


ARCADIA



Planning,
Industry &
Environment

100% Concept Report // Wildflowers Bushland Park

Parks for People // Nandi Ave, Frenchs Forest



Issue D - 100% Concept Design
Date 25/10/2021
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Front Cover: Frenchs Forest, Nandi Ave
Image Credit: ARCADIA Landscape Architecture

We respectfully acknowledge the Traditional Custodians of the lands where we live and work. We acknowledge their unique ability to care for Country and deep spiritual connection to it. We honour Elders past, present and emerging whose knowledge and wisdom has and will ensure the continuation of cultures and traditional practices.

01

// Landscape Vision

Design Significance // Landscape Vision

Objective

The endangered ecological corridor - Duffy's Forest Community is listed by the NSW threatened species scientific committee and forms part of the Priority 1 Wildlife Corridor. This wildlife corridors link two or more of the four largest bushlands areas in Northern Beaches. These corridors have been majorly disturbed through road infrastructure and urban development and no continuous corridor now remains. Many fauna species within the Reserve are limited to their population and healthy growth as a result of Wakehurst Parkway and urban growth fragmentation. *Warringah natural area survey Vegetation History and Wildlife Corridors, 2005, Warringah Council.*

This vision aligns with additional data collected across the engagement, where "natural" and "nature" were the most common words captured, and Native Flora and Fauna the number 1 theme, topic or story that participants wanted to see expressed in the park. Parks for People - Phase 1 What we Heard Report, JOC Consulting for DPIE.






With this ecological significance in mind, the project aims to prioritise the protection and enhancement of the Duffy Forest Corridor as per the Northern Beaches' Plan of Management.

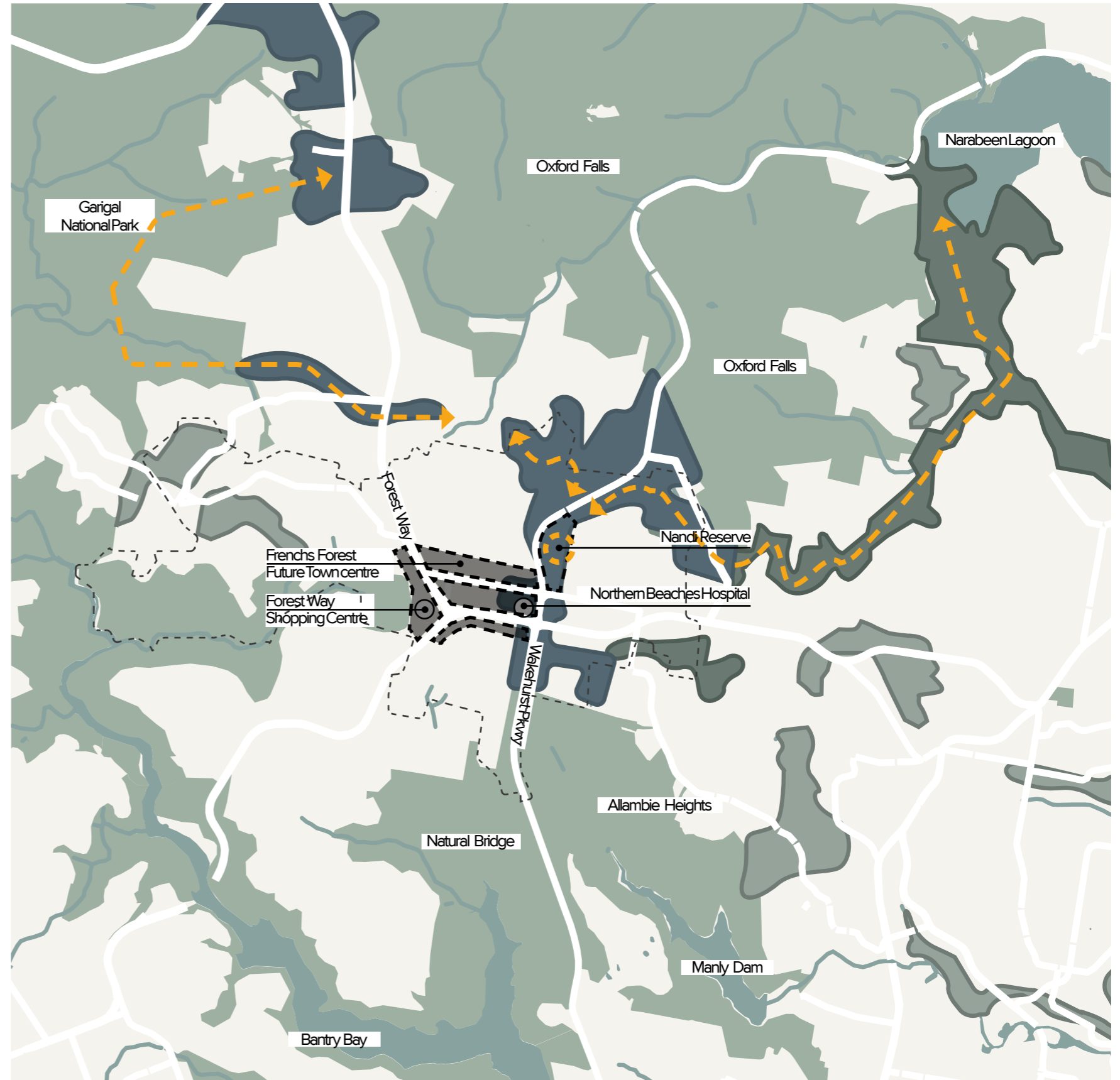
Threatened Bushland Reserves (DFEC North) Plan of Management 2008, Warringah Council.

Objectives:

- To conserve biodiversity and maintain ecosystem function
- To provide for the restoration and regeneration of the land
- To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion
- To assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan.
- To ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land.
- To protect the aesthetic, heritage, recreational, educational and scientific values of the land.
- To restore degraded bushland which enable existing plant and animal communities to survive in the long term
- To protect bushland as a natural stabiliser of the soil surface

Legend

-  Vegetated zones
-  Urban Development
-  Wildlife Priority 1 corridor
-  Wildlife Priority 2 corridor
-  Wildlife Priority 3 corridor
-  Waterways and creeks
-  Wildlife Corridor significant connections
-  French Forest Suburb



Design Principles // Landscape Vision



Healing Country

- Protect environment by incorporating raised elements in areas prone to soil saturation
- Ensure and enhance nesting sites, tree hollows or other animal habitats
- Ensure good practice seed collection from a wide range of plants
- Promote creek regeneration
- Ensure long term preservation of tree assets using introduction of suitable species which enhance Duffy Forest Ecology.
- Bush revegetation to be enhanced and rehabilitate to encourage fauna movement across the wider green corridor.
- Improve irrigation and drainage across the site to mitigate large flood events and utilise rainfall.
- Protect endangered flora and fauna and provide rehabilitation which enhance these habitats.



Designing with Ecology

- Implement bridges, causeways or crossing over creeks and gullies to protect natural waterway
- Incorporate boardwalks in areas prone to soil saturation to protect environment
- Encourage cultural burning strategies to regenerate the land. Subject to further consultation with RFS and specialist consultants
- Increase bush regeneration
- Introduce fauna crossings to allow reconnections of fauna habitats for cross breeding and seed dispersal across corridors
- Design with existing trail pathway
- Mitigate future fragmentation



Activating and Educating Users

- Enhance social values throughout trails
- Activate interaction through bush tucker education
- Encouraging educational in walking track for all ages
- Introduce a walking multi-use interpretive trail which educate on points of interest throughout the site
- Creating a journey of environmental experiences
- Providing spaces for people to reconnect with themselves, community, and nature
- Promote space for knowledge sharing
- Promote nature play through interaction with flora, fauna and waterways



Safety

- Creating safe outdoor environments through low impact design with contours and natural elements
- Allow for ease of accessibility during emergency situations
- Utilising existing entry points and creating new entry off Frenchs Forest Road East to facilitate additional points of entry fo future community growth in Frenchs Forest town Centre.
- Provide well-maintained and safe spaces that equitably support active and passive recreation

Cultural Engagement // On Garigal and Gameraaygal Country

Information shared on this page, acknowledges Indigenous Design Consultants - Balarinji and Local Knowledge holders.

By connecting with local First Nations knowledge holders in a reconciliatory process of collaborative design, the ancient spiritual significance of this site can be celebrated. Consultation with Balarinji and local knowledge holders aims to deliver outcomes that are specific to place by translating the deep local Inarrtaive through collaboration with the community. This consultation process has prioritised key outcomes and themes from a community perspective to ensure that Aboriginal Cultural Design Principles and concepts of 'Country' are expressed through the design process and result in open spaces. Every part of Country is significant in Aboriginal Culture – history isn't Country – getting people to sit on Country, stop and listen and connect all the time – is so important for non-Aboriginal people to understand. - Adam Byrne Balarinji Report, 2021.



The stakeholders as a whole spoke of ways to Welcome and Acknowledge the Country and convey the message that the spirit of Country still remains today.

Connection to Country // On Garigal and Gameraygal Country

Information shared on this page, acknowledges Indigenous Design Consultants - Balarinji and Local Knowledge holders .

Garigal and Gameraygal Country

The land we now call Sydney lies within the sacred lands of the Gadigal or Gameraygal (Cameraygal or Gai-mariagal) people. With acknowledgement of the groups of the Guringai people and the Wanangini people.

Due to contentions of traditional custodians around the area where the park is located, a focus on country, specifically in Saltwater and Sandstone Country was recognised was more appropriate.

