of the civil earthworks work package and is not discussed in detail here as a Schedule of Quantities is yet to be developed.

A summary of stripping depths and volumes is in Table 8.

**Table 8: Stripping depths and volumes**

Revegetation Zone	Area of intact topsoil (m <sup>2</sup> )	Volume from 200mm strip (m <sup>3</sup> )	Volume from 400mm strip (m <sup>3</sup> )	Volume from 600mm strip (m <sup>3</sup> )
<b>Zone 1</b>	659	131.8	263.6	<b>395.4</b>
<b>Zone 3</b>	572	114.4	228.8	<b>343.2</b>
<b>Zone 5</b>	1,995	399.0	798.0	<b>1197.0</b>
<b>Total</b>	<b>3,226</b>	<b>645.2</b>	<b>1290.4</b>	<b>1935.6</b>

## Topsoil balance

Based on the above estimates there is a topsoil deficit of if stripping is done at 200mm depth (the depth of assumed topsoil). The balance of the material should be sourced by stripping the upper 200mm of subsoil (total stripping depth of 400mm) and ameliorating at the rates indicated in Table 6.

## Revegetation approach by zone

Subsoil amelioration, topsoil management and revegetation will follow completion of civil earthworks, which includes bank reprofiling and rock toe protection at the upstream interface.

A summary of the revegetation task sequence for each Zone is presented in Table 10.

The detail provided below includes the irrigation option for watering areas considered essential for rapid early establishment. The irrigation approach is outlined in more detail in Section 7.

Revegetation risks and controls are detailed in Appendix 3. Hold points and quality assurance steps are detailed in Appendix 4.

**Table 10: Revegetation approach for each Zone**

Zone(s)	Task	Description	Rate/ Frequency/ Ref
<b>Reprofiled</b>			
<b>Zone 1 Lower Bank (Site 1)</b> <b>Area: 1,137 m<sup>2</sup></b>	Ground preparation	Dozer rip subsoil to 200mm. Rip to a maximum of 1m separation and leave surface rough-textured.	<b>200mm depth</b>
		Water subsoil surface, ensure that surface runoff is avoided.	<b>2mm/ha (20,000L/ha). Once.</b>
		Spread treated topsoil to a minimum 200mm, or as per Detailed Design or Schedule of Quantities.	<b>200mm (min)</b>
		<b>NOTE:</b> Ripping will be along the contour. <b>NOTE:</b> Rock toe protection will be installed prior to revegetation works.	
<b>Zone 3 Lower Bank (Site 2)</b> <b>Area: 1,289 m<sup>2</sup></b>	Fertilising	Apply fertiliser blend at prescribed rate using appropriate machinery (e.g., centrifugal/belt spreader).	<b>Table 5</b>
		Incorporate fertiliser to 200mm with harrows or offsets.	<b>200mm depth</b>
<b>Zone 5 Lower Bank (Site 3)</b> <b>Area: 3,243 m<sup>2</sup></b>	Seeding	Sow grass-pasture-legume mix at prescribed rate using appropriate machinery. Incorporate seed mix to 10mm depth. Note, different species mix for each zone.	<b>Table 12</b> <b>Appendix 7</b>



<b>Slope: 1v:3h (18.4°) (assumed)</b>	Watering	Water-in sown seed. Avoid surface runoff during watering events.	<b>6mm/ha (60,000L/ha) at sowing, then water per irrqn schedule.</b>
	Planting	Manually plant tubestock (seedlings) at prescribed stocking densities as per recommended palette. Plant sedge species along the waterline edge of the Lower Bank (Zones 1, 3, 5). Incorporate nitrogen-rich organic fertiliser into each tubestock planting hole and surrounds.	<b>Table 13 Appendix 7  150g per seedling</b>
	Watering	Water-in tubestock within 4 hrs of planting.	<b>6 litres per tubestock once, then water per irrigation schedule.</b>
		Install irrigation as per irrigation design in Section 7 and Appendix 9.	<b>Section 7.2 Section 7.3</b>
		<b>Establishment follow-up watering.</b>	<b>Per irrqn schedule.</b>

Zone(s)	Task	Description	Rate/ Frequency/ Ref
<b>Natural surface</b>			
<b>Zone 1A Lower Bank (Site 1) Area: 788m<sup>2</sup></b>  <b>Zone 2A Upper &amp; Overbank (Site 1) Area: 15,085 m<sup>2</sup></b>  <b>Zone 3A Lower</b>	Ground preparation	These zones are the intact floodplain woodland beyond and beside the re- profiled Zones 1, 3, 5.  Improving water infiltration rates and encouraging ground cover on these Zones will reduce pressure on the adjacent banks and batters.	<b>200mm depth (max).</b>
		Opportunistically dozer rip (tines max 1m separation) to 200mm. Observe ripping set-back distance from standing mature trees to minimise lateral root damage (e.g., beyond the drip line).	
	Fertilising	Apply fertiliser blend at prescribed rate using appropriate machinery (e.g., centrifugal/belt spreader).	<b>Table 6</b>
		Incorporate fertiliser to 200mm with harrows or offsets.	<b>200mm depth.</b>

<b>Bank (Site 2)</b> <b>Area: 317m<sup>2</sup></b>  <b>Zone 4A Upper &amp; Overbank (Site 2)</b> <b>Area: 3,180 m<sup>2</sup></b>  <b>Zone 5A Lower Bank (Site 3)</b> <b>Area: 532m<sup>2</sup></b>  <b>Zone 6A Upper &amp; Overbank (Site 2)</b> <b>Area: 5,860 m<sup>2</sup></b>  <b>Slope: Natural Ground Level</b>	Seeding	Sow grass-pasture-legume mix at prescribed rate using appropriate machinery. Incorporate seed mix to 10mm depth.	<b>Table 12</b> <b>Appendix 7</b>
	Watering	Water-in sowed seed. Avoid surface runoff during watering events.	<b>6mm/ha (60,000L/ha) at sowing, then water per irrigation schedule.</b>
	Planting	Manually plant tubestock (seedlings) at prescribed stocking densities as per recommended palate. Plant sedge species along the waterline edge of the Lower Bank (Zones 1A, 3A, 5A).	<b>Table 13</b> <b>Appendix 7</b>
		Incorporate nitrogen-rich organic fertiliser into each tubestock planting hole and surrounds.	<b>150g per seedling</b>
	Watering	Water-in tubestock within 4 hrs of planting.	<b>6 litres per seedling once, then water per irrigation schedule.</b>
		<b>Establishment follow-up watering.</b>	<b>Per irrigation schedule.</b> <b>Section 7.3</b>

**Table 12: Seed requirements by zone**

Stratum	Rate (kg/ha)	Site 1			Site 2			Site 3			Total by stratum
		Lower bank		Upper	Lower bank		Upper	Lower bank		Upper	
		Zone 1	Zone 1A	Zone 2A	Zone 3	Zone 3A	Zone 4A	Zone 5	Zone 5A	Zone 6A	
		0.120ha	0.078ha	1.508ha	0.136ha	0.031ha	0.317ha	0.342ha	0.053ha	0.586ha	
Tree	-	-	-	-	-	-	-	-	-	-	-
Cover Crop	10	1.20	0.78	15.08	1.36	0.31	3.17	3.42	0.53	5.86	31.71

<b>N-fixer</b>	2.5	0.30	0.20	3.77	0.34	0.08	0.79	0.86	0.13	1.47	<b>7.93</b>
<b>Grass</b>	6	0.72	0.47	9.05	0.82	0.19	1.90	2.05	0.32	3.52	<b>19.03</b>
<b>Sedge</b>	1.5	0.18	0.12	2.26	0.20	0.05	0.48	0.51	0.08	0.88	<b>4.76</b>
<b>Seed Demand</b>	<b>20kg/ha</b>	<b>2.40</b>	<b>1.56</b>	<b>30.16</b>	<b>2.72</b>	<b>0.62</b>	<b>6.34</b>	<b>6.84</b>	<b>1.06</b>	<b>11.72</b>	<b>63.42</b>

Table 13 summarises the number of seedlings required for each Zone.

**Table 13: Tubestock requirements by zone**

Stratum	Site 1				Site 2				Site 3				Tube Demand
	Lower Bank (Zones 1 & 1A) 0.198ha		Upper & Over (Zone 2A) 1.508ha		Lower Bank (Zones 3 & 3A) 0.167ha		Upper & Over (Zone 4A) 0.317ha		Lower Bank (Zones 5 & 5A) 0.395ha		Upper & Over (Zone 6A) 0.586ha		
	Rate	Tubes	Rate	Tubes	Rate	Tubes	Rate	Tubes	Rate	Tubes	Rate	Tubes	
Tree	1,000	198	750	1,131	1,000	167	750	238	1,000	395	750	440	2,569
Sedge	2,000	396	1,000	1,508	2,000	334	1,000	317	2,000	790	1,000	586	3,931
Stems/ha	3,000	-	1,750	-	3,000	-	1,750	-	3,000	-	1,750	-	-
No. of Tubes	-	594	-	2,639	-	501	-	555	-	1,185	-	1,026	6,500

Seeds should be sourced from, or provided to, an industry accredited nursery for germination to supply Project seedlings. As far as practical all seed and seedlings will be sourced from known local provenances.



# AS 3818.3-2001 Timber - Heavy structural products - Visually graded - Piles

TABLE C1  
SPECIES PROPERTIES

Standard common name Botanical Name	Hardwood or softwood	State of origin	Dura- bility	Lyctid* suscept- ibility	Code for mark	Joint group	Strength group
ash, alpine <i>Eucalyptus delegatensis</i>	H	N, T, V	4	S/R ‡	AA	J3	S4
ash, mountain <i>E. regnans</i>	H	T, V	4	R	MA	J2	S4
blackbutt <i>E. pilularis</i> †	H	N, Q	2	R	BB	J2	S2
blackbutt, New England <i>E. andrewsii</i> † <i>E. campanulata</i> †	H	N, Q	2	S	NA	J2	S3
blackbutt, Western Australia <i>E. patens</i> †	H	W	2	S	BA	J2	S4
bloodwood, brown <i>Corymbia trachyphloia</i> †	H	N, Q	1	S	BD	—	S3
bloodwood, red <i>E. intermedia</i> † <i>E. polycarpa</i> † <i>Corymbia gummifera</i> †	H	N, Q, V	1	S	RW	—	S3
box, grey <i>E. microcarpa</i> † <i>E. moluccana</i> † <i>E. woollsiana</i>	H	N, Q, V	1	S	GB	—	S2
box, grey, coast <i>E. bosistoana</i> †	H	N, V	1	S	CB	J1	S1
box, red <i>E. polyanthemus</i> †	H	N, V	2	S	RX	—	S3
box, steel <i>E. rummeryi</i>	H	N	—	—	—	—	—
box, white <i>E. albens</i> †	H	N, Q, S, V	2	S	WX	—	(S2)
box, white topped <i>E. quadrangulata</i> †	H	N, Q	2	S	WT	—	S2
box, yellow <i>E. melliodora</i> †	H	N, Q, V	1	R	YB	J1	S3
brownbarrel <i>E. fastigata</i>	H	N, V	4	S	BL	J3	S4
cadaga <i>E. torelliana</i>	H	Q	3	S	CG	—	S2
candlebark <i>E. rubida</i>	H	N, S, T, V	3	S	CD	J3	S5
carbeen <i>Corymbia tessellaris</i>	H	N, Q	2	S	CN	—	S1
gidgee <i>Acacia cambagei</i>	H	N, Q, S, Y	1	—	G	—	(S1)

(continued)

TABLE C1 (continued)

