HORNSBY SHIRE COUNCIL

CLOUSTON associates

Hornsby Shire Council
HORNSBY PARK MASTER PLAN

Final Draft Report

S19-0042 R01 Issue I

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CLOUSTON associates

HORNSBY PARK MASTER PLAN REPORT

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HORNSBY SHIRE COUNCIL

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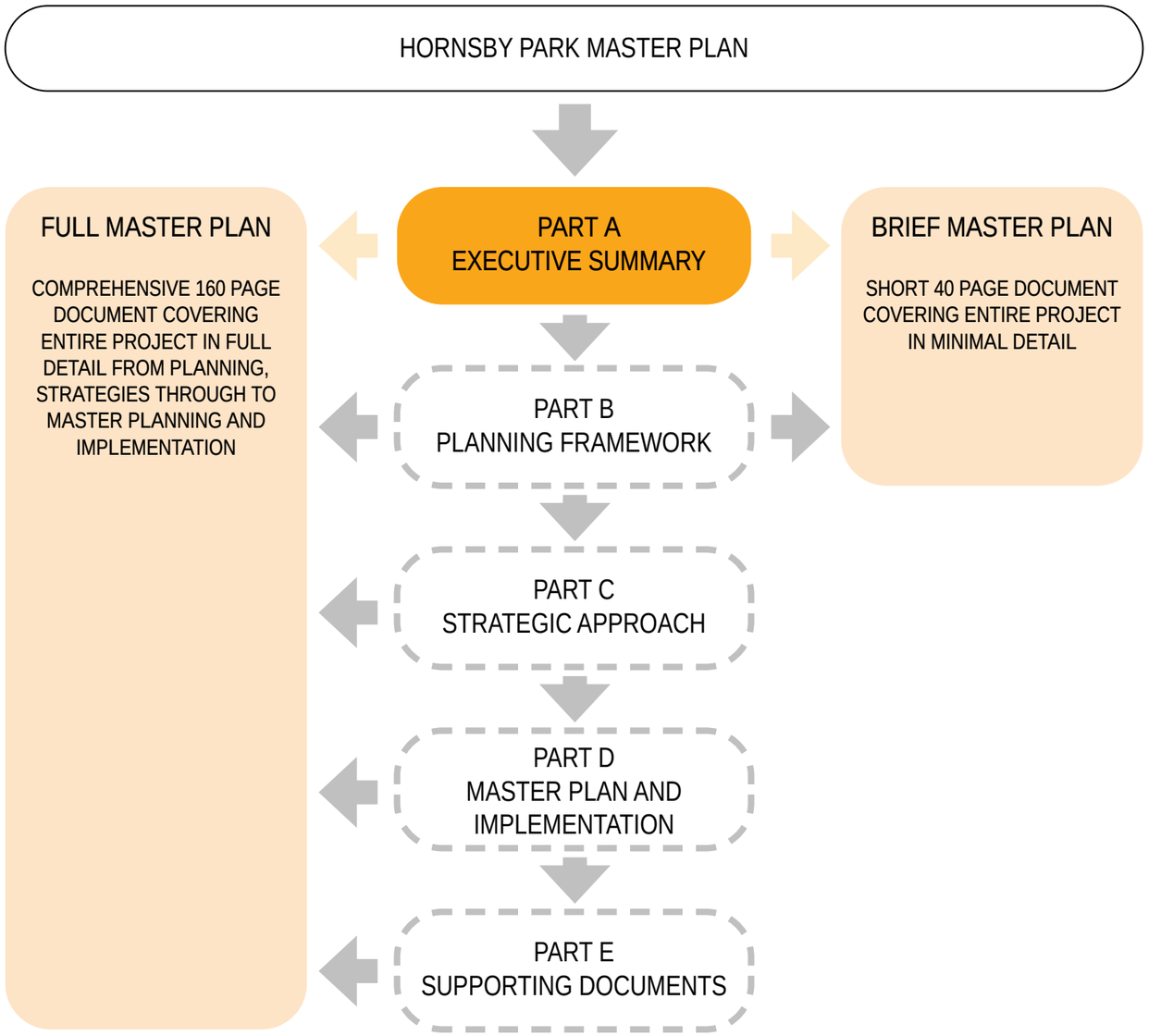


TABLE OF CONTENTS AND REPORT STRUCTURE

PART A - EXECUTIVE SUMMARY

ACKNOWLEDGEMENT OF COUNTRY

Existing quarry diatreme wall

“A PARK IS NOT A SINGLE LANDSCAPE”

The many layers of human activity that hallmark the history of the land that will soon form the new Hornsby Park have left an uneven record of evidence in the fabric of today’s landscape.

There is archaeological evidence in the landscape of the region as physical cues to Darug and Guringai Peoples custodianship of this land over millennia, but the physical evidence is limited in its visibility.

Remnant traces of early European settlers of the land are also limited, with a hidden cemetery, a pool carved in a sandstone rock and a simple construction under a rock overhang - that was possibly a cool room - being all that is left of the Higgins family’s occupation of the land over almost 130 years.

Evidence of the world leading astronomy facility that occupied part of Old Man Valley for seven years in the 1940s and 1950s is now only to be found in photographs.

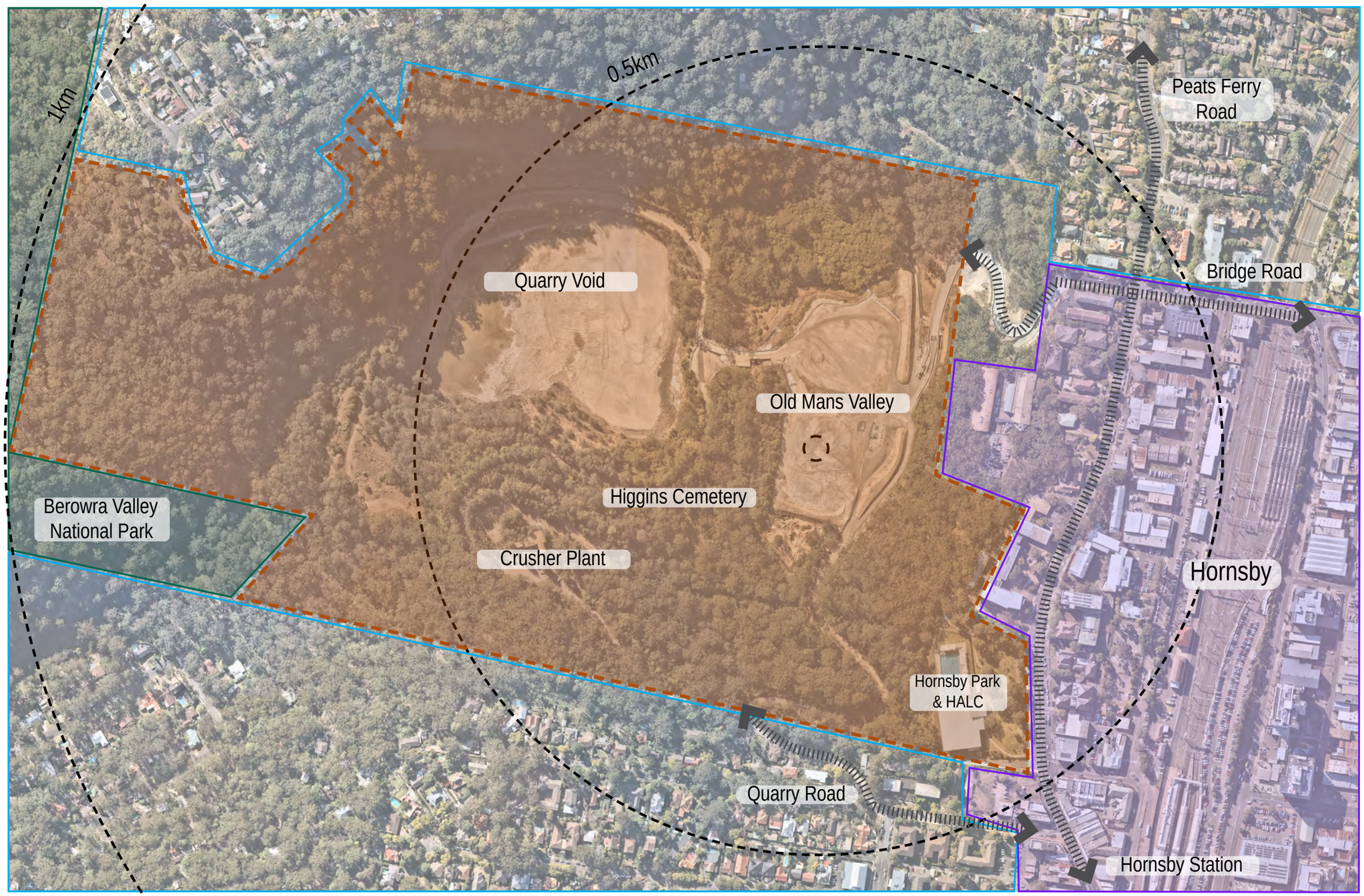
In stark contrast, the dramatic intervention of the former Hornsby Quarry, with its geologically significant diatreme exposed for all to marvel at, is the inescapable evidence of this landscape’s industrial history.

While the quarry will doubtless prove a major drawcard in the Park’s future, the long-term success of Hornsby Park will ultimately be measured by the way in which all the layers of this landscape’s rich heritage and natural values are revealed to and experienced by its visitors.

Be it the excitement of a first bushwalk for a young child, the unexpected sighting of a Powerful Owl, the inspiration of an evening stage performance on the floor of the Quarry or the thrill of riding a mountain bike in a bushland setting, each will provide its own storyline.

It seems fitting then, that in this ancient landscape’s new phase as a park, it will continue to be appreciated as much in the ‘minds and imaginations’ of those who visit, as it will by its compelling physical presence.

Existing bushland viewing from Hornsby Aquatic and Leisure Centre



The locality of the quarry site and surrounding parklands

THE SITE TODAY

THE SITE TODAY

The Hornsby Park site is comprised of 59 hectares of bushland and cleared open land with the principal physical features of the site today being comprised of:

- Extensive Bushland – the majority of the site is occupied by bushland that connects to the Berowra Valley National Park; the site's bushland also includes the very rare Blue Gum Diatreme Forest, which is listed as a Critically Endangered Ecological Community
- Old Mans Valley (OMV) - an area of cleared land accessed immediately to the west of – and some 50 metres below - the Hornsby CBD. This area has direct vehicle access from Peats Ferry Road
- The Higgins Family Cemetery – a small heritage-listed cemetery completely surrounded by bushland
- The Quarry Void – a large, deep and dramatic open cut disused quarry, the principal feature of which is the geologically significant volcanic diatreme, listed on the Heritage Register of the National Estate
- The Crusher Plant – a large industrial structure that is suitable for adaptive recreational re-use within the park.

While the public has been excluded from the majority of the site for reasons of safety - and to permit the recent partial filling of the quarry base to facilitate its future use as a park – there remain tracks within the bushland (including the heritage listed Depression Steps) that have been used for bushland trails, linking Hornsby and the Berowra Valley National Park, as well as a formal Mountain Bike trail network.

GOALS FOR THE FUTURE PARK

Council has committed to developing Hornsby Park as a landmark recreation destination for local residents and the wider Sydney community as well as domestic and 'in-bound' tourists.

In addition to offering an extraordinary bushland experience and a wide range of popular parkland activities, the site lends itself well to hosting local community and regionally attractive events, celebrations and festivals. The quarry and its remnant infrastructure also offer an ideal venue for adventure recreation experiences.

With the prospect of significant future growth in the Hornsby CBD, Hornsby Park will be ideally placed to meet the open space and recreational needs of the current and future population, all within walking distance.

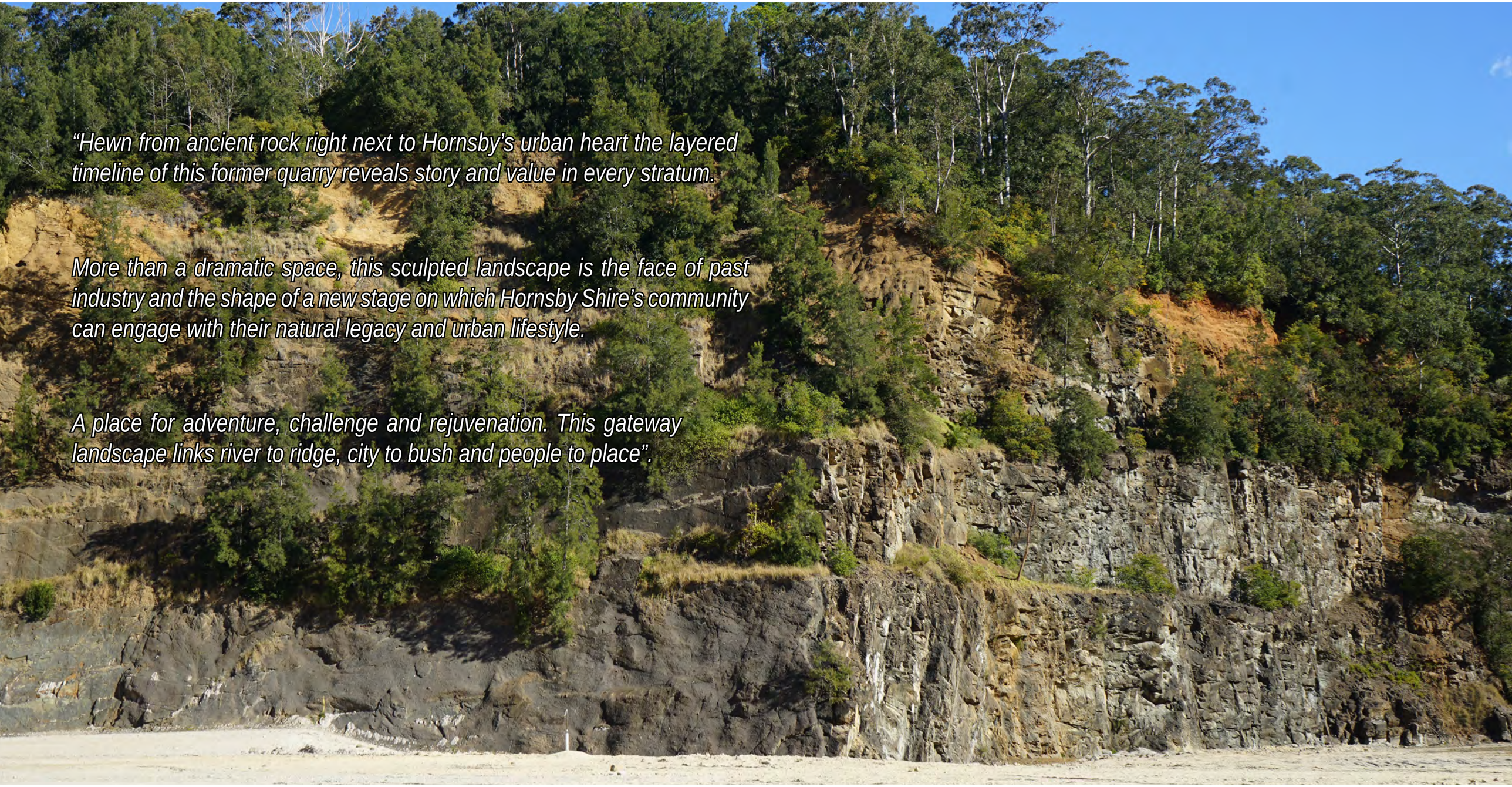
With these current and future demands in mind the design for Hornsby Park will seek to:

- Restore and enhance the unique bushland within the site
- Protect and celebrate its Aboriginal and Non-Aboriginal heritage
- Ensure that the quarry character is retained
- Offer a variety of recreation opportunities including passive, active and adventure recreation
- Provide easy access throughout via a network of walking and bike paths
- Integrate upgraded connections between the park and surrounding area including Hornsby Town Centre, Berowra Valley National Park and local streets and trails
- Cater for the long-term evolution and growth of Hornsby and surrounding communities and populations
- Secure Council's long-term management and maintenance of the park.

Existing Bushland

Existing Quarry Void

Existing Old Mans Valley and Access Road


“Hewn from ancient rock right next to Hornsby’s urban heart the layered timeline of this former quarry reveals story and value in every stratum.
More than a dramatic space, this sculpted landscape is the face of past industry and the shape of a new stage on which Hornsby Shire’s community can engage with their natural legacy and urban lifestyle.
A place for adventure, challenge and rejuvenation. This gateway landscape links river to ridge, city to bush and people to place”.

VISION AND OBJECTIVES FOR THE PARK

The Vision for Hornsby Park, written and adopted by Council in the early phases of the Park's feasibility testing and concept proofing, is set out on the opposite page.

The Master Plan for the Park is also required to meet four project objectives from the Hornsby Park Plan of Management 2015:

OBJECTIVE 1
Local Living - Hornsby's parkland hub meeting the needs of the current and future local community for recreation, connection to nature and cultural experiences in a bushland setting.

OBJECTIVE 2
Environment and Heritage - Renewing Hornsby's natural systems and connecting community to Hornsby's unique bush character, rich heritage and evolving story.

OBJECTIVE 3
Tourism and Economy - A centre for adventure tourism for the Northern Sydney region, driving local economic development and urban renewal.

OBJECTIVE 4
Return on Investment - Leveraging commercial opportunities that enhance the leisure experience and deliver a financially sustainable community asset.

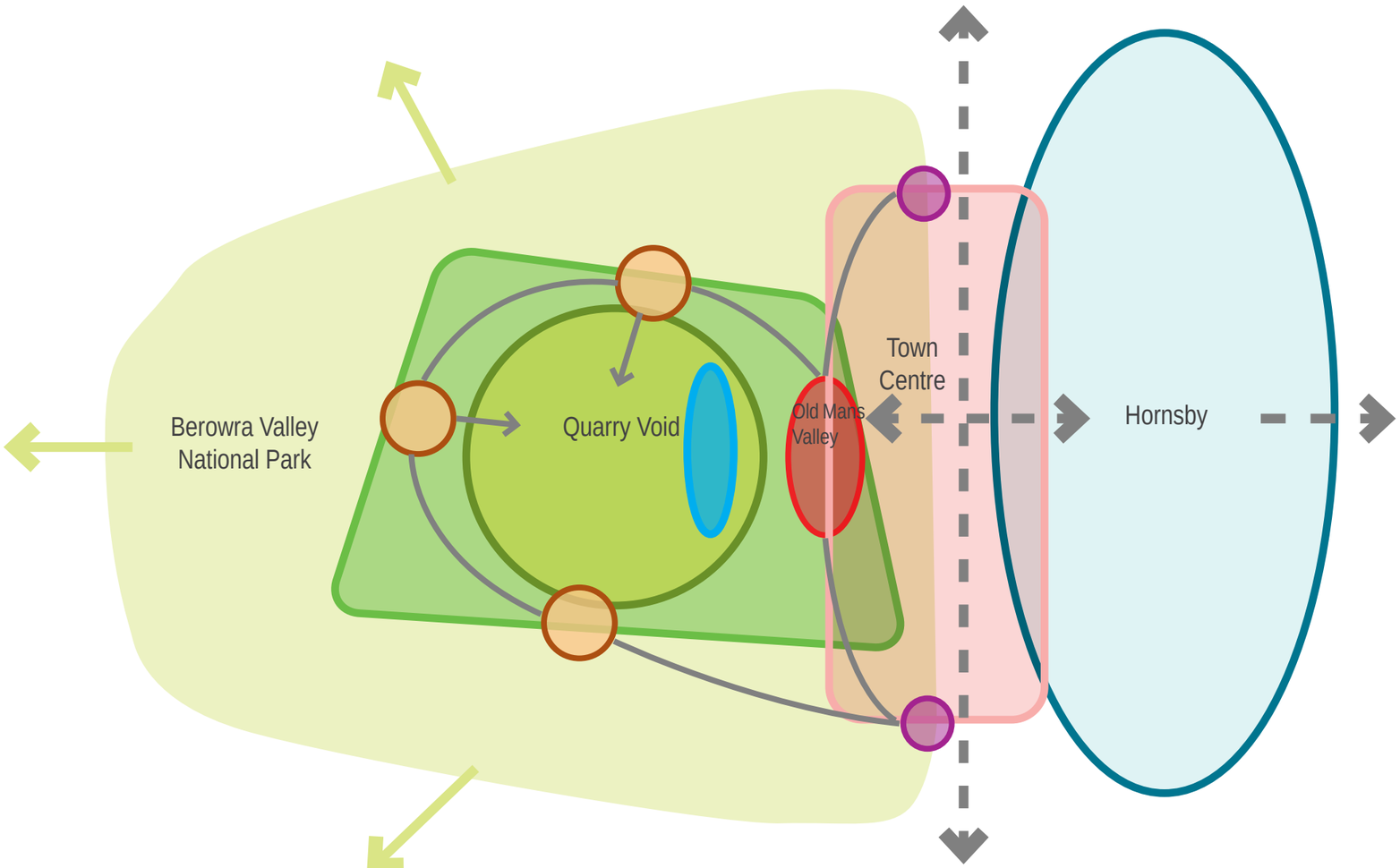
In addition, the following project objectives are incorporated in the Master Plan:

OBJECTIVE 5
Demonstrating Sustainability - Developing robust and 'smart' systems that demonstrate 'sustainability in action' for management of the parkland. Examples may include autonomous electric vehicle transport and renewable energy systems.

OBJECTIVE 6
Inclusive Design/Access for All - Optimising access for all through inclusive design and site sensitive transport modes.

The Master Plan sets out a suite of strategies by which each of these objectives will be implemented.

Existing bushland



Project Rational Diagram

- Surrounding bushland
- Park bushland
- Quarry Void
- Quarry Lake
- Old Mans Valley
- Park Precincts
- Primary Park entry points
- Hornsby Town Centre
- Hornsby Suburban Core
- Bushland and National Park Connections
- Parkland Circulation
- Key Urban Connections

THE MASTER PLAN RATIONALE

Hornsby Park offers a unique opportunity for the community to connect with its landscape and heritage right at the heart of the town. This connection – for many perhaps, a reconnection – is illustrated opposite and draws on a number of physical, cultural and perceptual threads:

BRINGING THE BUSH TO THE CITY

For many in the community the bushland that lies to the west of the Hornsby Town Centre and its links to the Berowra Valley National Park has been considered largely inaccessible, principally by virtue of the steepness of its terrain. Hornsby Park will now create a stronger, more accessible and safe connection to its bushland landscape for everyone, from those who may simply want a short walk or a place to relax close to home to those who are seeking adventure or an immersive bushland experience.

REIGNITING HORNSBY'S STORY

Repurposing this quarry site, previously inaccessible to the public, unlocks a key piece in the long narrative of Hornsby's heritage, not only in opening up a landscape of extraordinary geological and ecological significance, but in providing the opportunity to tell the story of this place's millennia-long Aboriginal stewardship and its European settlement and subsequent land uses. The long-term health of the park's natural environment and its embrace of the site's rich heritage will be critical foundations of the park's future success and popularity.

REINFORCING HORNSBY'S IDENTITY

The community of Hornsby has much to be proud of in its history and landscape, so the city-shaping nature, scale and diversity of this new park, which will undoubtedly be a major draw card for district and regional visitation. The park - hidden from view for many decades by its surrounding bushland - will further elevate that sense of the local community's identity with and pride in its town and landscape. Central to this identity will be in ensuring that the park retains its unique landscape values and character; retaining the 'Quarry-ness' of the quarry void within its bushland setting will be of particular importance (see opposite).

WHAT WE MEAN BY 'QUARRY-NESS'?

'Quarry-ness' encompasses the concept of retaining the character and drama of the quarry's form and experience into the next phases of the site's role as a major regional park. Three elements of the future quarry experience will be core to that appreciation by the visitor:

- Drama and scale – ensuring that the full quarried face of each wall remains clearly visible from the rim and the base of the Quarry Void.
- Contrast and integrity – retaining a visible distinction between the parts of the quarry that will remain largely undisturbed since quarrying finished and those new works necessary to facilitate safe visitor experiences
- Promise and reveal – progressively revealing the quarry void with selected vistas on approach before offering a full appreciation of the whole quarry from formal lookouts around its perimeter.

Central to the full experience of these elements of the quarry will be in conserving the unique characteristics of each of the four quarry walls, as outlined in the Master Plan.

Legend

- Bushland
- Native trees
- Exotic trees
- Natural turf
- Synthetic turf
- Mass planting
- Playground
- Asphalt road
- Paths, tracks and trails
- Raised walkways and structures
- Lift into Quarry Void
- Walls
- Mountain bike tracks
- Quarry faces
- Lake
- Future canopy skywalk to Hornsby CBD
- Sloped lawn seating

1:4000 @A3

0 40 80 120 200m

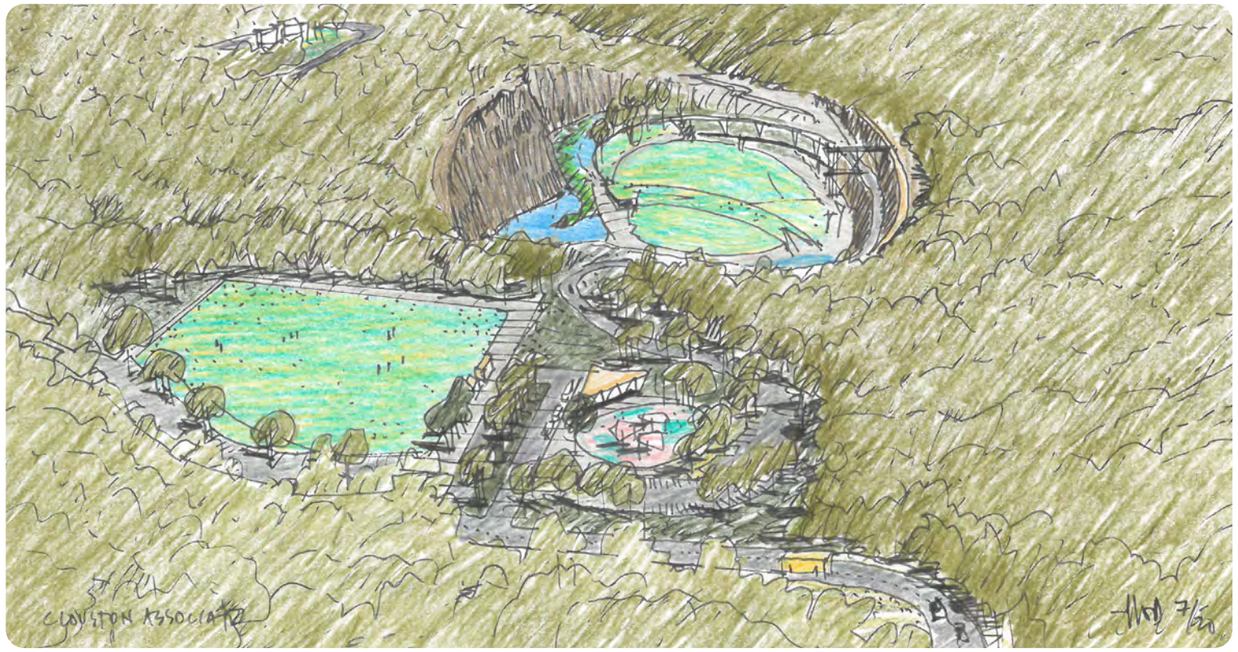
(1) Park vehicle entry from Bridge Road
(2) Primary pedestrian entry from Town Centre
(3) Park link to Berowra Valley National Park
(4) Park Orientation space
(5) Quarry Void access point
(6) Crusher Plant access from Quarry Road
(7) Restoration and adaptive reuse of Crusher Plant
(8) Minor pedestrian entry from Rosemead Road
(9) Key lookouts

OVERALL MASTER PLAN

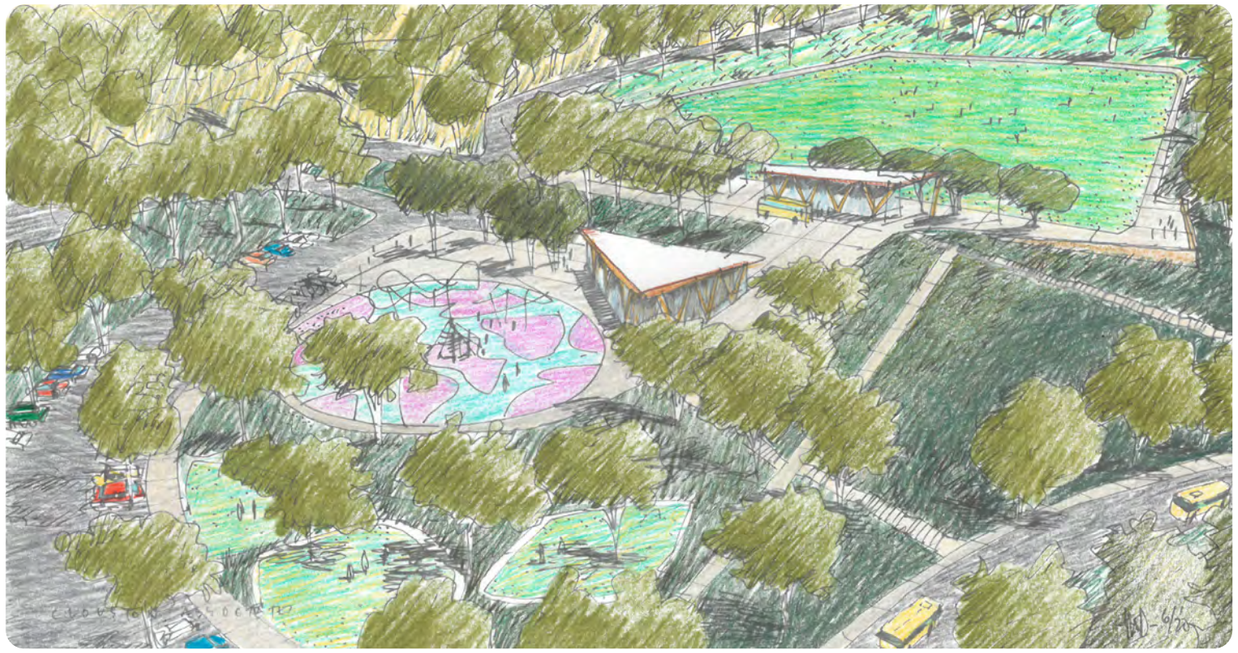
THE PARK MASTER PLAN

The Master Plan opposite illustrates the full realisation of Hornsby Park over the long term. The principal features of the Master Plan comprise the following:

- Vehicle access and circulation – private vehicle and coach access to Old Man Valley from Peats Ferry Road with shuttle bus or similar access from Old Man Valley to the Quarry Void. Quarry Road would provide vehicle access to the Crusher Plant
- Pedestrian and cycle access – path and stair access from old Hornsby Park to Old Man Valley (incorporating the Depression Steps) linking to a network of trails connecting to the Quarry Void and the Berowra Valley National Park. The potential for an all-access canopy walk entry from Coronation Street along southern face of the Aquatic Centre to Old Man Valley would create a dramatic arrival experience in the long term
- Bushland Restoration –conservation and comprehensive rehabilitation of the park's bushland to enhance ecological values; this includes relinking fragmented islands of the rare Blue Gum Diatreme Forest
- Old Man Valley (OMV) – creation of a major arrival hub for the whole park (including car and coach parking, as well as a potential shuttle connection to the quarry) and a venue for passive and active recreation facilities with a strong focus on meeting local community needs (playing fields/event venue, café, picnic area and large play space)
- The Higgins Family Cemetery – restoration of the cemetery with an informal lawn space adjoining and connecting paths to the Quarry Void and the Crusher Plant
- The Quarry Void – establishment of a major parkland oriented to the eastern diatreme wall and including a sweeping all-access path leading to a large event lawn, a major informal recreation lawn fronting a freshwater lake, a wetlands cascade on the southern perimeter and a lakeside amenities building. A major lift on the quarry's north wall provides pedestrian access to the quarry floor
- The Crusher Plant –adaptive recreational re-use of the building (possibly for adventure recreation) and associated outdoor spaces
- Southwest Platform – long term potential for a more secluded facility close the National Park with options for an educational and/or eco sensitive accommodation focus
- Recreation Opportunities – a wide range of passive and active recreation and leisure opportunities across the park including, walking, bushwalking, cycling, field sports, mountain biking, play, picnicking kickabout, water activities, climbing and other vertical adventure sports. Cafés and other visitor facilities and amenities would also be available
- Wayfinding and Interpretation – wayfinding signage and extensive interpretation of the park's environmental and heritage values
- Water Use and Treatment - explore overall water use for the site including water collection for reuse, recycling and irrigation while ensuring the site water circulation, lake water treatment (WSUD, Macrophytes) and creek flow and stormwater infrastructure is managed.



Aerial view of site looking west over OMV, Quarry Void towards Berowra Valley National Park from above Hornsby Town Centre near Bridge Road



View of OMV from north west looking south over the passive recreation area and shared orientation plaza

Legend

- Quarry rockface
- Bushland
- Native trees
- Exotic trees
- Turf
- Mass planting
- Wetland planting and cascading pool
- Lake
- Sloped lake edge
- Viewing outcrop into the lake
- Asphalt road
- Concrete pathway
- Stone pavement
- Raised walkway
- Sandstone / Breccia Gabion walls
- Concrete channels & concrete walls
- Lift shaft
- Concrete stairs
- Mountain bike tracks
- Picnic / Shelter

1:2000 @A3

0 20 40 60 100m

1. Lift connects to RL90 Road, shuttle drop off at RL72 and quarry void base
2. Potential adventure recreation on quarry rockface
3. Potential community/ commercial building
4. Informal amphitheatre seating on turf slope
5. RL 88 bench lookout
6. Amenities building below ramp
7. Vehicle access ramp
8. Pedestrian access path
9. Upper lawn terrace
10. Lower lawn terrace
11. Quarry Void entry plaza
12. RL 72 plaza
13. RL 90 track access to lift and accessible path
14. Raised pedestrian walkway and lookout to Quarry West

QUARRY VOID CONCEPT PLAN

Legend

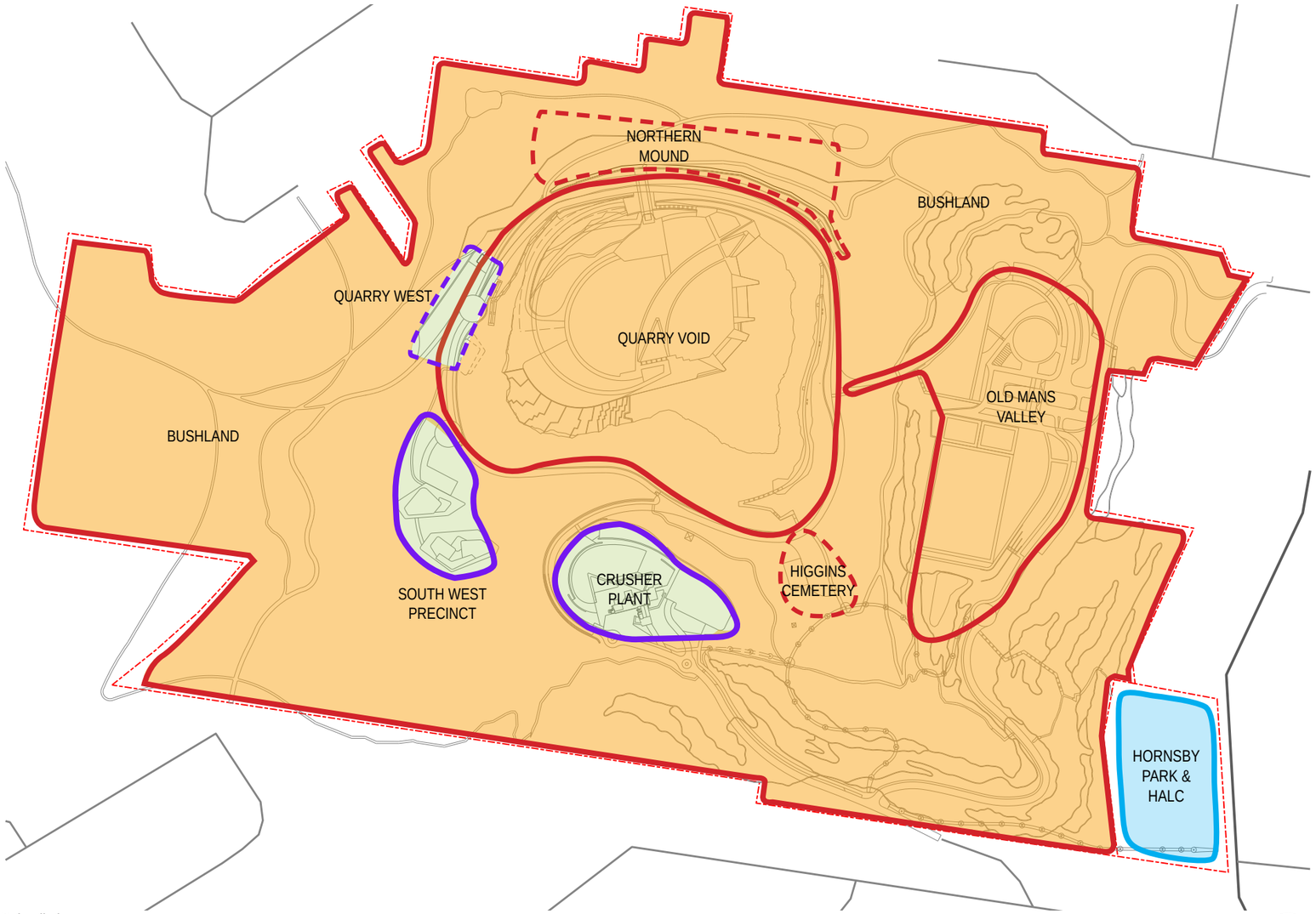
- Bushland
- Native trees
- Exotic trees
- Natural turf
- Synthetic turf
- Mass planting
- Shared zone feature paving
- Entry plaza feature paving
- Playground
- Asphalt road
- Concrete pathway
- Stone pavement for shared zone
- Mountain bike tracks
- Sandstone / Breccia Gabion walls
- Sandstone log walls
- Existing jumping track
- Car parking
- Future canopy skywalk to Hornsby CBD
- Concrete stairs
- Seating lawn terrace

1:1500 @A3

0 15 30 45 75m

1. Shared pedestrian entry and orientation plaza
2. Shuttle/bus drop off and pickup
3. Interpretative orchard bosque planting
4. Lower turf terrace with picnic facilities
5. Play space with water play
6. Pedestrian access to Quarry Void
7. Primary vehicle access
8. Southern carpark
9. Northern carpark
10. Lookout
11. Sports fields
12. Existing mountain bike underpass
13. Cafe / Community Facility
14. Planted slope to funnel views towards Quarry
15. Sports amenity buildings
16. Future canopy skyway

OLD MANS VALLEY CONCEPT PLAN



Subsoil plan

Notes:
Staging relates to detailed design and documentation of the Master Plan, with delivery of Stage 1 and 2 to be undertaken in sub-stages as project funding becomes available. The canopy skywalk will be considered under Stage 2 Works as this would provide universal access to OMV directly from the town centre, taking significant pressure off vehicle access.

LEGEND

- Stage 1
- Major Precincts
  PRECINCT A: Old Mans Valley (OMV)
  PRECINCT B: Quarry Void
  PRECINCT C: Bushland
- Minor Precincts
  PRECINCT D: Higgins Cemetery
  PRECINCT E: Northern Mound
- Stage 2
- Major Precincts
  PRECINCT F: Crusher Plant
  PRECINCT G: South West Precinct
- Minor Precincts
  PRECINCT H: Quarry West
- Existing Precincts
- Major Precincts
  PRECINCT I: Hornsby Park and Hornsby Aquatic and Leisure Centre

STAGING PLAN

REALISING THE PLAN

Due to the size and scale of the works involved in Hornsby Park will be delivered in two stages over a period of years.

STAGE 1

Precincts that comprise Stage 1 works form the core character and identity of the park and include those works required to deliver visitors safely to most parts of the park.

Stage 1 areas will include bushland restoration across the site, Old Mans Valley and entry, the Quarry Void and associated access paths and roads, Higgins Cemetery and the Northern Mound.

The Park will be functional and viable when the Stage 1 works are completed, however the Stage 2 works are important for the full realisation of the Park's potential.

STAGE 2

The Stage 2 works comprise precincts that either support the Stage 1 precincts or facilities that require a strong existing visitor base that only an established park can generate.

Stage 2 works include the Crusher Plant adaptive-reuse, the Southwest precinct and the Quarry West precinct.

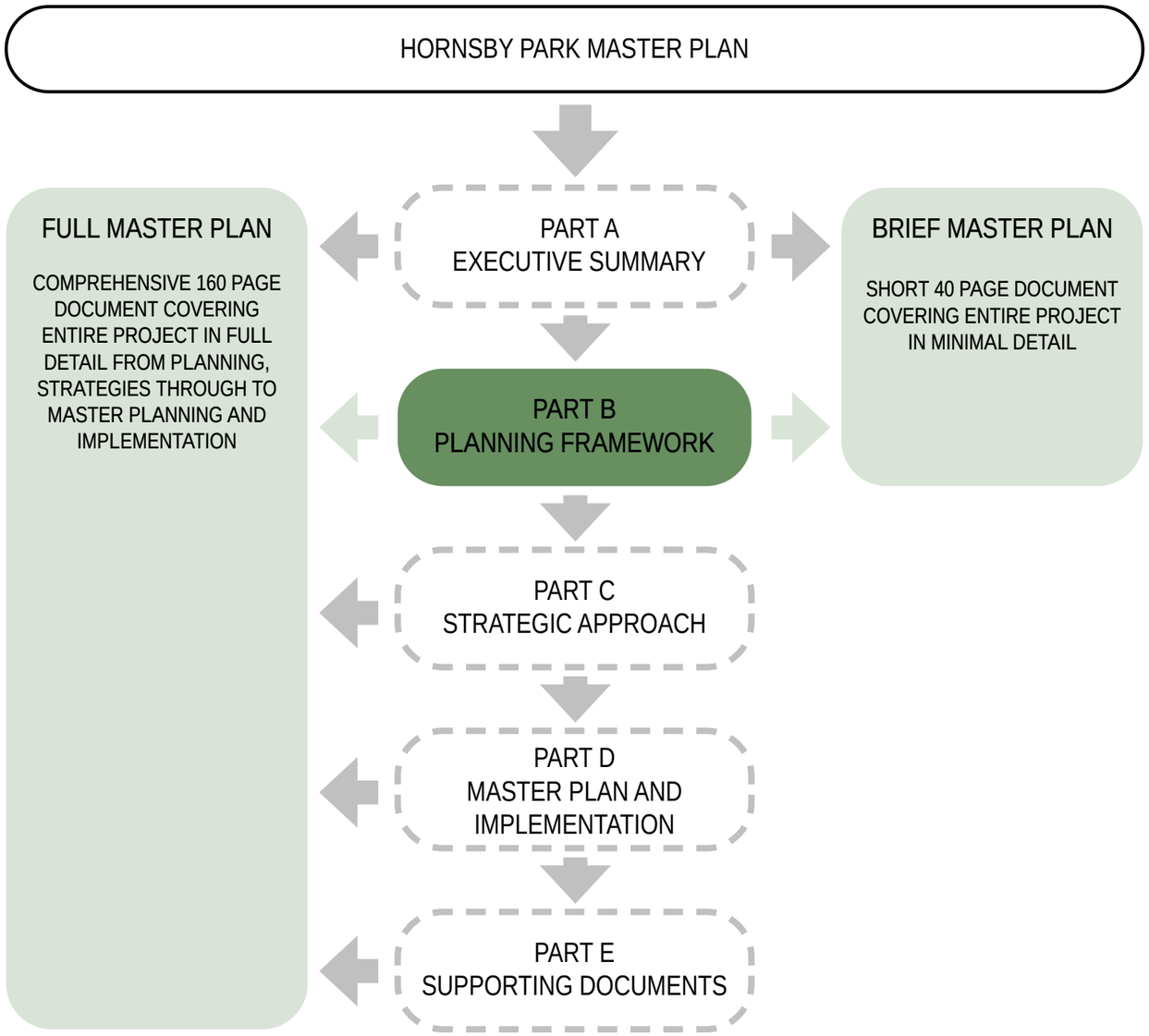
Some of these precincts include opportunities for partnerships between Council and third-party businesses for the activation of the spaces.

The Stage 2 works will ensure the continued long-term financial viability of the park and bring opportunities for new users and visitors to the park.

Existing quarry void

PART B - PLANNING FRAMEWORK

Title



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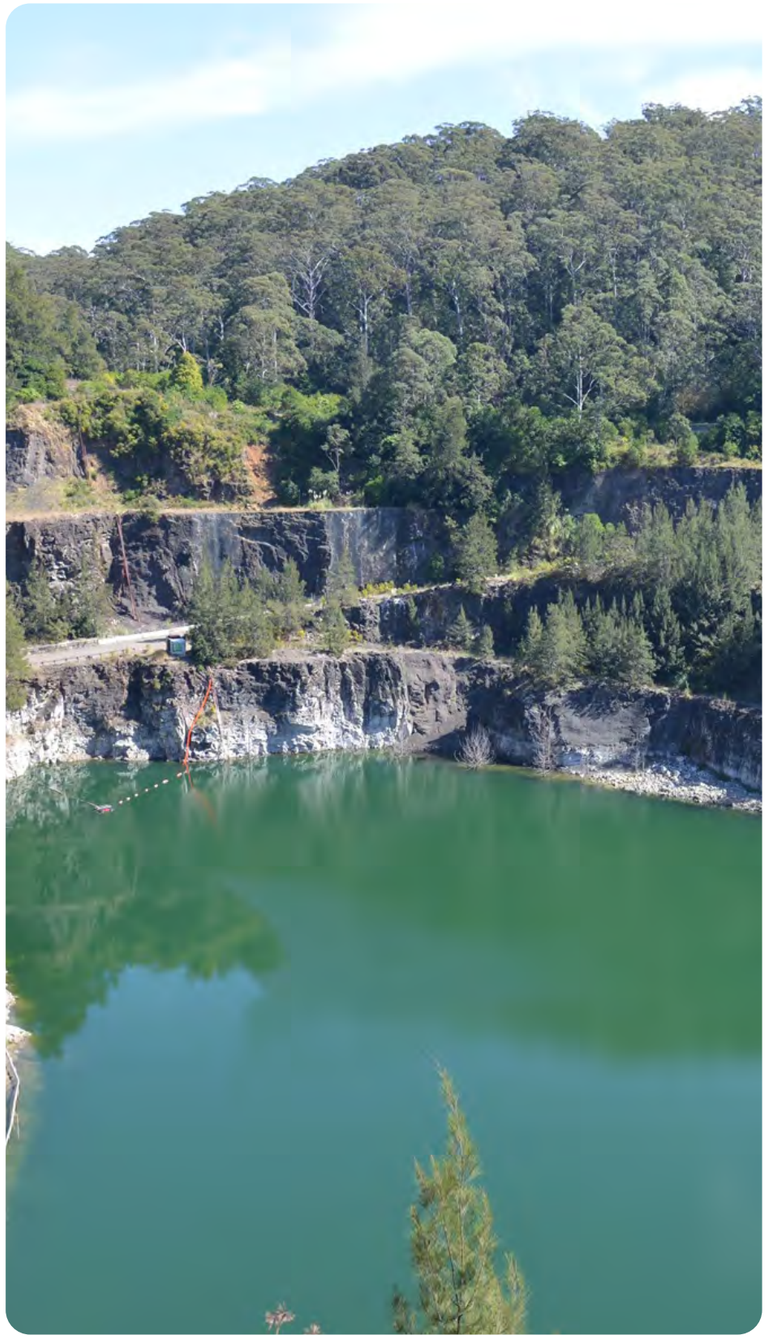


Existing Quarry Walls and Lake

A BRIEF HISTORY OF THE PROJECT

Hornsby Quarry is a former breccia hard rock quarry that was operated by private business from the early 1900s and ceased operation in the late 1990s. In 2002 the site was acquired by Hornsby Shire Council from CSR. The NSW State Government required the Quarry site be zoned as Local Open Space (RE1) under the 2013 LEP as part of the site's acquisition process by Council.

A 2014 Recreation study for the quarry and Old Mans Valley was undertaken to review landform and recreational possibilities for the site. This study indicated that recreation opportunities would be optimised by raising the floor of the quarry void, without compromise to the site's heritage, environmental and scenic values. In particular the majority of the quarry's diatreme wall which is of geological significance will remain exposed.

In 2016 the NSW Department of Planning and the Environment approved the delivery of spoil into Hornsby Quarry from the construction of the NorthConnex Tunnel. Fill received from the NorthConnex project is now completed, raising the bottom of the quarry void by approximately 50m. Fill was also placed within Old Mans Valley to provide a usable platform for recreation.

This Master Plan provides direction for the future development of the site. Landform, access, environmental and heritage conservation, recreation provision (passive, active and adventure), amenities, commercial opportunities have all been addressed in the Master Plan.

