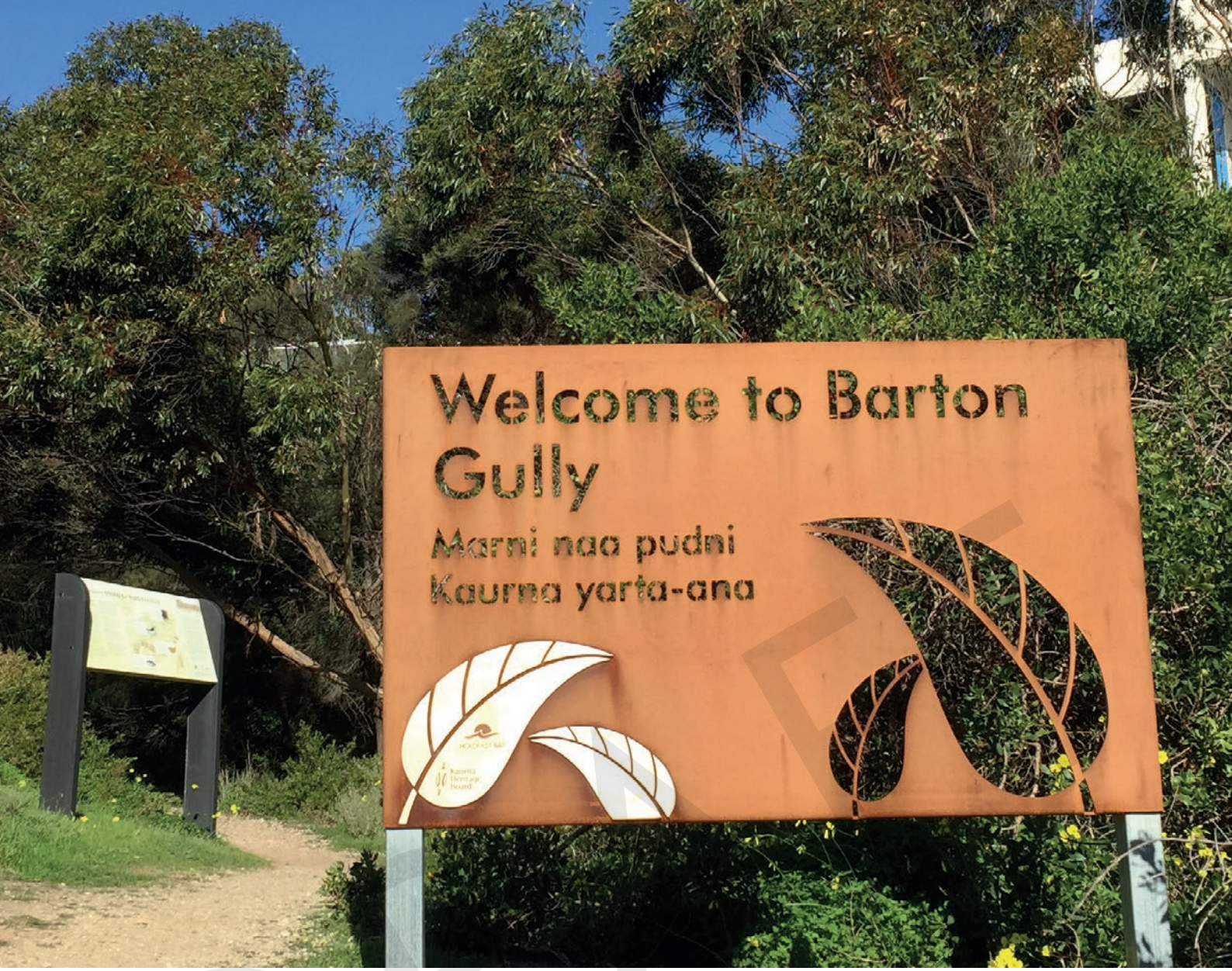

BARTON GULLY MASTERPLAN DRAFT

FEBRUARY 2021

CITY OF HOLDFAST BAY

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Acknowledgement of Country

The City of Holdfast Bay acknowledges the Kaurna People as the traditional owners and custodians of the land. We respect the spiritual relationship with Country that has developed over thousands of years, and the cultural heritage and beliefs that remain important to the Kaurna People today.

CONTENTS

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SUMMARY

Barton Gully is one of four designated natural areas in our city. It is a natural space for the community to enjoy and provides habitat for local wildlife.

Barton Gully is located in Kingston Park between Barton Avenue, Forrest Avenue and Burnham Road (see Figure 1). A small portion of the southern edge of Barton Gully is within the City of Marion. The gully has an area of approximately 1.3 hectares. Managing the gully to ensure sustainable use into the future is a priority for the City of Holdfast Bay. This masterplan has been developed to provide objectives and strategies to manage Barton Gully for the community.

The masterplan for Barton Gully has involved an assessment of opportunities and constraints, together with reviews of the environment, landscape and infrastructure. The recommendations that have been developed from the masterplan process will protect and enhance the local biodiversity, improve access and safety for the community, and improve the amenity and beauty of Barton Gully.

Barton Gully is a natural space that follows an ancient watercourse, providing linkages between the coastal reserve and the beach. The area was significant to the Kaurna People, who would camp in the region particularly during summer months. After European settlement, the gully has had some native vegetation cleared, but there are still areas with native species, such as the rare groundcover, native soursob, and one area with a small but important patch of remnant vegetation. Efforts by the local community and Council have helped to revegetate the gully, but there is still the opportunity to improve the local biodiversity by removing weeds and planting appropriate local native species.

The gully has some informal and formal trails throughout. This includes a set of stairs in the steeper portion of the gully leading to Burnham Road and the coast, enabling access from Barton Terrace to the coast. There is the opportunity to continue to improve some of these trails, linking them to the existing path network and improve access points to the area for the community. This will assist with reducing erosion, improving revegetation efforts and enhance the visitor experience.

Stormwater harvesting and reuse opportunities have been considered for Barton Gully, however the implementation of any reuse scheme is unlikely to be viable. The recommendations from the masterplan focus on reducing erosion and improving water quality, through appropriate revegetation, bank stability and trail improvements, and some stormwater infrastructure upgrades.

Barton Gully is already a natural space that is enjoyed by the local community. Implementing the masterplan recommendations will increase the appeal of the area and contribute to enhancing the enjoyment that residents and others gain from the gully. This masterplan provides the direction to ensure the sustainable use of Barton Gully for future generations.

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ABOUT THE MASTERPLAN

PURPOSE

This document is a high-level plan that sets the objectives and strategies to manage Barton Gully for the community of the City of Holdfast Bay.

VISION

Our vision for Barton Gully is to:

- Protect and enhance local biodiversity
- Provide a natural space for the community to enjoy
- Improve amenity and enhance beauty
- Connect people with nature in different settings
- Encourage appropriate use of the natural space
- Manage stormwater sustainably

MASTERPLAN PROCESS

The masterplan for Barton Gully has involved the assessment of the opportunities and constraints of the area, as well as reviews of the existing environment, landscape, and infrastructure. Recommendations for stormwater management, landscape and vegetation have been developed and are outlined in this document.

INTEGRATION WITH OTHER STRATEGIES AND PLANS

This masterplan has been considered in conjunction with a number of Council's existing strategies and plans, including:

- Environment Strategy 2020
- Open Space and Public Realm Strategy 2018 - 2030
- Masterplans for Pine Gully and Gilbertson Gully.