Standard common name Botanical Name	Hardwood or softwood	State of origin	Dura- bility	Lyctid* suscept- ibility	Code for mark	Joint group	Strength group
gum, blue, southern <i>E. globulus</i>	H	V, T	3	S **	BG	J2	S3
gum, blue, Sydney <i>E. saligna</i>	H	N, Q	3	S	SY	J2	S3
gum, grey <i>E. canaliculata</i> † <i>E. punctata</i> † <i>E. propinqua</i> †	H	N, Q	1	R	GG	J1	S1
gum, grey, mountain <i>E. cypellocarpa</i>	H	N, V	3	S	MT	J2	S3
gum, Maiden's <i>E. maidenii</i>	H	N, V	3	S	MG		S3
gum, manna <i>E. viminalis</i>	H	N, S, T, V	4	S	MN	J3	S4
gum, mountain <i>E. dalrympleana</i>	H	N, T, V	4	S	MO	J3	S4
gum, poplar <i>E. alba</i>	H	Q, W, Y	3	—	PG	—	(S2)
gum, red, forest <i>E. blakelyi</i> † <i>E. tereticornis</i> †	H	N, Q, V	2	R	FR	J1	S3
gum, red, river <i>E. camaldulensis</i> †	H	N, Q, V, S	2	S	RR	J2	S5
gum, rose <i>E. grandis</i>	H	N, Q	3	R	RO	J2	S3
gum, salmon <i>E. salmonophloia</i> †	H	W	3	R	SA	—	(S3)
gum, spotted <i>C. maculata</i> † <i>C. citriodora</i> † <i>E. henryi</i>	H	N, Q, V	2	S **	SG	J1	S2
gum, yellow <i>E. leucosylon</i> †	H	S, V	1	S	—	—	(S4)
ironbark, grey <i>E. drepanophylla</i> † <i>E. paniculata</i> † <i>E. siderophloia</i> †	H	N, Q	1	R	GI	J1	S1
ironbark, gum-top <i>E. decorticans</i> †	H	Q	1	R	—	—	(S2)
ironbark, red <i>E. sideroxylon</i> †	H	N, Q, V	1	S	RI	J1	S2
ironbark, red, broad- leaved <i>E. fibrosa</i> †	H	N, Q	1	R	BI	J1	S1
ironbark, red, narrow- leaved <i>E. crebra</i> †	H	N, Q	1	R	NI	J1	S2

(continued)

TABLE C1 (continued)

Standard common name Botanical Name	Hardwood or softwood	State of origin	Dura- bility	Lyctid* suscept- ibility	Code for mark	Joint group	Strength group
ironwood, Cooktown <i>Erythrophloeum chlorostachys</i> †	H	Q	1	—	IW	—	S1
jarrah <i>E. marginata</i> †	H	W	2	S	J	J2	S4
karri <i>E. diversicolor</i>	H	W	3	R	K	J2	S3
mahogany, red <i>E. pellita</i> † <i>E. resinifera</i> †	H	N, Q	2	S	RM	J1	(S2)
mahogany, southern <i>E. botryoides</i> †	H	N, V	2	R	SM	J2	S2
mahogany, white <i>E. acmenioides</i> † <i>E. tenuipes</i> † <i>E. umbra</i> †	H	N, Q	2	R	WM	J1	S2
marri <i>E. calophylla</i>	H	W	3	S	ME	J2	S3
messmate <i>E. obliqua</i>	H	N, V, T	3	S **	MS	J3	S3
messmate, Gympie <i>E. cleoziana</i> †	H	Q	1	R	GM	—	S2
penda, brown <i>Xanthostemon chrysanthus</i> †	H	Q	2	R	PN	—	(S2)
penda, red <i>X. whitei</i> †	H	Q	2	R	PD	J1	(S2)
peppermint, black <i>E. amygdalina</i>	H	T	3	—	—	—	(S5)
peppermint, Queensland <i>E. exserta</i> †	H	Q	1	S	—	—	(S2)
peppermint, narrow-leaved <i>E. australiana</i> <i>E. radiata</i> <i>E. robertsonii</i>	H	N N, V N, V, T	3	S	NL	—	S4
peppermint, white <i>E. pulchella</i>	H	V, T	3	S	—	—	S4
pine, bunya, <i>Araucaria bidwillii</i>	S	Q	4	NA	—	—	S6
pine, Canary <i>Pinus canariensis</i>	S	N, S, V, W	4	NA	—	—	—
pine, Caribbean <i>P. caribaea</i>	S	N, Q	4	NA	PB	—	(S6)
pine, Corsican <i>P. nigra</i>	S	N, S, V, W	4	NA	—	—	(S7)
pine, hoop, <i>Araucaria cunninghamii</i>	S	N, Q	4	NA	HP	—	S6

(continued)

TABLE C1 (continued)

Standard common name Botanical Name	Hardwood or softwood	State of origin	Dura- bility	Lyctid* suscept- ibility	Code for mark	Joint group	Strength group
pine, kauri Agathis microstachia A. palmerstonii A. robusta	S	Q	4	—	—	—	(S7)
pine, loblolly P. taeda	S	N, Q	4	NA	PL	—	S6
pine, maritime P. pinaster	S	S, V, W	4	NA	PM	—	(S6)
pine, patula P. patula	S	N, Q	4	NA	—	—	(S7)
pine, radiata P. radiata	S	N, Q, S, T, V, W	4	NA	PR	—	S6
pine, slash P. elliotii	S	N, Q, W	4 §	NA	PS	—	S5
pine, ponderosa P. ponderosa	S	—	4	NA	—	—	(<S7)
pine, white, western P. monticola	S	N, T	4	NA	—	—	—
satinay Syncarpia hillii†	H	Q	2	R	S	J2	S3
satinbox Phebalium squameum	H	T, V	2	—	—	—	—
stringybark, blue-leaved E. agglomerata	H	N	3	—	—	—	S2
stringybark, brown E. capitellata	H	N, V, T	3	R	BS	J2	S3
stringybark, red E. macrorrhyncha†	H	N, V, T	2	S	RS	J2	S3
stringybark, silvertop E. laevopinea	H	N, Q	3	—	SS	J3	S2
stringybark, white E. eugenioides† E. globoidea E. phaeotricha	H	N, Q, V	2	R	WS	J2	S3
stringybark, yellow E. muelleriana†	H	N, Q, V	2	R	YS	J2	S3
tallowwood E. microcorys†	H	N, Q	1	S	TW	J1	S2
turpentine Syncarpia glomulifera†	H	N, Q	1	R	TP	J2	S3
wandoo E. wandoo†	H	W	1	R	WG	J1	S2
wandoo, powderbark E. accedens†	H	W	1	—	PW	—	(S3)
woollybut E. longifolia†	H	N	2	S	—	—	S3

## 4.7 Detailed Design

### 2.2 Geotechnical properties

As part of this study 'Tectonic geotechnical and environmental engineers' were commissioned to undertake a geotechnical investigation. The investigation comprised of the drilling of boreholes at five locations across the site where the civil bank stabilisation works are proposed, in situ strength testing, and laboratory testing. The geotechnical investigation locations for each site are outlined below in Figure 6. A slope stability analysis has informed the proposed design surface. The report is provided in Attachment A.

A summary of the results from the boreholes are shown in Table 1. A brief summary of the subsurface conditions at each site is provided below (Butler Partners, 2023).



**Figure 6.** Geotechnical investigation borehole locations at the Six Mile Creek site

The subsurface conditions encountered in boreholes BH2 – BH5 were generally consistent and comprised of:

- Topsoil – loose, silty sand from the ground surface to 0.1 m below ground level (BGL) then;
- Alluvium – Silty/sandy clays of medium plasticity and generally very stiff to hard consistency to depths of 1.5 m – 4 m BGL, then medium dense silty/clayey sandy gravels to depths of 5 m BGL overlying;
- Residual clays – very stiff to hard, medium to high plasticity silty clay to the borehole termination depth of 6 m.

Borehole BH1 (upstream left bank site) encountered a surficial topsoil layer to 0.1 m, then initially medium dense, becoming dense with depth, clayey gravelly sand with rounded cobbles to 150 mm in size, which extended to the borehole termination depth of 8 m BGL.



**Table 1. Summary of subsurface materials**

Bore hole 1		Bore hole 2		Bore hole 3		Bore hole 4		Bore hole 4	
	Depth (m)		Depth (m)		Depth (m)		Depth (m)		Depth (m)
Silty sand	0.0 - 0.1	Silty sand	0.0 - 0.1	Silty sand	0.0 - 0.1	Sandy silt	0.0 - 0.1	Sandy silt	0.0 - 0.1
Sandy gravel	0.1 – 8.0 (TD)	Silty sandy clay (CL-Cl)	0.1 – 1.5	Silty Clay (Cl)	0.1 – 2.8	Silty Clay (Cl)	0.1 – 4.0	Silty Clay (Cl)	0.1 – 3.0
		Silty sand (SM)	1.5 – 2.8	Gravelly Sand (SP)	2.8 – 5.0	Silty gravelly sand (SM)	4.0 – 6.0 (TD)	Sandy gravel (GP)	3.0 – 6.0 (TD)
		Clayey Sandy Gravel (GC)	2.8 – 6.0 (TD)	Clayey Sand (SP)	5.0 – 6.0 (TD)				

\*TD - borehole termination depth

## 2.7 Construction management

The proposed works have been designed to limit safety hazards during construction and post implementation. The proposed works can be constructed safely providing the appropriate risks of working adjacent to a shear bank and working in and near water are accounted for. This includes limiting slopes to those which are safe to operate machinery and monitor and maintain vegetation. Minimum safety standards for working within site conditions. These include:

- A recommendation that no personnel or plant work within 5 m of the crests of the riverbanks. It is envisaged that any material required as fill would likely to be ‘pushed’ to the toe from above, with all spoil ‘pulled’ back.
- Excavations within the natural soils are expected to be achievable using conventional earth moving equipment such as tracked excavators with toothed buckets or small dozers. The proposed permanent bank batters of 1V:3H are acceptable from a geotechnical viewpoint.
- Trafficability for plant will be difficult in wet weather over the silty/clayey soils and consideration should be given to the placement of a coarse granular working surface to provide ‘all weather’ site access. A minimum thickness of approximately 150 mm is anticipated over the silty/clayey subgrade for light equipment.

It is proposed that the contractor and design engineer identify construction hazards during construction planning and develop mitigation measures and work methods to limit safety hazards. These are likely to include

methods for undertaking earthworks near the steep unstable slope and identifying the critical flows in Six Mile Creek above which it is no longer safe to undertake works at the site.

The development of an appropriate safe work method statement will ensure the safety of contractors during the construction phase. It is recommended that the contractors and the engineer agree on a safe work method statement prior to commencement of the works. The method will need to include the proposed approach for the rock placement. A Safety in Design report has been prepared for the works and is provided in Attachment D.

In addition, guidance by the design engineer should be provided during the construction of the proposed works. Note that it is the contractors responsibility to ensure all underground services have been located prior to the commencement of works.

## SIX MILE CREEK BANK STABILISATION DESIGN



WORKS AREA

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
0422170_1	LOCALITY, SAFETY IN CONSTRUCTION, GENERAL NOTES AND SHEET INDEX
0422170_2	SITE 1 - PLAN VIEW OF WORKS AND BATTER SPECIFICATIONS
0422170_3	SITE 2 - PLAN VIEW OF WORKS AND BATTER SPECIFICATIONS
0422170_4	SITE 3 - PLAN VIEW OF WORKS AND BATTER SPECIFICATIONS
0422170_5	SITE 1 CROSS SECTIONS
0422170_6	SITE 2 CROSS SECTIONS
0422170_7	SITE 2 CROSS SECTIONS
0422170_8	SITE 3 CROSS SECTIONS
0422170_9	SITE 1 - PILE FIELD SPECIFICATIONS SETOUT POINTS FOR TOE AND TOP OF BATTER
0422170_10	SITE 2 - PILE FIELD SPECIFICATIONS SETOUT POINTS FOR TOE AND TOP OF BATTER
0422170_11	SITE 3 - PILE FIELD SPECIFICATIONS SETOUT POINTS FOR TOE AND TOP OF BATTER
0422170_12	CONSTRUCTION NOTES AND BOK SPECIFICATIONS
0422170_13	PILE FIELD DETAIL