THE FUTURE FOR THE SITE

Hornsby Shire Council has committed to developing the Hornsby Quarry as a landmark attraction for a wide range of local, residential and tourist visitors. The Park will also address the recreational needs of the new and expanded population arising from the Hornsby Town Centre.

In addition to more traditional natural area recreation opportunities such as bush walking and bird watching, there is significant opportunity to consider development of the site for adventure style recreation activities such as 'zip-lines' and other aerial activities, high ropes, luge, abseiling, rock climbing and water-based activities have all been considered.

There is also the option to host community events, celebrations, performance and cultural activities, whilst still providing for local recreation needs.

SIGNIFICANT SITE VALUES AND FEATURES

The principle features of the site may be summarised as follows:

Cultural Heritage

- Aboriginal Heritage
- European Heritage - Higgins Cemetery, Depression Steps, Astronomy etc.

Natural Heritage

- Bushland
- Diatreme wall in quarry void

Industrial Heritage

- Quarry void
- Crusher Plant

Recreation Features

- Bush trails
- Mountain bike tracks
- Scenic views

Plan of the combined study area indicated by the red outline, including the Hornsby Quarry Acquisition area (green outline), Old Mans Valley lands (yellow outline) and Hornsby Park and other land parcels (in red). Source: Hornsby Park POM (11 Nov 2015).

THE QUARRY TODAY - PROPERTY PARCELS AND LOTS

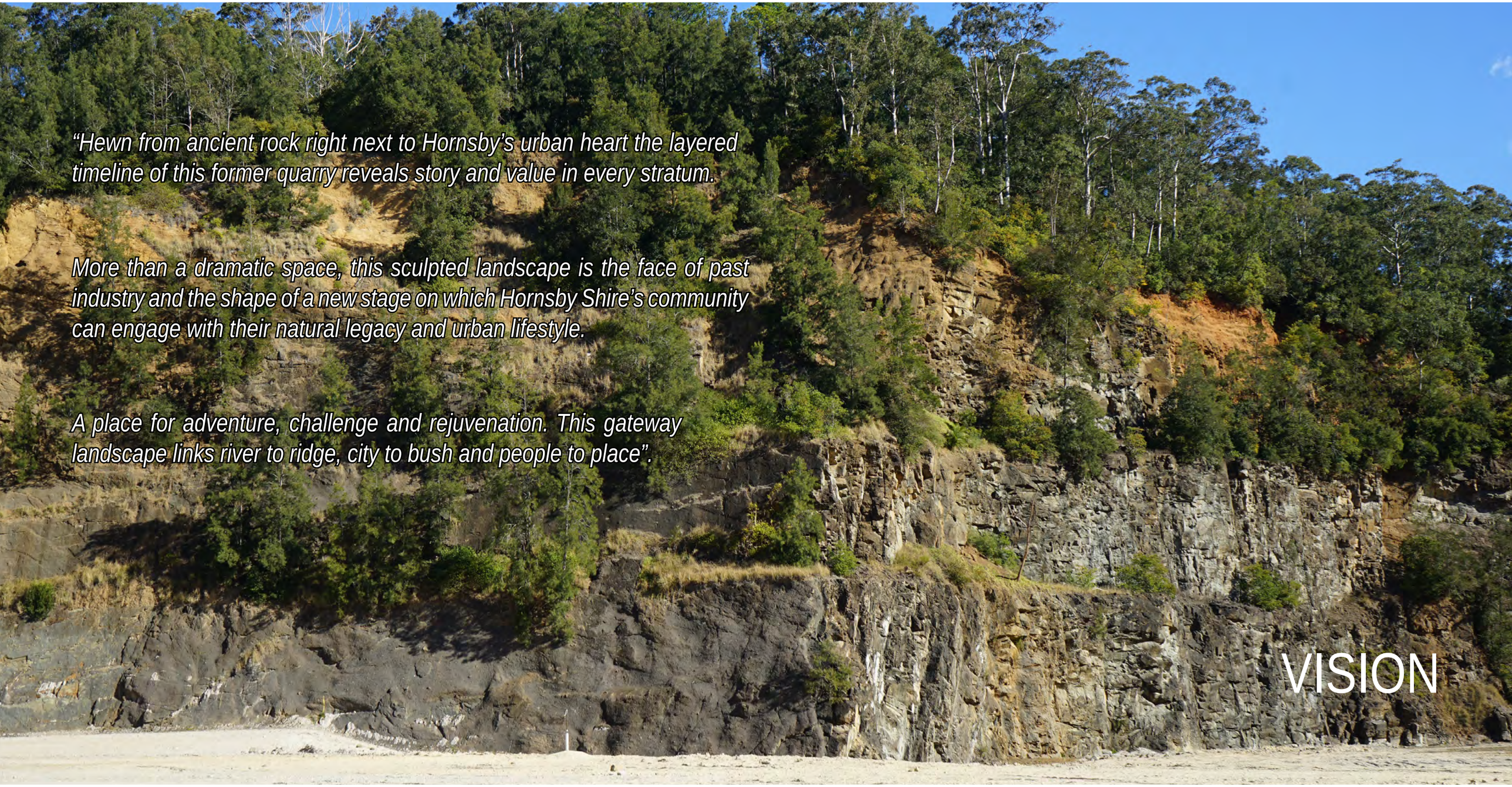
The Master Plan for Hornsby Quarry Park includes the landscape parcels illustrated and described below :

- Hornsby Quarry: Hornsby Shire Council (HSC) owned Community Land that includes the quarry void, south-west fill area, Crusher Plant and Northern mound.
- Old Man Valley Lands (OMV): Council owned Community Land to the east of the site and is the subject of a recently adopted POM that identifies permissible recreation development.
- Hornsby Park (Crown Land)
- Council Owned Land

Existing road from Bridge Road to OMV

Existing quarry walls

Existing Crusher Plant



“Hewn from ancient rock right next to Hornsby’s urban heart the layered timeline of this former quarry reveals story and value in every stratum.

More than a dramatic space, this sculpted landscape is the face of past industry and the shape of a new stage on which Hornsby Shire’s community can engage with their natural legacy and urban lifestyle.

A place for adventure, challenge and rejuvenation. This gateway landscape links river to ridge, city to bush and people to place”.

VISION

PROJECT DESCRIPTION

The Hornsby Park is comprised of 59 hectares of bushland and cleared open land which has been identified by Hornsby Shire Council for restoration and development as a significant regional park for a range of passive and active recreation activities, located in a natural setting.

Council has committed to developing this site as a landmark recreation destination for local residents, the wider Sydney community and potentially local and 'in-bound' tourists. In addition to offering an extraordinary bushland experience and a wide range of popular parkland activities, the site lends itself well to hosting local community and regionally attractive events, celebrations and festivals. The quarry and its remnant infrastructure also offer an ideal venue for adventure recreation experiences.

The Master Plan will form a core component of forthcoming community engagement activities, a framework for the revision of the Hornsby Park Plan of Management and will lead directly to design development and implementation phases.

VISION AND OBJECTIVES FOR THE PARK

The Vision for Hornsby Park, written and adopted by Council in the early phases of the Park's feasibility testing and concept proofing, is set out on the opposite page.

The Master Plan for the Park is also required to meet four project objectives from the Hornsby Park Plan of Management 2015:

LOCAL LIVING
Hornsby's parkland hub meeting the needs of the current and future local community for recreation, connection to nature and cultural experiences in a bushland setting;

ENVIRONMENT AND HERITAGE
Renewing Hornsby's natural systems and connecting community to Hornsby's unique bush character, rich heritage and evolving story;

TOURISM AND ECONOMY
A centre for adventure tourism for the Northern Sydney region, driving local economic development and urban renewal;

RETURN ON INVESTMENT
Leveraging commercial opportunities that enhance the leisure experience and deliver a financially sustainable community asset;

In addition, the following project objectives are incorporated in the Master Plan:

DEMONSTRATING SUSTAINABILITY
Demonstrating Sustainability - Developing robust and 'smart' systems that demonstrate 'sustainability in action' for management of the parkland. Examples may include autonomous electric vehicle transport and renewable energy systems.

INCLUSIVE DESIGN/ACCESS FOR ALL
Optimising access for all through inclusive design and site sensitive transport modes.

The Master Plan sets out a suite of strategies by which each of these objectives will be implemented.

SCOPE OF THE PROJECT

- Restore and enhance the unique bushland within the site
- Protect and celebrate its Aboriginal and Non-Aboriginal heritage
- Ensure that the quarry character is retained
- Offer a variety of recreation opportunities including passive, active and adventure recreation
- Provide easy access throughout via a network of walking and bike paths
- Integrate upgraded connections between the park and surrounding area including Hornsby Town Centre, Berowra Valley National Park and local streets and trails
- Cater for the long-term evolution and growth of Hornsby and surrounding communities and populations
- Secure Council's long-term management and maintenance of the park.

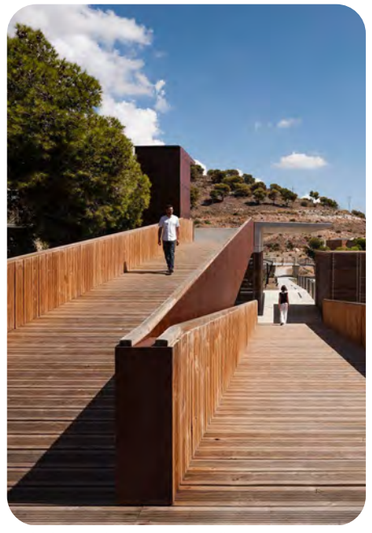

Local Living


Environment and Heritage

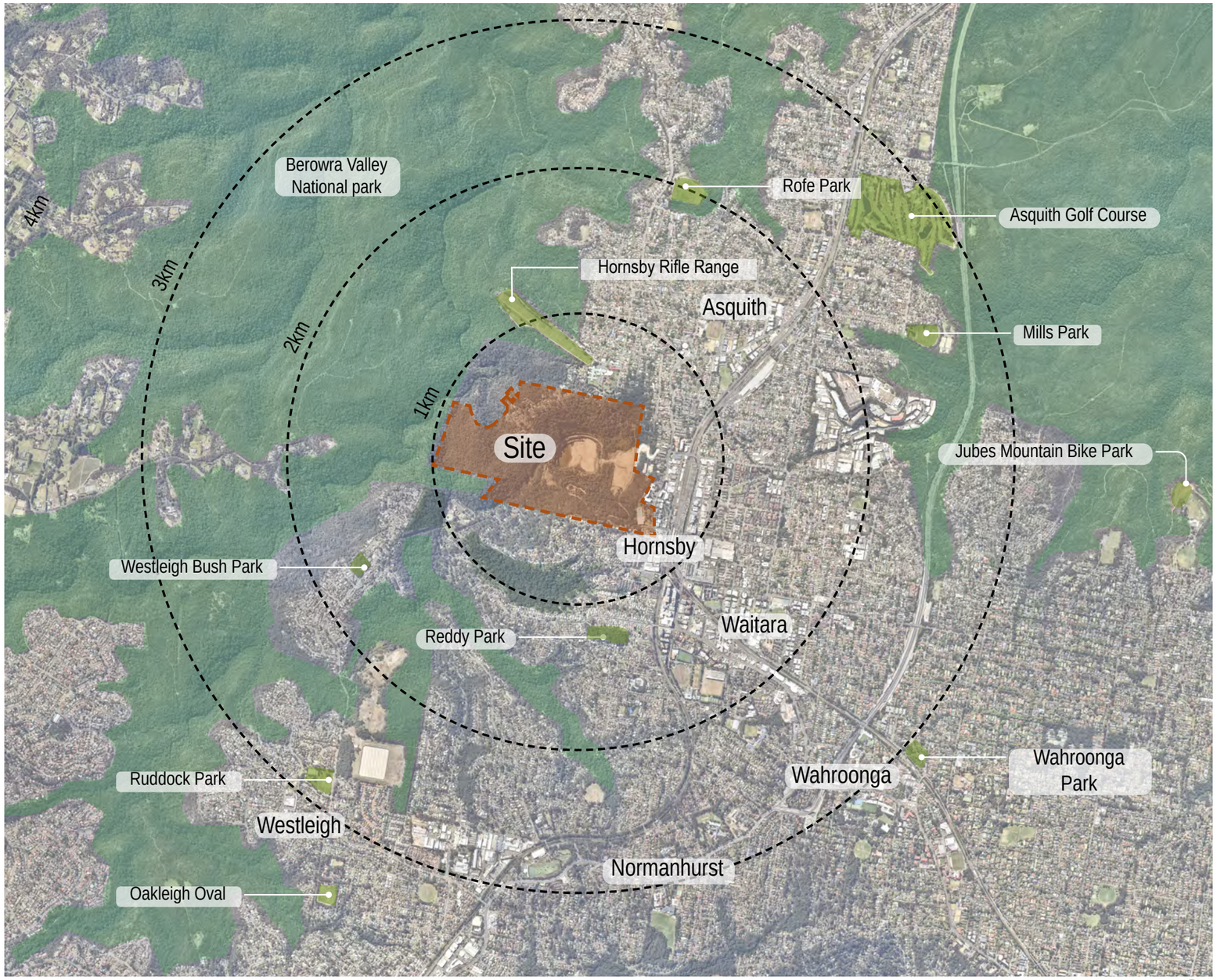

Tourism and Economy


Return on Investment


Demonstrating Sustainability


Inclusive Design/Access for All

CONTEXT



The locality of the quarry site and surrounding parklands

Local Parks

Bushland and National Parks

Hornsby Park Site

THE DISTRICT CONTEXT

Hornsby Park and the former quarry site lie barely half a kilometre from Hornsby Train station. This close proximity to a CBD and major public transport is most unusual for a major post-industrial landscape and consequently offers some unique opportunities in this adaptive re-use as a park.

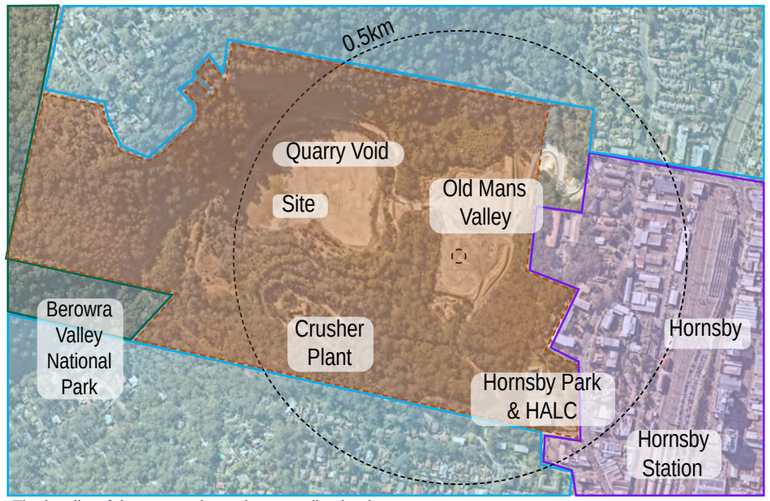
The site forms an easterly extension of the bushland valley that leads to Berowra Creek and Berowra Valley National Park. Falling away from the ridgeline of Hornsby Town Centre

The adjacent plan depicts the public open space in the immediate district and illustrates the pivotal location that the Park will play as a recreational resource for the district, uniting Hornsby Town Centre with natural areas. This map graphically illustrates not only the high level of accessibility that the park will offer to the CBD, but also the scale of the Park itself.

LOCAL CONTEXT

Hornsby Park is bound to the west by Berowra Valley National Park, to the north and south by residential lots and to the east by Hornsby Town Centre. Hornsby Station is to the south east of the Park and the Hornsby Aquatic and Leisure Centre sits on the south eastern corner of the site.

The Park is perfectly located, close to the Town Centre and a major public transport node. Vehicle access to the park is via Bridge Road off Peats Ferry Road, and via Quarry Road. Significant changes in elevation between the site and Town Centre create challenges in providing accessible pedestrian access to the park.

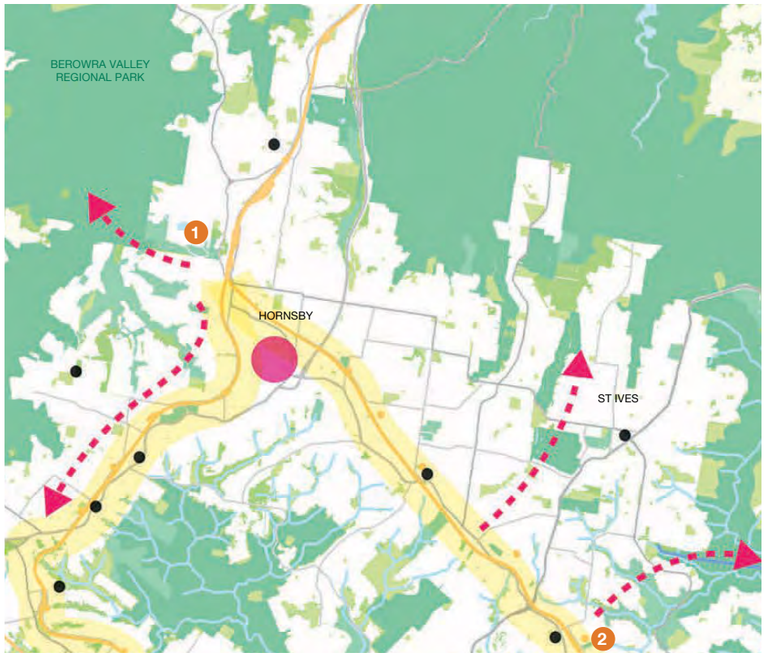


The locality of the quarry site and surrounding land uses

Bushland and National Parks

Residential

Town Centre



North District Access to Open Space Plan, extracted from Sydney Green Grid North District Spacial Framework and Project Opportunities, 2017

LEGEND

- Motorway
- Roads
- Train Station
- Rail Line
- Strategic Centre
- District Centre
- Local Centre
- Priority Precincts, Priority Growth Areas and Urban Renewal Corridors
- National Parks
- Regional Open Space
- District Open Space
- Local Open Space
- Private Open Space
- Proposed Regional Link

REGIONAL PLANNING CONTEXT

A number of policy and strategic documents at a regional context have a direct bearing on the quarry's future, as briefly outlined below.

A METROPOLIS OF THREE CITIES – THE GREATER SYDNEY REGION PLAN

The Greater Sydney Region Plan sets a 40 year vision (to 2056) and aims to rebalance growth and deliver its benefits more equally and equitably to residents across Greater Sydney. The plan has been prepared concurrently with Future Transport 2056 and the State Infrastructure Strategy, aligning land use, transport and infrastructure planning to reshape Greater Sydney as three unique but connected cities.

Hornsby is covered by the North District Plan, a guide for implementing the Greater Sydney Region Plan at a district level and a bridge between regional and local planning. The plan identifies a number of land use and transport-related strategic directions and policy settings that are of particular relevance to the future of Hornsby (identified as a Strategic Centre) including:

- Sustaining local centres to provide jobs, services and amenity
- Creating and renewing great places while protecting heritage and local character and improving places for people
- Improving walking and safe cycling ways
- Enhancing the quality and improving access to open space, and increasing urban tree canopy
- Protecting and enhancing the District's unique natural assets including waterways, coastlines and bushland
- Providing fast and efficient transport connections to achieve a 30 minute city
- Improving liveability by creating connected, accessible and culturally rich public places and open spaces
- Enhancing natural biodiversity and important ecological communities such as the Blue Gum High Forest
- Complimenting scenic and cultural landscapes to encourage an appreciation of the natural environment, protecting heritage and culture and creating economic opportunities, particularly for recreation and tourism.

THE SYDNEY GREEN GRID

The Sydney Green Grid was published in 2017 by the Government Architect's office of NSW (GANSW) to document the network of natural corridors (coastal foreshore, rivers, creeks and bush land) and built form corridors (rail, road, canal, service infrastructure) that should also serve as recreational corridors for walking and cycling. The three aims of the Sydney Green Grid are to:

- Conserve, improve and expand Sydney's strategic network of open spaces
- Reinforce a sense of place within Sydney's subregions
- Safeguard and plan the green infrastructure of Sydney.

The relevant section of the Green Grid (North District) and key opportunities relating to Hornsby identified in the report include:

- Link Hornsby to Berowra Valley through Hornsby Quarry - investigate Hornsby Quarry site and Old Mans Valley as regional open space destinations
- Connect railway stations along Northern Rail line and key town centres with the Great North Walk
- Connect Hornsby Town Centre and Mall with the Berowra Valley. Improve signage, quality of walking trails and links from Hornsby Park
- The Great North Walk: Access from Hornsby Town Centre to surrounding bushland assets should be improved

'GREENER PLACES' - GREEN INFRASTRUCTURE POLICY

The recently released draft policy document Greener Places (GANSW 2018) outlines the essential role of Green Infrastructure in the delivery of sustainable landscapes and communities. Greener Places proposes a design approach for urban environments that promotes nature as a key driver and the policy cites four core principles in realising that objective:

- *Integration*: combine Green Infrastructure with urban development and grey infrastructure
- *Connectivity*: create an interconnected network of open space
- *Multi-functionality*: deliver multiple ecosystem services simultaneously
- *Participation*: involve stakeholders in development and implementation.

LOCAL PLANNING CONTEXT

Two strategic documents at a local level are central to this Master Plan.

YOUR VISION YOUR FUTURE 2028 - HORNSBY SHIRE COMMUNITY STRATEGIC PLAN 2018-2028

The Your Vision Your Future sets the vision for where the people of Hornsby Shire want to be in 2028 and identifies the community's main priorities and aspirations for the future. It is a 10-year vision developed collaboratively between the community and Council. The document is aligned with the North City District Plan from the Greater Sydney Region Plan.

Your Vision Your Future outlines four key themes; 'livable', 'sustainable', 'productive' and 'collaborative' from which a number of principles and goals are described. The principles relevant to Hornsby Quarry include;

- Infrastructure meeting the communities needs - access to bushland areas, parks, green space and sporting facilities
- Local surroundings are protected and enhanced - protect threatened plants and animal species, protect waterways and the natural environment
- Support of recycling and sustainability initiatives - reducing water consumption and greenhouse emissions, supporting recycling and sustainable initiatives
- Increasing the prosperity of the Shire - adequate public transport and adequate parking facilities in public areas.

ACTIVE LIVING HORNSBY STRATEGY

This strategic framework guides and manages future open space and recreation planning for Hornsby Shire. The strategy is developed to assess current open space types and distributions to help identify opportunities to support the transition of growth precincts from medium to high densities. Key strategies proposed include:

- Drawing on the Shire's unique environment - conservation and integration of the natural environment into all aspects of planning and design for the public realm
- Making the open space network part of daily life - easy to access integrated public realm that forms part of daily life, supporting social engagement
- Responding to the shire's diverse lifestyles - best practice public realm planning to all sectors of the community and environment
- Promoting and supporting cycling and walking - providing supportive environments for walking and cycling within a residents' immediate locality
- Adapting to a changing sports environment - providing better integration of structured and unstructured recreation with multi-using flexibility and co-operative regional planning.

OPPORTUNITIES AND CONSTRAINTS

Existing Crusher Plant

OVERVIEW

The dramatic physical form of the Hornsby Quarry offers unique opportunities for adaptive reuse as a public park; however, that same geography also presents significant constraints in realising those opportunities. The landscape analysis below describes and illustrates the opportunities and constraints under the following headings:

URBAN SETTING
Addressing the site's surroundings and landuse relationships.

TOPOGRAPHY, GEOLOGY AND HYDROLOGY
Evaluating the complex landform and hydrology of the site.

NATURAL ENVIRONMENT
Establishing existing natural values and evaluating how these can be conserved and enhanced in the Park's future development.

CULTURAL HERITAGE
Recognising the site's significant cultural and geological heritage and how this can be protected and interpreted.

RECREATION AND LEISURE
Outlining constraints and opportunities in delivering a wide range of recreation opportunities.

ACCESS AND CIRCULATION
Evaluating access to and within the site including walking, cycling, private and public vehicle transport.

CHARACTER AND IDENTITY
Addressing the need to maintain the quarry's unique scenic qualities.

AMENITY AND SAFETY
Establishing opportunities for ensuring public safety and enjoyment.

MANAGEMENT AND MAINTENANCE
Outlining the likely implications and requirements for managing and maintaining the park.

Local Context Opportunities and Constraints Plan (nearmap 2015, not to scale) showing proximity to Hornsby train station and CBD.

LEGEND

- Local Road
- Bus Route
- Site
- Hornsby CBD
- 1km radius
- Local Open Spaces
- Railway Corridor
- Rail Station
- National Parks

LOCAL CONTEXT

CURRENT STATUS

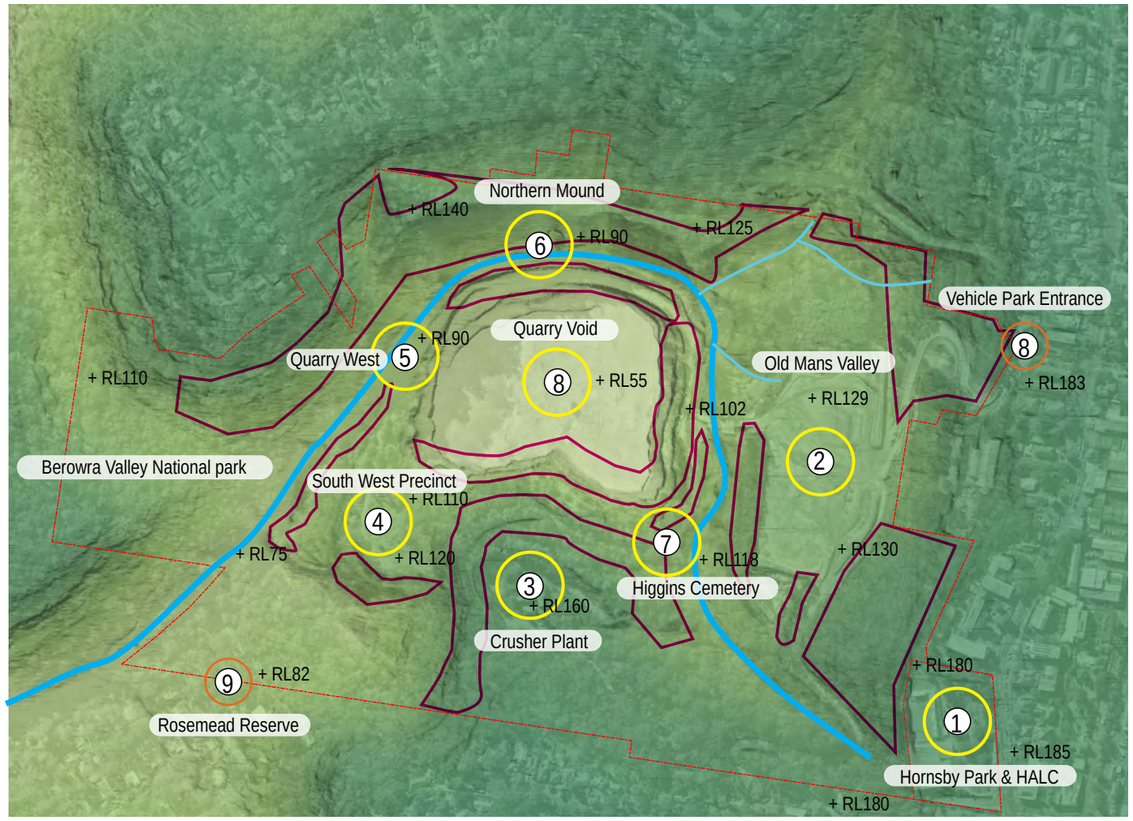
Hornsby Park is 59 hectares in size and is located approximately 500m from the Hornsby CBD. The site is zoned RE1 Public Recreation and is bounded to the north and south by low density residential and to the west by Berowra Valley National Park. The eastern edge faces the CBD and offers direct integration with the CBD via existing access points. The CBD includes train and bus services for potential visitors to the site. The Hornsby Town Centre has a population of approximately 500 people which is planned to increase by as much an additional 7,000 by 2036.

OPPORTUNITIES

- Proximity: Exploit the site's close proximity (less than 1km distance or 10 minute walk from the centre of Hornsby's CBD) to create a regional destination within walking distance for residents, workers and visitors to Hornsby
- Zoning: Consider the site's zoning to locate opportunities for public recreation such as passive, active and adventure play that benefit the surrounding community and offer attractions at a regional scale
- Public Transport: Rail and Bus opportunities are found within easy walking distance of the site. Hornsby Station (700m) is a key station on the Sydney Trains network and Peats Ferry Road (100m) is a significant corridor in the Bus network
- Road: Utilise the Bridge Road vehicle access provided as part of recent NorthConnex works as main vehicle access to Old Man's Valley and rest of the site from Peats Ferry Road
- National Park: Review the potential of western edge of the site connection into the Berowra Valley National Park, which has the opportunity to physically connect to the Hawkesbury River and into the vast trail network including the Great North Walk
- Open Space: Consider connections into existing and future open spaces such as Westleigh Park and walking and mountain bike trails, integrate the park into an existing network of users and visitors
- Trails: Review potential access points from surrounding local streets into the site to provide a number of minor entries to improve permeability of the site
- Bushland: Hornsby is known across Sydney for its extensive bushland. Explore opportunities to restore the bushland and create more accessible links to the town
- Recreation: Meet passive and active recreational needs of the expanded Hornsby Town Centre population.

CONSTRAINTS

- Gradients: The site varies over a 130 metre level difference between the main entry to the site and base of the Quarry. The sheer difference in height between the various existing features of the site poses a considerable challenge for accessible access grades
- Road and Rail Crossings: Peats Ferry Road is a major local road with moderate to high traffic volumes. Providing safe, easy and regular access across the road will be a challenge
- Visibility: The quarry is not a widely known place. Those without direct involvement or history to the site are largely unaware that it exists - it is not readily visible from anywhere on its CBD boundary, nor are the entries highly visible.



Landform and water catchment

LEGEND

Areas of significant gradients

Existing main creek line

Existing minor creek line

Precincts

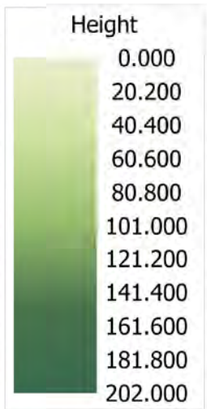
Park entries

Site Boundary

Topography by Sector

The levels change from the Hornsby CBD to the National Park are significant with an overall drop of 130m between the Hornsby Rail Station and the lowest point on the site. The existing transitions can be broken down into the following sectors:

1-2	Hornsby Park & HALC to OMV	51m
2-7	OMV to Higgins Cemetery	11m
3-2	Crusher Plant to OMV	31m
3-4	Crusher Plant to Southwest Precinct	50m
4-5	South West Precinct to Quarry West	20m
2-6	OMV to Northern Mound	57m
2-8	OMV to Quarry Void	74m
6-8	Northern Mound to Quarry Void	17m
5-6	Quarry West to Northern Mound	18m
9-5	Rosemead Reserve to Quarry West	8m
1-8	Hornsby Town Centre to Quarry Void	130m



TOPOGRAPHY, GEOLOGY AND HYDROLOGY

CURRENT STATUS

Hornsby Park is a complex landscape. Quarry operations resulted in the creation of a 130 metre deep pit in the middle of the site. Exposed rock walls are a key feature of the site, in particular the Diatreme wall is unique in Sydney for its geological heritage. Spoil from the quarry operations poses an ongoing risk along the Northern Mound of the quarry that is being actively managed. The quarry is naturally charged via ground water while a series of engineered structures ensure stormwater is diverted around the site before connecting into the natural waterway network.

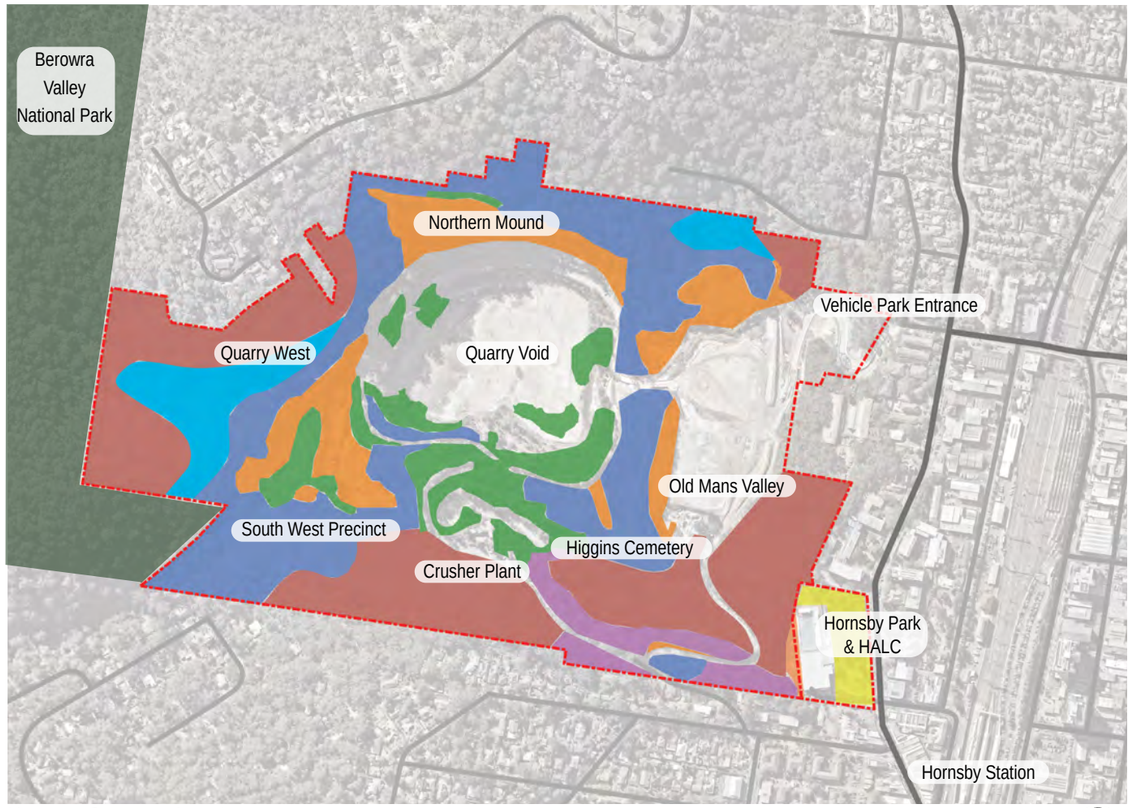
OPPORTUNITIES

- Gradients: Opportunity to make use of steep gradients to promote the unique nature and story of the site. Lookouts, switch backs, terracing, framed views are some of the potential ways to highlight the dramatic form of the site.
- Lookouts: Opportunity for a series of lookouts and viewpoints to maximise the topography of the site. Lookouts must not negatively impact the features or experience of the site such as the quarry walls
- Quarry Walls: Consider the uniqueness of the quarry walls and the opportunities such features bring to a regional parkland.
- Rock: Highlight the nature of the different types and formations of rock found within the site, especially the eastern Diatreme face. Explore opportunities to tie the required engineering solutions to the story of the geology. Adventure recreation such as climbing may offer opportunities to highlight rock forms
- Soil: Options to consider opportunities draw attention to the link between the geology, soil and rare ecological communities found on Diatreme formations
- Natural Water Recharge: Opportunity to take advantage of the natural ground water recharge in the quarry void to provide recreation opportunities, biodiversity, microclimates, water storage and reuse
- Stormwater: Review existing stormwater management systems within the site and link into interpretation strategy of the park.

CONSTRAINTS

- Gradients: The quarrying process has resulted in areas with extreme gradients from 1:2 slopes to vertical rock faces. Coupled with the materiality of the fill and nature of the extraction process some of these surfaces are unstable and require specific geotechnical solutions
- Stability: All quarried faces and spoil mounds require some form of remediation, ranging from minor through to significant and intensive intervention. Engineered solutions are required, the extent and materiality of which should be consistent and contextual to a parkland setting
- Quarry Spoil and Fill: The original spoil mounds are expected to be of low quality and their reusable volume will not be known until the recovery process is underway. Designs should be flexible within clear strategic principles to meet a range of fill volumes. Fill from the NorthConnex project is of a very high quality and should have priority of reuse
- Altered Landform: The altered landform of the site is obviously not a natural formation. The contrast between the natural setting of the site, quarry impacts and proposed parkland needs to be managed to ensure a balanced result.

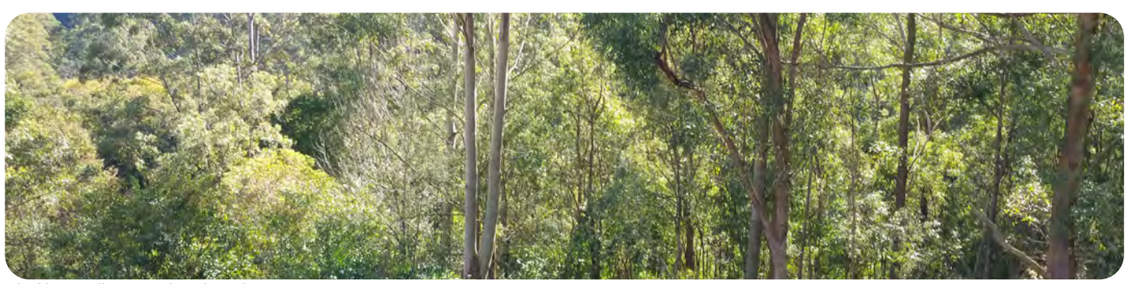
Note:
A more detailed description the site's topography, geology and hydrology can be found in Part E - Supporting Document.



Vegetation Community Analysis

LEGEND

- Existing Blue Gum Diatreme Forest (Good-High)
- Existing Blackbutt Gully Forest (Good-High)
- Existing Native Rehabilitation / Regeneration
- Existing Blue Gum Diatreme Forest (Good-Medium)
- Existing Blackbutt Gully Forest (Good-Poor)
- Existing Exotic Vegetation
- National Park
- Formal Park Planting



Blackbutt Gully Forest found on site

Note: A more detailed description of the site ecology and natural environment can be found in Part E - Supporting Document.

NATURAL ENVIRONMENT AND HERITAGE

CURRENT STATUS

Hornsby Park contains examples of Blue Gum Diatreme Forest, a sub community of the Blue Gum High Forest, which is listed as an Critically Endangered Ecological Community. It is an extremely rare ecological community, which is only found in landscapes with the specific diatreme geology which generated the original quarry. Remnant and regrowth of this ecological community can be found throughout the park, especially the western edge. Blackbutt Gully Forest is also found throughout the site, predominantly in the southern and eastern areas of the site. This community is quite frequented in nature. Much of the other existing vegetation found on site has evolved from native regrowth (not necessarily endemic species) and exotic vegetation (weed regrowth). The Site supports a diverse range of native Fauna. A total of 53 species have been detected from 4 fauna surveys over several years.

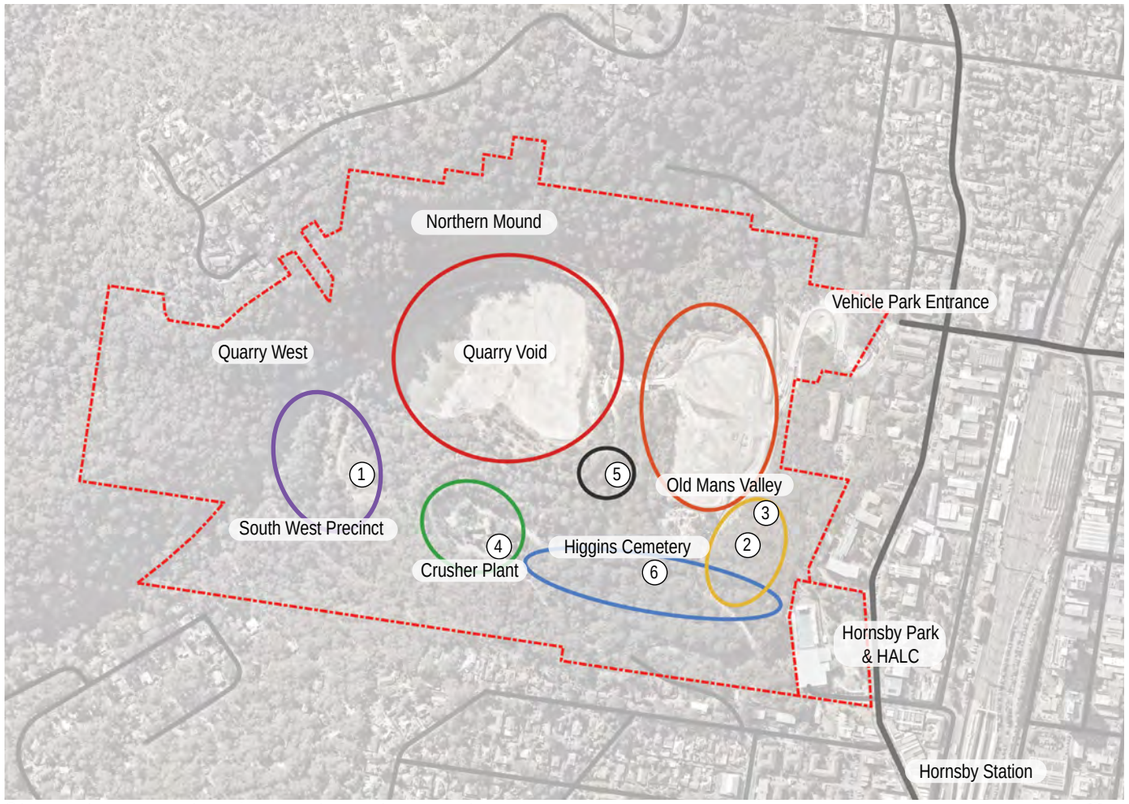
Of note, the presence of a pair of Powerful Owls (Ninox strenua) has been confirmed within the site. These birds roost, forage and nest in tree hollows and have successfully raised young on site. The north, north-east and western areas of the Site constitute important habitat for this threatened species. The Powerful Owl is known to be sensitive to disturbance.

OPPORTUNITIES

- Bushland: Possibilities of reviewing existing ecological communities and looking for opportunities to expand and reconnect the fragmented bushland of the site. Hornsby is known for its bushland and the site should aim to be a benchmark project in bushland recovery and enhancement
- Ecological Communities: The site contains remnants of two ecological communities, both of which have been impacted by the quarry and filling processes. Explore opportunities to restore and expand these communities
- Solar Access: Possibilities of reviewing existing site conditions to locate areas of good and poor solar access. Proposed planting, land use, and amenities should be located to take advantage of the solar conditions
- Restoration: The Vegetation Management Plan (VMP) and Habitat Creation and Enhancement Plan provides valuable guidance to ensure restoration, habitat enhancement and revegetation of the site is to the highest standards
- National Park: Opportunities to connect habitat into the existing intact environment within the Berowra Valley National Park. Fauna within the site will benefit from a continuous connection into the expansive bushland of the Berowra Valley National Park
- Learning: Rare ecological communities and extensive revegetation offer opportunities for long term study of the natural environment; making the bush a key feature of the park matches wider community expectations of the Hornsby area
- Sustainability: Opportunities for sustainable initiatives within the park. Opportunities such as the use of electric vehicles, cycles, wheelchairs, power generation, heat mitigation, carbon neutrality, regenerative landscapes and water harvesting are all elements in which the development of the park can be shown to be a market leading example.

CONSTRAINTS

- Weeds: Areas of extensive weed infestation need to be managed and removed. In many areas, weed growth coincides with exceptionally difficult access and will require specific procedures that meet safe work standards. In addition as per the VMP weed removal will require careful planning to avoid undue fauna impacts as many species rely on the weedy forest understory structure
- Existing Vegetation Condition: Small areas of the existing bushland are of high quality. Restoring medium and poor quality bushland will be an ongoing priority to increase the extent of high quality bushland within the site
- Extent of Native Vegetation: Natural Regrowth of native vegetation into areas of low geological stability has resulted in situations where high quality vegetation may need to be removed for slope stability and safety of visitors. Managing this and the potential community response is key to the success of the park.



Site plan with general locations of known cultural heritage elements

LEGEND

- (1) Photo location (photograph below)
- Higgins family homestead
- Higgins Cemetery
- Quarry operations
- Depression era works
- Old Mans Valley
- Crusher Plant
- South West Precinct

CULTURAL HERITAGE

CURRENT STATUS

Hornsby Park has a rich Aboriginal history and extensive European history and heritage. Information sourced by Council from an Elder suggest that it is likely that local Aboriginal people would have utilised the overhanging sandstone cliffs for shelter; likewise, level areas where grass trees are growing indicate family gathering spaces. European history is well documented and includes elements such as; the state heritage listed Higgins Cemetery, the creation of the quarry, the first European settler in the area, farming in OMV, heritage steps and examples of early astronomy research.

OPPORTUNITIES

- Aboriginal Heritage: Little documented evidence is available, however Council will consult with the Aboriginal Community throughout the project. Any confirmed areas of likely Aboriginal heritage value or items will be protected as required under legalisation. Subject to consultation, recognition and information on Aboriginal Heritage will form part of the interpretation strategy of the site as part of an integrated narrative
- Cultural Space: A 'Yarning Circle' or similar space, may be incorporated in the parkland
- Quarry: Consider reviewing the history of the quarry and its impacts on not only the site but the development of the surrounding area. It is likely that the majority of the roads in the area are built with materials excavated from the site. The quarry story should be a key feature of the interpretation strategy of the site
- Crusher Plant: This is the key piece of remnant infrastructure from the quarry process. Consider opportunities to reuse the plant as a key hub for the site due to its interpretation value, location and ease of access from Hornsby CBD
- Water: Opportunities on the extensive engineering effort to ensure water was prevented from flowing into the quarry. The various elements utilised in the water strategy of the quarry including, structures, landforms, pipes, realignments and erosion protection should form part of the interpretation of the site
- Local Heritage: Options to explore the quarry's importance to the development of Hornsby both economically and physically and tell its story.
- European History: Early European History to explore prior the mining such as early settler land grant, timber, farming and orchards, construction of the Heritage Steps by the community during the Great Depression

CONSTRAINTS

- Existing Sites: Ensuring all the existing sites are able to be accessed (and protected) may be difficult. Sites that are dangerous to access directly may be interpreted at a nearby hub
- Reuse: The age and state of the much of remaining quarry buildings may mean that reuse is not possible due to safety or costs reasons. In these cases recording and interpretation before removal of the unsafe elements may be the only solution.

Note: A more detailed description of site history and heritage can be found in Part E - Supporting Document.

Photo 1: From 1947 to 1955 The Hornsby Radio Astronomy Field Station (in OMV) contributed greatly to pioneering studies in lunar, solar and galactic astronomy.

Photo 2: Receptacle carved into rock, possibly used for washing at one of the Higgins family homes.

Photo 3: The cool room served as a fridge for Percy Higgins' family,

Photo 4: The Crusher Plant

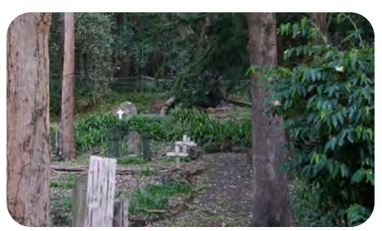
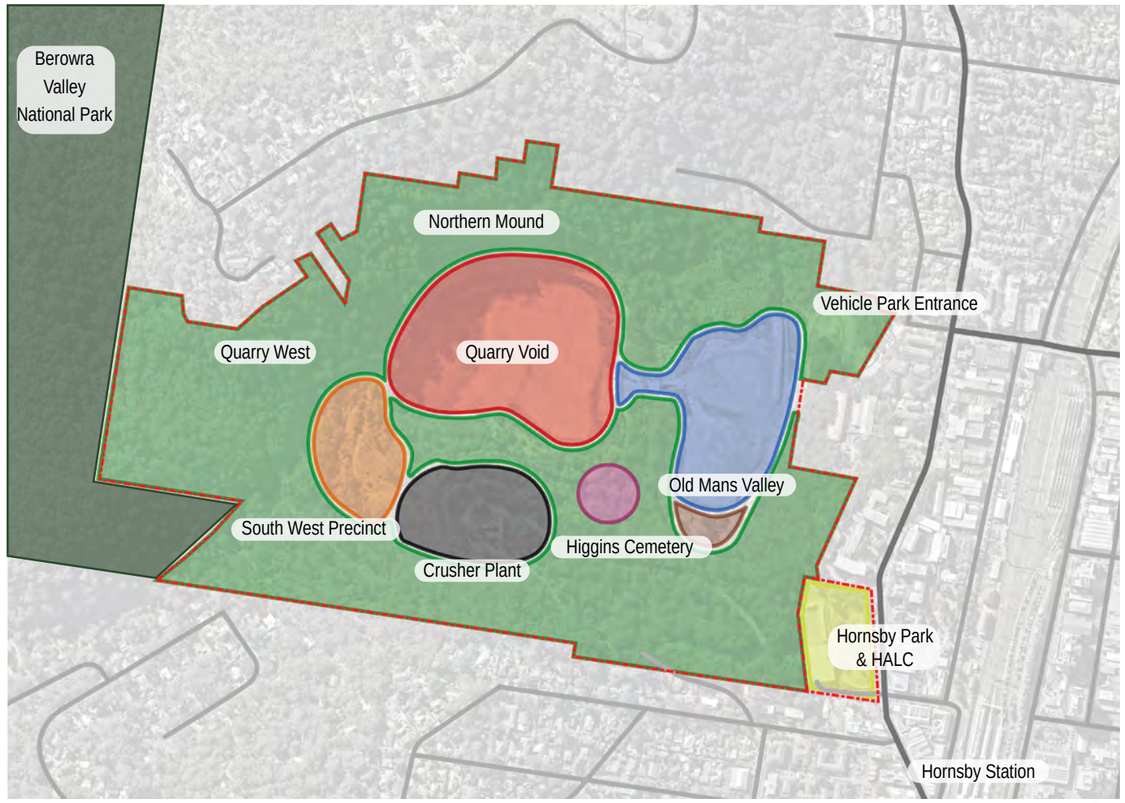


Photo 5: The Higgins Family Cemetery.

