



# Greening the Pipeline

## Draft Master Plan Report

*alluvium*

REALM  
studios

Supermass Studio

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# EXECUTIVE SUMMARY

The Greening the Pipeline project has a vision to transform the heritage listed Main Outfall Sewer (MOS) Reserve into “a vibrant space that will connect communities, enhance active transport options for the region, manage water sensitively and provide a unique place to meet, play and relax”.

This Masterplan focusses on ‘Zone 5’ of the Greening the Pipeline project: a 3.7km length of the MOS Reserve between Skeleton Creek and Lawrie Emmins Reserve with the overarching theme of “Community Connectivity”. In delivering Community Connectivity, this Masterplan aims to improve access to and amenity of the MOS Reserve by transforming it into a linear green space that connects communities on either side, provides connection to the region’s significant natural and community assets while introducing the community to the historical and cultural significance of the MOS artefact itself.

The MOS and the 40m wide reserve that houses the artefact, is listed on the Victorian Heritage Register for its historical and scientific (engineering) significance to the state of Victoria. (VHR, Number H1932).

In 1892 the construction of the MOS was the largest civil construction project in the State and undertaken in the context of an economic depression. The work was divided among seven contracts, completed by 1,300 men, with the different construction techniques and finishes still visible today. It endures as an iconic artefact of historical significance to Melbourne and engineering excellence of the day. The MOS also signifies a critical period in Melbourne’s growth toward the metropolis it is today.

It is the celebration of this historical and scientific significance that lies at the centre of the Greening the Pipeline Masterplan.

Today the MOS Reserve is largely inaccessible or uninviting, creating a barrier between adjacent communities and separating these communities from natural and recreational assets on either side. This masterplan describes the repurposing of the MOS to become a contemporary feature and environmentally sustainable water asset. A stormwater harvesting, treatment and storage concept, housed within the MOS, will enable greening of the MOS Reserve and adjacent open spaces. The alternative water source will also deliver resilience over dryer periods.

The development of the Masterplan has sub-divided Zone 5 into three conceptual frameworks: Track, Stitch and Braid. Each conceptual framework responds to the unique characteristics of the artefact and the MOS Reserve within that section while always being driven by the connection of the community to the artefact itself. Some lengths of the MOS are filled and landscaped to provide much needed kick and play space. Pathways and trails, urban forests, community gardens and viewing platforms over local waterways heightens the community connectedness to the dynamic ecosystems that exist within this evolving urban environment.

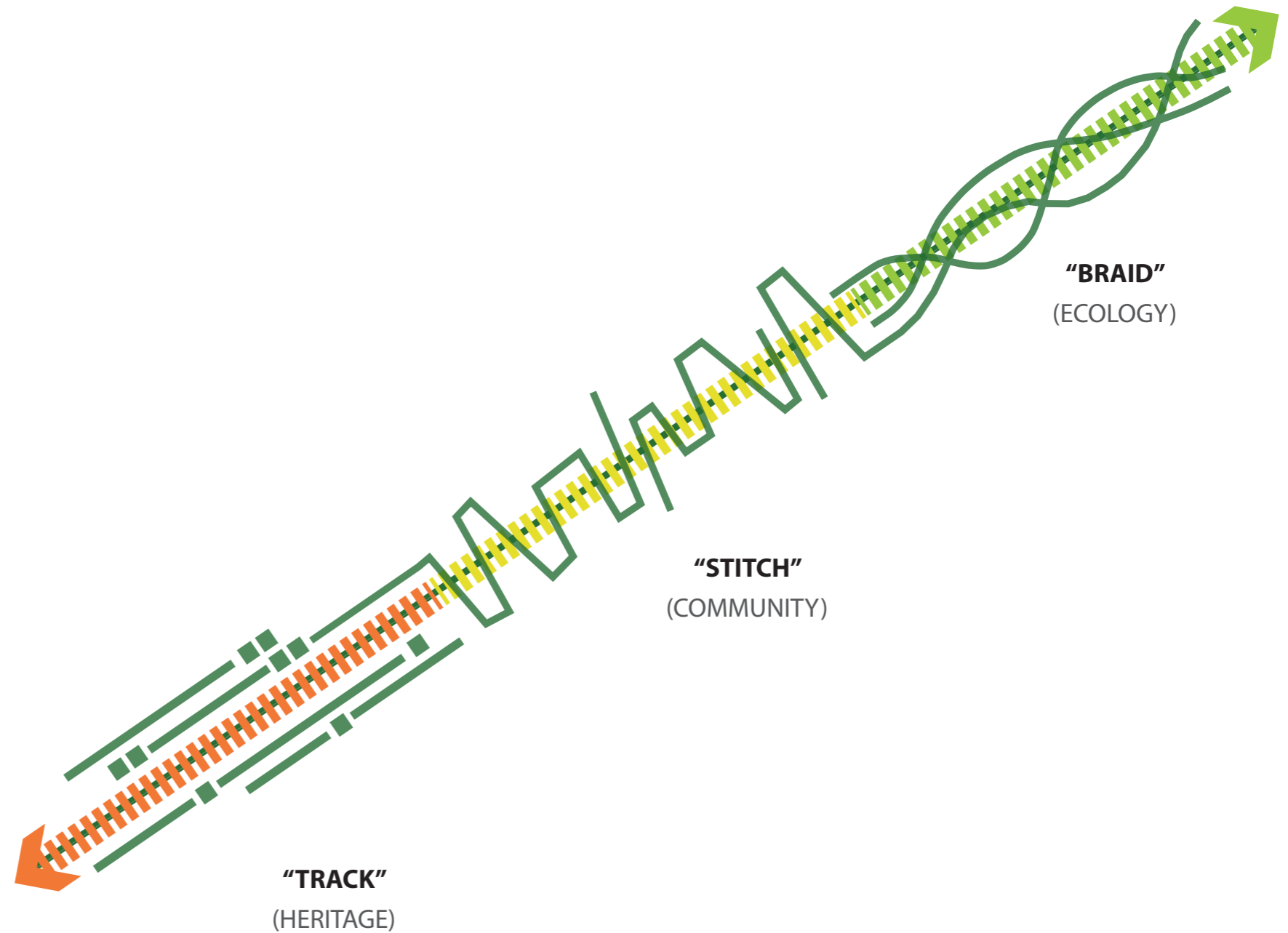


DIAGRAM REPRESENTING THE 3 CONCEPTUAL FRAMEWORKS - TRACK, STITCH AND BRAID.

## 1.0 PROJECT INTRODUCTION

### 1.1 BACKGROUND / HISTORICAL SIGNIFICANCE

In the early 1890's the peak of the Victoria's economic boom had past and a depression had commenced with shrinking economic activity and rising unemployment, particularly within the construction industries. It was in this economic and social context that construction of the Main Outfall Sewer (MOS) commenced in 1892. At the time it was the largest civil project undertaken in Victoria.

The MOS was part of a broader program to deliver sewerage services to Melbourne. The sewerage system drained to Spotswood which was the lowest point in the system. At Spotswood sewage pump station four steam pumps pushed sewage up and through wrought iron rising mains to the inlet of the Main Outfall Sewer that flowed freely under gravity to the sewage 'farm' at Werribee.

The construction of the 27km Main Outfall Sewer was undertaken between 1892 and 1894, with construction divided into seven contracts delivered by local contractors. 1,300 men using picks and shovels removed 480,000 cubic metres of earth and rock, lining the channel with concrete and brick that remains today as a tribute to the integrity of its construction. Remarkably, the work (with the exception of the Kororoit Creek aqueduct) was completed in a year at a cost of £240,748 (source: [heritagecouncil.vic.gov.au](http://heritagecouncil.vic.gov.au)).

Today, the MOS is an engineering artefact, signaling Melbourne's growth into a bustling metropolis. It is unique in its visibility, illustrating the vision our forebears had for Melbourne and the remarkable achievement of engineering and workmanship that made that vision a reality.



LORD HOPETOUN TURNS THE FIRST SOD, MAY 1892

❖ **FREE ❖ LECTURE ❖**  
 Illustrated with lime-light views.  


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**MELBOURNE SEWERAGE SCHEME AND  
 WATER SUPPLY.**  


---

 Mr. W. THWAITES, C.E., has kindly consented at the request of  
 the Kew Borough Council, to deliver  
**A LECTURE**  
 ON THE  
**MELBOURNE AND METROPOLITAN SEWERAGE SCHEME,**  
**On FRIDAY, 31st August, 1894**  
 At 8 p.m., at the  
**RECREATION HALL**  
 (WELLINGTON STREET, Adjoining Kew Railway Station).  


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**PROPERTY OWNERS ARE PARTICULARLY INVITED TO  
 ATTEND.**  


---

 By order,  
 HOLLAND LOXTON,  
 Kew, August 27th, 1894 Town Clerk.  


---

 J. H. BUXTON, JUNR., "Mercury" Office, Kew.



HISTORIC IMAGES REPRESENTING CONSTRUCTION OF THE MOS, 1894.

## 1.2 SITE CONTEXT

Greening the Pipeline is a collaborative project between Melbourne Water, Wyndham City Council, VicRoads and City West Water to transform the existing Main Outfall Sewer (MOS) Reserve into a linear parkland. The project's vision is to "create a vibrant space that will connect communities, enhance active transport options for the region, manage water sensitively and provide a unique place to meet, play and relax".

As part of the Greening the Pipeline project. The 27km length of the Main Outfall Sewer and its associated reserve has been divided into nine zones. This Masterplan focusses on Zone 5 of the MOS Reserve. A 3.7km length between Lawrie Emmins Reserve and Skeleton Creek with an overarching theme of "Community Connectivity: a space that brings the local community together and connects existing open space"

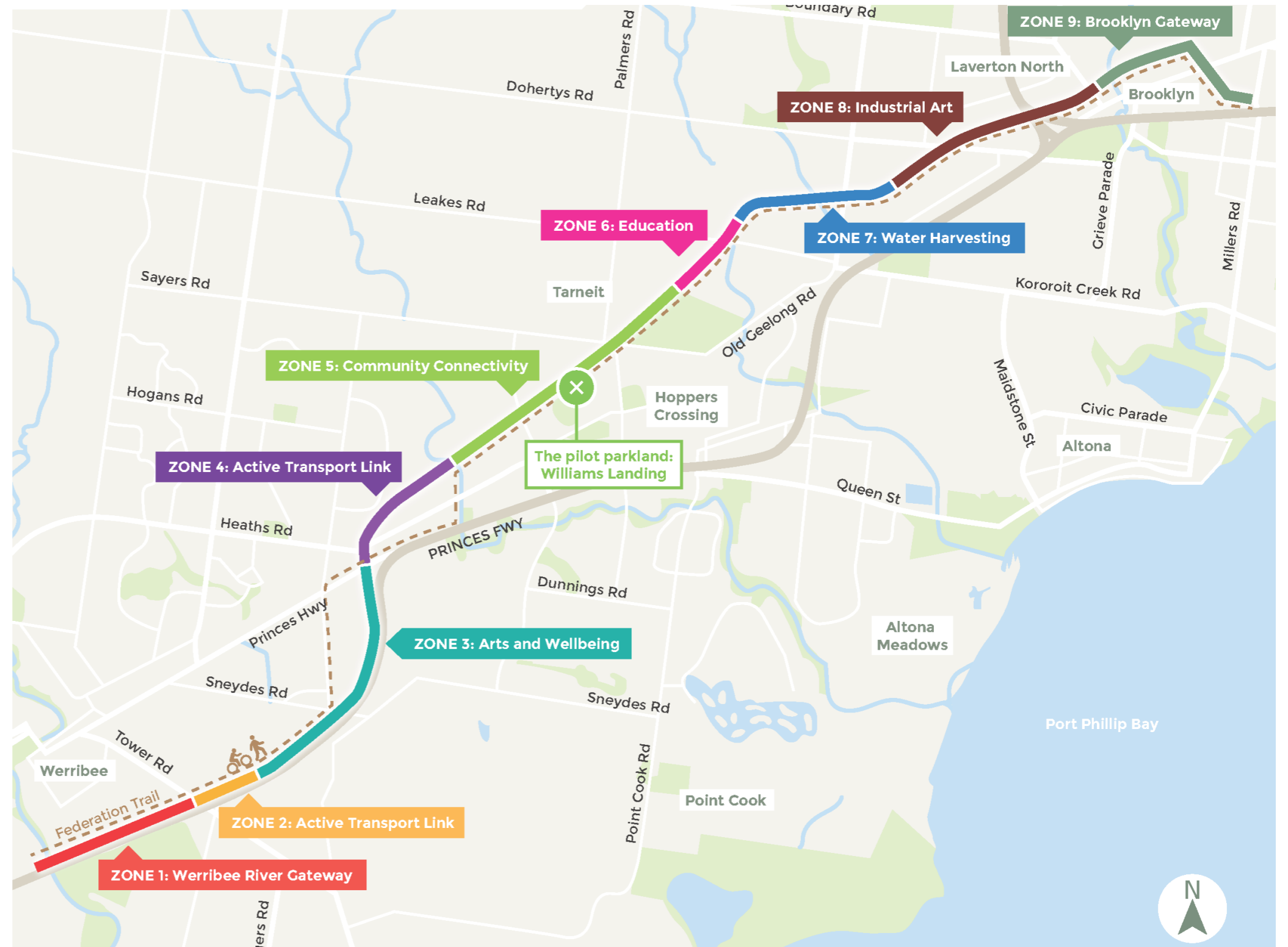


REGIONAL CONTEXT SHOWING THE ZONE 5 OF THE MOS IN RELATION TO THE MOS, BROOKLYN AND WESTERN TREATMENT PLANT.

## 1.2 SITE CONTEXT

The Greening the Pipeline map allows Zone 5 to be understood within the context of the Greening the Pipeline project and to appreciate the length of the MOS, connecting the city to Werribee and Port Phillip Bay. The MOS Reserve importantly houses the Federation Trail, a valued shared use path for cyclists and pedestrians.

The theme of Community Connectivity signals the opportunity to connect communities along Zone 5 to each other, to nature and to water while delivering a unique linear recreational space for play for community use. In a broader sense the potential for the MOS Reserve is to connect Western Melbourne and Port Phillip Bay via an ecologically diverse, productive, and recreational corridor that will grow into a city scale resource over the longer term.



GREENING THE PIPELINE ZONE MAP

1.3 SITE IMAGES



SKELETON CREEK AQUEDUCT



BRICK LINED MOS



FEDERATION TRAIL ALONG INDUSTRIAL AREA



CAR JUNKYARD ADJACENT TO MOS RESERVE



PROJECT TEAM EXPERIENCING THE MOS AND THE FEDERATION TRAIL



BRICK LINED MOS



VIEWS ACROSS MOS INTO ARNDELL PARK

## 1.4 LOCAL COMMUNITY

Zone 5 of the MOS Reserve runs through the heart of a dynamic and diverse community and the suburbs of Williams Landing and Truganina South.

Today the MOS Reserve is used for walking and dog walking along formal and informal pathways, cycling along the Federation Trail and moving to and from neighbourhood hubs including the Arndell Park Community Centre, Truganina South Primary School and the recently completed Williams Landing Pilot Park.

Restricting this behaviour is fencing, in varying condition, along the length of Zone 5. This restricts accessibility to the MOS Reserve with limited opportunities for crossing the MOS inhibiting the movement of the local community.

The objective of the Plan for Zone 5 is to deliver an improved community recreational asset, and in doing so reconstruct options for safe movement around and engagement with the MOS itself while accommodating existing uses, such as cycling along the Federation Trail.



1.5 PILOT PARK

The Williams Landing Pilot Park represents a demonstration of the capability of the MOS Reserve to provide new community spaces that link communities on either side of the reserve, incorporate community gardens, playspaces, water treatment and storage. An issue raised following the establishment and use of the Pilot Park over time has been the potential conflict between the Pilot Park and existing community activities within the reserve, most notably cycling along the Federation Trail. Managing slow and fast movement and providing adequate spatial separation, clear view lines, and demarcation through material, textural changes to limit conflict and risk will be an important consideration along the length of the MOS Reserve.



AERIAL VIEW OF THE PILOT PARK LOOKING SOUTH WEST



WATER TREATMENT DEVICE WITHIN THE MOS ALIGNMENT



VIEW LOOKING NORTH EAST

## 1.6 COMMUNITY GARDEN

Productive community gardens provide a unique type of public open space to the urban landscape. Wyndham City is supportive of Community Gardens because they “bring people together, allow people to share skills and learn new ones, offer people a chance to grow and enjoy fresh produce and can contribute to a healthier environment”. Community gardens are not for profit, and as the name suggests, community led.

Adjacent to the Williams Landing Pilot Park, a relatively informal community garden has been established, quickly becoming a valued asset to the local community. Wyndham City has been supportive of the garden and of the prospect of the existing community garden being formalised, or a new garden being established elsewhere within Zone 5.

