

# Hotham-Williams River Action Plan

## *Quindanning Detailed site plan*



Prepared for  
**Peel-Harvey Catchment Council**  
By Urbaqua  
June 2022

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### **Acknowledgements**

Urbaqua would like to acknowledge the following organisations for their significant contribution to this project:

1. Peel-Harvey Catchment Council.
2. Newmont Boddington.
3. Shire of Boddington.
4. Shire of Williams.
5. South32 Worsley Alumina.



# Peel-Harvey Catchment Council - Hotham-Williams River Action Plan

## Figure 1: Quindanning Site Concept - Restoration Plan

**Legend**

**Revegetation**

- Demonstration planting with signage
- Comprehensive restoration of 30m riparian buffer zone
- Spot removal/replacement of weeds and problem exotics

**Access**

- Proposed pedestrian access
- Investigate and install fencing as required to control stock access to River
- Informal stepping stone crossing
- Pinjarra Williams Road Bridge

**Amenity**

- River restoration information
- Proposed parking
- Proposed shelter/picnic facility



**Notes:**

- 1 Revegetation - comprehensive weed removal and revegetation of minimum 10m riparian buffer in these areas (30m preferred where tenure and land-use allow).
- 2 Revegetation - spot removal of weeds and problem exotics, replacement with native species as necessary.
- 3 Revegetation - accessible demonstration area for revegetation with higher value species incorporating explanatory signage and trees to improve riparian shading.
- 4 Marked area for carparking.
- 5 Footpath down to riverbank from both sides and informal crossing to provide access across river during low flows.

Fencing should be located outside of the riparian zone above the top-of-bank and at least 15m from the high water mark in accordance with PHCC minimum fencing requirements.

Signage will include information to acknowledge Noongar and European history of the River at Quindanning site and communicating its cultural and historical significance, including the way the Noongar people and Europeans have valued this place throughout history.

Project activities outside of the main focal areas on public land will be in close consultation with neighbouring landholders.

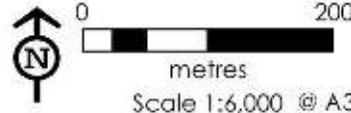
**Existing conditions:**



**Revegetation examples:**



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## 1 SITE DESCRIPTION

The Quindanning site on the Williams River is south of the Quindanning townsite, covering approximately 2.3 km upstream and downstream of the Pinjarra-Williams Road Bridge. The channel contains significant meanders with pools at and downstream of the bridge and the banks consist largely of gentle slopes and insignificant erosion.

Tree and shrub cover (*Eucalyptus* sp. and *Melaleuca* sp.) is nearly continuous along the banks, apart from a reduced area on the northern bank near the townsite. This canopy provides a high proportion of stream cover although some dying trees are present. The understorey is heavily reduced in areas that contain weeds such as exotic grasses. Other sections contain significant amounts of native herbs and grasses that will respond well to weed control efforts. An area upstream of the bridge has been revegetated by the community after a fire in 2015, and this has been effective in widening the vegetated corridor attached to the River.

## 2 CONSULTATION

Consultation with key stakeholders and the community commenced in February 2021 and has included the following:

- Presentation to Shire of Williams, with direct feedback given.
- Presentation to Shire of Boddington, with direct feedback given.
- Information session for the local community, with direct feedback given.
- Discussion with Main Roads WA, with direct feedback.

Key comments from the consultation include:

- The tall trees near the bridge were lost in the 2015 fires. Any plans for revegetation will need to exclude an easement 10m either side of the bridge, according to Main Roads maintenance standards.
- Need to determine what is causing tree deaths and ensure species selection minimises risk of future deaths.
- Consider the reserve for camping on the south side of the River between the cricket oval and the bridge including parking for camping.
- According to personal communication with Main Roads, an upgrade to the bridge is unlikely to occur in the short or medium term and straightening of the road will not be necessary due to the need for cars to slow down through a built-up area.

## 3 CONCEPT DESCRIPTION

The recommended works (Figure 1) have been identified in response to the specific conditions of the site which include its proximity to the historic Quindanning Hotel and its accessibility. This supports the recommendations for improved community amenity and education opportunities, as well as the required ecological works to improve river health. The plan also addresses the consultation outcomes and proposes to formalise the informal parking area.

According to Main Roads, the maintenance easement 10m either side of the bridge needs to be either bare earth or vegetation maintained at ground level. This is conducive to native grasses and groundcovers being either planted or regenerated via weed control efforts. Ongoing communication with Main Roads will define how this particular area is treated. At the very least, negotiations need to ensure that weeds are controlled appropriately so that they do not compromise the restoration site.