Photo 6: The Heritage steps have been restored.



Recreation and Leisure Opportunities and Constraints Plan

LEGEND

- Bushland
  Trails, Tracks, Mountain Bikes etc.
- Old Mans Valley
  Arrival and orientation hub, sports and community events
- Heritage
  Cemetery and other elements across site
- Quarry Void
  Passive recreation, swimming, climbing and events
- South West Precinct
  Education and Adventure play support
- Crusher Plant
  Adventure focus and interpretation
- Existing BMX Tracks
- National Park
- Hornsby Park and HALC
  Passive and active recreation

RECREATION AND LEISURE

CURRENT STATUS

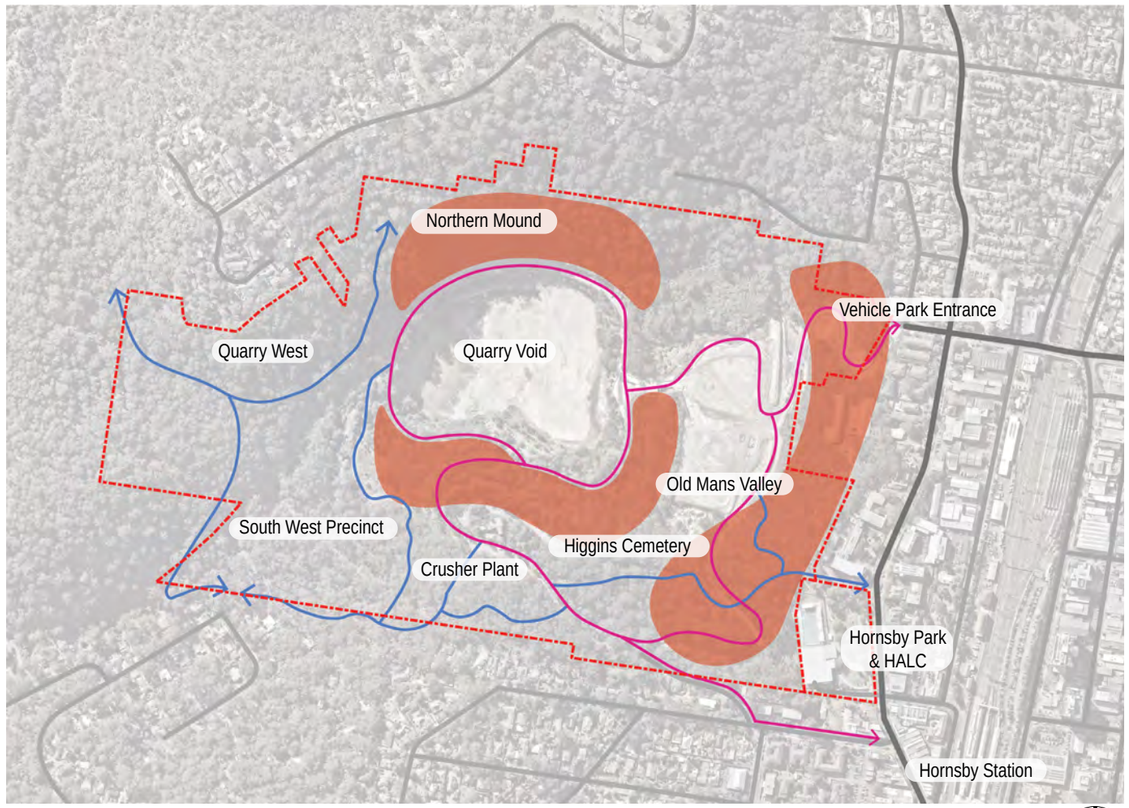
The existing Hornsby Park, fronting onto Peats Ferry Road is a heritage listed park containing formal gardens, playground and the Hornsby Aquatic and Leisure Centre and is also a popular recreation venue for its bushland trails. The site contains a significant mountain bike trail system along its eastern and southern edge, while walking trails connect into the Great North Walk and Berowra Valley National Park to the west of the quarry void.

OPPORTUNITIES

- Active Recreation: Opportunities for potential sporting and play facilities within Old Mans Valley provide opportunities for structured and unstructured sport and community events, mostly of a local/district nature. Adaptability to other uses is also important. Large circulation networks of shared paths offer walking, bicycle and jogging recreation opportunities
- Passive Recreation: Opportunities for passive recreation options with bush walking trails, lookouts, picnic, and BBQ facilities, small scale camping/overnight stay facilities. Larger nodal facilities supporting café, community facilities, interpretation trails or other opportunities may be considered
- Adventure Recreation: Options for adventure recreation and privately operated supporting adventure play such as zip lines, rock climbing, luge to activate the site in a unique environment within Sydney. The Crusher Plant would be an ideal focus for this form of recreation
- Water Recreation: Opportunities for the naturally recharging lake within the quarry void to offer water play activities (subject to safety reviews)
- Trails: Possibilities of expanding existing walking trails within the site to take advantage of the unique landscape, views and bushland. Provide improved connections to surrounding trails and Berowa Valley National Park to integrate the experience of the site into existing networks. Improving the connection between town and bush is vital
- Mountain Bike Trails: One of the most popular existing recreational uses of the site is the extensive mountain bike trails found along the eastern slopes of the site. Connecting these trails to the future Westleigh Park is an opportunity to explore existing and future networks, while ensuring pedestrian safety
- Events: Opportunities for community, public, commercial, small and large scale events. The quarry void and Old Mans Valley have potential as locations for events. Ensure support structures for event setup and execution are available to make best use of these spaces. Minimising amenity impacts for local residents and other park users will be essential.

CONSTRAINTS

- Facilities: The large and dispersed nature of many of the site's attractions will call for careful location of facilities. Scale of facilities need to match the realities of the site and financial viability to construct and operate. Access and visitor numbers do not necessarily warrant multiple large facilities in the short term. Staging of facilities (building, amenities, etc) need to match projected visitor numbers and recreation options at the park
- Private Vehicle Access: The large and sensitive nature of the site will limit private vehicle access to much of the site. Private vehicle access needs to correspond with the recreational and leisure opportunities being offered. Containing private vehicle access to the periphery of the site should correspond with key sporting and community facilities
- Access: The large size of the site (59 Ha) and level changes (over 100m level differences within the site) present a significant challenge to circulation within the site. Grouping recreational and leisure facilities at key access nodes may be a way to minimise impacts.



Access and Circulation Opportunities and Constraints Plan

LEGEND

Existing Trails — Existing Vehicle Routes/Fire Trails — Areas of steep topography

Existing steep vehicle access into OMV from Peats Ferry Road via Bridge Road

Existing steep slopes around the Quarry Void

ACCESS AND CIRCULATION

CURRENT STATUS

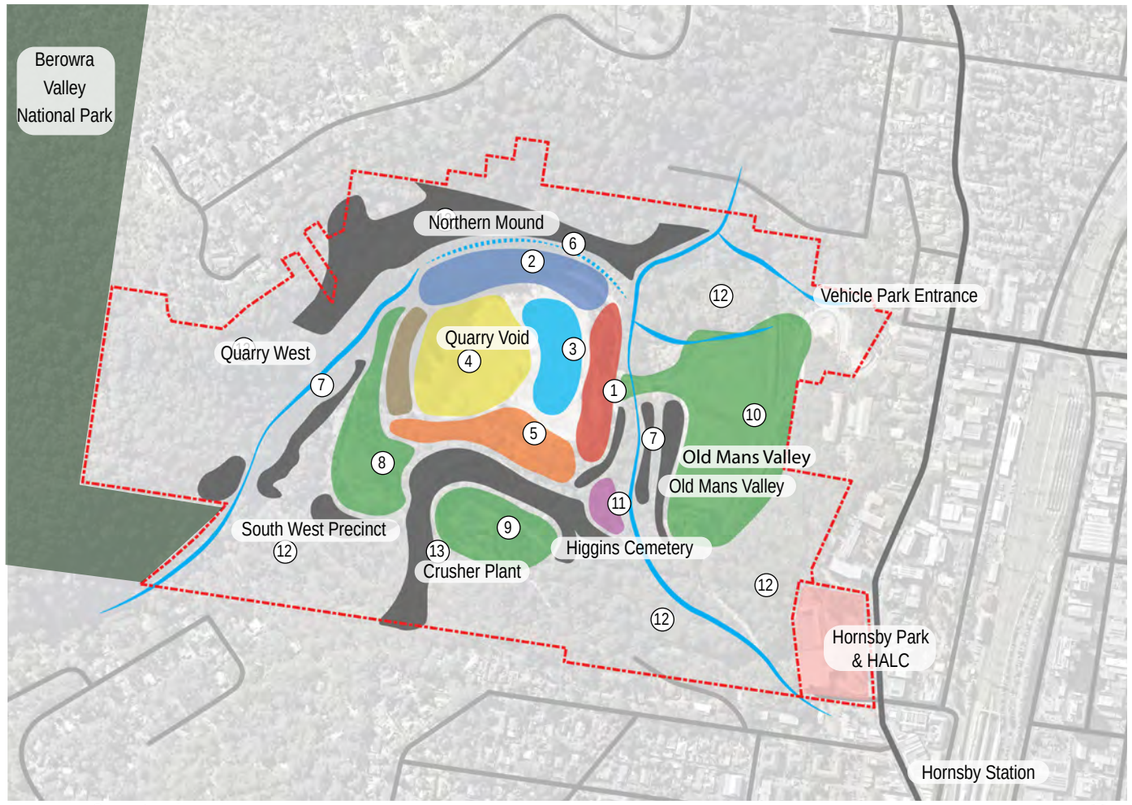
The Hornsby Park site is a significantly altered terrain. More than 100 years of quarrying has resulted in a landform with significant vertical cliffs, steep gradients and degraded areas not generally conducive to easy access. Universal access to parts of the site will not be viable due to program. Existing circulation within the site is primarily via remnant quarrying access roads, including recent NorthConnex fill roads connecting onto Bridge and Quarry Roads. Bush trails and mountain bike tracks are located around the periphery of the site. The main existing access points are walking trails via Peats Ferry Road and from Berowra Valley National Park and vehicular roads via Bridge Road and Quarry Road.

OPPORTUNITIES

- Public Transport: Opportunity exists to prioritise public transport opportunities such as nearby Hornsby Train Station and Bus networks. Ease of movement via formalised circulation paths for visitors to and from these locations and the site is vital
- Vehicle: Options to restrict movement of private vehicles to the edges of parklands is an expanding theme seen worldwide, providing the opportunity for a pedestrian and cycle focused park
- Shuttles: There is the potential for shuttle servicing of the site. Private or council operated schemes should be considered, with autonomous vehicles a future consideration, should technology and laws allow
- Future Technologies: The site presents opportunities to integrate long term technologies for improving access within the site. Potential for a lift within the void, autonomous shuttle vehicles and bikes (E-bikes) to help with visitor movement need to be considered to overcome the access challenges of the site
- Existing Routes: Existing routes within and around the site offer potential opportunities for new pathway and trail connections including accessible paths into larger circulation networks, including the Rosemead Trail and Berowra Valley National Park
- Connection Points: Opportunities exist to maximise connection points into the site, especially from the Town Centre. Multiple walking, bicycle and vehicle entry points should follow a hierarchy and aim to improve connectivity with the Park's locality
- Mountain Bike Trails: Options to integrate, link and extend existing mountain bike trails into wider circulation networks including a link to the future Westleigh Park, without compromising the pedestrian experience
- Wayfinding: A wayfinding strategy for the site can provide clear directions and allow visitors to move throughout the park. This may also utilise new and emerging digital technologies.

CONSTRAINTS

- Accessible Routes: Due to the significant grade changes throughout the site, providing an accessible pedestrian route to all areas within the site is not possible. A balance between accessibility and length of pathways needs to be found. Alternative access modes will be essential but are subject to viability assessments
- Access Points: A park of this size presents challenges in providing access. A legible hierarchy of access points is key in a park of this size. Wayfinding within the site is vital for visitors
- Gradients: Significant gradients are found within the site. Navigating these areas with traversable routes needs to be balanced with factors such as user safety, visual impact and visitor experience
- Vehicle Movement: Vehicle and pedestrian movement within the site will be limited by environmental and heritage sensitivity. Potential to limit extent of private vehicle access to areas such as the quarry void to limit impact on pedestrian and bicycle access and movement
- Car Parking Facilities: Topography and extensive bushland limit available areas for parking. To reduce the impact of vehicles car parking facilities need to be contained to the periphery of the site. Strategies for managing peak park use times should be in place and future technologies implemented to offer alternates to private vehicle use.



Landscape Characters Analysis

LEGEND

- Level areas with potential for recreational use
- Quarry void base
- Southern quarry wall
- Eastern diatreme quarry wall
- Western quarry wall
- Northern quarry wall
- National Park
- Formal Parkland
- Natural lake
- Steep vegetated slopes
- Existing creek lines
- Existing engineered water channel

LANDSCAPE FEATURES

① Diatreme walls with high visual amenity
② Northern walls with accessible path and vehicle access
③ Constructed lake filled with ground water and rain water
④ Open space amphitheatre constructed by fill operation
⑤ Southern walls and rock fall clearance zone
⑥ Concrete water channel
⑦ Existing creeklines
⑧ South-west Precinct, bounded by steep edges to the east and south
⑨ Quarry crusher plant precinct surrounded by open forest
⑩ Flat and open Old Mans Valley, bounded by natural bushland to the north, east and south
⑪ Higgins Family Cemetery enclosed by a small valley
⑫ Existing open forest
⑬ Steep edges

CHARACTER AND IDENTITY

CURRENT STATUS

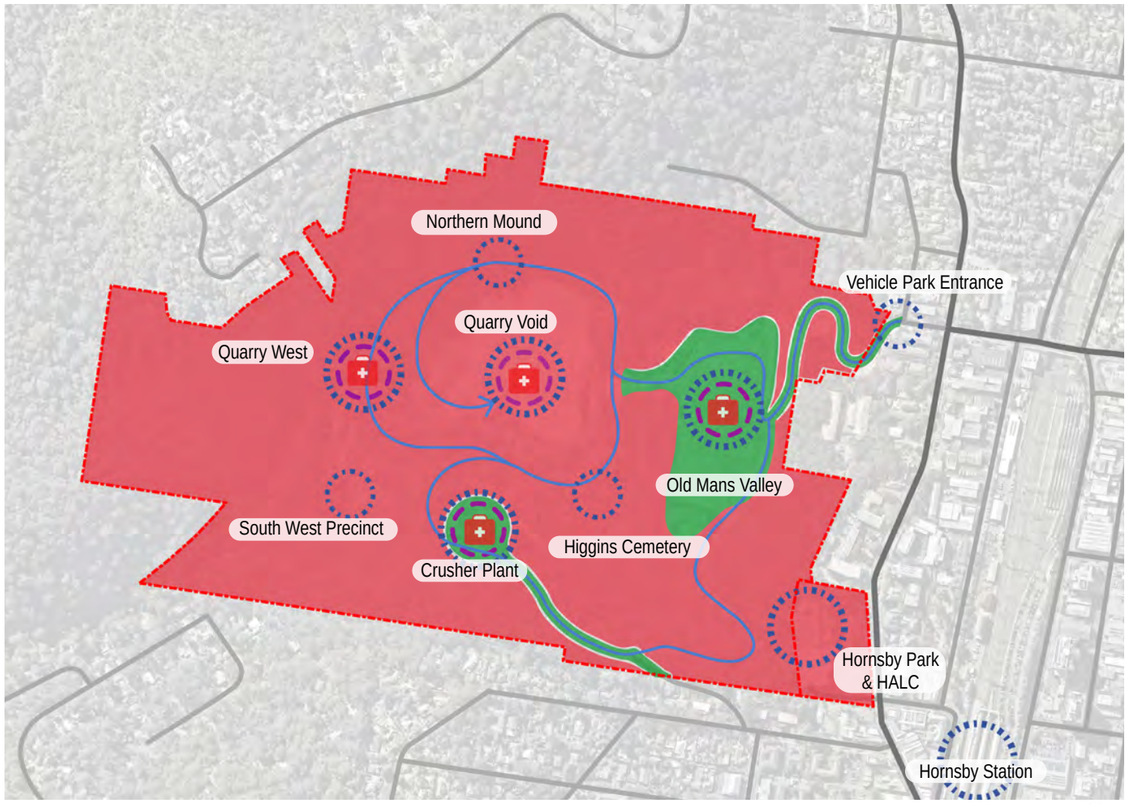
While largely hidden from public view the quarry site and Old Mans Valley area are characterised by a diverse landscape character. OMV offers a broad open space with views to the west, while the quarry itself and the bushland walks are largely enclosed. Impressive views can be had from various elevated locations, particularly from the tops of the quarry walls.

OPPORTUNITIES

- Quarry: The unique character of the site 'Quarry-ness' can be respected and emphasized through access design and view management. Each of the 4 walls have a specific character and need to be celebrated. Any proposed engineered treatments will be consistent across the site and respect the industrial character of the quarry
- Diatreme: The uniqueness of the banded rock formation of the Diatreme wall is a major asset to the Park. Clearing existing vegetation, lowering existing levels along the wall base (if practical) to increase its exposed height, providing viewpoints framing the wall and ensuring proposed works emphasise and highlight the quarry walls will be a priority
- Quarrying: The various industrial quarrying elements offer an ideal opportunity to retain the Park's identity thorough wayfinding, site hubs and interpretative elements
- Landform: Opportunities to highlight the Park's unique nature, including but not limited to the Diatreme formation, quarry remnants, heritage, ecological integrity and identity at the forefront of proposed design works
- Bushland: Opportunities to tell the story of the character of the bushland within the site. The rare ecological communities and their ongoing management and recovery offer a great opportunity to tie the story of the park to the bushland nature of Hornsby Shire, making this reading accessible from the Town Centre
- National Park: Options to improve physical and visual connections with Berowra Valley National Park to link the character and identity of Hornsby Park to strong nation wide reputation of National Parks and use that reputation as the standards of the park
- Cultural: A 'Yarning Circle' or similar space, may be incorporated in the parkland
- Vistas: The dramatic natural and existing man-made landform of the site offers opportunities for views and vistas. Expansive borrowed views of bushland and National Park in conjunction with focused views of elements such as the Diatreme wall and heritage elements create a variety of views and vistas across and within the site.

CONSTRAINTS

- Future Uses: The sensitive nature of the site will require careful siting varying appropriate activities. Active sporting facilities, quiet enjoyment and serenity, adventure recreation and water play must be carefully considered to retain and enhance the unique character of the site
- Quarry: The nature of the quarry walls presents challenge on maintenance and will call for a high-level overall park management. Significant interventions through to low impact and non-intervention methods should be explored. Care should be made to ensure any interventions balance park management and long-term safety against the character and 'Quarry-ness' of the site
- Remediation: Existing unstable rockface presents risks on visitors' safety. Remedial works to create safe environments for visitors must consider the experience and character of the site. While materials such as shotcrete may assist in the creation of stable rock walls, this solution would likely compromise the experience of the quarry and would need additional face treatment
- Management: The sensitive nature of environmental and heritage values of the Park will require a balance on preserving and experiencing the site character. Preserving elements of the quarry that contribute strongly to the character and experience of the proposed parkland will require a degree of monitoring and management into the future. Complex range of management techniques are required to marry environmental and heritage values with recreation provision.



Amenity and safety

LEGEND

Daylight Access
Evening Access
Facilities and amenities
Potential First Aid locations
Vehicle Circulation
Connection Hubs

Lighting will be required in areas with evening access

AMENITY AND SAFETY

CURRENT STATUS

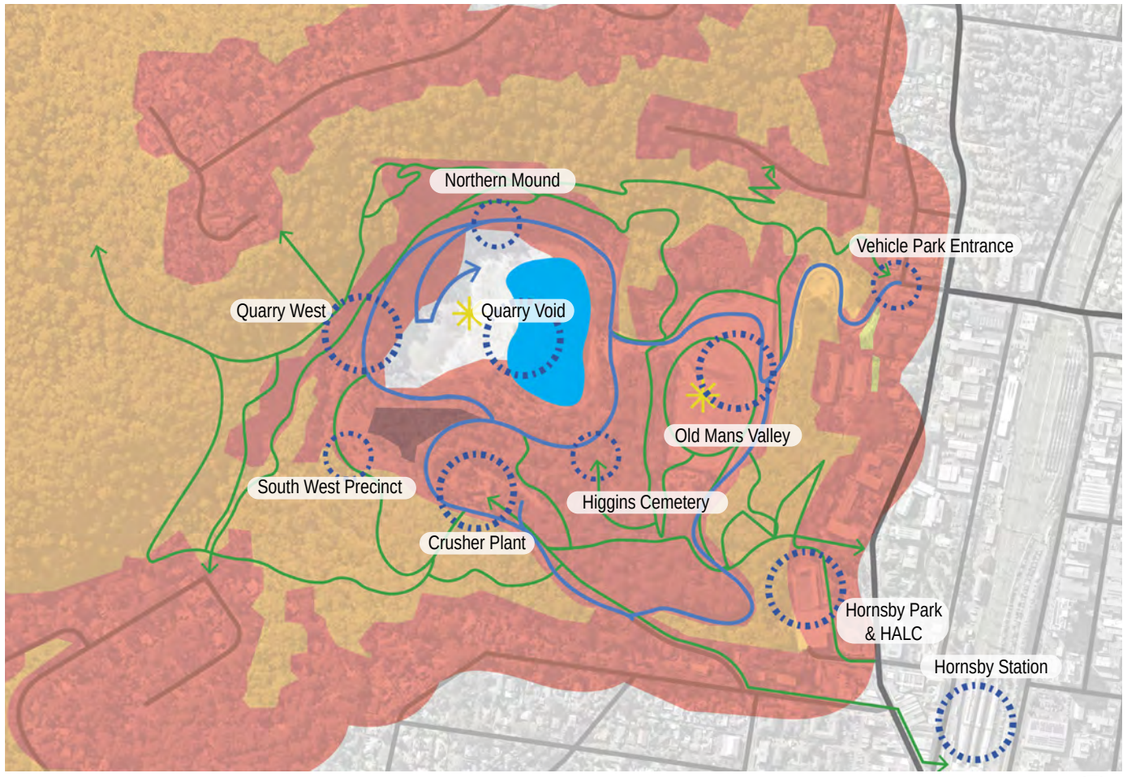
The general public is not presently permitted to access the site and therefore safety and amenity are not currently a public issue. When the Park opens however public safety will be critical, especially at the top of cliff faces. Amenity will also need to consider issues such as the balance of winter sun and summer shade throughout the park.

OPPORTUNITIES

- Hubs: Options for potential access/circulation routes, heritage/interpretation sites and opportunities to locate 'hubs' where connections, changes in access mode, interpretation, wayfinding, viewpoints, amenity and community infrastructure, decision points can be grouped to create a logical and easy way to understand network for visitors
- Emergency Access: Opportunities to provide widespread access for emergency vehicles throughout all areas of the site
- Old Mans Valley, Quarry and Crusher Plant: Opportunities to locate amenity facilities within the site to support proposed community, play and sport usage. Ensure safe use during accessible hours through the use of lighting, CCTV, safety in design arrangement, as needed for public use
- Facilities: Options to provide locations for critical facilities such as toilets to meet all needs. Likewise, optimise seating for rest spots
- Crime Prevention Through Environmental Design (CPTED): Opportunities to integrate CPTED principles for improved amenity and safety within the park
- Public Access: Potential to develop an operational plan in order to maximise amenity and public safety to guide access and circulation within the site for day, evening and event use
- Lake: Options for safe public access to water
- Water: Opportunities to utilise the lake as a source of water for bushfire fighting purposes
- Exclusion Zones: Possibilities of establishing clear strategies for exclusion zones at the base of walls where required and consider how maintenance in these areas will be safely managed.

CONSTRAINTS

- Location: Significant elevation changes from Hornsby Town Centre to the Park presents a challenge for access to and from the site. Ensuring this challenge is addressed though wayfinding, amenity facilities, rest spots, graded walks and transport solutions such as e-bikes, e-wheelchairs and ultimately, potential for an autonomous electric shuttle service offered within the park is a key element in ensuring ongoing success of the park and any business within
- Bushfire Risk:Bushfire risk will need to be managed as part of the overall park management plans
- Rockfalls: The existing Quarry walls and steep slope will require specialised management to ensure the safety of park visitors. Potential ways to minimise safety issues include; intervention on unstable parts of walls in combination with exclusion zones and ongoing maintenance of wall stability.
- Lake and wetland: Supervision or monitoring of the water bodies to ensure safe use and prevention of potential injury
- Natural Bushland Setting: Natural elements and associate hazards maybe present, particularly in some locally remote locations. Any risks to be managed as part of the overall park management plan.



Management, Maintenance and Emergency

LEGEND

- Bushfire Zone Buffer
- Bushfire Zone Category 2
- Maintenance/Emergency Vehicle Circulation
- Trails and Tracks
- Bushfire Zone Category 1
- Potential water source for fire fighting
- Quarry Walls
- Potential event locations

Outdoor events and spaces need to be managed to minimise impacts to turf and other park users

MANAGEMENT AND MAINTENANCE

CURRENT STATUS

Management and maintenance of the site is currently confined to operational issues given the exlusion of public access. When open to the public maintenance will become a significant factor in the success of the park and will require a detailed strategy and a clear funding budget.

OPPORTUNITIES

- Return on Investment: There are various opportunities for the economic sustainability of the park. The Crusher Plant, OMV, Quarry, adventure recreation play, accommodation, camping sites and staging of events are all potential areas to explore for private or council run business to operate. A Business Case Study will be essential.
- Sustainable: Possibilities for various opportunities to utilise sustainable processes for project. Opportunities exist from construction through to the ongoing management of the park to integrate sustainable elements into the fabric of the design (reuse of quarry spoil for fill, soils and engineered gabions, restoring the existing bushland, carbon neutrality, heat mitigation, integrating business opportunities into the design of the park, solar e-bike stations, autonomous vehicles and water harvesting etc)
- Unique Experiences: Opportunities to provide the management of the site that caters to the unique character and experience offered in the park. Ensuring the mountain bike trails, adventure play elements, cultural and interpretive elements, quarry features are all maintained to a high level will ensure ongoing visitation and use
- Power Generation: Whilst managing visual integrity, there are ways to generate power on site. Opportunity to provide the parks power requirements (amenity facilities, lighting, water pumps) from sources on site such as solar or small scale wind turbines
- Ongoing Maintenance: Potential opportunities to reduce ongoing maintenance requirements of the site. A long-term or staged plan for the development of the park offers opportunities to ensure a built-in flexibility in the design to reduce management and maintenance for the park. Consider elements such as durable path and trail materials, increased intervention on quarry walls, long term engineering solutions, staged and flexible development of the master plan to allow for technological innovations and changes to user needs and requirements
- Plan of Management: Opportunities to develop a Plan of Management to determine the critical contents of the park especially in relation to safety, amenity, events and user conflicts.

CONSTRAINTS

- Quarry Walls: The quarry walls are not consistently stable in all areas and regrowth on the walls may increase the rate of deterioration. Management of the four quarry walls needs to be outlined in a Plan of Management for the park. Larger intervention on the walls generally means less ongoing maintenance, however this should be balanced against proposed uses of the park and impacts on the character of the quarry
- Bush Fires: Managing the potential for bushfires will be a management issue for the park.
- Weeds: Maintenance of weed regrowth as part of revegetation works will be challenging and needs to be a long-term ongoing management of the park to ensure the protection of rare ecological communities
- Trail network: The steepness of some trail networks within the site make maintenance challenging. Robust and low maintenance path designs should be used to help reduce on-going maintenance costs of upkeep of path and trail networks
- Exclusion Zones: Rockfall areas present risks on visitors' safety. Consider maintenance implication of exclusion zones to minimise need for access.

Existing Crusher Plant

DESIGN PRINCIPLES

Nurture Memories

Embrace the Storyline

Celebrate the Landscape

Bring Nature to the City Centre

Offer Access for All

Retain the Quarry Experience

Connect the Community

PLANNING PRINCIPLES

The Master Plan for Hornsby Park is informed and directed by the following the Planning and Design Principles. The principles work in conjunction with the Master Plan Strategies to achieve the Objectives of the Park:

RETAIN THE QUARRY EXPERIENCE

Harness the drama and scale of the park (retain the quarry-ness)

OFFER ACCESS FOR ALL

Maximise access throughout park (walk, cycle, shuttle, bus)

EMBRACE THE STORYLINE

Bring the rich story of the park to life (interpretation and education)

BRING NATURE TO THE CITY CENTRE

Conserve and extend the bushland setting as the park framework

CELEBRATE THE LANDSCAPE

Maximise views vistas and prospects (lookouts, filtered views, reveals)

CONNECT THE COMMUNITY

Focus the park as a place of engagement and interaction (events, passive and active recreation, community sport and families)

NURTURE MEMORIES

Make the park experience memorable (adventure, quiet, social)

WHAT WE MEAN BY ‘QUARRY-NESS’?

‘Quarry-ness’ encompasses the concept of retaining the character and drama of the quarry’s form and experience into the next phases of the site’s role as a major regional park. Three elements of the future quarry experience will be core to that appreciation by the visitor:

- Drama and scale – ensuring that the full quarried face of each wall remains clearly visible from the rim and the base of the Quarry Void.
- Contrast and integrity – retaining a visible distinction between the parts of the quarry that will remain largely undisturbed since quarrying finished and those new works necessary to facilitate safe visitor experiences
- Promise and reveal – progressively revealing the quarry void with selected vistas on approach before offering a full appreciation of the whole quarry from formal lookouts around its perimeter.

Central to the full experience of these elements of the quarry will be in conserving the unique characteristics of each of the four quarry walls, as outlined in the Master Plan.

ELEMENTS OF ‘QUARRY-NESS’

East Face

South Face

West Face

North Face

THE FOUR QUARRY WALLS

The manner in which the quarry-ness is retained and celebrated is highly dependent on recognising the varied nature and structural integrity of the four walls, as well as the intervention required to secure the faces for public safety and integrate access routes to the quarry bed.

EAST FACE

The east face is the ‘hero’ piece of the quarry, being very tall with clear vertical faces containing the geological heritage feature of the Diatreme. Vegetation will be cleared to maximise the exposed rock face. This is the most structurally sound of the four faces and thus is likely to need the lowest level of intervention

SOUTH FACE

This face is the most heavily vegetated face while also being the highest and least stable. The southern face does not contain any cut benches. Retaining some vegetation where practical and safe will retain some of its current character.

WEST FACE

The west face finishes lower and allows for a distant view west to Berowra Valley National Park. Retaining the western cliff is important to quarry experience with walls on all four sides.

NORTH FACE

This face is heavily modified and retains the ‘zig-zag’ character of former haulage roads descending into the quarry. These geometries contribute strongly to the character of the quarry.

PRECEDENT PROJECTS

The vision for the long-term development of Hornsby Quarry was developed by Council in 2014 and acts as the driving force behind the development of the Master Plan for the Park.

Features of the proposed Park include retaining and highlighting the existing qualities of the quarry including its exposed rock walls, upland slopes and bushland setting, providing a series of experiences, highlighting heritage features, providing high levels of accessibility and a offering diverse range of recreation opportunities in a bushland setting. The projects from around the world shown here illustrate how these features and values have been embraced, particularly on post-industrial sites.

The Brick Pit Ring (Durbach Block Architects)
The drama of the raised walkway offsets the simple quarry form and adds visual interest through reflections in the water.

Roman Quarry (AllesWirdGut)
The simple geometry and clean lines of the access ramps make a clear delineation between old and new.

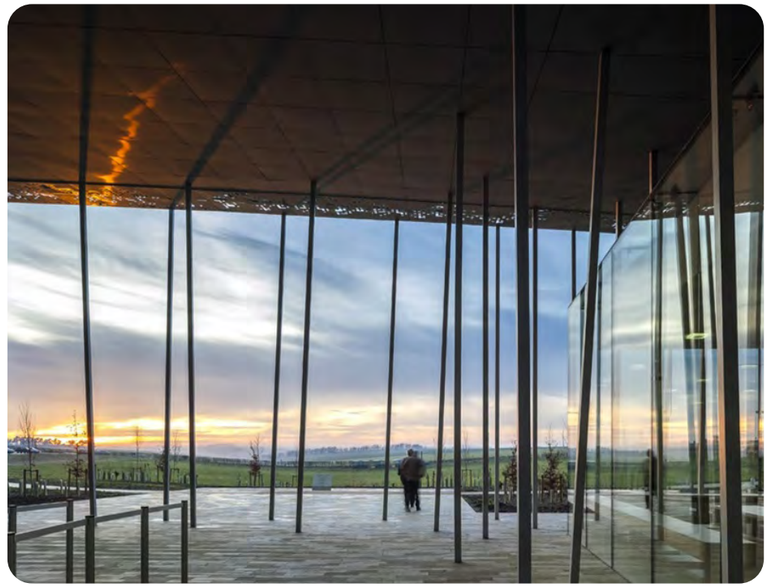
BP Site, Waverton (North Sydney Council)
The rough quarry faces of this former oil storage site contrast with the simple curved geometry of the steel viewing walkway.

Quarry Garden in Shanghai Botanical Garden (THUPDI)
The walkway at the base of the quarry brings visitors closer to the water's edge.

Queanbeyan Riverfront (CLOUSTON Associates)
The level changes between street front and river provide opportunities for seating and performance spaces at the water's edge.

Ourimbah TreeTop Crazy Rider (Ecoline)
Adventure recreation has been seamlessly integrated into a natural bushland setting.

Sydney Park Water Re-Use Project (Turf Design Studio, Environmental Partnership, Alluvium, Turpin+Crawford, Dragonfly and Partridge)
Cascading constructed wetlands add drama to the pond systems, prioritising the public's interaction with water and learning opportunities for water reuse.



Stonehenge Visitor Centre (DCM)
Simple pavilion style visitor centre designed to fit within the landscape and not distract or diminish the experience of visiting Stonehenge

Ballast Point Park (McGregor Coxall)
Layering of existing industrial modified landform and new parkland elements to create a park which celebrates the history of the site while providing a green park for passive recreation.

Bethlehem SteelStacks Arts + Cultural Campus (WRT)
Adaptive reuse of an old industrial facility into an arts and cultural precinct, while retaining and celebrating the history of the site.

PRECEDENT PROJECTS

THE MASTER PLAN

Existing bushland

CONCEPT STRATEGIES

The Concept Strategies are tangible design strategies based on the opportunities and constrains of the site. In respect to the Planning Principles the Site Wide Strategies below are to work in combination to direct the design of the Master Plan to ensure the Vision and Objectives of the park are achieved.

The Site Wide Strategies that have been developed for the Master Plan fit into five key over arching strategies and are as follows:

SITE FRAMEWORK STRATEGY
- Hub/Precinct Strategy

ENVIRONMENTAL STRATEGY
- Natural Environment Management Strategy
- Soil Strategy
- Water Strategy
- Planting Strategy

RECREATIONAL STRATEGY
- Recreational Strategy
- Lighting Strategy

ACCESS AND CIRCULATION STRATEGY
- Circulation Network Strategy
- Pedestrian Circulation Strategy
- Bicycle Circulation Strategy
- Vehicle Circulation Strategy

INTERPRETATION STRATEGY
- Wayfinding and Signage Strategy
- Heritage and Cultural Interpretation Strategy
- Views and Lookouts Strategy

Precinct specific strategies are located in the Part E - Supporting Documents section of the report.

Legend

- Bushland
- Native trees
- Exotic trees
- Natural turf
- Synthetic turf
- Mass planting
- Playground
- Asphalt road
- Paths, tracks and trails
- Raised walkways and structures
- Lift into Quarry Void
- Walls
- Mountain bike tracks
- Quarry faces
- Lake
- Future canopy skywalk to Hornsby CBD
- Sloped lawn seating

1:4000 @A3

0 40 80 120 200m

(1) Park vehicle entry from Bridge Road
(2) Primary pedestrian entry from Town Centre
(3) Park link to Berowra Valley National Park
(4) Park Orientation space
(5) Quarry Void access point
(6) Crusher Plant access from Quarry Road
(7) Restoration and adaptive reuse of Crusher Plant
(8) Minor pedestrian entry from Rosemead Road
(9) Key lookouts

MASTER PLAN CONCEPT

Western quarry wall

PART C - STRATEGIC APPROACH

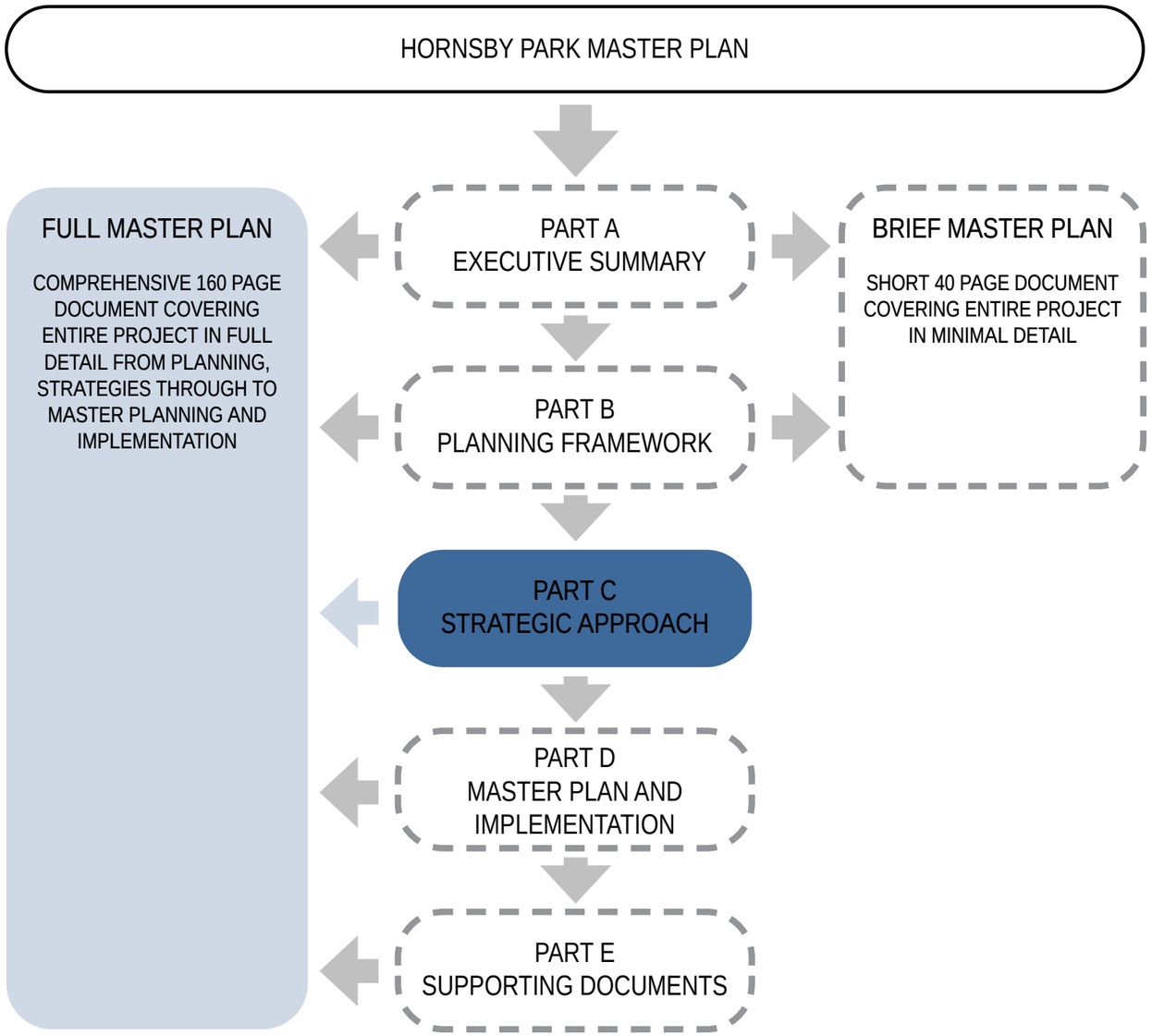


TABLE OF CONTENTS AND REPORT STRUCTURE

SITE WIDE STRATEGIES

Existing bushland at Honsby Park

MASTER PLAN STRATEGIES

The strategies are tangible design strategies based on the opportunities and constrains of the site. In respect to the Planning Principles the Site Wide Strategies below are to work in combination to direct the design of the Master Plan to ensure the Core Goals, Vision and Objectives of the park are achieved.

The Master Plan Strategies that have been developed for the Master Plan fit into five key over arching strategies and are as follows:

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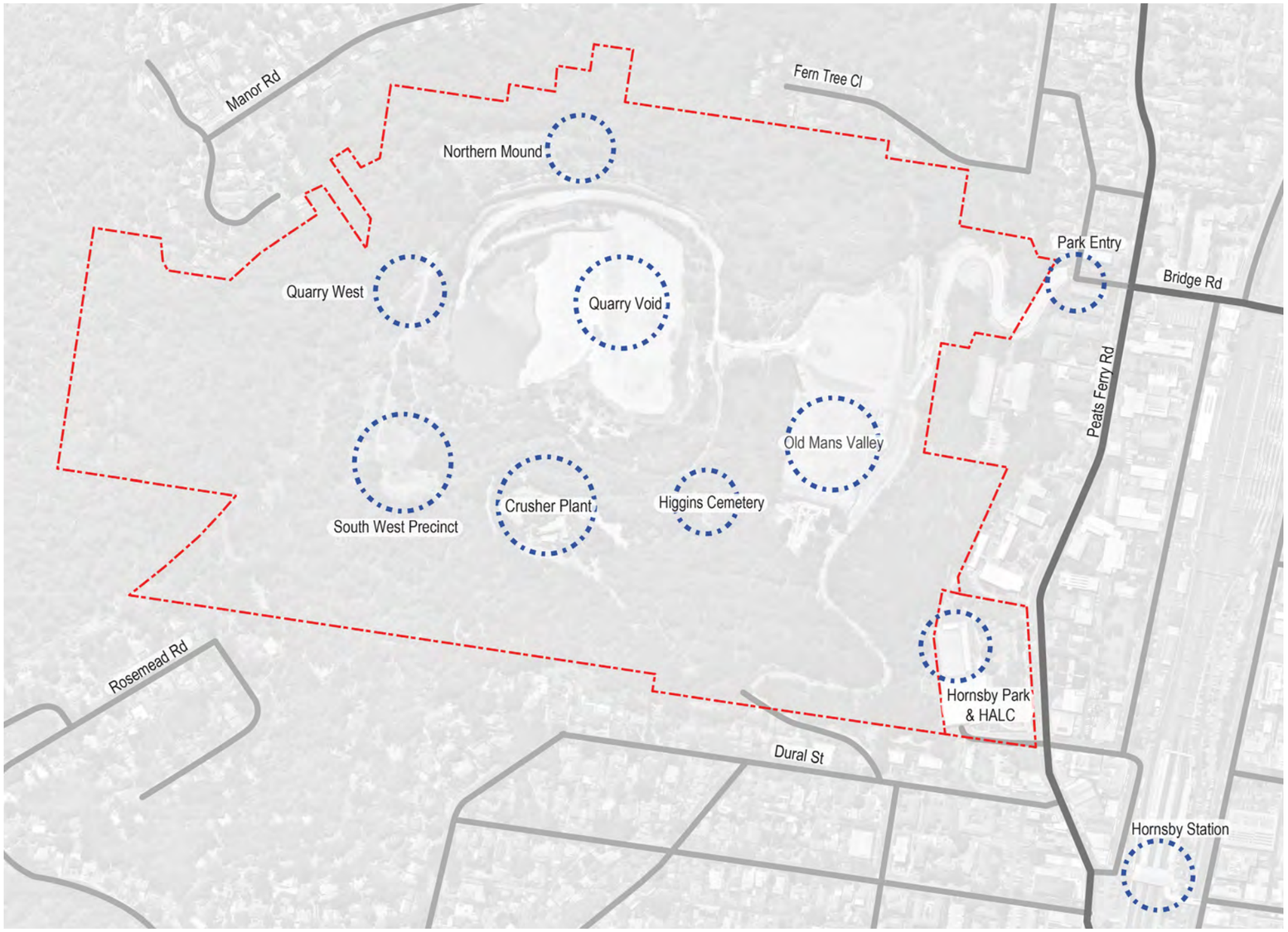

Major and Minor hub locations

LEGEND

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0 60 120 180 300m

Major Hub | Minor Hub | Site Boundary | Major Local/State Road | Minor Local Road

HUB STRATEGY

The strategies for the park revolve around a number of Major and Minor hubs throughout the site. The hubs will act as key sites where functions such as connection and circulation points, information or orientation services, amenities, community precincts, interpretation and way finding etc are distributed to allow for a diverse visitor experience and easier movement and circulation around the park. Hubs are to have characteristics which fit with their use or key identifiers as outlined below.

MAJOR HUBS

Old Mans Valley (OMV)
Arrival experience with orientation, amenities and community facilities, key transport node

Quarry Void
Unique aspect of Hornsby Park, key attraction of visitors with amenities, passive and active recreation opportunities

Crusher Plant
Interpretative cornerstone of park with amenities, community facilities and adventure recreation opportunities

South West Precinct
Potential for community, education and overnight accommodation facilities with adventure recreation opportunities

MINOR HUBS

Hornsby Station
Key public transport arrival point for district and regional visitors and link to Hornsby Town Centre

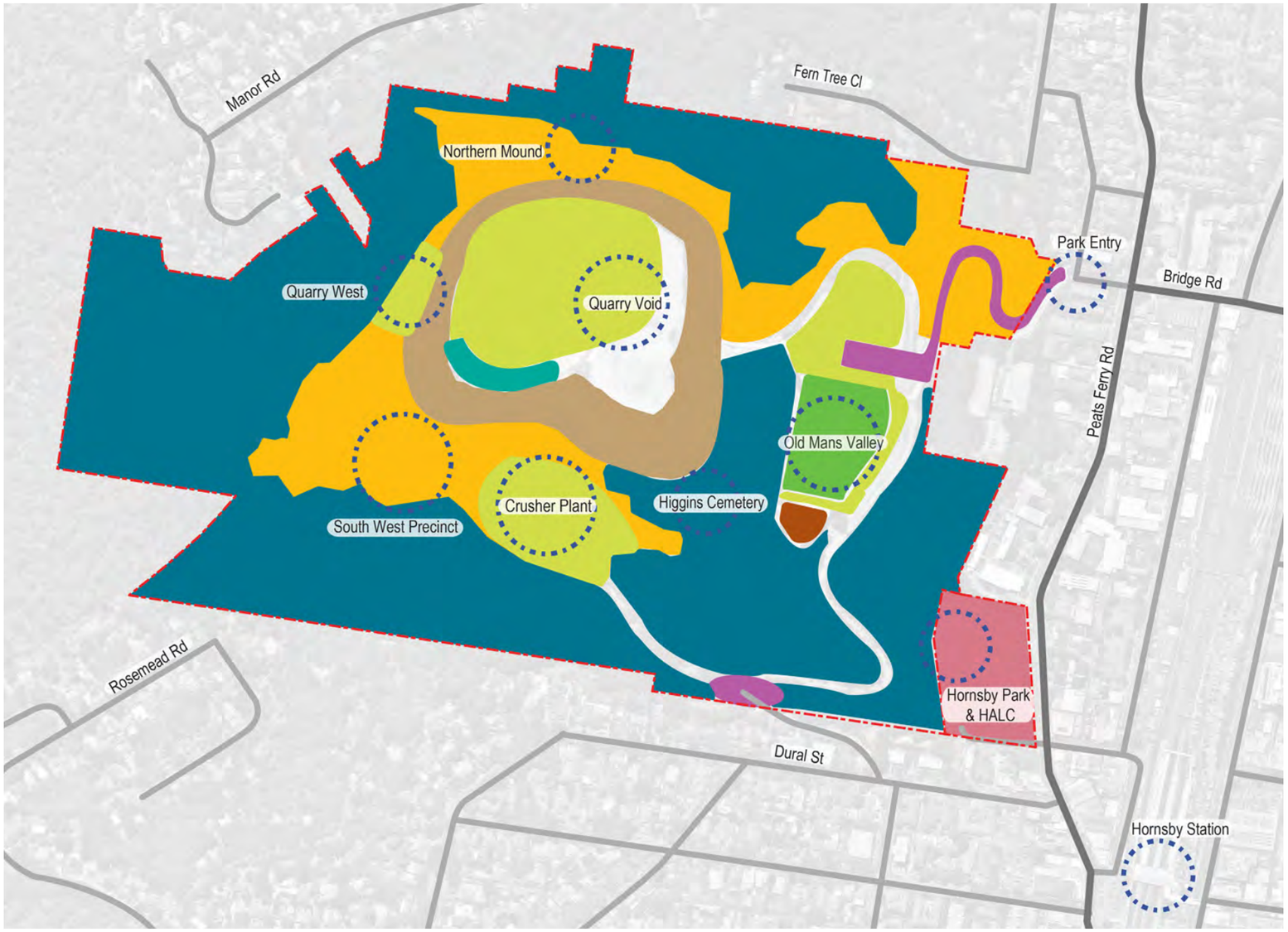
Existing Hornsby Park and Hornsby Aquatic and Leisure Centre (HALC)
Established active and passive recreation precinct, major pedestrian entry to park, directs visitors to OMV for main orientation of site. Potential for way finding and entry experience from Town Centre to Hornsby Park

Quarry West
Key point linking Berowra Valley National Park to Hornsby Park with amenities, orientation, community facilities and transport hub

Higgins Cemetery
Interpretative and historic site with passive recreation opportunities and transport hub

Northern Mound
Key connection point and transport node for circulation access to Quarry Void, Quarry West and OMV

Park Entry
Key Vehicle arrival point to site and first impression of park



Management areas within Hornsby Park

LEGEND

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0 60 120 180 300m

- Parkland Planting
- Wetland / Aquatic Planting
- Management of Existing Bushland
- Entry / Arrival Planting
- Existing parklands
- Turf & Sportsfield
- Revegetation / Regeneration of Bushland
- BMX Jump Track
- Quarry Wall Vegetation Management
- Major Hub
- Minor Hub
- Major Local/State Road
- Site Boundary
- Minor Local Road

NATURAL ENVIRONMENT MANAGEMENT STRATEGY

The natural environment management strategy covers the long term management and maintenance of the landscape. The ongoing management of the restoration of the existing bushland, specific parkland style planting and site features such as the Quarry wall faces and drainage systems is a key aspect of the strategy. The natural environment management strategy covers the following key principles:

BUSH REVEGETATION AND REGENERATION

Guided by the Vegetation Management Plan (VMP) for the site, restoring the rare plant communities of the site through the management of the Park including, weeding, maintenance, regeneration and regeneration.