From a practical point of view, when and in considering where a community garden might be suitable, the following should be considered:

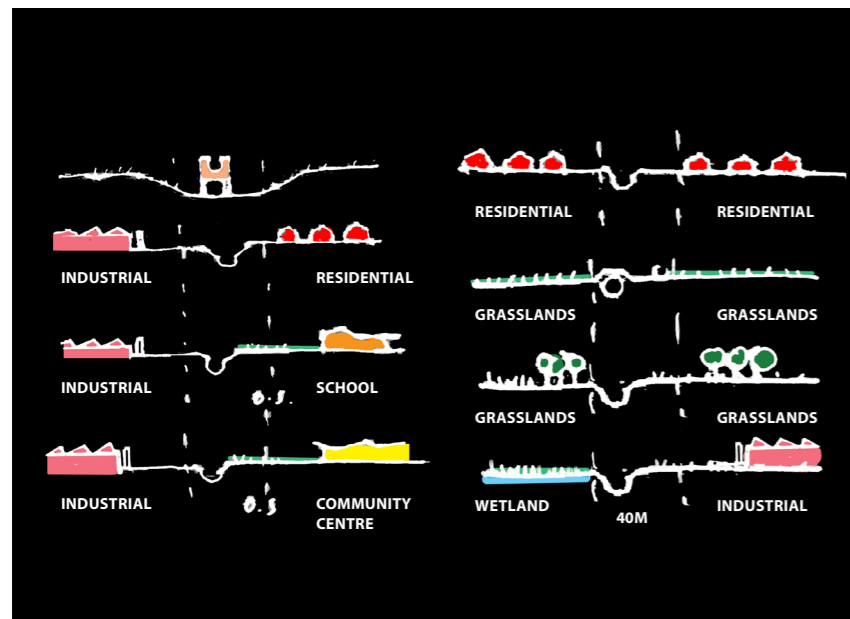
- Proximity to gardeners
- Water supply
- Shelter
- A shed or storage facility
- Toilets nearby
- Accessible



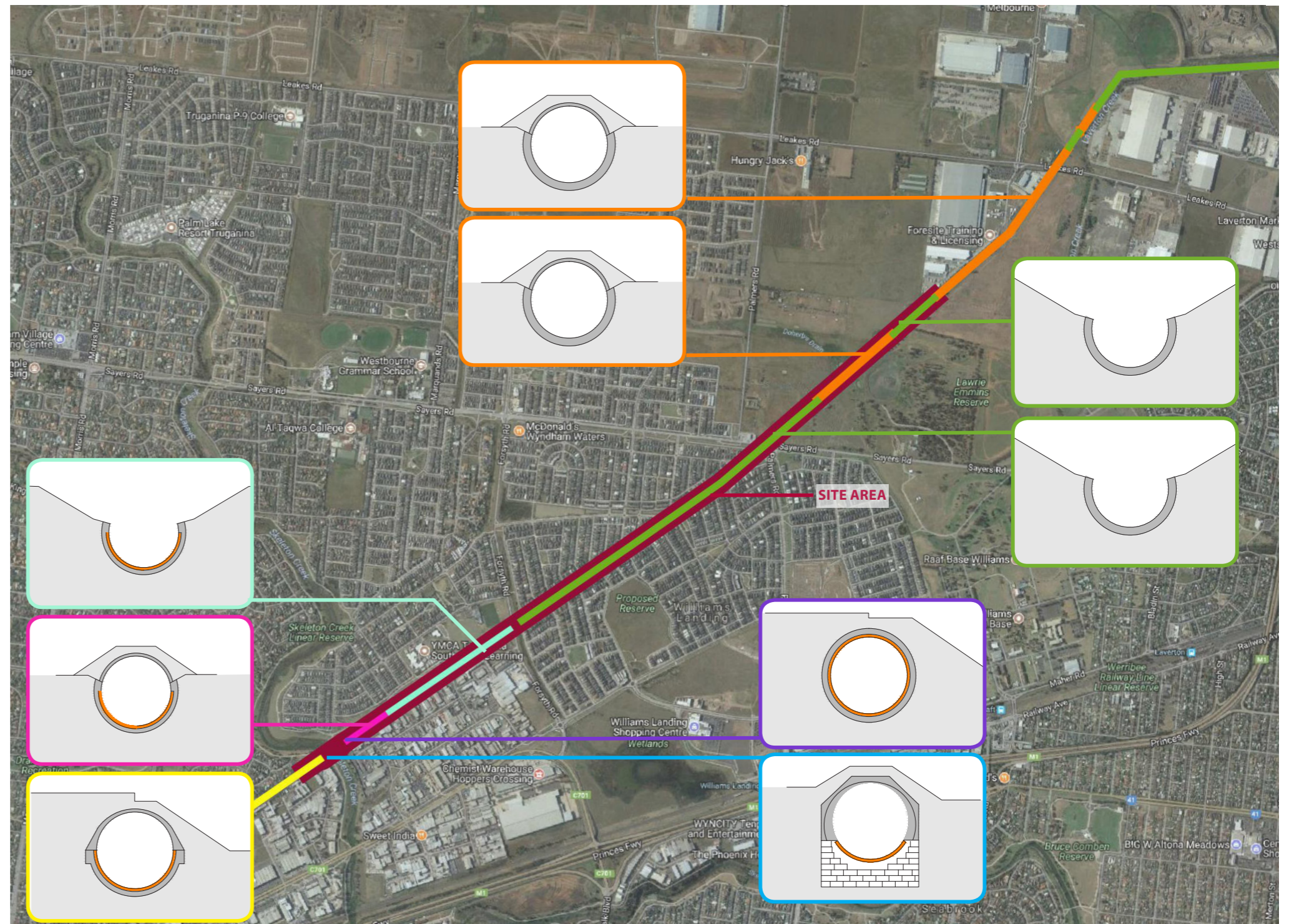
## 1.7 MOS CONSTRUCTION TYPOLOGIES

The range of pipe typologies expressed in brick and concrete, and a variety of combinations of the two, have evolved through historic design and construction circumstances, including a range of contractors and construction techniques adopted at the time, and more recent interventions, including the need to encase certain lengths of the MOS to manage, odour, health and public risk issues.

The result is a range of material and topographic expressions which start to determine the value of the conditions of the MOS for various adaptive re-uses ie full expression of the brick lined artefact against water storage and conveyance in concrete lined sections.



### INITIAL CROSS SECTION SKETCH OF ADJACENT LAND TYPES



### VARIOUS MOS TYPOLOGIES ALONG ZONE 5

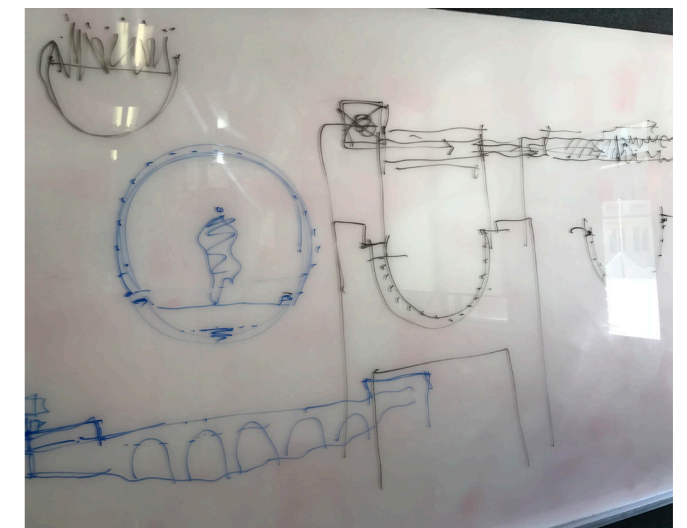
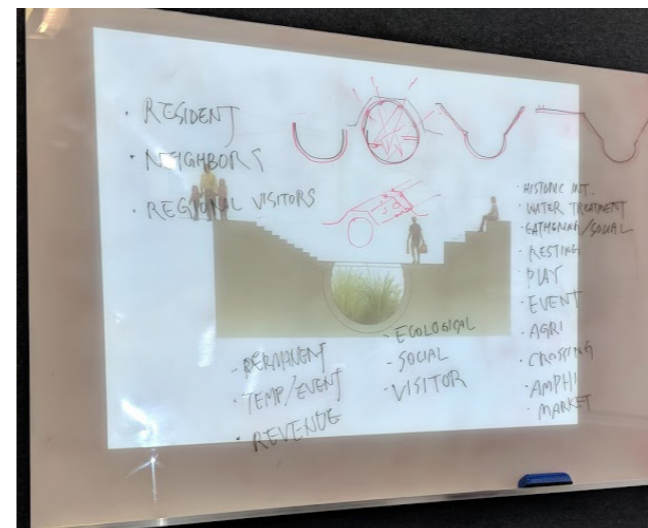
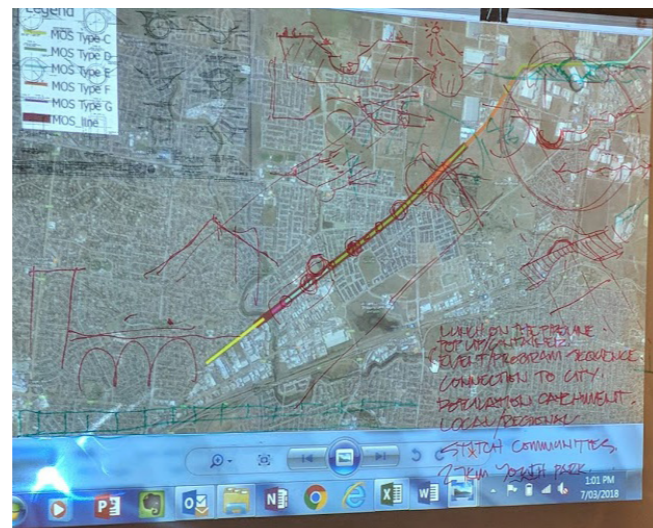
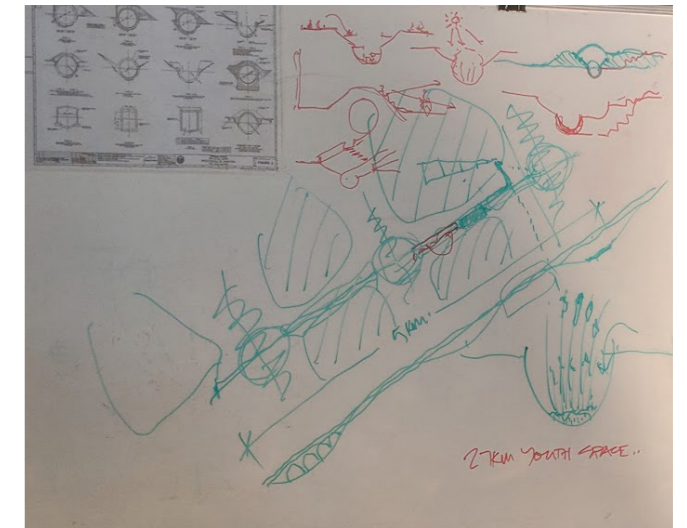
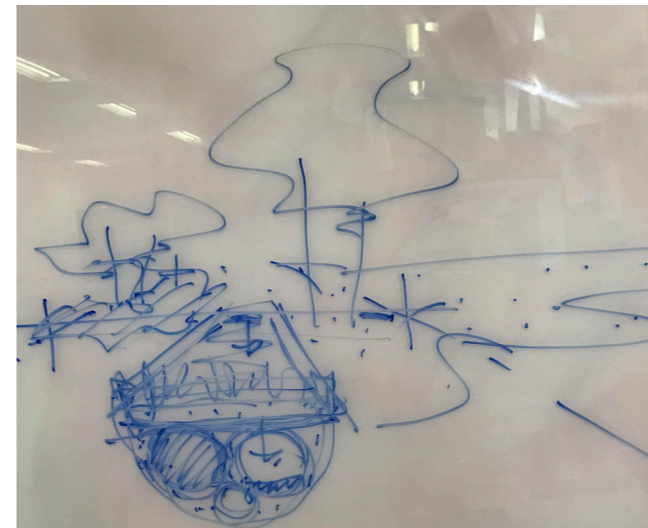
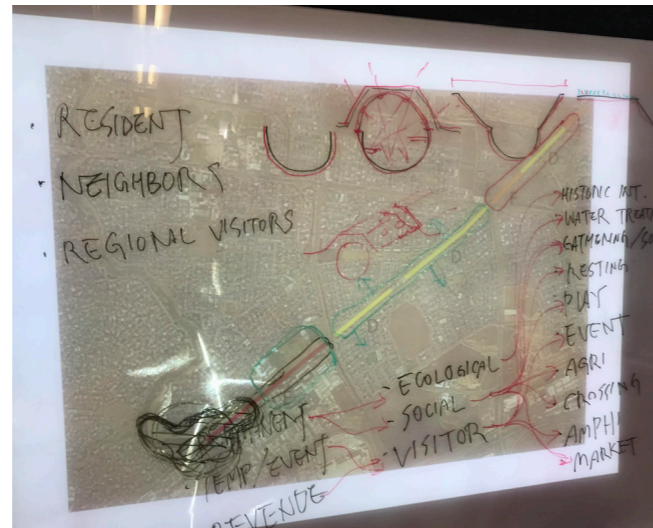
## 1.8 INITIAL WORKINGS

The initial workings with the Project Group sought to investigate and understand the artefact as a remarkable engineering feat, to appreciate what this asset meant for Melbourne and to bring an appreciation of that value to today's community.

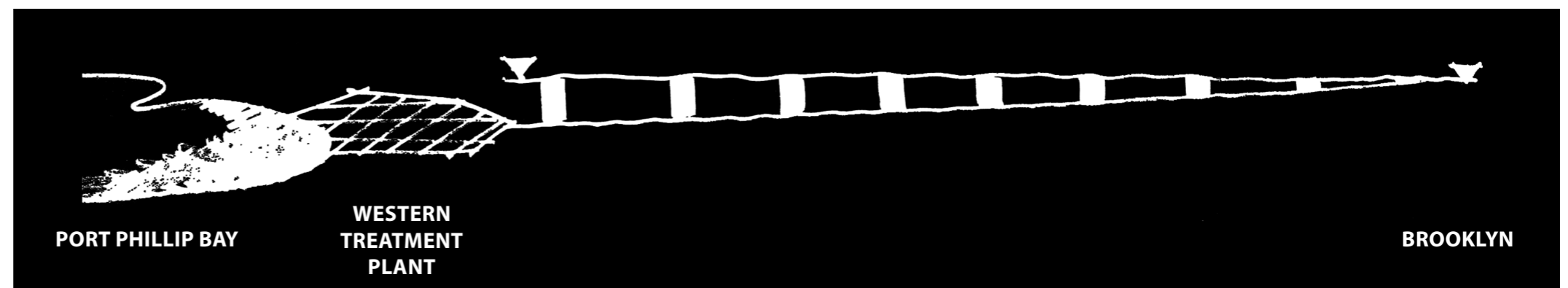
The various MOS typologies along the length of Zone 5 were identified and documented to understand how different construction approaches and resultant topographies might be reinterpreted and reworked.

By reinterpreting and reworking these typologies the aim is to connect the MOS with adjacent land uses within and beyond the Reserve thereby facilitating interaction with the artefact, providing places for gathering and fun, as well as, importantly, providing opportunity for water treatment, storage and reuse for irrigation and greening of the reserve corridor.

Further investigations sought to understand and interpret the intersection of the MOS with drainage lines and waterways on the catchment scale, also noting the varying topography along Zone 5. The aim here was to consider how the MOS might be reimagined to enable the vision of a green pipeline, by housing the treatment, conveyance and storage of stormwater.



WHITEBOARD SKETCHES DURING THE PROJECT GROUP WORKSHOP



EARLY SKETCH DEPICTING MARKERS TO REGISTER ELEVATIONAL CHANGE ALONG THE MOS

1.9 PROGRAMMING FLOW

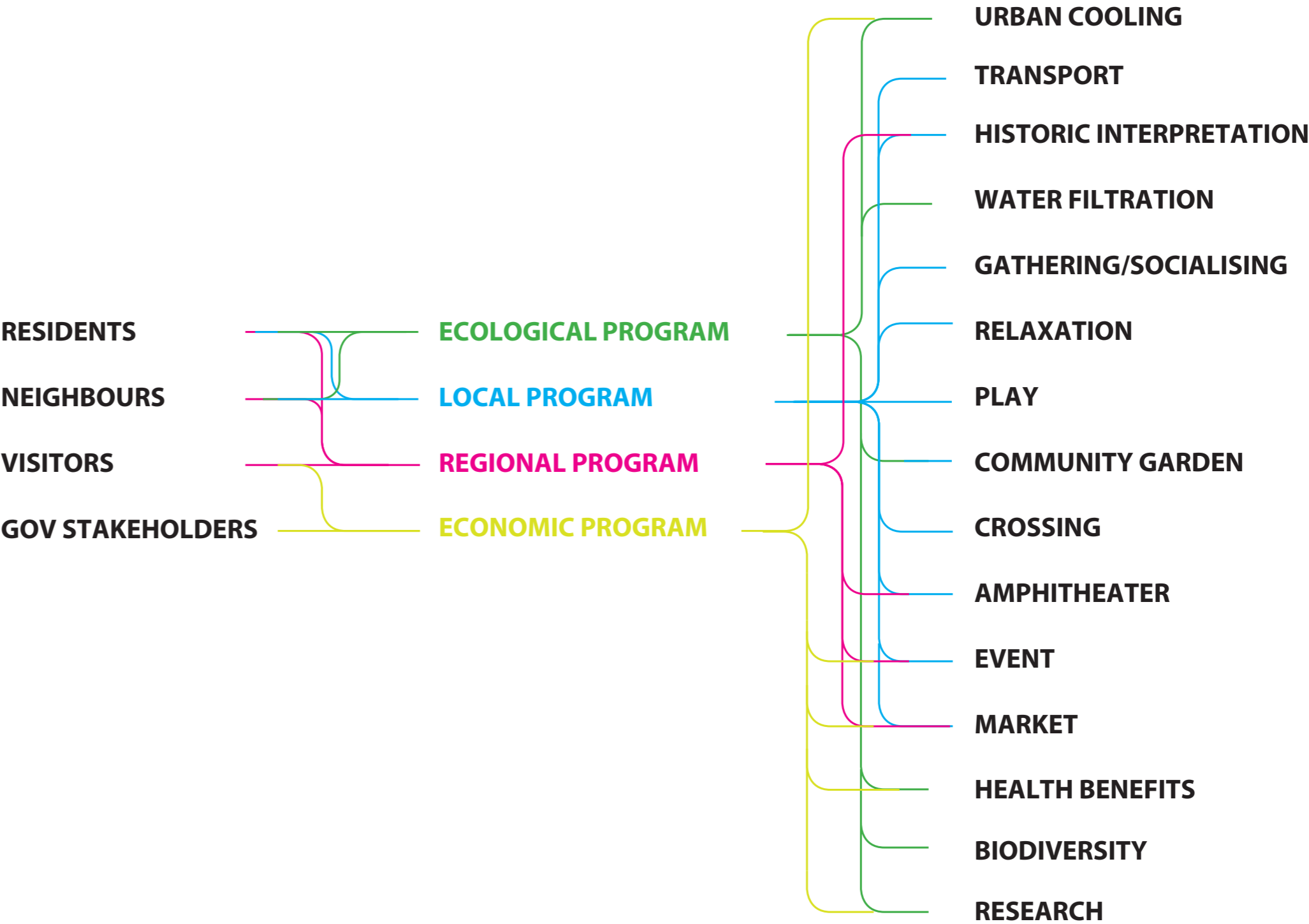
The potential program for the MOS is represented here in a structure that nominates the relationship between the MOS’ four primary user groups:

- 1. Residents
- 2. Neighbours
- 3. Visitors
- 4. Government stakeholders

These can be developed across four primary programmatic types:

- 1. Ecological
- 2. Local
- 3. Regional
- 4. Economic

and then used to allocate that programmatic across a range of dot point outcomes that were derived from the Project Group Workshop (see opposite page).