The restoration plan for this site mainly focuses on weed control and revegetation, due to the gentle sloping banks and insignificant level of erosion throughout the site. Targeted and ongoing weed control is very likely to result in the regeneration of native species, due to the presence of native herbs and ground covers. The proximity of the historic Quindanning Hotel provides opportunity for a demonstration restoration area, with public access to the River in combination with environmental and cultural information provided through the design and installation of signs. Furthermore, connection of new restoration activities with the nearby revegetation site may provide a catalyst for renewed community involvement with project activities.

## 4 PROPOSED WORKS

The proposed works are detailed in Figures 1, 2 and 3 are as follows.

### 4.1.1 River restoration

- Comprehensive weed removal in degraded areas with spot weed removal and control of exotics in other areas to assist native species to regenerate as weeds are removed over time (see Figure 1).
- Revegetation of the highly accessible area with higher value species incorporating explanatory signage and trees to improve riparian shading.
- Revegetation of minimum 10m riparian corridor (where permitted by land tenure and land use).

#### Estimated quantities for river restoration works:

Item	Unit	Amount
Temporary fencing	Length (m)	1,430
Revegetation	Area (sqm)	88,710

Notes:

1. Temporary fencing will be installed to protect sections of comprehensive and demonstration revegetation.

#### Couch grass removal

Couch grass removal should be undertaken carefully targeting exotic species only and noting that native couch grass (*Sporobolus virginicus* (L.) Kunth) has been observed and should be retained when it is present.



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**Native Couch Grass (*Sporobolus virginicus* (L.) Kunth)**

Hand removal of exotic couch grass may not be possible as all rhizomes must be removed. Small infestations may be dug out, ensuring removal of all rhizomes and stolons. However, it is difficult to eradicate without herbicides.

Herbicides, such as 1% Glyphosate, where used should be applied in late spring/summer and autumn when rhizomes are actively growing. In sensitive areas try painting runners or crowns with 50% Glyphosate. Follow-up is nearly always required. Treatment is particularly effective after fire. Read the manufacturers' labels and material safety data sheets before using herbicides. Optimum treatment is from November to February (<https://florabase.dpaw.wa.gov.au/browse/profile/283>).

Removal of exotic couch grass is recommended to be undertaken in small sections to maintain overall bank integrity and should be followed by immediate regrading of steep banks where possible and replacement with native vegetation. Where banks cannot be regraded effectively, pinned geotextile should be used to stabilise during planting and establishment.

#### 4.1.2 Public amenity, access and use

The proposed public access and use works are detailed on Figure 2. This includes:

- Creation of a footpath down to the riverbank from both sides.
- Creation of an informal crossing (possibly via stepping stones) to provide access across the River during low flows.
- Planting of trees for increased canopy and amenity.
- Construction of shelters or picnic facilities on the foreshore.
- Formalisation of parking area using bollards or similar to control vehicle movements.
- Information will be displayed to acknowledge Noongar and European history of the River at Quindanning and communicating its cultural and historical significance, including the way the Noongar people and Europeans have valued this place throughout history.
- Signage will also be included to provide information on river restoration (at least 3).

### 4.1.3 Adjacent landowner management

PHCC works with landholders in offering advice about managing natural areas, and opportunities for access to funding when it is available.

This communication process can occur with owners of properties located next to the Quindanning site, with the aim of future on-ground projects such as revegetation, weed control, and protection of existing vegetation, particularly in relation to the River ecosystem.

Fencing is required to control stock access to both banks of the River. Where possible, this should be located outside of the riparian zone above the top-of-bank and at least 15m from the high water mark in accordance with PHCC minimum fencing requirements. Access points for controlled stock access can be included where bank grades and vegetation permit. This may be in the context of water access and crash grazing if and when required, both of which need to be at appropriate locations and durations.

#### Signage examples

Wayfinding



River restoration information



Natural and cultural stories



Historic information



#### Access treatment examples

Bollards or large boulders for vehicle access control



Boardwalk



Pedestrian access and wayfinding



## 5 NEXT STEPS

Delivery of the plan will be guided by available funding. At this stage, weed control and revegetation can be undertaken without any further investigation, however further detailed design cannot be undertaken without detailed site survey and is required for:

- Proposed pedestrian access including over the River during low flows.
- Picnic facilities.

- A formal arrangement with Main Roads in managing the weeds and other vegetation within the bridge easement.

Other considerations for the implementation of the works include:

- Prioritisation of environmental restoration aspects of the plan, with secured funding
- Further funding for restoration activities to be investigated and applied for with project partners.
- Aboriginal Heritage Approvals process through Department of Planning, Lands and Heritage.
- Approvals for modification of bed and banks through Department of Water and Environmental Regulation.
- Implementation of low impact activities such as revegetation, weed control and feral animal control.
- Formal partnership with representatives of the Noongar families connected to Quindanning.
- Formal partnership with Local Governments to seek funding for the parts of the plans involving public amenity.