WATER TREATMENT

Explore overall water concept for the site ensuring the site water circulation, lake water treatment (WSUD, Macrophytes) and creek flow management and stormwater infrastructure. Explore water collection for reuse, recycling and irrigation.

WILDLIFE

Review opportunities for native wildlife habitat creation including, birds, mammals and the management of introduced species on site through the VMP and the Habitat Creation and Enhancement Plan. Powerful Owls (Ninox strenua) has been confirmed within the site, this species and its habitat in particular requires careful management.

BUSH FOOD

Explore opportunities for introduction of bush food teaching/learning and interpretation on site for visitors and schools.

LOW IMPACT

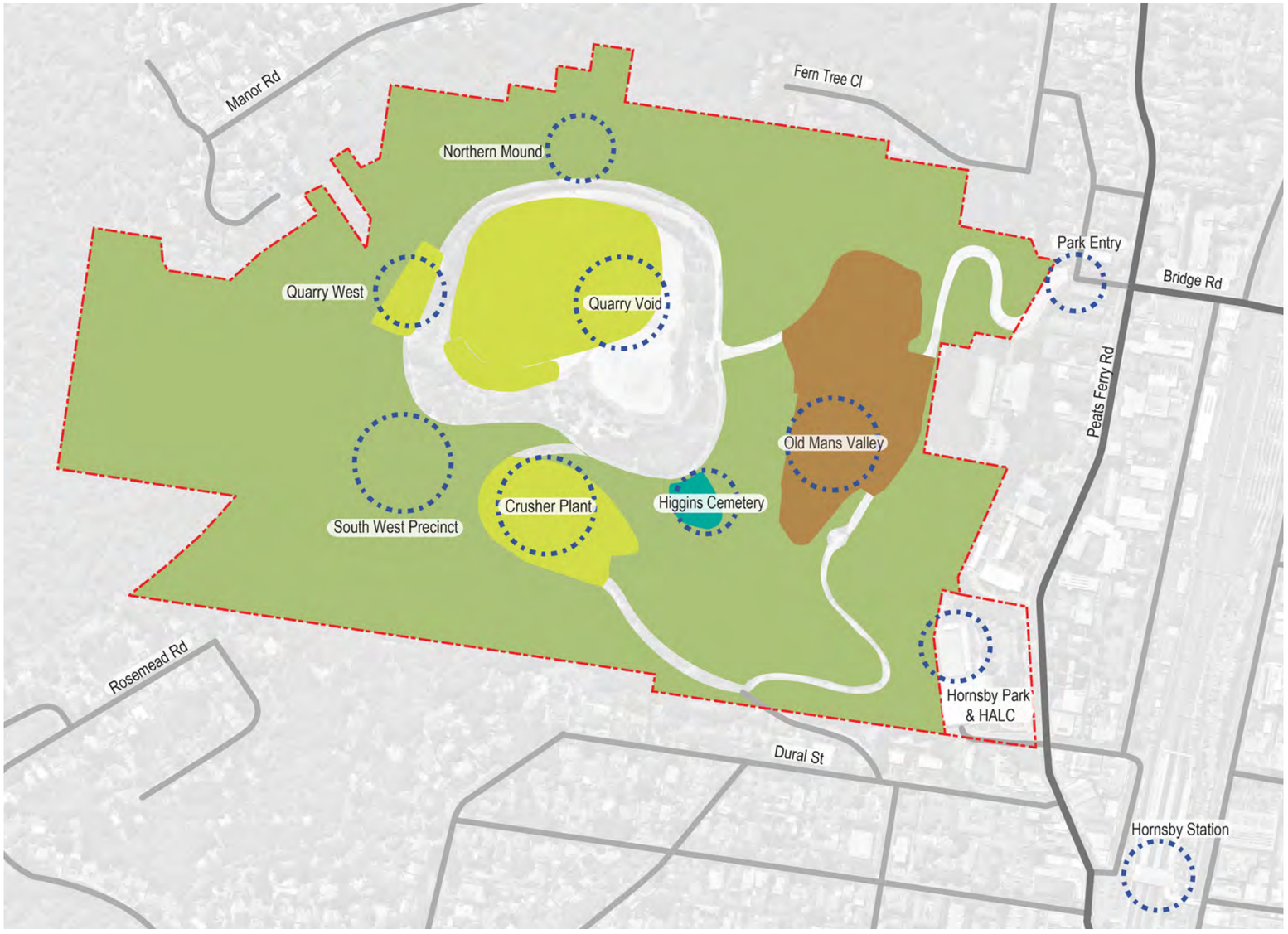
Ensure proposed works have a low or positive impact on the environment of the Park.

QUARRY WALL MANAGEMENT

Pursue the need to clear existing vegetation on the rock face and quarry benches to restore the original quarry bench profile and provides safety and stability to the rock faces. Clearance of rock debris and stablisation treatment of rock face (refer to Engineer's design). Manage the interface of exclusion zones within the quarry with low visibility safety features that do not impact recreation and general site access

LANDSCAPE MAINTENANCE

Explore options for small landscape maintenance facilities on site for the upkeep of park.



Precincts and primary planting types

PLANTING STRATEGY

The planting strategy for the park is principally comprised of endemic native species from the Blue Gum Diatreme Forest and Blackbutt Gully Forest ecological communities. The large tree species found in these communities form the backbone of the canopy layer for planting across the park.

NATIVE SPECIES PLANTING

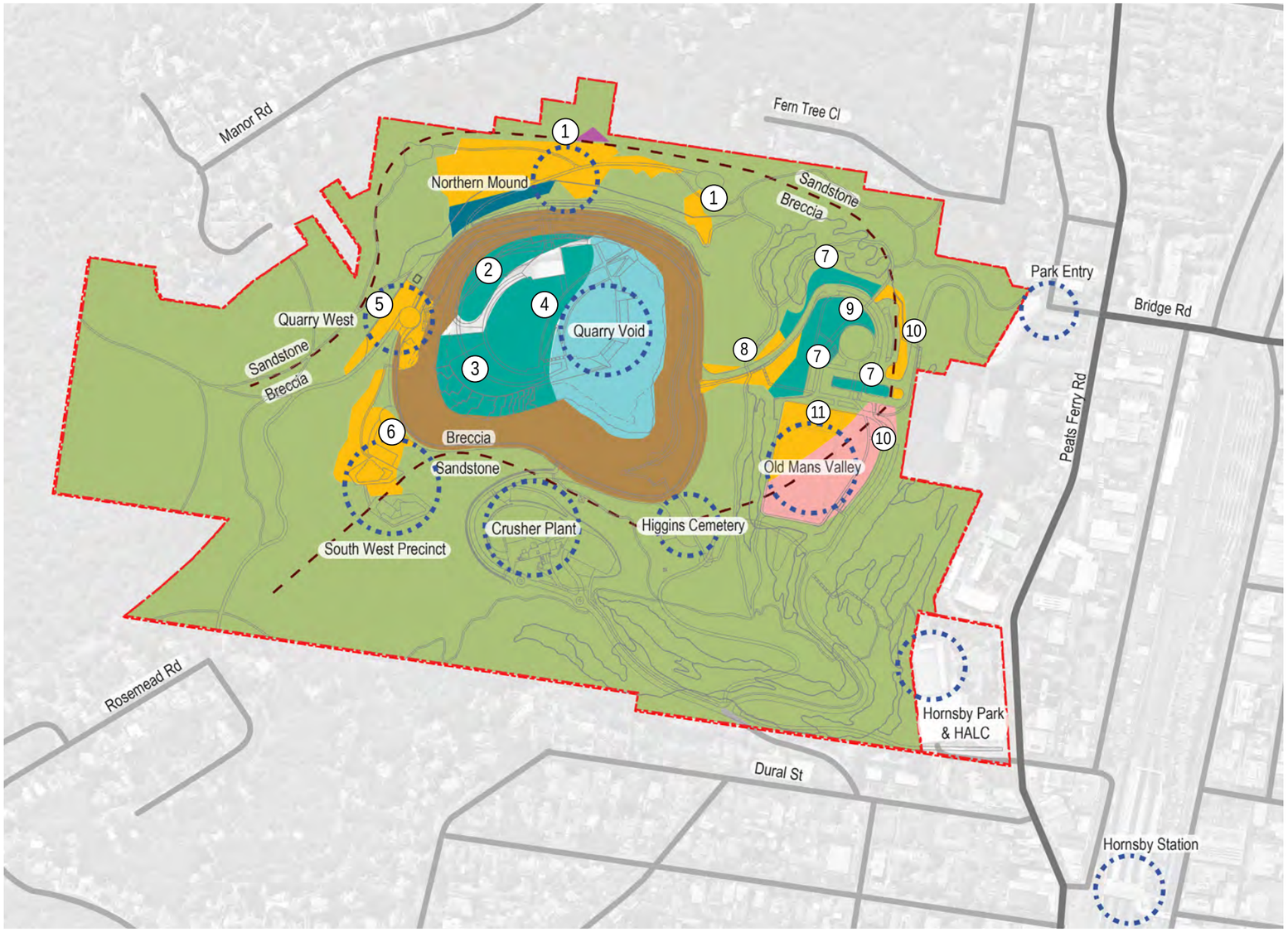
In precincts, in which the key outcome is the regeneration of the degraded and weed infested bushland, native species plantings are proposed. These plantings are made up of species from either the Blue Gum Diatreme Forest and Blackbutt Gully Forest ecological communities. The extent and locations of this planting is dependent on plant surveys and mapping undertaken by Council.

PARKLAND SPECIES PLANTING

In precincts which provide open space recreation in spaces already cleared such as the OMV, Quarry Void, Quarry West and the Crusher Plant the native species palette is complimented with select parkland exotic non-invasive species to provide focal points and for solar access in winter months.

INTERPRETIVE SPECIES PLANTING

Special interpretative planting is also proposed for key historic areas of the site. In these precincts or locations planting which references the past or historic use of the space is proposed. This planting is to tie into the overall Interpretation Strategy for the park. OMV and Higgins Cemetery are two locations which will employ this style of planting.



Subsoil plan

LEGEND

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0 60 120 180 300m

- Fill over NCX sandstone material
- Cut into breccia
- Cut into rock / breccia
- Cut into NCX sandstone material
- Expose existing rock to form finished surface
- Fill over natural profiles / sandstone
- Cut into natural sandstone
- Existing soil retained for bush regeneration
- Site Boundary
- Major Local/State Road
- Minor Local Road
- Minor Hub
- Major Hub

SOIL STRATEGY

The soil strategy covers the recovery and reuse of site won soil and the proposed soil profiles for the new planting on site. All soils used within the parklands are to be based on materials recovered from disturbed areas of the site. The soil profiles are listed as following:

(1) SOIL PROFILE 1 - 3 POTENTIAL TREATMENTS FOR QUARRY NORTH SLOPE
1. option to expose existing rock to form finished surface
2. option for shallow soil profile
3. option for deeper soil

(2) SOIL PROFILE 2 - QUARRY VOID BUSHLAND
- 100mm erosion control mulch
- 150mm topsoil A1 (bl- bushland landscape)
- 300mm ameliorate imported site won subsoil (B1)
- keyed in to C horizon (ex. subgrade)

(3) SOIL PROFILE 3 - QUARRY VOID GENERAL LANDSCAPE
- 250mm topsoil A3 (GL - general landscape)
- 300mm ameliorate imported tunnel spoil (B1)
- keyed in to C horizon (ex. subgrade)

(4) SOIL PROFILE 4 - QUARRY VOID TURF/ LAWN AREAS
- 200mm topsoil A4 (GL - general landscape)
- 200mm ameliorate imported tunnel spoil (B2)
- keyed in to C horizon (ex. subgrade)

(5) SOIL PROFILE 5 - QUARRY WEST GENERAL LANDSCAPE
- 250mm topsoil A3 (GL - general landscape)
- 300mm ameliorate subsoil in-situ (B2)

(6) SOIL PROFILE 6 - SOUTHWEST PRECINCT BUSHLAND
- 250mm topsoil A1 (GL - bushland landscape)
- 300mm ameliorate subsoil in-situ (B2)

(7) SOIL PROFILE 7 (IN FILL) - OMV BUSHLAND
- 100mm erosion control mulch
- 150mm topsoil A1
- 300mm ameliorate imported tunnel spoil (B1)

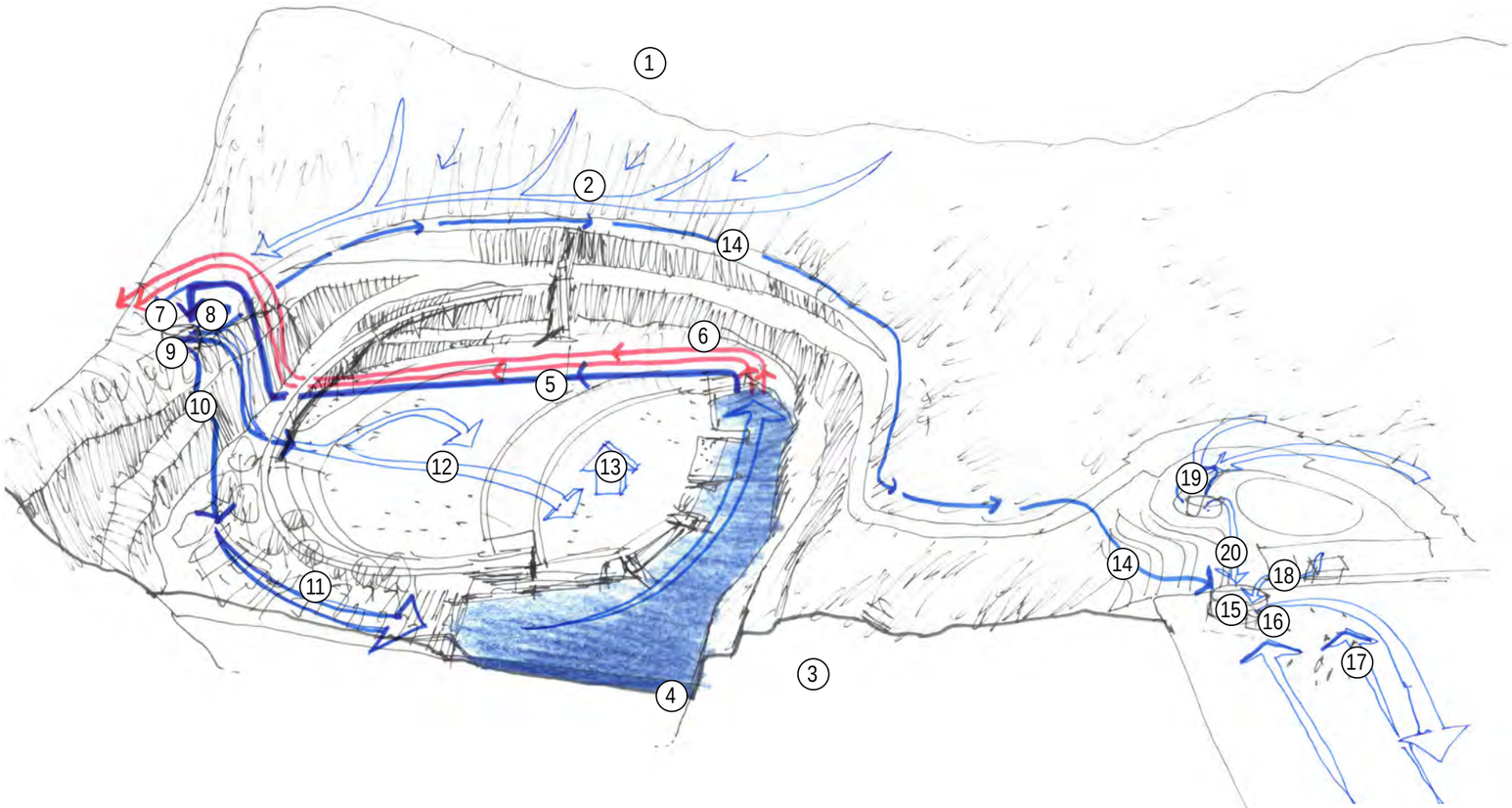
(8) SOIL PROFILE 8 (IN CUT) - OMV BUSHLAND
- 100mm erosion control mulch
- 150mm topsoil A1
- 300mm ameliorate subsoil in-situ (B2)

(9) SOIL PROFILE 9 (IN FILL) - OMV GENERAL LANDSCAPE
- 250mm topsoil A5 (GL)
- 300mm ameliorate tunnel spoil or breccia subsoil (B1)

(10) SOIL PROFILE 10 (IN CUT) - OMV GENERAL LANDSCAPE
- 250mm topsoil A3 (GL)
- 300mm ameliorate subsoil in-situ (B2)

(11) SOIL PROFILE 11 (IN CUT) - OMV SPORTS FIELD
- 300mm topsoil A5 (SP)
- 300mm cultivate/ ameliorate & key +drainage to subsoil in-situ (B2)

Note: For further information on soil profiles refer to Soil Profile Plan prepared by HSC and Hornsby Park Soil Resource Investigation Report - Stage 1 by SESL.



Water systems diagram

1. Rainfall inflows into quarry and surrounding 12Ha catchment.
2. Cut off drain on northern bank diverts overland flows to Waitara Creek.
3. High water quality groundwater seepage into quarry.
4. Quarry Lake with static water level set at Rl 53.0.
5. Opportunity for solar powered low flow pump (Nominal 2 litres/second) to pump water to cliff top. Pumping will not be continuous but planned for long periods of pumping, particularly in winter. Flowrate TBC.
6. Multiple high flow pumps for peak flow events to discharge directly to Waitara Creek. Pumps progressively engaged depending upon inflows into quarry. Pump station for the lake to be located at the northeast corner of the lake. Refer to Water Management Report by Storm Consulting for more information on pump station.
7. Some water diverted out of the system to Waitara Creek as environmental flows. Refer to point 5.
8. Remaining water treated through biological organic filter and then to storage tank.
9. Large buffer tank. Capacity TBA.
10. Gravity flow water released back down into quarry intermittently. Potential electricity generation.
11. Wetland may be used for stormwater runoff (limited) however mainly used for polishing/aeration. In heavy natural flows this could be halted in peak flow times.
12. Some water used to irrigate lawns and planting. Any excess water seeps back into lake via water table.
13. Evaporative losses.
14. Treated water pumped up to sports field via rising main to main storage tank. This is not continuous but is a low flow and will pump for long periods.
15. Large Storage tank. Capacity TBA.
16. Booster pump pressurises water for field irrigation.
17. Any excess irrigation water and rainfall infiltration flows back to tank via sub soil drains.
18. Clean stormwater runoff from building roofs flows directly to tank.
19. Treated runoff from the field and from the roof feed back into the irrigation tank.
20. Rain garden water pumped up to main storage tank from rain garden tank.

WATER STRATEGY

The water strategy for the park is built around two actions. The first is to ensure that any storm water that does not fall directly into the Quarry Void is bypassed around the Quarry Void and into the existing creek on the western edge of the site. The second is to utilise the ground water infiltration into the lake as a source of usable water for the parklands.

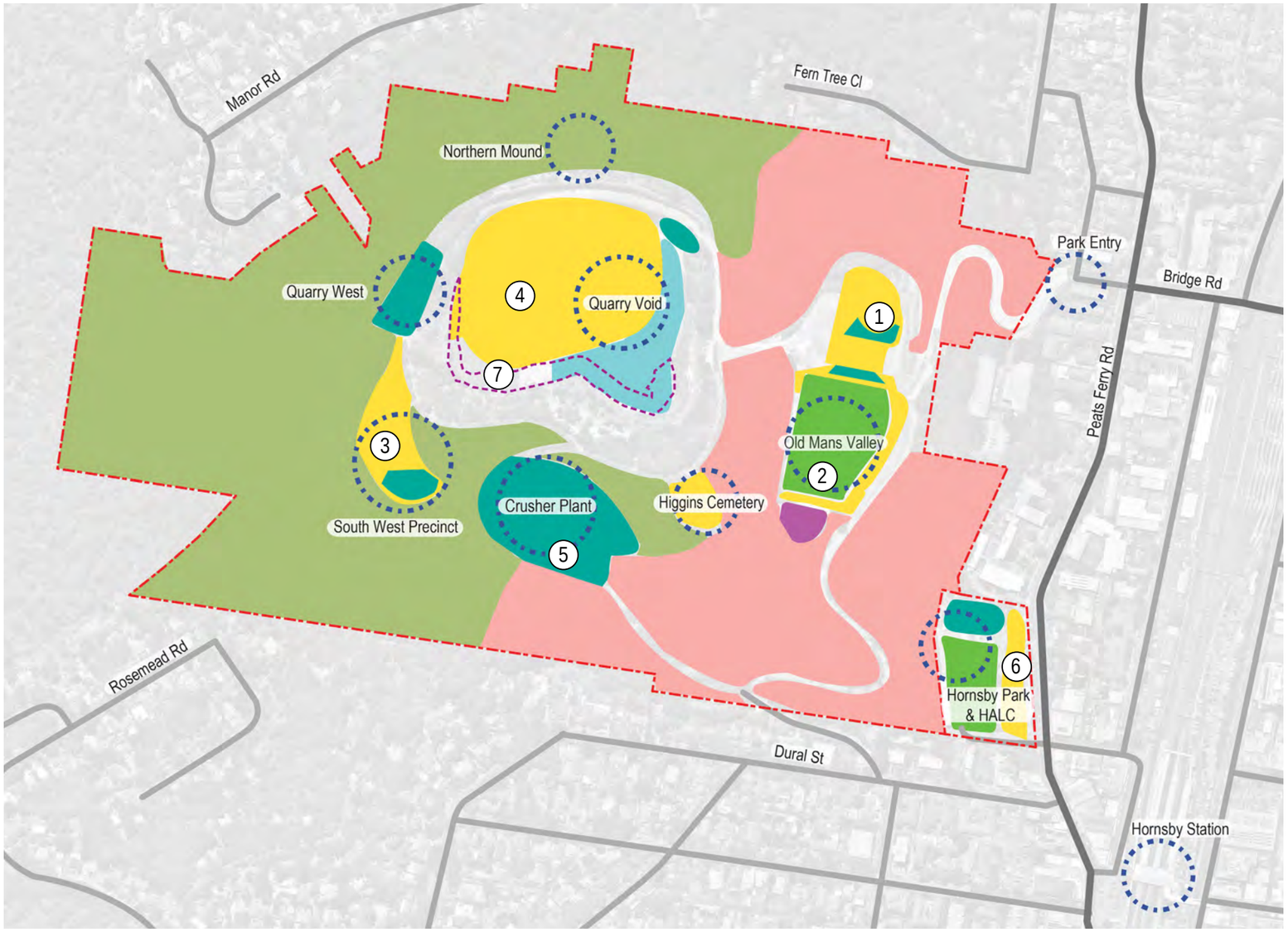
Maintaining good water quality within the lake is very important as this water is used for irrigation and toilet flushing as well as recreation. The lake within the park is fed by a combination of surface flows (stormwater runoff) and sub-surface flows (groundwater). The groundwater has a very good water quality however stormwater runoff contains pollutants that need to be removed to maintain good water quality of the lake.

The second aspect is described in the adjacent diagram. Stormwater runoff outside of the Quarry Void is directed to the existing creek to bypass the void and park lake. Stormwater draining to the lake will be treated by water sensitive design features such as rain gardens, vegetation buffers and cascading wetland to remove many pollutants before entering the lake.

The lake water quality will also be maintained to a high quality with a recirculation system. As well as reducing the potential for stagnation, the recirculation system will pump water through a reactive media to filter the water providing a superior treatment before passing back to the lake via the wetlands on the southern side of the Quarry Void.

A proposed amenities building is located adjacent to the lake with a ground floor level of RL54.00. Should additional storm event storgage be required there is the possibility to lift the building level to RL54.30.

Excess water building up in the lake from groundwater and stormwater runoff that is not reused for irrigation or toilet flushing will be pumped to the existing creek.



Recreation types and locations within Hornsby Park

LEGEND

1:6000 @A3

0 60 120 180 300m

- Bush walks in open forest and potential mountain bike parkland trail connections
- Bush walks and mountain bike trails in open forest
- Existing Jump Track
- Adventure / Arts / Community / Tourism Hub
- Minor Hub
- Passive open space
- Active recreation in lake
- Active open space
- Major Hub
- Site Boundary
- Major Local/State Road
- Minor Local Road
- Rockfall Exclusion Zone

Note:
Final location of all new trails will be subject to further environmental considerations, site survey and design development work.

RECREATIONAL STRATEGY

The recreational strategy addresses the way visitors use and experience the site. While each hub and precinct has a primary recreation focus many spaces may offer a diversity of recreation opportunities. Key features and experiences of the park generally fall into the following recreational categories.

PASSIVE

Provide passive recreation options including walking trails, picnic and BBQ facilities, formal and informal play spaces, bird watching, bush walking, tracks and spaces for quiet contemplation

ACTIVE

Provide active recreation opportunities such as sports fields/oval/kickabout spaces, playgrounds, bike and shared paths, water play in the quarry lake and sport facilities (located in OMV)

ADVENTURE

Provide adventure recreation and play options such as mountain bike trails, climbing structures, zip lines, roller coaster zip lines, high ropes course. Adventure recreation opportunities must have a negligible visual and audible impact on the void and not impact the overall experience of the quarry for other park users.

COMMERCIAL VIABILITY

Explore short and long-term viability of commercial ventures on site including adventure play, potential Crusher Plant uses (food and beverage, arts/adventure hub), OMV (local community/ sports hub) or Quarry (event hub) and other minor opportunities for small amenities around the Quarry

SUSTAINABILITY

Consider ways to introduce visitors to sustainable principles on site such as renewable energy production, water harvesting and reuse, education accommodation, recycling or up-cycling of materials and construction methodologies interpretation

TOURISM

Explore opportunities for regional tourism elements including adventure tourism, regional play facilities and iconic elements such as the Diatreme wall, swimming lake, improved walking track links, rare bushland, quarry void landscape and possible overnight accommodation

1. Old Mans Valley playground & passive open space
2. Old Mans Valley sportsfield and space for community events
3. South-west recreation with passive open space, adventure play, small scale accommodation (bushland and education focus) and portal to national park
4. Quarry void open parlands and event space
5. Crusher Plant amenities with passive open space and adventure opportunities, flexible community venues, cafe and cultural/heritage hub
6. Existing active recreational facilities within Hornsby Park Aquatic Centre
7. Manage the interface of exclusion zones within the quarry with low visibility safety features that do not impact recreation and general site access.

Lighting types and areas within Hornsby Park

LEGEND

- Bushland
- Crusher Plant + South West Precinct
- Old Mans Valley + Road Access
- Quarry Road Access+ Quarry Void Recreation and Event Space + Quarry west
- Major Hub
- Minor Hub
- Major Local/State Road
- Minor Local Road
- Site Boundary

1:6000 @A3 — 0 60 120 180 300m

LIGHTING STRATEGY

The lighting strategy for the park is to align with expected uses and management for each precinct. Considerable care will need to be applied in lighting design to ensure sensitive bushland envionments are not compromised and that local residential amenity is not impacted. It is envisioned that OMV will have the largest evening and night use, while the Quarry Void may host occasional special uses. The surrounding bushland paths are unlit but with unlimited access. The lighting design of these precincts will need to reflect this use and access.

PRECINCT A: OMV + ACCESS ROAD
Day, evening, emergency and event access


Pedestrian Lighting


Sports Lighting


Road Lighting

PRECINCT B: QUARRY VOID + ACCESS ROAD + PRECINCT H: QUARRY WEST
Day access, emergency access, event access


Pedestrian Lighting


Road Lighting


Structure Lighting


Performance Installations

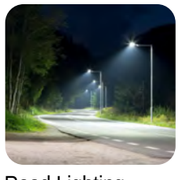
PRECINCT C: BUSHLAND
Day access - generally unlit paths and trails, lit roads, Bridge Road entry and Quarry Road

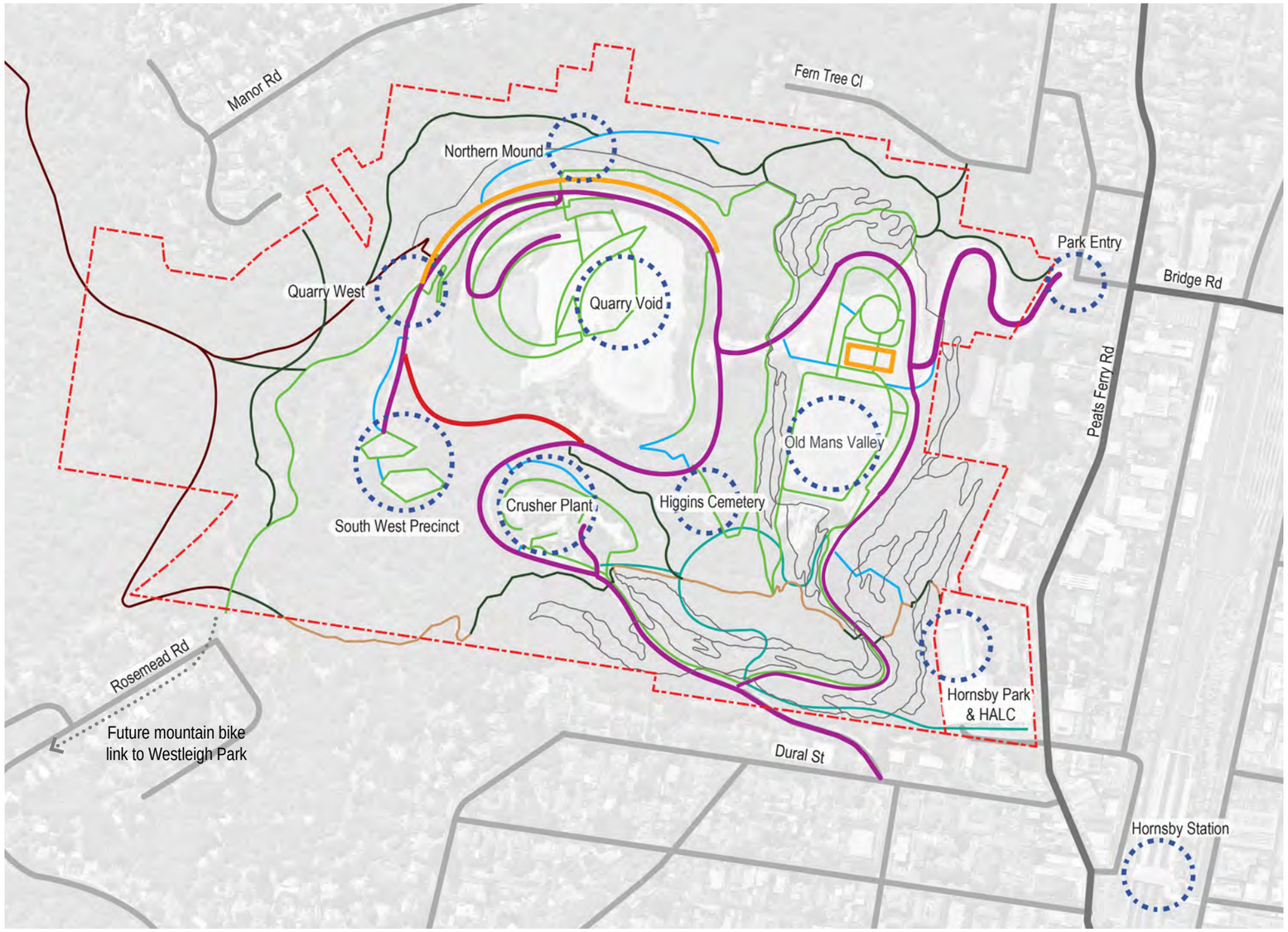

Road Lighting only

PRECINCT F: CRUSHER PLANT + PRECINCT G: SOUTH WEST PRECINCT
Day and evening access


Pedestrian Lighting


Pedestrian Lighting


Road Lighting



Circulation network within Hornsby Park

LEGEND

- Major Hub
- Minor Hub
- Major Local/State Road
- Minor Local Road
- Site Boundary

1:6000 @A3

0 60 120 180 300m

Note:
Refer to Circultation Strategy Typical Sections in Part E of this report for more detailed information on Network/Path typologies.
Final location of all new trails will be subject to further environmental considerations, site survey and design development work.

CIRCULATION NETWORK STRATEGY

The circulation network strategy provides a site-wide overview of all the paths, tracks, trails, walkways and roads within the park and how they interact together to form an integrated circulation network. Internal connections within the circulation network are focused on hubs and external links to the surrounding streets, Town Centre and Berowra Valley National Park.

First time and returning visitors should be able to easily navigate the site regardless of the mode of transport used to travel to and around site. Typical path types and widths are shown in the adjacent plan. For additional detailed information refer to specific circulation type strategies and precinct sections of this report.

CIRCULATION NETWORK

NETWORK TYPES	TYPICAL COMPONENTS
Two-way Road Typical widths 9-13m Max 1:8 gradient	Two lane road Shared bicycle / pedestrian path
One-way Road Typical widths 7-10m Max 1:7 gradient	Single lane road Shared bicycle / pedestrian path
Shared Road Typical widths 3m Max 1:20 gradient	Shared vehicle / bicycle / pedestrian path
Accessible Path Typical widths 3m Max 1:20 gradient	Shared bicycle / pedestrian path
Bush Trail Typical widths 1-2m Max 1:5 gradient	Pedestrian path
General Path Typical widths 2-3m Max 1:2.5 gradient	Pedestrian path including stairs
Heritage Stairs and trail Typical widths 2-3m Max 1:2 gradient	Pedestrian trail including existing sandstone stairs
Future Town Centre Sky Walk Typical widths 3-4m Max 1:20 gradient	Shared bicycle / pedestrian canopy walkway
Rosemead Trail links Typical widths 2-3m Max 1:10 gradient	Shared bicycle / pedestrian
Moutain Bike Tracks Typical widths 0.5-1m Max 1:2 gradient	Mountain bike only

Pedestrian access and circulation plan

LEGEND

Park pedestrian entries
Site Boundary
Major Hub
Minor Hub
Major Local/State Road
Minor Local Road

1:6000 @A3

0 60 120 180 300m

PEDESTRIAN CIRCULATION STRATEGY

The pedestrian circulation strategy addresses the various tracks, trails, paths and walkways that are primarily for pedestrian movement within the park. As the topography of the Park is extreme and difficult to transverse in places, the strategy classes the various routes in terms of accessibility ensuring that the majority of the site can be accessed via accessible routes and general routes.

A potential future pedestrian link via a canopy skywalk from OMV to the Aquatic Centre would be required to complete an accessible path network stretching from the Quarry Void up to the Town Centre, a distance of 130 vertical meters.

PEDESTRIAN ROUTE ACCESS

ROUTE TYPES	TYPICAL PATH TYPE
Accessible Routes Universal Access and gentle terrain	Core precinct paths Precinct link walkway Cantilevered access walkways Future Town Centre canopy skywalk
General Routes Steep paths and stairs and some steeper terrain	Road edge footpaths Non core precinct paths
Walking and Hiking Routes Gravel or bare paths and varied terrain	Bush tracks and trails Heritage stairs and trails Rosemead Trail

Note:
Alignments indicated are schematic. Specific path alignments will be site evaluated and subject to detail design.
Refer to the Glossary of Terms in Part E of this report for route definitions.
Final location of all new trails will be subject to further environmental considerations, site survey and design development work.

Vehicle access and circulation plan

LEGEND

- Park bicycle entries
- Site Boundary
- Major Hub
- Minor Hub
- Major Local/State Road
- Minor Local Road

1:6000 @A3

0 60 120 180 300m

BICYCLE CIRCULATION STRATEGY

The bicycle circulation strategy encompasses the bicycle paths that are primarily shared with pedestrians within the park. The strategy also covers the mountain bike trails and BMX jump track.

Like the pedestrian circulation strategy the landform of the park has a significant impact on the bicycle circulation within the park. The strategy classes the various routes in terms of accessibility to help cyclists navigate the difficult terrain. Slowing bike speeds on some of the steeper paths is a key concern to be addressed through design and management of the Park.

Integrating an E-bike network over the park circulation network is a future goal of the strategy, with E-Bike hubs located at various locations throughout the park and Town Centre.

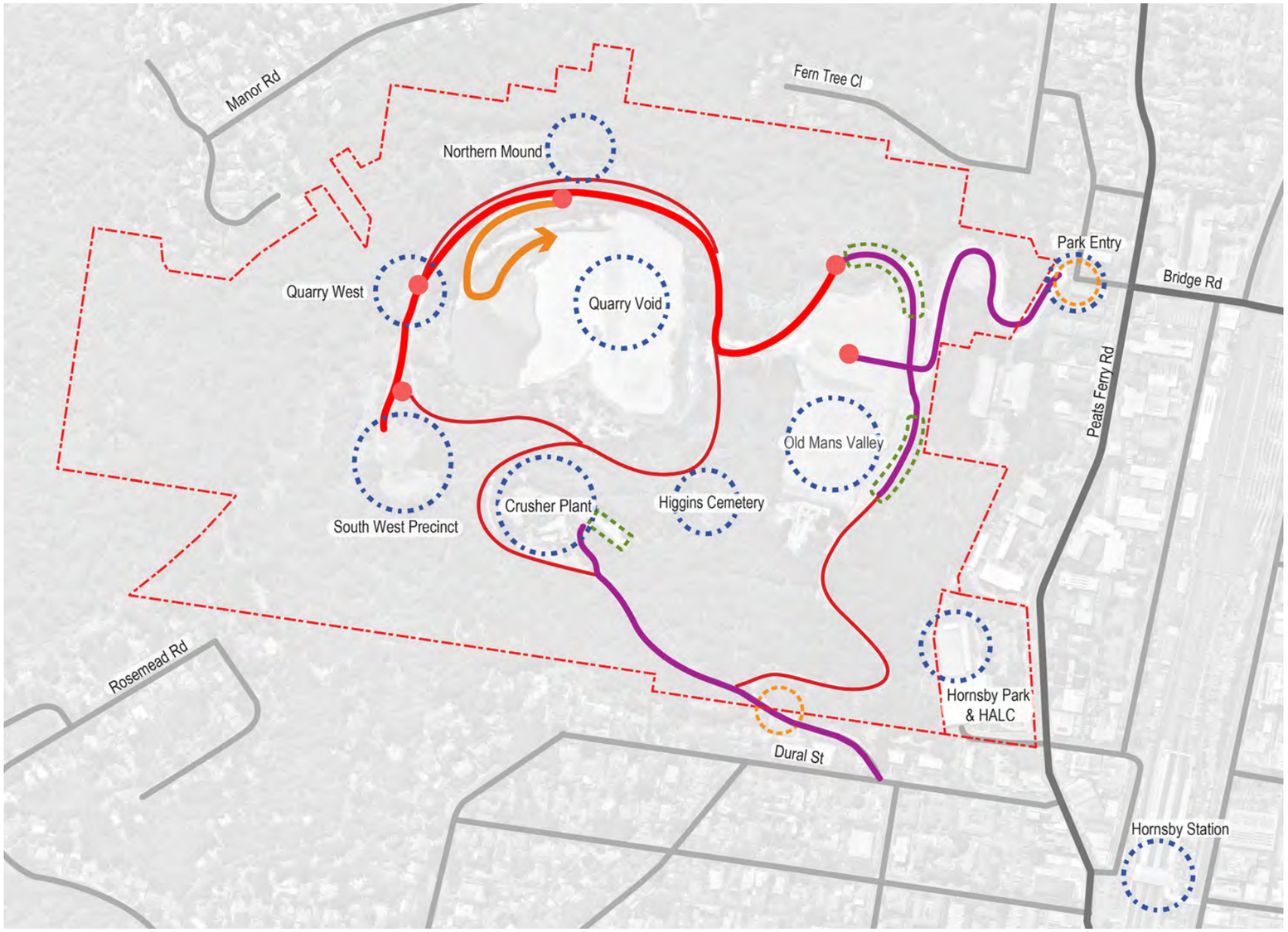
BICYCLE ROUTE ACCESS

ROUTE TYPES	TYPICAL PATH TYPE
Accessible Route All bicycle types and gentle terrain	Core precinct paths Precinct link walkway Cantilevered access walkways Future Town Centre canopy skywalk
General Route All bicycle types and some steeper terrain	Road edge footpaths Non core precinct paths Rosemead Trail
Porposed Mountain Bike Tracks Specialist bicycle types and varied terrain	Realigned and new trails
Existing Mountain Bike and BMX tracks Specialist bicycle types and varied terrain	Existing trails BMX jump track

Future mountain bike link to Westleigh Park

Note:
Alignments indicated are schematic. Specific bicycle path alignments will be site evaluated and subject to detail design.
Refer to the Glossary of Terms in Part E of this report for route definitions.
A dashed line in the yellow mountain bike colours connecting to rosemead road.
Final location of all new trails will be subject to further environmental considerations, site survey and design development work.

BICYCLE CIRCULATION STRATEGY



Vehicle access and circulation plan

LEGEND

Park vehicle entries

Car Park Location

Potential vehicle turning

Major Hub

Minor Hub

Major Local/State Road

Minor Local Road

Site Boundary

1:6000 @A3

0 60 120 180 300m

VEHICULAR CIRCULATION STRATEGY

The vehicular circulation strategy addresses public and private vehicle movement within the park to ensure the safe movement of pedestrians, cyclists and vehicles. Three key aspects make up this strategy as follows:

VEHICLE CIRCULATION

Ensure vehicle circulation for the site minimises overall footprint and limits the extent of private vehicle access to the Entry, OMV and Crusher Plant precincts, with the principle focus on pedestrian, cycle and collective transport (eg private and public buses) access. Alternate access to the Void and Crusher Plant via a shuttle service is being explored, while allowing for future provision for autonomous public vehicles and E-bikes.

SHUTTLE SERVICE

Potential for a flexible shuttle service around the site that stops at key hubs (as and when they come online) that is linked into a wider large scale service that connects the local town centres (Hornsby, Waitata, Asquith, etc) In line with sustainability goals, low emission technologies should be considered. This wider service is subject to a business plan and viability assessment.

SUPPORT AND EMERGENCY ACCESS

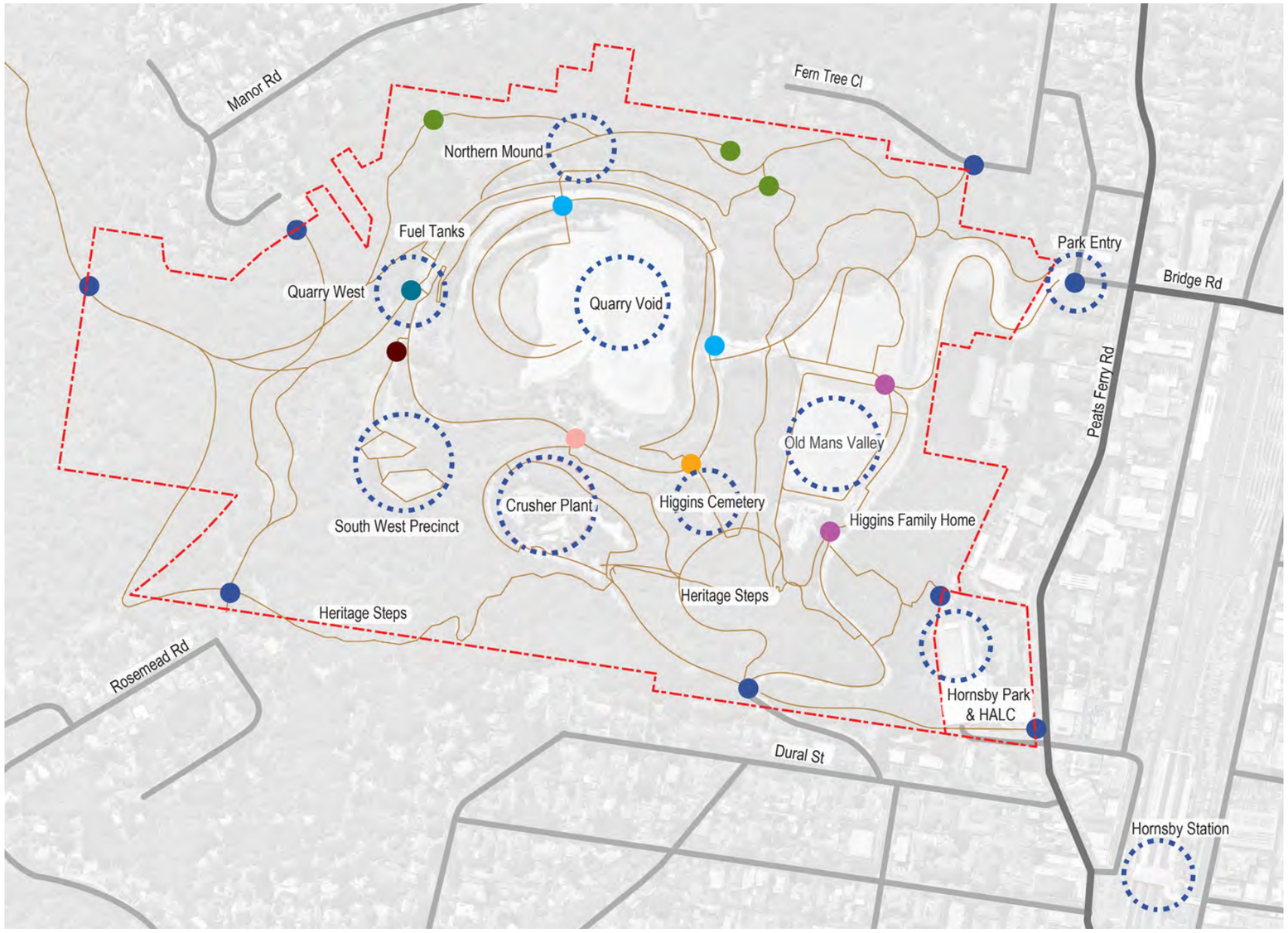
Provide both maintenance vehicle access and circulation within site and emergency (fire, ambulance, etc) vehicle access and circulation within site.