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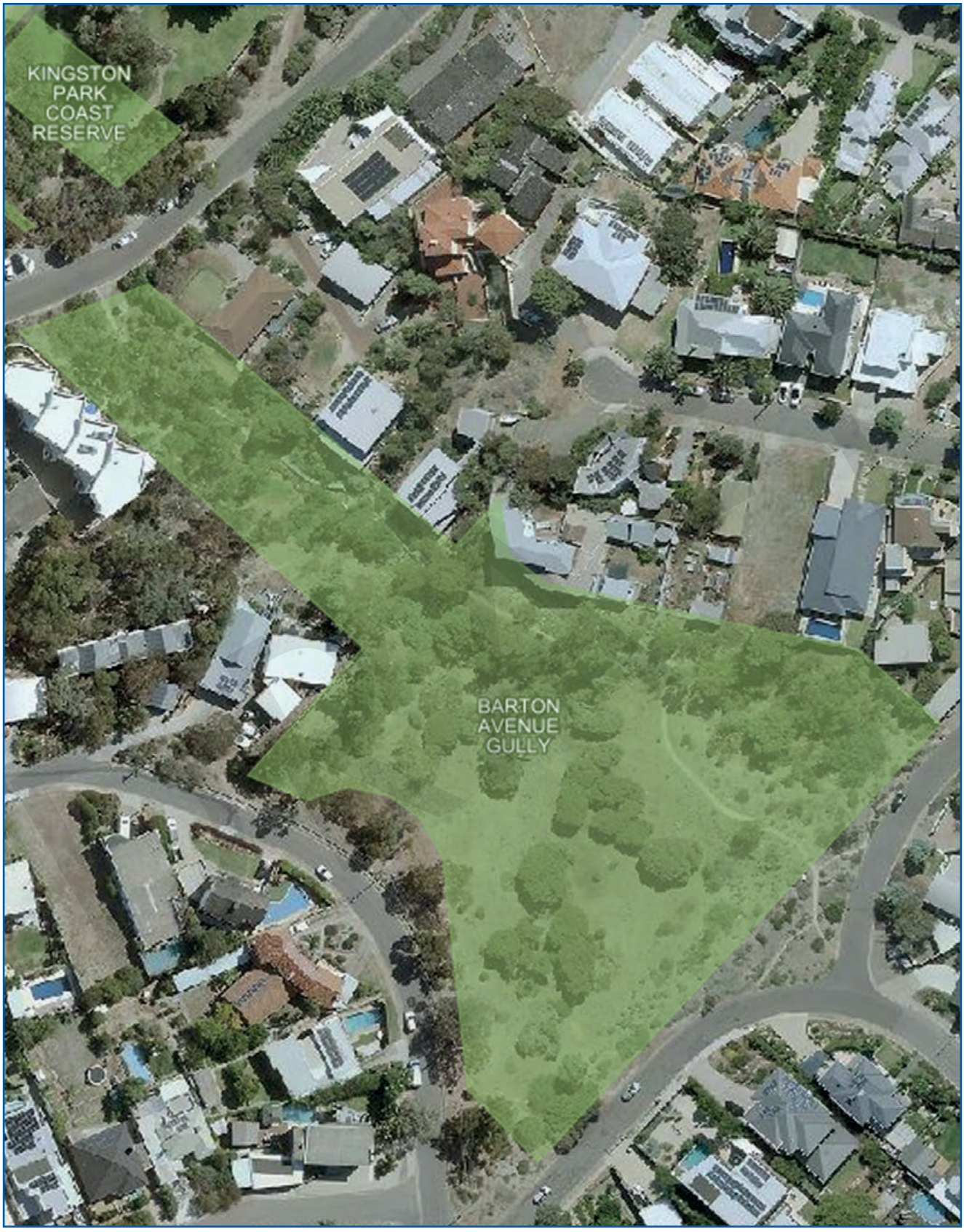

Figure 1. Location of Barton Gully.

ABOUT BARTON GULLY

Barton Gully is located on Barton Avenue in Kingston Park and is one of the four designated natural areas in our city. Barton Gully is a significant natural open space that follows an ancient seasonal watercourse through a residential area.

The gully is currently used for low key, unstructured passive recreation (such as walking) and provides an important connection between the urban area and the coast.

Barton Gully is owned by the City of Holdfast Bay.

HISTORY

Prior to European settlement, Barton Gully was a place where the Kaurna People of the Adelaide Plains would frequent and camp during the summer months. The gully would have supported local native wildlife and vegetation that would have provided important food and shelter resources. After Europeans settled in South Australia, clearing of some of the native vegetation occurred. Following a natural watercourse, the gully has been prone to erosion during rainfall, particularly with the removal of native vegetation.

ACTIVITIES UNDERTAKEN

Informal tracks have steadily been replaced by Council with more formal trails and steps in steep areas to encourage appropriate use and reduce erosion. An example of this is the composite fibre and recycled plastic staircase and boardwalk installed by Council in 2012. The boardwalk and staircase have an expected life of over 40 years and will require little maintenance. In addition, two log benches have been installed in the eastern and southern areas of the gully.

The local community has undertaken a significant amount of environmental restoration works in the gully and several beds of indigenous plants have been established.

Additional revegetation is planned by Council for the gully consistent with this masterplan's recommendations.

Council has undertaken an on-site consultation with the Kaurna Nation and received advice about the proposed works.

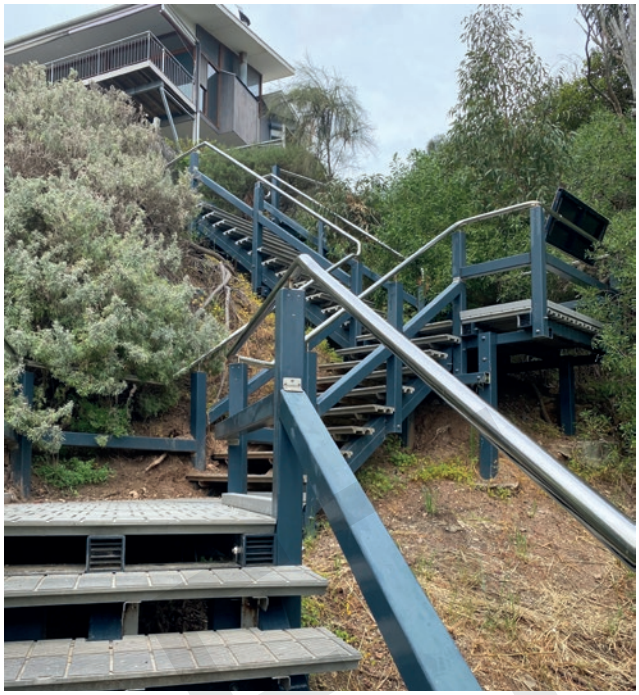

Figure 2. Composite fibre and recycled plastic staircase.

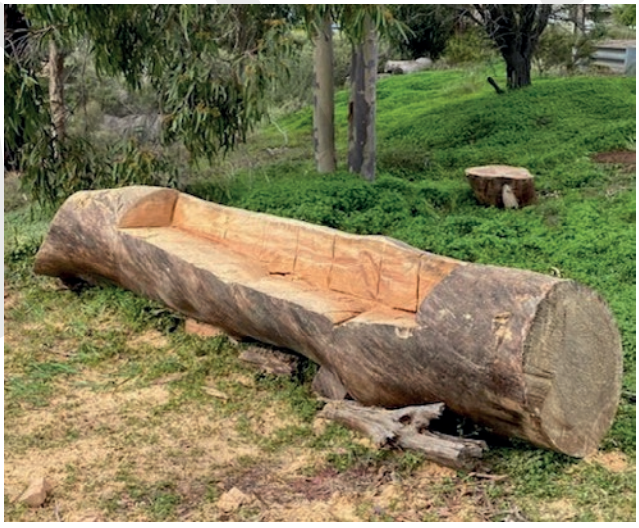

Figure 3. Log bench.

