

Hotham-Williams River Action Plan

Williams 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 Williams.
4. South32 Worsley Alumina.

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

Figure 1: Williams 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

Bank stability

- Woody debris (where required)
- Area of sediment build-up
- Cross section locations (refer to cross section plan)

Access

- Existing pedestrian access track
- Formalised site access
- Proposed pedestrian access track
- Proposed footbridge
- Proposed bollards or equivalent to prevent vehicle access
- Informal stepping stone crossing

Amenity

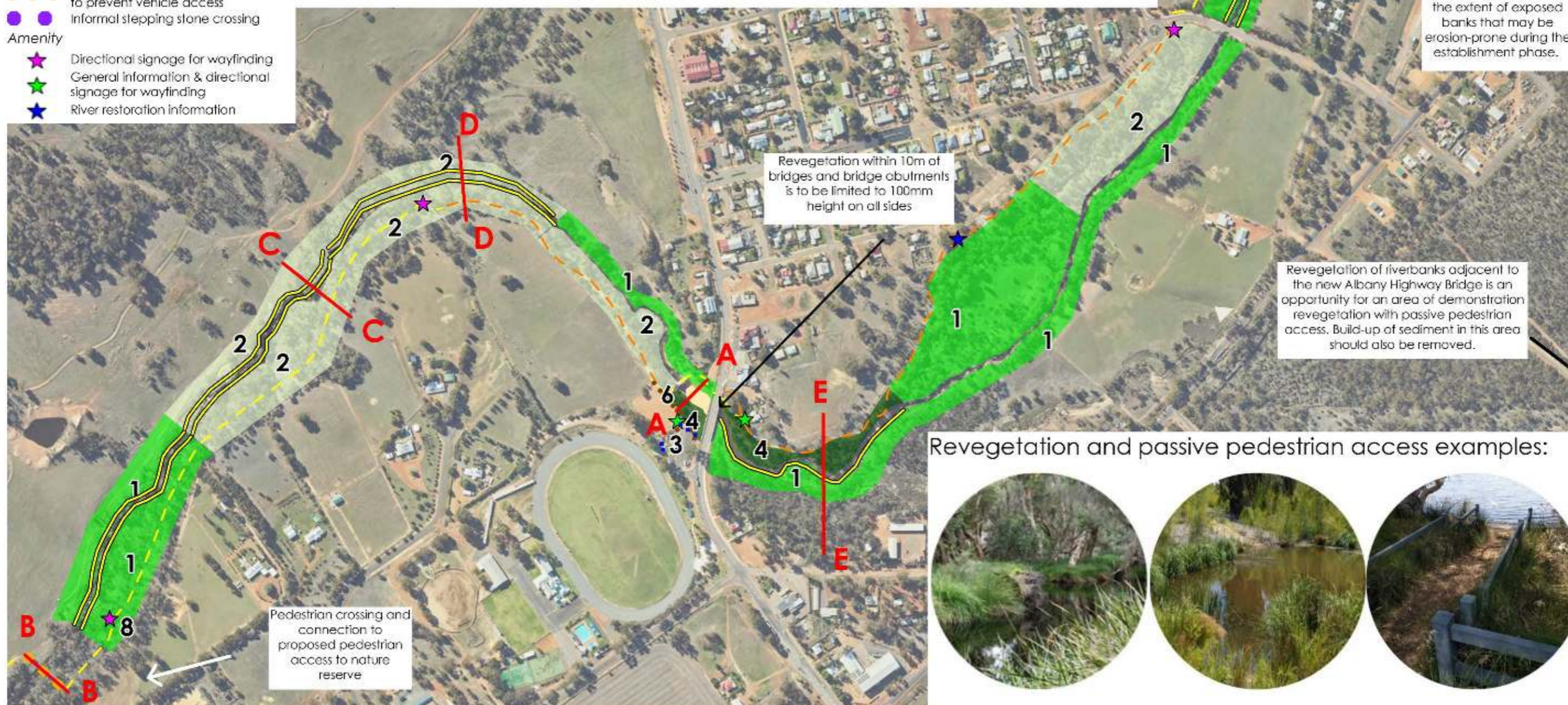
- Directional signage for wayfinding
- General information & directional signage for wayfinding
- River restoration information