VEHICLE ROUTE ACCESS

ROAD TYPES	PERMITTED VEHICLE TYPES
All Access Road	Private Vehicles Shuttle Vehicle Emergency Vehicles Maintenance Vehicles Event Vehicles
Managed Access Road	Shuttle Vehicle (1st Stage) Emergency Vehicles Maintenance Vehicles Event Vehicles
Secondary Managed Access Road	Shuttle Vehicle (2nd Stage) Event Vehicles Emergency Vehicles Maintenance Vehicles
Support Vehicle Access Road	Emergency Vehicles Maintenance Vehicles Event Vehicles (including shuttles)

Notes:
Alignments indicated are schematic. Specific road alignments will be site evaluated and subject to detail design.
Secondary managed access road to include shared and one way vehicle routes depending on site conditions.
Some heavy vehicle restrictions may apply.

VEHICLE CIRCULATION STRATEGY



Wayfinding and signage diagram

WAYFINDING AND SIGNAGE STRATEGY

The wayfinding and signage strategy is a key underlying strategy supporting a number of other strategies within the Park. This strategy pulls together elements such as the precincts, hubs, circulation and interpretation strategies, into a network where each is linked to the other in a way where first time and returning visitors alike are able to easily navigate the large site without experiencing loss of dirction or safety concerns.

Signage should be easily visually categorised by precinct and type (wayfinding, orientation, information, safety, interpretation, etc), but still set within a park-wide family of signs. This can be achieved through the use of colours (precinct), sign shapes (types) and overall aesthetics (fonts and graphic design).

The adjacent wayfinding and signage strategy plan shows potential signage locations at the entrance to each precincts.

Heritage and interpretation plan

HERITAGE AND CULTURAL INTERPRETATION STRATEGY

This strategy addresses the heritage and cultural interpretation of the site. The site has a long rich history of Aboriginal occupancy, spanning generations of use by the Darug and Guringai peoples. This story of spiritual custodianship of the land and water, is an integral overlay of the park. The more recent 100+ years of European heritage on the site not only drastically changed the landform of the space, but played a part in the development and expansion of northern Sydney.

Integrating the story of both Indigenous and European heritage together into a new phase of restorative landscape is an important and interesting learning opportunity for visitors and educational users. The heritage and cultural interpretation strategy covers the following elements

INTERPRETATION

Layer the Interpretation strategy of the site using the various hubs as locations to create site-wide integration between all elements of the Park ensuring interpretation is a seamless experience.

HERITAGE AND HISTORY

Explore and interpret the rich natural and cultural heritage and history of the site from the underlying volcanic geology, Aboriginal occupancy and use, early timber getting and settler land grants through to farming, orcharding, the cemetery, heritage steps, quarrying and radio astronomy research.

WATER STORY

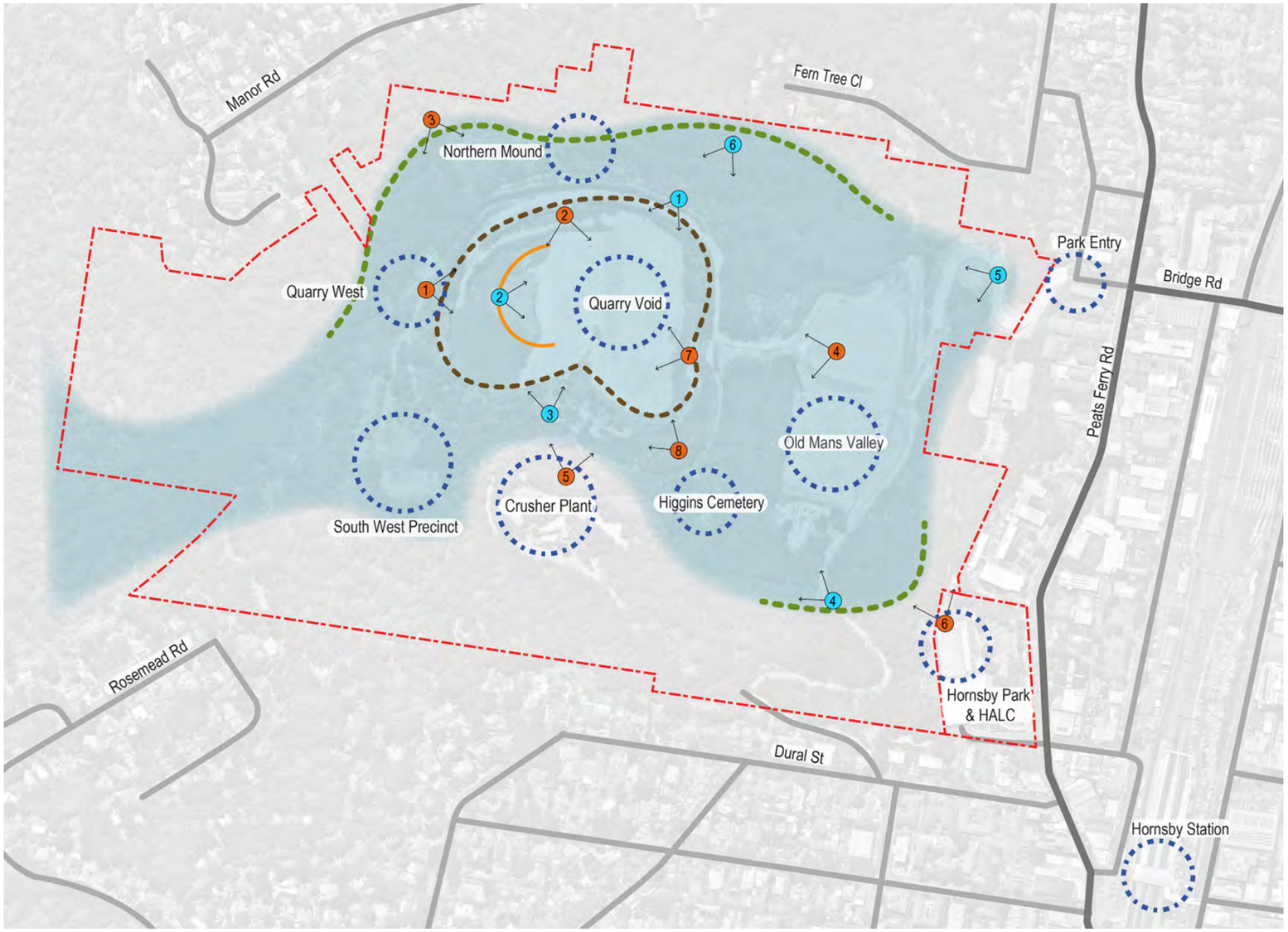
Interpret the story of the existing natural creeks, groundwater charging and the modification of drainage systems through the site's evolution including the proposed reuse of water in the constructed quarry lake and wetland systems.

QUARRY STORY & CULTURAL TRAILS

Utilise the various elements of the quarry narrative to tell the story of the quarry including, Sydney's demand for road building materials, the geology of the site and the dramatic formation of the Diatreme and subsequent transformation of landform, from the quarrying process including the spoil, crusher plant, fuel tanks, pipework and roads.

VEGETATION STORY

Explore the story of the unique forest form, impacts of the rich diatreme soils and how the landscape modified by the quarry has changed and degraded, before the restoration of the site through the current works.



View catchment and locations diagram

VIEWS AND LOOKOUTS STRATEGY

The views and vistas strategy documents the best existing viewpoints within the Park and describes how the viewers experience is optimised. With a site as large and varied as Hornsby Park there will be some 'Hero' views and vistas that capture the imagination and express the scale, history, and natural beauty of the landscape. For these views it is critical to optimise accessibility and they consequently are constructed as formal lookouts.

There will also be secondary views and vistas that add to the experience of the space, sitting in the background building the layers of what makes a particular area, precinct or recreational activity special. These views are not the primary focus of their locations but are an integral aspect of the site and also deserve to be preserved and celebrated.

FORMAL LOOKOUTS

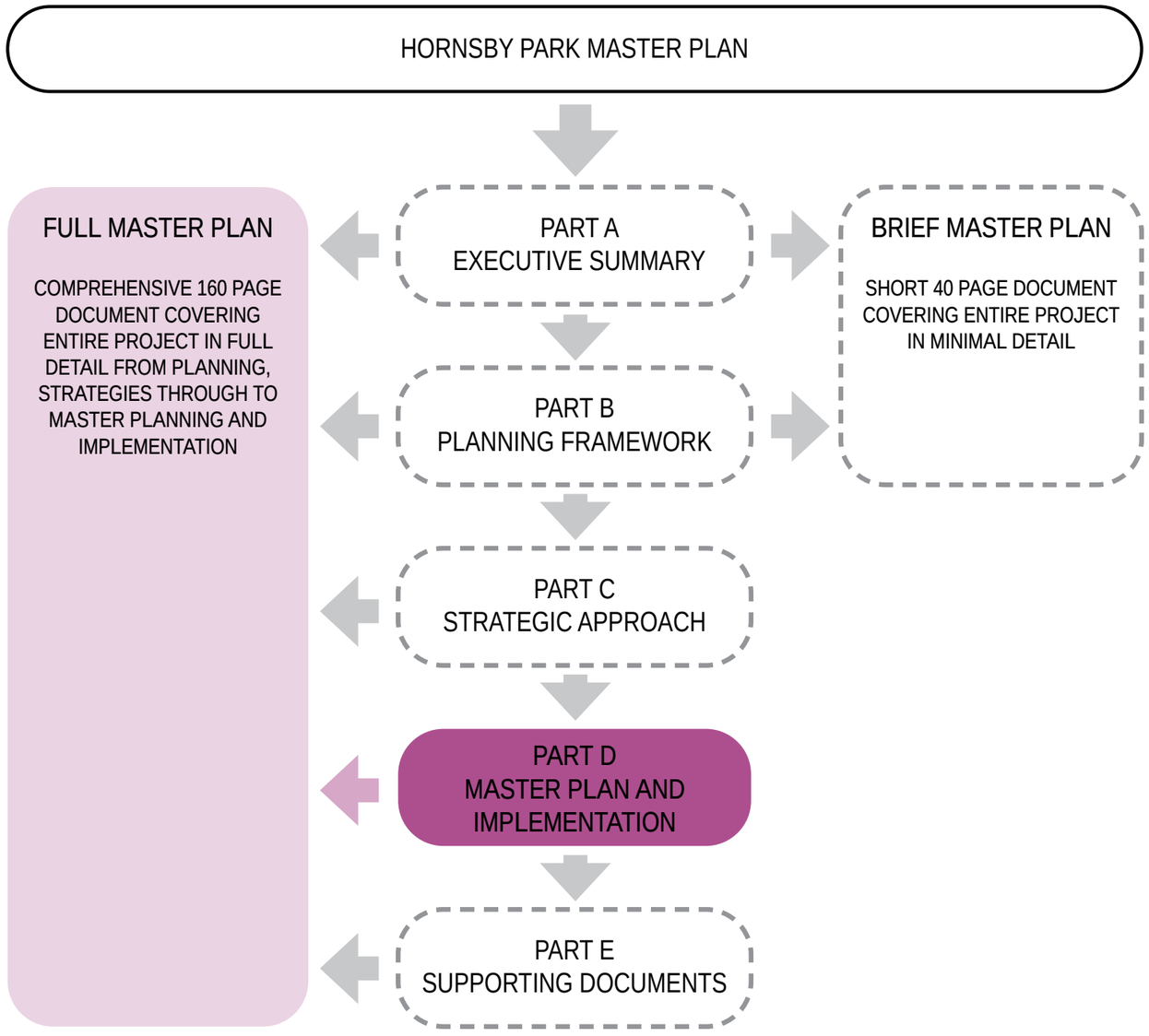
1. View from quarry west into void and diatreme wall
2. View from lift structure, 360 view into the Quarry
3. Lookout at northern mound of the Quarry
4. OMV view into Quarry and Quarry Void
5. Lookout at Crusher Plant into the Quarry
6. View point at Hornsby Park & HALC down to OMV, directional view drawing people into the site
7. RL 88 bench view to Quarry Void and western Bushland
8. Lookout near Higgings Cemetery into Quarry Void

OTHER VIEW OPPORTUNITIES

1. Views into Quarry Void from RL 90 Road
2. Views from pedestrian raised walkway into Quarry and diatreme wall
3. Views from southern access road of Quarry into Quarry Void and northern slopes
4. Views into OMV and Quarry from bush skywalk
5. Views into Quarry Void and Berowra National Park from main access road
6. Views into quarry and southern slopes from high point on northern bush track

PART D - MASTER PLAN DESIGN AND IMPLEMENTATION

Title



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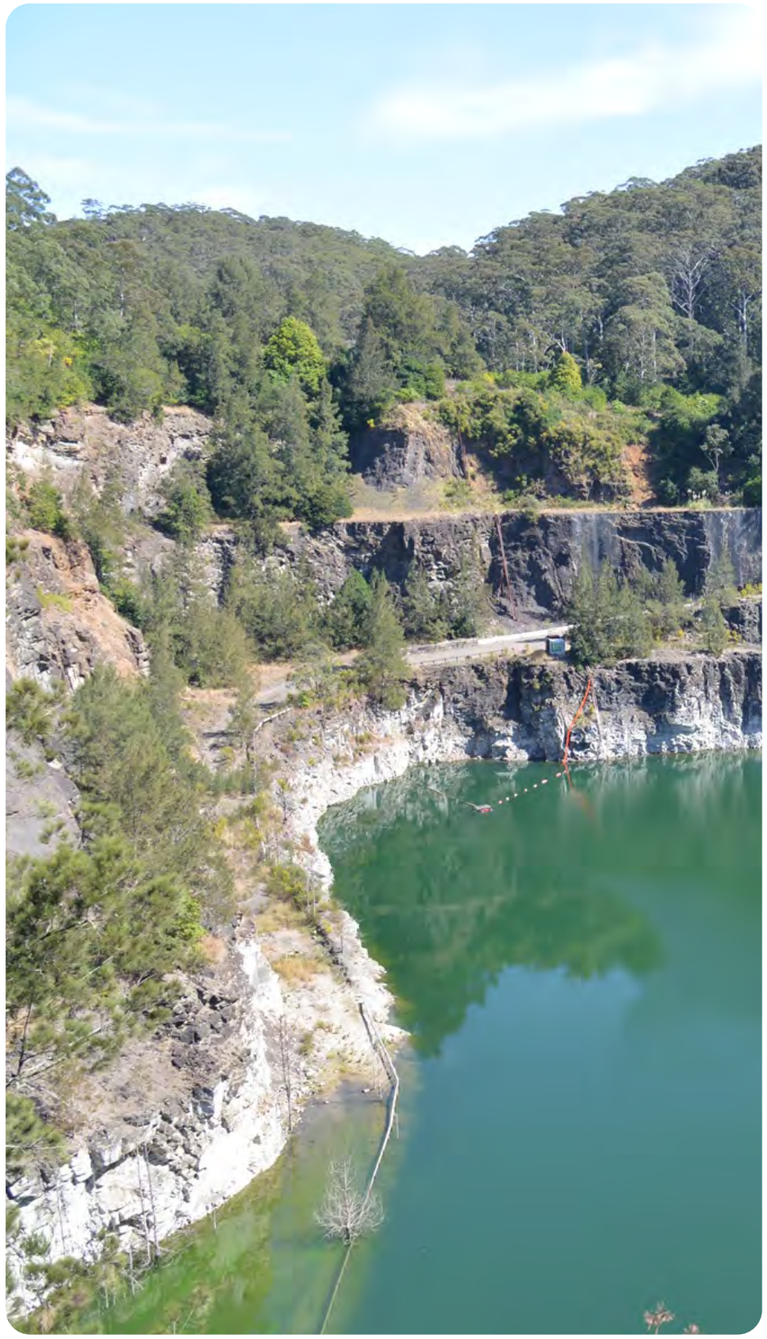
MASTER PLAN



Existing Quarry Walls

MASTER PLAN

The Master Plan is the guiding report for the development of Hornsby Park through the community engagement, design and construction phases and the revision of the Plan of Management. The Master Plan provides the framework for the site and outlines the design intent of the various aspects of the park, from the over aching strategies though design decisions and layouts to materials and plant selections. It is an in depth document that covers all aspects of the design of Hornsby park.

One of the key themes running though the Master Plan is retaining and celebrating the 'Quarry-ness' of the park. The quarry and subsequent landform alterations are such integral parts of the site that it could be said without these elements there would not be a park in this location.

WHAT WE MEAN BY 'QUARRY-NESS'?

'Quarry-ness' encompasses the concept of retaining the character and drama of the quarry's form and experience into the next phases of the site's role as a major regional park. Three elements of the future quarry experience will be core to that appreciation by the visitor:

- Drama and scale – ensuring that the full quarried face of each wall remains clearly visible from the rim and the base of the Quarry Void.
- Contrast and integrity – retaining a visible distinction between the parts of the quarry that will remain largely undisturbed since quarrying finished and those new works necessary to facilitate safe visitor experiences
- Promise and reveal – progressively revealing the quarry void with selected vistas on approach before offering a full appreciation of the whole quarry from formal lookouts around its perimeter.

Central to the full experience of these elements of the quarry will be in conserving the unique characteristics of each of the four quarry walls, as outlined in the Master Plan.

MASTER PLAN STRATEGIES

The strategies are tangible design outlines based on the opportunities and constraints of the site. These strategies underpin how the Vision, Objectives and Principles of the park are translated into the design intent of the Master Plan.

PRECINCTS

Due to the size and scale of the park, the site has been divided into a number of major and minor precincts.

MAJOR PRECINCTS

Major precincts are seen as the high value core areas of the park, the areas which will receive the majority of visitors and handle bulk of the recreational and commercial requirements of the park. The major precincts are a direct response to achieving the Objectives and Principles of the park.

MINOR PRECINCTS

Minor precincts are generally smaller areas, often part of major precincts, that contain specific elements or themes that are separate to the themes of the Major Precinct it is located within. Alternatively, minor precincts are often areas which require additional works to make them safe usable spaces., such as the Northern Mound

REALISING THE PLAN

Due to the size and scale of the works involved in Hornsby Park will be delivered in two stages over a period of years.

STAGE 1

Precincts that comprise Stage 1 works form the core character and identity of the park and include those works required to deliver visitors safely to most parts of the park.

Stage 1 areas will include bushland restoration across the site, Old Mans Valley and entry, the Quarry Void and associated access paths and roads, Higgins Cemetery and the Northern Mound.

The Park will be functional and viable when the Stage 1 works are completed, however the Stage 2 works are important for the full realisation of the Park's potential.

STAGE 2

The Stage 2 works comprise precincts that either support the Stage 1 precincts or facilities that require a strong existing visitor base that only an established park can generate.

Stage 2 works include the Crusher Plant adaptive-reuse, the Southwest precinct and the Quarry West precinct.

Some of these precincts include opportunities for partnerships between Council and third-party businesses for the activation of the spaces.

The Stage 2 works will ensure the continued long-term financial viability of the park and bring opportunities for new users and visitors to the park.

Legend

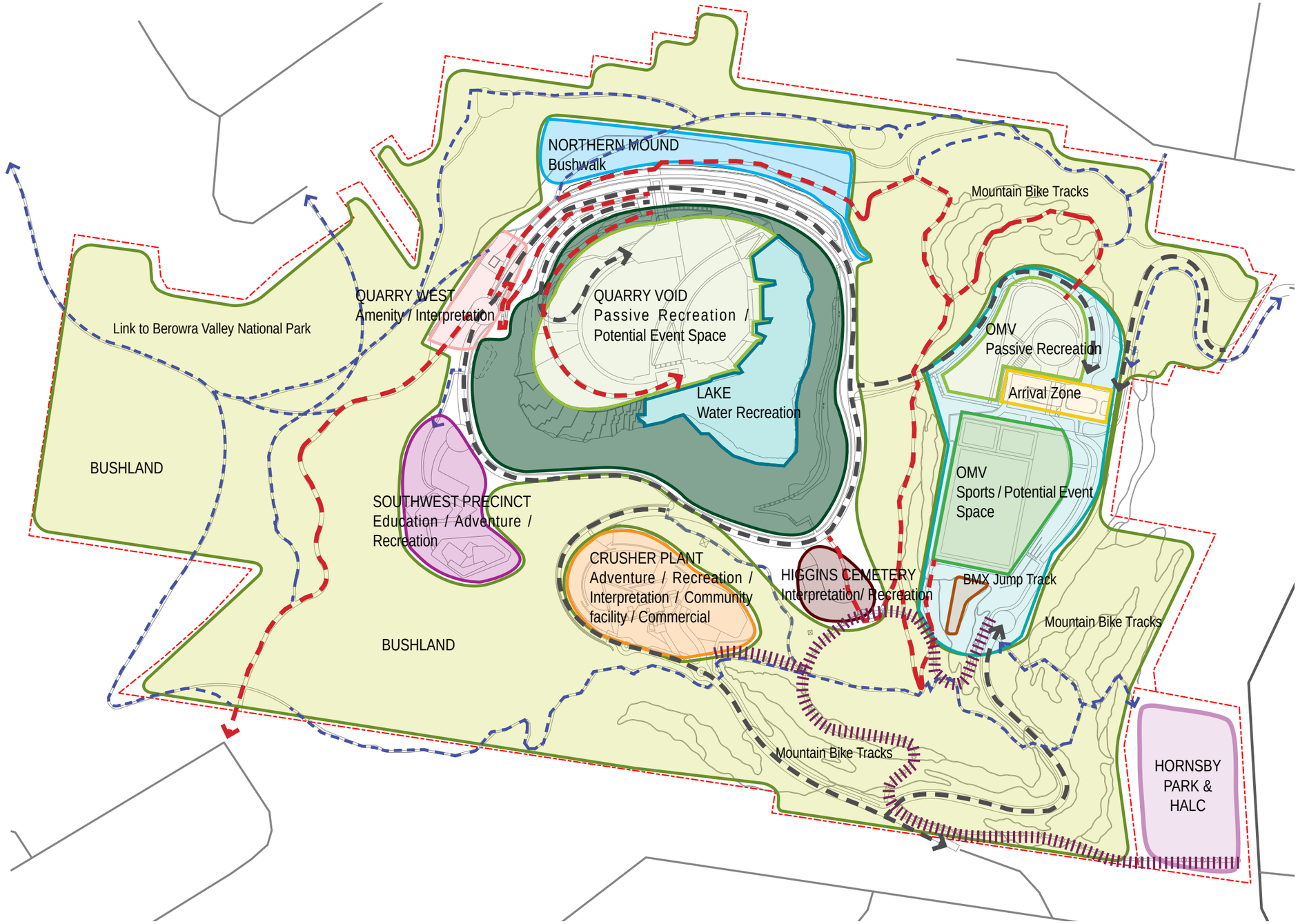
- Bushland
- Native trees
- Exotic trees
- Natural turf
- Synthetic turf
- Mass planting
- Playground
- Asphalt road
- Paths, tracks and trails
- Raised walkways and structures
- Lift into Quarry Void
- Walls
- Mountain bike tracks
- Quarry faces
- Lake
- Future canopy skywalk to Hornsby CBD
- Sloped lawn seating

1:4000 @A3

0 40 80 120 200m

(1) Park vehicle entry from Bridge Road
(2) Primary pedestrian entry from Town Centre
(3) Park link to Berowra Valley National Park
(4) Park Orientation space
(5) Quarry Void access point
(6) Crusher Plant access from Quarry Road
(7) Restoration and adaptive reuse of Crusher Plant
(8) Minor pedestrian entry from Rosemead Road
(9) Key lookouts

OVERALL SITE MASTER PLAN



PRINCIPLES

- Provide a memorable and usable parkland for local, regional and tourist visitors
- Provide arrival experience at Quarry Road and Bridge Road entries
- Ensure accessible link from Town Centre to Quarry Void
- Provide arrival, orientation and active recreation at OMV Precicnt
- Provide passive recreation opportunities within OMV, Quarry Void and Bushland Precincts
- Provide adventure recreation opportunities at the Crusher Plant Precinct
- Provide heritage interpretation at OMV, Higging Cemetery, Crusher Plant and Quarry Void
- Connect and link into Berowra Valley National Park

Legend

Major Precincts
- PRECINCT A: Old Mans Valley (OMV)
- PRECINCT B: Quarry Void
- PRECINCT C: Bushland

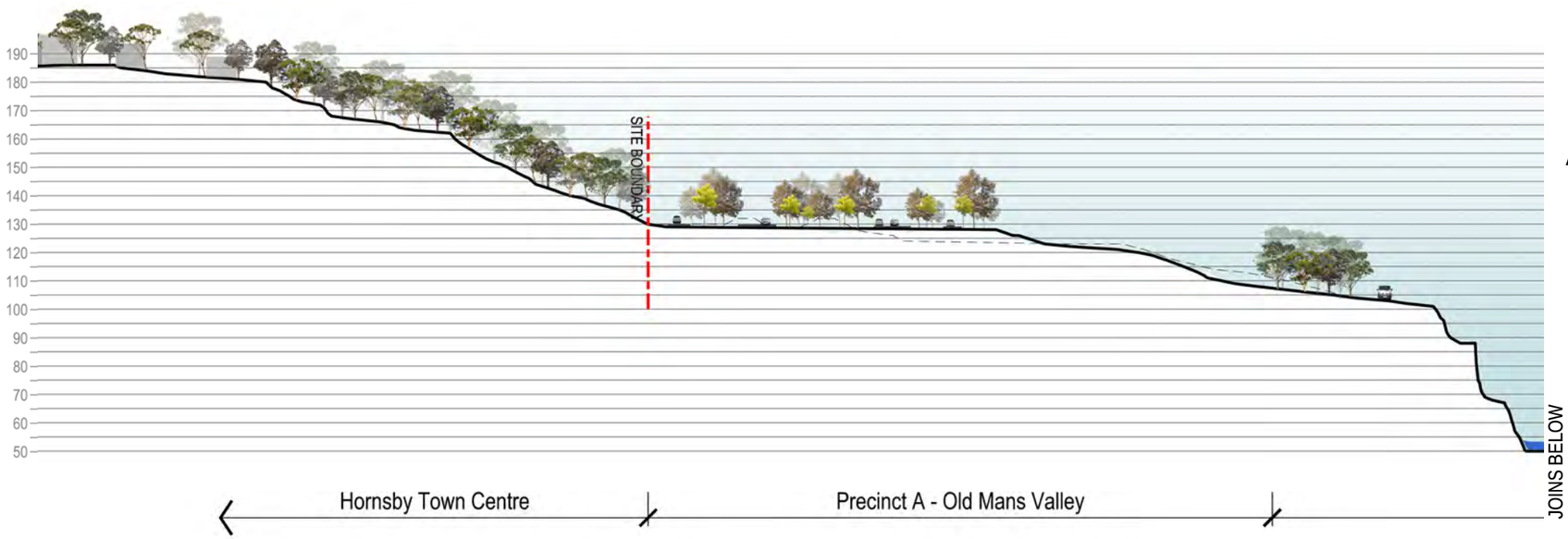
Minor Precincts
- PRECINCT D: Higgins Cemetery
- PRECINCT H: Quarry West
- PRECINCT E: Northern Mound

Existing Major Precincts
- PRECINCT I: Hornsby Park and Hornsby Aquatic And Leisure Centre
- Pathway
- Accessible Path
- Vehicle Access
- Future Accessible Skywalk to Hornsby CBD

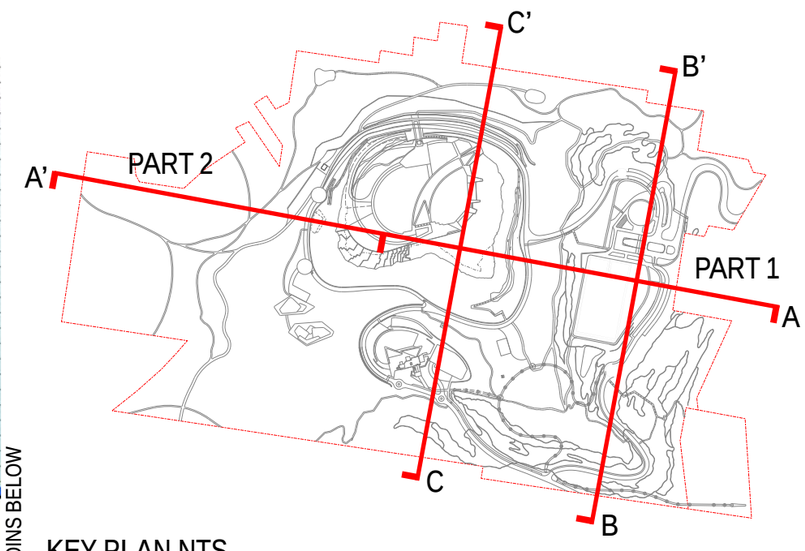
1:4000 @A3

0 40 80 120 200m

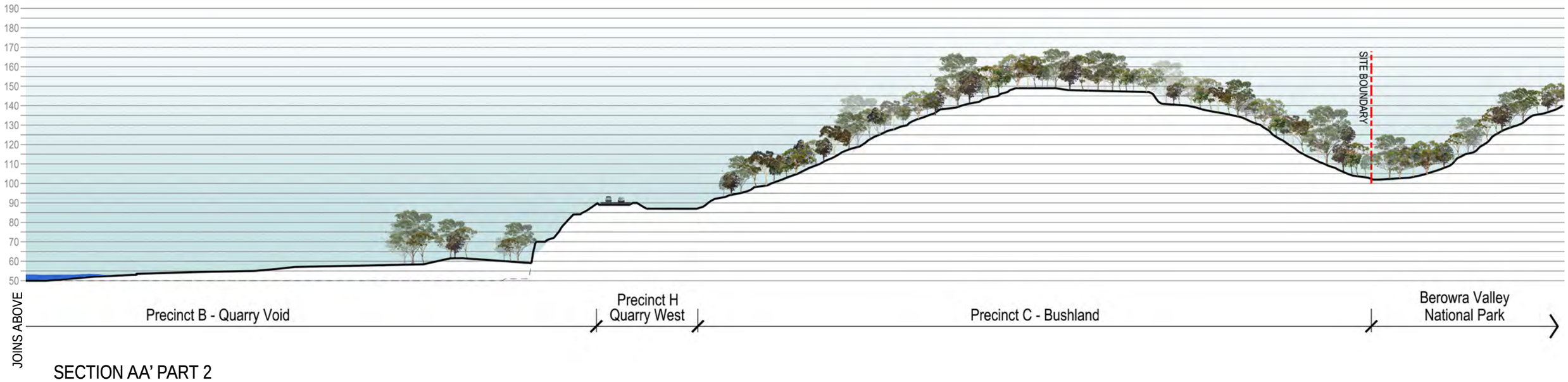
OVERALL SITE STRUCTURE PLAN



SECTION AA' PART 1



KEY PLAN NTS

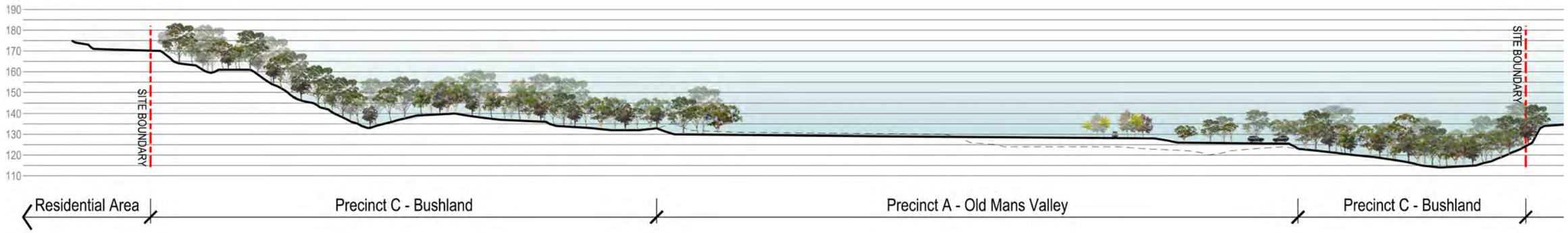


SECTION AA' PART 2

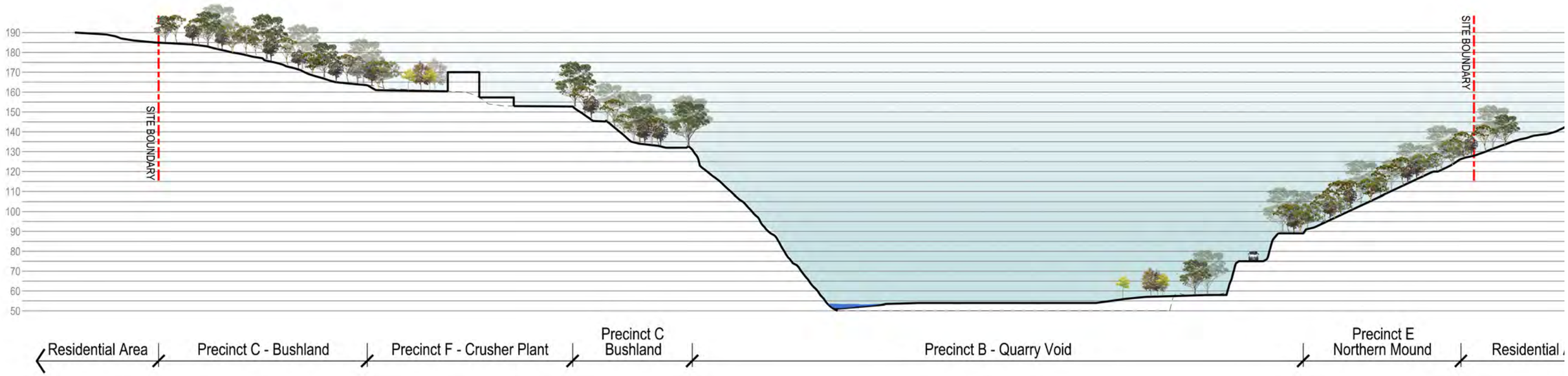
1:2000 @A3

0 40 80 120 160 200m

OVERALL SITE SECTIONS



SECTION BB'

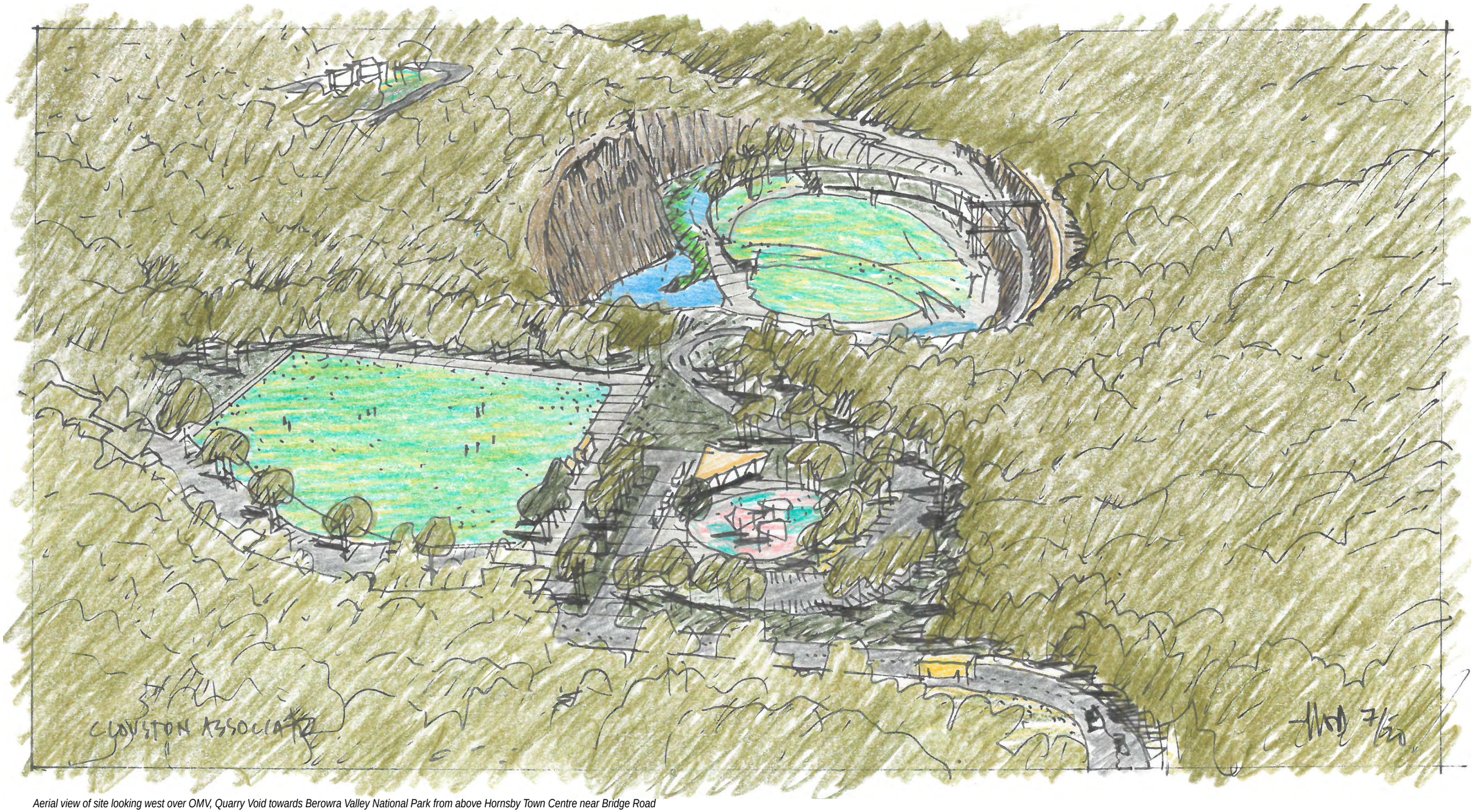


SECTION CC'

1:2000 @A3

0 40 80 120 160 200m

OVERALL SITE SECTIONS



Aerial view of site looking west over OMV, Quarry Void towards Berowra Valley National Park from above Hornsby Town Centre near Bridge Road

OVERALL SITE PERSPECTIVE

Existing Quarry Bushland and Quarry Void

PRECINCTS

RL 90 quarry track

WHAT ARE PRECINCTS?

Given the various type of landscape types and associated, the created opportunities for the site have been divided into a number of major and minor precincts. These precincts are based on a combination of the existing features, proposed uses and expected management of the different areas of the park.

MAJOR PRECINCTS

Major Precincts are seen as the core areas of the park, the areas which will receive the majority of visitors. The Major Precincts are a direct response to achieving the Objectives and Principles of the Park.

PRECINCT A - OMV

Old Mans Valley is the first precinct most visitors will experience when arriving at the park. OMV is first and foremost a welcome and orientation space for the entire park and secondly as an active and passive recreation hub in the park. Given its proximity to the Town Centre, it will necessarily cater to local recreation needs. Visitors arriving in OMV will be able to move out from this point to other precincts within the park via shuttle services, bikes or the path network. Small scale and local events and activities are the ideal scale for OMV.

PRECINCT B - QUARRY VOID

Given its dramatic scale and character, the Quarry Void is the major draw card of the Park offering a unique experience unrivalled in the Sydney Region. Diatreme wall is a geological feature of heritage significance that cannot be found anywhere else in Australia and it creates a dramatic backdrop to the Quarry Void. The Quarry Void is ideally suited to special events that may be a draw card for district and regional visitors and tourists.

PRECINCT C - BUSHLAND

The Bushland precinct makes up the majority of the park and its protection and restoration is of the upmost importance. The Blue Gum Diatreme Forest ecological community is endangered and extremely rare. Accessible paths connecting the various precincts wind through the bush, while tracks and trails for more adventurous visitors connect into wider networks such as the Rosemead Trail and Great Northern Walk. Visually and physically the Bushland Precinct connects into the Berowra Valley National Park and provides a number of minor pedestrian entry points into the Park.

PRECINCT F - CRUSHER PLANT

Apart from the Quarry Void itself, the most significant remnant of the quarry's workings is the Crusher Plant. Opportunities for adaptive reuse of the buildings as an artistic or adventure and amenities hub should be further explored to ensure the Precinct is able to provide an anchor to the park along its southern edge. Direct pedestrian access from Hornsby Station within a 15 minutes walk is a significant factor in the opportunities for the Crusher Plant.

PRECINCT G - SOUTH WEST PRECINCT

The South West Precinct provides a space for accommodation, learning and adventure recreation. Located in one of the most remote locations of the Park and close to the Berowra Valley National Park, access to this precinct is difficult, but this remote location also offers opportunities to better connect to the bush and the National Park.

MINOR PRECINCTS

Minor Precincts are generally smaller areas, sometimes part of Major Precincts, that maybe sensitive spaces on environmental and heritage grounds and which would not accommodate large number of visitors.

PRECINCT D - HIGGINS CEMETERY

Higgins Cemetery is a historic small family cemetery located within the park. It offers a rich connection to the pre quarry European history of the site and helps anchor the various historic features across the park through the interpretation strategy.

PRECINCT E - NORTHERN MOUND

The Northern Mound would ultimately form part of the Bushland Precinct after significant earth works are completed to make the mound safe. Made entirely from quarry spoil the mound is extremely unstable, without topsoil, as evidenced by no bush regrowth 30 years after the quarry stopped using the mound for dumping. What might have been seen as a difficult problem is actually a boon for the overall park, with material required to be removed from the mound acting as the ideal foundation for the extensive native soils for the parklands.

PRECINCT H - QUARRY WEST

The gateway to the Berowra Valley National Park. Perched on the western rim of the quarry and featuring a smaller scale community or commerical centre, the Quarry West Precinct offers prime views to the east and west. To the east is the Diatreme wall and to the west through the naturally formed valley is the Berowra Valley National Park. This precinct will act as the bridge between the National Park and Hornsby Park.

EXISTING MAJOR PRECINCTS

PRECINCT I - HORNSBY PARK AND HORNSBY AQUATIC AND LEISURE CENTRE

Perched on the edge of the ridge at the top of the steep hill falling away to OMV, Hornsby Park is a small open space sandwiched between the Peats Ferry Road and the bush. The Park has been utilised as a recreational open space for residents of Hornsby since 1896 and retains this long history in its formal planting and layout. The Hornsby Aquatic and Leisure Centre opened 2014, replacing an existing 1960's pool and overlooks the bushland. Due to the Parks location at the same RL's as the Town Centre this precinct is a key link and visual indicator for the larger park hidden below the ridgeline. It also functions as an amenities centre and the main pedestrian entry into the Park. The Master Plan is not proposing any significant changes to this existing precinct, with upgrades relating to the Park's entry and pedestrian access among the proposed works.