GENERAL NOTES:	
1.	LOCATION AND SITE ACCESS: SIX MILE CREEK, LANGMORN RD RANGLAN
2.	ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THESE DRAWINGS AND RELEVANT AUSTRALIAN STANDARDS.
3.	ALL LEVELS PROVIDED ARE IN METRES TO AUSTRALIAN HEIGHT DATUM.
4.	ALL CO-ORDINATES PROVIDED ARE IN METRES TO DATUM 66684 AND PROJECTION AMG ZONE 56.
5.	ALL DESIGN OFFSETS AND CHANGES PROVIDED ARE IN METRES UNLESS NOTED OTHERWISE.
6.	THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORKS.
7.	IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE LOCATION AND DEPTH OF ALL OBSTRUCTIONS AND UNDERGROUND SERVICES IN THE VICINITY OF THE PROPOSED WORKS PRIOR TO THE COMMENCEMENT OF ANY WORKS.
8.	STRUCTURES MUST BE SURVEY CONTROLLED TO ENSURE THAT DESIGN ELEVATIONS AND GRADES ARE OBTAINED.
9.	ALL PREPARED SURFACES SHALL BE APPROVED BY THE SUPERINTENDENT PRIOR TO THE PLACEMENT OF LOGS, ROCK REINFORCING TOPSOIL OR OTHER COVERING MATERIALS.
10.	EXTENT OF WORKS MAY BE MODIFIED SLIGHTLY TO AVOID UNFORESEEN OBSTACLES IF REQUIRED, WHERE APPROVED BY SUPERINTENDENT.
11.	ALL STRUCTURES SHALL BE MAINTAINED IN A SAFE AND STABLE CONDITION DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE NO PART OF ANY STRUCTURE IS EXPOSED DURING CONSTRUCTION PROCEDURES.
12.	ALL REASONABLE EFFORTS SHALL BE MADE TO PRESERVE AND PROTECT EXISTING VEGETATION.
13.	AN APPROPRIATE SAFE WORK METHOD STATEMENT FOR WORKING NEAR WATER IS REQUIRED.
14.	ALL WORKS SHALL BE IN ACCORDANCE WITH THE DETAILED DESIGN MEMO (0422170_02 Six Mile Creek Detailed design report) AND SHALL NOT COMMENCE WITHOUT PRIOR APPROVAL FROM THE SUPERINTENDENT.
15.	WORKS SHOULD BE UNDERTAKEN IN THE MONTHS BETWEEN JULY - OCTOBER WHEN RAINFALL/FLOOD RISKS ARE LOWEST.
16.	EROSION AND SEDIMENT CONTROL AT THE SITE IS THE RESPONSIBILITY OF THE CONTRACTOR AND MAY REQUIRE THE DIRECTION OF OVERLAND FLOW AWAY FROM THE WORKS AREA.

### SAFETY IN CONSTRUCTION

CONSTRUCTION ACTIVITY CAN BE HAZARDOUS. POTENTIAL SAFETY HAZARDS CONSIDERED BY THE DESIGNERS TO HAVE A HIGHER RISK THAN NORMAL CONSTRUCTION ACTIVITY ARE IDENTIFIED WITH APPROPRIATE NOTES ON THESE DRAWINGS. IT SHOULD BE NOTED THAT DESIGNERS HAVE A LIMITED UNDERSTANDING OF THE RISKS INVOLVED IN CONSTRUCTION COMPARED WITH THAT OF A COMPETENT CONTRACTOR. IT IS THEREFORE ESSENTIAL THAT AN ADEQUATE SAFETY PLAN FOR THE WORKS IS PREPARED BY THE CONTRACTOR. SAFETY PLANS ARE TO BE PREPARED IN COMPLIANCE WITH THE STATUTORY REQUIREMENTS. THE DESIGNERS HAVE NOT BEEN AWARE OF ALL SAFETY RISKS AND HAZARDS INVOLVED IN THE PROJECT AND THE ADEQUACY OF CONSIDERED WORK TYPES THAT THERE ARE ONLY LOW LEVEL RISKS OF HAZARDS INVOLVED IN THE PROJECT. APPROPRIATE WORK METHOD STATEMENTS ARE TO BE PREPARED FOR ANY HIGH RISK ACTIVITY BY THE CONTRACTOR. THE DESIGNERS ARE AVAILABLE TO BE CONSULTED WHEN FORMULATED CONCERNING THEIR AREA OF CONTROL WITH REGARD TO SAFETY PLANS.

REV	DESCRIPTION	DATE	INTL
A	ISSUED FOR CONSTRUCTION	17/11/2023	TP
REVISIONS			



	NAME	DATE
DESIGNED:	T. FERGUSON	17/11/2023
DRAWN:	T. FERGUSON	17/11/2023
CHECKED:	M.VEZIGH	17/11/2023
APPROVED:	M.VEZIGH	17/11/2023
SCALE	0 50 100 150 200 250	



Client:



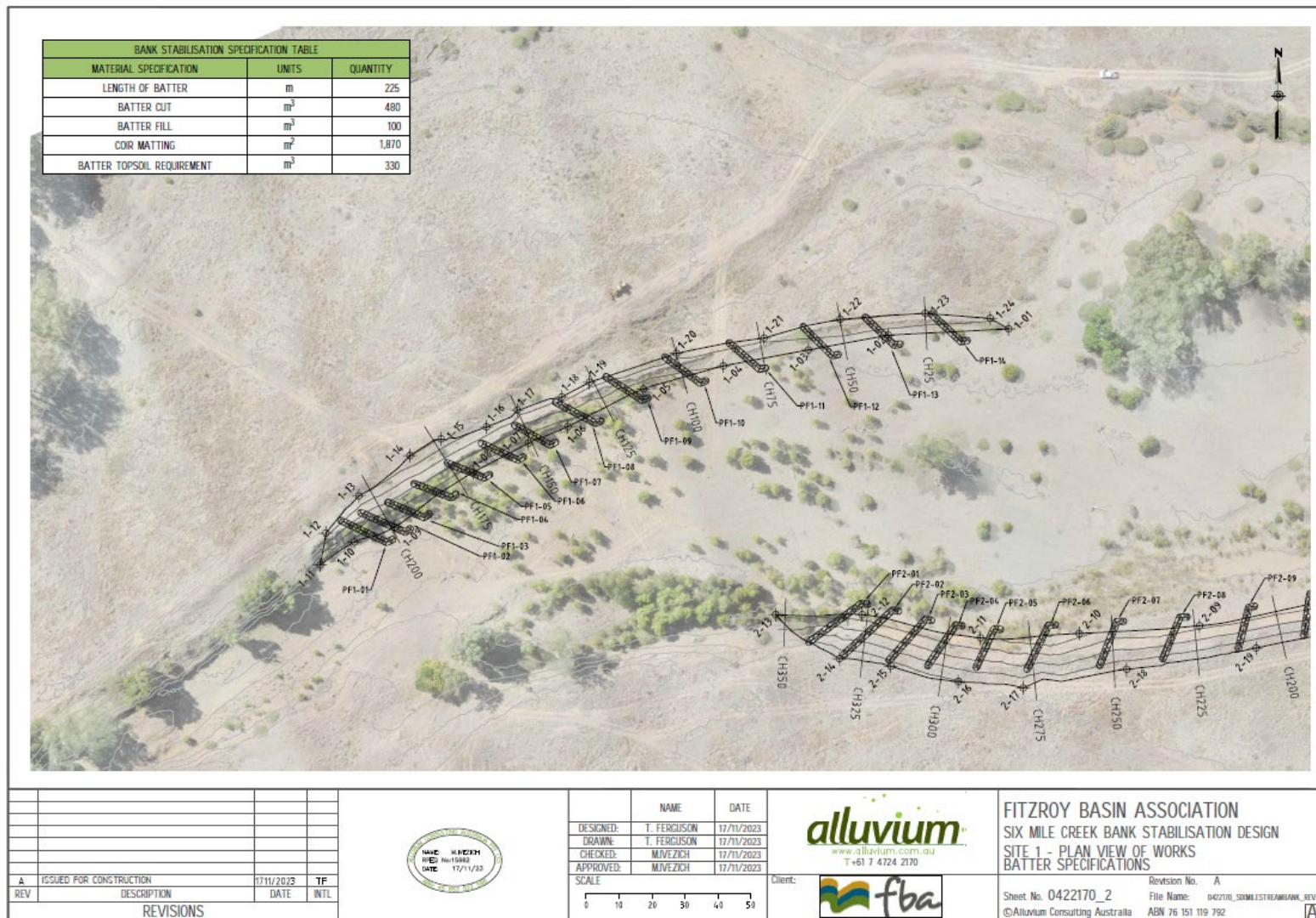
FITZROY BASIN ASSOCIATION  
SIX MILE CREEK BANK STABILISATION DESIGN  
LOCALITY, SAFETY IN CONSTRUCTION  
GENERAL NOTES AND SHEET INDEX

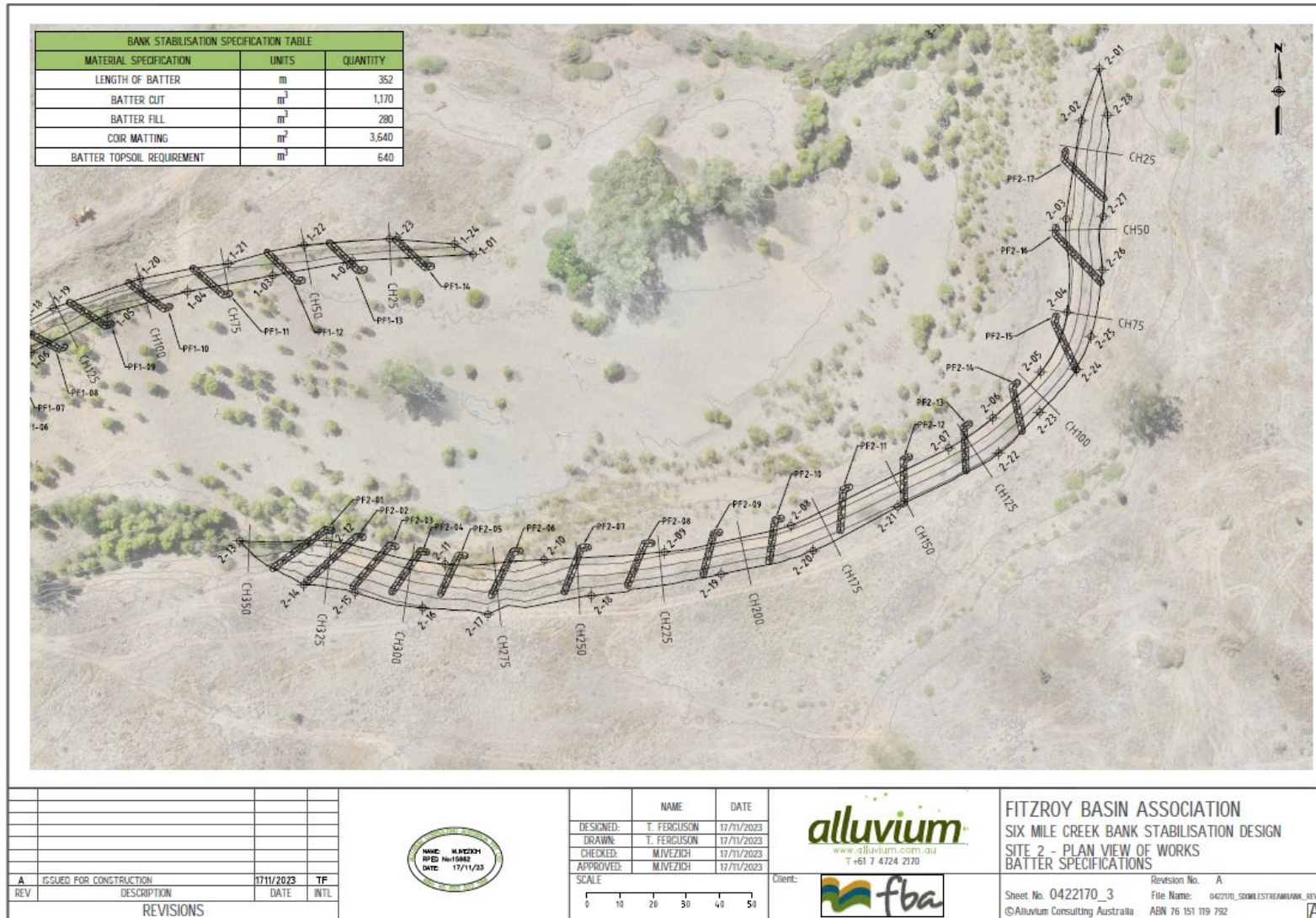
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Revision No. A  
File Name: 0422170\_SIXMILECREEKBANK\_REVA  
ABN 76 151 119 792