Frenchs Forest and Wakehurst Parkway is known to some knowledge holders for its walking tracks used by the Gameraygal people and a place surrounding creeks and rivers which feed into the ocean. The interconnectedness of the water ecosystems signifies the area as Saltwater, Freshwater and Sandstone Country.

Connected to waterways that lead to the ocean, which travel through Tall Tree, Wetlands and saltwater ocean ecosystems that all

Culture is a living Culture

- Philosophies that dictate Aboriginal Life needs to be evident in design outcomes of both parks
- Build cultural awareness and connection with country, which acknowledges the on going Aboriginal community continue to pra

Connection to Country

- Country is everything.
- Country is passed from oral tradition from generation to generation.
- Country has multiple purposed and functionalities
- Those who call that country home have responsibilities for it

Healing Country

- Responsibility to heal and care for country
- Country is connected by a continuous, ever changing web of ecosystems that all give life to one another.

Country Dictates Dynamic

- Country dictates how it should be used and experienced
- The form of Country is dynamic and changes from season to season, but there are constraints in functionality. The environment is its own determinant. Where there are seasonal or naturally occurring events, people adjust and adapt to Country.
- Nature is the constant.

// Landscape Concept

Landscape Masterplan // Landscape Concept

Legend

- ① PROPOSED CONNECTION FROM FRENCHS FOREST ROAD EAST
 - Pedestrian only access, west of existing service driveway
 - New entry design shall be obvious to pedestrian
- ② EXISTING FAUNA CROSSING
- ③ LAYERED PLANTING TO CREATE A LANDSCAPE BUFFER TO ADJACENT PROPERTIES
 - Working within the confines of APZ conditions
- ④ UTILISE AND ENHANCE EXISTING TRAIL NETWORKS
 - Connect and improve existing trail to create a walking loop by adding connections that are sensitively aligned through existing vegetation with minimal impact to flora and fauna
 - Orienteering, Geocaching
 - Educational Walking Tours
 - Single use walking loops
- ⑤ ENHANCE EXISTING CROSSINGS FOR CREEKS OR GULLIES
 - Prevent damage of vegetation and protect water quality
 - Revegetation works with staged weed removal along creek line
 - Boardwalks necessary in areas prone to soil saturation
 - Minimize impact on the stream and associated ecosystems
 - Revegetation works
- ⑥ REST ZONES
 - Potential for seating, subject to impact on ecology
 - To be located in existing clearings
- ⑦ EDUCATION OPPORTUNITIES
 - Cultural learning and indigenous workshops



- ⑧ POTENTIAL DROP OFF AND ENTRANCES / PEDESTRIAN ENTRY
- ⑨ PROTECT FAUNA HABITAT
 - Banksia ericifolia
 - Protect existing environment
 - Termite mounds
 - Powerful Owls habitats
 - Hollow-bearing trees for birds such as Corymbia gummifera and Allocasuarina sp.
 - Red Crowned Toadlet
 - Rock boulders
 - Downslope wet drainage lines
- ⑩ IMPLEMENT ECOLOGICAL REGENERATION STRATEGY
 - Low impact signage
 - Consider protection of sensitive fauna species by excluding dogs from areas
 - Removal of high weed areas regeneration work
 - Reinforce and regenerate damaged areas
 - Introduce seed collection
 - Cultural Burning long term, subject to further consultation with RFS and specialist consultants
 - Bush Re-vegetation at gullies and creeks to protect waterways and habitats
- ⑪ NEW PROPOSED WILDLIFE CONNECTIONS
- ⑫ UPGRADES TO EXISTING PLAYGROUND
 - Learning through nature
 - Bush tucker experiences