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 where necessary.
3. Trees for increased canopy and amenity and shelters / picnic facilities on the river foreshore.
4. Revegetation – accessible demonstration area for revegetation with higher value species incorporating explanatory signage and trees to improve riparian shading.
5. Investigate and remove rubbish from river channel and banks – general clean-up as required.
6. Network of footpaths with wayfinding to encourage community use and connection with the River.
7. Install informal crossing point (eg: stepping stones).
8. Install pedestrian bridge to facilitate footpath connection to nature reserve.

Signage will include information to acknowledge Noongar and European history of the River at Williams 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:



Removal of larger invasive weeds, including areas of couch grass should be undertaken in small sections and revegetated immediately to minimise the extent of exposed banks that may be erosion-prone during the establishment phase.

Revegetation of riverbanks adjacent to the new Albany Highway Bridge is an opportunity for an area of demonstration revegetation with passive pedestrian access. Build-up of sediment in this area should also be removed.

Revegetation and passive pedestrian access examples:



1 SITE DESCRIPTION

The Williams River flows through the Williams townsite and has a meandering form with a series of pools. Vegetation along the river is typical of other reaches within the catchment with a near continuous tree cover, limited understorey and a high proportion of exotic ground cover. Sections of significant erosion and sedimentation have been observed, particularly around the Albany Highway bridge that has recently been upgraded.

The river is bounded by a variety of land uses including reserves, industrial, rural and residential (within the townsite). Owing to the proximity of the river to the townsite, significant litter and gross pollutants have been observed in the river.

2 CONSULTATION

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

- Meeting with Noongar Elder Jock Abraham, who provided a letter of support.
- Site visit with Shire of Williams.
- Formal presentation to Shire of Williams, with direct feedback.
- Information session for the local community, with direct feedback.
- Discussion with Main Roads WA, with direct feedback.

Key aspects of interest identified by the consultation include:

- Concern about erosion.
- Consideration of the cause of tree deaths and addressing this for the future of vegetation health (including revegetation).
- Query about the responsibility of Main Roads WA now that the bridge has been upgraded.
- The Shire of Williams Strategic Plan includes the development of a walking trail linking the town centre to McKenzie Nature Reserve along the river.
- The Shire of Williams expressed desire to facilitate access for people to sit close to the river in grassed areas.
- Timber pylons from the old bridge were retained during the upgrade and could be used for landscaping near the weir.
- Bridal creeper infestation has been observed in the River Reserve.
- Concern surrounding fire risk along the river near the townsite.
- Current surface of weir is not suitable for pedestrian access and would need to be altered if the proposed access goes ahead.

3 CONCEPT DESCRIPTION

The restoration concept (Figure 1, Figure 2, and Figure 3) is informed by the desktop assessment, site visits and stakeholder consultation.

The focus has been placed on improving the quality of riparian vegetation. This is achieved through spot-removal and replacement of exotic species. Some areas will benefit from comprehensive revegetation, including designated areas of demonstration vegetation which could include high value species, informative signs and trees to increase shading.

River health can be improved through the removal of accumulated sediment and the stabilisation of banks in areas that are exposed and prone to erosion. Bank stabilisation can be achieved through a variety of methods including geofabrics, rock pitching, large woody debris or revegetation.

To encourage community interaction with the river a network of footpaths with wayfinding has been proposed along the river with additional amenity achieved through passive pedestrian access points on the river foreshore. Informal river crossing points and a pedestrian bridge to the adjacent nature reserve will increase connectivity to the townscape and surrounding areas.

Improvements to local drainage outlets and clean-up of rubbish are also proposed.