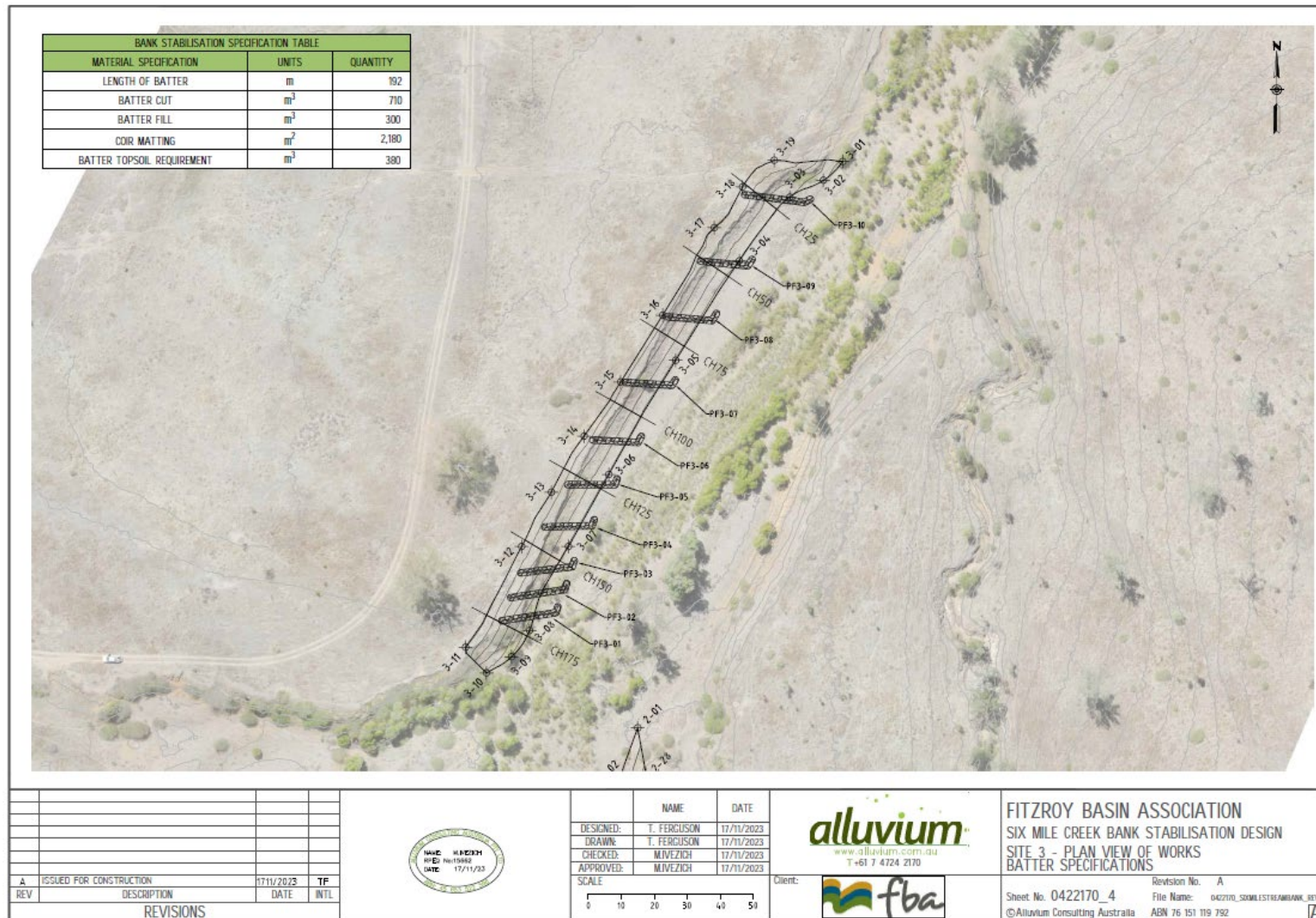


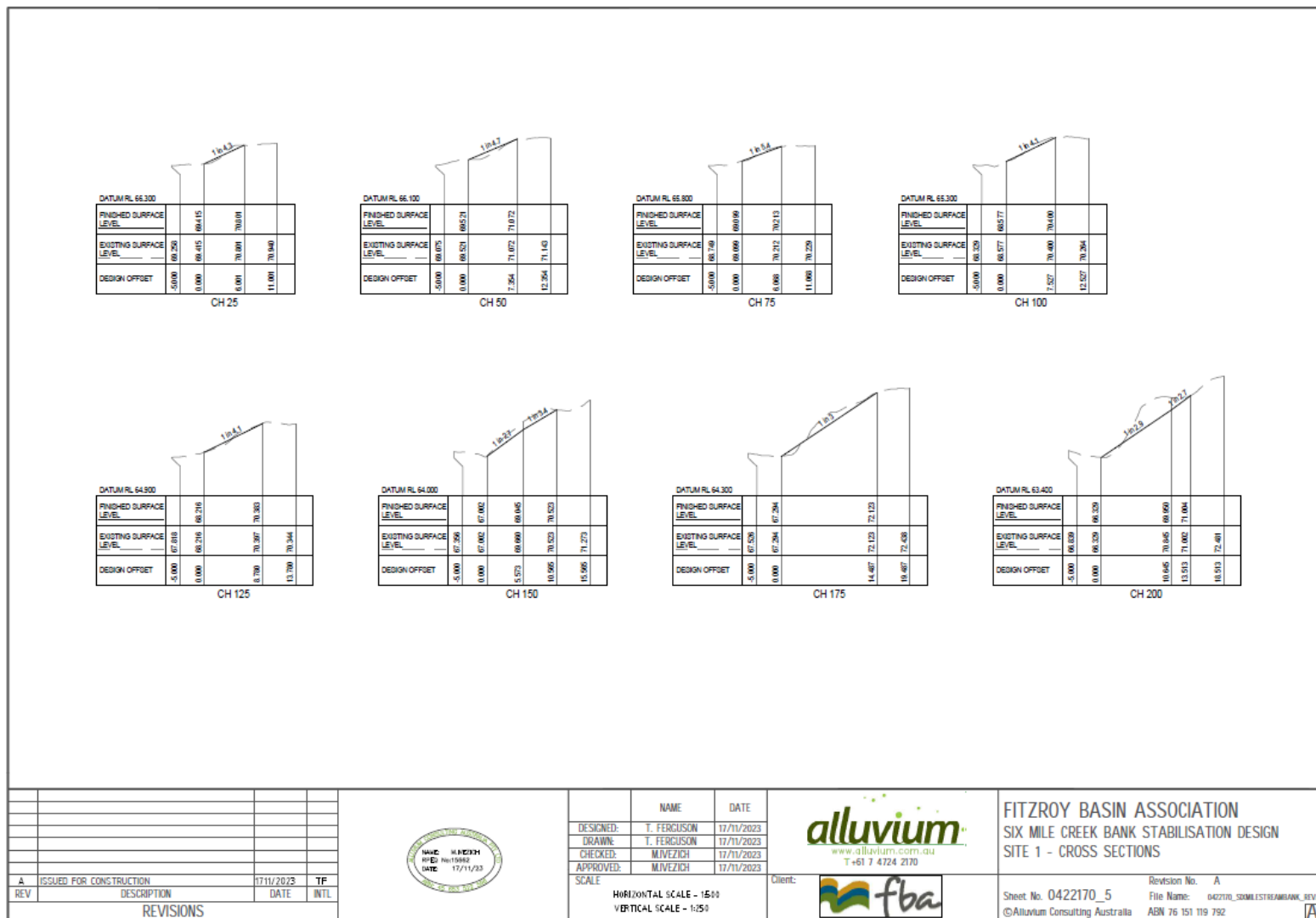


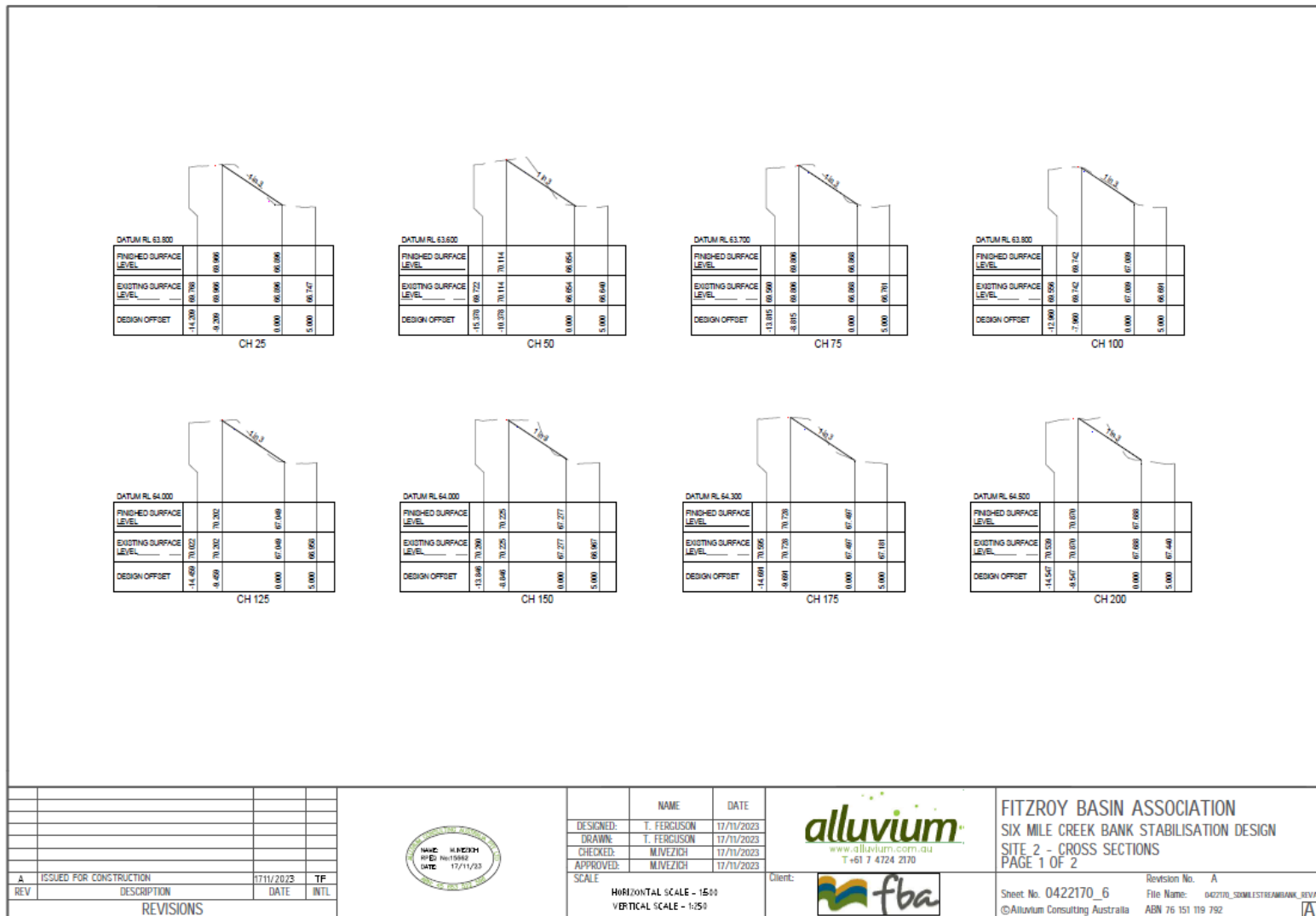


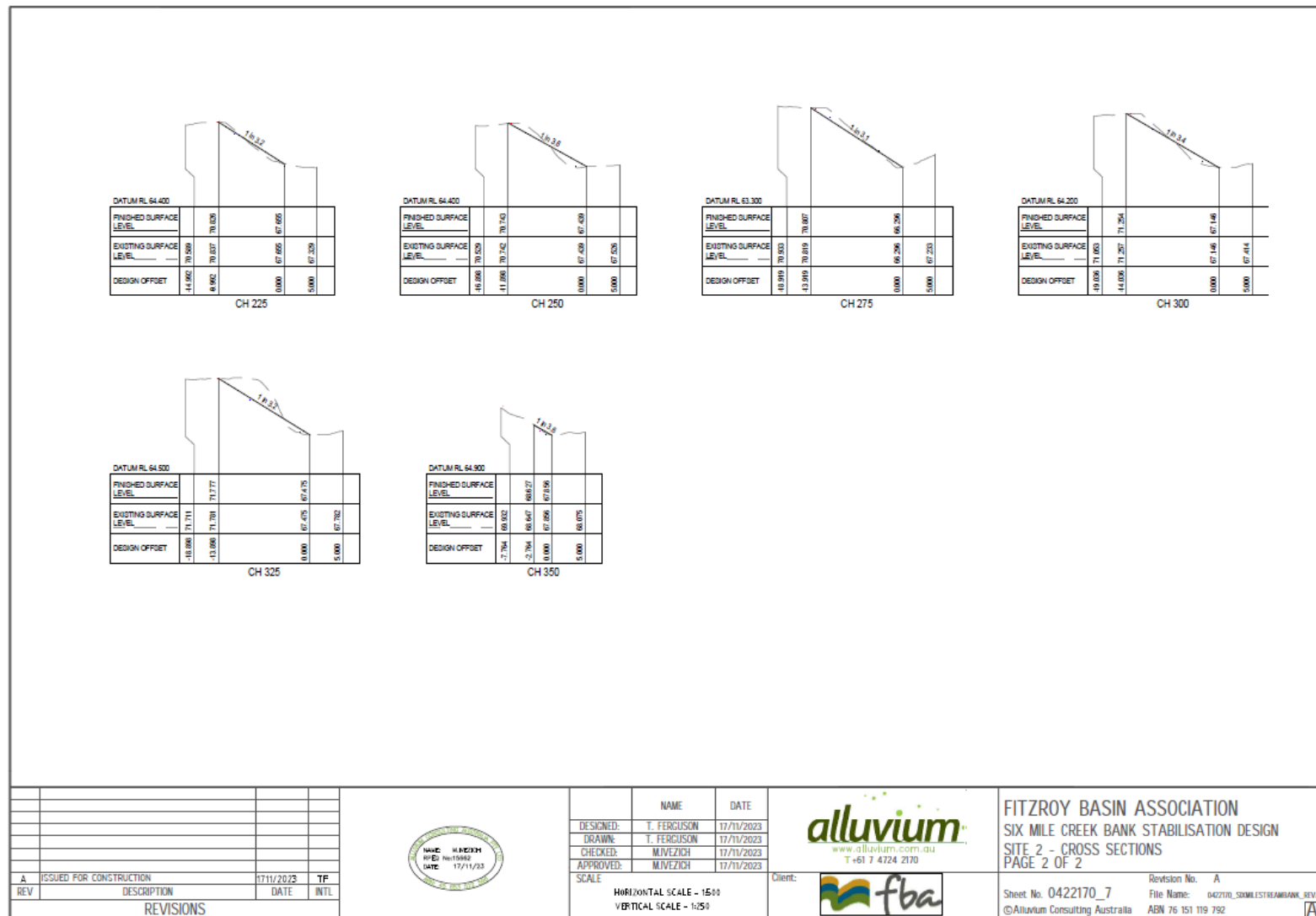




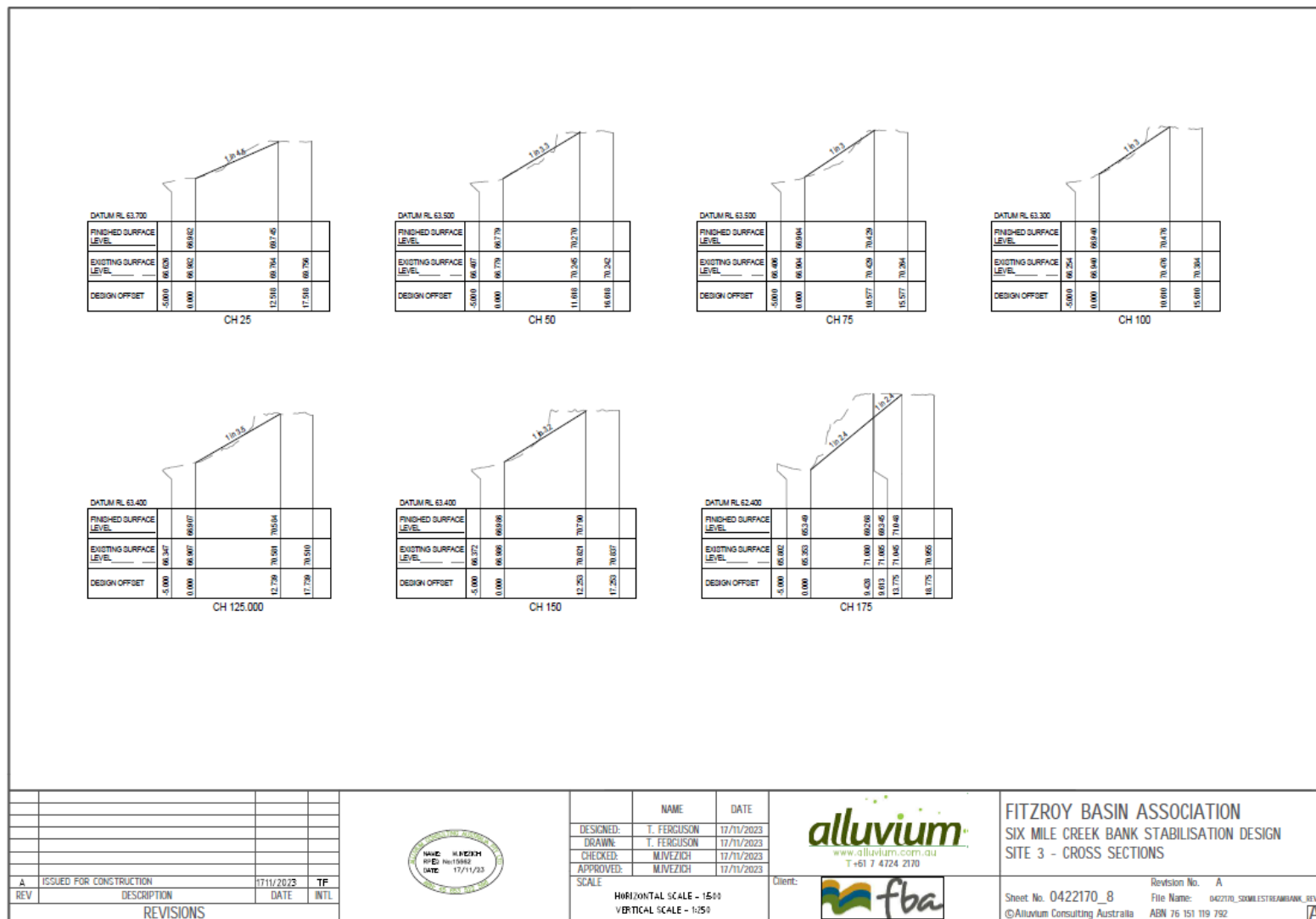












PILE FIELD SPECIFICATION TABLE												
Pile field Number	Setout point (bank side)		Setout point (channel side)		Pile field length (m)	Pile field tail length (m)	Pile diameter (mm)	Clear space between piles (mm)	Number of piles (6 m long)	Number of piles (3 m long)	Rock protection size (d50 mm)	Mass of rock beaching (tonnes)
	Easting	Northing	Easting	Northing								
PF1-01	270382.08	7360103.01	270395.86	7360096.46	15.26	2	300	300	19	10	450	50
PF1-02	270388.16	7360105.41	270401.56	7360099.51	14.65	2	300	300	19	9	450	48
PF1-03	270396.30	7360108.53	270407.24	7360103.96	11.86	2	300	300	16	8	450	40
PF1-04	270404.28	7360114.22	270415.47	7360109.97	11.96	2	300	300	16	8	450	40
PF1-05	270414.35	7360120.44	270425.55	7360115.96	12.07	2	300	300	16	8	200	25
PF1-06	270424.69	7360126.40	270435.76	7360121.40	12.15	2	300	300	16	8	200	25
PF1-07	270434.73	7360131.95	270445.51	7360125.87	12.38	2	300	300	16	8	200	26
PF1-08	270447.16	7360138.85	270459.13	7360132.49	13.56	2	300	300	17	9	200	28
PF1-09	270462.37	7360146.56	270473.32	7360139.52	13.02	2	300	300	17	9	200	27
PF1-10	270480.22	7360152.53	270490.87	7360144.70	13.22	2	300	300	17	9	200	27
PF1-11	270499.72	7360156.86	270508.87	7360148.88	12.14	2	300	300	16	8	200	25
PF1-12	270522.12	7360161.74	270530.90	7360152.99	12.40	2	300	300	16	8	200	26
PF1-13	270540.87	7360164.59	270549.68	7360156.16	12.20	2	300	300	16	8	200	26
PF1-14	270560.94	7360165.62	270569.94	7360157.20	12.33	2	300	300	16	8	200	26
TOTAL									234	117		440

TOE SETOUT POINTS		
ID	Easting	Northing
1-01	270584.31	7360161.06
1-02	270547.86	7360159.18
1-03	270523.69	7360154.70
1-04	270497.92	7360149.83
1-05	270473.71	7360142.87
1-06	270450.77	7360131.49
1-07	270438.88	7360126.40
1-08	270422.09	7360117.62
1-09	270398.29	7360101.05
1-10	270386.15	7360096.48
1-11	270375.78	7360089.60

BANK SETOUT POINTS		
ID	Easting	Northing
1-12	270377.52	7360099.21
1-13	270387.51	7360110.49
1-14	270402.99	7360122.69
1-15	270412.34	7360127.71
1-16	270426.12	7360131.39
1-17	270435.49	7360136.48
1-18	270448.96	7360140.43
1-19	270457.34	7360144.90