Landscape Typology Plan // Landscape Concept



Refer Raised Path and Bridge Typology



New nature play opportunities



Refer Bridge Typology



Refer Gravel Path Typology



Refer Raised Path Typology



Refer French Forest Access

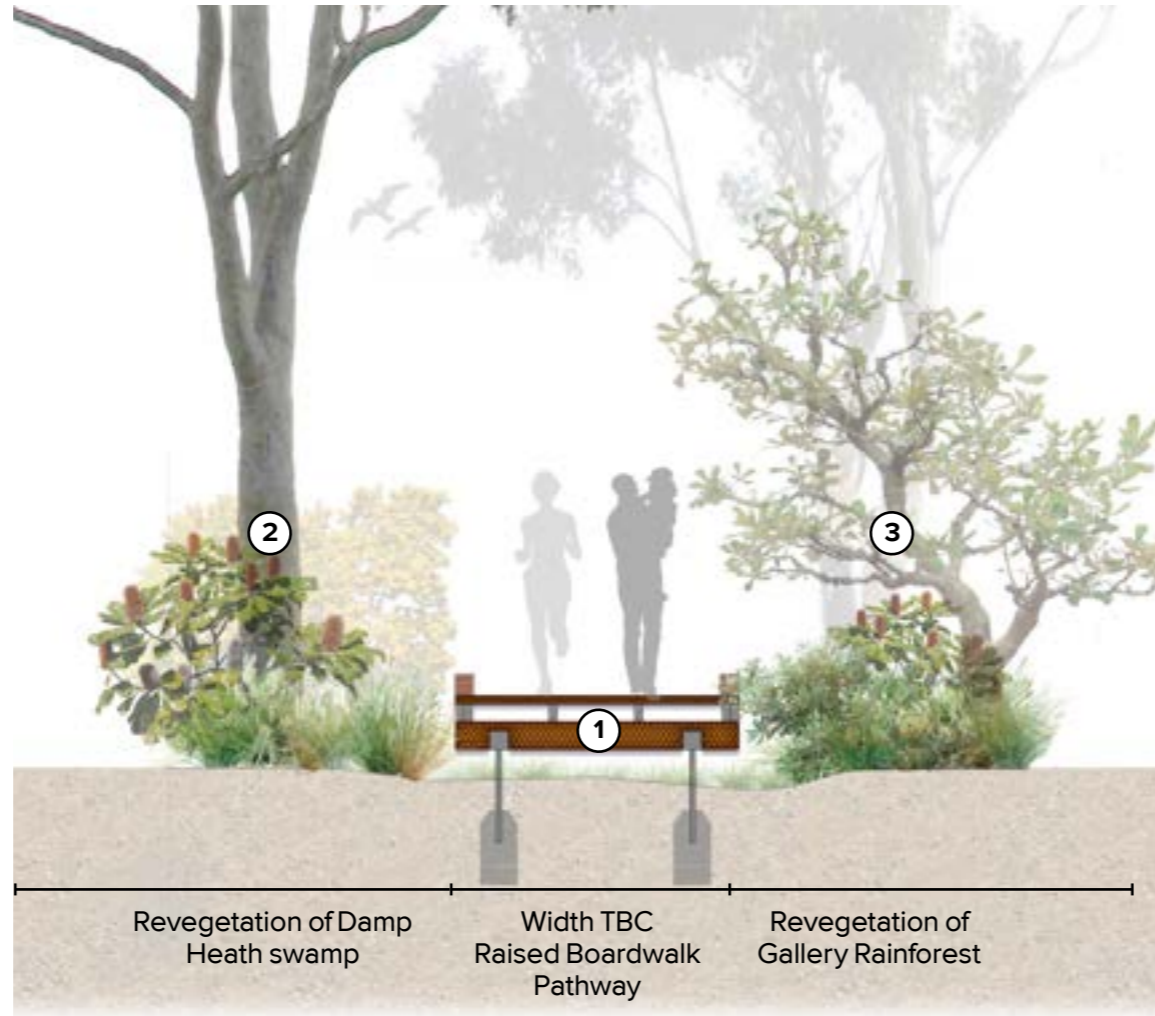


Footpath Typology // Raised Boardwalk

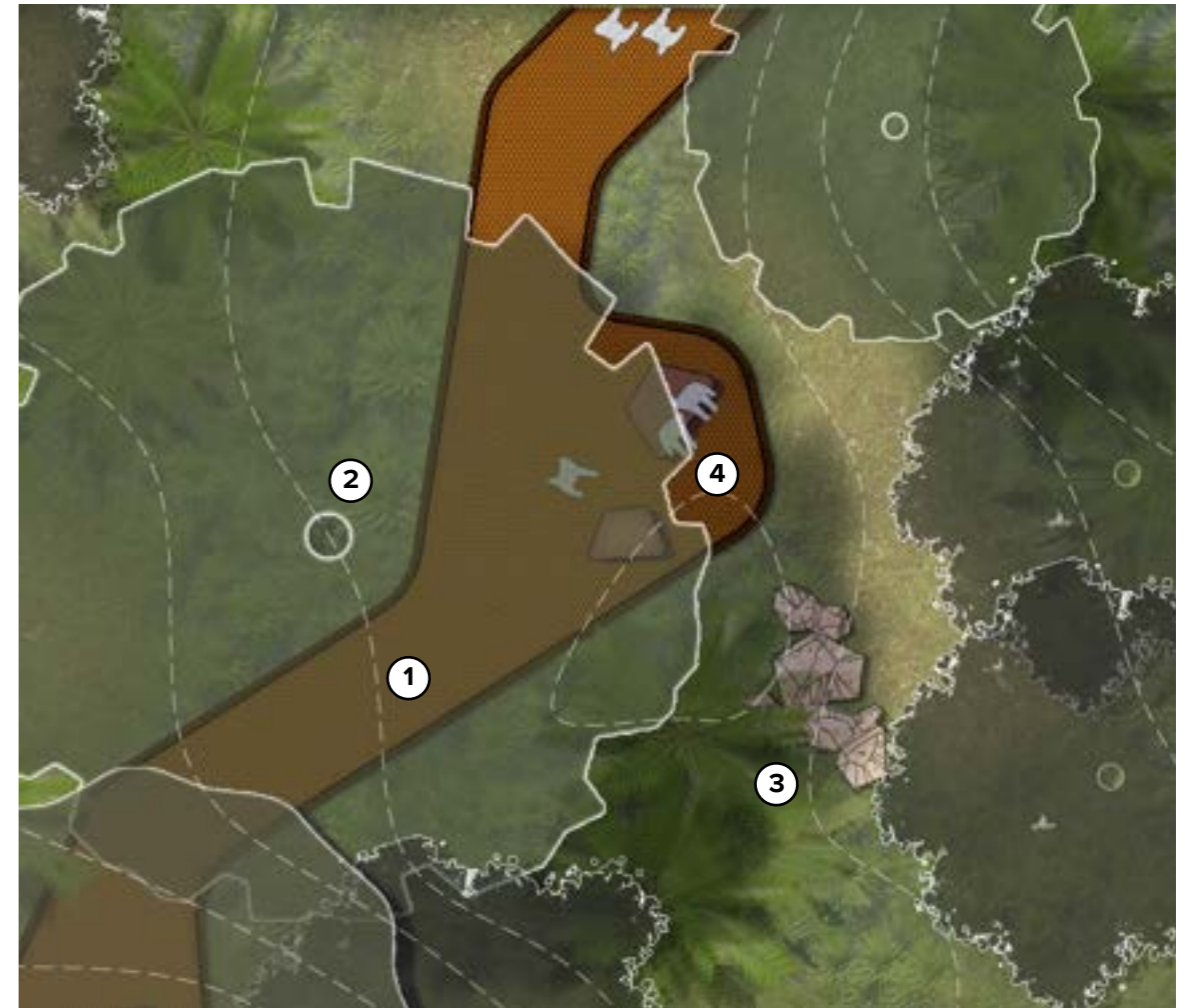
Legend

- ① Raised FRB Boardwalk
 - Proposed path to retain existing trees within path
 - Raised to allow for water flow and protection of existing roots
- ② Revegetation of Sandstone heath Mallee or North Sydney Exposed Sandstone
- ③ Revegetation of Coastal Gallery Rainforest & Sandstone Gully Forest
- ④ Break out rest zone off path with Informative signage (To be located in existing clearings)

Scale 1:20 at A3



Scale 1:50 at A3



Footpath Typology // Raised Boardwalk



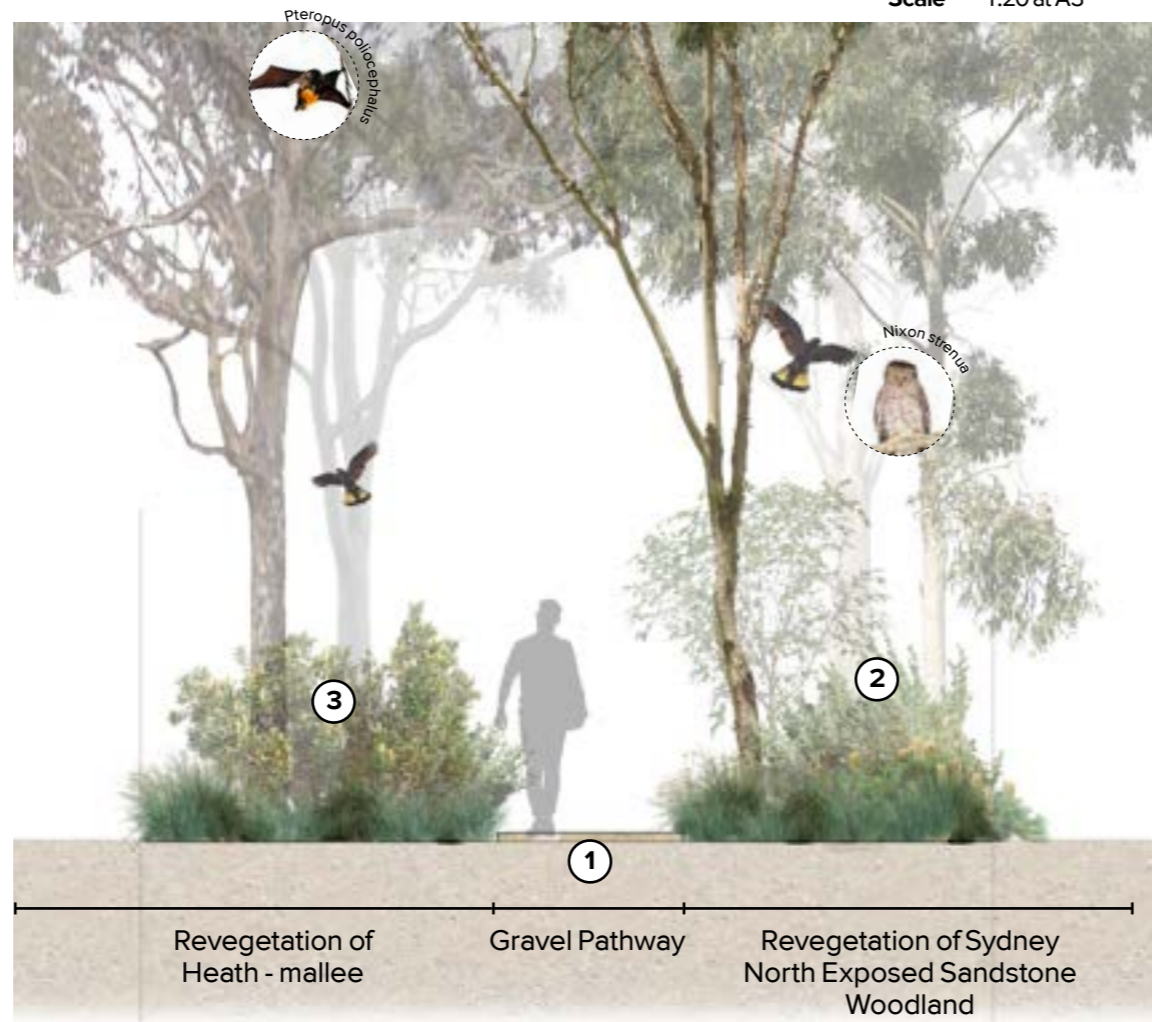
Artist's Impression

Footpath Typology // Informal Decompressed Gravel Pathway

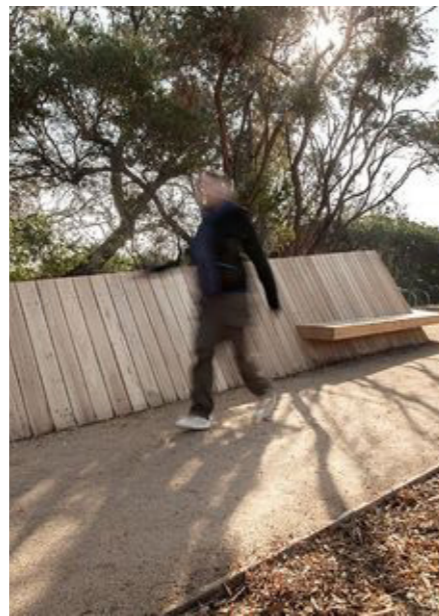
Legend

- ① Low impact deco gravel pathway
 - Proposed path to weave around existing trees
 - Path to work with contours and grades
- ② Re-vegetation and rehabilitation of Sydney Exposed Sandstone
- ③ Revegetation of Coastal Sandstone heath mallee

Scale 1:20 at A3



Scale 1:50 at A3



Footpath Typology // Informal Decompressed Gravel Pathway



Artist's Impression

Footpath Typology // Steps and Gravel Path



Artist's Impression

Water Interface Typology // Bridge

Legend

- ① Raised Bridge with kerb rail and rocks to water interface
- ② Gravel or concrete connection path
- ③ Revegetation of Coastal Gallery Rainforest
- ④ Revegetation of Sandstone Gully Forest

Toolijooa Creek Rehabilitation Case Study Exemplar

Toolijooa was contracted by St Hilliers to carry out revegetation and maintenance weed management. The project was separated into 9 different stages varying in size. Each stage had varying degrees of weed infestations prior to the commencement of the project. Aside from stage 1, the channel was cleared to a notable extent. Clean top soil was installed in all cleared areas by civil contractors.

Planting zones were separated into 5 sections: terrestrial, upper bank ephemeral, lower bank ephemeral, in-stream aquatic and rock armour.

- 1.0 Primary removal of exotic weed species
- 2.0 Following earthworks, erosion control was undertaken by installing jute matting into lower ephemeral zones and through wide in stream sections in stages
- 3.0 Mulch was installed through the terrestrial zone and upper bank ephemeral zone throughout channel.
- 4.0 Top soil was installed into voids in rock armoring in the creek line.
- 5.0A mix of remnant and imported soil was hand placed into appropriate gaps in preparation for planting.
- 6.0 Revegetation using appropriate species associated stages, planted to represent a natural system.
- 7.0 Planting specifications based on stream morphology principles.