1.9 PROGRAMMING FLOW

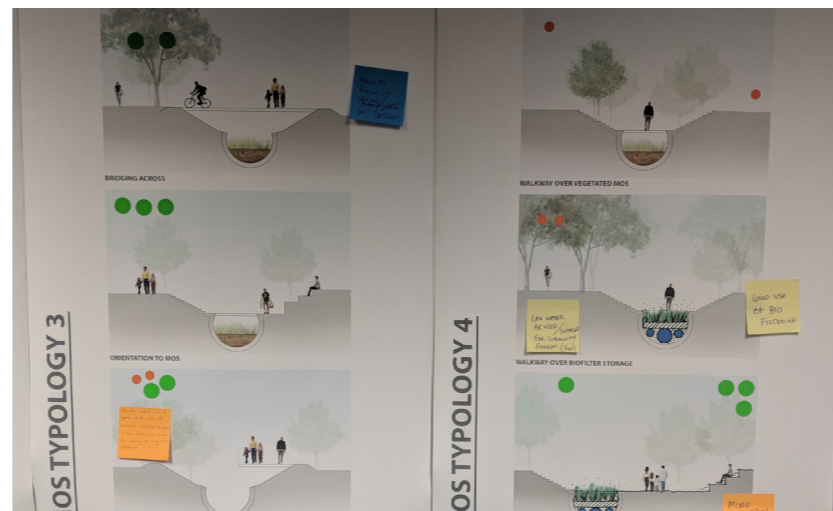
- ENGAGED **COMMUNITY**
- ENHANCED **ECOLOGY**
- **RESILIENT** (TO HEAT) LANDSCAPE
- **SOCIAL** EQUITY
- **ECONOMIC** VIABILITY
- **ECOLOGICAL** OPERATIONS
- **LINE** IN THE LANDSCAPE
- GREEN **BICYCLE SUPER HIGHWAY**
- **CELEBRATE** THE MOS
- **GIVE BACK** TO THE WEST
- WORKING WITH...**COMMUNITY INVOLVEMENT**
- **INDIGENOUS HERITAGE**
- CONTRIBUTE TO **CANOPY COVER** IN WYNDHAM
- KEY **HABITAT LINKAGES** – RESPECTING GRASSLANDS
- ACCESS TO **SHADY, NATURAL AREAS** FOR WYNDHAMS POPULATION
- CHANGE FROM WASTE LAND TO **ATTRACTIVE GREEN SPACE**
- EXPANSION OR RESTORATION OF **NATURAL FLORA AND FAUNA**
- INDUCEMENT FOR **NON CAR-BASED OUTDOOR ACTIVITY**
- PROTECT – VALUE MOS STRUCTURE
- **CONNECT COMMUNITIES**
- SOCIAL **PROGRAMS/EVENTS**
- INTEGRATION
- MAKE OPPORTUNITIES REALISED
- PLACE THAT **ATTRACTS PEOPLE** AND IMPROVES **QUALITY OF LIFE**
- **STORMWATER HARVESTING** OPPORTUNITIES
- **WSUD** OPPORTUNITIES
- IMPROVED **CONNECTIVITY**
- ACTIVATED **COMMUNITY PRECINCT**
- **INTEGRATED LANDSCAPE** OUTCOME – WATER, ECOLOGY, HERITAGE, CULTURE.
- PLACE FOR **PEOPLE** / SENSE OF **OWNERSHIP**
- **CANOPY COVER**
- **HABITAT CONNECTIVITY**
- APPROPRIATE CONSIDERATION
- ELEVATED AND LEGIBLE OUTCOMES
- INTEGRATED GEOLOGIES, SOCIAL, PLACE BASED OUTCOMES
- **POETRY OF THE MOS**

## 1.10 COMMUNITY WORKSHOP

A community workshop was held at the Arndell Park Community Centre, Truganina. Residents and members of local community groups expressed their aspirations for the MOS and the reserve, 'voting' for whether they liked or disliked the MOS proposed cross-section typologies that were prepared and presented by the project group.

Community feedback was collated according to three 'sub-themes' that the project team developed for Zone 5: 'Heritage Expression', 'Connection and Community', and 'Ecologies and Water'. Feedback included but was not limited to:

- Increased habitat and greening,
- The sounds and sight of water in the landscape,
- Nature play,
- Safe crossings,
- The continuity and expansion of community gardens,
- Expression of Indigenous and European culture and heritage,
- The inclusion of spaces for pop-up events, multicultural celebration and public art.



## 1.11 INDIGENOUS CONSULTATIONS

The MOS represents a significant intersection between Aboriginal and colonial heritage.

The MOS's engineered line through the landscape, along with its significant industrial heritage, are at odds with the natural systems and songlines of Country and, subsequently, with Aboriginal cultural heritage.

The MOS intersects and interrupts native creeklines, including those of Skeleton, Forsyth and Doherty's. Whilst appearing problematic, this intersection between Aboriginal and colonial heritage provides a most emphatic platform for Indigenous interpretation and expression through sculpture, applied art and integrated design response. Focusing down, the Skeleton Creek catchment represents the greatest opportunity for Aboriginal and industrial interpretation and storytelling given the expressed brick heritage of the MOS and the aqueduct in this zone, coupled with the significance of Skeleton Creek's Aboriginal Heritage.

### Boon Wurrung Foundation (5th of June)

- Culture, art and stories including about contemporary aboriginal culture (e.g. industrial employment)
- Language: The naming of place
- Traditional art: Use diamond patterning and herringbone carving
- Flexible media to enable change

### Bunurong Land Council (28th of May)

- Creek lines are significant sites for artefacts
- Bring a representative onsite in the event of excavations
- Display and tell the story of what was here...let's move past signs
- Think about the source of the Skeleton Creek name

### Wurundjeri Tribe Council (29th of May)

- Two sides: CHMP and Interpretation
- Ensure we don't just talk about the past, but about a living culture
- Incorporate elevated views (e.g. 'Bunjil the Creator' nest, Brimbank Park)



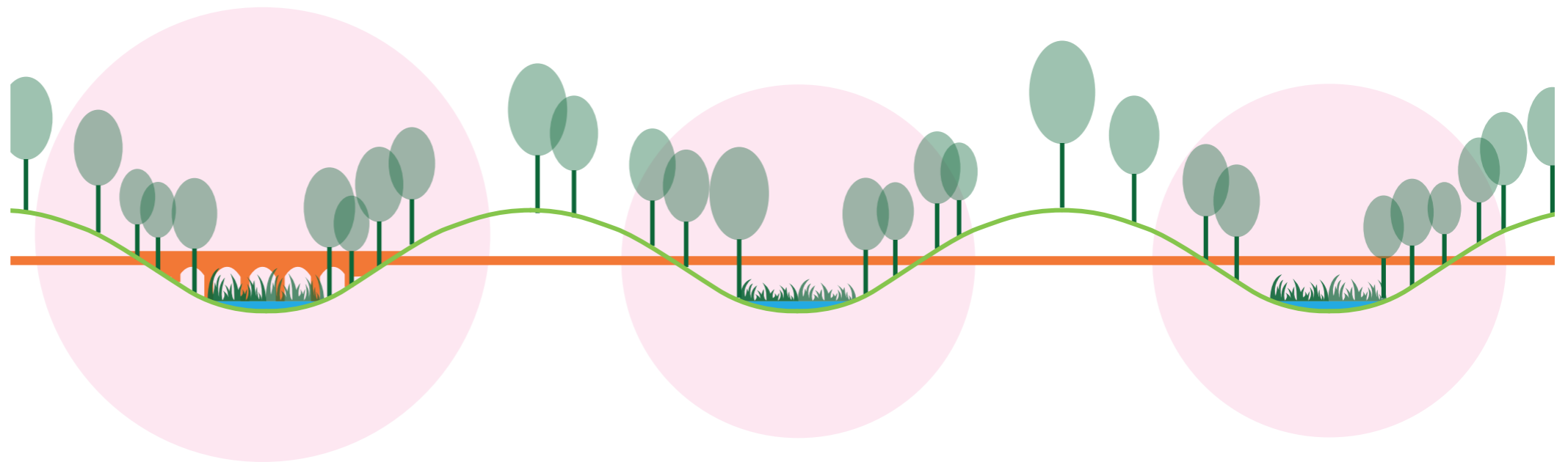
REFERENCE ABORIGINAL ARTEFACTS



SKETCHES DEVELOPED IN THE CONSULTATION



REFERENCE ABORIGINAL ARTEFACTS



DIAGRAMMATIC SECTION REPRESENTING THE MOS IN RELATION TO NATURAL TOPOGRAPHIC PATTERNS AND STREAMS

# 1.12 TRUGANINA SOUTH PRIMARY SCHOOL

There is an exciting opportunity for the 770 students of the adjacent Truganina South Primary School to have a say in the Plan and to benefit directly from the Greening the Pipeline project. Truganina South Primary School backs onto open space that is adjacent to the MOS Reserve, with an existing playground and flying fox.

The school has an incredibly diverse community with 80 languages being spoken across 60 cultures. The School's website states that Truganina South Primary "has a focus on environmental sustainability and students participate in an innovative intensive environmental education program". About 50 kids in the school's 'Green Team' expressed the following visions for the MOS Reserve and surrounding open space:

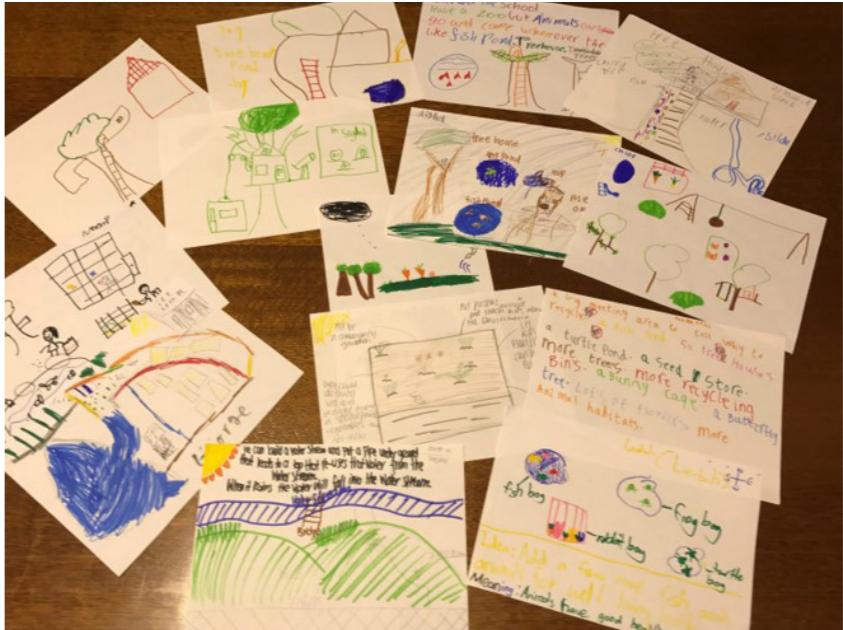
- Trees, tree houses and trees we can climb,
- Habitat for frogs, turtles and birds,
- Community gardens with vegetables from across the world,
- Gardens showing where we all come from,
- Outdoor classrooms and meeting places,
- Space for stalls and markets.

This presents opportunities to design outdoor classroom spaces that tap into the engineering history of the MOS, the ecological values of Skeleton Creek while planting additional vegetation including urban meadows and trees.

Replacing existing fencing with safe alternatives will open up the reserve so that students can engage with the MOS and have access to the Federation Trail for active travel.



STUDENT ACTIVITY AT THE SESSION



# 2.0 PROJECT ANALYSIS

## 2.1 CONTEXT ANALYSIS

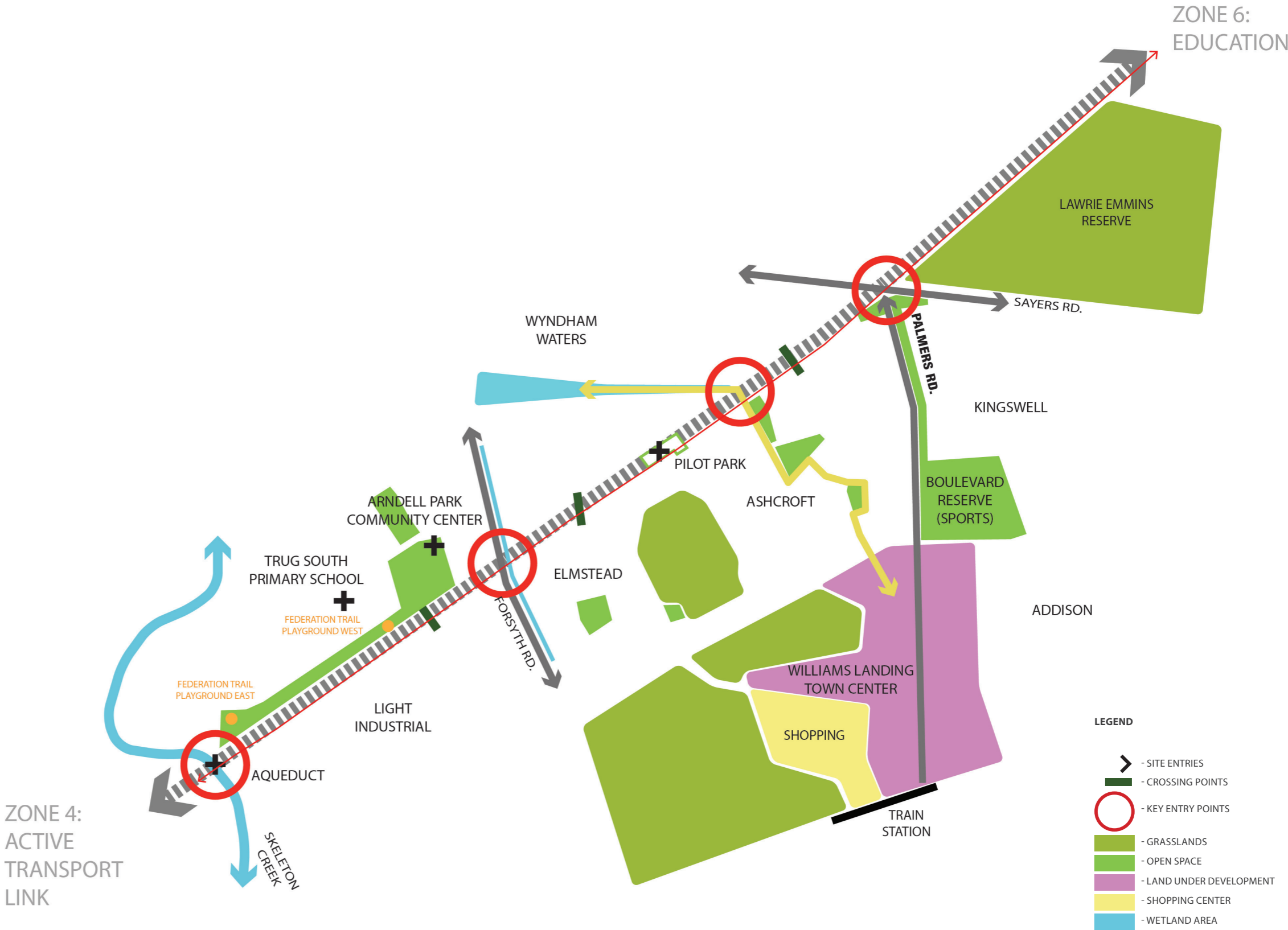
The Play Space Strategy for the City of Wyndham acknowledges that: 'This precinct is forecast to see a considerable increase across all age groups, particularly in the 8-9 and 10-14 year categories. Overall, 29.8% of total households with children were couples with young children, compared with 24.8% for the City of Wyndham.'

The MOS Reserve, therefore, provides a twofold opportunity in this context:

- To enable communities to cross north south and access previously unavailable open space, and
- To provide additional open space and play space as part of the MOS' linear reserve.

Currently, the MOS Reserve acts as a divide between communities to its north and south making open spaces, playgrounds and recreational spaces to the south unavailable to residents in the north and vice versa. In particular Wyndham Waters residents (to the north) have limited green open space or access to playgrounds as the open space allowance within that development is utilised for water treatment and storage. It is acknowledged in Wyndham City Council's Play Space Strategy 2030 that 'as the residential area develops to the south and northwest, additional play spaces will be required'.

The MOS corridor offers a significant opportunity to address this identified gap and at the same time create a link to a broader community resource. Further, a number of open space assets in the area are designated as grassland status and therefore unavailable for general recreational purposes, emphasising the need for recreational play space along the MOS Reserve.