4 PROPOSED WORKS

The proposed works 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 (see Figure 1).
- Bank stabilisation works (See Figure 3 for examples). Where banks are modified but unable to achieve a 1:3 grade, some form of matting or other stabilisation is likely to be required. This may also be required where the sediment is sandy or otherwise unstable. In general:
 - Banks steeper than 1:3 should be gently regraded where possible without damage to existing vegetation.
 - Banks up to approx. 1m high and steeper than 1:3 that cannot be regraded should be covered with pinned geofabric prior to revegetation with native riparian species.
 - Banks greater than 1m high and steeper than 1:3 that cannot be regraded should be stabilised at the toe with rock revetment or secured woody debris, covered with pinned geofabric above and vegetated with native riparian species.
- Revegetation of riparian corridor to minimum of 30m from each bank where possible. Consider species in Table 1.
- In general, where sediment build-up is observed to be stable, it can be further stabilised with geofabric if required and revegetated in situ. If the Shire of Williams proceeds with sediment removal behind the weir structure, PHCC will work in partnership with them to ensure appropriate approvals and other considerations.
- Cleanup of litter and gross pollutants within the river channel and banks.

Estimated quantities for river restoration works:

Item	Unit	Amount
Temporary fencing	Length (m)	4,460
Geofabric	Area (sqm)	1,970
Revegetation	Area (sqm)	194,580

Notes:

1. Temporary fencing will be installed to protect sections of comprehensive and demonstration revegetation.
2. Geofabrics will be installed to banks identified for bank stability measures (as per Figure 1).

4.1.2 Public amenity, access and use

The proposed public amenity upgrades are shown in Figure 2 and include.

- Extension of parking area on the western side of Albany Highway with vegetated areas.
- Bollards or equivalent to control vehicular access.
- Passive pedestrian access.
- Access paths for pedestrians to connect parking areas to river walking trails.
- Signage to acknowledge Noongar and European history of the River at Williams and communicating its cultural and historical significance, including the way the Noongar people and Europeans have valued this place throughout history.
- Signage will also include primary information boards with information about the restoration works and walking trails.
- Pedestrian bridge and informal crossing points to link the river trails to adjacent nature reserve.
- Investigation of the weir surface and alterations required to make it safe for foot traffic.

Signage examples

Wayfinding



River restoration information



Natural and cultural stories



Historic information



Access treatment examples

Bollards for vehicle access control



Footbridge



Stepping stones



Pedestrian access and wayfinding



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 Williams 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.

The surrounding land consists of multiple land uses including rural residential and residential. The revegetation process should include consideration of vegetation type and density to reduce fire risk to surrounding residential lots.

Where adjacent land is planned for development, PHCC can work with developers to ensure implementation of water sensitive urban design (including water quality protection) and appropriate sediment controls during construction to prevent damage to the adjacent channel.

5 NEXT STEPS

The delivery of the site upgrades is dependent on available funding. At this stage revegetation can be undertaken without any further investigation, however further detailed design cannot be undertaken without detailed site survey and is required for:

- Improvements to pedestrian path network.
- Pedestrian crossings and modification of the weir.
- Bank and bed stabilisation techniques.

Other considerations for the implementation of the works include:

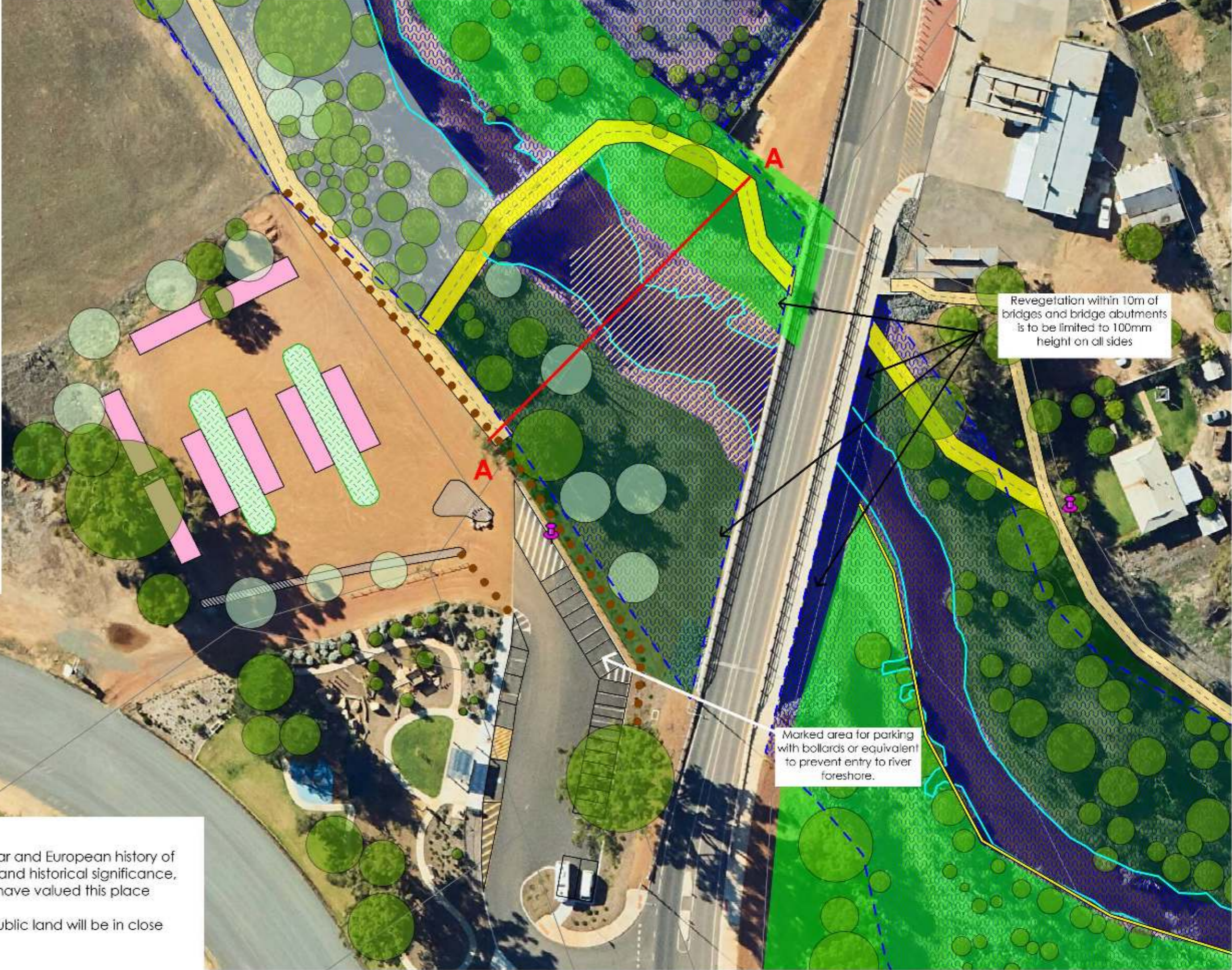
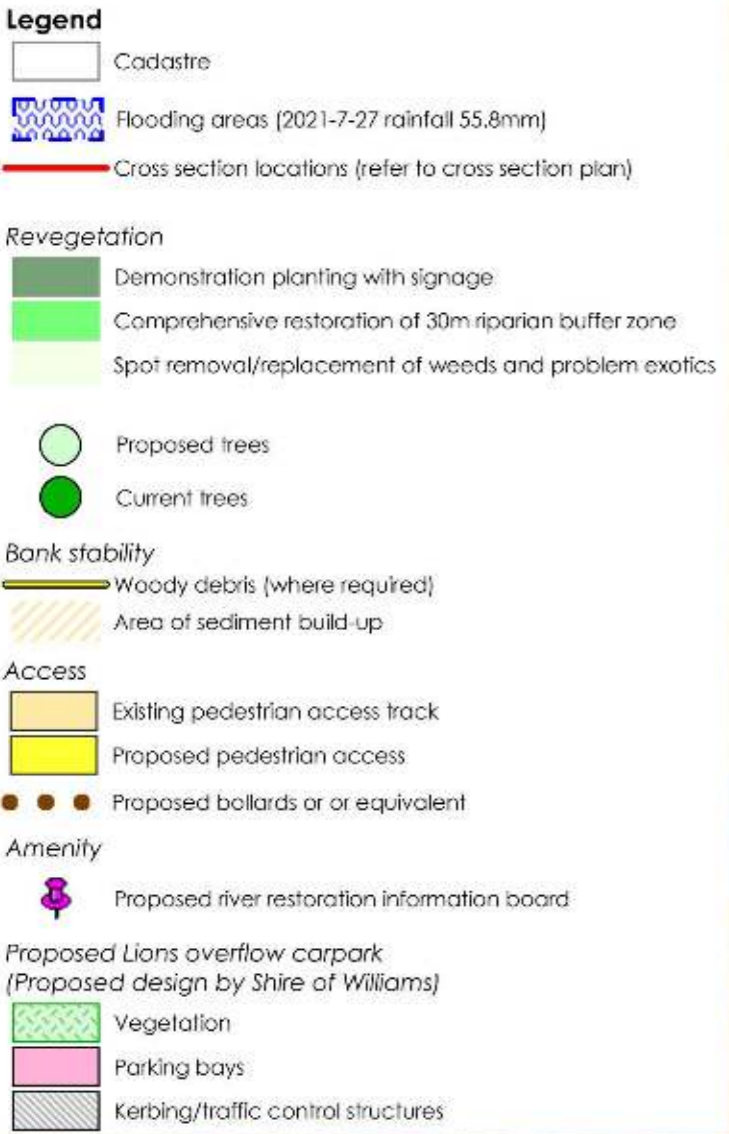
- Prioritisation of environmental restoration aspects of the plan, with secured funding.
- Further funding for restoration activities to be investigated and applied for with project partners.
- Aboriginal Heritage Approvals process through Department of Planning, Lands and Heritage.
- Approvals for modification 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 Local Governments to seek funding for the parts of the plans involving public amenity.