1-20	270483.65	7360153.68
1-21	270510.24	7360158.29
1-22	270533.24	7360163.95
1-23	270559.03	7360165.77
1-24	270578.73	7360164.28

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PILE FIELD SPECIFICATION TABLE												
Pile field Number	Setout point (bank side)		Setout point (channel side)		Pile field length (m)	Pile field tail length (m)	Pile diameter (mm)	Clear space between piles (mm)	Number of piles (6 m long)	Number of piles (3 m long)	Rock protection size (d50 mm)	Mass of rock bracing (tonnes)
	Easting	Northing	Easting	Northing								
PF2-01	270523.84	7360066.20	270539.75	7360077.88	19.74	2	300	300	25	12	450	63
PF2-02	270534.34	7360062.32	270549.14	7360075.84	20.05	2	300	300	25	12	450	63
PF2-03	270548.15	7360060.68	270559.27	7360073.23	16.77	2	300	300	21	11	450	54
PF2-04	270559.83	7360059.12	270568.39	7360071.42	14.98	2	300	300	19	10	450	49
PF2-05	270574.57	7360058.61	270579.89	7360070.11	12.67	2	300	300	17	8	200	26
PF2-06	270589.96	7360058.02	270596.39	7360071.30	14.76	2	300	300	19	9	200	30
PF2-07	270611.93	7360059.15	270617.08	7360072.39	14.20	2	300	300	19	9	200	29
PF2-08	270631.08	7360061.14	270636.21	7360073.75	13.61	2	300	300	18	9	200	28
PF2-09	270653.93	7360064.30	270657.05	7360076.69	12.77	2	300	300	17	8	200	27
PF2-10	270673.82	7360068.22	270675.61	7360080.83	12.74	2	300	300	17	8	200	27
PF2-11	270695.35	7360077.62	270696.20	7360089.97	12.38	2	300	300	16	8	200	26
PF2-12	270714.63	7360085.88	270714.40	7360099.02	13.14	2	300	300	17	9	200	27
PF2-13	270733.34	7360095.77	270732.73	7360108.86	13.11	2	300	300	17	9	200	27
PF2-14	270750.29	7360107.71	270747.33	7360121.01	13.63	2	300	300	18	9	200	28
PF2-15	270766.69	7360126.28	270760.13	7360140.56	15.71	2	300	300	20	10	200	32
PF2-16	270774.08	7360152.68	270760.45	7360167.15	19.88	2	300	300	25	12	200	39
PF2-17	270775.00	7360178.01	270763.14	7360189.81	16.73	2	300	300	21	11	200	34
TOTAL									330	165		609

TOE SETOUT POINTS		
ID	Easting	Northing
2-01	270773.64	7360217.24
2-02	270768.22	7360201.49
2-03	270763.58	7360171.83
2-04	270763.86	7360143.63
2-05	270755.90	7360125.51
2-06	270741.47	7360111.70
2-07	270728.08	7360102.54
2-08	270680.33	7360079.14
2-09	270642.13	7360071.16
2-10	270605.73	7360068.80
2-11	270575.83	7360067.45
2-12	270539.95	7360074.51
2-13	270513.68	7360074.47