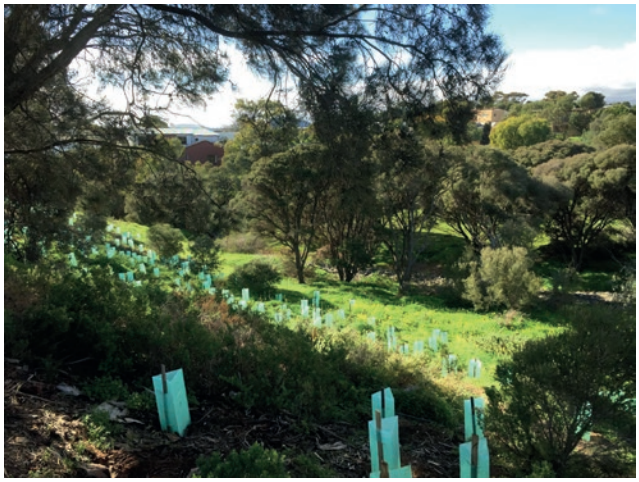

Figure 4. Barton Gully revegetation.

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OPPORTUNITIES AND CONSTRAINTS

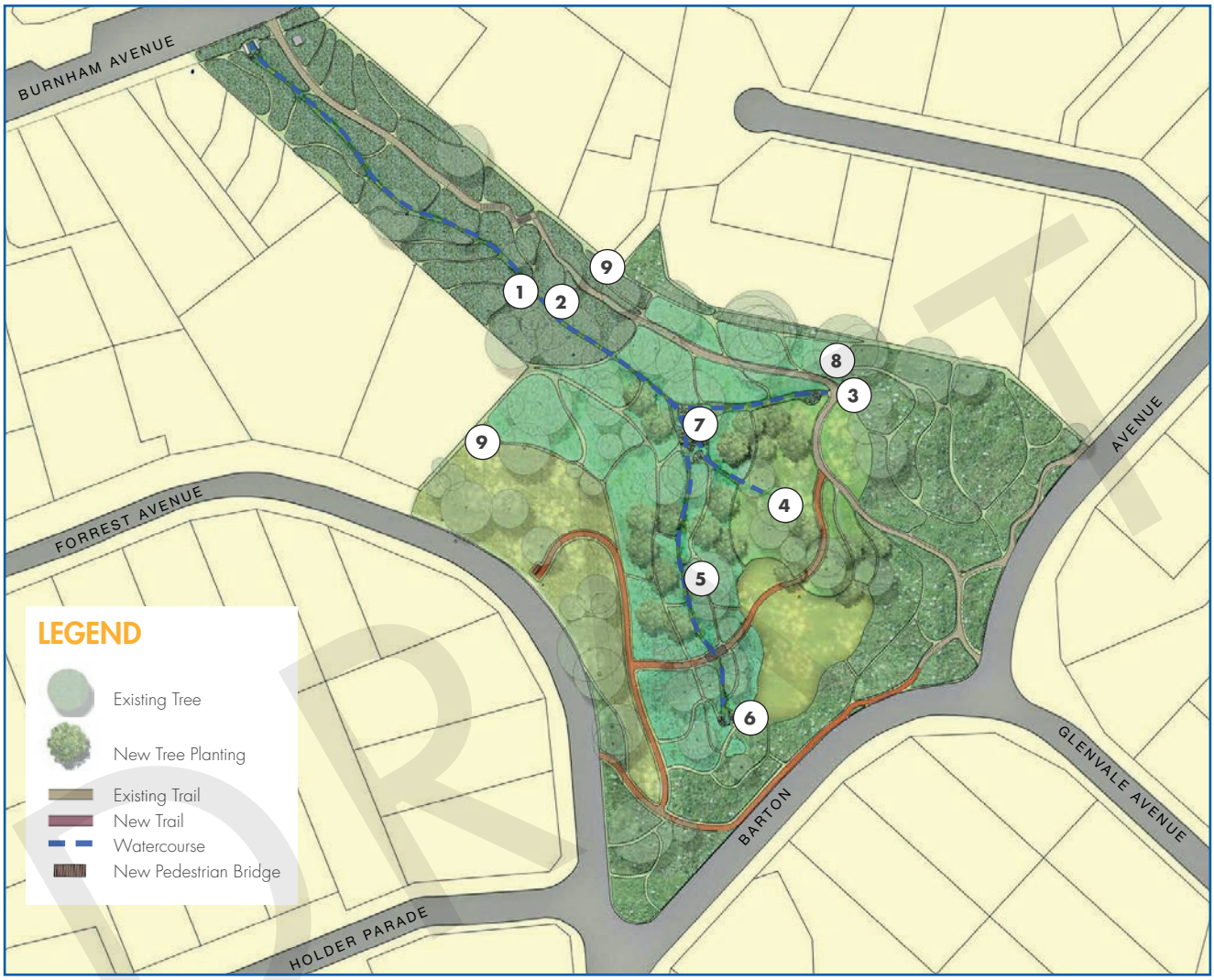

Figure 5. Opportunities and constraints.

KEY

1. Small erosion head progressing upstream of larger bed drop near the stairs. Area covered in kikuyu and difficult to see. Minor erosion protection works required.
2. Stormwater outlet from the road. Poor scour protection with some undercutting. Stabilise outlet with rock armouring to tie in with remediation of erosion head.
3. Small flow path from pipe outlet. Crosses walking track with a small pipe. Upgrade the culvert beneath the track to reduce flow frequency across the track.
4. Small gully but no identified inflow point. Substantial rock armour with minimal vegetation. Rock armouring unnecessary and could be removed and used locally within the reserve.
5. Rock armoured channel. Excessive rock extent with most flows likely to be along the soil/rock interface. Barren sight line up gully with minimal revegetation within channel or adjacent banks. Rock weirs present but poorly formed and would be outflanked if flows high enough to flow across rock surface. Recommend to reprofile the rock armoured section to retain more stormwater and improve vegetation cover.
6. Sediment removal around stormwater outlet. Increase grade directly at outlet to avoid ongoing accumulation that may block pipe opening.
7. Gully water retention.
8. Existing gully trail link to foreshore. Limited access with current trail width and steep embankments.
9. Unstable steep grades. Increase stabilisation through revegetation.

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The various opportunities and constraints presented by the site have been evaluated in terms of stormwater management, landscape and vegetation. A summary of the evaluation is provided below, with the locations of the opportunities and constraints shown in the attached plan (refer to Figure 5). It is also important given the cultural significance of the site that any planned works carried out in the area be planned in consultation with Kaurna. A review of Barton Gully was undertaken with Kaurna Representatives in September 2019.

STORMWATER MANAGEMENT

Barton Gully is quite steep in places and therefore when it rains, water flows quickly through the gully, causing erosion and carrying sediment out of the gully.

Figure 6. Erosion caused by stormwater flows.

Significant rock lining of watercourses has been completed and whilst preventing erosion, it is considered excessive leading to reduced revegetation of the watercourses (refer Figure 6). This rock lining can be improved to reduce the visual extent of the rock work and allow planting in between rocks to improve water quality, assist in slowing the water and reduce the heat load created by the rocks. In addition, the rock weirs can be improved to create local ephemeral ponds (temporary ponds that slow the water down) for vegetation and to capture silt.

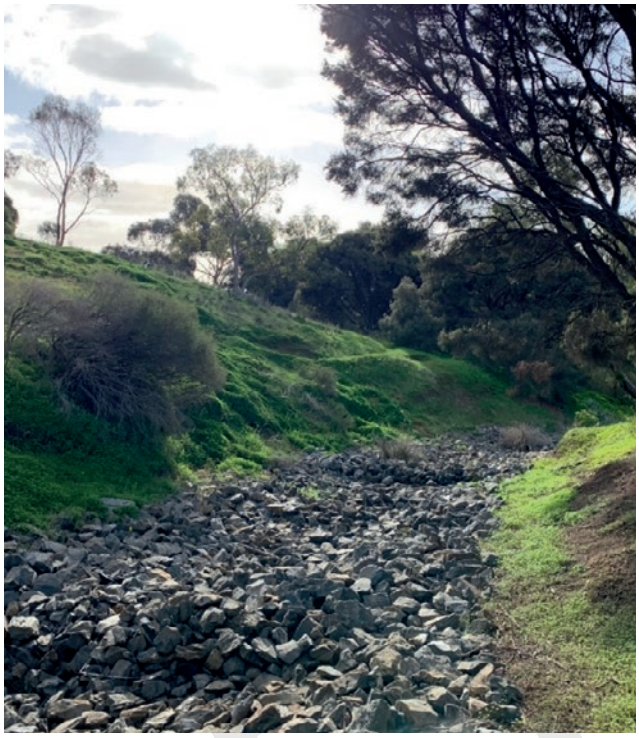

Figure 7. Excessive watercourse rock lining.