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

- Materials, quantities and installation of bank stabilisation structures and formal/informal access points for recreation.
- Type of bollards to restrict vehicular access (wooden bollards, boulders, etc.).
- Style and layout of shelter structures, picnic facilities and signage.

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

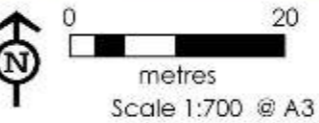
Figure 2: Williams Site Concept - Detailed Restoration Plan



Notes:

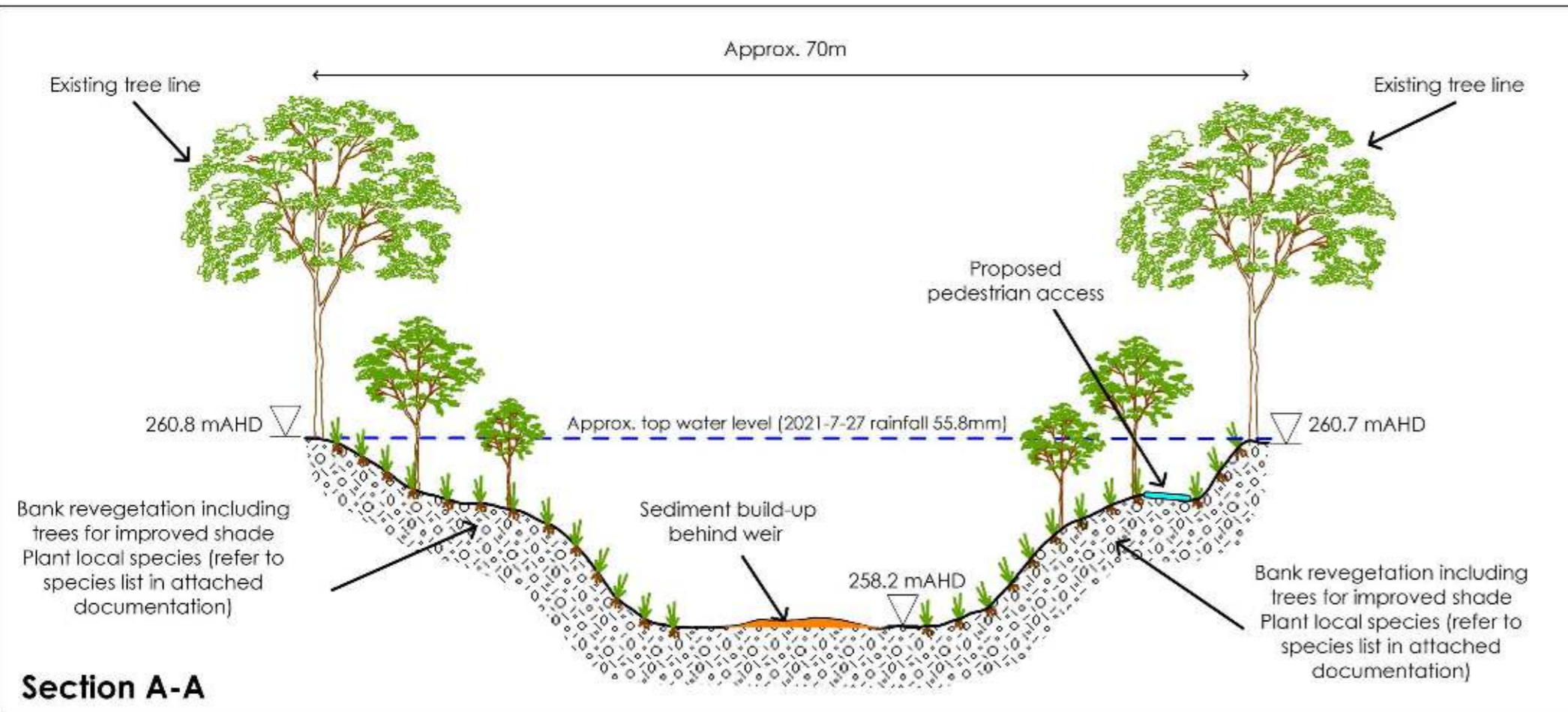
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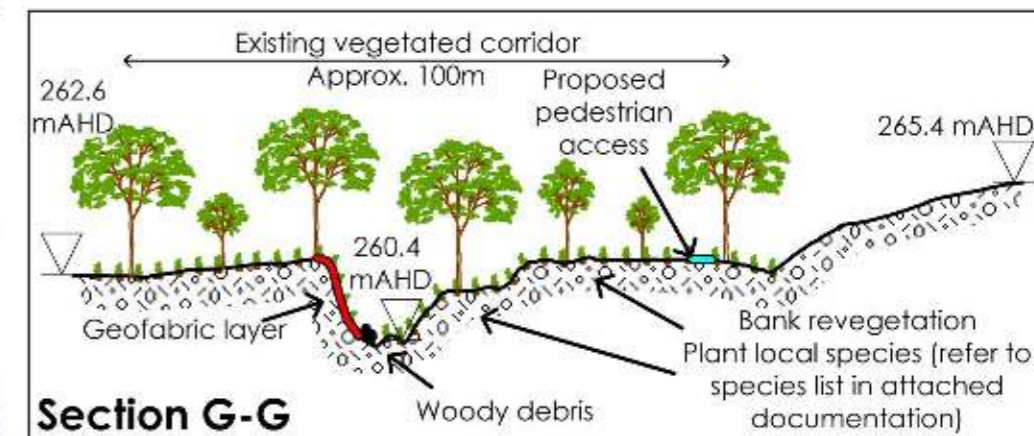
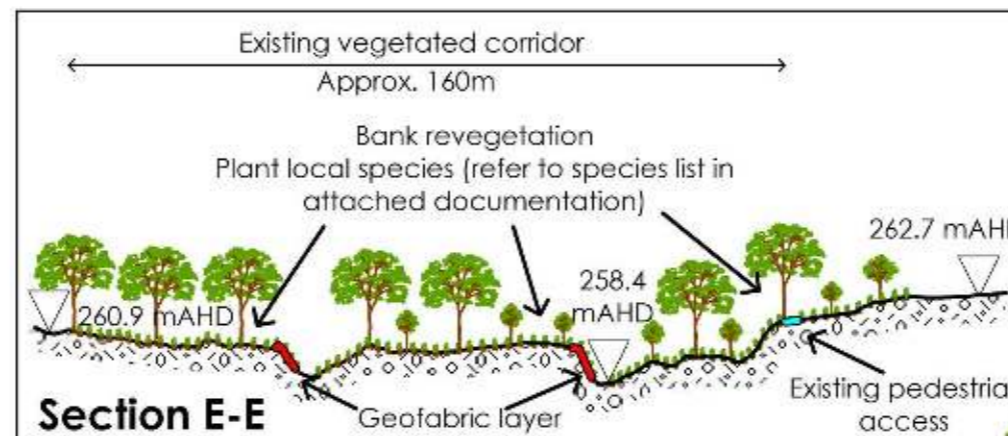