SITE CONTEXT DIAGRAM

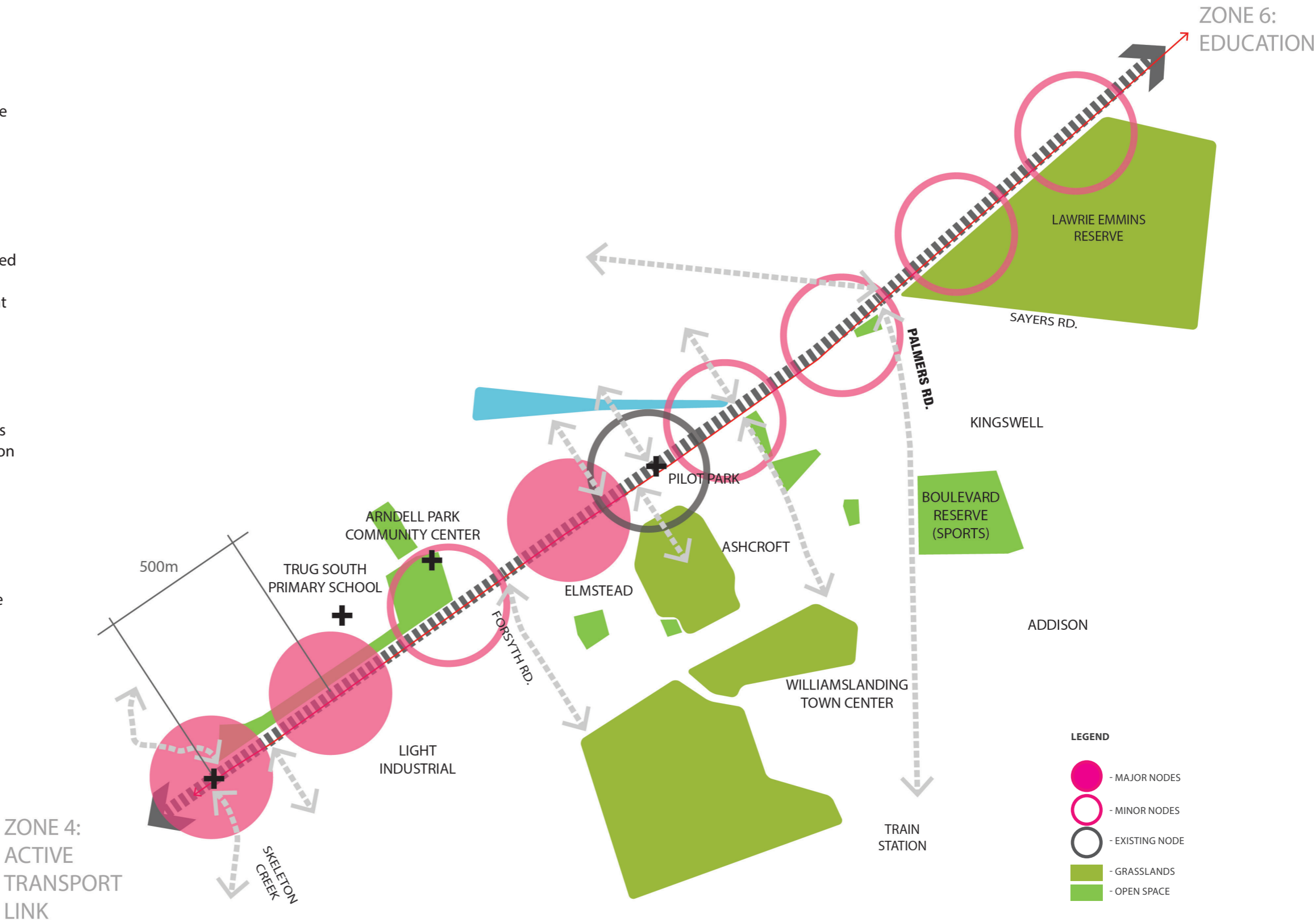
## 2.2 MAPPING THE NODES

Based on an analysis of the site and review of Council's design guidelines, this diagram locates the major and minor nodes within which open space related activation and intervention can occur.

Nodes are established to create a sense of place within the immediate environment and to avoid duplicating the role and function of nearby infrastructure. Major nodes are generally embellished to the level of a local or district park, while minor nodes may be smaller forms of landscape treatment such as seating or shading.

In residential areas nodes are placed at 400m intervals and are designed in relation to their locality and proximity to each other and to existing infrastructure to ensure adequate access to facilities without delivering an over-abundance or duplication of infrastructure.

The nodes have been located based on their proximity to significant historical or cultural assets (i.e. the Skeleton Creek Aqueduct), to facilitate community connection (i.e. near the existing Williams Landing Pilot Park) and to add value to the existing and broader community.

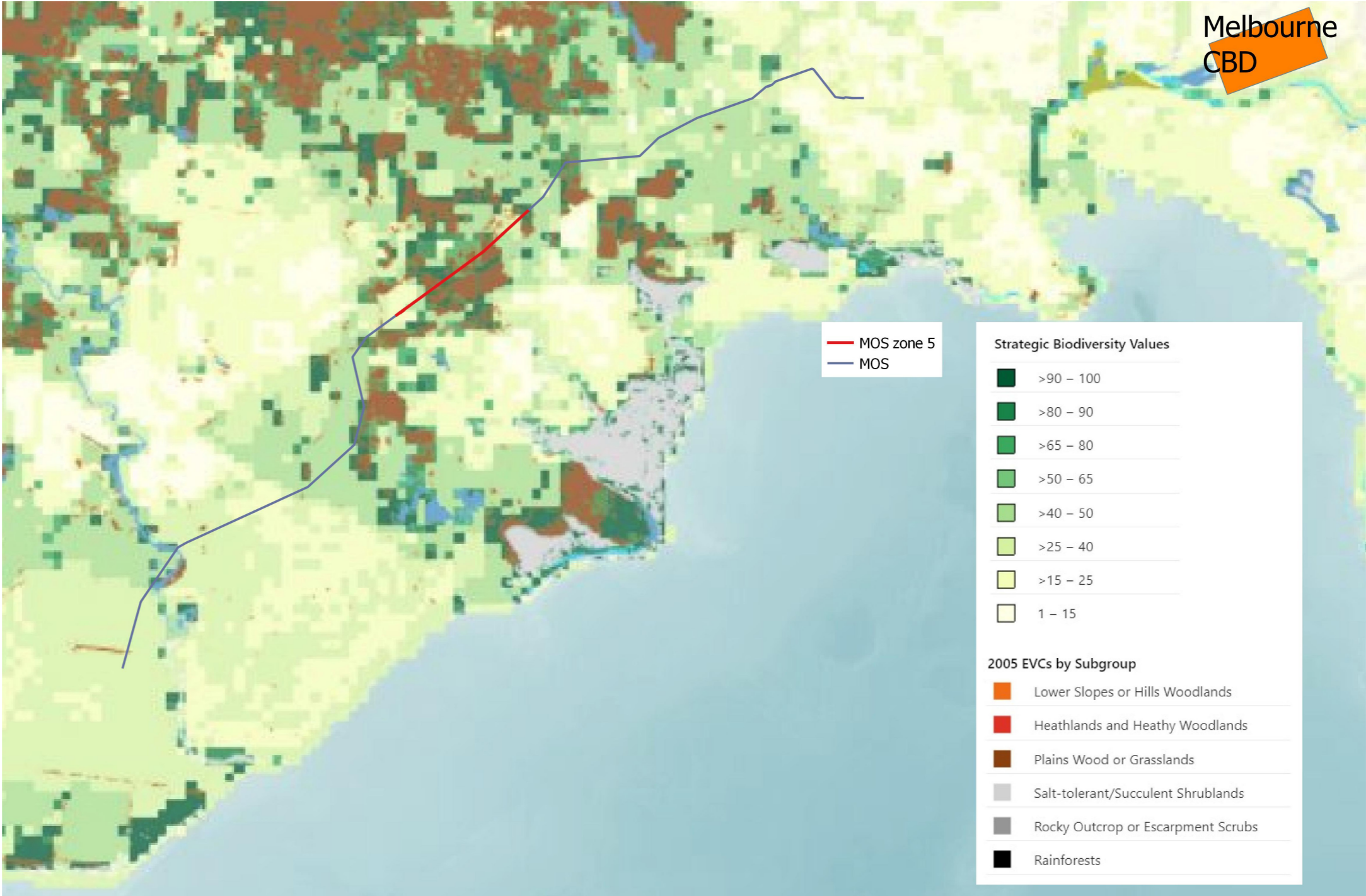


NODE DIAGRAM

## 2.3 VEGETATION ANALYSIS

Given its history it is perhaps unsurprising that the MOS Reserve is highly disturbed along its length with little to no remnant vegetation lands. Regional maps suggest that the original vegetation in and around Zone 5 would have been Plains Wood or Grasslands. During the preparation of this plan the Greening the Pipeline partners have commenced a program of revegetating within and along the MOS Reserve, including within Zone 5 between Skeleton Creek and Sayers Road, specifically along the southern side of the MOS Reserve adjacent to the Federation Trail. The aim of this planting is to begin creating a habitat corridor within the MOS.

This objective will be supported by this new plan which aims to create a vegetated and green corridor between two significant, regional natural assets in Skeleton Creek and the Lawrie Emmins Reserve with its plans for a significant wetland. Further, the stormwater concept prepared with the Plan will enable greening through the provision of an alternative water supply along and beyond the MOS Reserve to support the establishment of trees and tree canopy and to green adjacent open spaces. The MOS Reserve will serve as a corridor for wildlife and people alike, connecting fragmented, high-value habitats.



BIODIVERSITY VALUE MAP - REGIONAL CONTEXT

### 3.0 PLAN DEVELOPMENT

#### 3.1 CONCEPT FRAMEWORK

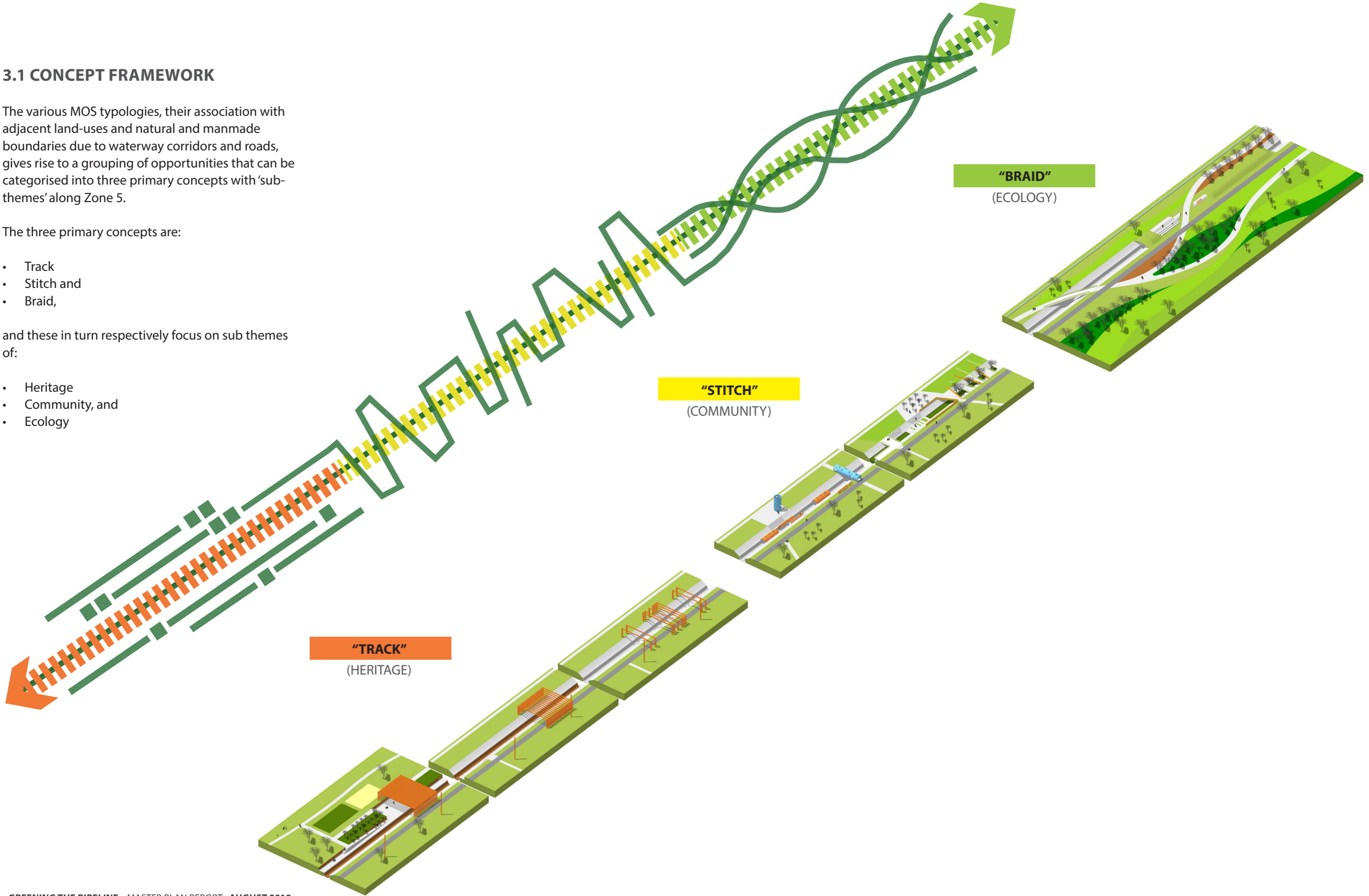
The various MOS typologies, their association with adjacent land-uses and natural and manmade boundaries due to waterway corridors and roads, gives rise to a grouping of opportunities that can be categorised into three primary concepts with 'sub-themes' along Zone 5.

The three primary concepts are:

- Track
- Stitch and
- Braid,

and these in turn respectively focus on sub themes of:

- Heritage
- Community, and
- Ecology



3.2 PRECEDENTS

“TRACK”



VISUAL ACCESS TO HERITAGE FEATURES



OPPORTUNITY FOR SCULPTURE / ART  
BASED INTERVENTIONS



TERRACED OUTDOOR LEARNING /  
GATHERING SPACES



INDIGENOUS CELEBRATION ALONG THE  
MOS



LOOP / CIRCUIT GRAVEL PATHS



SHADED AREAS THROUGH URBAN  
FOREST

“STITCH”



FLEXIBLE OPEN SPACE FOR THE  
COMMUNITY



OPPORTUNITY FOR POP UP / SEASONAL  
EVENTS



SURFACE TREATMENT AT PEDESTRIAN  
INTERSECTIONS ALONG FED TRAIL



COMMUNITY GARDEN / GATHERING  
NODES



LOOP / CIRCUIT GRAVEL PATHS



SHADED AREAS THROUGH URBAN FOREST

“BRAID”



ENDEMIC GRASSLAND AREAS



VARYING VEGETATION TYPOLOGIES



TERRACED OUTDOOR LEARNING /  
GATHERING SPACES



PEOPLE MOVEMENT THROUGH BRAIDED  
LANDSCAPE



PROVIDING PLACE FOR RESPITE AND  
PAUSE

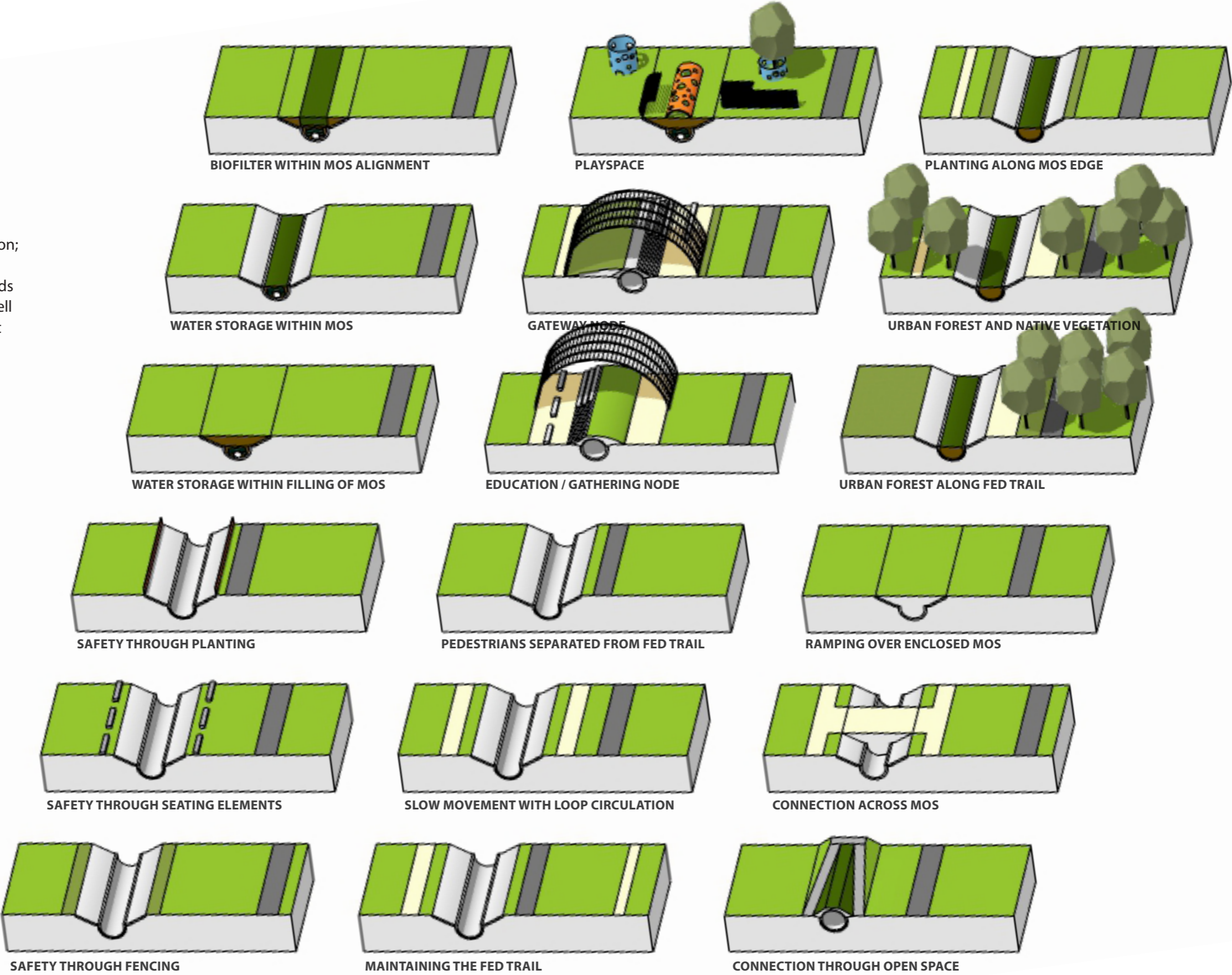


SHADE STRUCTURE PROVIDING GATEWAY  
AND PLACE OF SIGNIFICANCE

### 3.3 KIT OF PARTS

The Kit of Parts translates the 3.7km site into a series of treatments and adjustments that can be used to transform the current MOS into a space of community engagement and activity.

This kit depicts: fencing options to prevent unsafe entry whilst facilitating contemplation and recreation; pathways to curate pedestrian circulation; connection points over the existing infrastructure and subsequent kick and play green space; methods for embedding water harvesting technology; as well as design to have the heritage of the site stand out and feature.



### 3.4 MATERIALITY

The existing infrastructure of the MOS and Federation Trail informs the materiality of the project. Whilst much of the current surface of the Federation trail is asphalt, the preference is to upgrade the surface to concrete. Additional concrete and granitic gravel pathways complement the site's intended traffic and adjacent tracks.

Flora provides an emphatic contrast to the urban context, garnering play space with turf; generating passive fencing with grasslands and native planting; whilst consistently greening the corridor with urban forest.

Shade structures, fencing and seating deliver continuity, engagement and safety for the local community.