Scale 1:20 at A3



Revegetation of sandstone Gully Forest

Width TBC Raised crossing

Revegetation of Coastal Galley Rainforest

Scale 1:50 at A3

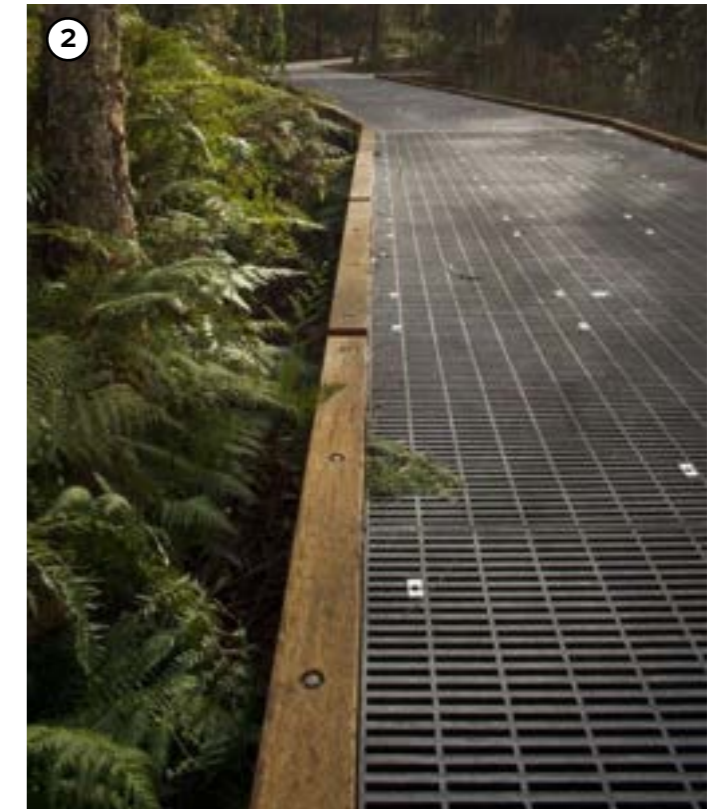
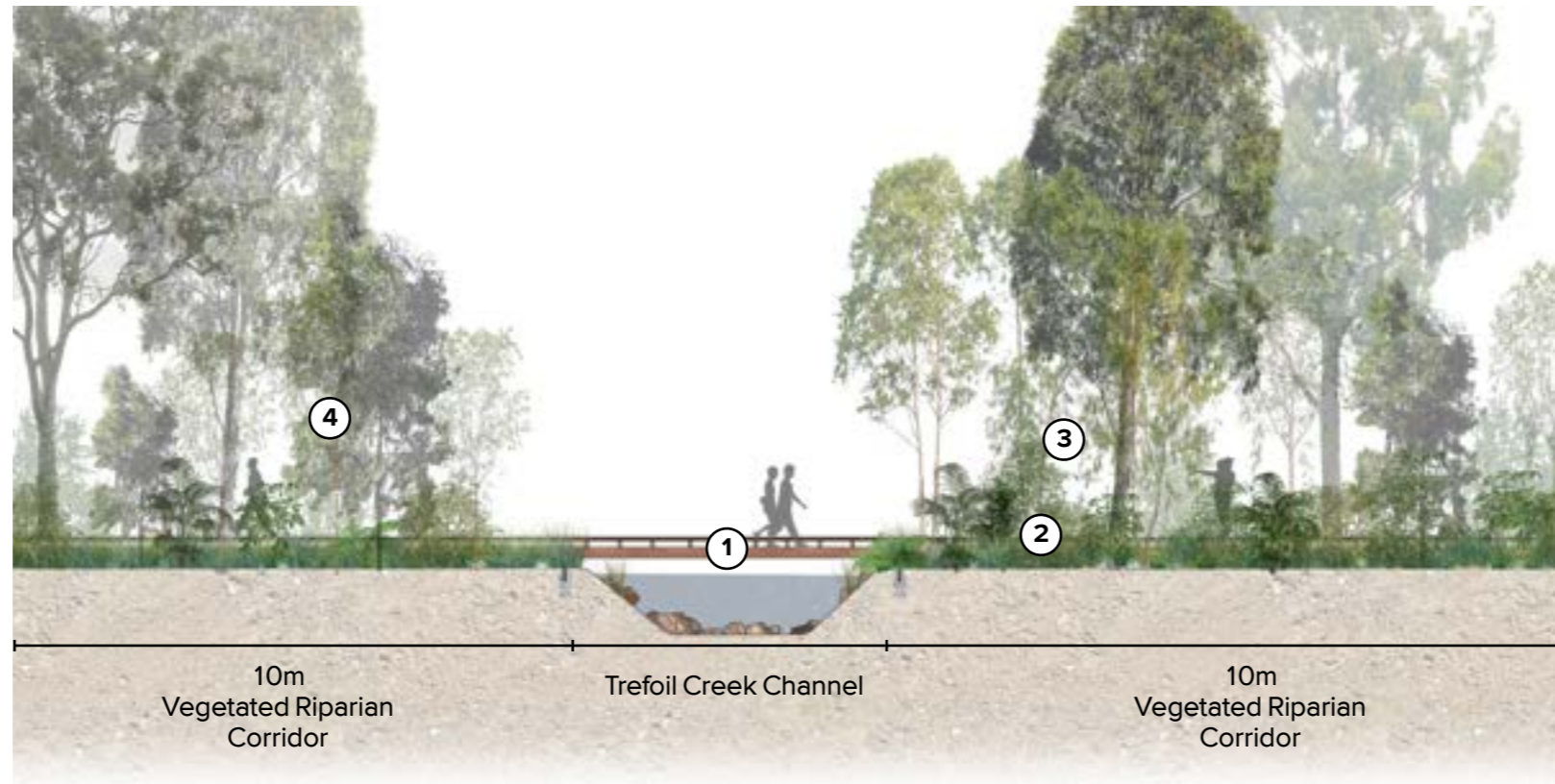


Water Interface Typology // Raised Path and Bridge

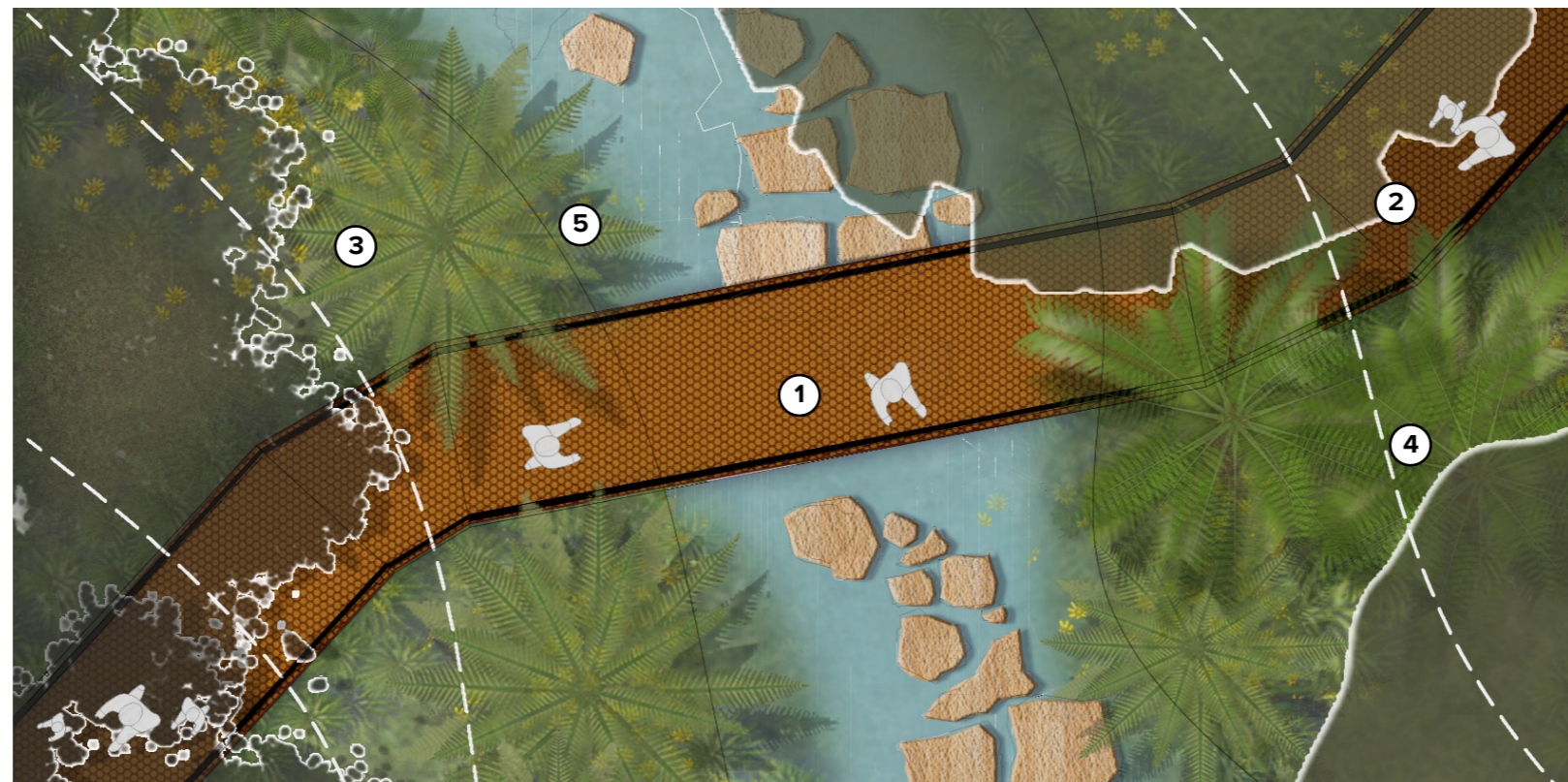
Scale 1:100 at A3

Legend

- ① Raised FRB Steel Bridge with kerb edge
- ② 2000mm wide raised Mesh path
 - prevention from further erosion
 - allow water runoff
- ③ Revegetation of Coastal Gallery Rainforest
- ④ Revegetation of Sandstone Gully Forest
- ⑤ Creek line rehabilitation
 - Noxious weed control
 - Mitigate flood risks by stabilising creek line