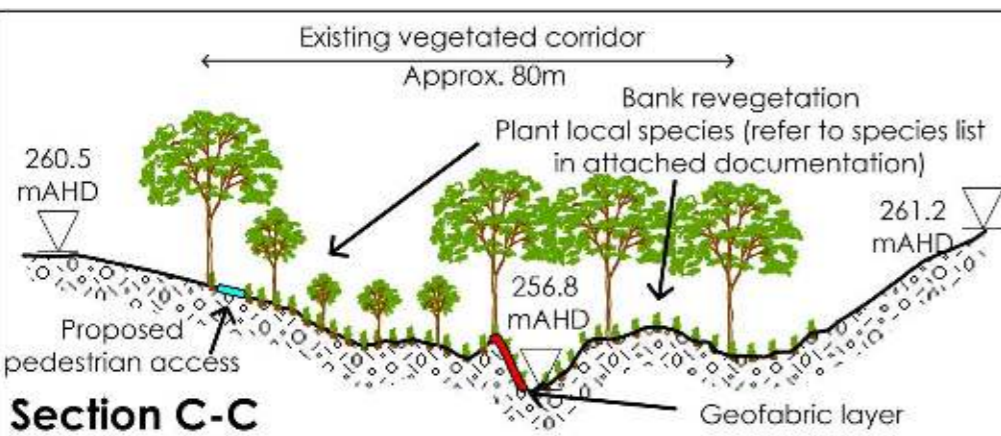
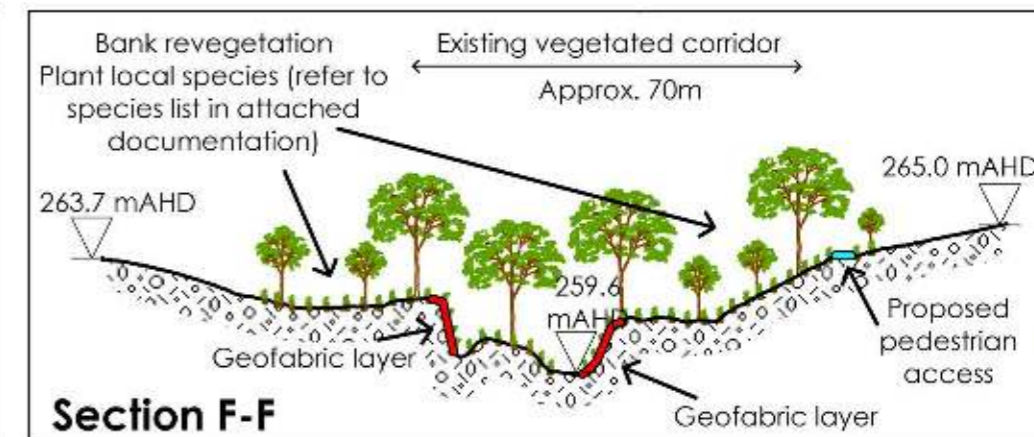
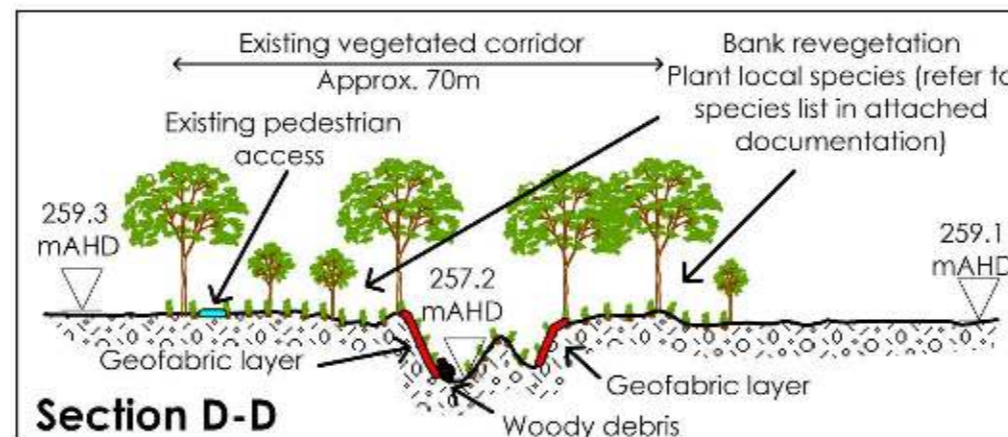
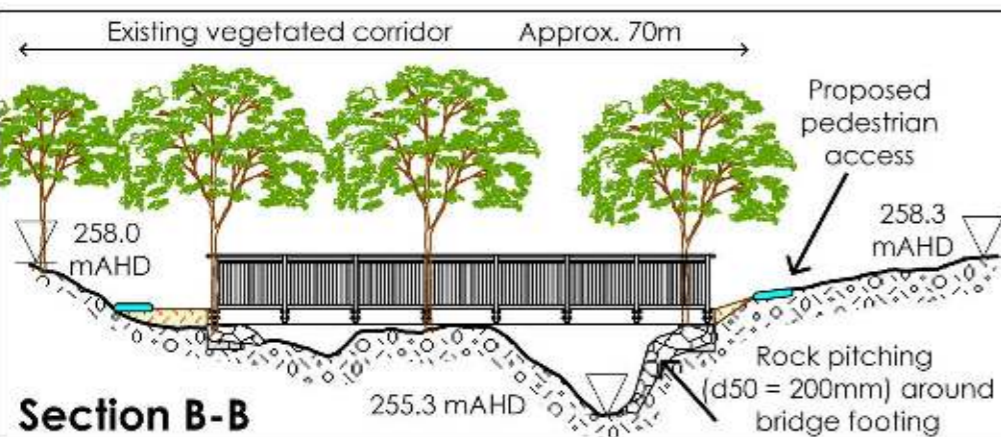
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Figure 3: Williams Site Concept - Cross Section Plan



Notes:

- Minor modification of bank shape may be required for vehicle/equipment access and/or local stabilization.
- 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.
- Rock pitching (around structures and on slopes steeper than 1:3 and higher than 1m):
 - o d50 size of 200mm.
 - o Hard, durable rocks that are not susceptible to weathering.
 - o Larger rocks to be installed at the base of the slopes.
 - o Smaller rocks to be used to fill gaps and form tightly packed layer.
 - o Two layers of rocks.
 - o Rock pitching grade >1:2.
 - o Rock pitching to be installed to at least 1m above summer w.l.
 - o Toe trench, up to 400mm (back filled with rocks).
- 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
Levels shown are approximate
based on LiDAR elevations



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Report	Version	Prepared by	Reviewed by	Submitted to Client	
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Revised final report	V5	SSh/HBr	HBr	electronic	28 June 2022

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