The works can be undertaken collectively or individually, and during further detailed design, consideration should be given to the following:

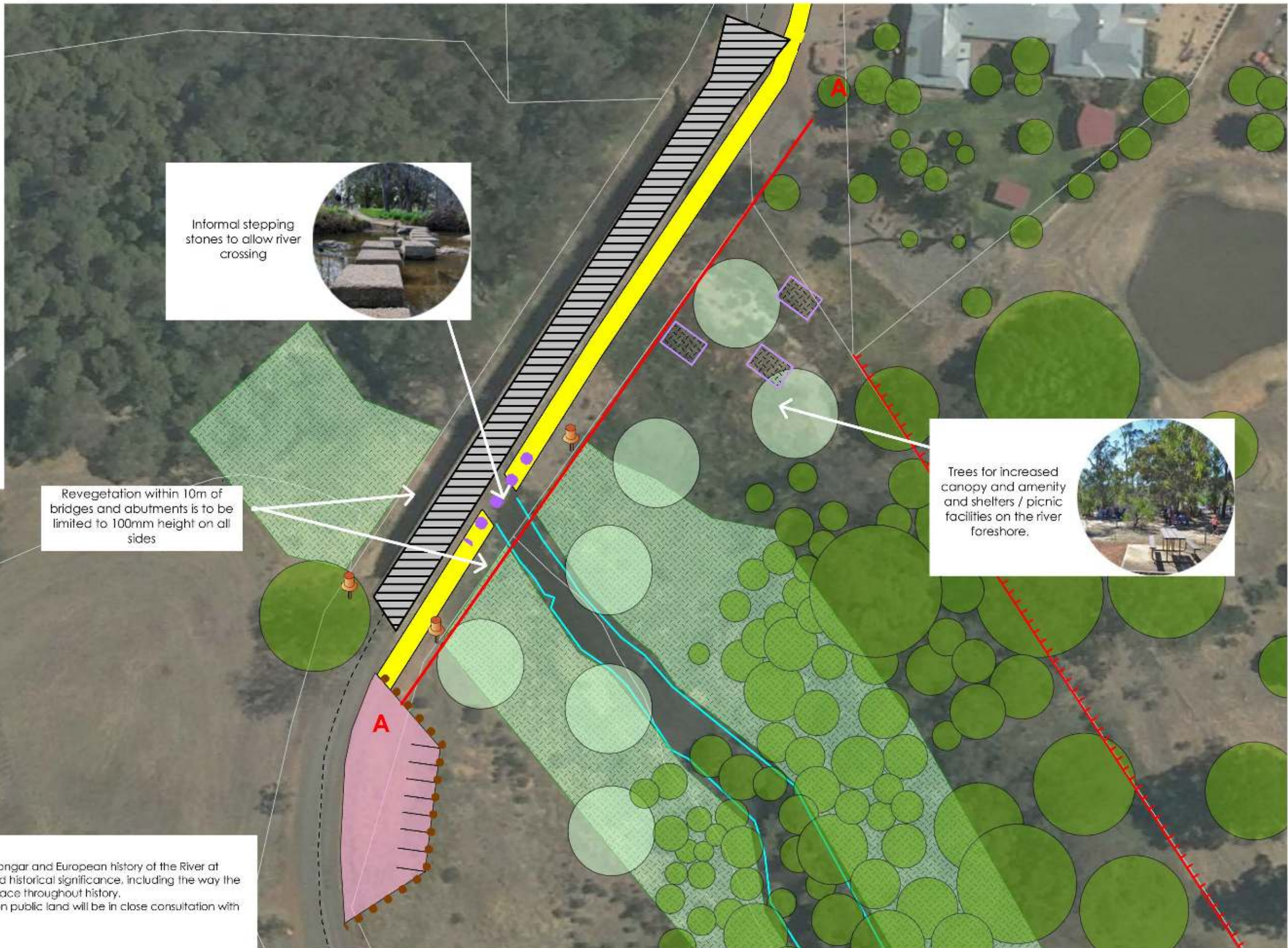
- Materials, quantities and installation of formal/informal access points for recreation.
- Historical connection to the site as a swimming hole.
- The need for stock crossings/access points where the River runs through private land.