There is the opportunity to improve the management of stormwater within the steeper section of the gully by implementing measures that slow the speed of water flow, reduce erosion and improve the quality of the water before it leaves the gully. These measures include stopping the scouring that is active, revegetation of eroded sections of the watercourse with native species and reshaping of the bed and banks to provide increased bank stability.

Refer to Appendix A for further information on the identified stormwater improvements.

The viability of harvesting stormwater from Barton Gully for reuse (such as irrigation) was evaluated, refer to Appendix B for details. The evaluation determined that the opportunity for stormwater harvesting and reuse is limited due to factors such as the steepness of the gully and lack of suitable areas for stormwater capture and storage.

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LANDSCAPE

The steep nature of the lower gully restricts access in some areas and erosion along the watercourse has also occurred. Plants suitable for the sloping site will help to maintain the integrity of the soil and mitigate further erosion. Maintaining ground cover while revegetating will also be important, to ensure that additional erosion does not occur before new plantings are established.

There is the opportunity to further formalise existing sections of the trail network within the gully, including a bridge over the creek. Council has already installed access steps and a boardwalk in the steepest section of the gully.

Paths are proposed to be low key unsealed trails constructed from materials such as cement treated sands or cement treated rubble. The paths would be typically 1.0 to 1.5 m wide. Where possible the paths will be designed so that they are accessible for all ambulant users.

The existing educational signage could be continued throughout the site to coincide with the restoration and revegetation works.

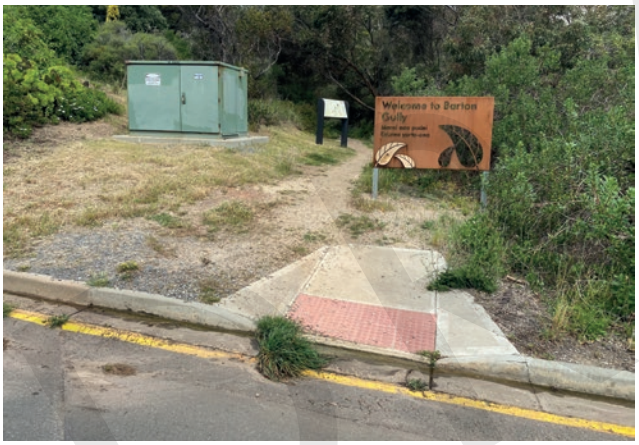

Figure 8. Existing signage at Burnham Road entry.

Additional interpretative signage could include information about:

- Weed control
- Native grasses
- Water management and treatment
- The role of volunteers providing the contact number to call to get involved.

The gully has been assessed for recreational use by BMX and mountain bikes and found that it is not an appropriate location for either of these uses. It is also not suitable as a thoroughfare for bicycles due to the boardwalk and steps to the coast.

VEGETATION

The site has one patch of remnant native vegetation and areas where native plants have been re-established. The sloping site does present challenges for revegetation because of restricted access in some areas. Some of the replantings used species that are not local or suitable to the gully environment and these should be gradually replaced with appropriate species. This is especially the case with some of the larger trees that line the narrow path to the coast.

Figure 9. Steeply sloped section of the gully.

A significant patch of native soursob (*Oxalis perennans*) was previously identified as present in the south-western corner of the site, near an existing stormwater discharge point. The native soursob requires an environment that provides periods of wetting and drying (such as is currently provided by the stormwater discharge point). There are also other areas within the gully that would be suitable for establishing additional native soursob beds.

Control of weeds and establishment of new (appropriate) vegetation can be challenging due to the steep site and restricted access in some areas. A biodiversity management plan, including weed control and management recommendations, will be prepared and implemented, to protect the revegetated areas and reduce re-infestation by unwanted plants.

The opportunity to improve the existing biodiversity within the gully by continuing to revegetate areas and remove unwanted plant species will also increase the bank stability. In addition, this will enhance the natural beauty of the area and encourage native animal species. Revegetation activities are planned progressively in the future.

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VEGETATION ZONES

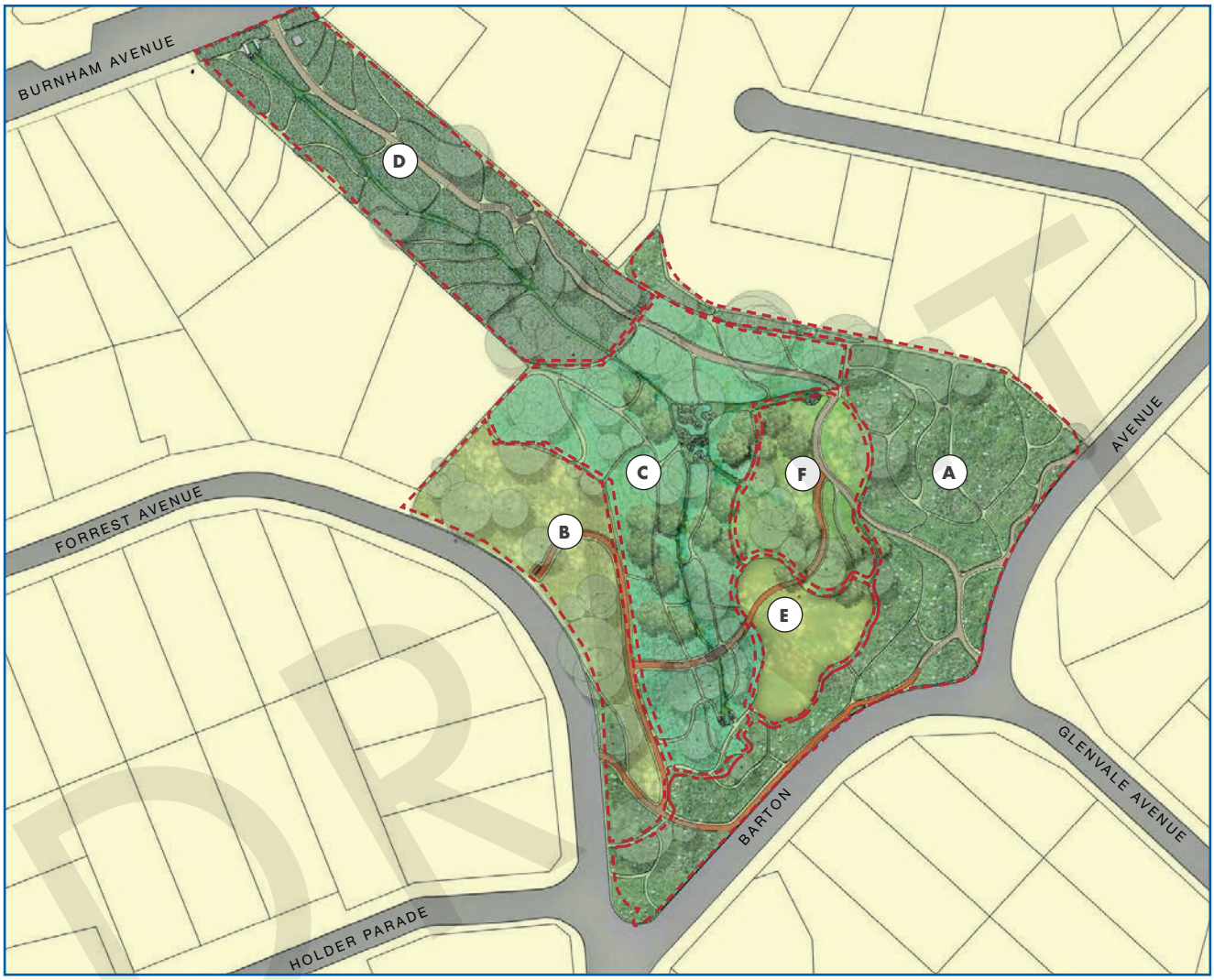

Figure 10. Vegetation zones.