Scale 1:50 at A3



“All waterways are important – they mean life – they are the veins of the Mother.” - Tracie Howie

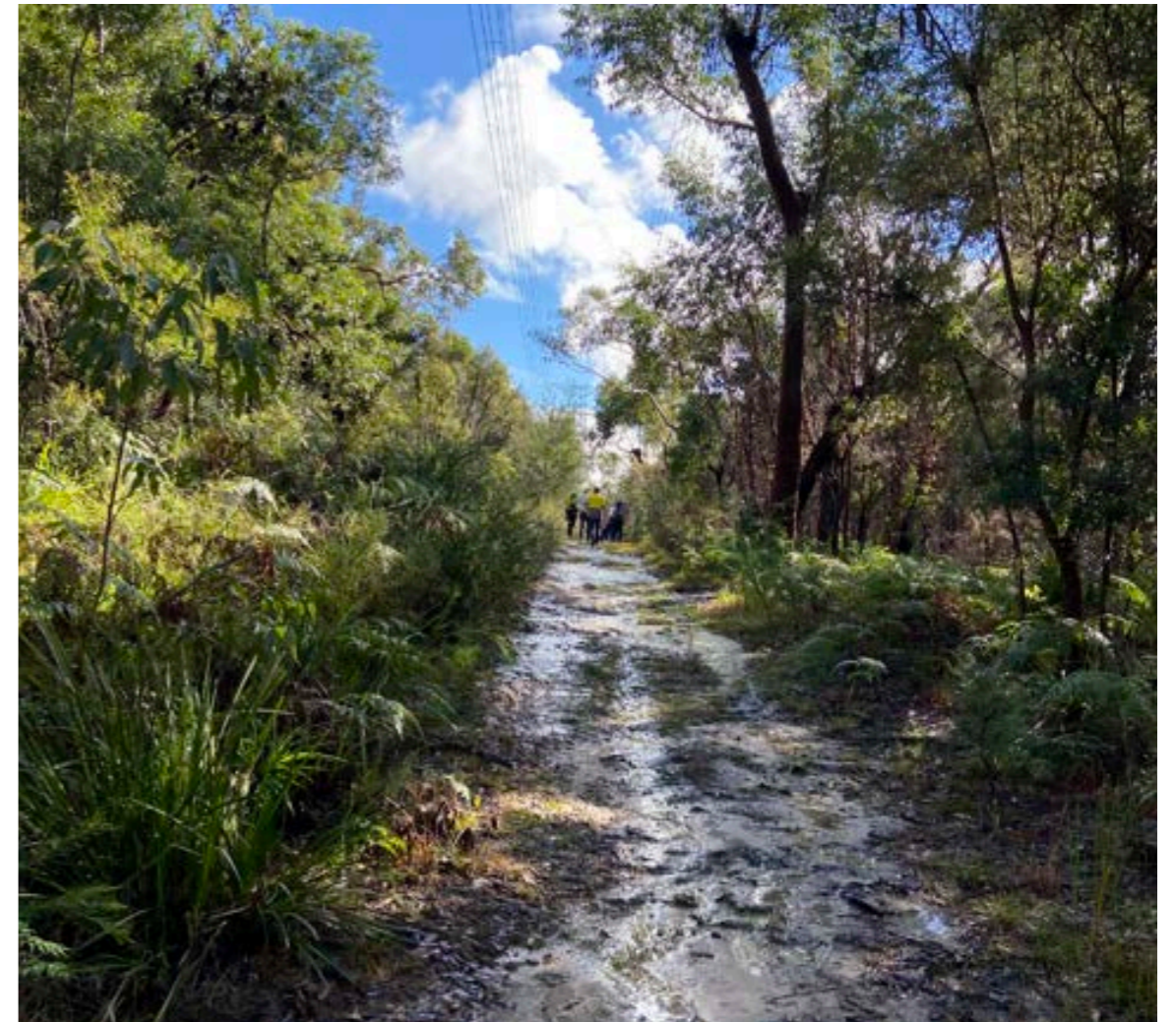
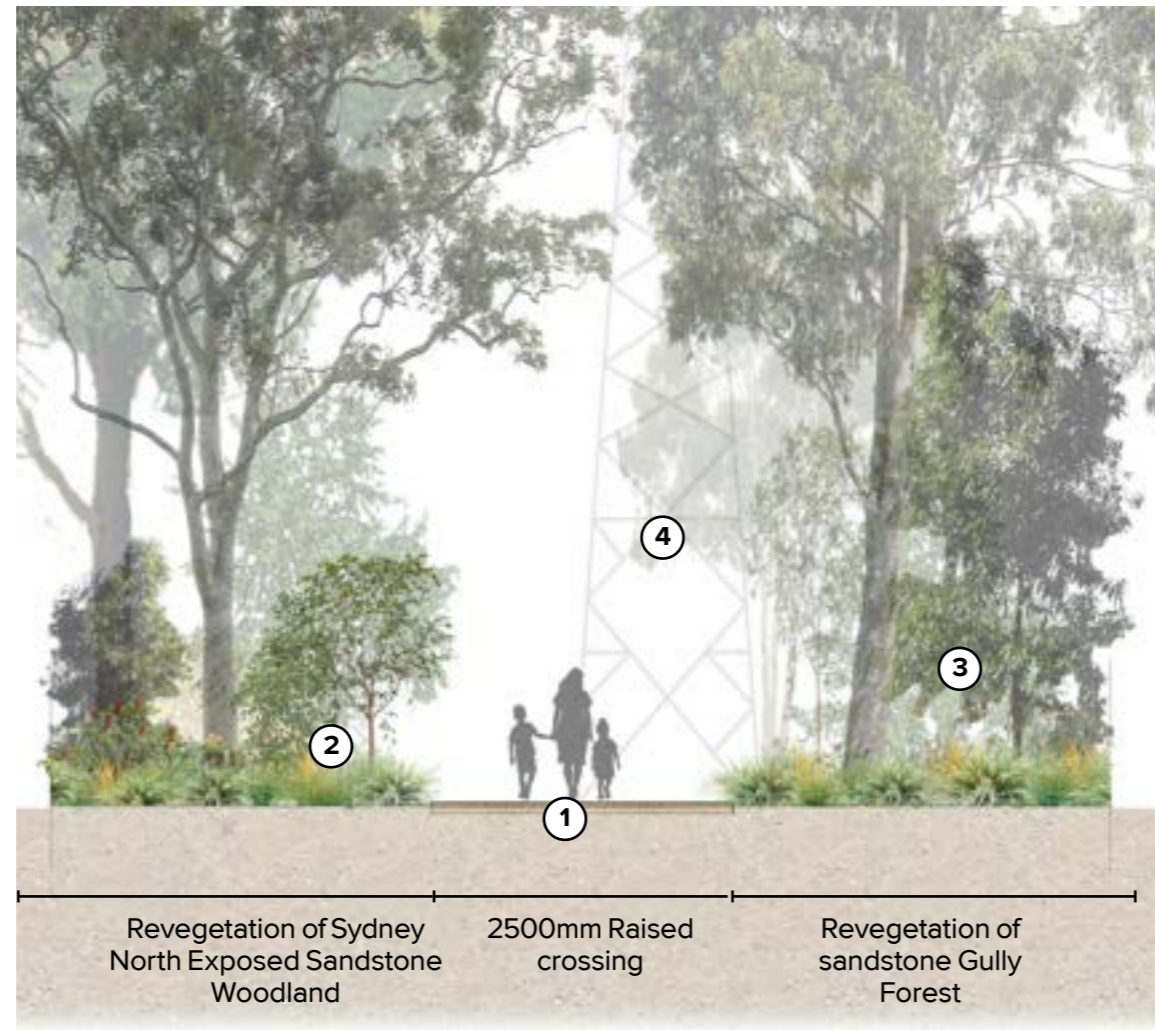
Balarinji Report, 2021.

Maintenance Access Path // Reinforced Existing Conditions

Scale 1:20 at A3

Legend

- ① Existing 2500mm maintenance gravel access path
 - soil rehabilitation
- ② Revegetation of Sydney North Exposed Sandstone Woodland
- ③ Revegetation of Sandstone Gully Forest
- ④ Existing Tower with 20m clearing to Ausgrid standards



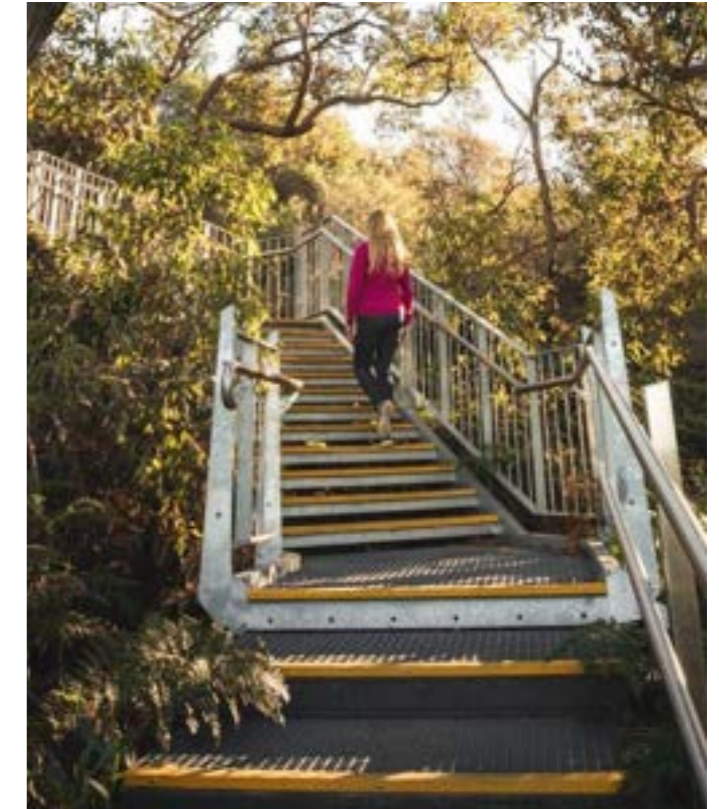
Frenchs Forest Access Path // Reinforced Existing Conditions