CONCRETE PATHS



CONCRETE (FEDERATION TRAIL)



GRANITIC GRAVEL PATHS



TURF



GRASSLANDS



NATIVE PLANTING



URBAN FOREST



LIGHTWEIGHT SHADE STRUCTURE



CONCRETE TERRACES



CONCRETE BENCH SEATING



CORTEN STEEL FENCING

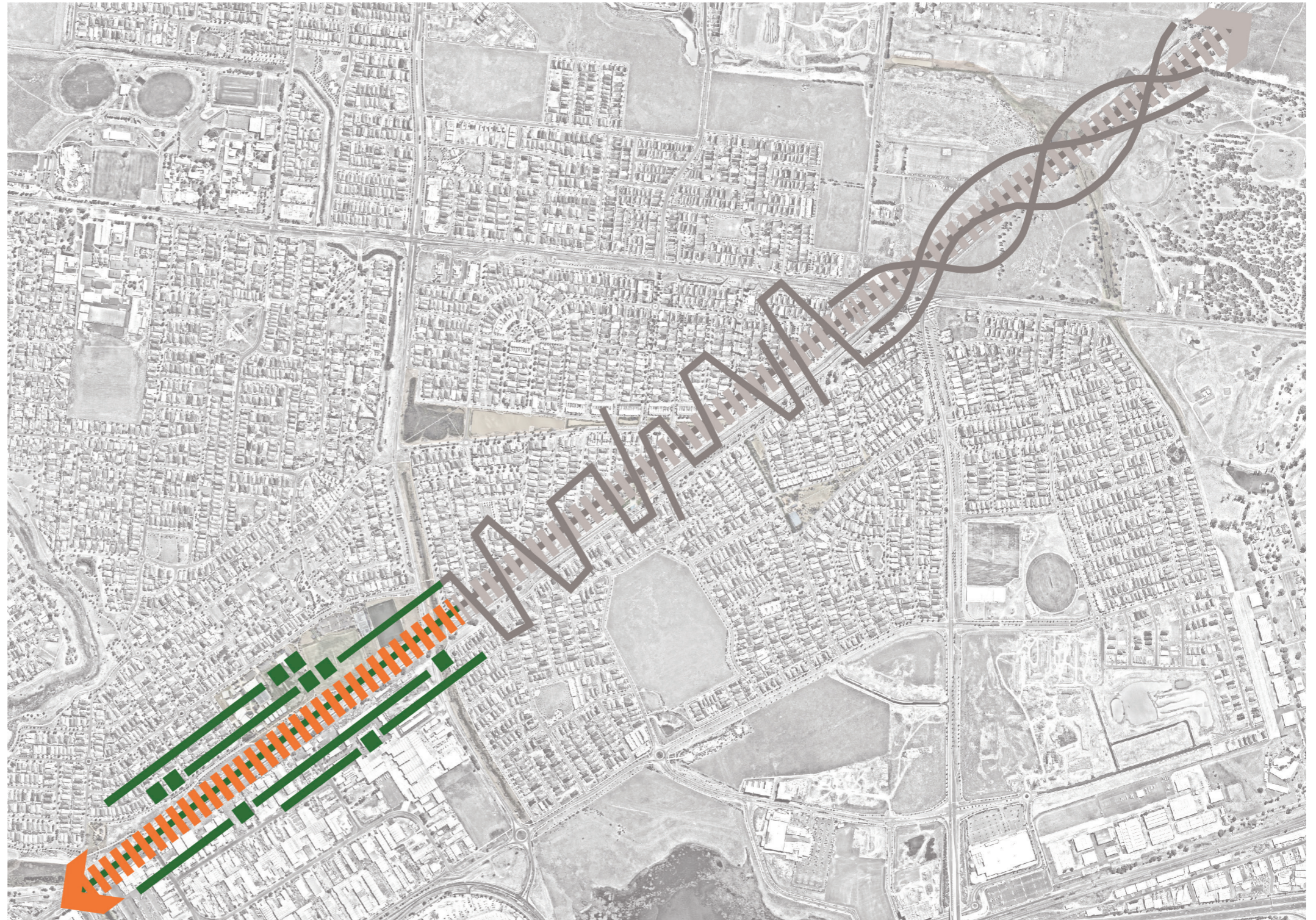
### 3.5 TRACK

TRACK represents the tracking of the landscape, both Aboriginality and the artefact drawing together the idea of tracking through time. It is an area of the pipeline running from the architectural Skeleton Creek aqueduct to Forsyth Road that can demonstrate a tracking of the site's use and the various influences over place.

It also represents the improved tracking of the local community and their movements around the MOS and adjacent landscapes.

The Track design seeks to emphasise:

- The greening of the existing site for the local community
- The relocation, redevelopment and consolidation of paths and trails for cyclists, pedestrians and dog walkers
- Connection with and around the MOS's artefacts and ecosystems.



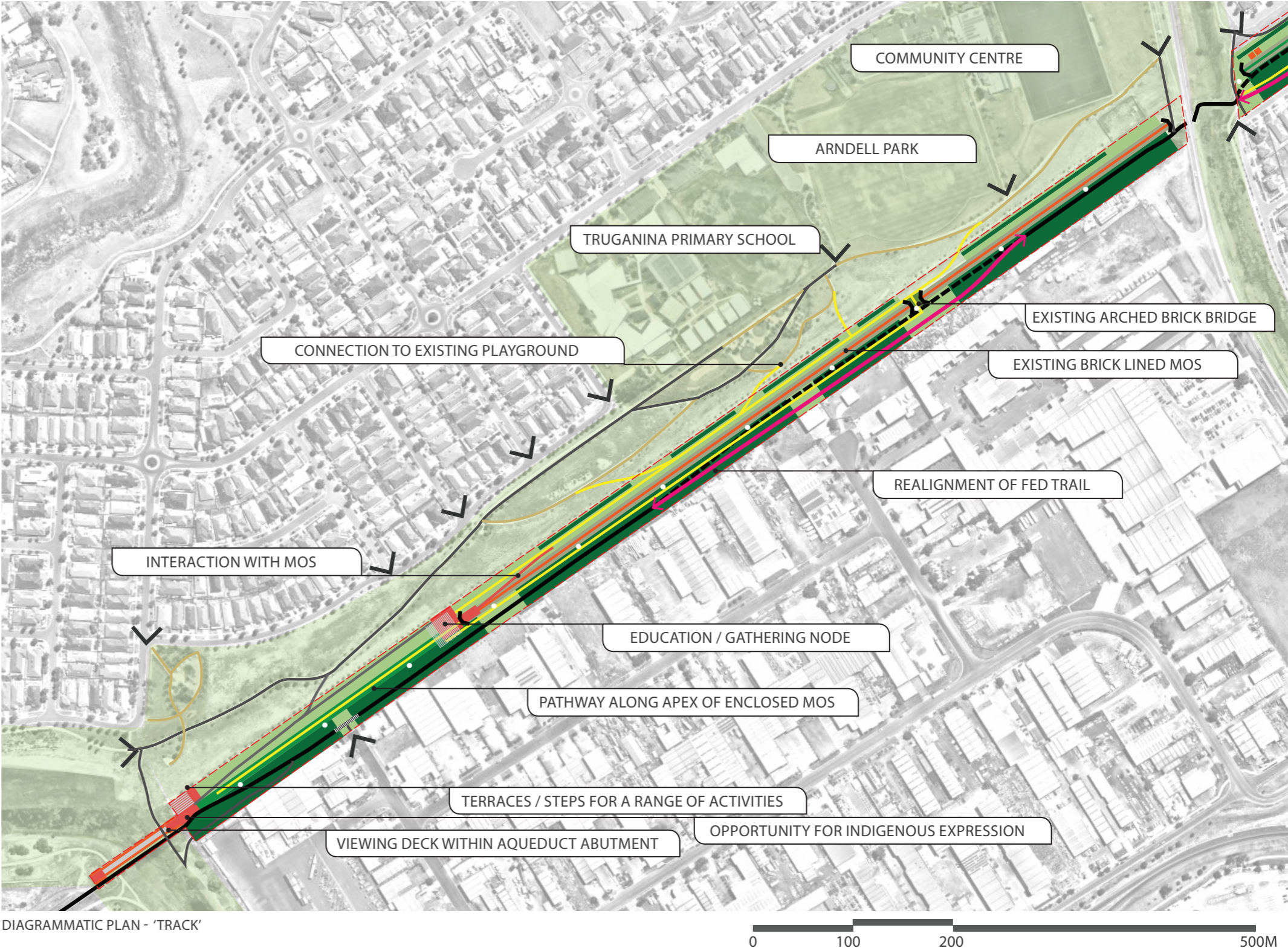
DIAGRAMMATIC LOCATION OF 'TRACK'

# TRACK PLAN

The Track Plan establishes infrastructure to engage with the MOS: a viewing platform provides vantage into the aqueduct and to Skeleton Creek wetlands, whilst an education area guides close participation with the artefact. A network of granitic gravel paths establishes: an informal walkway atop the enclosed MOS; connection to existing playgrounds and pathways; and a recreational, looped track around the exposed pipeline, separate from the bicycle traffic of Federation Trail, which has been correspondingly realigned. The northern side of the node closest to Forsyth Road receives a considerable space to enhance the safety of residents, seeing grassland, native planting and fencing buffer the existing brick lined MOS and encourage movement towards the established bridge infrastructure.

## LEGEND

- EXISTING FEDERATION TRAIL
- REALIGNMENT OF FEDERATION TRAIL
- ACTIVATED NODE
- GRAVEL PATHS
- CONCRETE PATHS
- EXISTING CONCRETE PATHS
- EXISTING GRAVEL PATHS
- URBAN FOREST / TREE PLANTING
- NATIVE PLANTING
- GRASSLANDS
- SLOWER ZONE ALONG FED TRAIL
- DATUM SURVEY POLES



## TRACK - SKELETON CREEK VIEWING DECK

The exposed brick aqueduct of the Main Outfall Sewer provides a prologue to the project. The viewing platform atop the Skeleton Creek site gives safe amenity for viewing the artefact and reading the site's linear narrative tracking away to the north east.

Concrete terraced seating and stairs overlook the waterway and formalise the current embankment's foot traffic, frequented by exercise groups and those looking to access Federation Trail.



LOCATION PLAN



DETAIL PLAN OF AQUEDUCT PLATFORM AND STEPS

TRACK - SKELETON CREEK VIEWING DECK

The viewing deck allows the community and visitors of the MOS uninterrupted views along Skeleton Creek and provides a moment that showcases the linearity of the MOS itself.

This intervention on the existing aqueduct and adjacent landscape creates a destination and a sense of place for a variety of people to use and experience the site.



LOCATION PLAN

DETAIL PLAN AND SECTION

## TRACK - EDUCATIONAL DETAIL PLAN

Tracking away from the impressive and imposing grandeur of the pipeline's aqueduct, there is opportunity to facilitate community engagement with the enclosed MOS.

This node is central to residents' exercise, dog walking and access to Federation Trail. To maximise its use, the Trail has been relocated away from a pedestrian track and shouldered with grassland and native tree planting, merging the ecological and industrial aesthetic, akin to the MOS and its landscape.

This node is also closely located to the Truganina South Primary School and Arndell Park Community Centre; thus, an outdoor community learning space comprising of terraced seating, curated MOS entry and formally shaded space atop the hidden pipeline provides artistic, historic and scientific stimuli. The shading structure at this site recurs at the project's gateway near Lawrie Emmins Reserve, providing continuity along the design corridor.



LOCATION PLAN



DETAIL PLAN

TRACK - FEDERATION TRAIL

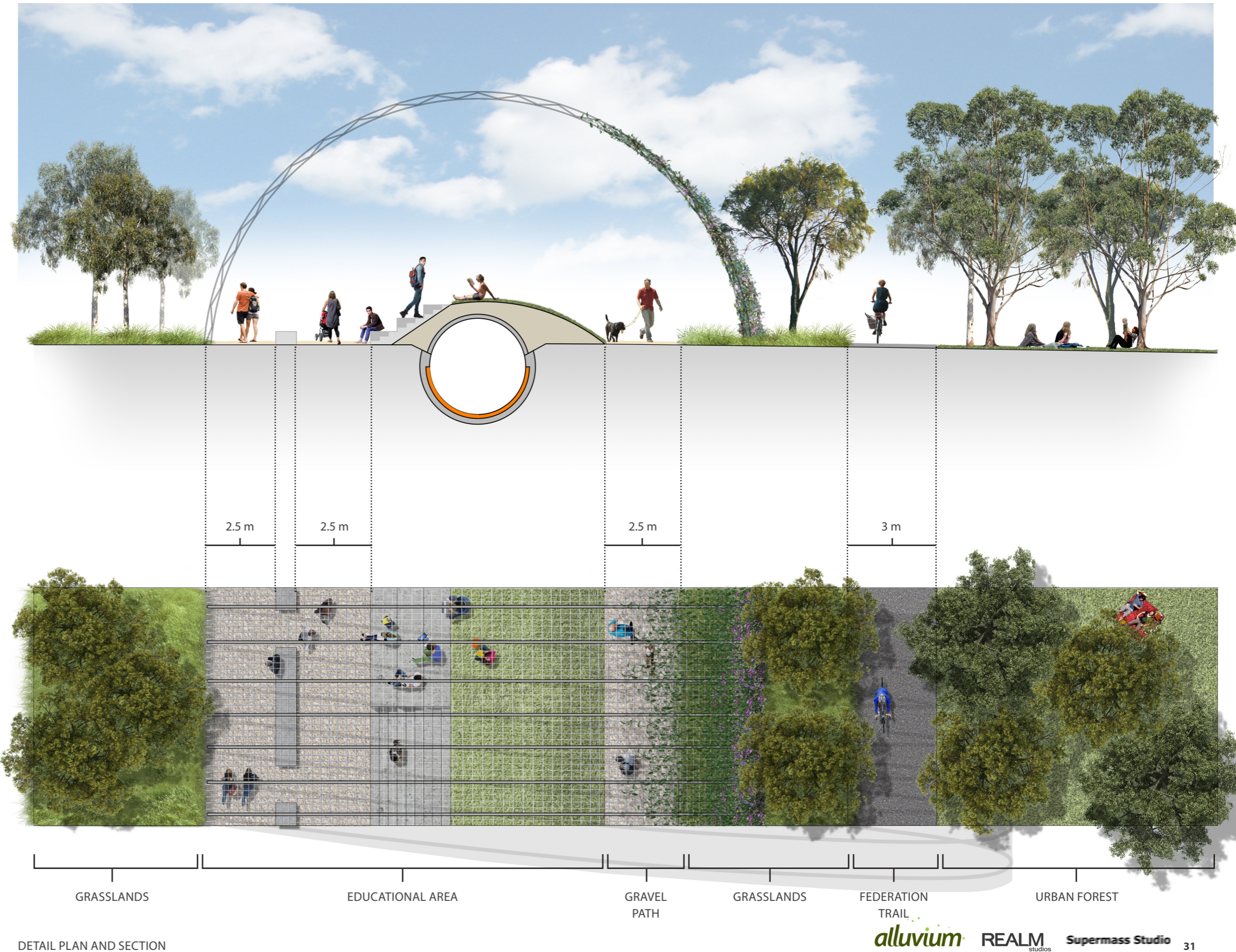
The Federation Trail is arguably the most significant existing use of the MOS Reserve and is well used by commuter, sports and recreational cyclists. It is a shared path, meaning it is designed to meet the needs of both cyclists and pedestrians. It is defined as a 'major regional trail' within the Western Metropolitan Region Trails Strategic Plan (or West Trails) and includes a mix of concrete and asphalt surfaces along its 23km length. A key issue highlighted within the strategic plan is the quality of the surface and the impact this may have on rider safety.

There is therefore potential to improve upon the surface of the Federation Trail. This masterplan also suggests the realignment of the Federation Trail within Zone 5 for the following reasons:

- To provide reasonable separation between high speed users of the Federation Trail and the recreational users of the green spaces within the MOS Reserve.
- Heritage Victoria will not permit infilling of large sections of the MOS. As the MOS will be open there will be need for some fencing or barriers along some sections that should be separated from high speed users of the Federation Trail.
- To enable tree planting either side of Federation Trail to provide shade and shelter. Currently there is insufficient space to plant on the northern side of the Federation Trail as it is within the 3m easement of the MOS.
- To reduce the need for full barrier fencing to the MOS alongside Federation Trail. Noting that Austroad's reference for fencing is full barrier with a minimum 1.2m-1.4m in eight with a smooth rail top. The existing post and wire fences are not preferred along cycling paths.



LOCATION PLAN



DETAIL PLAN AND SECTION

# TRACK - CIRCUIT LOOP DETAIL PLAN

Tracking further towards Forsyth Road, this area has been designed to improve engagement with the exposed artefact, improve public safety around the site whilst encouraging community circulation. Again, Federation Trail has been realigned back from the MOS, with a planted corridor separating cyclists from those jogging or walking adjacent to the heritage pipeline.

A low concrete seating option fences off either embankment and is then masked from the parallel walking trail with native grasses.

Here, again, urban forest comprising of grasses, shrubs and trees, buffers Federation Trail and the MOS from abutting industry.