MAJOR PRECINCTS

- PRECINCT A: Old Mans Valley (OMV)
- PRECINCT B: Quarry Void
- PRECINCT C: Bushland
- PRECINCT F: Crusher Plant
- PRECINCT G: South West Precinct

MINOR PRECINCTS

- PRECINCT D: Higgins Cemetery
- PRECINCT H: Quarry West
- PRECINCT E: Northern Mound

EXISTING MAJOR PRECINCTS

- PRECINCT I: Hornsby Park and Hornsby Aquatic And Leisure Centre

1:4000 @A3

0 40 80 120 200m

SITE PRECINCT PLAN

Higgins Hill and heritage steps

PRECINCT A - OLD MANS VALLEY

Legend

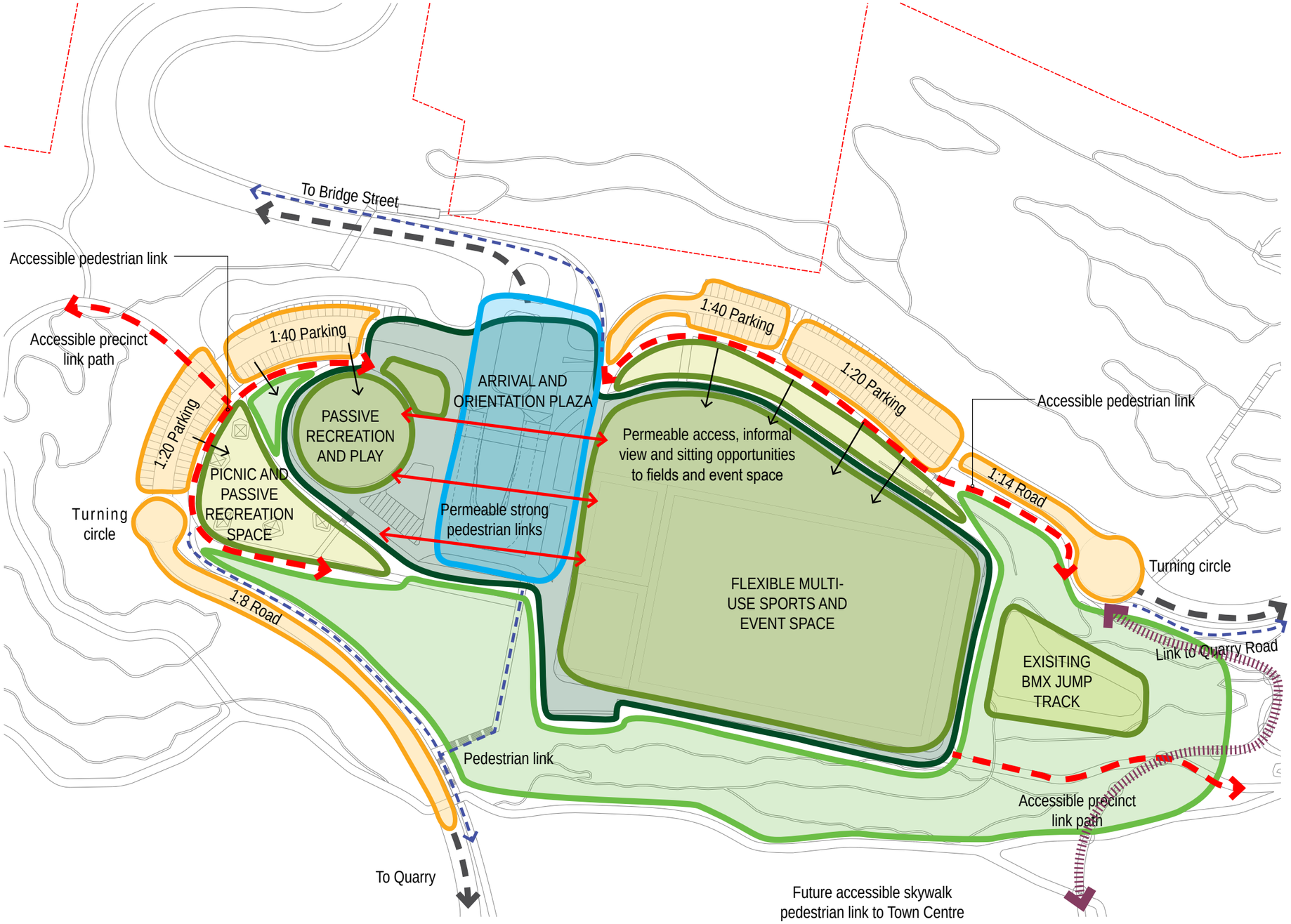
- Bushland
- Native trees
- Exotic trees
- Natural turf
- Synthetic turf
- Mass planting
- Shared zone feature paving
- Entry plaza feature paving
- Playground
- Asphalt road
- Concrete pathway
- Stone pavement for shared zone
- Mountain bike tracks
- Sandstone / Breccia Gabion walls
- Sandstone log walls
- Existing jumping track
- Car parking
- Future canopy skywalk to Hornsby CBD
- Concrete stairs
- Seating lawn terrace

1:1500 @A3

0 15 30 45 75m

(1) Shared pedestrian entry and orientation plaza
(2) Shuttle/bus drop off and pickup
(3) Interpretative orchard bosque planting
(4) Lower turf terrace with picnic facilities
(5) Play space with water play
(6) Pedestrian access to Quarry Void
(7) Primary vehicle access
(8) Southern carpark
(9) Northern carpark
(10) Lookout
(11) Sports fields
(12) Existing mountain bike underpass
(13) Cafe / Community Facility
(14) Planted slope to funnel views towards Quarry
(15) Sports amenity buildings
(16) Future canopy skyway

PRECINCT A - OMV MASTER PLAN



ACCESS AND CIRCULATION

- Ensure pedestrian focused arrival and orientation of parklands
- Develop OMV into key precinct for site wide accessible circulation network and connections back to Town Centre
- Provide permeable links between spaces
- Ensure all key functions are located on single platform

RECREATION

- Provide flexible active and passive recreation opportunities
- Provide picnic and play facilities
- Explore opportunities for small and medium scaled local events

ENVIRONMENTAL

- Irrigate landscape with water reused from lake
- Provide endemic native planting framework with exotic parkland trees as feature planting

SUSTAINABILITY

- Explore commercial opportunities for sports and café

INTERPRETATION

- Explore use of fruit trees to reference historic land use as orchards

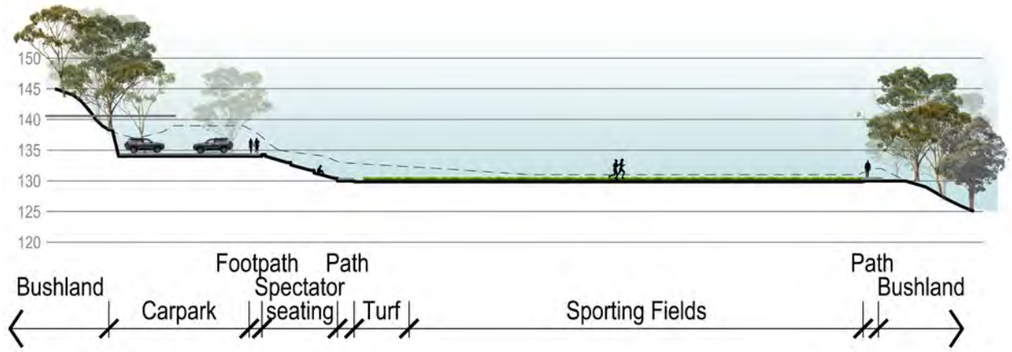
Legend

- 1:100 south to north sloping platform
- Recreation zones
- Parking and access zones
- Planting
- Accessible path
- Pathway
- Future accessible skywalk link to Town Centre
- Pedestrian priority access shared zone
- Permeable access
- Vehicle access

1:1500 @A3

0 15 30 45 75m

PRECINCT A - OMV PRINCIPLE AND STRUCTURE PLAN



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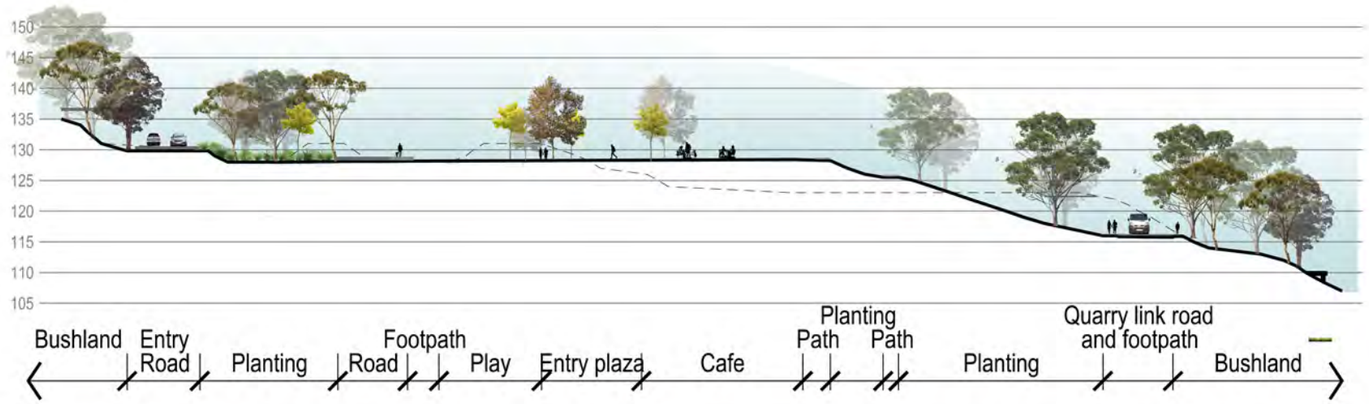

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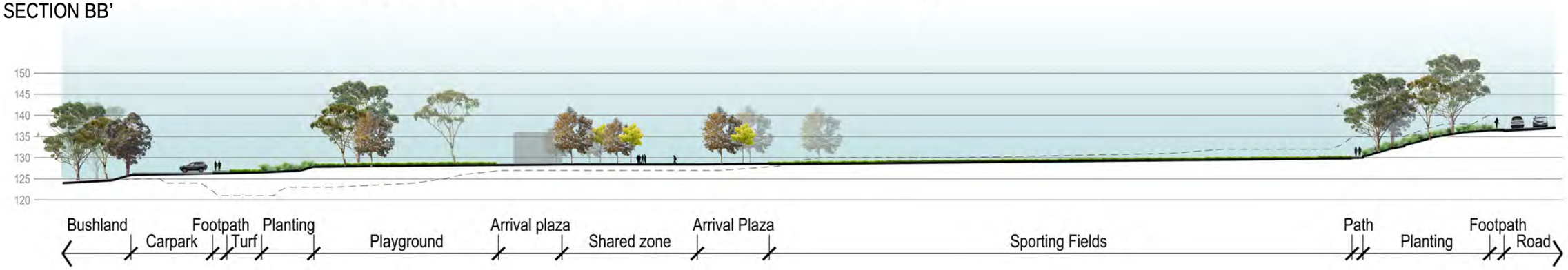

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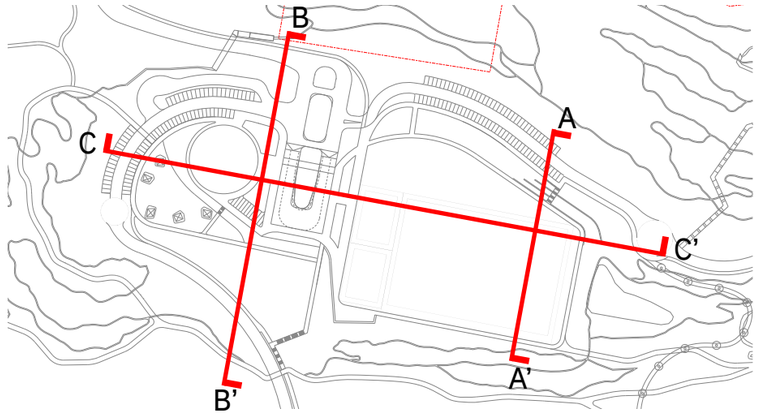
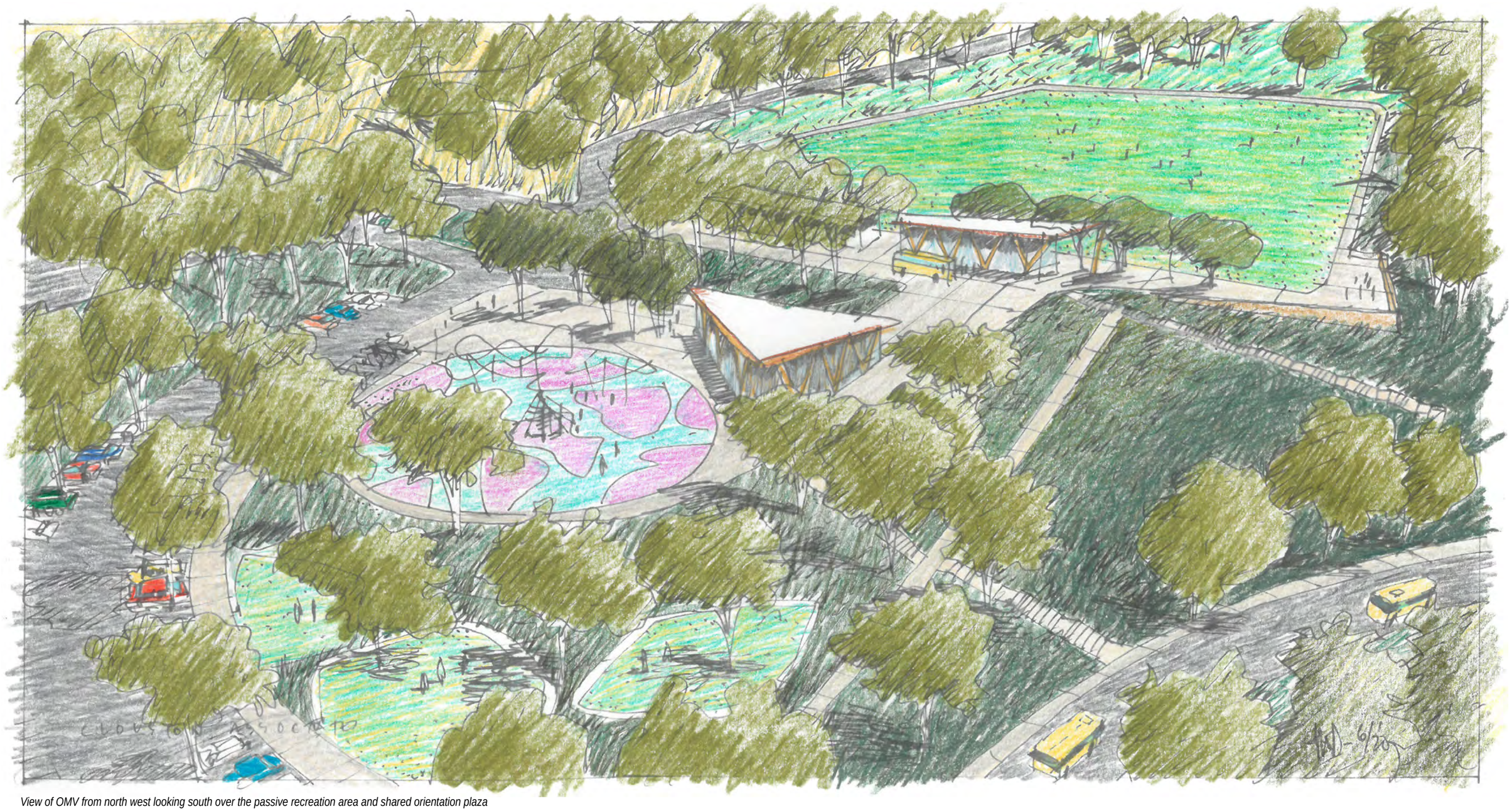


KEY PLAN NTS

1:1000 @A3

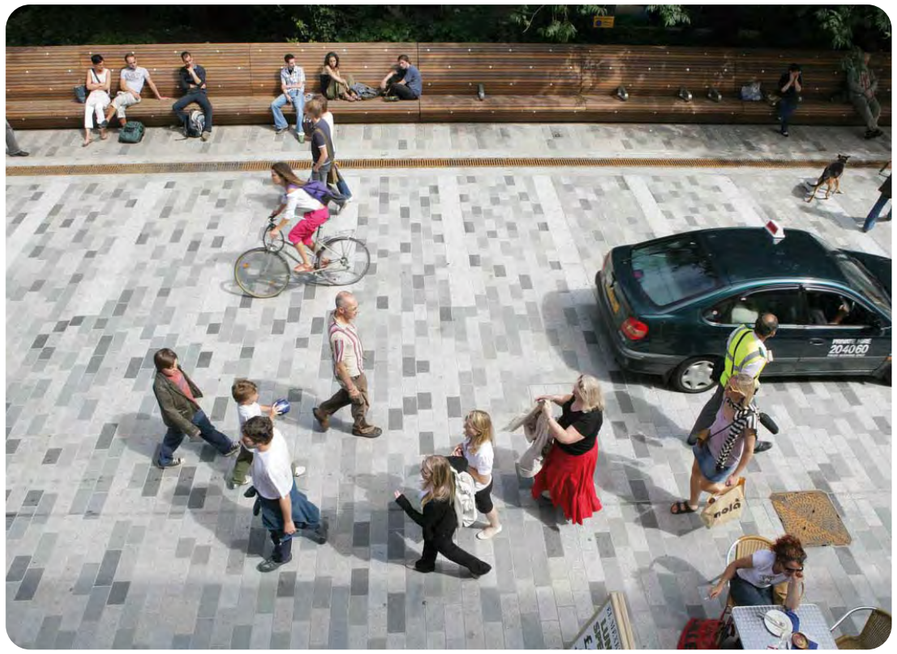
0 10 20 30 50m

OMV TYPICAL SECTIONS



View of OMV from north west looking south over the passive recreation area and shared orientation plaza

OMV PERSPECTIVE



PRECINCT A - OMV PRECEDENTS

SOFTWORKS


General Use Turf


Sports: Synthetic Turf


Mass Planting (Medium)


Mass Planting (Low)


Avenue Tree Planting


Native Tree Planting


Bush Regeneration


Deciduous Tree Planting


Turf with Terrace Seating


Cafe + Outdoor Dinning


Community Facilities + Orientation


Sports facilities

HARDWORKS AND FURNITURE


Exposed Aggregate Concrete (Feature Paving)


Cobble Paving (Shared Road)


Brushed Concrete


Asphalt (Road/Parking)


Concrete Stairs


Softfall


Bench & Table


BBQ


Bins


Drinking Fountain


E-bike Station


Timber Seats


Shelter and picnic setting


Playground

WALLS AND FENCING


Sandstone Welded Mesh Gabion Wall


Sandstone Block Wall


Sandstone Logs Wall


Low Welded Mesh Gabion Wall


Stainless Steel Balustrade


Stainless Steel Handrail

Precinct A: OMV

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Corymbia maculata	Spotted Gum		
Angophora costata	Sydney Red Gum		
Eucalyptus piperita	Sydney Peppermint		
Syncarpia glomulifera	Turpentine		
Acacia parramattensis	Sydney Green Wattle		
Corymbia gummifera	Red Bloodwood		
Eucalyptus resinifera	Red Mahogany		
Eucalyptus punctata	Grey Gum		
Banksia serrata	Old Man Banksia		
Eucalyptus saligna	Sydney Blue Gum		
Eucalyptus robusta	Swamp Mahogany		
Syzygium paniculatum	Magenta Cherry Lilly Pilly		
Angophora floribunda	Rough-barked Apple		
Eucalyptus pilularis	Blackbutt		
Exotic Feature Planting			
Pistacia chinensis	Pistachio		
Pyrus calleryana 'Bradford'	Pyrus Bradford		
Fraxinus angustifolia 'Raywood'	Claret Ash		
Interpretative Canopy Layer			
Citrus spp	Orange		
Malus spp	Apple		
Prunus spp	Peach		
Malus spp	Flowering Apple		
Prunus spp	Flowering Cherry		

OMV from the vehicle entry ramp

OMV platform

View from OMV towards the entry vehicle ramp

Bushland surrounding the OMV platform

PRECINCT A - OMV SITE PHOTOS

PRECINCT B - QUARRY VOID

Legend

- Quarry rockface
- Bushland
- Native trees
- Exotic trees
- Turf
- Mass planting
- Wetland planting and cascading pool
- Lake
- Sloped lake edge
- Viewing outcrop into the lake
- Asphalt road
- Concrete pathway
- Stone pavement
- Raised walkway
- Sandstone / Breccia Gabion walls
- Concrete channels & concrete walls
- Lift shaft
- Concrete stairs
- Mountain bike tracks
- Picnic / Shelter

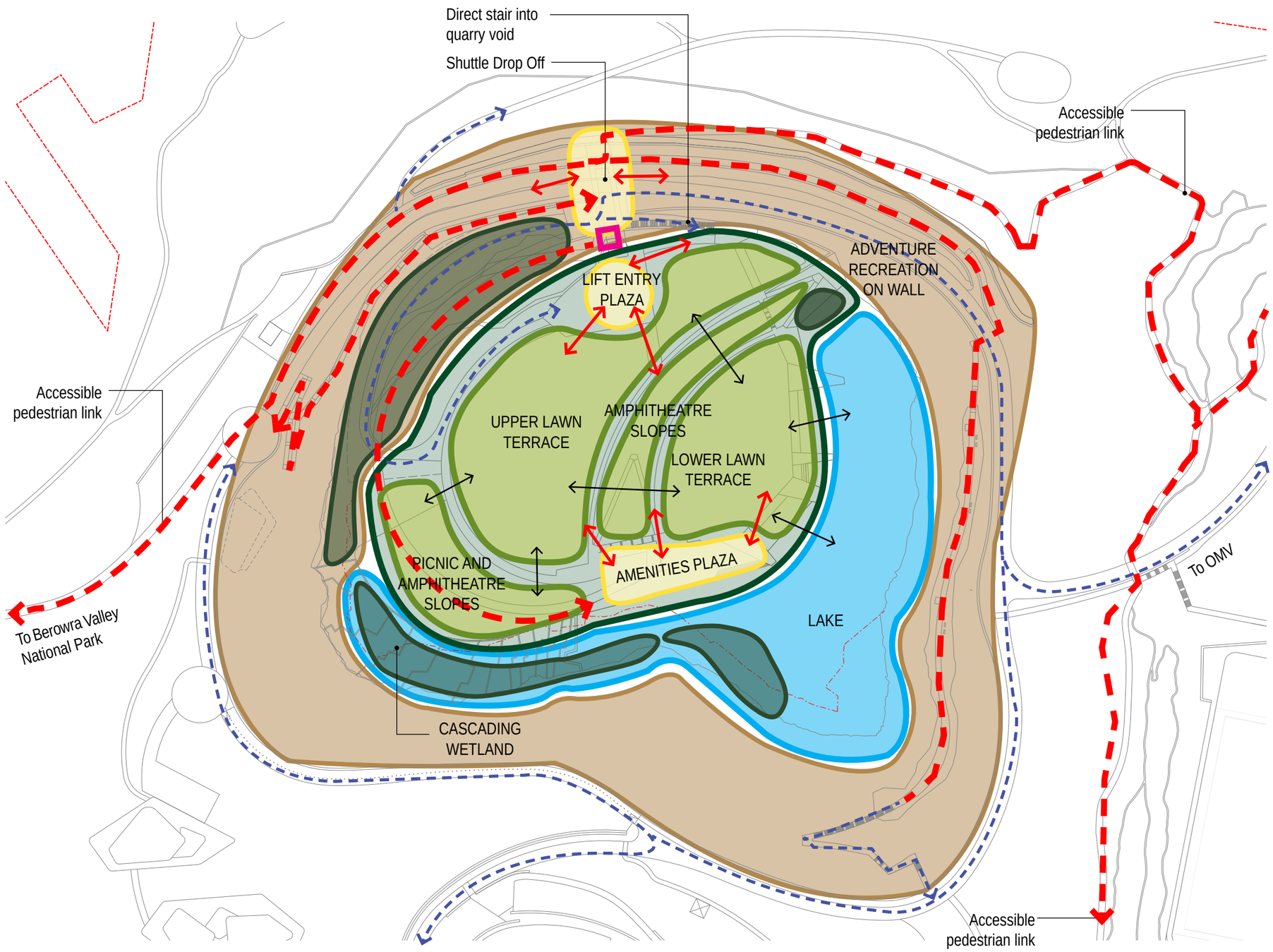
1:2000 @A3

0 20 40 60 100m

1. Lift connects to RL90 Road, shuttle drop off at RL72 and quarry void base
2. Potential adventure recreation on quarry rockface
3. Potential community/ commercial building
4. Informal amphitheatre seating on turf slope
5. RL 88 bench lookout
6. Amenities building below ramp
7. Vehicle access ramp
8. Pedestrian access path
9. Upper lawn terrace
10. Lower lawn terrace
11. Quarry Void entry plaza
12. RL 72 plaza
13. RL 90 track access to lift and accessible path
14. Raised pedestrian walkway and lookout to Quarry West

PRECINCT B - QUARRY VOID MASTER PLAN

Amenity building with integrated stairs and ramps linking upper and lower terraces



INTERPRETATION

- Celebrate the quarry walls particularly the eastern Diatreme face
- Develop learning opportunities around story of water reuse and cleaning

RECREATION

- Provide passive recreation opportunities such picnic facilities
- Provide adventure recreation opportunities on north eastern quarry wall
- Explore opportunities for regional special and principle events
- Provide natural lake recreation opportunities

ACCESS AND CIRCULATION

- Provide accessible paths from the quarry floor up out of the quarry and provide connections to the site wide path networks
- Utilise the lift to cater for direct access out of the Quarry Void

ENVIRONMENTAL

- Irrigate landscape with water reused from lake
- Provide endemic native planting with exotic parkland trees

SUSTAINABILITY

- Provide amenities facilities in sunny southern section of Void

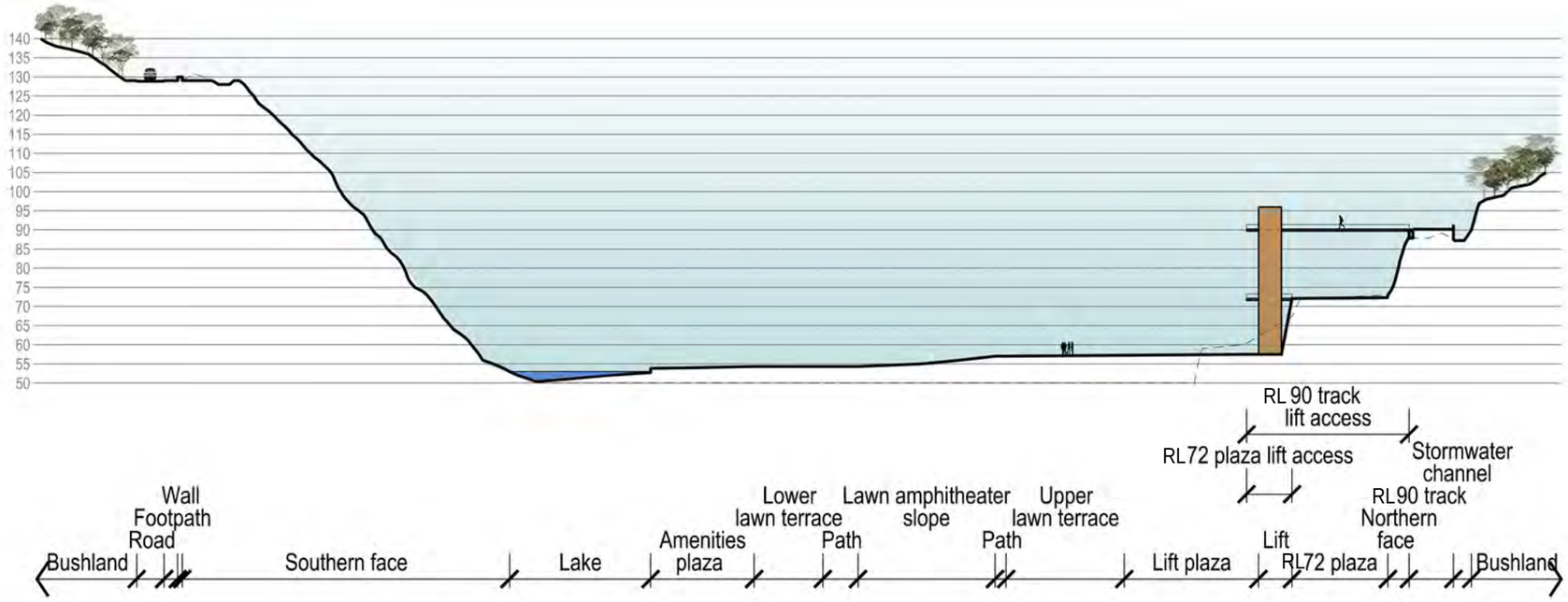
Legend

- Water
- Quarry Void base
- Exisitng rock faces and access into the Void
- Passive recreation zones
- Amenities and orientation spaces
- Major canopy planting areas
- Lift into quarry void
- Accessible path
- Pathway
- Key pedestrian routes from plazas
- Permeable movement

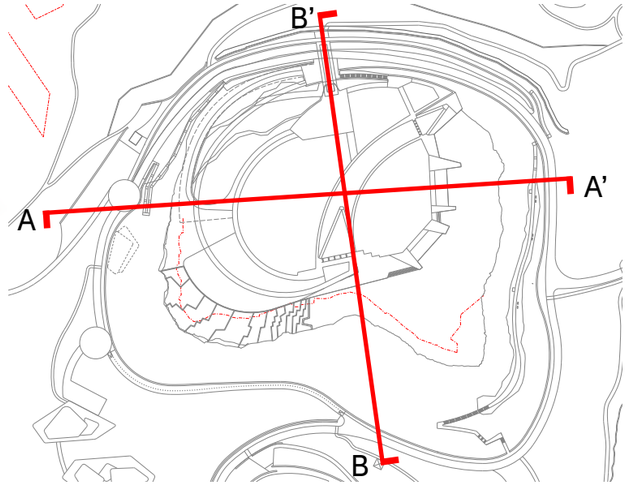
1:2000 @A3

0 20 40 60 100m

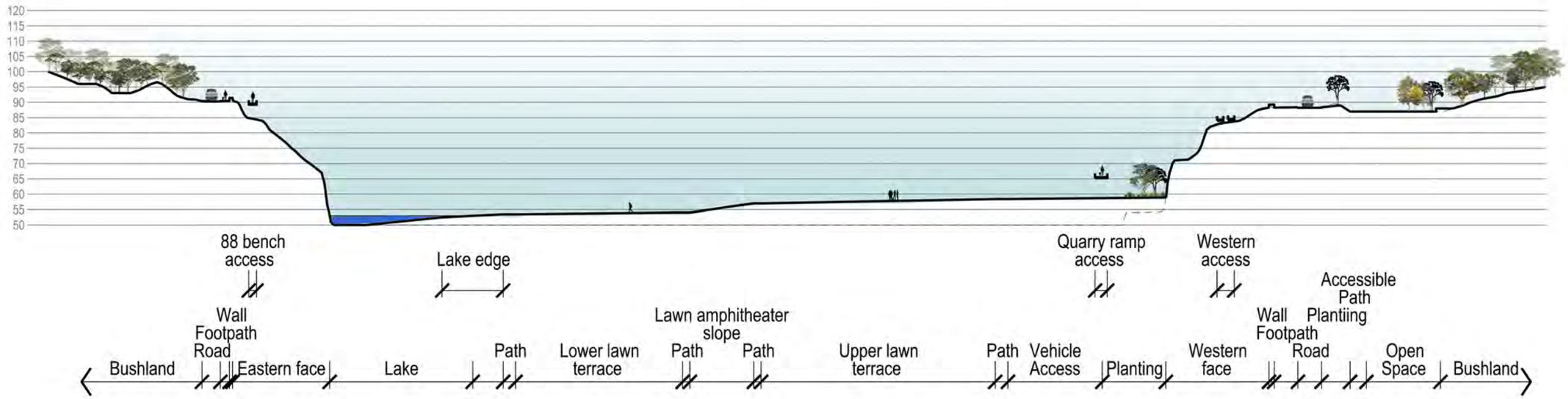
PRECINCT B - QUARRY VOID STRUCTURE PLAN



SECTION AA'



KEY PLAN NTS

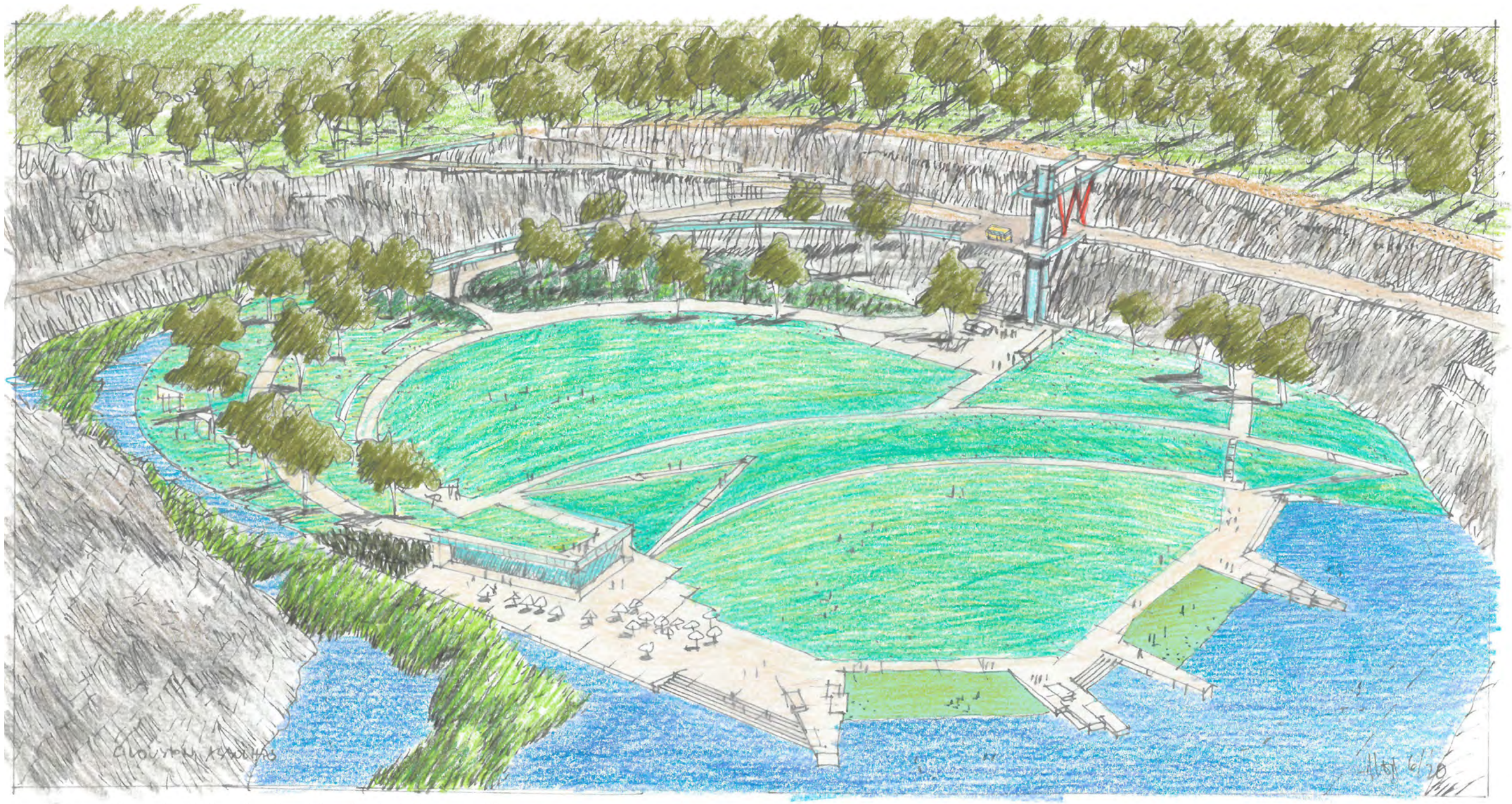


SECTION BB'

1:1500 @A3

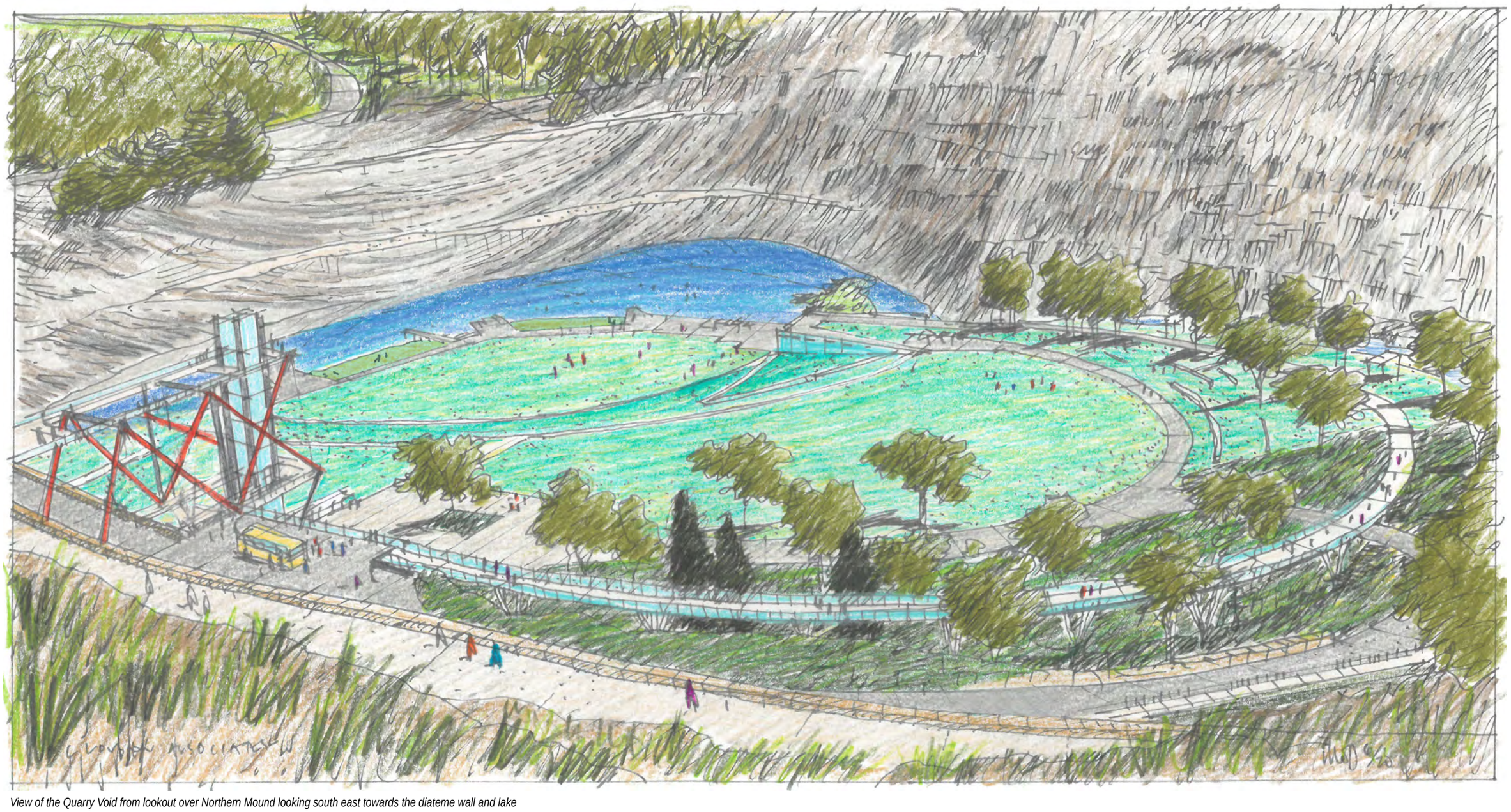
0 15 30 45 75m

QUARRY VOID TYPICAL SECTIONS



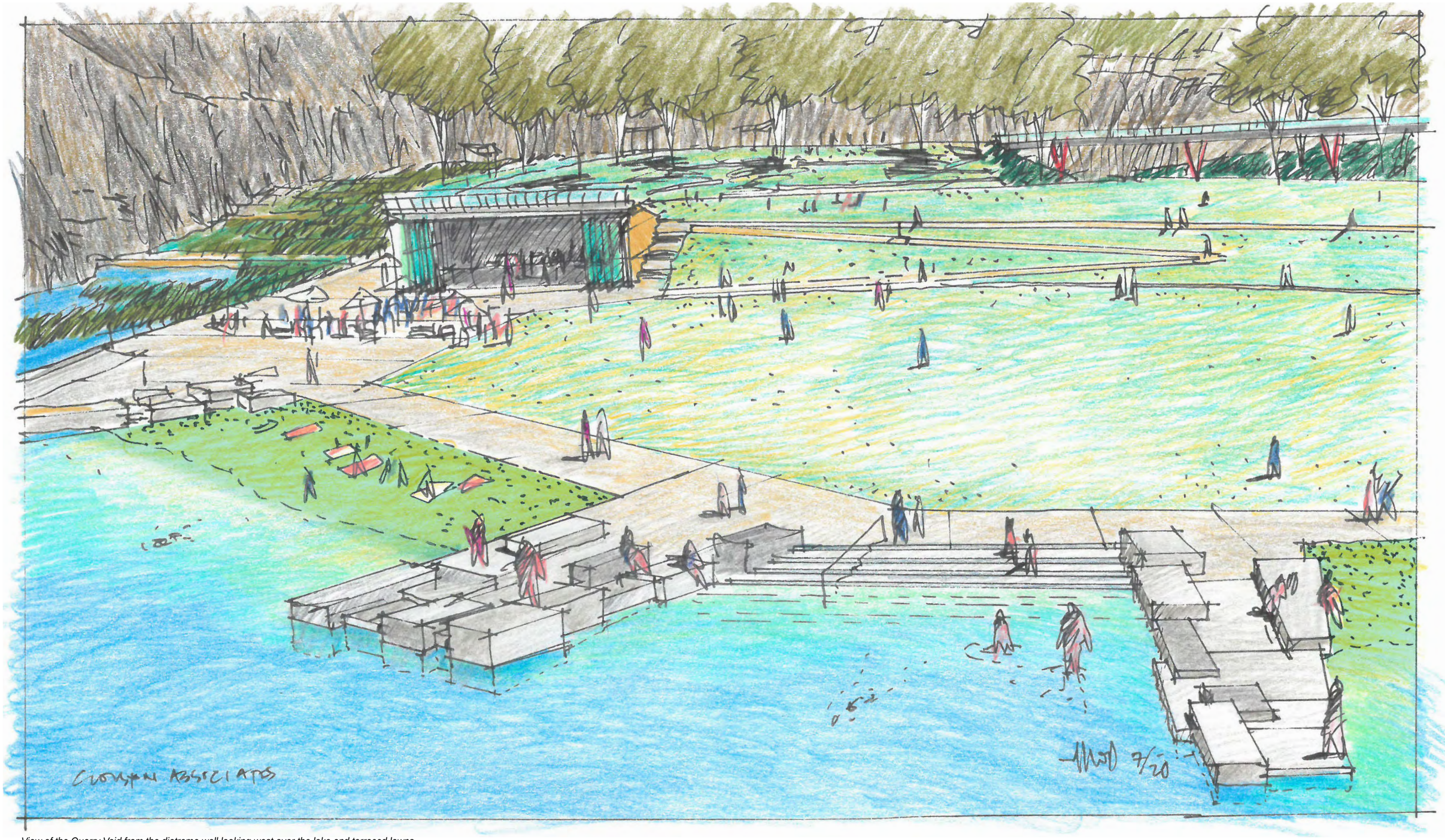
View of the Quarry Void from south east looking north west towards the north west pedestrian access and lift

QUARRY VOID PERSPECTIVE



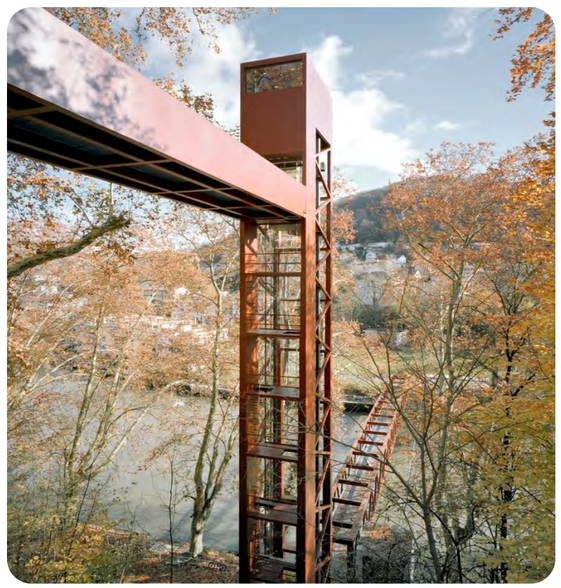
View of the Quarry Void from lookout over Northern Mound looking south east towards the diateme wall and lake

QUARRY VOID PERSPECTIVE



View of the Quarry Void from the diatreme wall looking west over the lake and terraced lawns

QUARRY VOID PERSPECTIVE



PRECINCT B - QUARRY VOID PRECEDENTS

SOFTWORKS


Multi-use Turf


Mass Planting (High)


Mass Planting (Medium)


Mass Planting (Low)


Native Tree Planting


Terrace Wetland


Macrophytes


Bush Regeneration


Deciduous Tree Planting


Lift


Amenities


Lookouts

HARDWORKS AND FURNITURE


Exposed Aggregate Concrete

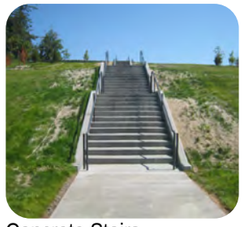

Brushed Concrete


FRP Boardwalk

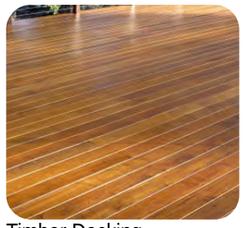

Asphalt


Stone Flag Pavement


Lake Edge Treatment

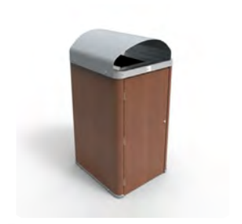

Concrete Stairs


Sandstone Gravel


Timber Decking


Sandstone Log Seats


Shelter and picnic setting


Bins


Drinking Fountain


E-bike Station


Timber Seats

WALLS AND FENCING


Existing Rock Face


Sandstone Block Wall


Rock Bolt


Sandstone Logs

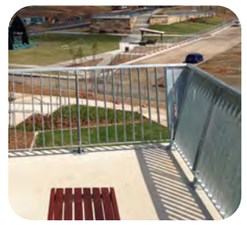

Off-form Concrete Wall


Rock Fall Mesh


Breccia Welded Mesh Gabion Wall


Low Welded Mesh Gabion Wall


Glass Balustrade


Stainless Steel Balustrade


Wetland Rock Fall Fence


Stainless Steel Handrail

Precinct B: Quarry Void

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Syncarpia glomulifera	Turpentine		
Eucalyptus saligna	Sydney Blue Gum		
Angophora floribunda	Rough-barked Apple		
Eucalyptus pilularis	Blackbutt		
Exotic Feature Planting			
Nyssa sylvatica	Tupelo		
Pyrus calleryana 'Bradford'	Pyrus Bradford		

South eastern corner of the void

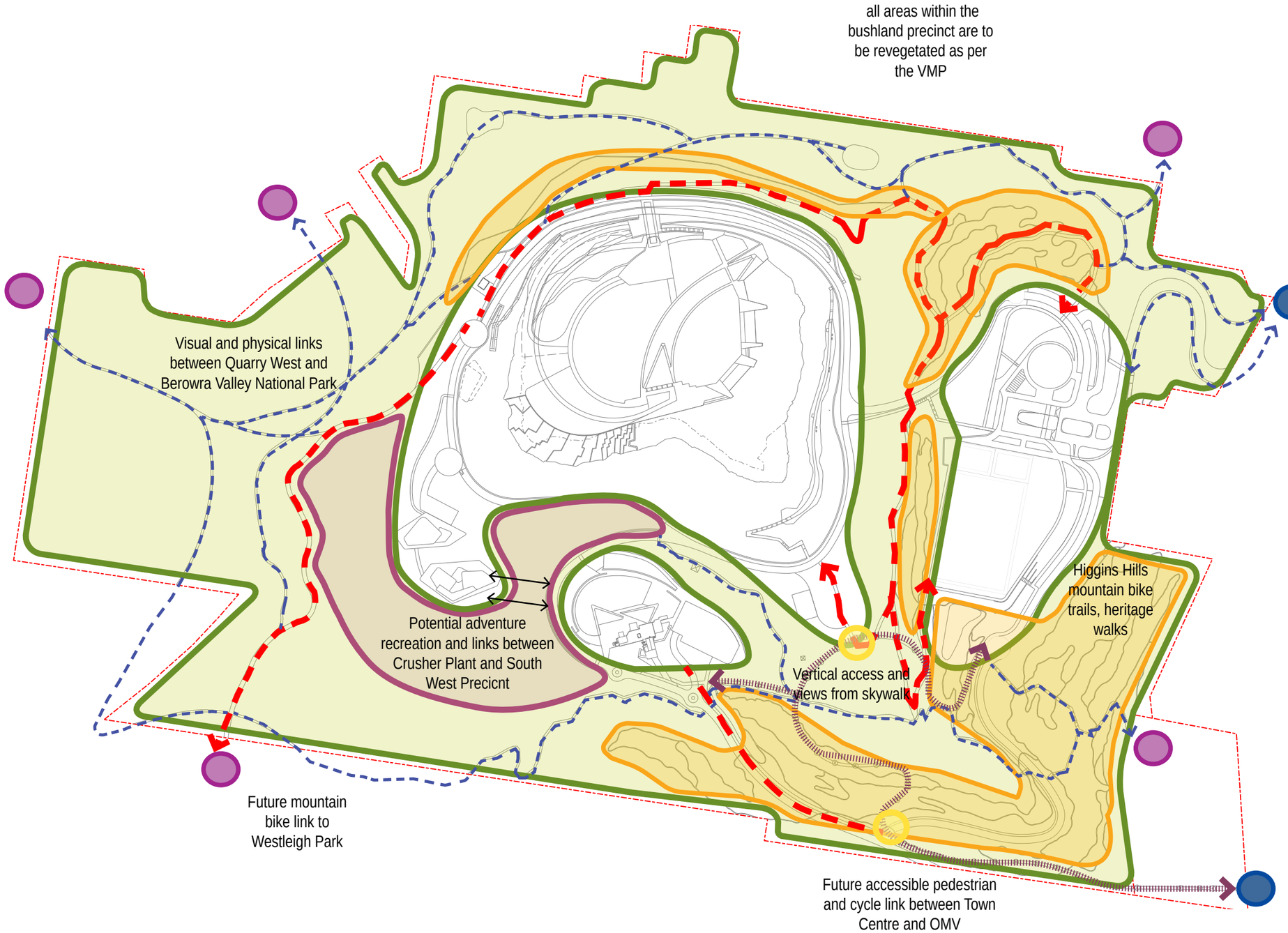
View down to diatreme wall

View for bottom of void looking at southern wall

View into quarry from northern mound

PRECINCT B - QUARRY VOID SITE PHOTOS

PRECINCT C - BUSHLAND



ENVIRONMENTAL

- Restore and revegetate damaged and degraded bushland with endemic species from the Blue Gum Diatreme Forest or Blackbutt Gully Forest communities

ACCESS AND CIRCULATION

- Provide accessible paths linking the various precincts to provide connections to the site wide path networks
- Explore alignments of pedestrian tracks and trails of various difficulties
- Develop access to secondary pedestrian park entries

RECREATION

- Provide passive recreation opportunities through bushwalking tracks and trails of various difficulties to connect into Berowra Valley National Park trails
- Provide adventure recreation opportunities through Mt bike tracks and zip lines

SUSTAINABILITY

- Develop active recreation opportunities with providers

INTERPRETATION

- Reveal the existing European heritage items within bushland via tracks and trails

Legend

- Bushland regeneration and restoration
- Mountain Bike tracks
- Accessible Path
- Pathway
- Future Canopy Skywalk between OMV and Town Centre
- Skywalk Connection points
- Primary Entry Points
- Secondary Entry points

1:4000 @A3

0 40 80 120 200m

PRECINCT C - BUSHLAND STRUCTURE PLAN

SOFTWORKS


Bush Regeneration

Precinct C: Bushland

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer (Blue Gum Diartreme Forest)			
Eucalyptus saligna	Sydney Blue Gum		
Eucalyptus pilularis	Blackbutt		
Angophora floribunda	Rough-barked Apple		
Syncarpia glomulifera	Turpentine		
Native Canopy Layer (Blackbutt Gully Forest)			
Eucalyptus pilularis	Blackbutt		
Angophora costata	Sydney Red Gum		
Syncarpia glomulifera	Turpentine		
Corymbia gummifera	Red Bloodwood		
Eucalyptus piperita	Sydney Peppermint		
Eucalyptus saligna	Sydney Blue Gum		
Banksia serrata	Old Man Banksia		

HARDWORKS


Brushed Concrete


Sandstone Gravel


FRP Boardwalk


Heritage Steps


Sandstone Block Stairs


Sandstone Flag Paving (Heritage)

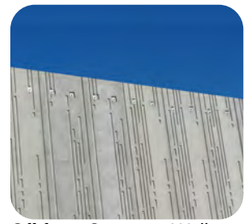

Raked Concrete Footpath

WALLS


Low Welded Mesh Gabion Wall


Sandstone Block Wall


Basalt Welded Wire Gabion


Off-form Concrete Wall

Bushland slope

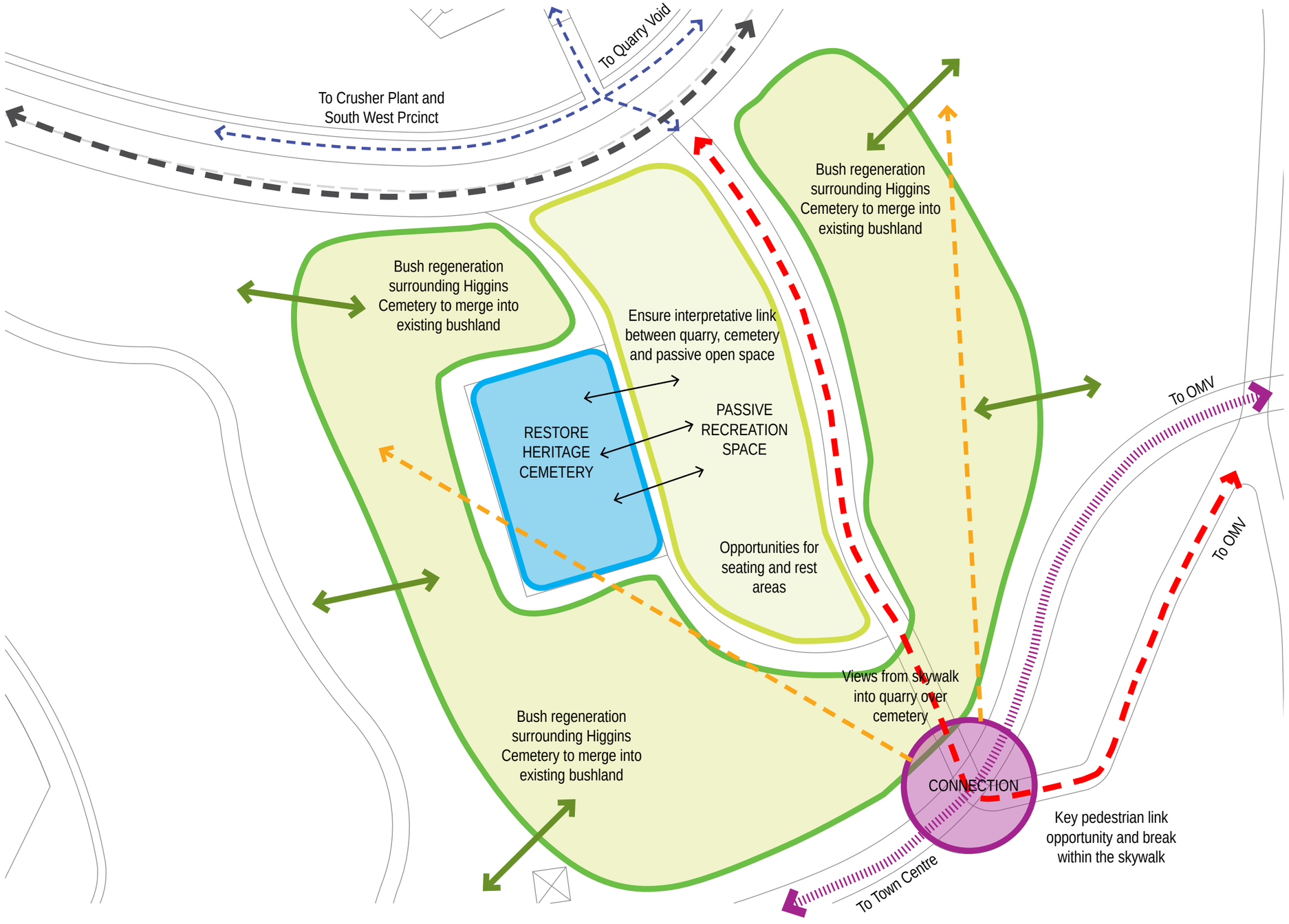
Bushland canopy

Blackbutt gully forest near OMV

Higgins hill

PRECINCT C - BUSHLAND SITE PHOTOS

PRECINCT D - HIGGINS CEMETERY



INTERPRETATION

- Restore the cemetery
- Reveal the European heritage story of the cemetery

ACCESS AND CIRCULATION

- Provide accessible paths linking the various precincts to provide connections to the site wide path networks