KEY

ZONE A - REVEGETATION

- Weeding/slashing before each growing season
- Planting of open areas at density of 2 plants/m^2

ZONE B - DRYLAND SLOPE

- Maintain openness
- Removal of non-native species
- Planting of native grasses, sedges and herbs i.e. *Dianella revoluta, Austrostipa spp.*

ZONE C - GULLY DRAINAGE LINE

- Planting of tree species *Melaleuca lanceolata*
- Removal of non-native Melaleuca species
- New planting of *Cyperus sp, Austrostipa sp, Juncus sp* and *Lomandra sp.*

ZONE D - LOWER WATERCOURSE

- Removal of weed species
- Selected planting of coastal species
- Groundcover planting of *Myoporum parvifolium* to suppress weeds
- Replace non-native trees with appropriate native tree species

ZONE E - OPEN SPACE AREA

- Maintain open grassland
- Planting of more grassland species eg. *Lomandra sp.,Themeda sp., Austrostipa sp.*
- Encourage grassland species by periodic brush cutting
- Remove large shrubs to maintain grassland habitat

ZONE F - OPEN GRASSLAND AREA

- Maintain open grassland
- Encourage grassland species regeneration by periodic brush cutting
- Remove large shrubs to maintain grassland habitat

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Barton Gully has been divided into six distinct vegetation zones, based on the existing vegetation and landscape features. These vegetation zones will be used to assist with revegetation and weed control. The following vegetation zones are shown in Figure 10:

- Zone A: Revegetation area
- Zone B: North facing slope on southern side of gully
- Zone C: gully drainage
- Zone D: Lower watercourse
- Zone E: Open area with some remnant vegetation
- Zone F: Open area with some remnant vegetation

The gully has been planted with a range of non-local species, some of which have become weeds and others are nearing the end of their useful lives. A description of each zone and proposed management actions for each of the zones are provided in Appendix C. The list of plant species to be removed or controlled is provided in Appendix D and plants to be used for revegetation are provided in Appendix E.

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MASTERPLAN RECOMMENDATIONS

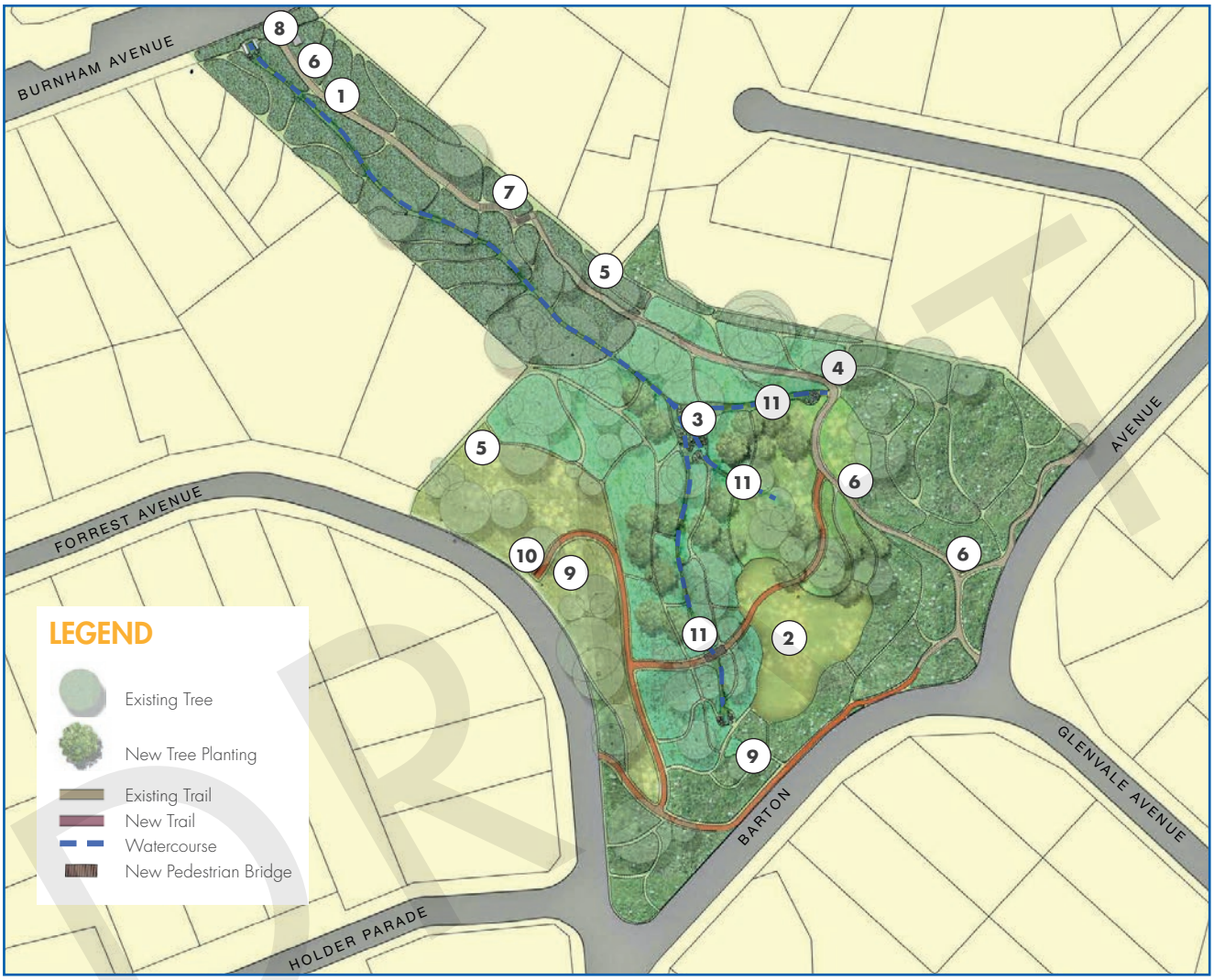

Figure 11. Barton Gully masterplan recommendations.

KEY

1. Existing trail linking foreshore with gully.
2. Open grassed area.
3. Potential water retention opportunity and Oxalis perennans propagation site.
4. Existing trail widened and benched into embankment to improve access.
5. Steep grades revegetated and stabilised.
6. Existing signage.
7. Stabilise embankments.
8. Existing trail link.
9. Limit tree planting to maintain residents views.
10. Install new log seat at viewpoint at end of new path.
11. Revegetation to slow water and mitigate erosion within channel.

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The masterplan for Barton Gully has been based on findings from assessments of the opportunities and constraints, existing environment, landscape, and infrastructure.

The recommendations outlined in this section provide direction to enhance the existing biodiversity and improve access for the community to enjoy the natural environment provided by Barton Gully. Figure 11 shows the location for each of the recommendations.

STORMWATER MANAGEMENT

Stormwater management within the gully will focus on stabilising embankments, reducing erosion, and improving water quality. Landscaping elements and vegetation will be used to assist with achieving these goals, in addition to the repair/remediation and installation of new stormwater infrastructure.

LANDSCAPE

Existing trails will be improved, and new trails will be installed to reduce erosion and improve establishment of revegetated areas. Additional interpretive signage will be installed to highlight the key features of the area such as the vegetation, water management and local volunteer groups.