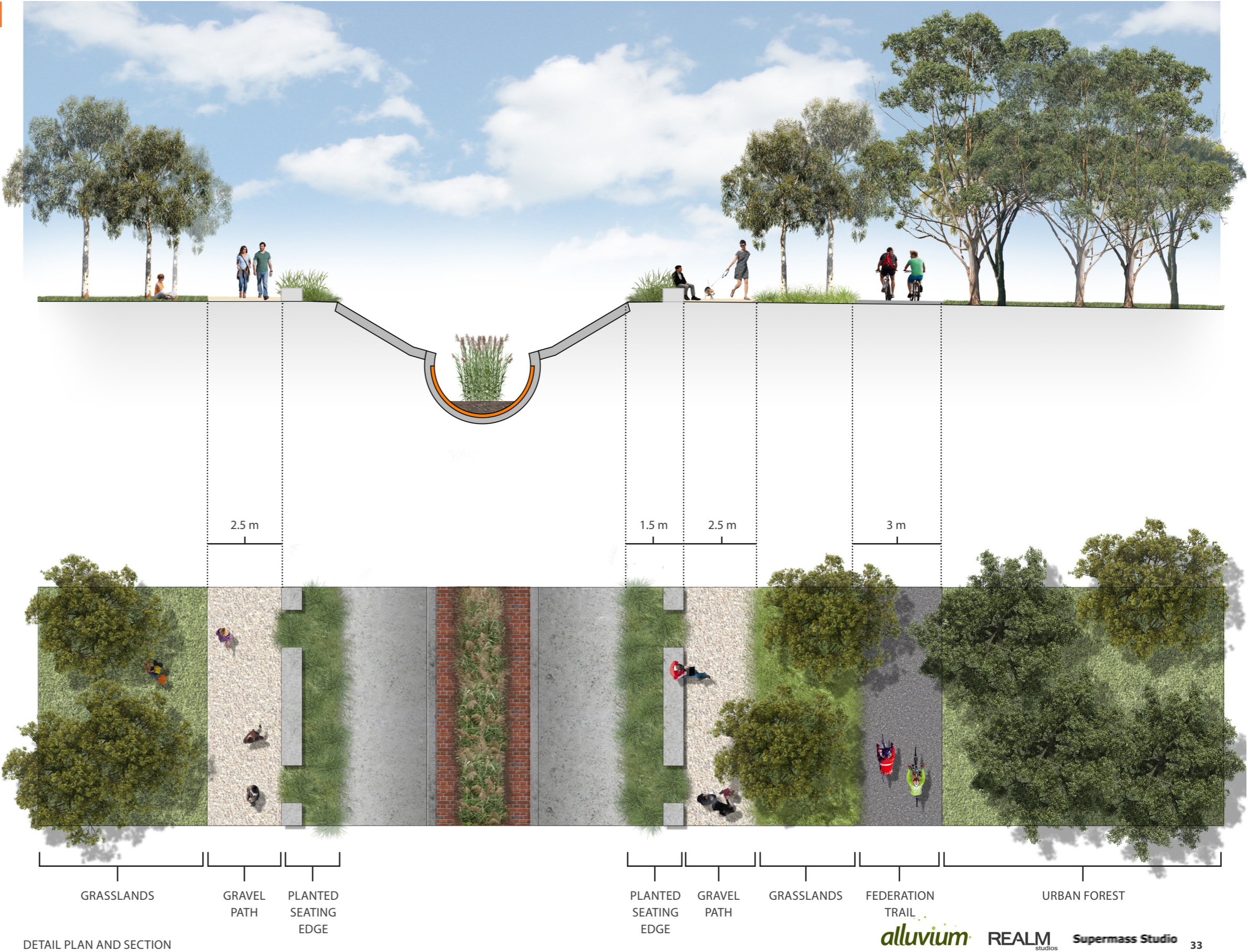
LOCATION PLAN



DETAIL PLAN SHOWING SEPARATED PATHS, SEATING AND PLANTING BARRIER

TRACK - CIRCUIT LOOP

The gravel path on both sides of the brick-lined MOS allows for movement and circulation to bring the community's attention to the artefact. It is separated from the Federation Trail to promote safety and a slower moving environment whilst creating a shorter walking circuit based around the nearby community centre and school.



LOCATION PLAN

DETAIL PLAN AND SECTION

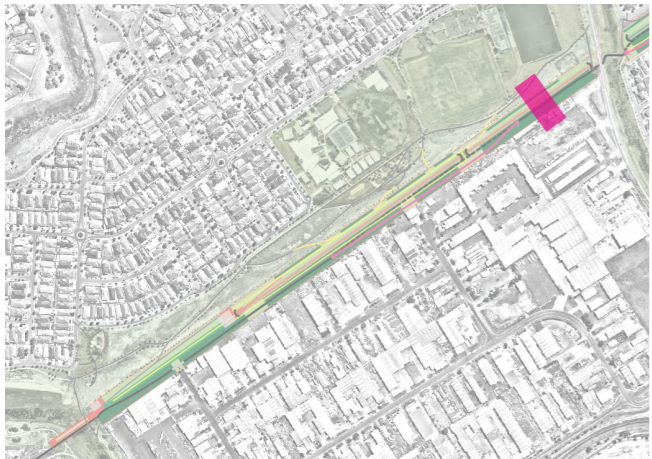
TRACK - GRASSLAND BUFFER

Tracking up to Forsyth Road, the infrastructure of Arndell Park Community Centre, the sporting field and existing MOS pedestrian overpass frame the need to remove the current cyclone fencing whilst maintaining safety around the pipeline and Federation Trail.

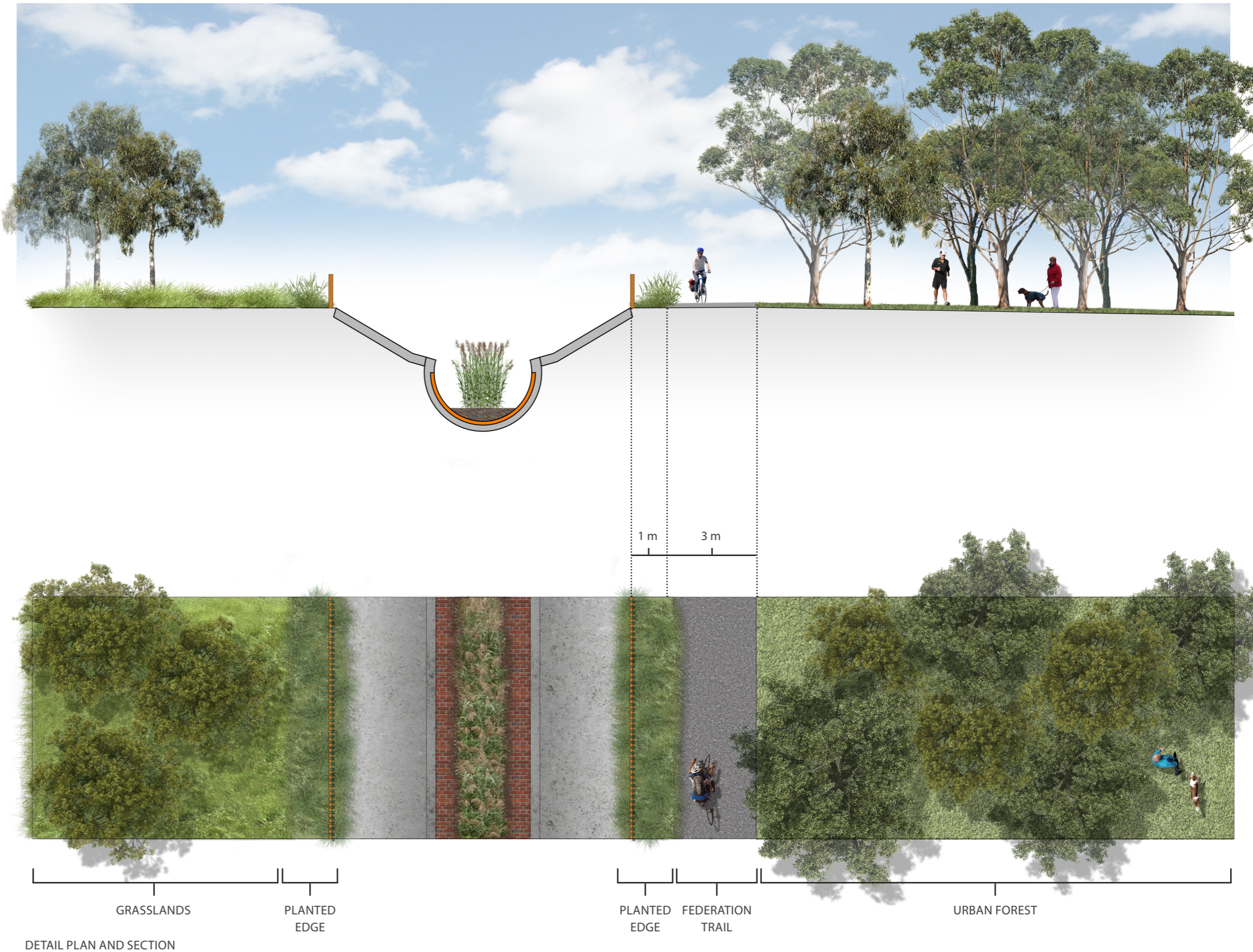
In response, an urban meadow atop the easement bordering the oval discourages entry to the pipeline. This access prevention is then consolidated with steel fencing, the same as that hosted in the Pilot Park, which continues over the existing nearby bridge and alongside Federation Trail as it travels parallel to the exposed artefact.



EXISTING BRICK LINED BRIDGE



LOCATION PLAN



DETAIL PLAN AND SECTION



MONTAGE IMAGE SHOWING THE SKELETON CREEK AQUEDUCT AND TERRACES

### 3.6 STITCH

Stitch refers to a stitching together of the community. This involves the improvement of local connection by removing existing cyclone fencing and developing the current crossing points across the MOS.

It also presents desirable opportunities to create new, open and safe play space over the top of the MOS and to improve community amenity with the aim of strengthening local programmes such as the Community Garden.

The stormwater harvesting concept is also located within the Stitch section.



DIAGRAMMATIC LOCATION OF 'STITCH'

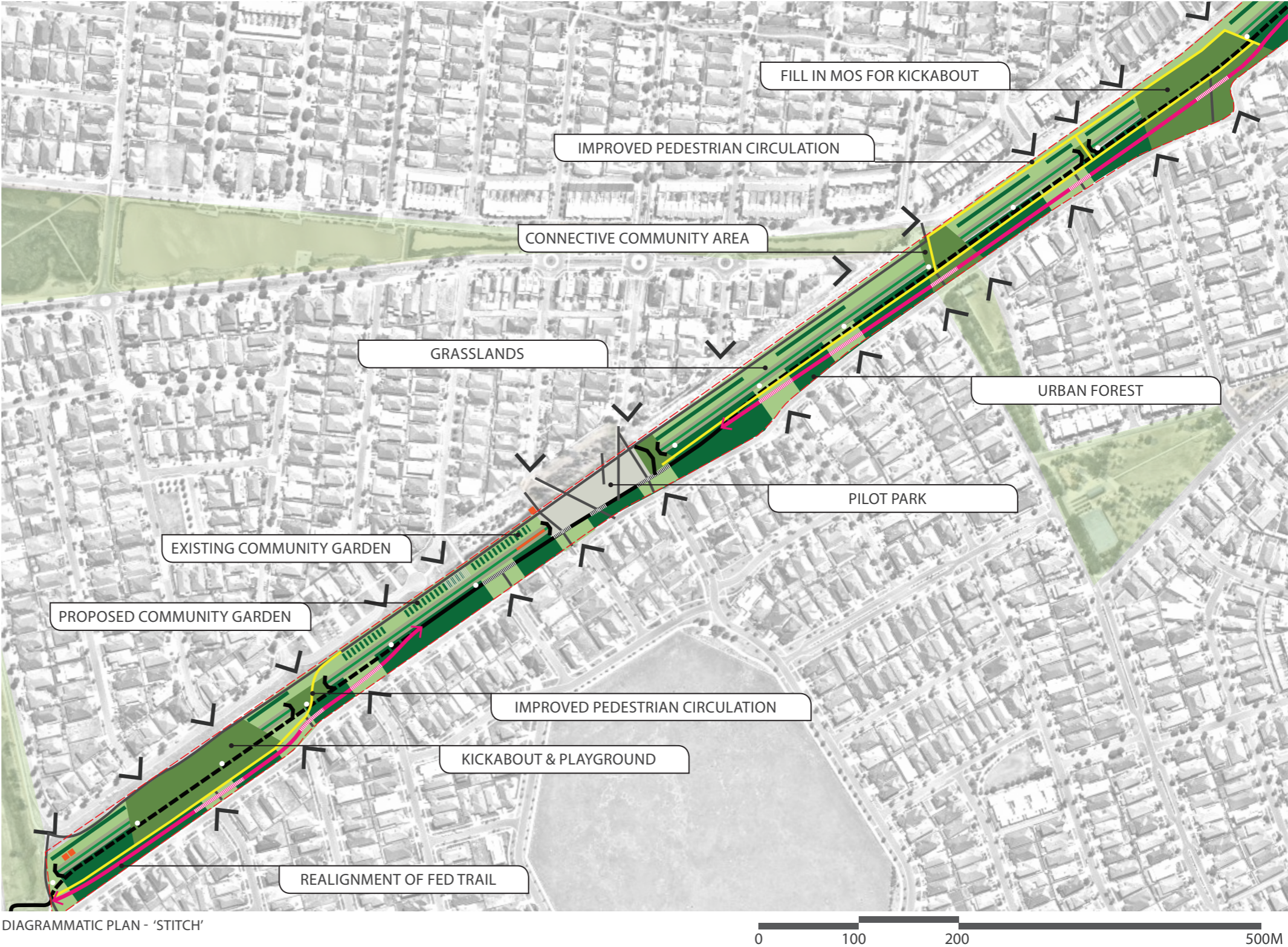
# STITCH PLAN

The Stitch Plan begins with a filling of the MOS and realignment of Federation Trail, providing open play space. There is a biofilter for stormwater treatment within the MOS and a covered stormwater storage. Treated stormwater will be used to irrigate the significant planting of urban forest along the southern side. The Pilot Park punctuates the open MOS, which features as a blending of industrial infrastructure and native ecosystem, filled with phragmites australis and frog life.

Federation Trail is realigned here and complemented with gravel pathways around and over the exposed pipeline. The Plan then concludes with a second MOS filling to maximise open play space for residents.

## LEGEND

- EXISTING FEDERATION TRAIL
- REALIGNMENT OF FEDERATION TRAIL
- NODE INTERVENTIONS
- GRAVEL PATHS
- CONCRETE PATHS
- EXISTING PATHS
- URBAN FOREST / TREE PLANTING
- NATIVE PLANTING
- GRASSLANDS
- TURF COVERING MOS
- SLOWER ZONE ALONG FED TRAIL
- COMMUNITY GARDEN
- STORMWATER TREATMENT (BIOFILTRATION)
- DATUM SURVEY POLES

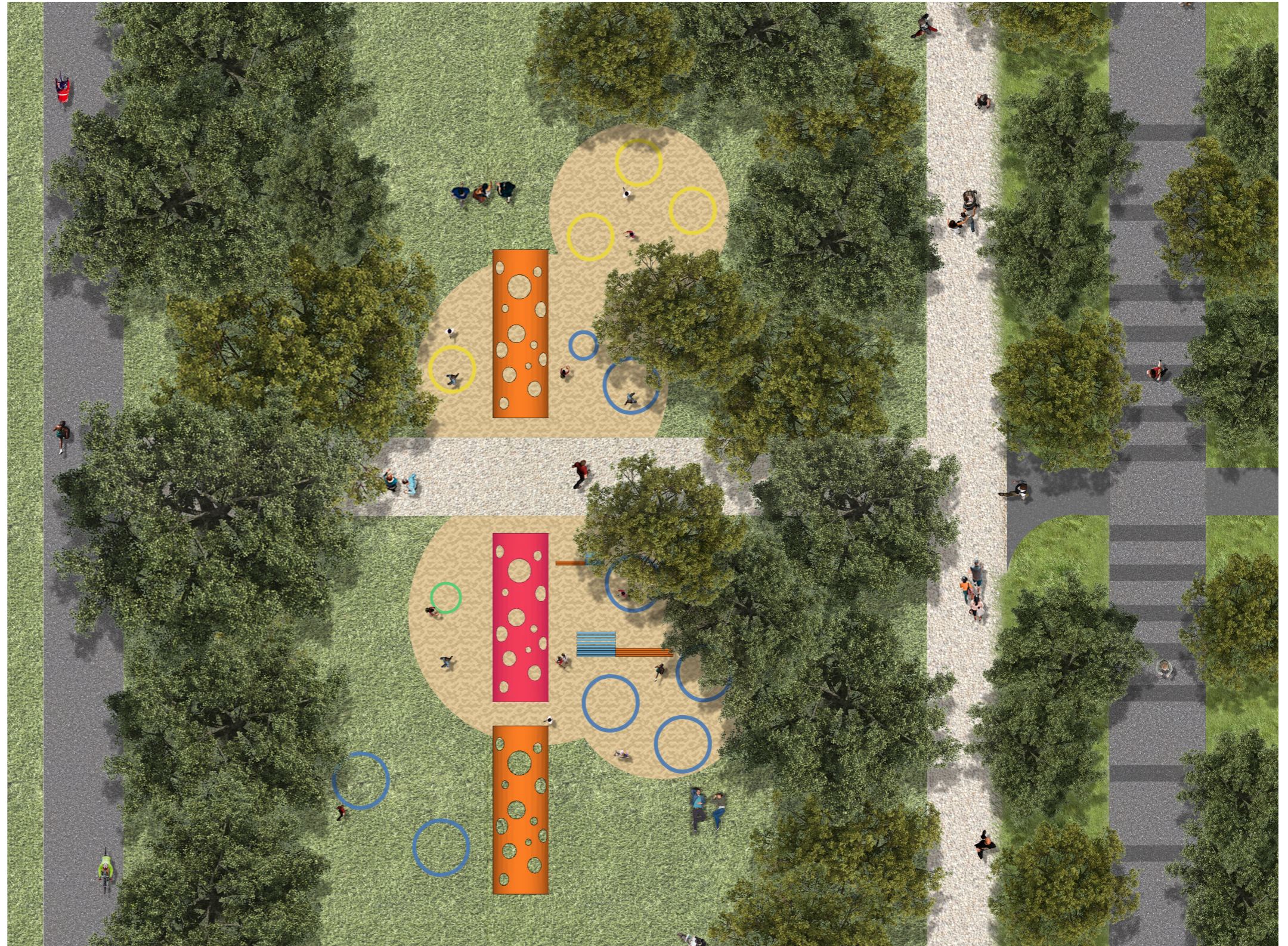


## STITCH - OPEN SPACE DETAIL PLAN

Moving toward the Pilot Park from Forsyth Road, filling sections of the MOS stitches the currently separated communities of Wyndham Waters and Williams Landing to the north and south respectively. This Aligns with the City of Wyndham's Open Space Strategy, providing much needed green and open playspaces atop the artefact. Filling the MOS at this node also mirrors the existing overpass and Pilot Park that sit above the pipeline. The existing MOS pedestrian crossing, an arched red brick bridge, is to be formalised and fenced.