Legend

- ① Stairs access off Frenchs Forest Road
- ② Viewing platforms and rest stops to Walking Track
- ③ Re-vegetation of Sandstone Gully Forest
- ④ Retention of mature trees with paths wrapping around existing vegetation where possible, subject to site visit



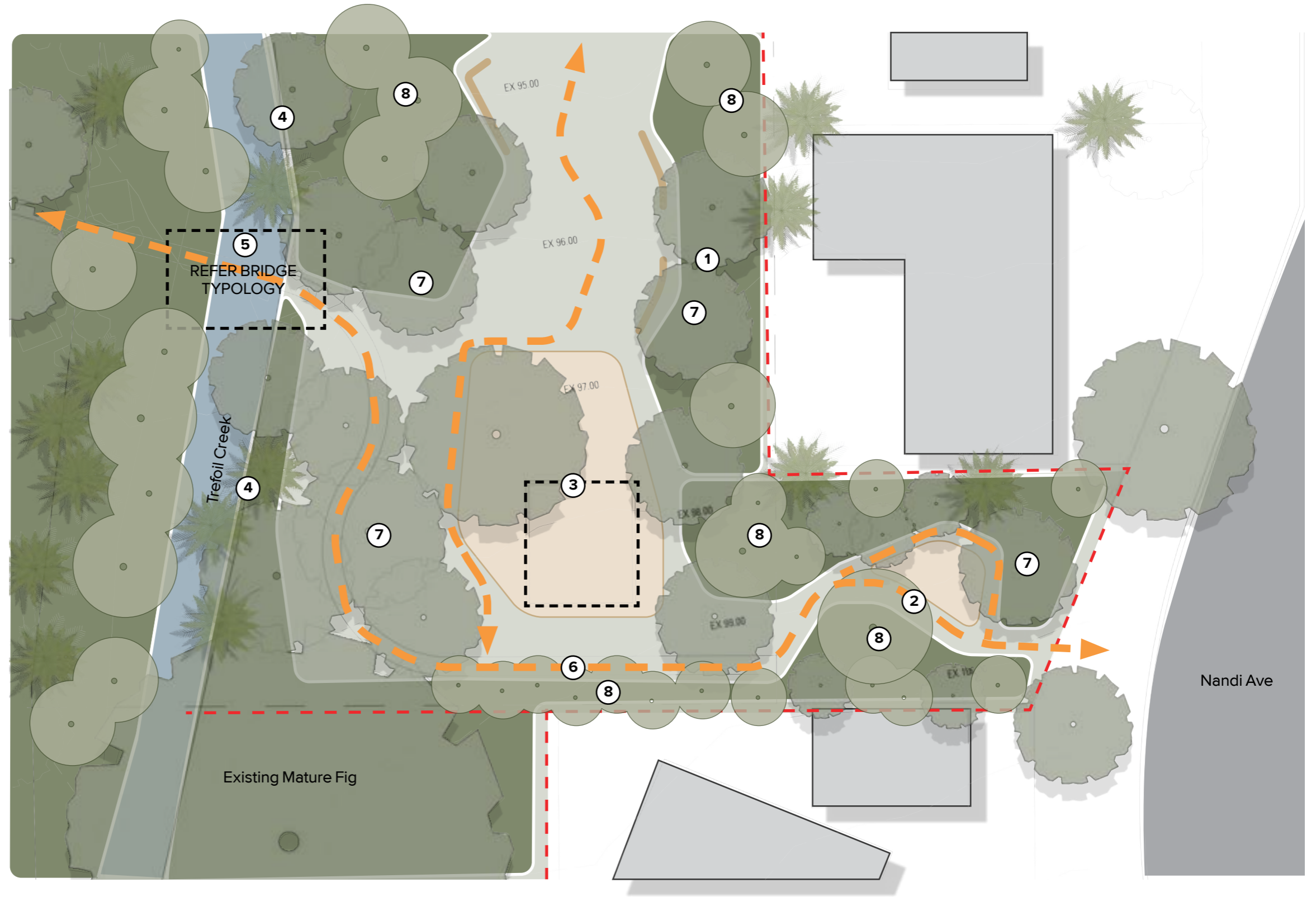
Scale 1:50 at A3



Playground Upgrade // Landscape Concept

Legend

- ① APZ vegetated conditions to residential edge to council standards.
 - ② Opportunity to enhance and privatise entry, if required by DPIE.
 - ③ Opportunity to enhance existing park conditions with natural play elements, seating amenity, open lawn, Any CPTED lighting to be non invasive with minimal impacts to residents.
 - ④ Opportunity to re-vegetation ecology along water edge and activate community waterway legacy.
 - ⑤ Activate water crossing, refer Water interface typology.
 - ⑥ Opportunity to introduce formal pathways and ensure accessible access to play area and provide signage.
 - ⑦ Opportunity to retain and enhance existing vegetation community groups.
 - ⑧ Potential to reintroduce endangered trees
- Works to provide improved amenity, safety and rehabilitation of ecology and creek.



Playground Opportunities // Landscape Concept

Legend

- ① Opportunities for nature play elements at key intersections of new walking trail. Located within opened space to reduce ground works and minimise impact to existing vegetations.
- ② Proposed walking trail
- ③ Opportunity to retain and enhance existing vegetation community groups.
- ④ Potential to reintroduce endangered trees
- ⑤ Existing creek and new water crossing.

New playground space to provide improved amenity, safety and educational opportunities.



Playground Character // Landscape Concept

The Experience



AUDIENCE

- / Play seekers
- / Kids
- / Families
- / Birthday groups
- / Pedestrian
- / Bird watchers
- / Multigenerational
- / Universal use
- / Locals

See: Tall Eucalyptus trees, textured grasses and ferns, foliage, filtered views to French Forest hospital, children exploring, families, birds,
 Hear: birds singing, rustling leaves, water running, children playing, people talking
 Smell: Earth, plants, sunscreen, cut grass, wildflowers

The Character

Entry to pocket park can be found on foot via Nandi Avenue or a longer journey to play space from another vehicular arrival west of the site. At entry to the park endemic vegetation revitalise residential edges along a formalised accessible path. The park itself establishes a clear perimeter with meaningful sensory play elements through passive and imaginative play for all age groups and abilities levels.

The Coastal Sandstone Gully Forest creating a green buffer around the park, while retaining site lines and universal access. A trail continues north-east of the site exploring different vegetation communities and backing onto private and screened residential edges.



The Elements



PROGRAMME

- / Group table settings
- / Single and pram use seating
- / Formalised pathways
- / Natural play elements
- / Access to bridge over creek
- / Bush tucker gardens
- / Open turf lawn
- / Indigenous trees and shrubs
- / Revegetation of creek edges and reintroduction of endemic species
- / Signage and sensory play

// Landscape Strategy

Movement & Way finding Strategy // Landscape Strategy

Wayfinding






“The most commonly nominated feature for the upgraded Nandi Reserve was the inclusion of a walking loop and/or bike path.”
Parks for People Phase 1 What we Heard Report, JOC Consulting for DPIE.