VEGETATION

A biodiversity management plan will be developed and implemented, including removal and treatment of priority weeds. Revegetation will continue in the identified vegetation zones with appropriate plant species as described in Appendix E.

CONCLUSION

Barton Gully is a natural space that is enjoyed by the local community. Implementing the masterplan recommendations will improve both the biodiversity and appeal of the area and contribute to enhancing the enjoyment that residents and others gain from using the gully. The masterplan provides direction to ensure the sustainable use of Barton Gully for future generations.

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IMPLEMENTATION AND FUNDING

The proposed works are proposed to be coordinated and funded by Council and work completed by contractors with support of local volunteers. External grant funding would be actively sought as available.

Major works such as path and bridge works would be implemented initially, and other works undertaken in stages over a number of years.

It is expected that the capital works within Barton Gully would cost in the order of $250,000 - $300,000.

A draft implementation plan is included in Appendix F.

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APPENDICES

Appendix A – Identified Stormwater Improvements

Appendix B – Stormwater Reuse Assessment

Appendix C – Vegetation Zones Management Actions

Appendix D – Vegetation for Removal or Control

Appendix E – Vegetation for Revegetation and Biodiversity Improvement

Appendix F – Draft Implementation Plan

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APPENDIX A
IDENTIFIED STORMWATER IMPROVEMENTS

UPSTREAM INLET

The inlet has recently been upgraded to minimise erosion. The placement of informal stepping stones across the riffle will improve the safety for people crossing at that location.

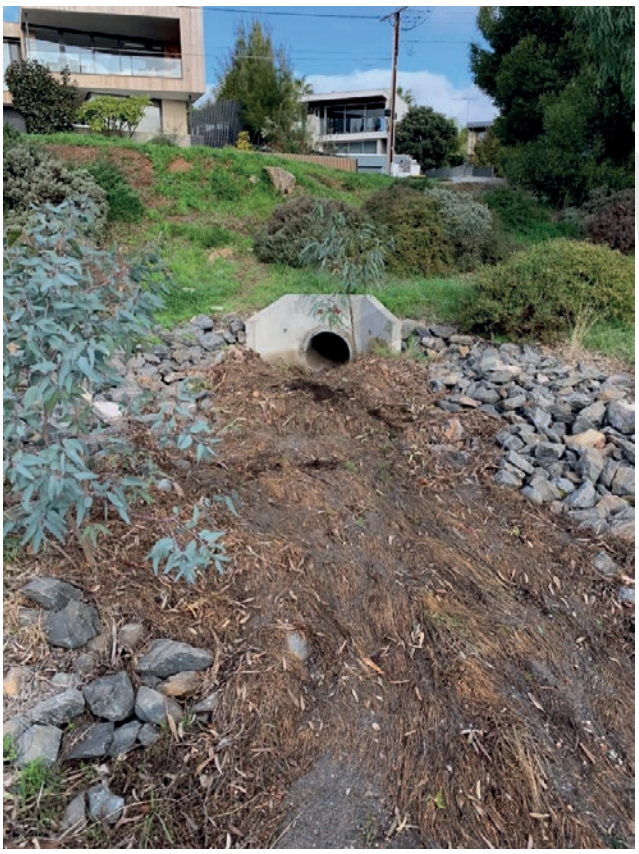

Figure 12. Barton Road stormwater discharge into Barton Gully.

GULLY DRAINAGE

The main drainage lines through the upstream gully have been rock armoured and are in good condition. Some improvement to create check dams and planting pockets is recommended. The downstream gully shows signs of erosion at several locations and it is recommended that these areas be remediated, and erosion protection measures deployed to minimise any future or ongoing erosion. The following solutions will be considered for erosion protection, including:

- Rock lining along incised sections of the gully invert
- Rock "leaky" check-dams
- Turf reinforcement mat with vegetation

Figure 13. Erosion in Barton Gully.

ERODED SLOPE

A steep section of the reserve adjacent to an existing house is badly eroded. Some remediation actions have previously been carried out, including the redirection of stormwater discharge downslope via a flexible pipe and scour matting. Further slope remediation and stabilisation options should be investigated as part of geotechnical investigation.

Stormwater discharge points from Seaview Avenue are also causing some scour and this should be improved with a formal headwall and suitable scour protection.

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APPENDIX B – STORMWATER REUSE ASSESSMENT

CATCHMENT SIZE

Approximately 14 hectares.

CATCHMENT TYPE

- 3 hectares rural, relatively steep with rainfall runoff discharging quickly once catchment is wet
- 11 hectares urban, relatively steep, with rainfall runoff discharging quickly.

POTENTIAL RUNOFF FOR CAPTURE

- 17ML total

PEAK FLOW

Location	5 Year ARI	100 Year ARI
Outlet	0.5 m^3/s	1.2 m^3/s
North Branch	0.2 m^3/s	0.3 m^3/s
South Branch	0.16 m^3/s	0.45 m^3/s

Implementing a viable stormwater harvesting and reuse scheme requires a balance between engineering feasibility and the economics of the scheme.

The determination of harvestable volumes of stormwater for reuse schemes includes an engineering assessment of a range of implementation and practicality factors, including:

- Total catchment runoff, and importantly the flow profile (ie proportion of low base flows versus peak flows)
- Size and capacity of wetlands/retardation basins to capture and treat runoff (land availability considering site constraints)
- Diversion weir capacity
- Wetland abstraction rates (i.e. diversion from the wetland to either storage or directly to demand)
- Storage of the harvested volumes for a time when demand requires
- Overall demand.

Based on these factors of assessment of the Barton Gully site, a range of factors were identified that would limit the potential for stormwater harvesting including:

- Catchments are generally steep and responsive, meaning runoff will pass through the site quickly and over a short period, limiting opportunities for harvesting.
- Site constraints such as topography and shape, and existing and desired aesthetic appeal of the site including re-vegetation during community programs, mean that provision of retardation/storage of surface water and wetland treatment will be substantially constrained without wholesale landscape changes and /or increased risk of flooding impacts on adjacent properties.
- Geological profiles in these locations would mean any Managed Aquifer Recharge (MAR) Schemes to provide a longer-term storage would be in fractured rock, which traditionally are less suited to MAR schemes. With the gully in an elevated position and so close to the coast, this substantially increases the likelihood that any stored water would dissipate to the coast and be lost. Furthermore, hydrogeological investigations would be costly relative to the fairly small volumes of water that could be captured. It is understood that several springs exist along this section of the coast, one of which has cultural significance, and a fractured rock MAR scheme may impact on these springs.

Further high-level catchment and site assessments to investigate the potential and practicality of stormwater harvesting at the sites is summarised below:

SITE CONSTRAINTS AND OPPORTUNITIES

- Constrained site with existing community plantings and aesthetic appeal
- Limited space for storage and treatment of stormwater
- Minimal potential harvestable volume.

CONCLUSION

As the gully is currently not irrigated and revegetation is proposed with drought tolerant native species, the conclusion from this high-level assessment is that based on economics, aesthetics and water for irrigation, it would be better to integrate any potential non-potable water demand in these areas with supply from the proposed Holdfast Bay Recycled Water pipeline.

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APPENDIX C – VEGETATION ZONES MANAGEMENT ACTIONS

ZONE A – REVEGETATION AREA

Condition is good with a selection of native plants that have been used to revegetate this zone. Weed control is an ongoing issue.

Recommended management actions:

- Engage contractors to slash/weed/spray the site prior to seed set each growing season.
- Once weeds are better controlled, replace poorly performing plants and replant open spaces at a density of 2 plants/m^2.
- Re-evaluate the use of herbicides as part of the management program. The inability to 'get on top of' the weed problem is adversely affecting the revegetation efforts. The present attempts to control weeds are not efficient/effective.
- Remove the *Eriocephalus africanus* in this zone, this is a garden escape.
- Do not further extend replanting until the management of the present area is under control.