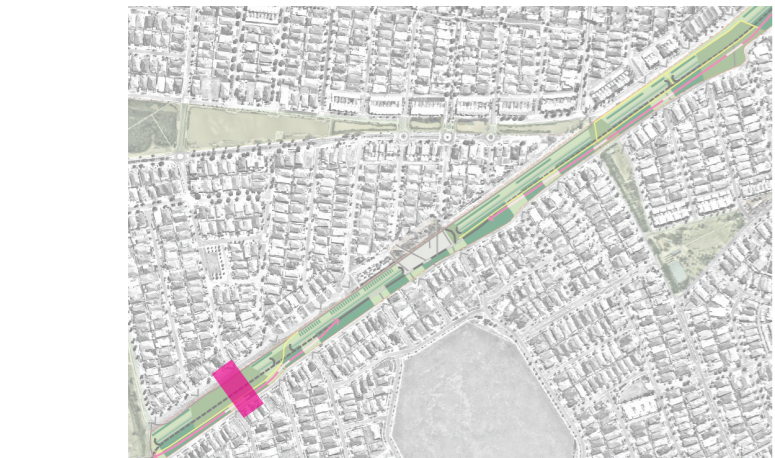
LOCATION PLAN



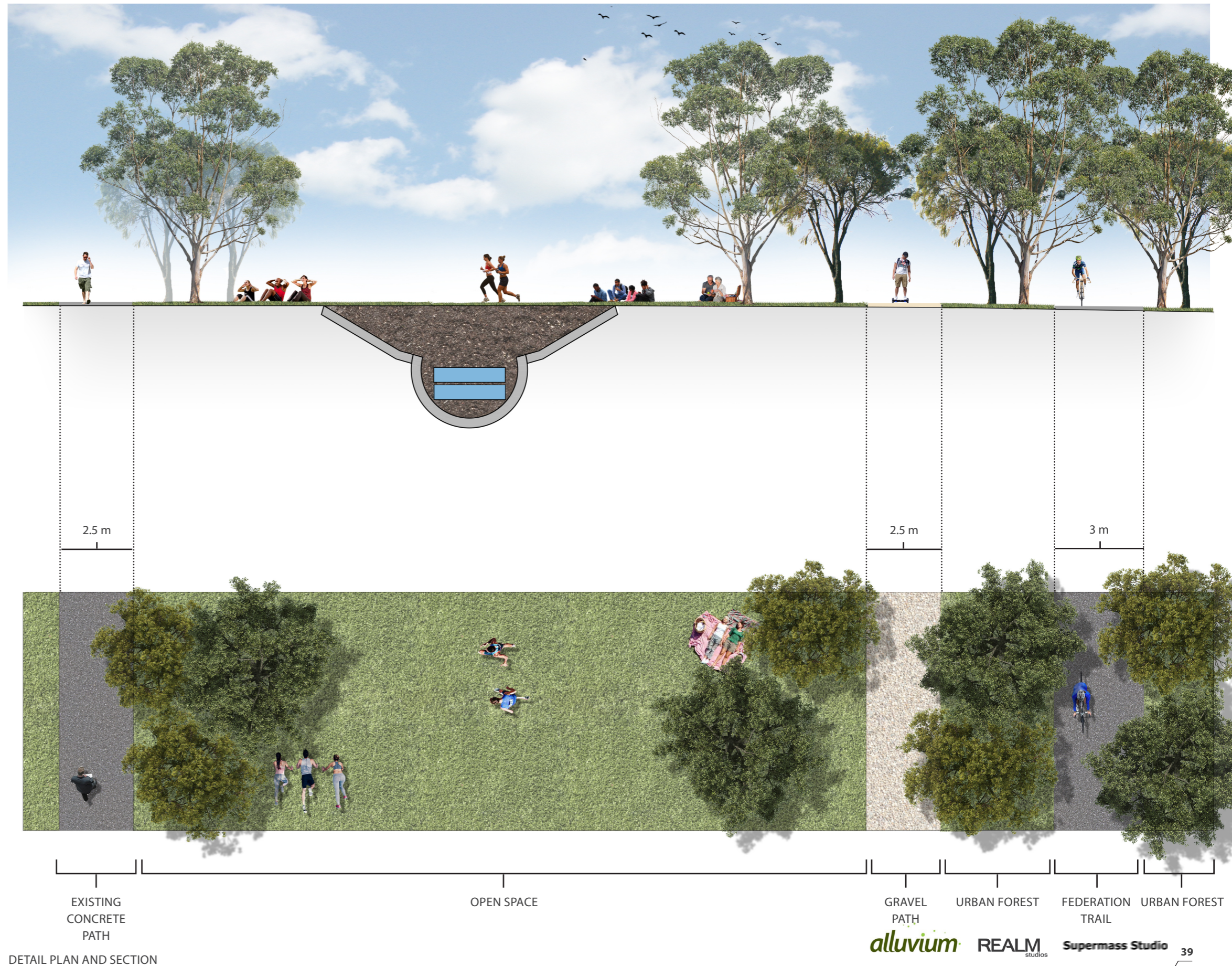
DETAIL PLAN SHOWING KICKABOUT AREA, PLAYSPACE AND PATH NETWORK.

## STITCH - OPEN SPACE

Beneath this newly created play space is a stormwater storage that sits concealed within the MOS structure. Federation Trail is then realigned to garner more uninterrupted space along the MOS's corridor whilst providing shade to cyclists riding through urban forest.



## LOCATION PLAN



STITCH - CONNECTIVE NETWORKS

Further along Zone 5, the design stitches together the treatment wetlands and lakes of Wyndham Waters, the MOS as water storage and conduit; flora conduit as well as the local residential programmes and activity.

The MOS becomes a central aesthetic feature, presenting raised phragmites australis and providing habitat for frogs, reptiles and birds.

A recurring, concrete seating infrastructure features along the southern side's slow-traffic gravel pathway, with native grasses buffering the seating from the MOS. The water storage beneath the phragmites then irrigates the urban forest that houses Federation Trail and areas of grass via an irrigation main that circles this section.



LOCATION PLAN



DETAIL PLAN AND SECTION



MONTAGE IMAGE SHOWING THE OPEN SPACE AND PLAYGROUND FOR THE COMMUNITY

## STITCH - STORMWATER HARVESTING

The Greening of the Pipeline and the MOS Reserve is enabled via a stormwater harvesting and reuse scheme. The concept shows the harvesting scheme stitch the MOS artefact and corridor to the surrounding catchments and communities through the capture and treatment of stormwater for the irrigation of the MOS reserve and surrounding public spaces.

Stormwater is diverted from the Wyndham Water's below ground drainage network and then pumped to a vegetated biofilter that sits flush with the surface. Water percolates through the vegetated surface layer and filter media to a storage below where it is stored prior to irrigation. The storage is covered at all times.



DIAGRAM SHOWING WATER HARVESTING FROM WYNDHAM WATERS

## STITCH - WATER STORAGE

Water is diverted to the stormwater harvesting concept from the Council drainage pit at the end of Triller Court to a pump station that lifts water to head of a 110m<sup>2</sup> biofilter situated within the MOS. From the biofilter treated stormwater fills a 500m long, 1,500kL storage within the MOS.

Water can then be stored until needed or pumped to irrigation lines that circle the Stitch section. A separate pump station will connect to 'header' storages adjacent to Arndell Park Reserve that can then be used for the irrigation of Arndell Park as well as green spaces within the MOS Reserve and along Federation Trail Park.

Whilst not investigated in detail, there is potential to integrate sustainability and play elements into the stormwater harvesting scheme. This could include through the consideration of solar powered pumps or people powered pumps masquerading as exercise equipment (e.g. see saws, merry go rounds or exercise bikes).

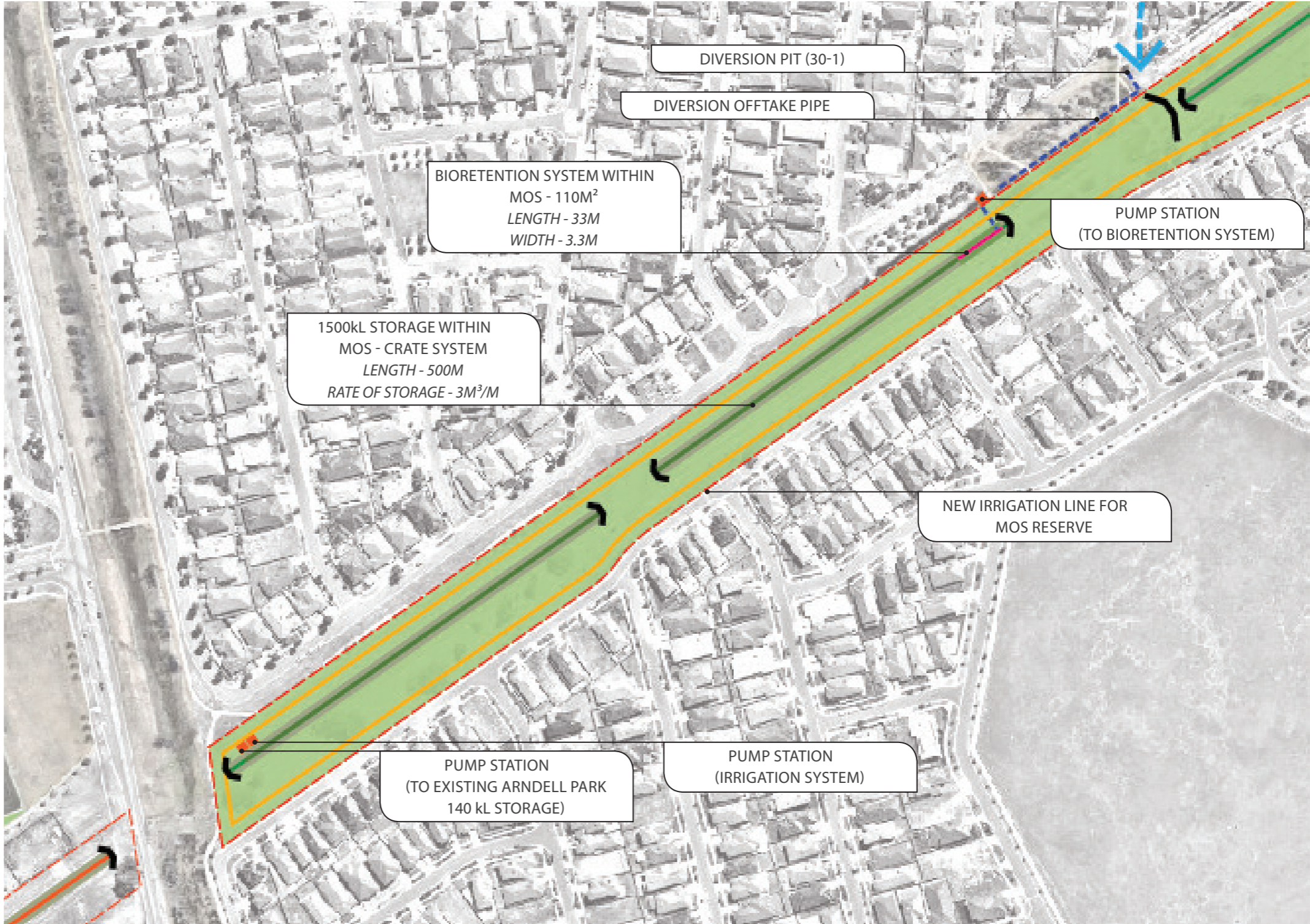


DIAGRAM SHOWING WATER STORAGE WITHIN THE STITCH AREA

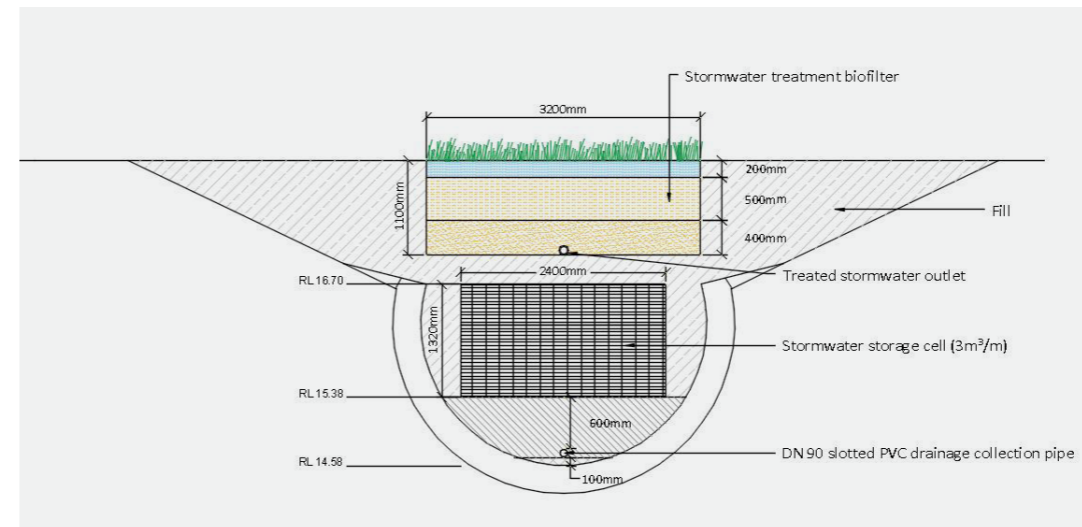
## STITCH - WATER STORAGE

The images on this slide show three cross sections that illustrate how the artefact will house the water treatment and storage assets described above. It is important to note that the design has aimed to reduce the amount of pumping required. As such water treated within the biofilter will fill the storages via gravity, this means that the highest point of the storage needs to be below the base of the biofiltration asset.

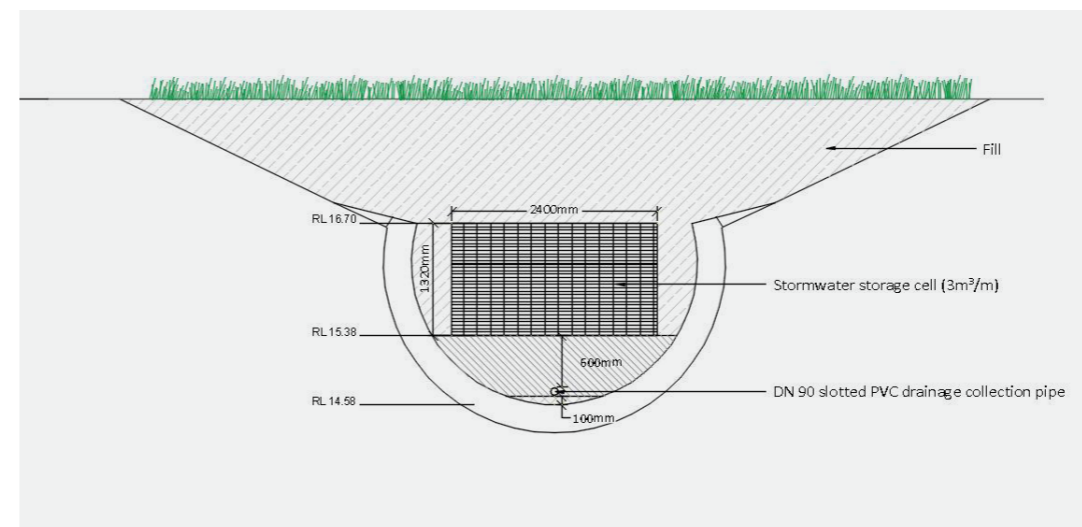
The Plan for this section also indicates some covered areas, but mostly the MOS is exposed. This means that the full cavity of the MOS cannot be used to house the plastic stormwater storage cells. The cross section of the storage corresponds to a storage rate of 3kL/linear m.

1. Biofilter within MOS: The first cross section shows the 110m<sup>2</sup> biofilter as approximately 3,200mm wide with a depth of approximately 1,100mm. Treated stormwater will be conveyed via gravity into the storages below. The linear length of the biofilter is approximately 40m.
2. Water storage within MOS: this cross section shows how storage will be accommodated within areas where the MOS is covered and grassed with fill covering the storages.
3. Water storage within MOS channel: the final example shows how the storage will be accommodated within sections where the MOS batters are exposed as is a common treatment within the Stitch section.

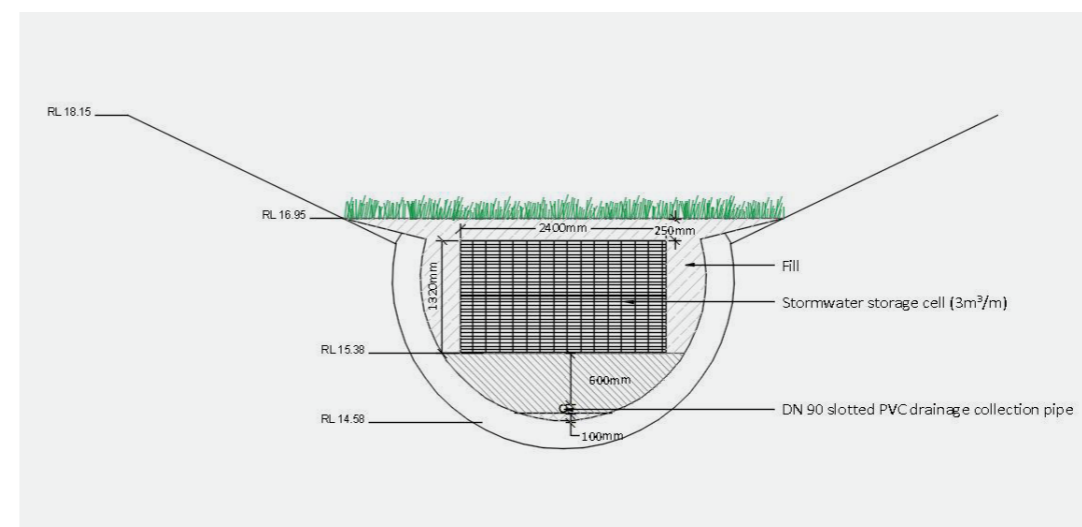
The three cross sections show how different configurations can theoretically be housed within the artefact.



BIOFILTER WITHIN MOS



WATER STORAGE WITHIN MOS



WATER STORAGE WITHIN MOS CHANNEL

## AREAS FOR IRRIGATION

The Stormwater Harvesting Concept has been designed to irrigate:

- The 40m wide MOS Reserve between Forsyth Road and Sayers Road
- Arndell Park Reserve and it's surrounds
- Playgrounds adjacent to the MOS near the Truganina South Primary School and Viaduct Parade
- Trees between Forsyth Road and Skeleton Creek

The scheme aims to Green the Pipeline and surrounding active and passive open spaces and support the healthy growth of trees to provide habitat and shading.

The scheme delivers 22 ML/year (in an average rainfall year), which equates to 85% of the total estimated irrigation demand.

Further detail of the concept is provided in the supporting document 'Greening the Pipeline Zone 5 Plan: Stormwater harvesting concept'.