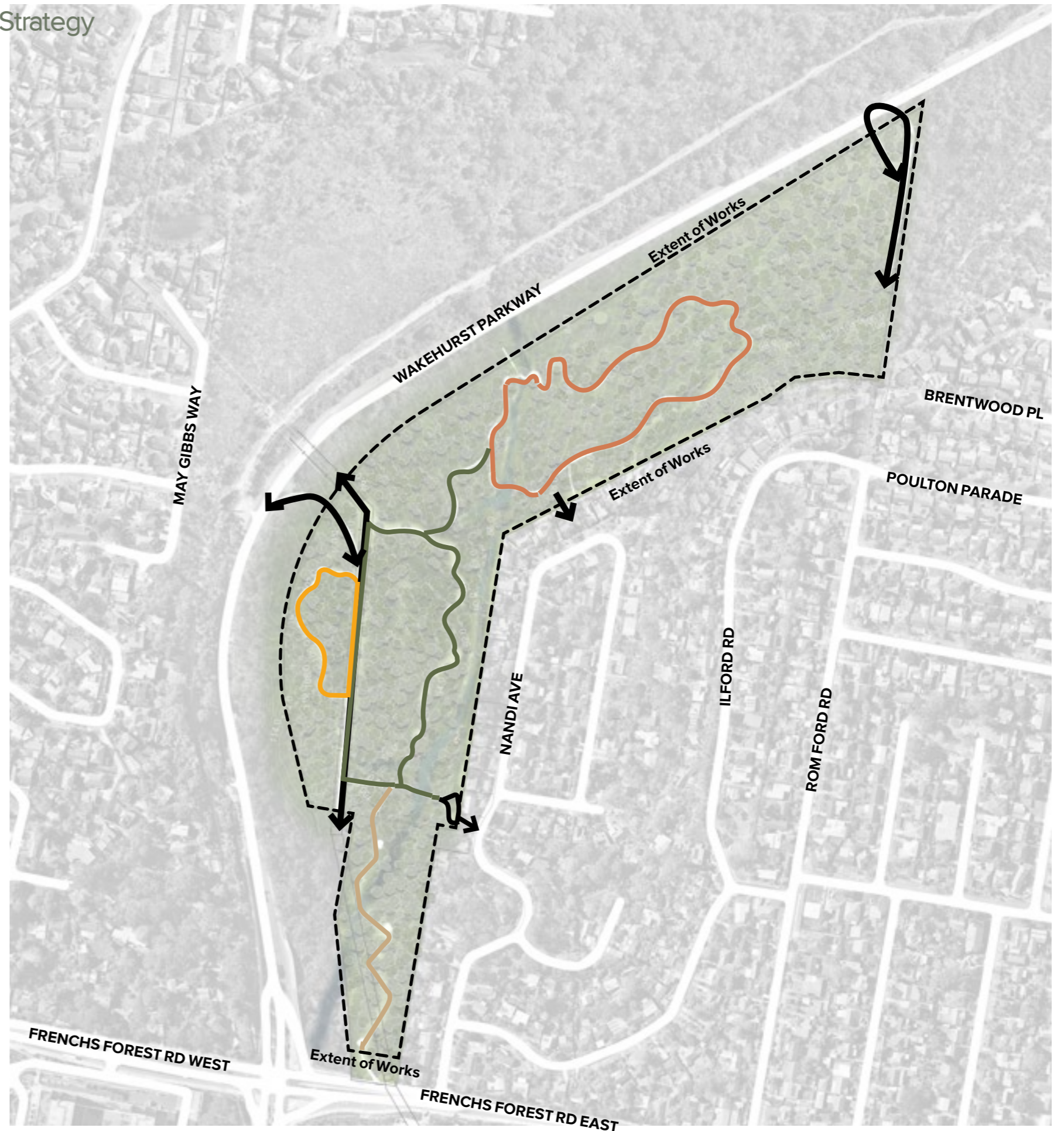
There is significant opportunity to provide educational element within these movement loops. Proposed education through out the site can include:

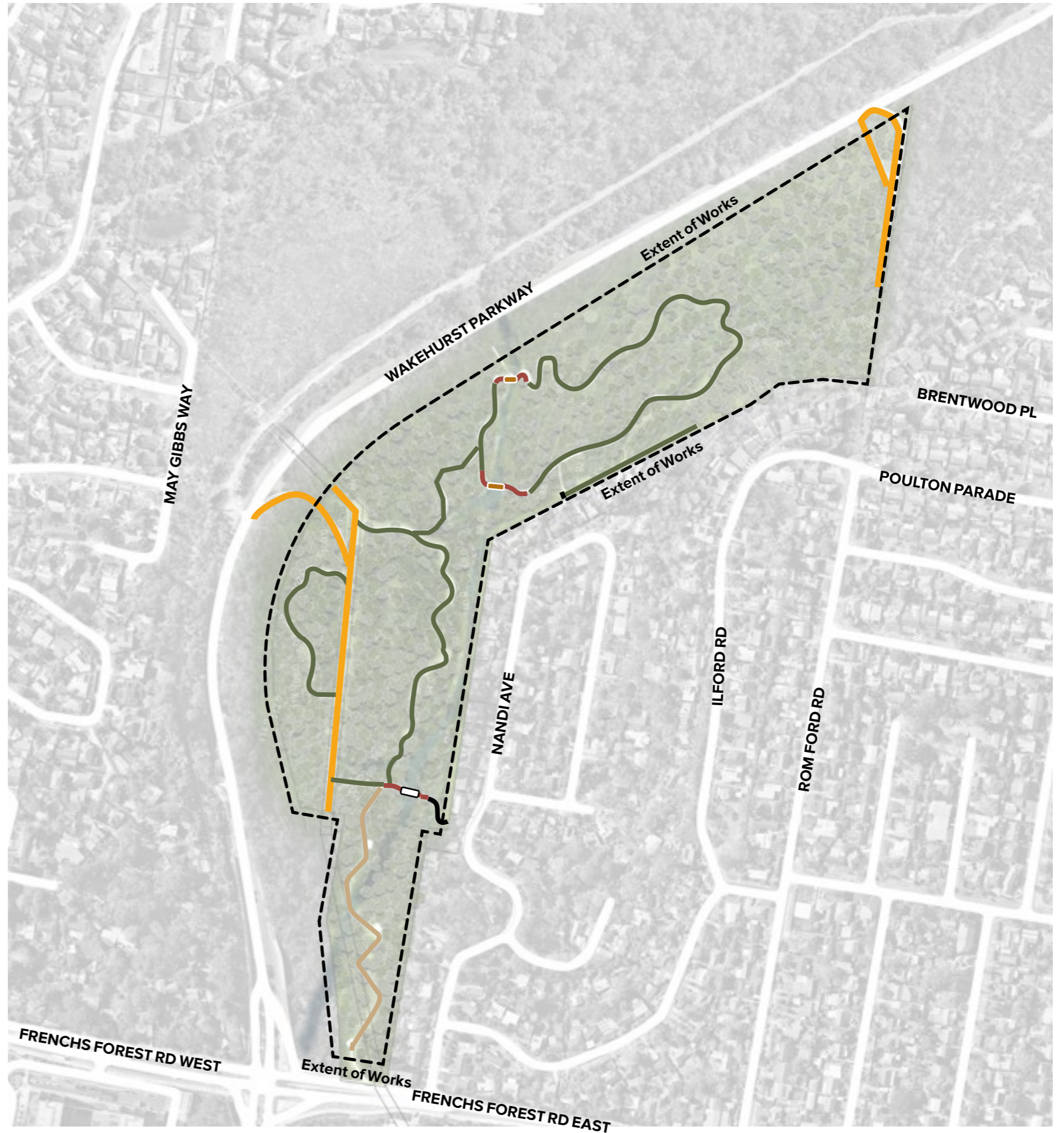
- seed propagation and dispersal
- ecological signage
- demonstrational zones and signage of country connection

“As a space of such unique environmental importance, survey participants also nominated “Native flora and fauna education” as the number one theme or topic that they wished to see expressed in the design and space of the new park.”
Parks for People - Phase 1 What we Heard Report, JOC Consulting for DPIE.

Legend

-  Gallery Rainforest Walk
-  Native Short Loop
-  Sandstone Gully Loop with 2m wide path
-  Graded Stair Access
-  Maintenance Access path
























Legend

- Gravel pathway (Refer Section PG)
- Concrete formalised pathway (Refer Section PG)
- Raised Boardwalk (Refer Section PG)
- Wide Easement access pathway (Refer Section PG)
- Crossing Type 1- Rock Edge
- Crossing Type 2
- Graded Stair Access

Tree Revegetation Strategy // Landscape Strategy

Sydney North Exposed Sandstone Woodland	Coastal Sandstone Heath-Mallee	Coastal Upland Damp Heath Swamp	Coastal Sandstone Gallery Rainforest	Coastal Sandstone Gully Forest
 Allocauarina distyla	 Eucalyptus luehmanniana	 Banksia ericifolia	 Ceratopetalum apetalum	 Eucalyptus piperita
 Banksia ericifolia	 Eucalyptus obstans	 Banksia oblongifolia	 Eucalyptus piperita	 Angophora costata
 Hakea dactyloides	 Banksia serrata		 Acacia parramattensis	 Banksia serrata
 Banksia oblongifolia	 Banksia oblongifolia			 Ceratopetalum gummiferum
	 Banksia ericifolia			 Pittosporum undulatum



“Stop and listen for the sound of the Cockatoos. That will tell you what time it is.” - Adam Byrne

Balarinji Report, 2021.