ZONE B – NORTH FACING SLOPE ON SOUTHERN SIDE OF GULLY

This is a dry site and includes a patch of remnant native vegetation and should be enhanced. Native species include native grasses such as spear grass (*Austrostipa sp.*) and kangaroo grass (*Themeda triandra*), black-anther flax-lily (*Dianella revoluta*), pale twinleaf (*Zygophyllum glaucum*), yellow tails (*Ptilotus nobilis*), Australian bindweed (*Convolvulus erubescens*), and soft tussock mat-rush (*Lomandra densiflora*).

Recommended management actions:

- The area would naturally have been quite open, and this type of landscape should be maintained with the use of plants such as herbs, grasses, sedges, and very few larger shrubs.
- Remove local non-native species, such as *Melaleuca brevifolia* (the latter are dying out due to the unfavourable dry conditions).
- Increase levels of native grasses, smaller species, Acacia acinacea, *Hakea rugose, Bursaria spinose* and *Convolvulus erubescens.*

ZONE C – GULLY DRAINAGE LINE

The gully is largely fed via street runoff water – flow is seasonal or after large rain events. It has been planted to a variety of species, mainly Melaleucas – M. *brevifolia*, M. *nesophila*, M. *lanceolata* and M. *halmaturorum*. Of these species, only dryland teatree (M. *lanceolata*) is native to the area. The area is too dry for short-leaf honey-myrtle (M. *brevifolia*) and they are gradually dying out.

In the recent past there was a patch of the rare native soursob (*Oxalis perennans*) near the stormwater outlet below Barton Avenue. Repeated searches have been unable to locate this patch. However, the opportunity should be taken to plant this species in other suitable locations within this and other zones in the reserve.

Recommended management actions:

- Remove *Melaleuca nesophila* and M. *brevifolia* and replace with M. *lanceolata*, which is native to the area.
- Increase plantings of *Cyperus sp., Austrostipa sp., Dianella sp., Juncus sp.* and *Lomandra sp.* depending on soil type, slope and local condition requirements for the plants.

ZONE D – LOWER WATERCOURSE

This Zone is quite weedy – weeds include giant reed (*Arundo donax*), nasturtium, castor oil plant, soursob, and various grasses. Some planting has been undertaken, both in the watercourse and on the banks, but site preparation has been inadequate, especially regarding weed control. This section has been planted with swamp paperbark (*Melaleuca halmaturorum*) and native juniper (*Myoporum insulare*); also, non-native eucalypts, tuart gum (*Eucalyptus gomphocephalus*) and platypus gum (*Eucalytpus platypus*), which should be removed.

Recent plantings of *Atriplex cinerea*, a local frontline coastal species, seem to confuse the theme of the area.

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Recommended management actions:

- Remove those plants that are poisonous to humans and those that are declared SA weeds.
- Carefully select replanting species as this section is a transition to much more environmentally hostile coastal environs.
- Planting of highly adaptable species such as *Myoporum insulare* will provide protection to more fragile understorey species planted after successful establishment of the stronger species.
- A site-specific replanting plan is required for this area.

ZONE E – OPEN AREA WITH SOME REMNANT VEGETATION

An open, grassy site that should be maintained and managed as such. Native species include spear-grass, silky blue-grass, kangaroo grass, black-anther flax-lily, mat-rush (*Lomandra sp.*), chocolate lily, and grassland everlasting (*Chryocephalum semipapposum*). Some non-local native species that have been planted should be removed.

Recommended management actions:

- Maintain area by periodic brushcutting; this will encourage the spread of native grasses if cut other than when the plants are flowering and setting seed.
- Remove some of the inappropriate large shrub species to maintain the grassland habitat.
- Increase the level of grassland species without planting large shrubs, including more *Austrostipa* species, *Calostemma purpureum, Lomandra species, Themeda triandra* and *Dianella revoluta*

ZONE F – OPEN AREA WITH SOME REMNANT VEGETATION

An open, grassy site that should be maintained and managed as such. Native species are similar to Zone E but weeds are more apparent. Some non-local native species have recently been planted here including some shrubs (e.g. *Dodonaea viscosa*), which are inappropriate in a grassland. In addition, extending plantings into this area is premature given the weedy state of earlier plantings on the slope above.

Recommended management actions:

- If practical, maintain this area by periodic brush cutting, as this will encourage the spread of native grasses if cut other than when the plants are flowering and setting seed.
- Consider removal of some of the inappropriate large shrubs.
- Only a small amount of revegetation is required, using species as in Zone E, as natural regeneration should occur.

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APPENDIX D – VEGETATION FOR REMOVAL OR CONTROL

The following trees and shrubs are invasive and/or non-native. They will be controlled or gradually replaced with more appropriate species (refer Appendix E).

COMMON NAME	BOTANICAL NAME	COMMENT	STATUS
Western coastal wattle	*Acacia cyclops*	Sleeper woody weed. Becomes dominant. Needs checking for seedlings.	
Galenia	*Aizoon (Galenia) pubescens*		
Giant reed	*Arundo donax*	Spreads by runners	SA declared weed
Bridal creeper / bridal veil	*Asparagus asparagoides and A. declinatus*		WONS* and SA declared weed
Onion weed	*Asphodelus fistulosus*		
Swamp casuarina	*Casuarina cunninghamiana*	Spreads easily by seed in wet environs to become dominant	
Diosma	*Coleonema sp.*	Garden escape	
Field bindweed	*Convolvulus arvensis*		SA declared weed
Kapokbossie	*Eriocephalus africanus*	Garden escape	
Tuart gum	*Eucalyptus gomphocephalus*		
Platypus gum	*Eucalyptus platypus*	Little value, easily blows over	
Freesia	*Freesia sp.*	Spreads by seeds, corms and bulbils. Garden escape	
Gazania	*Gazania spp.*	Garden escape	SA declared weed
Melaleuca	*Melaleuca nesophila*	Non-native to this area	
Olive	*Olea europaea*		SA declared weed
Soursobs	*Oxalis pes-caprae*		
Kikuyu	*Pennisetum clandestinum*		
Date palm	*Phoenix dactylifera*		
Rice millet	*Piptatherum milliaceum*		
Buckthorn	*Rhamnus alaternus*	Sleeper woody weed and garden escape. Becomes dominant.	SA declared weed
Castor oil plant	*Ricinus communis*	Seeds poisonous to people	
Cockies tongue	*Templetonia retusa*		
Caltrop	*Tribulus terrestris*	Spreads by burrs	SA declared weed

* WONS = Weed of National Significance

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APPENDIX E – VEGETATION FOR REVEGETATION AND BIODIVERSITY IMPROVEMENT

The following plant species present a mix of trees, shrubs and groundcovers that are suitable for use in revegetating Barton Gully.