BANK SETOUT POINTS		
ID	Easting	Northing
2-14	270533.09	7360061.35
2-15	270548.63	7360058.86
2-16	270569.08	7360054.24
2-17	270588.75	7360052.30
2-18	270620.05	7360051.94
2-19	270659.29	7360064.40
2-20	270687.08	7360071.43
2-21	270712.62	7360084.79
2-22	270743.18	7360101.02
2-23	270755.61	7360113.40
2-24	270766.69	7360126.28
2-25	270771.08	7360136.28
2-26	270774.61	7360156.41
2-27	270774.77	7360172.57
2-28	270776.38	7360203.34

[illegible]

PILE FIELD SPECIFICATION TABLE												
Pile field Number	Setout point (bank side)		Setout point (channel side)		Pile field length (m)	Pile field tail length (m)	Pile diameter (mm)	Clear space between piles (mm)	Number of piles (6 m long)	Number of piles (3 m long)	Rock protection size (650 mm)	Mass of rock, beaching (tonnes)
	Easting	Northing	Easting	Northing								
PF3-01	270732.59	7360249.68	270748.90	7360252.09	16.48	2	300	300	21	10	450	53
PF3-02	270735.26	7360256.68	270751.57	7360259.09	16.48	2	300	300	21	10	450	53
PF3-03	270738.30	7360264.13	270753.87	7360266.01	15.68	2	300	300	20	10	450	51
PF3-04	270745.55	7360278.04	270759.90	7360278.41	14.35	2	300	300	19	9	450	47
PF3-05	270752.52	7360290.85	270766.82	7360290.80	14.29	2	300	300	19	9	200	29
PF3-06	270760.05	7360304.36	270773.75	7360303.59	13.72	2	300	300	18	9	200	28
PF3-07	270769.89	7360321.76	270783.98	7360320.84	14.12	2	300	300	18	9	200	29
PF3-08	270782.43	7360341.62	270796.15	7360340.44	13.77	2	300	300	18	9	200	28
PF3-09	270792.65	7360358.46	270806.94	7360356.98	14.36	2	300	300	19	9	200	29
PF3-10	270806.02	7360378.54	270824.12	7360376.19	18.25	2	300	300	23	11	200	36
TOTAL									194	97		385

TOE SETOUT POINTS		
ID	Easting	Northing
3-01	270835.62	7360388.55
3-02	270829.78	7360382.88
3-03	270819.60	7360377.75
3-04	270804.36	7360358.52
3-05	270785.15	7360328.40
3-06	270764.91	7360293.91
3-07	270752.95	7360271.97
3-08	270740.97	7360246.71
3-09	270735.48	7360238.76
3-10	270727.97	7360233.87

BANK SETOUT POINTS		
ID	Easting	Northing
3-11	270721.62	7360241.64
3-12	270738.55	7360272.09
3-13	270747.54	7360288.55
3-14	270757.45	7360305.50
3-15	270768.51	7360321.86
3-16	270781.20	7360342.08
3-17	270796.84	7360368.53
3-18	270805.31	7360380.83
3-19	270814.95	7360388.94

A	ISSUED FOR CONSTRUCTION	17/11/2023	TF
REV	DESCRIPTION	DATE	INTL
REVISIONS			



	NAME	DATE
DESIGNED:	T. FERGUSON	17/11/2023
DRAWN:	T. FERGUSON	17/11/2023
CHECKED:	M.IVEZICH	17/11/2023
APPROVED:	M.IVEZICH	17/11/2023
SCALE		



Client:



FITZROY BASIN ASSOCIATION  
SIX MILE CREEK BANK STABILISATION DESIGN  
SITE 3 - PILE FIELD SPECIFICATIONS  
SETOUT POINTS FOR TOE AND TOP OF BATTER

Revision No.	A
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Sheet No. 0422170\_11  
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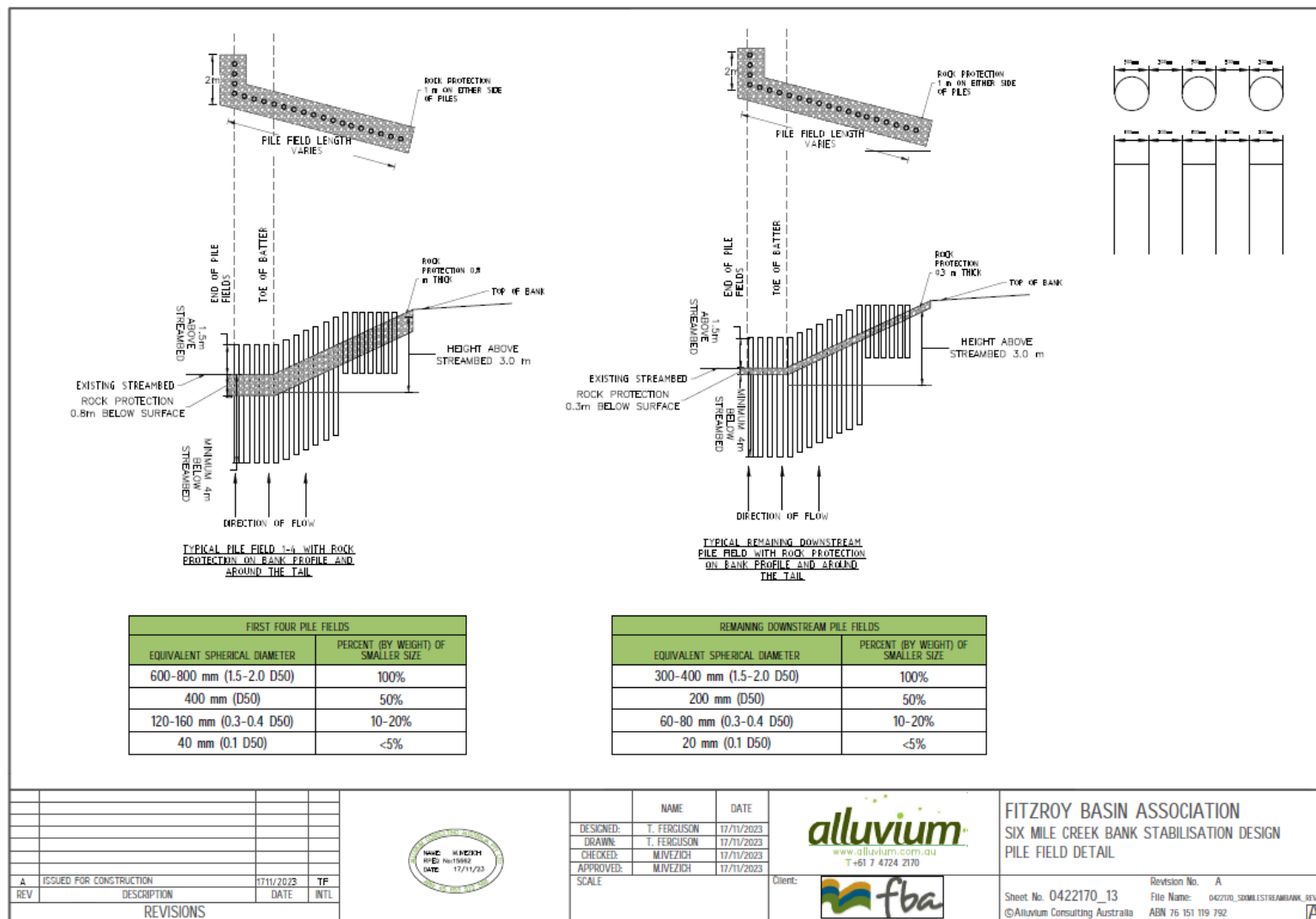
File Name: 042217  
ABN 76 151 119 792

**A**

EXCAVATION			
1.	EXCAVATION SHALL BE UNDERTAKEN IN A MANNER THAT MINIMISES DISTURBANCE TO MATERIAL OUTSIDE THE LIMITS OF THE WORKS.		
2.	EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE SUPERINTENDENT, BUT THE EXCESS MATERIAL MUST NOT BE SOLD TO ANY OTHER INDIVIDUAL OR PARTY AND THEN REMOVED FROM THE PROPERTY.		
3.	BANKS TO BE REPROFIED TO TV:3-4H.		
4.	EARTHWORKS SHOULD GRADUALLY TRANSITION OVER 10 m TO MATCH THE ADJACENT BANK AT EACH END OF THE WORKS.		
5.	TOP SOIL SHOULD BE STOCK PILED AND SPREAD OVER FINISHED BANK SLOPE.		
PILE FIELDS			
6.	ALL PILES TO BE AUSTRALIAN HARDWOOD		
7.	PILE FIELD SPACING TO BE ADJUSTED TO ENSURE 50% POROSITY.		
8.	EXACT LOCATION OF PILE FIELDS MAY BE VARIED BY UP TO 2m WITH APPROVAL FROM THE SITE SUPERINTENDENT.		
9.	A MINIMUM OF 2/3 IN TO BED MATERIAL - 1/3 OUT PILE DRIVING DEPTH IS GENERALLY TO BE ACHIEVED. IF UNACHIEVABLE TRIM TOP OF PILE TO REDUCE HEIGHT. ANY REDUCTION SHOULD ONLY BE DONE WITH PRIOR APPROVAL FROM THE SITE SUPERINTENDENT.		
10.	PILE FIELDS NOT LOCATED WITHIN REPROFIED BANK SHALL EXTEND TO TOP OF BANK. BANK MATERIAL TO BE BATTERED IN IMMEDIATE VICINITY OF PILE FIELD TO ALLOW FOR TRANSITION UP THE BANK.		
11.	ROCK SHALL BE PLACED 1 m UPSTREAM AND 1 m DOWNSTREAM OF SELECTED PILE FIELDS TO A DEPTH OF 0.8 m.		
ROCK SUPPLY AND PLACEMENT FOR ROCK PROTECTION WORKS:			
12.	SUPPLY AND PLACEMENT OF ROCK TO BE IN ACCORDANCE WITH THESE DRAWINGS AND ONSITE DIRECTION BY DESIGN ENGINEER OR SITE SUPERINTENDENT.		
13.	ROCK PLACEMENT SHALL NOT COMMENCE UNTIL THE PREPARED SURFACE HAS BEEN APPROVED BY THE SUPERINTENDENT.		
14.	ROCK SHALL BE CAREFULLY PLACED BY BUCKET FROM A LOADER OR EXCAVATOR FROM NO GREATER THAN 1.0 m ABOVE THE MATERIAL ONTO WHICH IT IS TO BE PLACED.		
15.	ROCK SHALL BE WORKED INTO PLACE SO AS TO PRODUCE A BLANKET OF INTERLOCKING ROCK THAT HAS NO SIGNIFICANT VOIDS AND DOES NOT MOVE UNDER FOOT.		
16.	GRADING SHALL PRODUCE A CONSISTENT MIX OF ROCK SIZES.		
REHABILITATION OF DISTURBED AREAS			
17.	REHABILITATION OF DISTURBED AREAS SHALL NOT BE UNDERTAKEN UNTIL THE PREPARED AREA HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND APPROVED BY THE SUPERINTENDENT.		
18.	THE EXPOSED REPROFIED SLOPE AND ROCK PROTECTION SHALL BE COVERED WITH TOPSOIL AND REVEGETATED. REVEGETATION SHALL EXTEND A MINIMUM 15 m BEYOND THE TOP OF BANK.		
19.	WHERE SLOPES ARE TOO STEEP FOR DIRECT PLANTING NATURAL REGENERATION IS PROPOSED.		
20.	EROSION PROTECTION MATTING OR ALTERNATIVE SUITABLE GROUND COVER MAY BE USED ON REPROFIED BANK DURING THE VEGETATION ESTABLISHMENT PHASE, AT THE DISCRETION OF THE SUPERINTENDENT, TO REDUCE RISK TO THE WORKS.		
21.	REVEGETATE THE WORKS SITE AND SURROUNDING AREA AS PER THE DETAILED REVEGETATION PLAN PROVIDED IN ATTACHMENT C OF DETAILED DESIGN REPORT.		