RECREATION

- Provide passive recreation opportunities such as views into the Quarry Void and rest and seating options

ENVIRONMENTAL

- Explore planting that references the cemetery
- Bush regeneration surrounding the cemetery space

Legend

- Bush Regeneration
- Heritage Cemetery Restored
- Connection between Skyway and accessible path
- Open Space for Passive Recreation and Heritage Interpretation
- Pathway along Quarry Road and connections to other precincts
- Future Skywalk Connection between OMV and Town Centre
- Accessible Path connecting the Precincts
- Permeable access
- Vehicle access

1:500 @A3

0 4 8 12 20m

PRECINCT D - HIGGINS CEMETERY STRUCTURE PLAN

SOFTWORKS


General Use Turf


Mass Planting (Low)


Heritage Planting


Bush Regeneration

HARDWORKS AND FURNITURE


Brushed Concrete


Sandstone Gravel


Sandstone Flag Paving (Heritage)


Timber Seats


Bins

WALLS AND FENCING


Sandstone Welded Mesh Gabion Wall


Sandstone Logs Wall


Low Welded Mesh Gabion Wall

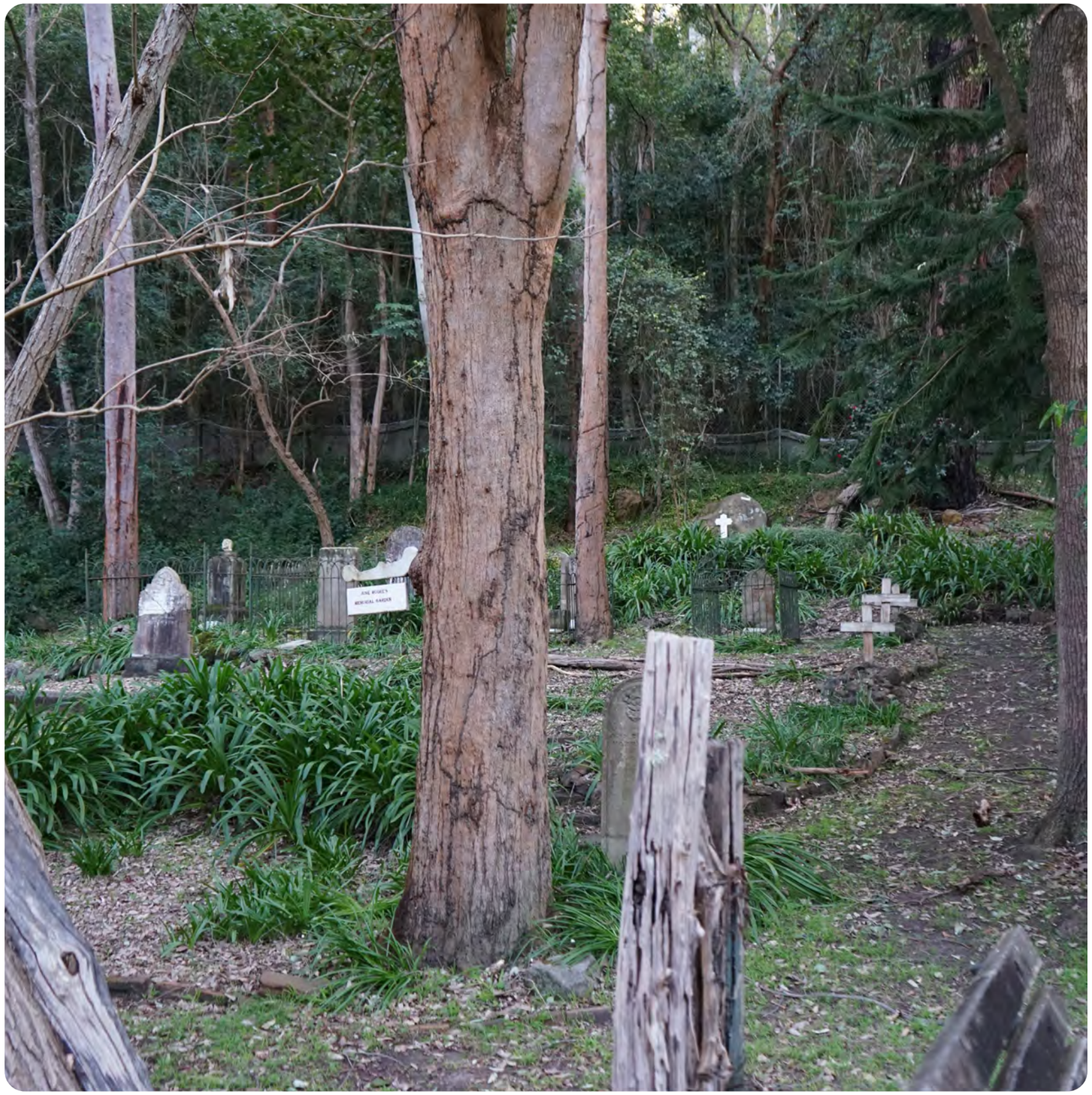

Stainless Steel Balustrade


Glass Balustrade


Stainless Steel Handrail

Precinct D: Higgins Cemetery

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Syncarpia glomulifera	Turpentine		
Eucalyptus saligna	Sydney Blue Gum		
Angophora floribunda	Rough-barked Apple		
Eucalyptus pilularis	Blackbutt		
Exotic Feature Planting			
Pyrus calleryana 'Bradford'	Pyrus Bradford		



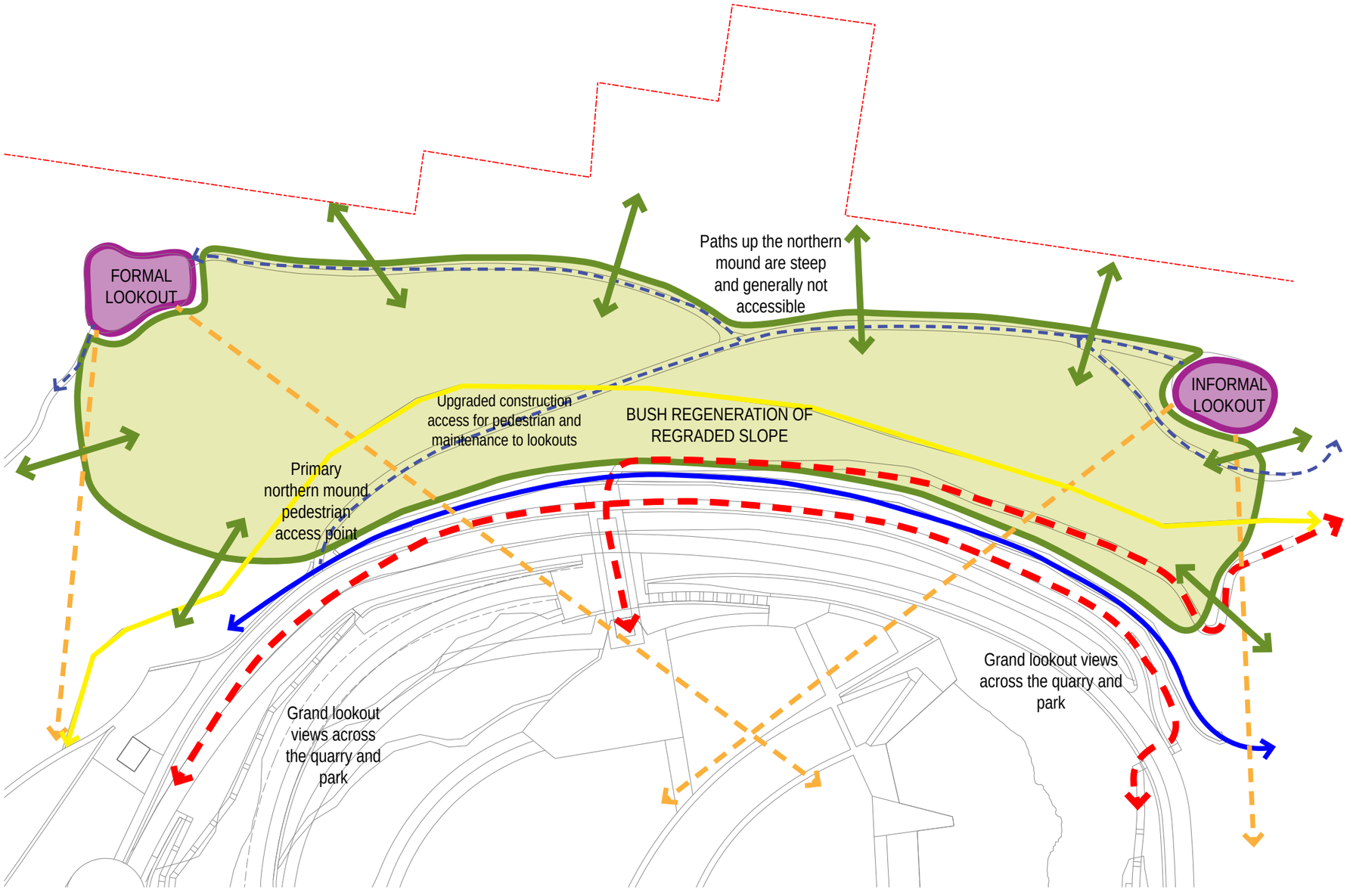
The cemetery

picnic setting at cemetery clearing

Rest area at cemetery

PRECINCT D - HIGGINS CEMETERY SITE PHOTOS

PRECINCT E - NORTHERN MOUND



ENVIRONMENTAL

- Develop a soil profile to support revegetation of the bush
- Restore and revegetate damaged and degraded bushland with endemic species from the Blue Gum Diatreme Forest community
- Ensure stormwater issues are addressed
- All works to be in accordance with VMP

ACCESS AND CIRCULATION

- Explore alignments of pedestrian tracks and trails of various difficulties
- Provide access to two key lookout locations
- Upgrade diagonal construction access path to pedestrian/maintenance access

RECREATION

- Provide passive recreation opportunities through bushwalking tracks and trails of various difficulties

INTERPRETATION

- Interpret the quarry story and landform modification

Legend

- Bush Regeneration of Constructed Slope
- Lookouts
- Tracks and trails links to lookouts
- Accessible Paths
- Mountain Bike Link
- Bush to read as single entity following bushland regeneration
- Path and Trails
- Existing stormwater channel bypass of quarry void

1:1500 @A3

0 15 30 45 75m

PRECINCT E - NORTHERN MOUND STRUCTURE PLAN

SOFTWORKS


Bush Regeneration

HARDWORKS


Brushed Concrete


Sandstone Gravel


FRP Boardwalk


Heritage Steps


Sandstone Block Stairs


Sandstone Flag Paving (Heritage)


Raked Concrete Footpath

WALLS


Low Welded Mesh Gabion Wall


Sandstone Block Wall


Basalt Welded Wire Gabion


Off-form Concrete Wall

Precinct E:Northern Mound

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Syncarpia glomulifera	Turpentine		
Eucalyptus saligna	Sydney Blue Gum		
Angophora floribunda	Rough-barked Apple		
Eucalyptus pilularis	Blackbutt		

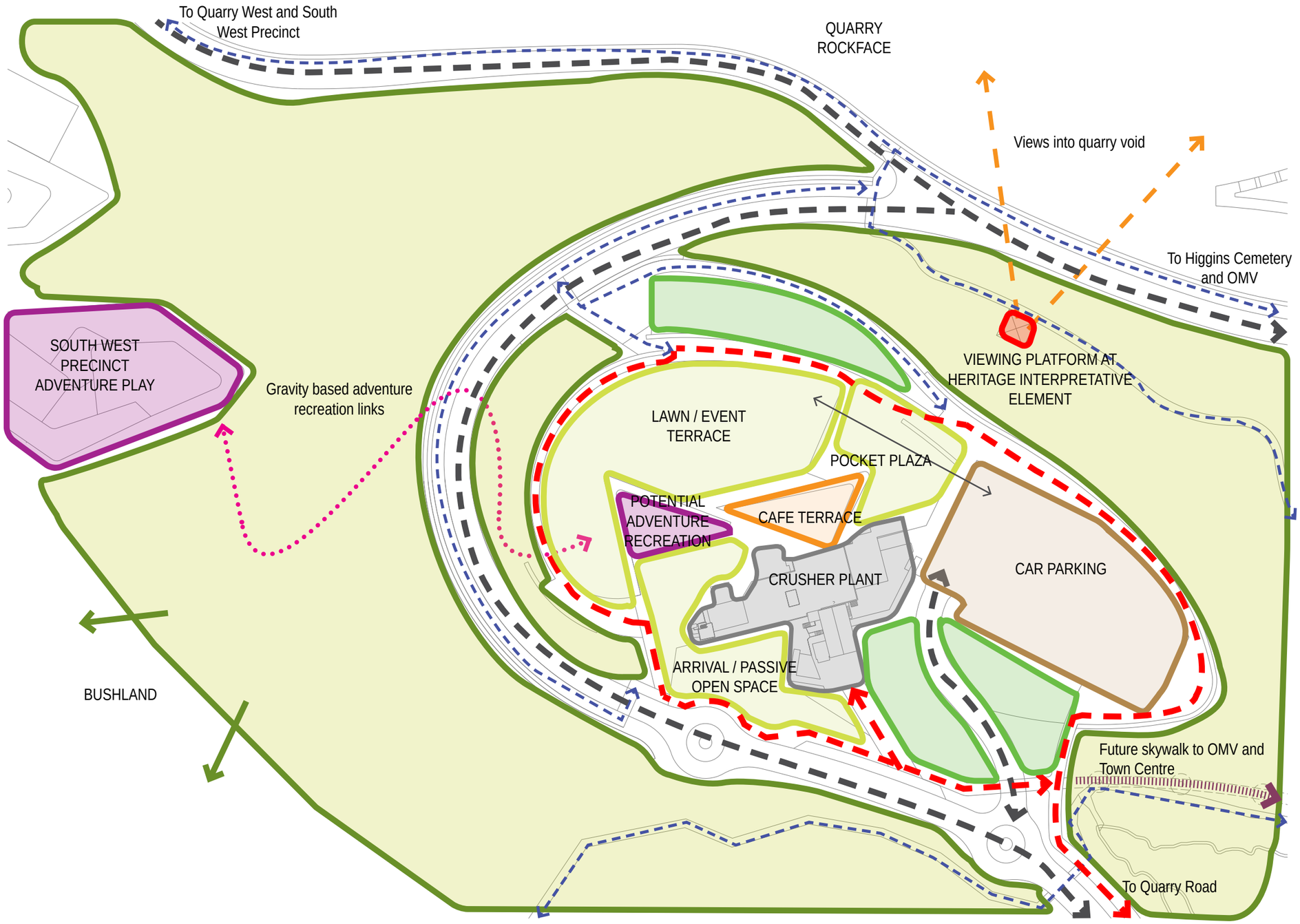
View of slope from across quarry

Down slope lots of weed species

Down the slope - lack of large vegetation

PRECINCT E - NORTHERN MOUND SITE PHOTOS

PRECINCT F - CRUSHER PLANT



RECREATION

- Potential for active recreation opportunities such as adventure play and outdoor adventure play
- Provide passive recreation opportunities such as picnic facilities, viewing platforms and seating

INTERPRETATION

- Interpret the quarry story through the adaptive use of the Crusher Plant

ACCESS AND CIRCULATION

- Provide accessible paths linking into the Quarry Void, South West Precinct, Higgins Cemetery, Quarry West, Bushland and future accessible skywalk linking to Hornsby Town Centre
- Develop vehicle connections linking to Quarry ring road, OMV and park entry from Quarry Road.
- Provide car park for private vehicles

SUSTAINABILITY

- Material and finishes of outdoor features to be sensitive to the character of quarry
- Explore commercial opportunity for tourism, education and cafe

ENVIRONMENTAL

- Restore and revegetate damaged and degraded bushland with endemic species from the Blue Gum Diatreme Forest community
- Provide exotic parkland tree planting to complement native planting

Legend

- Bushalnd
- Passive recreation zones
- Planting
- Accessible path
- Pathway
- Vehicle access
- Permeable access

1:1000 @A3

0 10 20 30 50m

PRECINCT F - CRUSHER PLANT STRUCTURE PLAN

SOFTWORKS


General Use Turf


Mass Planting


Deciduous Tree Planting


Avenue Tree Planting


Native Tree Planting

HARDWORKS


Exposed Aggregate Concrete (Feature Paving)


Cobble Paving (Shared Road)


Brushed Concrete


Asphalt (Road/Parking)


Sandstone Gravel


Concrete Stairs


Softfall

WALLS, FENCING AND FURNITURE


Sandstone Welded Mesh Gabion Wall


Sandstone Logs Wall


Low Welded Mesh Gabion Wall


Stainless Steel Balustrade


Glass Balustrade


Stainless Steel Handrail


Bench & Table


Bins

BBQ


Drinking Fountain


E-bike Station


Timber Seats


Shelter and picnic setting

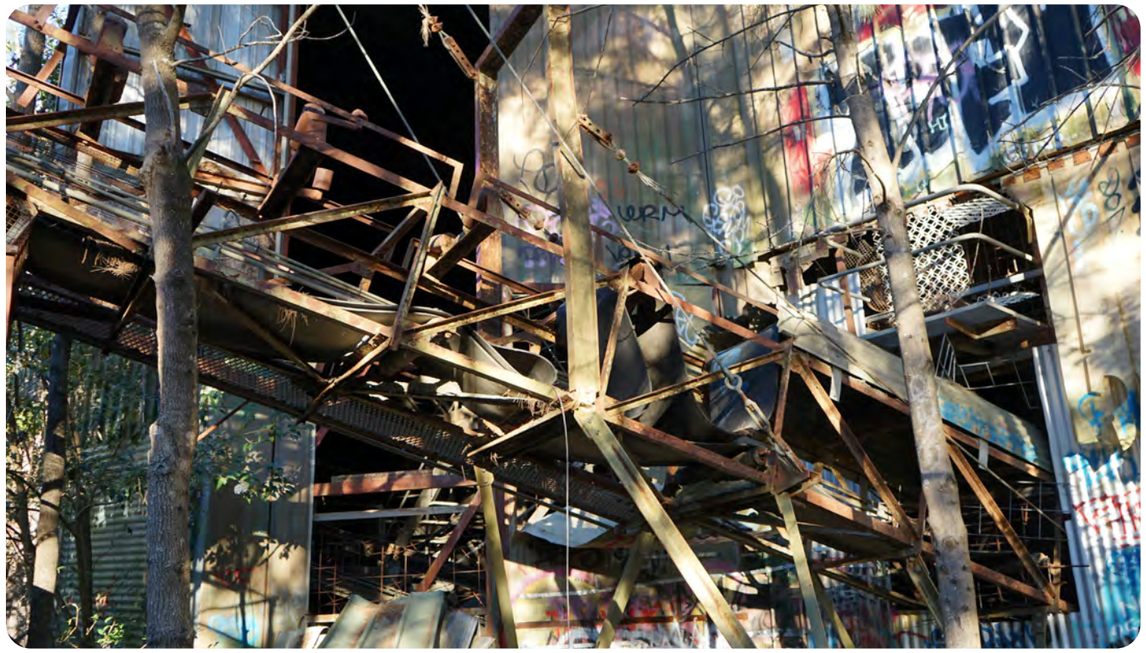

Playground


Bollards

Precinct F: Crusher Plant

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Eucalyptus saligna	Sydney Blue Gum		
Eucalyptus pilularis	Blackbutt		
Angophora floribunda	Rough-barked Apple		
Syncarpia glomulifera	Turpentine		
Angophora costata	Sydney Red Gum		
Syncarpia glomulifera	Turpentine		
Corymbia gummifera	Red Bloodwood		
Eucalyptus piperita	Sydney Peppermint		
Eucalyptus resinifera	Red Mahogany		
Eucalyptus punctata	Grey Gum		
Banksia serrata	Old Man Banksia		
Eucalyptus robusta	Swamp Mahogany		
Syzygium paniculatum	Magenta Cherry Lilly Pilly		
Exotic Feature Planting			
Nyssa sylvatica	Tupelo		
Pyrus calleryana 'Bradford'	Pyrus Bradford		


Adaptive reuse of the Crusher Plant



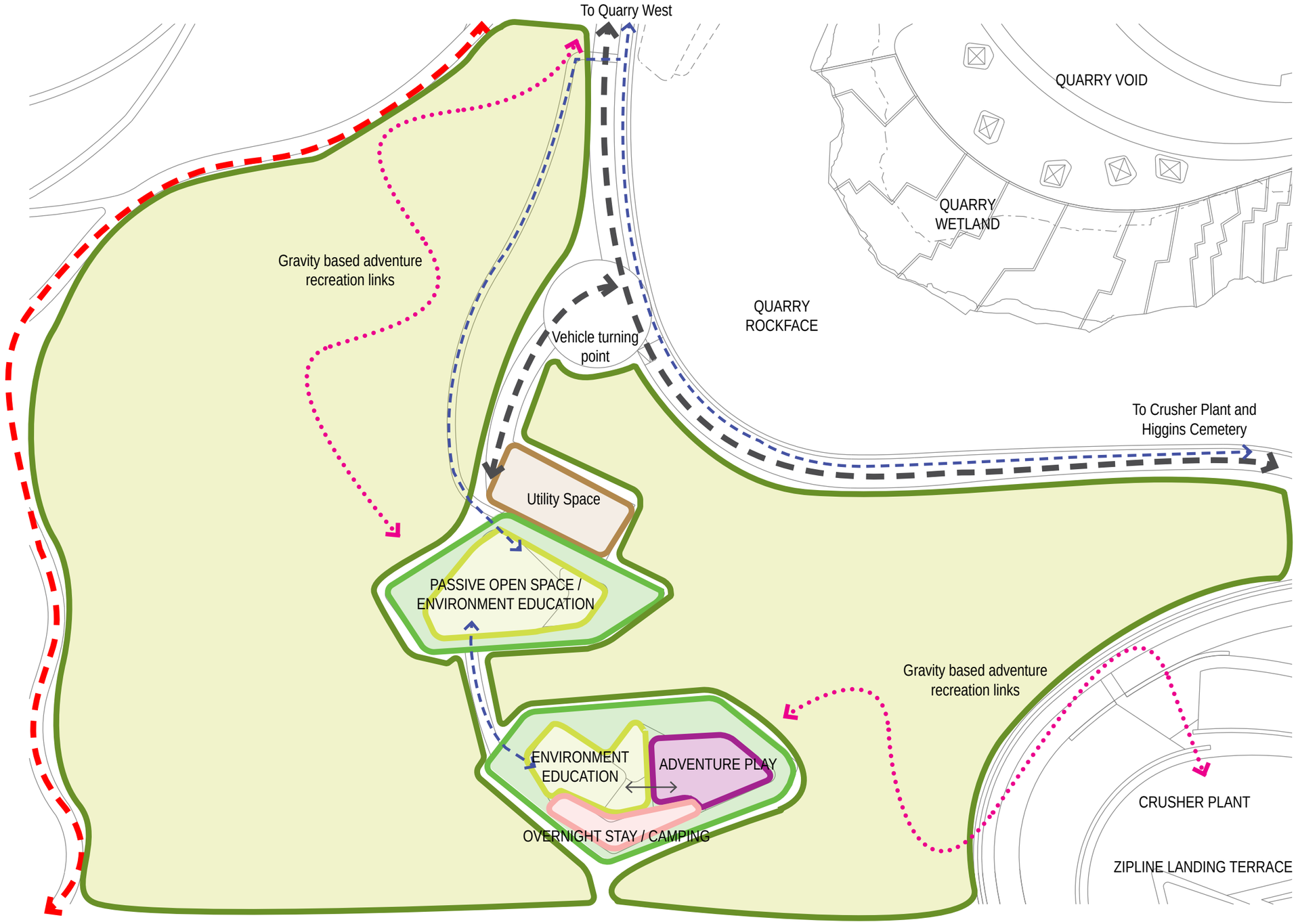
Crusher Plant material conveyors

Crusher Plant tower base

Crusher Plant tower

PRECINCT F - CRUSHER PLANT SITE PHOTOS

PRECINCT G - SOUTH WEST PRECINCT



ACCESS AND CIRCULATION

- Provide accessible paths linking into the Quarry Void, Quarry West, Crusher Plant Bushland and site wide connectivity networks

INTERPRETATION

- Interpret the natural environment and local vegetation community by providing environmental education area

SUSTAINABILITY

- Material and finishes of outdoor features to be sensitive to quarryness
- Explore commercial opportunity for small scale overnight accommodation

RECREATION

- Provide adventure play opportunities
- Provide passive recreation opportunities such as picnic facilities and environmental education area

ENVIRONMENTAL

- Restore and revegetate damaged and degraded bushland with endemic species from the Blue Gum Diatreme Forest community
- Provide exotic parkland tree planting to complement native planting

Legend

- Bushland
- Passive recreation zones
- Native Planting
- Amenity
- Accessible path
- Pathway
- Vehicle access
- Permeable access

1:1000 @A3

0 10 20 30 50m

SOFTWORKS


General Use Turf


Mass Planting


Deciduous Tree Planting


Avenue Tree Planting


Native Tree Planting

HARDWORKS AND FURNITURE


Exposed Aggregate Concrete (Feature Paving)


Cobble Paving (Shared Road)


Brushed Concrete


Asphalt (Road/Parking)


Sandstone Gravel


Concrete Stairs


Bench & Table


Bins

BBQ


Drinking Fountain


E-bike Station


Shelter and picnic setting


Bollards

WALLS AND FENCING


Sandstone Welded Mesh Gabion Wall


Sandstone Logs Wall


Low Welded Mesh Gabion Wall


Stainless Steel Balustrade


Glass Balustrade


Stainless Steel Handrail

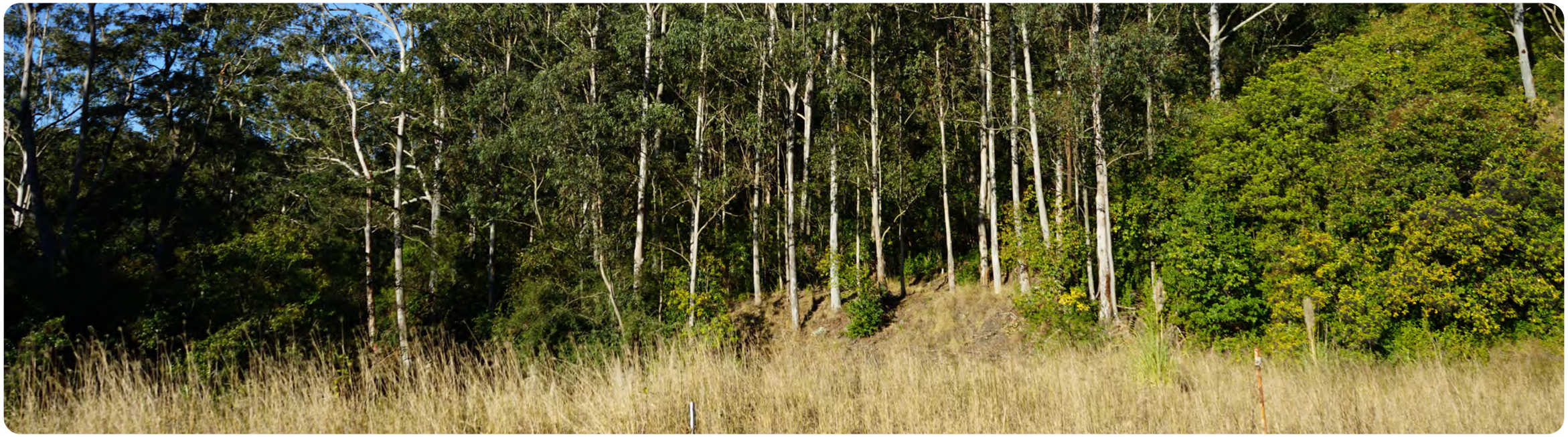

Education Facilities

Precinct G: South West Fill

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Eucalyptus saligna	Sydney Blue Gum		
Eucalyptus pilularis	Blackbutt		
Angophora floribunda	Rough-barked Apple		
Syncarpia glomulifera	Turpentine		

Terracing within the south west fill area

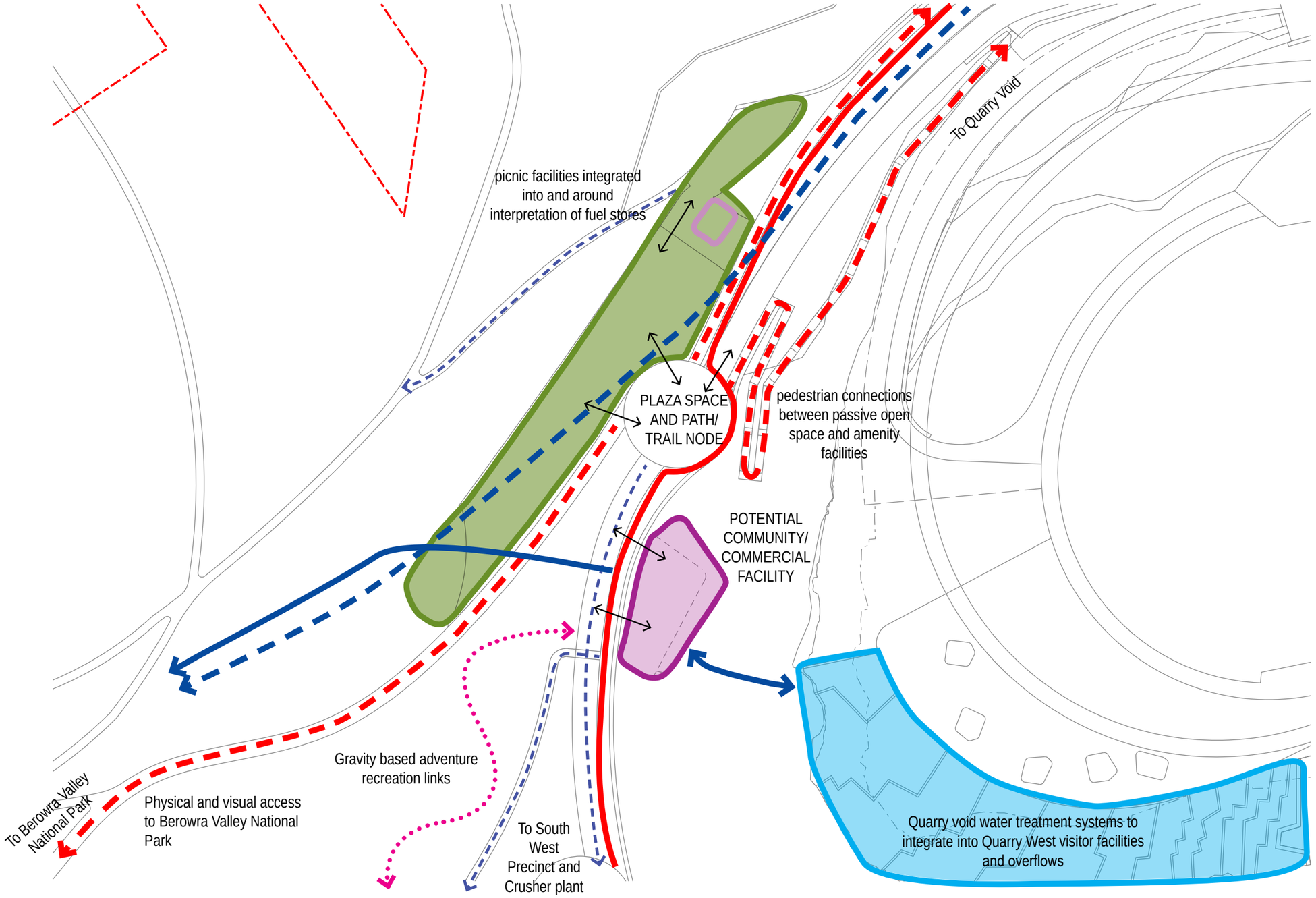
Open clearing of south west fill



Existing native vegetation around edge of clearing

PRECINCT G - SOUTH WEST PRECINCT SITE PHOTOS

PRECINCT H - QUARRY WEST



ACCESS AND CIRCULATION

- Provide accessible paths linking into the Quarry Void, South West Precinct, Northern Mound and Bushland and the site wide path networks
- Develop connections to the Rosemead Trail and Berowra Valley National Park trails

INTERPRETATION

- Interpret the quarry story through the adaptive use of the fuel stores

SUSTAINABILITY

- Develop an amenities/commercial facility to take advantage of views into quarry void and diatreme wall and proximity to Berowra Valley National Park

RECREATION

- Develop precinct to act as a beachhead for Berowra Valley National Park trails
- Provide passive recreation opportunities such picnic facilities

ENVIRONMENTAL

- Restore and revegetate damaged and degraded bushland with endemic species from the Blue Gum Diatreme Forest community
- Provide exotic parkland tree planting to complement native planting

Legend

- Potential commercial park related public facility to act as beachhead for Berowra Valley National Park and views into the void
- Passive recreation/parkland to double as multi-use space
- Drainage overland flow route away from quarry void into creek
- Water treatment and release into wetland/ stream key interpretation and learning opportunities
- Permeable access
- Pathways
- Threshold Barriers
- Accessible Paths

1:1000 @A3

0 10 20 30 50m

PRECINCT H - QUARRY WEST STRUCTURE PLAN

SOFTWORKS


Multi-use Turf


Mass Planting (High)


Mass Planting (Medium)


Mass Planting (Low)


Native Tree Planting


Deciduous Tree Planting


Bush Regeneration

Precinct H: Quarry West

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT (m)	MATURE CANOPY WIDTH (m)
Native Canopy Layer			
Syncarpia glomulifera	Turpentine		
Eucalyptus saligna	Sydney Blue Gum		
Angophora floribunda	Rough-barked Apple		
Eucalyptus pilularis	Blackbutt		
Exotic Feature Planting			
Nyssa sylvatica	Tupelo		
Pyrus calleryana 'Bradford'	Pyrus Bradford		

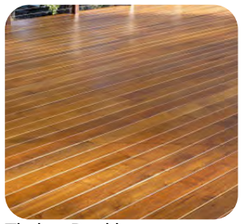
HARDWORKS AND FURNITURE


Exposed Aggregate Concrete


Brushed Concrete


FRP Boardwalk


Asphalt


Timber Decking


Concrete Stairs


Sandstone Log


E-bike Station


Bins


Shelter and picnic setting


Timber Seats


Drinking Fountain

WALLS AND FENCING


Sandstone Welded Mesh Gabion Wall


Low Welded Mesh Gabion Wall


Sandstone Logs Wall


Stainless Steel Balustrade


Glass Balustrade


Stainless Steel Handrail


Community/Commercial Building

Underground fuel storage in Quarry West

Pathway from Quarry West to South West Precinct

Fuel storage tanks

RL 90 Track

PRECINCT H - QUARRY WEST SITE PHOTOS

MASTER PLAN OUTCOMES

Existing tree canopy within Hornsby Park

PROJECT OBJECTIVES AND ACHIEVEMENTS

The Master Plan for the Park is required to meet four project objectives from the Hornsby Park Plan of Management 2015. This summary identifies how each objectives is met in the Master Plan.

OBJECTIVE 1

Local Living - Hornsby's parkland hub meeting the needs of the current and future local community for recreation, connection to nature and cultural experiences in a bushland setting.

IMPLEMENTATION

- Provides opportunities for a range of recreation types including passive, active and adventure at key precincts across the Park through the recreation strategy
- Creates safe and easy access from the Town Centre to provide connection to nature through the circulation strategy
- Adds bush paths and trails of various difficulties tying into existing networks such as the Great Northern Walk and Rosemead Trail through the circulation strategy
- Interprets Indigenous and European history and culture across the parkland through the implementation of cultural walks, trails and signage the interpretation strategy of the park.

OBJECTIVE 2

Environment and Heritage - Renewing Hornsby's natural systems and connecting community to Hornsby's unique bush character, rich heritage and evolving story.

IMPLEMENTATION

- Restores and protects the degraded bushland within the site improving physical and visual connections to the Berowra Valley National Park through the environmental strategy
- Proposes an Interpretation Strategy for the telling of indigenous and settler stories, environment, natural heritage, geology, farming, astronomy, mining and the story of restoration of the site for the enjoyment of the community.

OBJECTIVE 3

Tourism and Economy - A centre for adventure tourism for the Northern Sydney region, driving local economic development and urban renewal.

IMPLEMENTATION

- Highlights the natural beauty and unique character of the site, in particular the exposed Diatreme wall
- Provides opportunities for partnerships to support the delivery of drawcard adventure recreation and other facilities and attractions
- Retains and enhances existing attractions such as the mountain bike trails and walking tracks.

OBJECTIVE 4

Return on Investment - Leveraging commercial opportunities that enhance the leisure experience and deliver a financially sustainable community asset.

IMPLEMENTATION

- Provides opportunities through the inclusion of facilities across the park that require partnership between council and businesses such as amenities, sports hire, bike and e-bike stations, adventure recreation, shuttle services, education and short stay accommodation and the adaptive reuse of the Crusher Plant.

In addition, the following project objectives are incorporated in the Master Plan:

OBJECTIVE 5

Demonstrating Sustainability - Developing robust and 'smart' systems that demonstrate 'sustainability in action' for management of the parkland. Examples may include autonomous electric vehicle transport and renewable energy systems.

IMPLEMENTATION

- Explores long term sustainable opportunities linked across the park that are able to be implemented as technology allows such as, alternative transport modes including e-bikes and autonomous shuttles to interpretive elements demonstrating sustainability through the capture and re-use of water across the site
- Utilises the latest technologies in solar and lighting to minimise requirements for on-grid electricity use
- Provide recycling and maintenance facilities on site to minimise off site requirements.

OBJECTIVE 6

Inclusive Design/Access for All - Optimising access for all through inclusive design and site sensitive transport modes.

IMPLEMENTATION

- Provides a pedestrian and bicycle network that provides access to all key areas via accessible paths through the circulation strategy
- Provides vehicle access to precincts which are not able to be reached via accessible paths through the circulation strategy
- Underpins all design with the principles of Inclusive Design, maximising equitable access to venues and settings for all people, irrespective of background, age or ability
- Promotes interaction and reduce barriers to participation by providing for a range of experiences and opportunities in varied settings.

IMPLEMENTATION

Existing Crusher Plant

IMPLEMENTATION

Hornsby Park will be delivered over a number of years by Hornsby Shire Council. Due to the size and scale of the works involved in the project the park will not be delivered in a single stage, but as a community resource that is able to evolve over time to take advantage of changes to the local community to ensure the park continues to meet the needs and expectations of Hornsby.

This Master Plan report encapsulates all the works completed as part of the background scoping, planning and research of the site and will serve as the basis for all design and delivery works moving forward.

The report outlines the design intent for the various precincts across the park, so that future design works, while potentially changing and evolving the details do not fundamentally change the design intent of the spaces within the park.

REALISING THE PLAN

Due to the size and scale of the works involved in Hornsby Park will be delivered in two stages over a period of years.

STAGE 1

Precincts that comprise Stage 1 works form the core character and identity of the park and include those works required to deliver visitors safely to most parts of the park.

Stage 1 areas will include bushland restoration across the site, Old Mans Valley and entry, the Quarry Void and associated access paths and roads, Higgins Cemetery and the Northern Mound.

The Park will be functional and viable when the Stage 1 works are completed, however the Stage 2 works are important for the full realisation of the Park's potential.

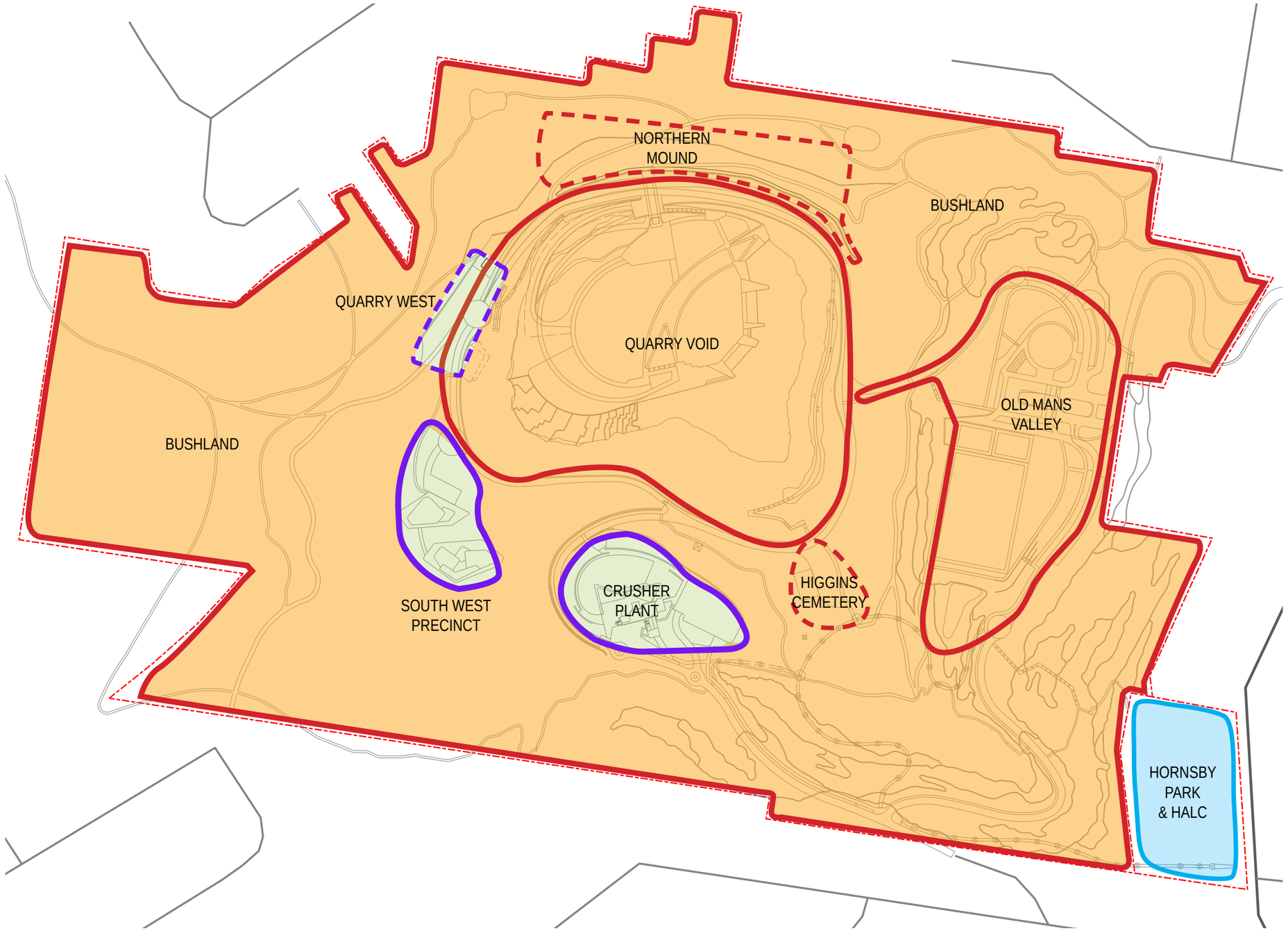
STAGE 2

The Stage 2 works comprise precincts that either support the Stage 1 precincts or facilities that require a strong existing visitor base that only an established park can generate.

Stage 2 works include the Crusher Plant adaptive-reuse, the Southwest precinct and the Quarry West precinct.

Some of these precincts include opportunities for partnerships between Council and third-party businesses for the activation of the spaces.

The Stage 2 works will ensure the continued long-term financial viability of the park and bring opportunities for new users and visitors to the park.



REALISING THE PLAN

The Staging Plan outlines the proposed methodology for developing the site as Hornsby Town Centre develops and as the local population grows. The staged development of Hornsby Park will cater to the needs of the community while ensuring the park is able to be logically and sustainably developed to reduce risk to Hornsby Shire Council and residents.

STAGE 1

The first stage proposed to be developed are the key feature precincts of the Park. There included the facilities and parklands of OMV and the Quarry Void, the bushland restoration and path networks in the Bushland and Northern Mound and the heritage works at Higgins Cemetery all form Stage 1.