# Peel-Harvey Catchment Council - Hotham-Williams River Action Plan

## Figure 2: Quindanning Site Concept - Detailed Restoration Plan

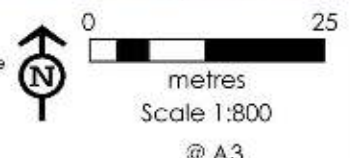
- Legend**
- Cadastral
  - Water level
  - Current Trees
- Amenity**
- Proposed parking
  - Proposed Trees
  - Proposed revegetation
  - Proposed shelter/picnic facility
  - River restoration information board
- Access**
- Proposed pedestrian access to riverbank
  - Investigate and install fencing as required to control stock access to River
  - Proposed informal stepping stone crossing
  - Proposed bollards or equivalent
  - Pinjarra-Williams Road
  - Pinjarra Williams Road Bridge
  - Cross section line (see cross section plan)



**Notes:**

- Information will be displayed to acknowledge Noongar and European history of the River at Quindanning site and communicating its cultural and historical significance, including the way the Noongar people and Europeans have valued this place throughout history.
- Project activities outside of the main focal areas on public land will be in close consultation with neighbouring landholders.

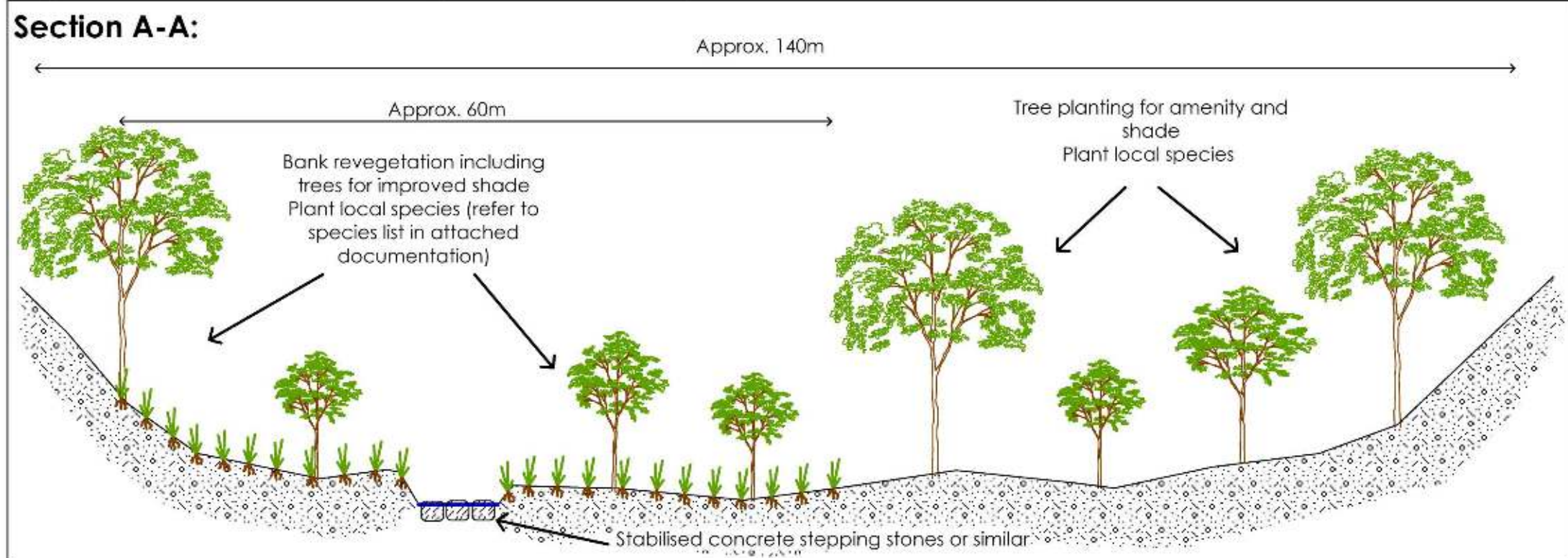
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## Figure 3: Quindanning site concept - Cross section plan



### Notes:

Minor modification of bank shape may be required for vehicle/equipment access and/or local stabilisation.

- Geo-fabric (slopes steeper than 1:3):

- o Install below summer water levels (under rock pitching).
- o Install around existing vegetation where required.
- o Laid in direction of flow at base of slopes (to 1m above summer w.l.).
- o Roll geofabric downslope over remainder of bank.
- o Bury at top of bank.
- o Pin as per manufacturer requirements.
- o Overlap geo-fabric maps by 100mm.
- o Include slits for planting.

- Woody debris (tree trunks, collapsed trees) may be used instead of rock pitching depending on local conditions, access or availability of material:

- o Pinned/anchored to (or buried into) the bank.
- o Aligned in a downstream direction.
- o Use only native species.

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Not to scale



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Peel-Harvey Catchment Council

Working Together

**Newmont**  
AUSTRALIA



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Report	Version	Prepared by	Reviewed by	Submitted to Client	
				Copies	Date
Draft	V1	SSh	HBr	electronic	1 October 2021
Final report	V2	SSh/HBr	HBr	electronic	8 April 2022
Updated final report	V3	SSh/HBr	HBr	electronic	27 May 2022
Updated final report	V4	SSh/HBr	HBr	electronic	28 June 2022

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