TYPE	COMMON NAME	BOTANICAL NAME	UPPER SECTION	LOWER SECTION
Trees	*Golden wattle*	*Acacia pycnantha*	✔	
	Drooping she-oak	*Allocasuarina verticillata*		✔
	Southern cypress pine	*Callitris gracilis*	✔	
	Peppermint box	*Eucalyptus odorata*	✔	✔
	Blue gum	*Eucalyptus leucoxylon*	✔	
	Dryland tea tree	*Melaleuca lanceolata*	✔	✔
	Native apricot	*Pittosporum angustifolium*	✔	
Large to medium shrubs	*Wreath wattle*	*Acacia acinacea*	✔	
	Umbrella bush	*Acacia ligulata*	✔	✔
	Sweet Bursaria	*Bursaria spinosa*	✔	✔
	Common fringe-myrtle	*Calytrix tetragona*	✔	
	Sticky hop-bush	*Dodonaea viscosa ssp spatulata*	✔	✔
	Mallee Pomaderris	*Pomaderris paniculosa*		✔
Small shrubs	*Mallee bush-pea*	*Eutaxia microphylla*	✔	
	Clasping Goodenia	*Goodenia amplexans*	✔	
	Twiggy daisy-bush	*Olearia ramulosa*	✔	✔
	Coast twinleaf	*Zygophyllum billardierei*		✔

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TYPE	COMMON NAME	BOTANICAL NAME	UPPER SECTION	LOWER SECTION
Groundcovers/ climbers/ sedges/grasses/forbs	*Chocolate lily*	*Arthropodium strictum*	✔	
	Feather spear-grass	*Austrostipa elegantissima*	✔	
	Rusty spear-grass	*Austrostipa eremophila*	✔	
	Coastal spear-grass	*Austrostipa flavens*		✔
	Tall spear-grass	*Austrostipa nodosa*	✔	
	Bulbine-lily	*Bulbine bulbosa*	✔	
	Lemon beauty-heads	*Calocephalus citreus*	✔	
	Pink garland-lily	*Calostemma purpureum*	✔	✔
	Clammy goosefoot	*Chenopodium pumilio*	✔	✔
	Grassland everlasting	*Chryocephalum semipapposum*	✔	
	Australian bindweed	*Convolvulus erubescens*	✔	✔
	Tall scurf pea	*Cullen australasicum*	✔	
	Spiny flat-sedge	*Cyperus gymnocaulos*	✔	✔
	Stiff flat-sedge	*Cyperus vaginatus*	✔	✔
	Black-anther flax-lily	*Dianella revoluta var. revoluta*	✔	✔
	Climbing saltbush	*Einadia nutans spp. nutans*	✔	✔
	Native lilac	*Hardenbergia violacea*	✔	✔
	Pale rush	*Juncus pallidus*	✔	✔
	Running postman	*Kennedia prostrata*	✔	✔
	Native flax	*Linum marginale*	✔	
	Soft tussock mat-rush	*Lomandra densiflora*	✔	✔
	Scented mat-rush	*Lomandra effusa*	✔	
	Hard mat-rush	*Lomandra multiflora var. dura*	✔	✔
	Creeping boobialla	*Myoporum parvifolium*	✔	✔
	Native soursob	*Oxalis perennans*	✔	
	Native Pelargonium	*Pelargonium littorale*		✔
	Variable plantain	*Plantago varia*	✔	✔
	Yellow tails	*Ptilotus nobilis*	✔	✔
	Wallaby grass	*Rhytidosperma caespitosa*	✔	✔
	Creamy candles	*Stackhousia monogyna*	✔	
	Rush fringe-lily	*Thysanotus juncifolius*	✔	
	Toothed Velleia	*Velleia arguta*	✔	✔
	Narrow-leaf new Holland daisy	*Vittadinia blackii*	✔	✔
	Wedge new Holland daisy	*Vittadinia cuneata var. cuneata*	✔	✔
	Coastal bluebell	*Wahlenbergia gracilenta*		✔
	Pale twinleaf	*Zygophyllum glaucum*	✔	✔

* WONS = Weed of National Significance

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APPENDIX F – DRAFT IMPLEMENTATION PLAN

ITEM	SCOPE	PROGRAM	BUDGET ESTIMATE
Watercourse rehabilitation	*Scour protection at stormwater outlet, scour protection in lower portion of the gully, improve existing rock lining of the drains in the upper gully.*	2020/2021 and 2021/2022 FY	$50,000-$75,000
New pedestrian bridge and path upgrades	*Improve existing paths, install new paths and construct new bridge over the drainage channel.*	2020/2021 and ongoing	$75,000- $100,000
Interpretive signage	*Supply and install interpretative signage*	2020/2021 and ongoing	$30,000
Revegetation and weed management	*Revegetation of the gully based on the zones.*	2020/2021 and ongoing	$75,000
Ongoing maintenance	*Weed management, revegetation.*	2022/2023 ongoing	Operational budget

Note:

- Budget is subject to annual Council approval and is a total budget exclusive of any grant or other external funding.
- The above costs are capital costs for new works. Existing assets will be renewed as part of Council's asset management planning.

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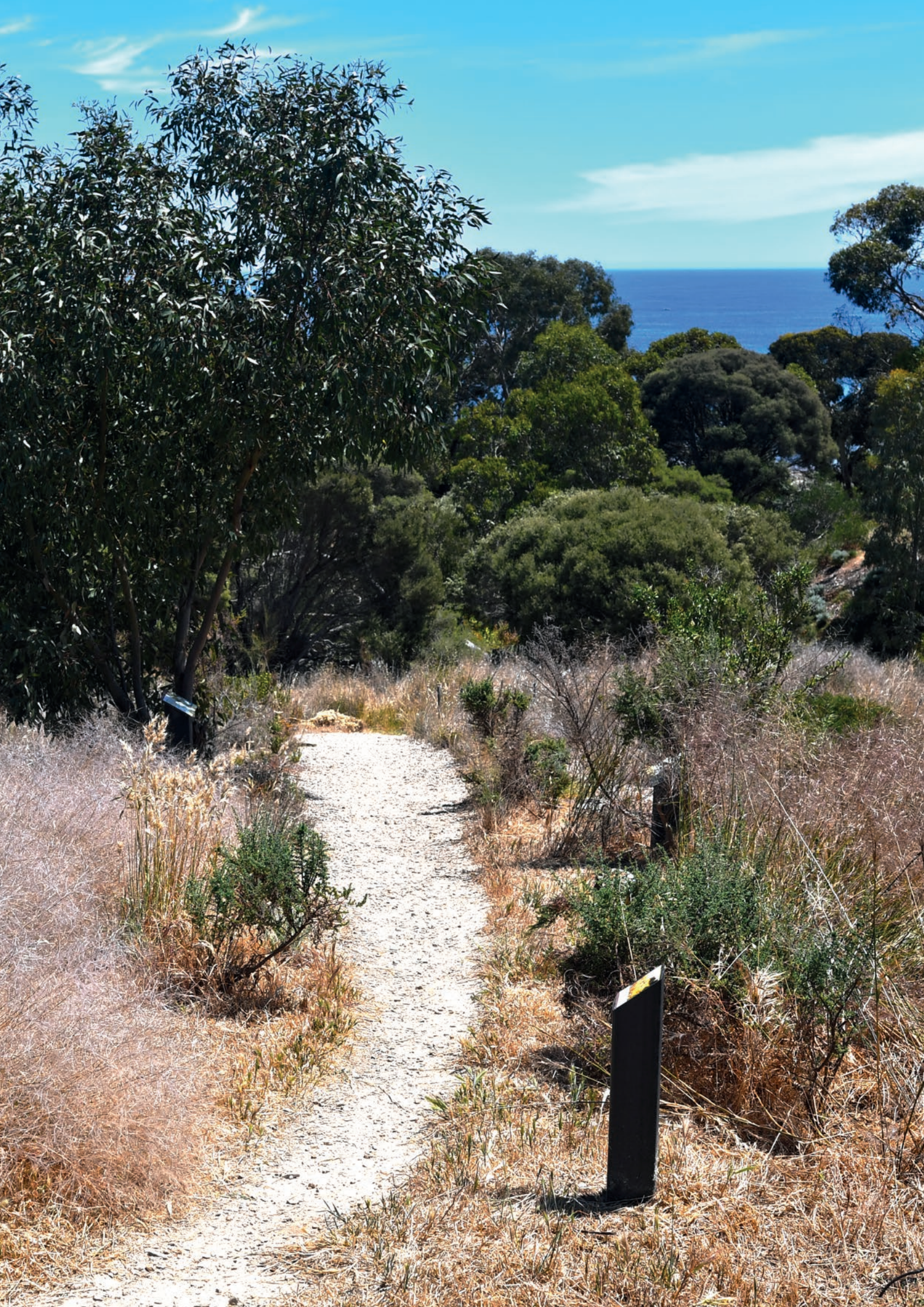

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