		<table border="1"> <thead> <tr> <th></th> <th>NAME</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>DESIGNED:</td> <td>T. FERGUSON</td> <td>17/11/2023</td> </tr> <tr> <td>DRAWN:</td> <td>T. FERGUSON</td> <td>17/11/2023</td> </tr> <tr> <td>CHECKED:</td> <td>MUVEZIGH</td> <td>17/11/2023</td> </tr> <tr> <td>APPROVED:</td> <td>MUVEZIGH</td> <td>17/11/2023</td> </tr> </tbody> </table>		NAME	DATE	DESIGNED:	T. FERGUSON	17/11/2023	DRAWN:	T. FERGUSON	17/11/2023	CHECKED:	MUVEZIGH	17/11/2023	APPROVED:	MUVEZIGH	17/11/2023		<b>FITZROY BASIN ASSOCIATION</b> SIX MILE CREEK BANK STABILISATION DESIGN CONSTRUCTION NOTES AND ROCK SPECIFICATIONS
	NAME	DATE																	
DESIGNED:	T. FERGUSON	17/11/2023																	
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REV	DESCRIPTION	DATE	INTL																
A	ISSUED FOR CONSTRUCTION	17/11/2023	TF																
REVISIONS			Revision No. A File Name: 0422170_SIXMILECREEKBANK_REV.A ABN 76 151 119 792																





## 4.8 Contract Requirements

### WHS

#### Risk and Hazard Identification

The Contractor is responsible for identifying potential hazards and safety requirements related to the work. A Risk and Hazard report detailing site-specific concerns will be incorporated into the prestart considerations and documentation.

#### Hazard Reporting

Contractors must promptly report any observed hazards at FBA sites, with the individual in control completing an Incident Report.

#### Wildlife Risks

N/A

#### Working Near Water

N/A

#### Contractor Documentation

The Contractor must establish a management system as part of this Contract. A qualified representative, empowered to oversee quality, safety, and environmental management systems on-site, should be nominated. The Contractor is responsible for adhering to all relevant legislation, regulations, and guidelines.

The Contractor should provide the following documents to FBA at least ten calendar days before commencing work on-site:

- Project Management Plan outlining implementation methodology
- Work Program
- Safety Management Plan
- Environmental Management Plan, including a biosecurity plan for equipment and materials entering or leaving the property
- Emergency Management Plan

These documents must, at a minimum, encompass the following details:

- Project Organization Chart or list of designated Project Personnel with their roles, communication channels, and responsibilities
- Quality management procedures
- Safety management and emergency procedures (including reporting frequency)
- Environmental management and emergency procedures (including reporting frequency)
- Biosecurity plan details
- Traffic management plan details
- Emergency management procedures

A list of intended project documents, along with proformas, should also be submitted. Site access will be granted only upon receipt and approval of all Contractor documentation.



The Contractor should additionally submit job safety assessments and/or work method statements related to different construction phases, applicable to the project, at least seven (7) days before the relevant activity starts. Such reviews by FBA won't affect Contractor warranties or guarantees.

### **Project Safety Management Plan**

Before initiating work on-site, the Contractor is required to prepare and provide a Project Safety Management Plan to FBA. This plan should include:

- A documented statement describing the work, identifying activities with health and safety risks, and detailing control measures
- Hazard assessment inherent to site work and strategies for hazard elimination or minimization
- Proposed Traffic Management Plan, encompassing speed limits on haul and access roads for the safety of personnel, landowners, and occupants
- Fire management risk assessment and mitigation strategies

Throughout work execution, the Contractor must have a competent site health and safety manager or representative on-site, ensuring compliance with the Contractor's Safety Management Plan and FBA's requirements.

Site entry and departure notifications should be directed to the designated FBA representative via text or phone daily.

### **Inductions**

#### **Site-Specific Induction**

Contractor staff members accessing an FBA site, whether for work or any other purpose, must receive a site-specific induction upon arrival. Records of site-specific inductions for contract staff should be provided to FBA's Project Manager upon request.

### **Site Works**

#### **General Requirements**

The 'Contractor' bears the responsibility of ensuring that all subcontractors and individuals falling under a 'Duty of Care' obligation comply. The Contractor must ensure that all individuals under their 'Duty of Care,' including subcontractors, adhere to the following:

- Verify that all tools and equipment to be used are in proper working condition and appropriately tagged while on-site.
- Possess the required licenses, certifications, and industry-mandated competencies relevant to their assigned tasks.

#### **Sign-In and Sign-Out**

Upon arriving at the work site, all contract staff members are required to sign in on the Visitor Register before initiating work. When leaving the site, all contract staff members must sign out. Copies of all relevant regulatory documentation should be provided to FBA upon request or, at a minimum, upon the practical completion of the work.



### Site Facilities

The Contractor is obligated to supply any necessary welfare facilities as mandated by law for workers and authorized individuals present on the site. These facilities must be removed upon the completion of the works. The placement of the Contractor's site facilities requires approval from FBA.

The Contractor is also responsible for providing a dedicated working space for FBA within their own site facilities. At a minimum, this space should include desk with power outlets.

All arrangements and associated fees for any temporary services required for executing the works under this contract are the Contractor's responsibility.

A designated site laydown area for machinery and materials will be allocated adjacent to the works.

### Existing Services

Before initiating any work, the Contractor must acquaint themselves with all existing services both on the Site and in its vicinity. The following existing services have been identified on-site but are not limited to:

- Telephone cable
- Overhead power

The Contractor is responsible for comprehending the DBYD information, exercising informed judgment, and, if necessary, conducting additional investigations concerning the existing site services before commencing work.

In cases where overhead public utility lines, surface drainage structures, or underground pipes, conduits, or cables are present near the work area, the Contractor must take precautions to safeguard these facilities from harm. If any damage does occur to such facilities, it must be promptly reported to the plant owner and FBA. The full cost of necessary repairs or replacements shall be entirely borne by the Contractor.

Should it become necessary to adjust the location or elevation of any existing mains or services to align with the construction stipulated in this Contract, the Contractor must promptly notify FBA.

In the event of damage to any water, gas, electric, drainage, sewerage, telephone, signaling, or other services within the area, the Contractor is obligated to cover the expenses associated with repairing the damage.

### Site Access

In order to dispose of spoil from the work site, it will be essential to traverse portions of the property the landholder utilizes for their operations. The contractor must integrate appropriate mitigations into their site management plan to address potential effects. These mitigations should encompass:

- Setting speed limits, outlining travel directions, ensuring visibility, and regulating equipment movement.
- Establishing effective site communication measures.
- Defining procedures for traversing the property, including guidelines for gates.
- Implementing strategies to minimize the impact of noise, dust, light, and odours.

### Site Condition Records

Before initiating site works, the Contractor must compile a photographic record of the current state of access roads and associated infrastructure. This record should meet the satisfaction of FBA and be provided to them. The record should minimally cover the condition of:

- All existing facilities such as buildings, fences, hard-standing areas, roads, and structures.
- The surrounding environment, encompassing grassy areas, shrubs, and trees.



- Existing internal and external access roads used for material transport or equipment movement under this Contract.

Throughout the Contract, the Contractor must take necessary precautions to prevent any undue harm to existing facilities, the surrounding environment, and other features beyond the work's scope.

Any damages attributed to negligence, as determined by FBA, will be the Contractor's responsibility to repair, restoring them to their original (or improved) condition.

## **Project Documents**

### **Technical Documents**

The technical documents pertaining to the project include:

- Project Drawings
- Inspection Test Plans
- Scope of Works (this document)
- Detailed Design Report

### **Project Drawings**

The project drawings outline the proposed design for the project. It's important to read the Drawings alongside this Scope of Works (including all referenced standards) for comprehensive requirements. The drawings contain design aspects that require approval on-site from the design engineer.

### **Precedence of Documentation**

If any discrepancies arise between plans, specifications, and standard specifications, the following order of documentation precedence will apply:

- Detailed Design Drawings and specifications provided within the drawings.
- Scope of Works
- Material, Product, and Manufacturer's Specifications and Drawings
- AS/NZS Standards
- ISO Standards

In case of conflict, the Contractor should consult FBA for clarification.

## 4.9 Reference Specifications

### Supply and placement of timber pile fields

#### Timber details

Timber piles shall meet the requirements of Australian Standard AS 3818.3-2001 Timber – Heavy structural products – Visually graded – Piles. In particular, piles shall meet the requirements of section 3, Hardwood Pile Intended for Use without Full Length Preservative Treatment.

Table 1 Timber pile specification

ITEM	DETAILS
Species	Strength Group: S3 Durability Class: 3 Species to be adopted in accordance with AS 3818.3-2001.
Length	Refer to schedule of quantities
Nominal Diameter*	250mm – 350mm
Length Tolerance	± 0.1m
Diameter Tolerance	± 0.1 x diameter (mm)
Characteristics	In accordance with Australian Standard AS 3818.3-2001 Timber – Heavy structural products – Visually graded – Piles. Piles shall meet the requirements of section 3, Hardwood Pile Intended For Use Without Full-Length Preservative Treatment.

\*Nominal diameter provides the diameters at the small and large ends, respectively.

The minimum diameter of the timber piles without bark shall be 180mm at the smaller end; and the maximum diameter of the timber piles without bark shall be 350mm at the larger end. Timber piles should taper from the larger to the smaller end of the diameter scale to aid in driveability of the pile.

#### Pile driving

The following tolerances shall apply to piles after driving:

- The pile head shall finish within 100mm of the specified horizontal location; and

The Contractor shall be responsible for ensuring that adequate machinery is supplied and used to drive all of the piles to these tolerances. Adequate machinery is considered to be an excavator mounted vibrating head and/or hammer.

Piles shall be driven to the levels specified or otherwise set out by the Superintendent or the Superintendent's representative. The only exceptions shall be where failure to meet the requirements is beyond the control of the Contractor. Such exceptions may include contact with bedrock or buried timber. Increasing resistance in sand shall not be considered as an exception beyond the control of the Contractor as adequate machinery will be deemed by the Superintendent as necessary to overcome increasing resistance in sand. Piles may take up to 15min per pile to drive.

The practice of trenching or ripping the bed material for the installation of piles requires prior discussion with, and approval by, the Superintendent and designer.



## 4.10 As-Constructed Data and Works Certification

### As-Constructed Survey

For recording as-constructed details and measurement of quantities, the Contractor must conduct a survey covering final extents and surfaces. The survey results must be submitted to FBA in both hard copy plans, sections, and a digital format compatible with the I2D computer modelling program. Survey accuracy should be within +/- 10mm in level and +/- 50mm in plan. Progressive as-built surveys are to be produced during the work, with a final survey provided alongside the DRAFT As-Constructed Drawings within 2 weeks of work completion.

### As-Constructed Drawings

FBA will supply the "Issued for Construction" job drawings in "Adobe PDF" format for the Contractor's use in preparing "As Constructed" drawings. The process is as follows:

- Within 2 weeks of work completion, the Contractor will provide DRAFT "As Constructed" drawings in various formats to FBA for review.
- FBA will offer comments within 2 weeks of receiving the drawings.
- The Contractor will update the As-Constructed drawings and reissue them to FBA within 2 weeks of receiving reviewed drawings.
- All drawings must adhere to ASI 100.101, industry norms, and FBA requirements.
- Levels provided must be reduced to AHD.
- Grid coordinates must be in MGA.
- Drawings should primarily be black and white, with possible coloured lines and shading for identification.
- The As-Constructed drawings must be certified by a registered Surveyor and by a Design representative and will form part of the Works Certification submission.
- Certified drawings shall follow ASI 100.101: Technical drawing – General principles.
- Drawings must be provided in hard copy and digital formats, including vector-based "AutoCAD 2010" files.
- Changes to this process can be made in consultation with FBA.

### Works Certification

All construction must be certified by a Professional Engineer of Queensland (RPEQ) to ensure alignment with design intent. The Contractor is responsible for obtaining RPEQ signoff on the as-constructed drawings for submission to FBA. FBA will provide contact details for the design engineer to assist if needed. The Contractor must notify FBA within 48 hours of implementing agreed witness and hold points. Suitable QA records and notifications are necessary for RPEQ certification, including signoff of the As-Constructed Drawings. All relevant construction documentation and records, including completed Inspection and Test plans, photos, reports, surveys, and As-Constructed Drawings, must be submitted to FBA within 2 weeks of work completion.

## 4.11 Quality Management

### Requirement

The Contractor is obliged to establish a quality management system for this Contract. This system should include enough quality records to offer tangible proof of meeting Contract requirements, including relevant records from Subcontractors.