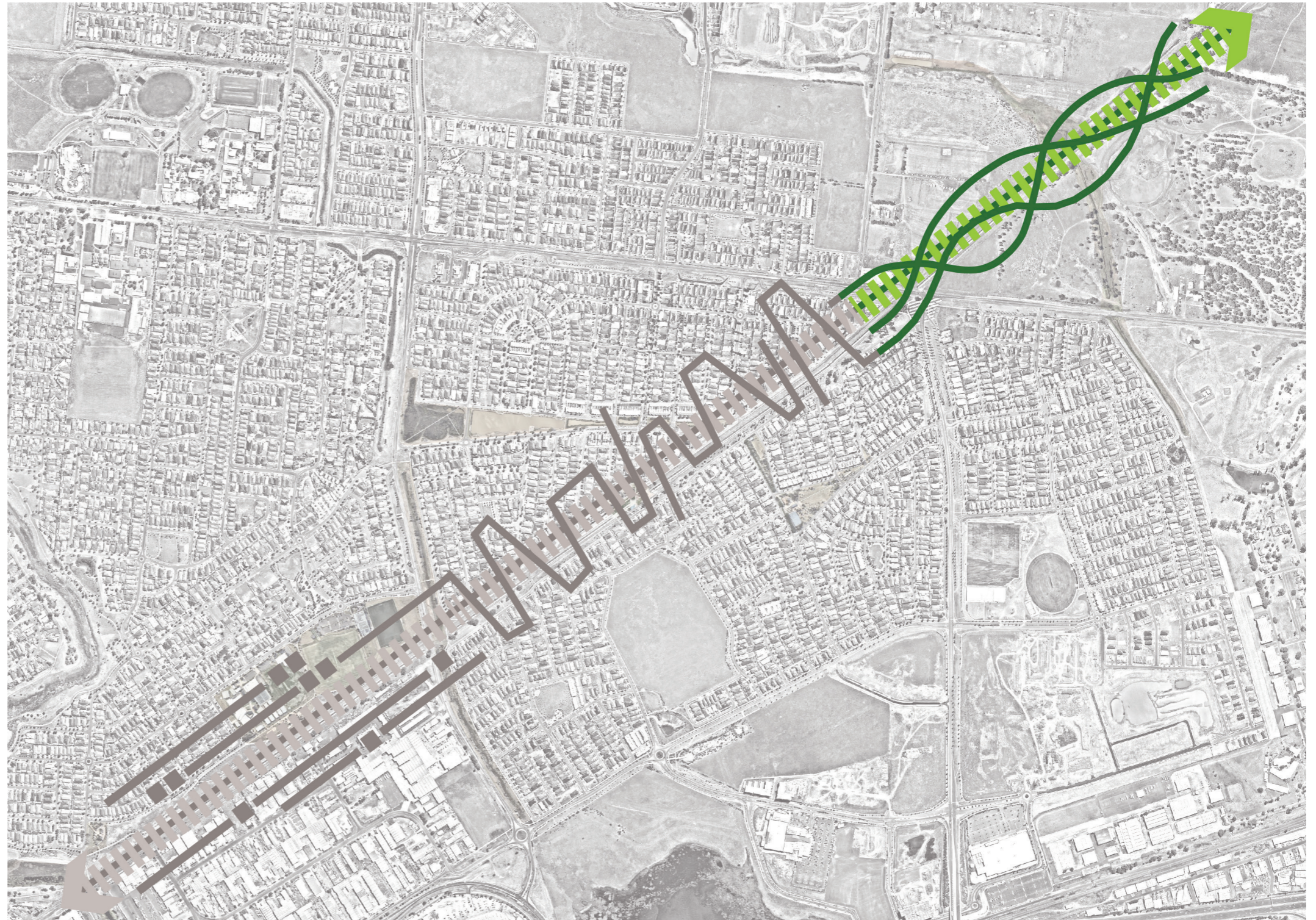


DIAGRAM SHOWING AREAS FOR IRRIGATION

### 3.7 BRAID

Braid refers to the networking of ecologies, dry and wet, with minor and slow movement access paths. It synthesises the ecological landscape, MOS infrastructure and community activity.

The braid also establishes and concludes Zone 5 of Greening the Pipeline. Here, there is precedent for cycling amenity and interconnected circulation of people through place.



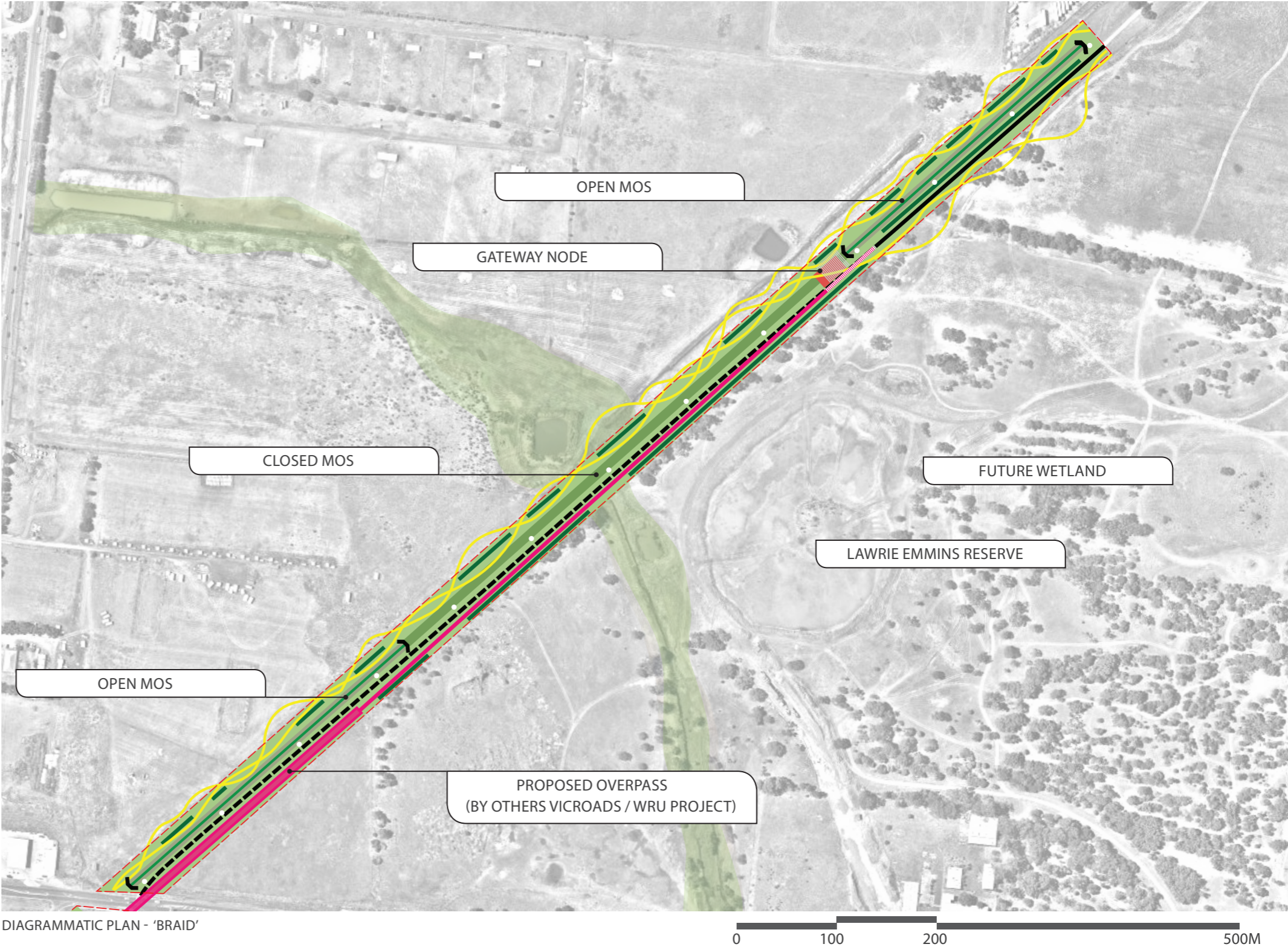
DIAGRAMMATIC LOCATION OF 'BRAID'

## BRAID PLAN

The Braid Plan focuses on native planting and urban forest. Pathways become increasingly non-linear and meander through these indigenous ecologies, whilst Federation Trail is realigned away from the MOS and adequately shaded by tree canopy. Planting extends into the MOS along the length of this site, enhancing the attention to ecosystem as opposed to industry and a shade structure consistent with that at the Education Area the gateway to and from Zone 5.

### LEGEND

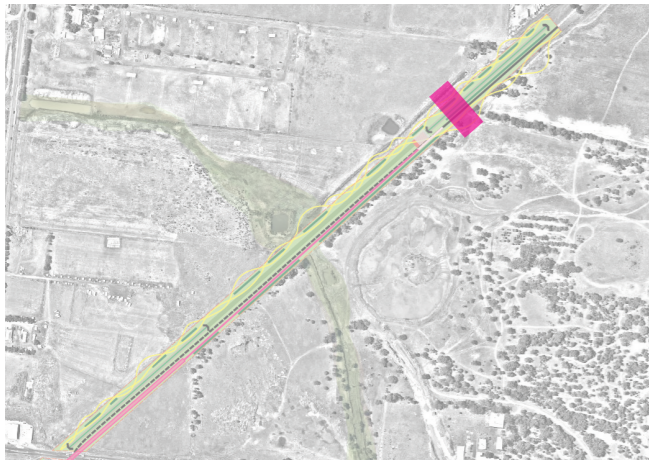
- EXISTING FEDERATION TRAIL
- REALIGNMENT OF FEDERATION TRAIL
- NODE INTERVENTIONS
- GRAVEL PATHS
- URBAN FOREST / TREE PLANTING
- NATIVE PLANTING
- GRASSLANDS
- SLOWER ZONE ALONG FED TRAIL
- DATUM SURVEY POLES



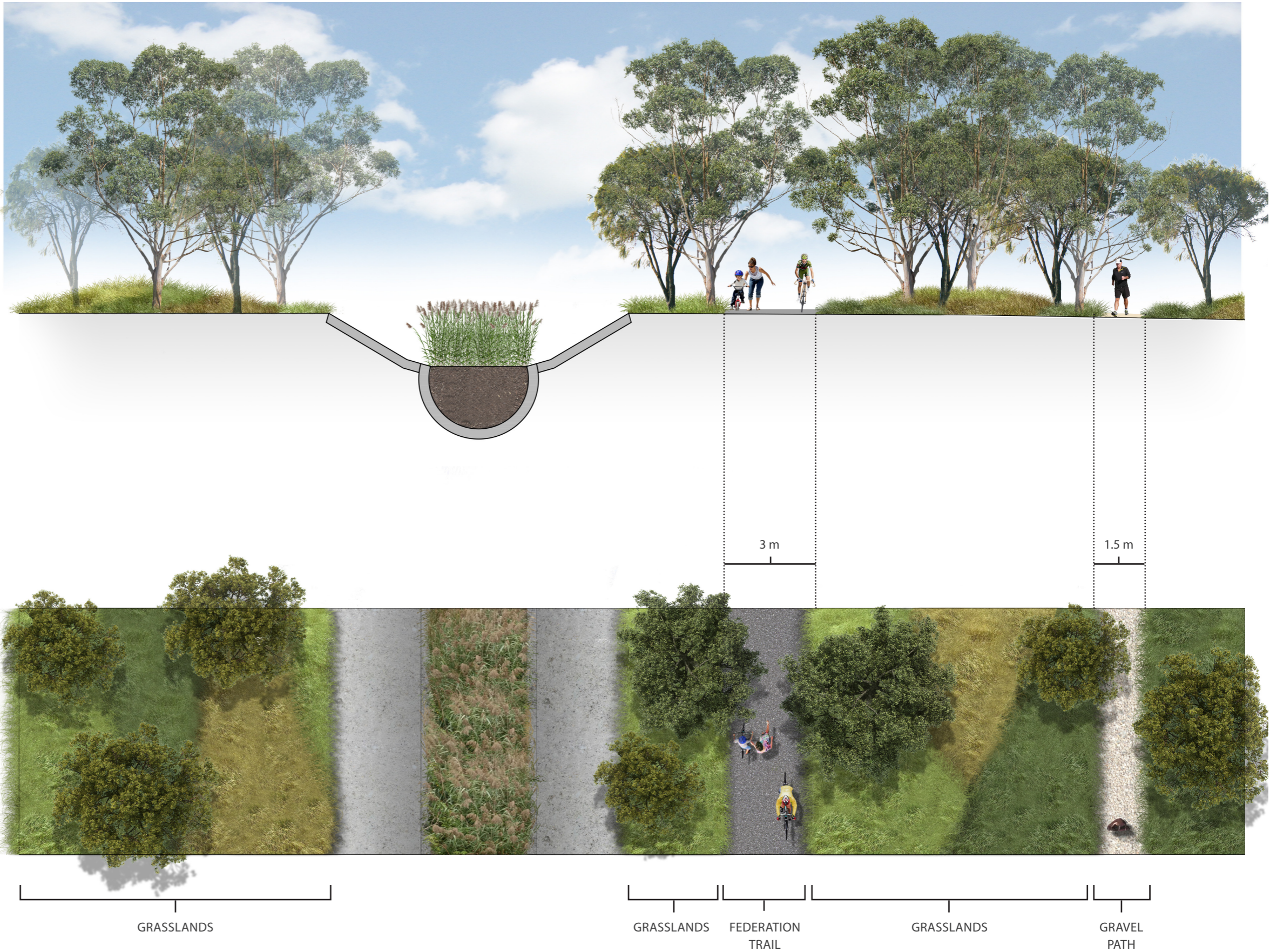
BRAID - DYNAMIC ECOLOGIES

Moving beyond Sayers Road, the exposed artefact again becomes the point of synthesis rather than separation. A significant greening of the pipeline and the surrounding landscape braids together the urban forest, relocated Federation Trail and elevated phragmites.

It also moves beyond the largely MOS defined, linear channel. The braided landscape emphasises ecological diversity and presents as a break away from industrial structure and a return to naturally occurring disorder. Paths and circulation become a representation of fluid water channels. Grasses, trees and the MOS become an indiscriminate ecosystem through an intentional synthesis of diverse ecologies. Some consideration was given to a water sensitive urban design treatment within this section of the MOS. Whilst not confirmed as part of this Plan, further detail on the potential for WSUD within the MOS at Lawrie Emmins Reserve, its area and treatment impact is provided in the attached Stormwater Harvesting Concept report.



LOCATION PLAN

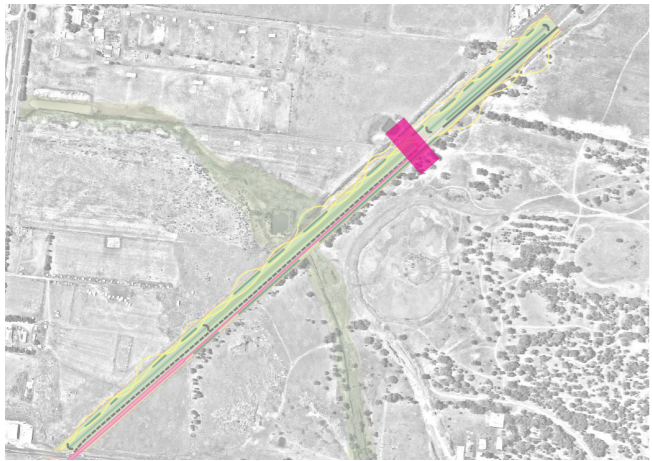


DETAIL PLAN AND SECTION

BRAID - GATEWAY

Approaching Lawrie Emmins Reserve, this final node is composed of: disparate wetland, activity channels such as Federation Trail and ensconced artefact. Altering the profile of the landscape to include rolling undulations and re-purposed pathways braids together these seemingly separate site elements.

A cycling service station provides users with a water fountain, tire pump point and shade. The shade structure will also generate continuity between the nodes on either end of the project, which at each point celebrate the shape of the pipeline.

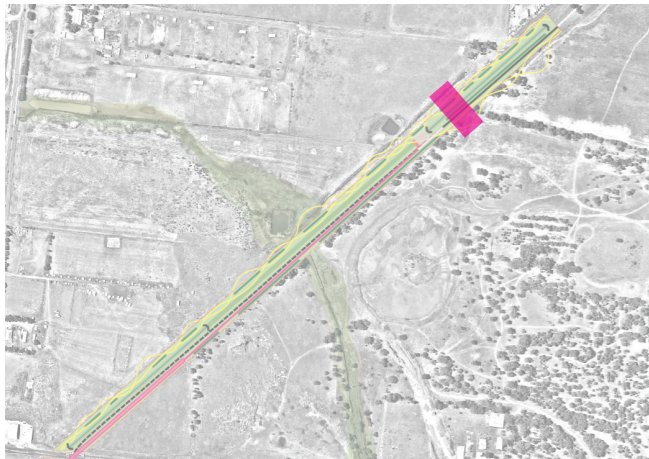


LOCATION PLAN

DETAIL PLAN AND SECTION

**BRAID - GATEWAY DETAIL PLAN**

A structure, terraced seating and a generous gravel area provides a node at the entry/exit of Zone 5. This node provides shade respite and views over Lawrie Emmins reserve and wetland area to the east.



LOCATION PLAN



DETAIL PLAN OF THE GATEWAY NODE AND PATHS



MONTAGE SHOWING THE BRAIDING PATHS AND ECOLOGIES ALONG WITH THE GATEWAY NODE

# 4.0 CONCLUSION

The Zone 5 plan sets out a vision for community connection: where community is connected to each other, to water and to the significant natural assets that bookend the artefact: Lawrie Emmins Reserve and Skeleton Creek, to the Aboriginal heritage of the area and to the artefact itself.

The plan has been developed through a collaborative and consultative process that has included Council staff, Traditional owners, Community members and school children.

This consultation process, the existing characteristics of the artefact, and the overarching theme of Community Connectivity has given rise to three distinct concepts: Track, Stitch and Braid.

Critically the plan, via the MOS, connects the community to water, and specifically the proposed stormwater harvesting concept. This concept will provide resilience along the MOS such that it can remain green through drier periods without relying on potable water. The harvested stormwater will deliver irrigation for trees within the MOS Reserve maintaining healthy tree canopies and providing cooling along Zone 5.

The next steps for the plan incorporating the stormwater harvesting concept include:

- progress work through to preliminary and detailed design phases
- monitor the progress of the Lawrie Emmins Reserve Masterplan and how that integrates with the MOS

Additional recommendations specific to the stormwater harvesting concept can be found at the conclusion of the Stormwater Harvesting Concept technical document.