Flora and Fauna Rehabilitation // Landscape Strategy

Coastal Sandstone Gully Forest



Angophora costata



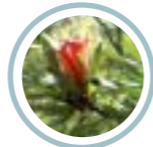
Banksia serrata



Acacia terminalis



Kunzea capitata



Lambertia formosa



Leptospermum trinervium



Persoonia pinifolia



Lomandra obliqua



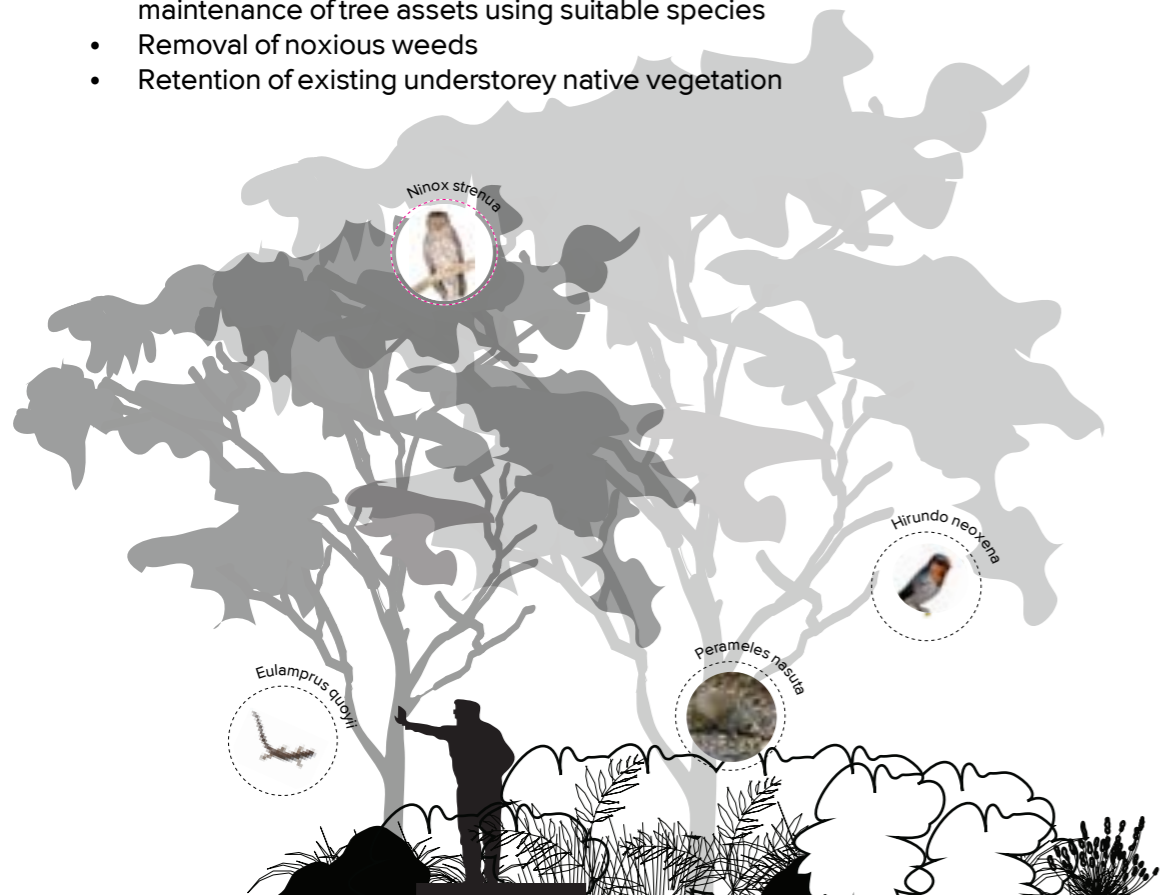
Actinotus minor



Xanthorrhoea media

Rehabilitation works including:

- Protection and retention of significant clusters of threatened species
- Ensure on going and long term preservation and maintenance of tree assets using suitable species
- Removal of noxious weeds
- Retention of existing understorey native vegetation



--- APZ conditions



Flora and Fauna Rehabilitation // Landscape Strategy

Coastal Sandstone Gallery Rainforest



Rehabilitation works including:

- Protection and management of riparian corridor habitat
- Harvest of seed banks for the purposes of on site regeneration of endemic vegetation community groups
- Mitigate flood risks by stabilising creek line
- Improve ecological resilience by revegetation native species



--- APZ conditions



Flora and Fauna Rehabilitation // Landscape Strategy

Coastal Upland Damp Heath Swamp

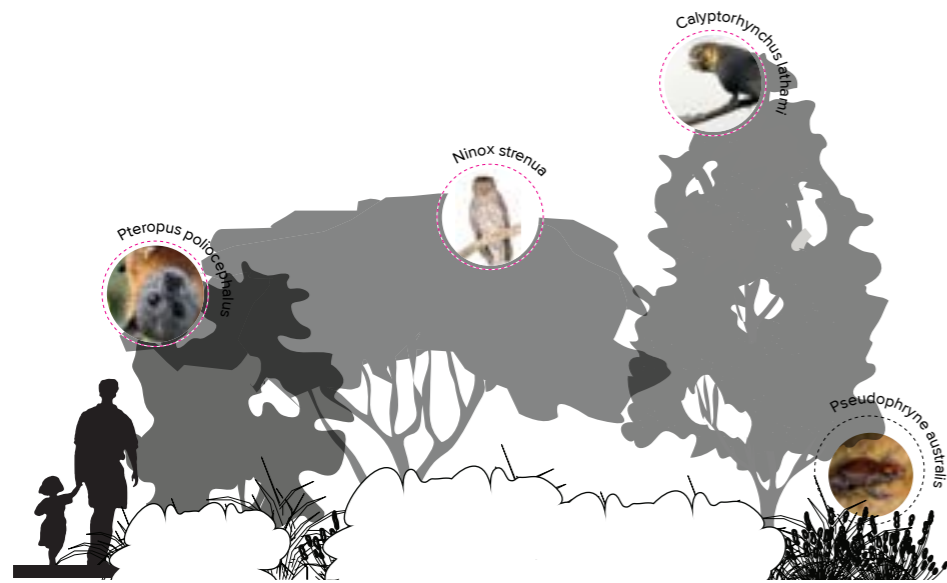


--- APZ conditions



Flora and Fauna Rehabilitation // Landscape Strategy

Coastal Sandstone heath- mallee



--- APZ conditions



Scale 1:4000 at A3

Flora and Fauna Rehabilitation // Landscape Strategy

Sydney North Exposed Sandstone Woodland



As an area of natural beauty, and “a known habitat for the Powerful Owl”, the need to preserve the natural ecology of the reserve was the number one up-voted comment from the Social Pinpoint activity. Parks for People Phase 1 What we Heard Report, JOC Consulting for DPIE.

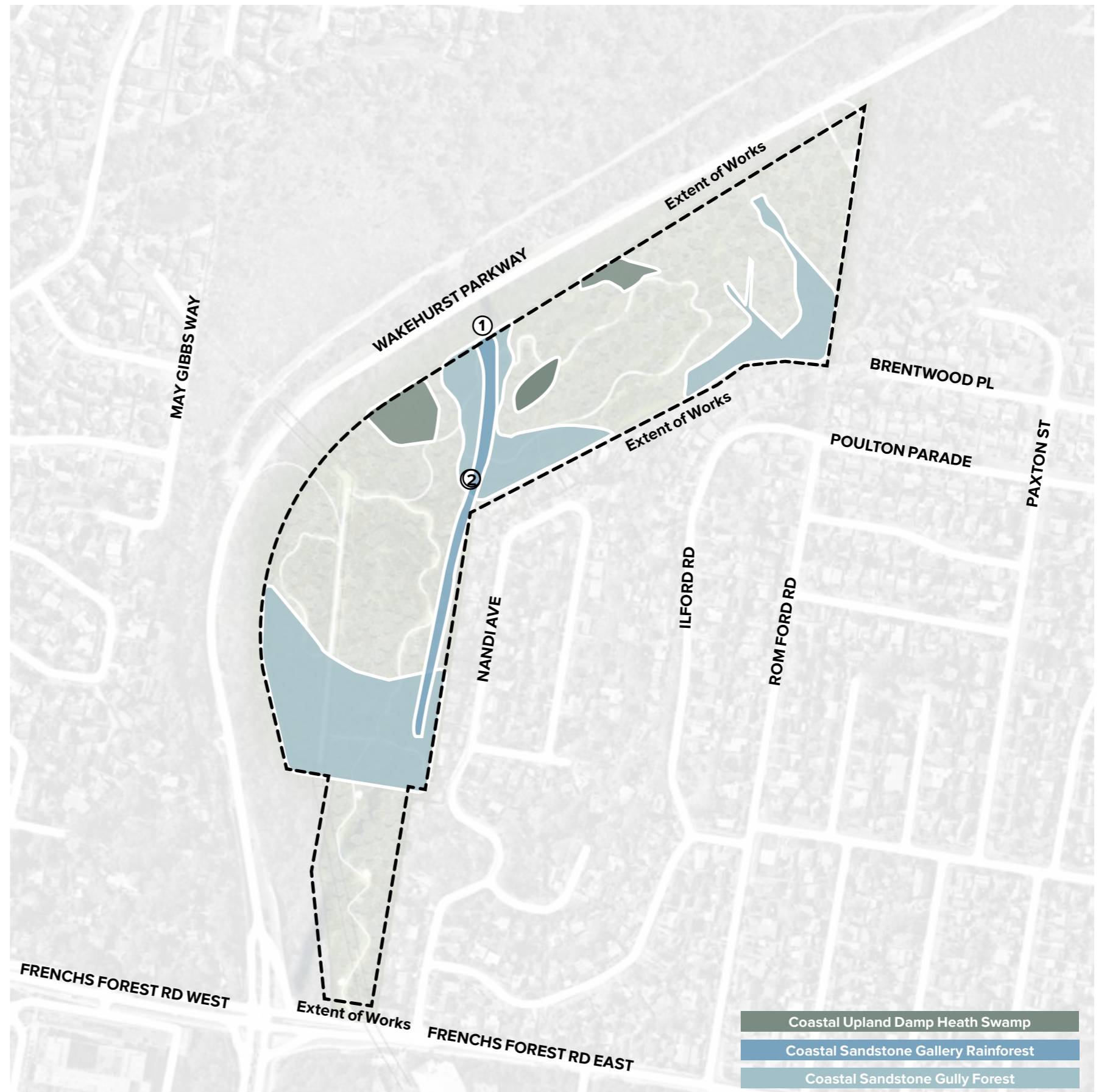


--- APZ conditions

Civil Engineer

- The proposed works will maintain or divert the existing overland flow within the site.
- During the construction stage of the project, sediment and erosion control measures will be installed and maintained until construction is completed.
- The proposed sedimentation and erosion control measures will prevent sediment laden stormwater from flowing into adjoining properties, bushland, roadways or receiving water bodies.
- Stormwater controls on site will be detailed in an erosion and sediment control plan which will be in accordance with relevant regulatory authority guidelines including Landcom NSW's Managing Urban Stormwater, Soils and Construction ("Blue Book").
- Erosion and sediment control plans will be prepared for the site as part of the schematic design process.

- ① Existing Stormwater pipe network through site
- ② Existing Channel and Creek



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