### Quality System Documentation

Within 14 days of letter of acceptance or before site possession, the Contractor must submit these documents to FBA: the Project Quality Plan.

Access to Corporate Quality Procedures pertinent to this Contract must also be granted to FBA.

The Project Quality Plan should adhere to interim Australian and International Standard AS/NZS ISO 9004.5 (Part 5), incorporating guidelines from Australian Standard AS/NZS ISO 3905.

### Inspection and Test Plans

Inspection and Test Plans must include the following for each significant activity in the relevant process:

- Activity description
- Specification requirements/reference
- Person responsible (title)
- Hold Points and Witness Points
- Activity checklists
- Inspection and test type
- Acceptance criteria
- Relevant procedure and quality records
- Test/inspection frequency
- Work item identification

FBA will review these plans, which should integrate the Technical Specifications and Inspection and Test Plans. Additional Hold Points or Witness Points may be requested by FBA, ensuring both Contractor and FBA sign off.

### Non-conformance Reports

Upon detecting non-conforming work, the Contractor must submit a Non-conformance Report to FBA within 48 hours. This report should detail:

- The non-conformance nature and extent
- Work lot or item number
- Relevant information, data, test results, measurements
- Proposed corrective and preventive actions.
- Timeframe for rectification

The Project Quality Plan should outline the method for isolating/identifying non-conforming work. The proposed corrective action requires FBA approval.

### Hold Points and Witness Points

Hold Points mandate mandatory verification by the QAR or FBA before further work proceeds. Mandatory Hold Points apply before commencing designated work lots/items, and they encompass acceptance of Contract Documentation, Site possession, survey approval, and more. A Witness Point allows for attendance and witnessing of inspection and test.

### Inspection, Testing, and Testing Fees

The Site Supervisor can order additional testing to ensure Contract compliance. The Contractor covers costs for non-compliance testing. If the Contractor fails in testing obligations, the Principal can perform testing at Contractor's expense.

#### Failure to Submit Relevant Documentation

Late submission of Contractor Documentation results in a stop work order. Besides rectifying non-conforming work, the Contractor bears its own costs for delays due to this breach.

#### Subcontracted Work

Subcontracted work must meet quality assurance standards. Subcontractors must possess legislated insurance. Notice and compliance for subcontracted work on site is Contractor's responsibility.

#### Proprietary Items

Contractor must use specified proprietary items or approved equivalents. Alternative products need FBA approval for inclusion in the contract.

### 4.12 Measurement and Payment

This works package is structured as a Lump Sum, derived from items detailed in the Schedule 2 Bill of Quantities. Any unpriced items in the Schedule of Rates are accounted for in the pricing of other items.

In case of omissions in the Bill of Quantities or Schedule of Rates, the Contractor can either add them for inclusion in the Tender Price or assume allowance in other prices.

Design based on LIDAR requires the Contractor to survey the existing surface (pre-strip) and the Stripped Surface before earthworks for accurate quantification. This is incorporated in the Inspection & Testing Plan. Quantities in the Bill of Quantities are in situ; swell factor isn't considered.

#### Preliminaries and General

- Establishment and Disestablishment: Payment divided as 50% upon possession of site and 50% upon disestablishment.
- Insurances: Payment on a percent complete basis. Minimum required insurances listed.
- Project Management: Payment on a percent complete basis, covering project management documentation.
- Survey Set Out, Site Measurement, and Service Location: Payment on a percent complete basis, including survey, set-out, and services handling.
- QA Documentation/All Testing Required: Payment upon FBA's acceptance of documentation.
- As-Constructed Drawings & RPEQ Works Certification: Lump Sum covering As-Constructed drawings and RPEQ certification. Final payment upon approval of documentation and RPEQ certification.

#### Provisional Sum Items

Provisional Items executed only under FBA instruction in writing. Payment upon completion and submission of quantity evidence.

The costs encompass planning, stakeholder interaction, mobilization/demobilization, equipment, insurances, biosecurity, amenities, labour, and more. Costs should provide a clear schedule of rates. The project is projected to take 2 to 3 months, aiming for completion by December 2023.

#### 4.13 Project Management Authority

Task	Authority Level
Staff decision	FBA's Delivery Leader, with FBA Senior Management Team collaboration.
Budget Management and Variance	FBA's Delivery Leader, collaborating with Chief Executive Officer.
Technical Decisions	FBA's Delivery Leader for project deliverables, working with Project Engineer or delegate for approach.
Conflict Resolution	FBA's Delivery Leader has authority for internal and external conflict resolution, discussing reputational risks with Senior Management Team and CEO.

#### 4.14 Expected Schedule and Timing

##### Schedule

The deadline for the civil works on this project is September 15, 2024.

A site visit has been scheduled for May 2, 2024. Please contact **Ben Reimers 0413 027 155** or [ben.reimers@fba.org.au](mailto:ben.reimers@fba.org.au) to confirm attendance.

##### Expected Deliverables / Milestones

Task #	Milestone	Due Date
I	<b>Project initiation</b> Before the commencement of on-site operations, the Contractor is to provide copies of the subsequent documents at least ten calendar days in advance: <ul style="list-style-type: none"> <li>• Project Management Plan outlining implementation methodology</li> <li>• Work Program</li> <li>• Safety Management Plan</li> <li>• Environmental Management Plan</li> <li>• Emergency Management Plan</li> <li>• Project Organization Chart or list of designated Project Personnel</li> <li>• Quality management procedures</li> <li>• Safety management and emergency procedures</li> <li>• Environmental management and emergency procedures</li> <li>• Biosecurity plan details</li> </ul>	27 May 2024

	<ul style="list-style-type: none"> <li>• Traffic management plan details</li> <li>• Intended project documents list</li> <li>• Job safety assessments and work method statements</li> <li>• Site-specific induction records</li> </ul>	
2	<b>Construction Phase</b> <ol style="list-style-type: none"> <li>1. Mobilization and Initial Site Works (Payment 1)</li> <li>2. Access and Ground Preparation (Payment 2)</li> <li>3. Primary Earthworks and Rock Beaching (Payment 3)</li> <li>4. Revegetation Works - Option A (Payment 4)</li> <li>5. Revegetation Works - Option B (Payment 5)</li> <li>6. Final Earthworks and Pre-Completion (Payment 6)</li> <li>7. Post-Revegetation and Finalization (Payment 7)</li> </ol>	By 15 September 2024



## Part 5: Returnable Schedules

### 5.1 Tender Checklist

A conforming tender meets the requirements of the ITT Part I Section I.9. Failure to return any of the following items may result in the Tender being excluded from evaluation due to non-conformance:

Checklist of required attachments		
<input type="checkbox"/>	Part 5: Returnable schedules completed in full and signed by an authorised representative of the Tenderer	
<input type="checkbox"/>	Completed Supplier Details Form	Schedule 1: Supplier Details Form
<input type="checkbox"/>	Certificates of Currency for insurances as defined in Schedule 2	Schedule 2: Insurances
<input type="checkbox"/>	Business Licences as appropriate as defined in Schedule 3	Schedule 3: Business Licences
<input type="checkbox"/>	CVs of key personnel as defined in Schedule 4	Schedule 4: Key Personnel
<input type="checkbox"/>	Requirements to meet the Assessment Criteria <ul style="list-style-type: none"> <li><input type="checkbox"/> Proposed Methodology</li> <li><input type="checkbox"/> Proposed Project Schedule</li> <li><input type="checkbox"/> Management Systems</li> <li><input type="checkbox"/> Examples of Demonstrated Experience</li> </ul>	Schedule 5: Non-Price Assessment Requirements
<input type="checkbox"/>	Price schedule as an Excel document	Schedule 6: Price Schedule



## 5.2 Schedule I: Supplier Details Form

Please complete the attached Word document **Schedule I - Supplier Details Form.docx**.

## 5.3 Schedule 2: Insurances

1. Public Liability Insurance (FBA requires at least \$20,000,000 per claim)	
Insurer:	
Limit of Cover:	\$
Policy Number:	
Expiry Date:	
Exclusions:	

2. Workers' Compensation (WorkCover) Insurance (as required by law)	
Insurer:	
Limit of Cover:	\$
Policy Number:	
Expiry Date:	

3. Professional Indemnity Insurance	
Insurer:	
Limit of Cover:	\$
Policy Number:	
Expiry Date:	
Exclusions:	

4. Plant and Equipment Insurance	
Insurer:	
Limit of Cover:	\$
Policy Number:	
Expiry Date:	
Exclusions:	

### 5.4 Schedule 3: Business Licences

Include all business licenses relevant to the Scope of Works.

Licence	Number	Class/Category	Other details

## 5.5 Schedule 4: Key Personnel

The Tenderer must nominate the key personnel proposed for delivery of the Works. Attach resumes/CVs to the Tender submission.

Key Contact for FBA – [Project Role Title]	
Name	
Position Title	
Phone	
Email	
Qualifications	
Relevant Licences	
Relevant Experience	

[Project Role Title]	
Name	
Position Title	
Qualifications	
Relevant Licences	
Relevant Experience	

[Project Role Title]	
Name	
Position Title	
Qualifications	
Relevant Licences	
Relevant Experience	

[Project Role Title]	
Name	
Position Title	
Qualifications	
Relevant Licences	
Relevant Experience	





## 5.6 Schedule 5: Non-price Assessment Requirements

Tenderer should submit documentation and evidence supporting the assessment criteria outlined in **Part 3: Evaluation of Tenders**. Minimum evidence required is:

- Proposed methodology;
- Project schedule;
- Management systems; and
- Examples of demonstrated experience.

The Tenderer may submit more documentation to support their Tender as they see fit.

FBA reserves the right to:

- a. consider or not consider Tenders that do not supply the minimum documentation; and
- b. consider or not consider any documentation exceeding the minimum documentation.



### 5.7 Schedule 6: Price Schedule

Please complete the two worksheets, Bill of Quantities and Schedule of Rates, in the attached **Schedule 6: Price Schedule.xlsx** file.

The Bill of Quantities should contain all expected costs associated with delivery of the works and the final price to FBA that will form the Contract. Tenderers may add items to, but should not remove items from, the Bill of Quantities. Where an item is not completed, Tenderers should note the reason in the Comments column or risk the Tender being found non-conformant.

The prices the Tenderer provides in the Schedule of Rates are for the development of any potential variations to the Contract should they be required.

The Tenderer may also complete the Payment Schedule worksheet to suggest a schedule of payments against milestones for the potential Contract. If no proposed Payment Schedule is provided, FBA will develop the payment schedule when finalising the Contract.

## 5.8 Schedule 7: Contract Term Non-conformances

Tenderer must outline proposed non-conformances with **Part 5: Draft Contract**. FBA reserves the right to consider or not consider any Tender not conforming to the requirements outlined in the Tender Documents.

Term Ref.	Description	Reasoning	Impact



## 5.9 Schedule 7: Tenderer's Acknowledgement

The signatory below makes the following declarations for an on behalf of the Tenderer to Fitzroy Basin Association (FBA):

1. The Tenderer has examined all of the Invitation Documents;
2. The Tenderer declares that:
  - a. the Tender constitutes a formal Offer for the provision of the Works;
  - b. it has read and understood the obligations outlined in the Invitation Documents;
  - c. all of the contents of the Tender are accurate;
  - d. there are no relationships between the Tenderer and FBA, FBA staff, or other parties with dealings with FBA that may constitute a conflict of interest, either actual, potential or perceived should the Tenderer be selected;
  - e. it has sufficient financial, staff and other resources to carry out and supply the Works in accordance with the Invitation to Tender;
  - f. it is not aware of any circumstances, including but not limited to legal action, that could impact on the viability of the Tenderer or the capacity to deliver the Works; and
  - g. it has or will have all insurance required before entering into Contract for the works and for the duration of the Works.

Signed by an Authorised Representative of the Tenderer who declares that they are duly authorised to sign for and enter into contracts on behalf of \_\_\_\_\_ [Business Name]

\_\_\_\_\_  
Authorised Person Name

\_\_\_\_\_  
Authorised Person Signature

\_\_\_\_\_  
Date of Signature



## Part 6: Draft Contract

Refer to the attached **Part 6 – Draft Contract.pdf**.





@fitzroybasinassociation



07 4999 2800



@fitzroybasin



admin@fba.org.au



fitzroy-basin-association



fba.org.au

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