STAGE 2

The second stage of the park focuses on the upgrade and adaptive reuse of the Crusher Plant, visitor centre and facilities in Quarry West and facilities and accommodation in the South West Precinct

Legend

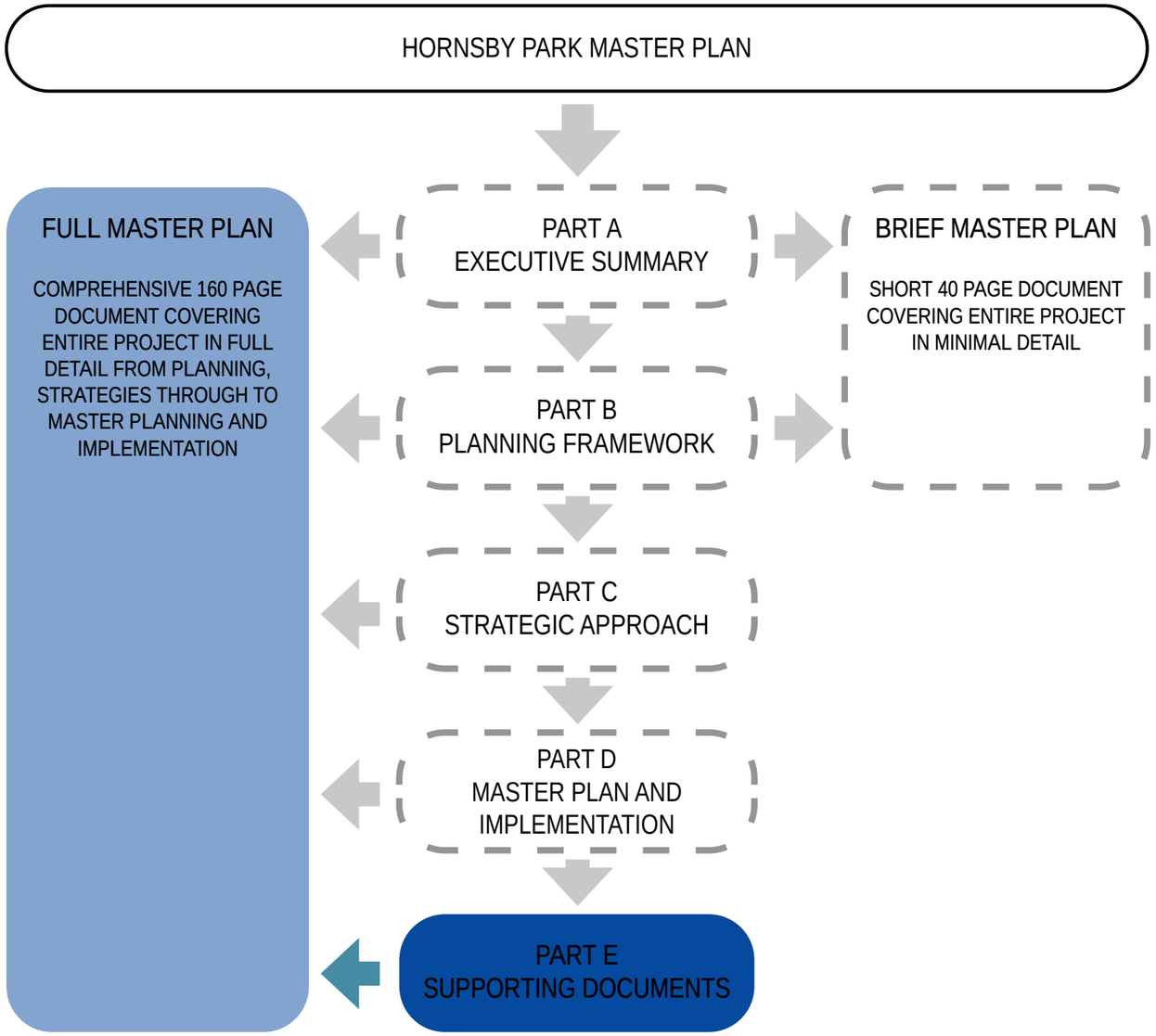
- STAGE 1
- Major Precincts
  - PRECINCT A: Old Mans Valley (OMV)
  - PRECINCT B: Quarry Void
  - PRECINCT C: Bushland
- Minor Precincts
  - PRECINCT D: Higgins Cemetery
  - PRECINCT E: Northern Mound
- STAGE 2
- Major Precincts
  - PRECINCT F: Crusher Plant
  - PRECINCT G: South West Precinct
- Stage 2 - Minor Precincts
  - PRECINCT H: Quarry West
- EXISTING PRECINCTS
- Major Precincts
  - PRECINCT I: Hornsby Park and HALC

STAGING PLAN

View of the Diatreme wall from the Quarry West Precinct

PART E - SUPPORTING DOCUMENTS

Title



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Cultural Heritage

① Quarry Void
② Formal Orchards and Astronomy Radio Field
③ Formal Orchards, Agriculture, Timber Getting Site
④ Cottage House of Higgins Family
⑤ Crusher Plants
⑥ Higgins Family Cemetery
⑦ Heritage Steps
⑧ Cool Rooms and Receptacle Carved in Sandstone
⑨ Oil Tanks
⑩ Formal Orchards and Higgins Family House
⑪ Concrete Water Channel

Quarry Relics
Early European Heritage
Significant Historical Site

ABORIGINAL HERITAGE

Aboriginal People are known to have lived in this Country for countless generations. A number of sites have been recorded containing potential archaeological deposits in adjacent bushland along the Benowie Track in Berowra Valley Regional Park. The Aboriginal Heritage Information Management System (AHIMS) indicates that there is one Aboriginal object or place within approximately 300m of the site. A sandstone overhang with a potential archaeological deposit has also been identified within the southern portion of the site.

The findings indicate that the area was used for shelter and hunting. Locations with grass and trees growing next to sandstone escarpments are potentially spaces where Aboriginal people once gathered.

EARLY EUROPEAN SETTLEMENT

The site is recognised as one of rich European heritage through its settlement, logging, agricultural and quarrying history. Several elements remain intact in association with the lands originally settled by the Higgins family in the early 19th century.

The Higgins family cemetery exists adjacent to the Quarry site just to the western side of the Old Mans Valley (OMV) site, is listed as a heritage item of State Significance under the Hornsby Shire Local Environment Plan 2013. There are also tracks and staircases winding into the valley to the south and west of OMV built in the 1930s by unemployed relief workers.

The Higgins family were involved in the construction of the Heritage Steps which run through the site, built by the community during the Great Depression. Within OMV there is a cool room and a receptacle carved into sandstone and evidence of some of the suspected remains of the eight Higgins family homes that once sat in OMV and the adjoining Hornsby Quarry lands.

HORNSBY QUARRY

Hornsby Quarry was worked as a hard rock quarry from the early 1900s for road base and gravel, operating until late 1990s. The Council took ownership of the quarry land in 2002

The site is dominated by a large open excavation (approximately 90 metres deep) until partially filled in recent times, now 40 metres shallower but still as vast; approx. 350 metres east to west and 250 metres north to south with steep, exposed slopes. Previous Quarry infrastructure also remains on the site such as the crushing facility.

The Quarry is listed on the Heritage Register of the National Estate describing it (in part) as the “largest volcanic neck in the Sydney area”. The Hornsby Shire LEP also lists the volcanic diatreme within the quarry as a heritage item.

OLD MANS VALLEY (OMV)

Originally what was once know as Old Mans Valley consisted of the entire site, including the quarry. Over the intervening years since it was settled by Europeans, it has shrunk to its current size today. OMV has a strong association with European settlement history with the Higgins Family taking a land grant in the region in the early 1900s.

Between 1947 and 1955 OMV was home to the Hornsby Radio Astronomy Field Station, where some 30 different experiments in radar astronomy were conducted. In 1982, Council as landowner, approved filling in of OMV to establish playing fields ,using overburden from the quarry.

Until 1987, quarry overburden was used to fill near the western edge of the site leading towards the near-completion of a sports ground at the site. In July 1988 Council approved a development application for additional landfill but the consent was overturned on appeal to the Land & Environment Court. As a result of the successful action taken by residents, filling ceased.
The OMV site has subsequently been used as the stockpile area for the filling operations required to meet the design requirements for the base of the quarry. The site has subsequently been made good to accommodate a future community recreation space associated with the proposed quarry park.

Hornsby Park

Sandstone outcrops and bushland in eastern section of Old Mans Valley,

Hornsby Park bushland.

HORNSBY PARK

Hornsby Park historically consisted of three public reserves which were amalgamated in 1973. The first, the eastern park area, was set aside in 1896 as a Recreational Reserve (this was the eastern sector of the first land grant in the area to Mr Thomas Higgins, made in 1836). The two large bushland plots to the west were added in 1918 and dedicated for public recreation.

The sandstone steps running through the latter areas are thought to have been built during the Depression of the 1930s. It took until 1933 for work on the creation of a formal park to commence.

The actual designer of the park is not known and landscape plans do not exist, however, it seems likely that a group of local nurserymen, R. Hazelwood, C. H. Davis and J. G. Walters, had a strong influence on the design and layout of the park.

A fountain with a monolithic basalt stone piece and plaque was erected in the open space in 1970 to celebrate the Bicentenary of Captain Cook's arrival in Australia. An additional plaque was later installed, relating Aboriginal custodianship and connection to the land.

An Olympic size pool was built in 1962 and the Pine Tree incorporated within the enclosure, planted in 1937, was grown from seed of the tree at Lone Pine near Gallipoli. The park's fountain was installed in 1968 and designated as a memorial to the landing of Captain Cook in 1770.

In 2013, development consent was granted for the demolition and replacement of the 1962 pool. The work also required the demolition of the Country Womens Association building and the Lone Pine tree.

In 2014 the new Hornsby Aquatic and Leisure Centre (HALC) was opened. In 2015, a Review of Environmental Factors (REF) was approved, opening the way for an upgrade of the park area to the east of the HALC.

The 1970's fountain was recently removed and the plaques salvaged. One plaque was reinstated on a new plinth at the front of the Council Chambers.

Hornsby Quarry Walls

Hornsby Park bushland

Concrete drainage channel

TOPOGRAPHY

The topography of the site varies greatly. The quarry operation, including excavation and spoil piles, has significantly impacted the landform. From the void and lake level of Hornsby Quarry, now at RL 55 to the Aquatic Centre adjoining the Pacific Highway there is a level difference of 126 metres.

GEOLOGY AND SOILS

One of the most significant aspects of the site is the Quarry Diatreme, once formed by a long vertical plug created when gas-filled magma forced its way up through overlying strata. Especially significant is the east face of the quarry that provides a cross-section of the diatreme, which is a rare demonstration of the volcanic strata layering. Structures like this exist at only a few sites in the Sydney region.

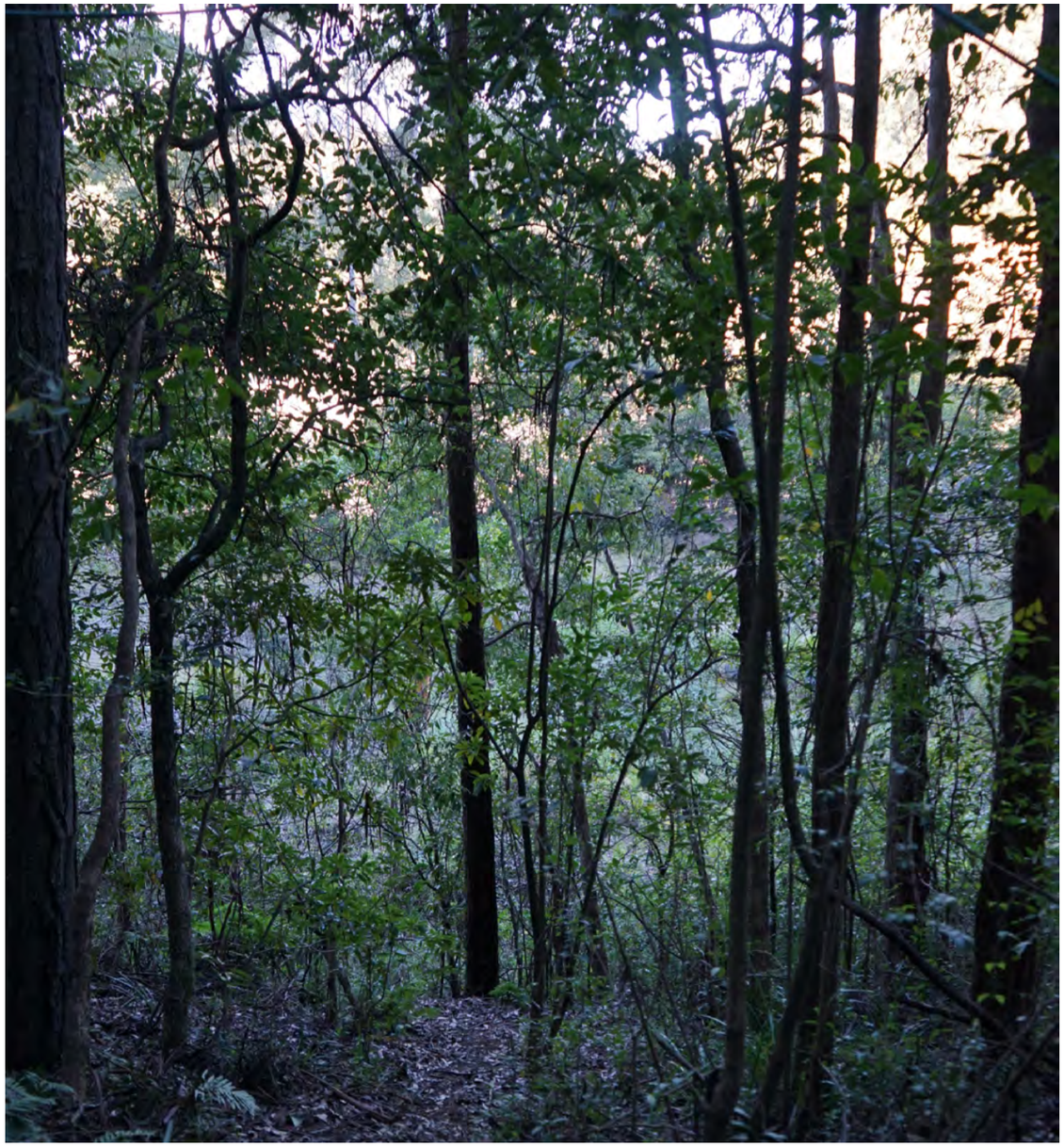
The overall soil within the site is predominantly derived from Hawkesbury Sandstone, with some Volcanic Diatreme derived soils. Sandstone outcrops are located within the bushland areas of OMV, Hornsby Park (southern portion along Quarry Road and rear of Dalton Road properties) and the Quarry.

Spoil piles from the quarry operations can be found in numerous locations across the site and are being considered by Council as additional sources of fill for the final earthworks of the quarry.

WATER CATCHMENT

The site is located in an upper reaches of the Hawkesbury River system catchment known as the Lower Fish Ponds Creek Catchment. Old Mans Creek forms a sub-catchment with flows converging in Waitara Creek approximately 1km west of OMV. Old Mans Creek merges with Berowra Creek which meanders for more than 25km northerly before joining the Hawkesbury River. Natural drainage lines on the site have been significantly altered by filling operations in the past, including realignment of flows and installation of stormwater pipelines, and large concrete culvert diversion.

An open concrete stormwater channel is located on the northern edge of the quarry pit and collects stormwater from the residential areas to the north and east and redirects the runoff away from the quarry pit. These flows enter Old Mans Creek west of the quarry lands. The only water that enters the actual quarry is direct rainfall and natural ground water recharge. The extensive stormwater systems required from the quarry operations are still in effect and requires minimal repairs.



Hornsby quarry bushwalk trail

VEGETATION COMMUNITY

Vegetation communities within the bushland areas of the park include:

Blackbutt Gully Forest

- A tall open forest of 25m in height with a sparse to moderately dense understory
- Located in the southern, western and north-eastern parts of the site
- Moderate-good (high) condition with good mature canopy and intact diverse understory
- Moderate-good (low) condition with poor sparse canopy and exotic understory

Blue Gum Diatreme Forest

- Blue Gum Diatreme Forest is identified as a critically endangered ecological community
- A tall open forest of 30m in height with a sparse to moderately dense understory
- Located along the northern, south-eastern and south western part of the site
- Moderate-good (high) condition with good mature canopy and intact diverse understory
- Moderate-good (medium) condition with good mature canopy and a mixed exotic and native understory
- Moderate-good (low) condition with poor lower canopy and exotic or bare understory

Native Rehabilitation/ Regeneration

- Open Forest structure with mix of native endemic and non-endemic canopy species and exotic understory
- Generally consists of previously cleared land that has regrown over the past 35 years
- Located in the south, south-western and quarry void of the site

Exotic Vegetation

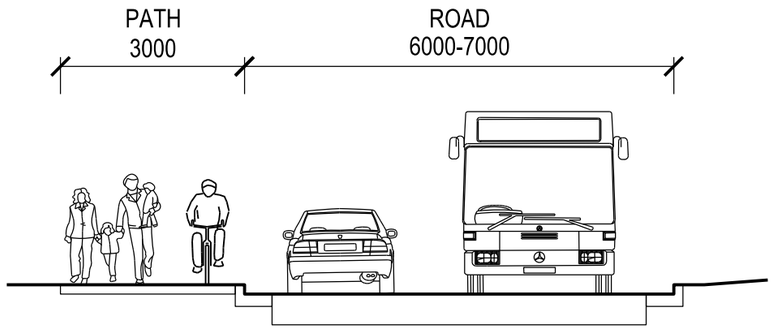
- Low closed forest/ shrub land or grasslands dominated by exotic species
- Located in the north, east and south-western parts of the site

Information sourced from Hornsby Quarry and Old Man's Valley: Vegetation Survey and Mapping, 06.03.2017, Kleinfelder

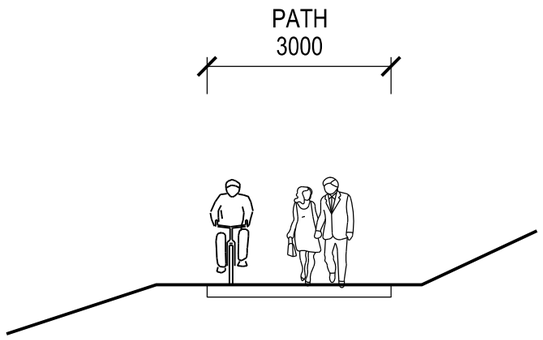
Overall, the site's bushland is in variable condition, ranging from very poor to good. An isolated good patch of restored Glen Forest occurs at the western end of Hornsby Park (southern portion). Core areas of Community Land bushland are in good condition. However, areas surrounding road and structural developments associated with the quarry are in poor condition. Poor native bushland conditions also exist along residential edges on the southern and northern boundaries.

Mountain bike trails on Higgins Hill

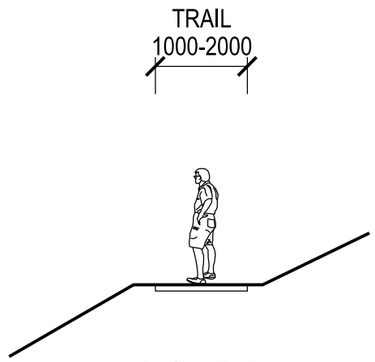
SITE STRATEGY DETAILS



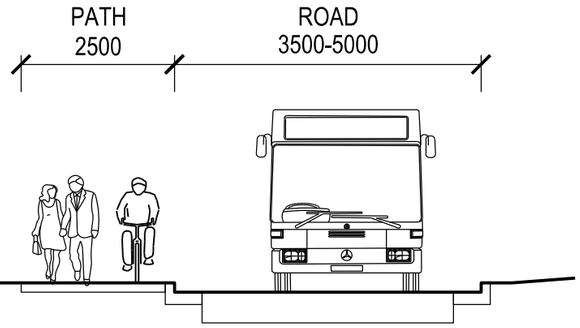
2 WAY ROAD



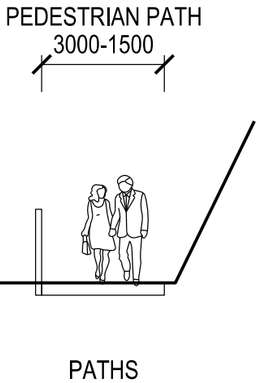
ACCESSIBLE LINK PATH



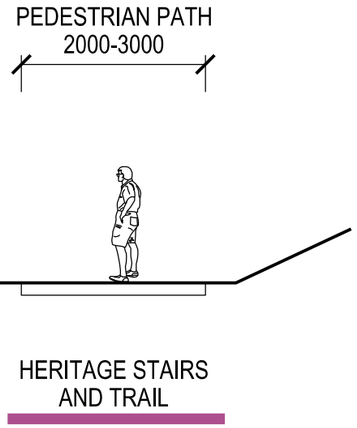
BUSH TRAIL



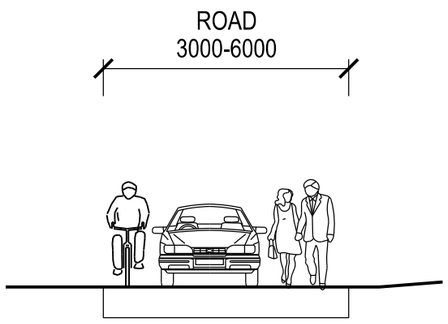
1 WAY ROAD



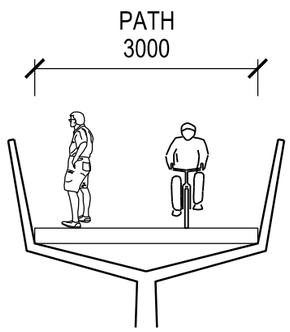
PATHS



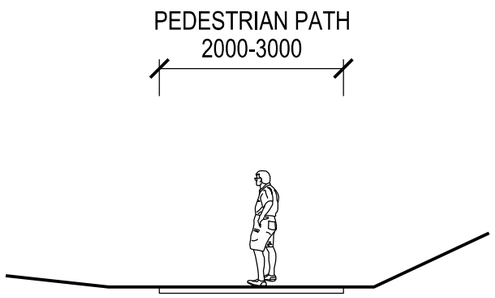
HERITAGE STAIRS
AND TRAIL



SHARED ROAD

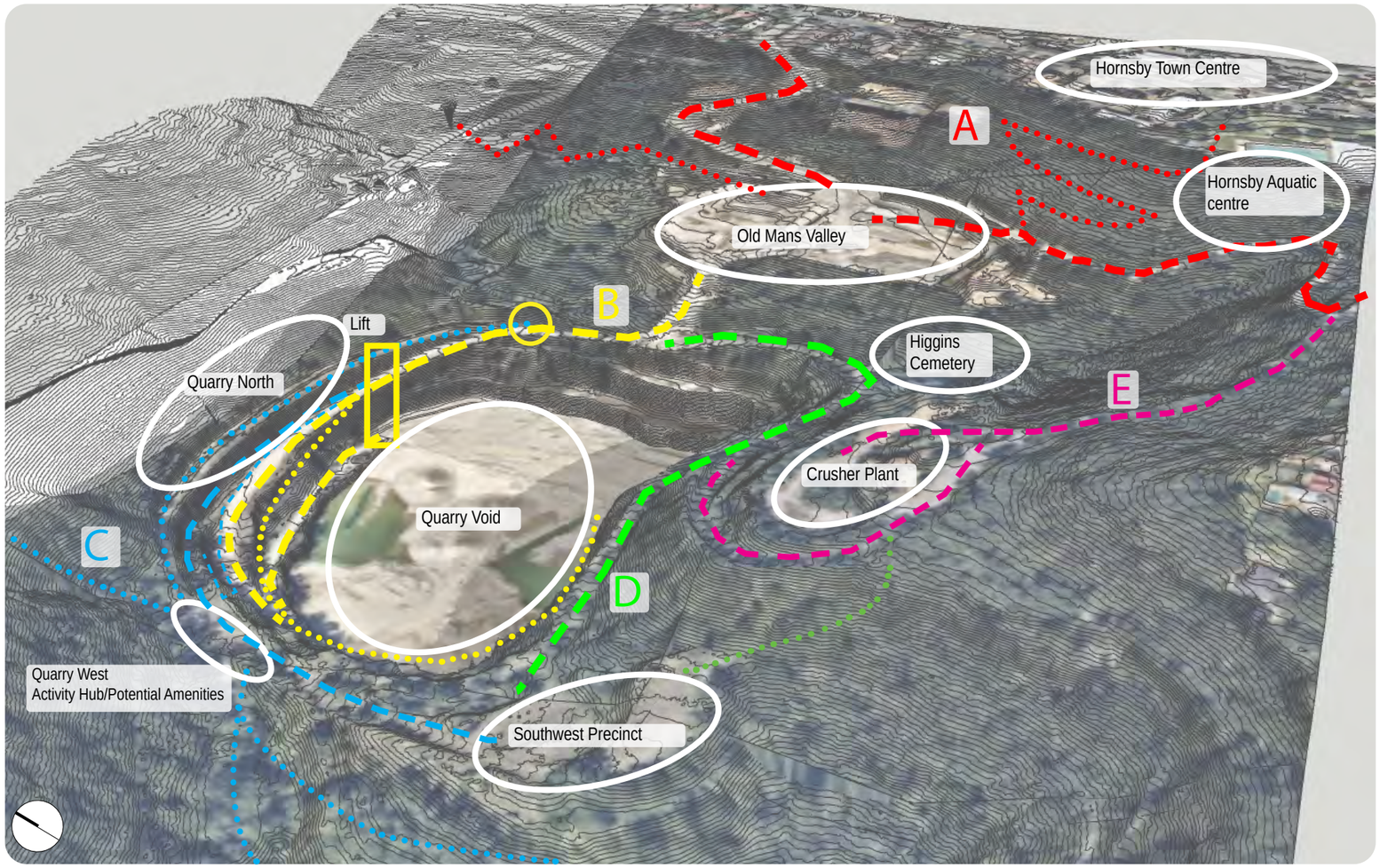


FUTURE TOWN CENTRE SKYWALK



ROSEMEAD TRAIL

CIRCULATION STRATEGY TYPICAL SECTIONS



ACCESS SECTOR STRATEGY

Ensuring an accessible route throughout the park, linking the various precincts into a single accessible network is the focus of the access sector strategy. The terrain of the site makes accessible movement within the majority of the park extremely difficult, and providing 'Access for all' by maximising access throughout the site is a core principle of the park.

The adjacent diagram illustrates each of the major access sectors that link the Hornsby Town Centre to and between the precincts on the site. The sectors are:

A. Hornsby Town Centre to Old Mans Valley
B. Old Mans Valley to Quarry Void
C. Quarry North to Quarry West hub and South West Precinct
D. Southwest Precinct to Crusher Plant, Higgins Cemetery and Rosemead Rd
E. Crusher Plant to Hornsby Town Centre

In the pages that follow the critical constraints and opportunities for each sector and subsector are briefly summarised.


SECTOR A


SECTOR B


SECTOR C


SECTOR D


SECTOR E

SECTOR ‘A’ OVERVIEW

This is the critical arrival sector that links Hornsby Town Centre to Old Mans Valley. This sector contains the likely access links for the majority of visitors from outside the immediate Hornsby locality. It must therefore accommodate all forms of access including public and private vehicles. Cycling and walking access is challenging owing to the significant existing gradients.

SUBSECTOR SUMMARY

Subsector A1

Primary vehicle arrival access; the road is completed but offers no opportunity to integrate walking or cycling which will need to be provided within the bushland adjoining.

SUBSECTOR A2

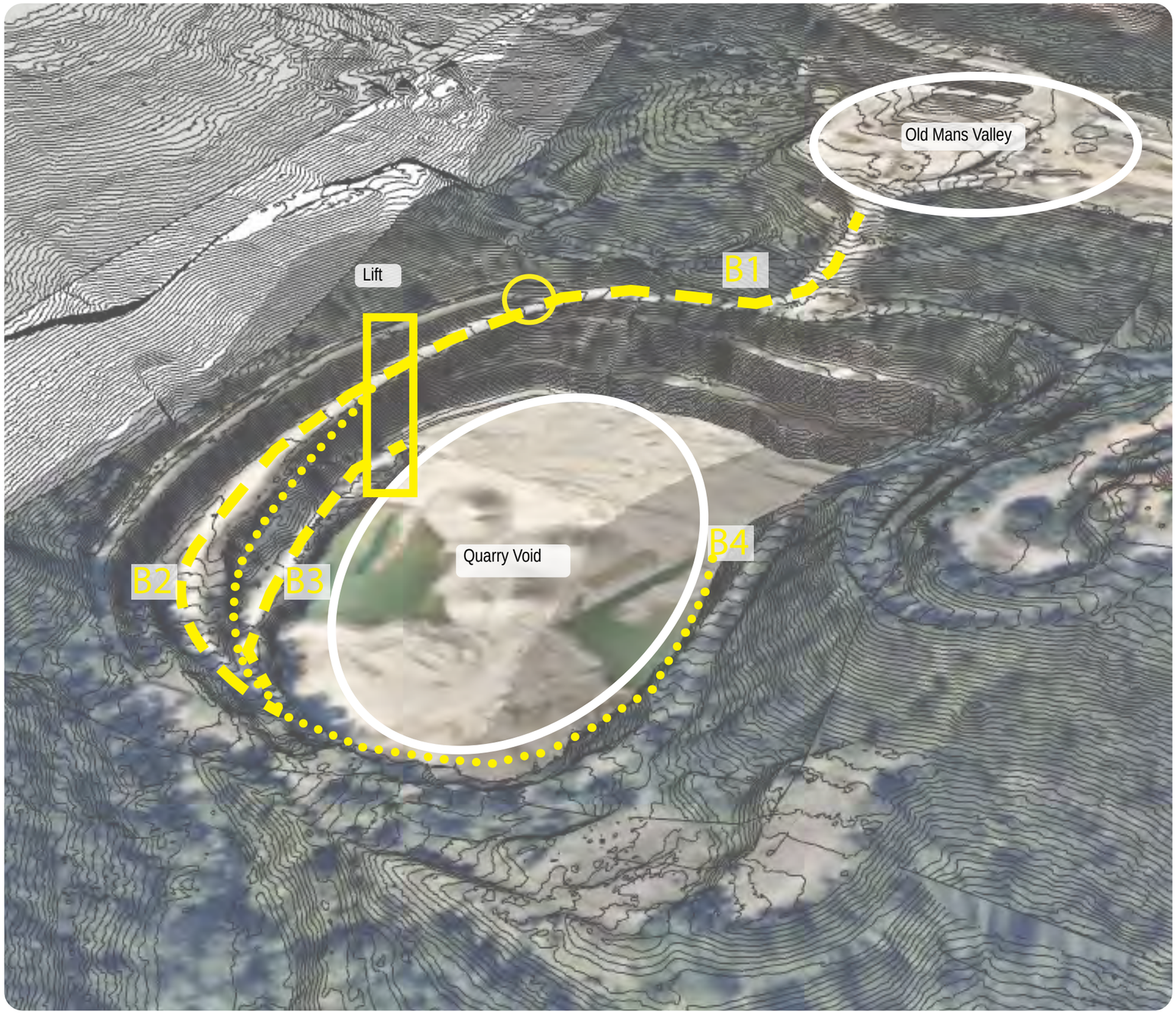
Secondary vehicle access; links Quarry Road to Old Man Valley. Will be a controlled vehicle access (not private vehicles) for shuttles, maintenance and event exit option. Alternative one way access options are subject to further investigation.

SUBSECTOR A3 AND A4

Pedestrian access; links Old Mans Valley to the Town. Gradients are steep so accessible path will not be direct. A3 links back to Fern Tree Close and A4 links back to Peats Ferry Road and the Town Centre. Alternative access options might include a gondola/chairlift sector to supplement the A4 link between the Town Centre and park, as part of a more extensive system.

SECTOR A

SECTOR A: HORNSBY TOWN CENTRE TO OLD MANS VALLEY



SECTOR ‘B’ OVERVIEW

This sector links the Old Mans Valley to the Quarry Void and to the western side of the quarry. There is potential for inclusion of a lift in the Quarry Void, which could users from the high northern perimeter via lower road and below to the Quarry Floor. The western side of the quarry, as well as representing a circulation node, has broad views across the quarry and may have potential for establishment of the activity hub or venue. This sector also provides access for event, maintenance and emergency vehicles, linking Old Mans Valley, the activity hub and the Quarry Void. It has a critical integration with Sectors C and D.

SUBSECTOR SUMMARY

SUBSECTOR B1

Primary shuttle vehicle access from Old Mans Valley to the shuttle stop that links firstly to the upper level pedestrian path at C3 and secondly to the shuttle stop at the lift. It also permits cycle access. These paths are likely to provide dedicated pedestrian access with a parallel shuttle/ bike/ maintenance path.

SUBSECTOR B2 AND B3

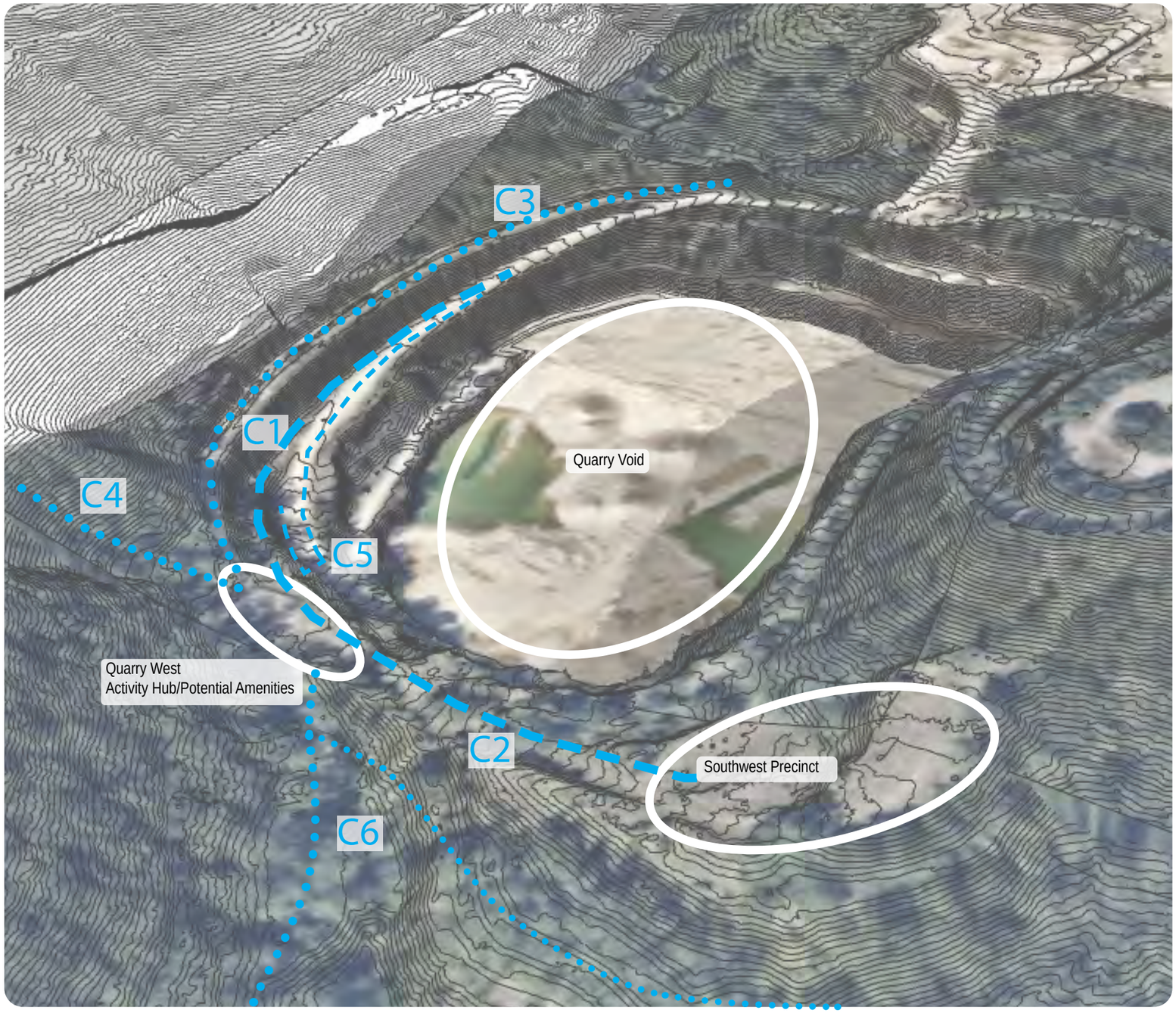
Vehicle access to the Quarry Void for event, maintenance and emergency vehicles. B3 provides full height truck access under B4 raised path. B2 and B3 also permit cycle access.

SUBSECTOR B4

Pedestrian access from the lift to the Quarry Void floor, accessible 1:20 grade throughout. Pedestrian and light maintenance vehicles only. Cycling not permitted (To be confirmed).

SECTOR B

SECTOR B: OLD MANS VALLEY TO QUARRY VOID



SECTOR ‘C’ OVERVIEW

This sector links the B Sector at a higher level to the Quarry West Activity Hub and the Southwest Precinct for shuttle, event, emergency and maintenance vehicles, as well as for pedestrians.

SUBSECTOR SUMMARY

SUBSECTOR C1
Primary shuttle vehicle access link between the lift and the Activity Hub. This also links to/ from the Old Mans Valley and quarry void for large event vehicles, as well as emergency and maintenance vehicles.

SUBSECTOR C2
Links the Quarry West Activity Hub to the Southwest Platform for shuttle vehicles. Also acts as pedestrian link.

SUBSECTOR C3
Principally a pedestrian that forms part of the accessible paths network on the site.

SUBSECTOR C4
Pedestrian link to Manor Road.

SUBSECTOR C5
Pedestrian only link connecting the lift to the Quarry West Activity Hub; includes a switch back path adjoining C road to achieve accessible grades.

SUBSECTOR C6
Key pedestrian and bicycle access into Berowra Valley National Park and minor link to Rosemead Road.

SECTOR C

SECTOR C: QUARRY NORTH TO QUARRY WEST & SOUTHWEST PRECINCT

SECTOR ‘D’ OVERVIEW

This link follows the southern and eastern rim of the quarry. It is also the feeder route connecting to the Southwest Precinct and the Crusher Plant. This sector might potentially form part of a gondola/chairlift system on the south side of the quarry linking up the town centre, Old Mans Valley, Crusher Plant and the activity Hub.

SUBSECTOR SUMMARY

SUBSECTOR D1

Links the activity hub to the Southwest Precinct and the Crusher Plant. Southern Quarry road is a narrow road suitable only for light emergency, maintenance and small shuttle vehicles. No access for event vehicles or large trucks. Access for pedestrians and cyclists.

SUBSECTOR D2

Links to the Cemetery and the eastern rim of the quarry and connects to Sector B . Narrow road suitable only for shuttle bus and light emergency and maintenance vehicles. No access for event vehicles or large trucks. Access for pedestrians and cyclists.

SUBSECTOR D3

Crusher plant via bush trails.

SECTOR D

SECTOR D: SOUTHWEST PRECINCT TO CRUSHER PLANT AND HIGGINS CEMETERY

SECTOR ‘E’ OVERVIEW

Principally a road suitable for low traffic volumes as it passes through a residential community on Quarry Road. Optimally for a shuttle service and a small number of private vehicles accessing the Crusher Plant only. No through link to Old Mans Valley for private vehicles.

SUBSECTOR SUMMARY

SUBSECTOR E1

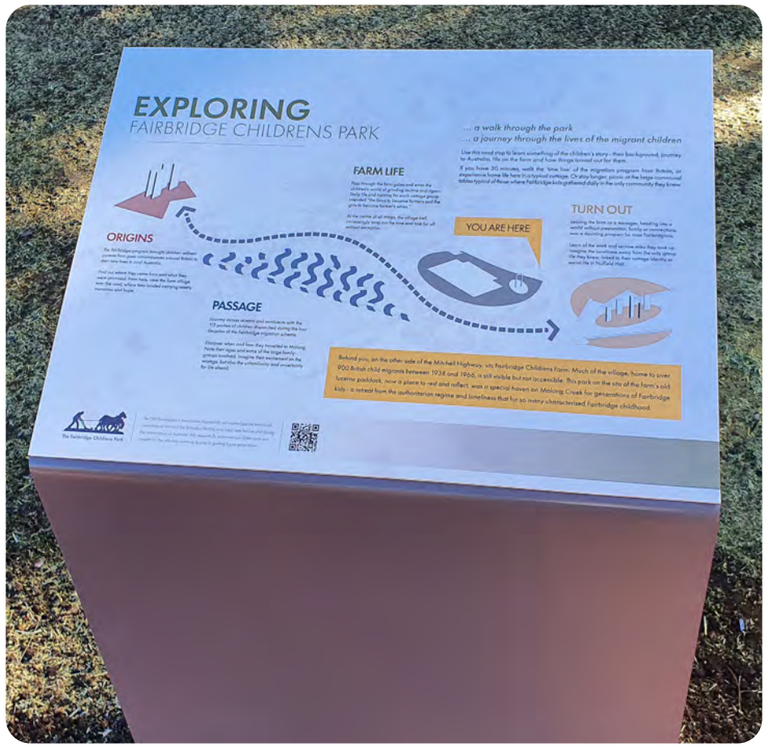
Link road and pathway from Subsector D1 road on southern rim of the quarry. Generally, small shuttle bus or lighter vehicles (emergency/maintenance) only. Includes shared cycle access with road and a separate pedestrian path.

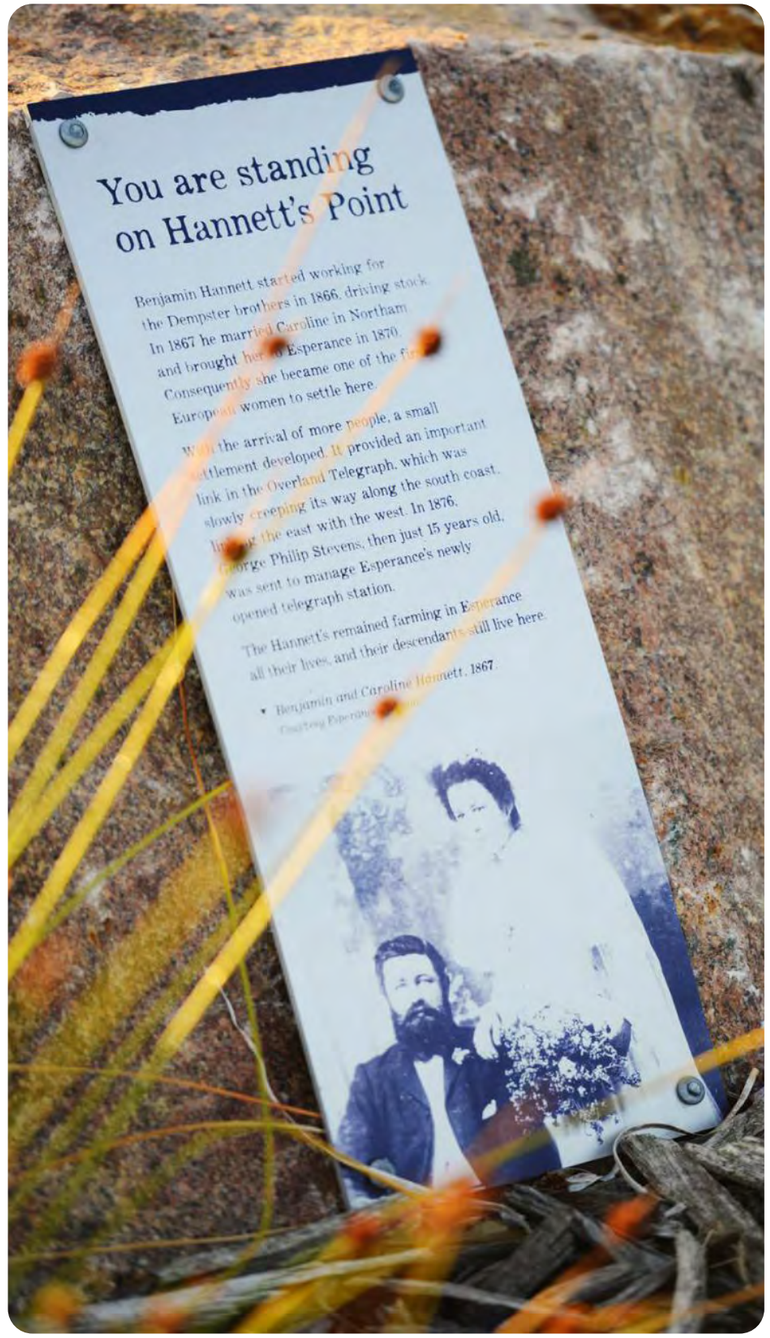
SUBSECTOR E2

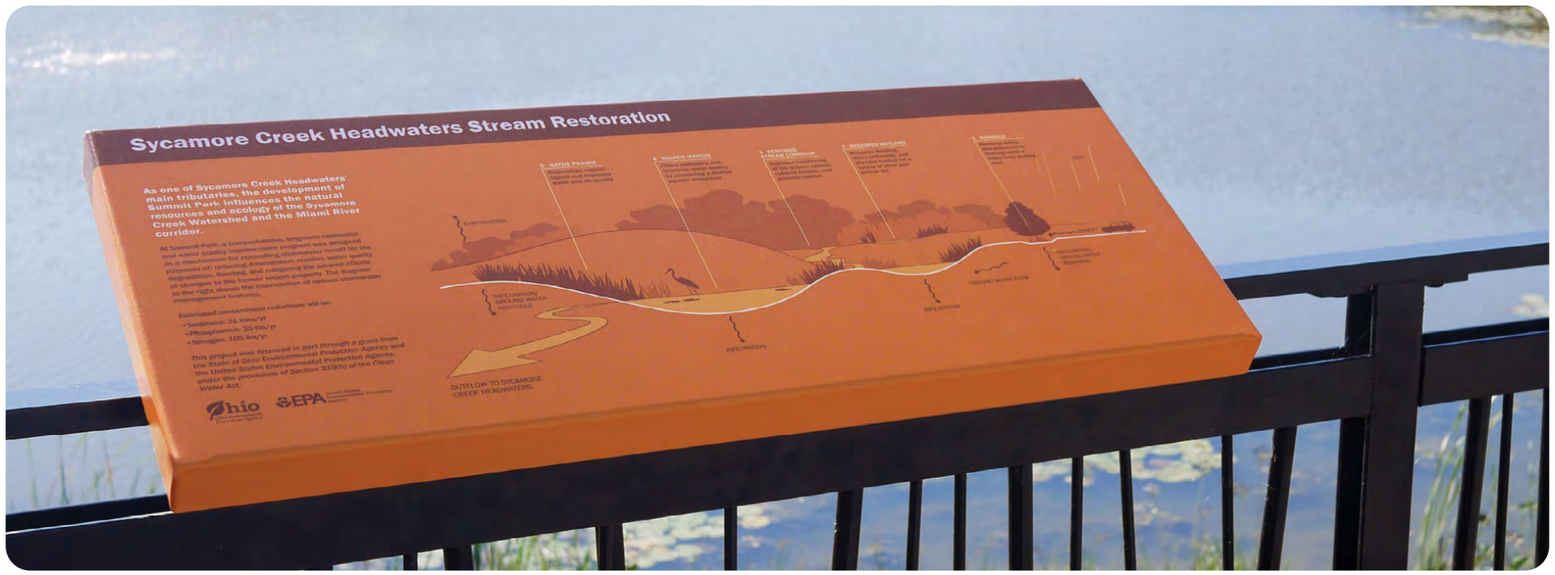
Link road and path from Quarry Road to the Crusher Plant. Shuttle bus and limited numbers of private vehicles only, dictated by available space in car park at Crusher Plant. May include cycleway.

SECTOR E

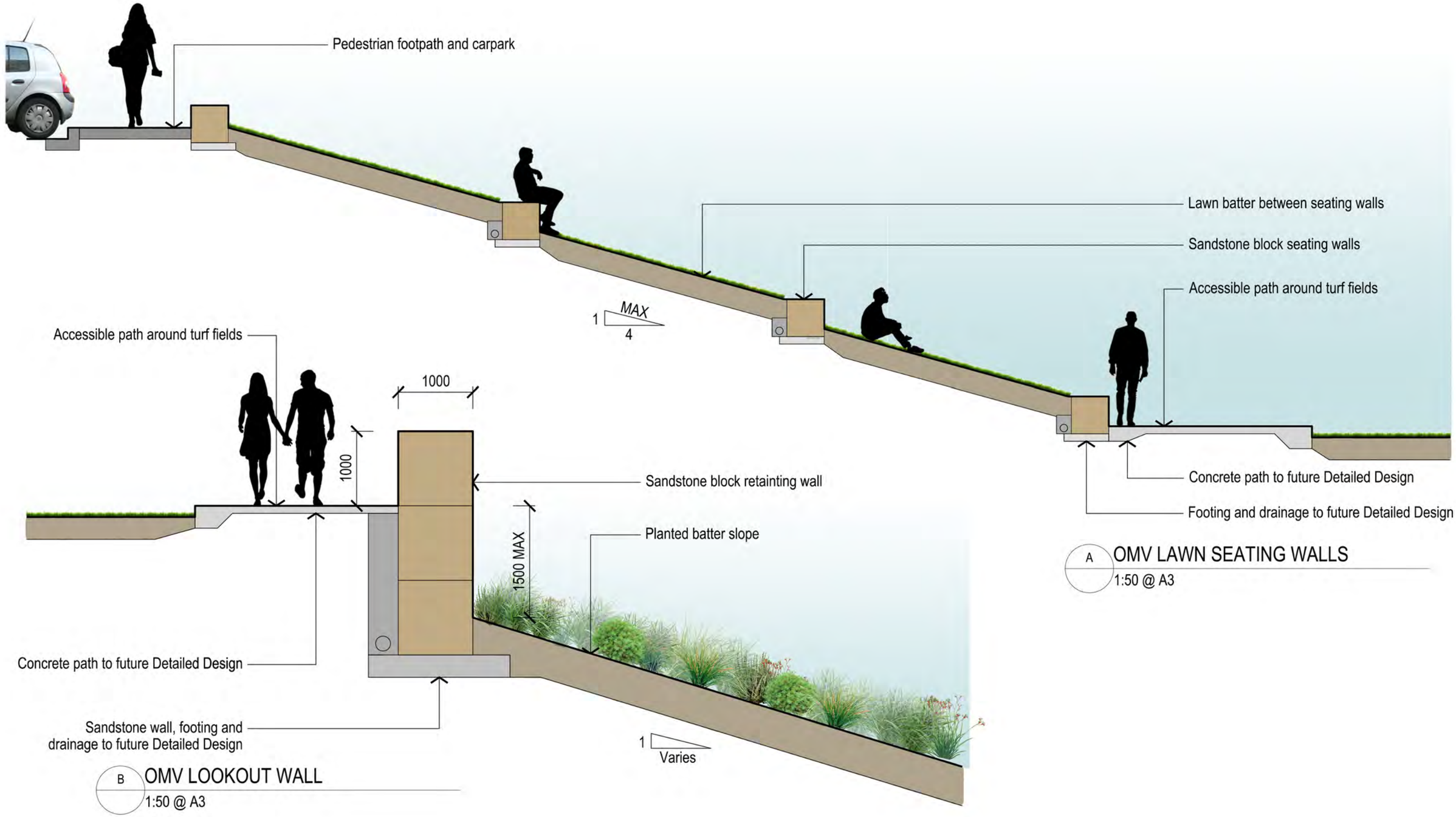
SECTOR E: CRUSHER PLANT TO HORNSBY TOWN CENTRE







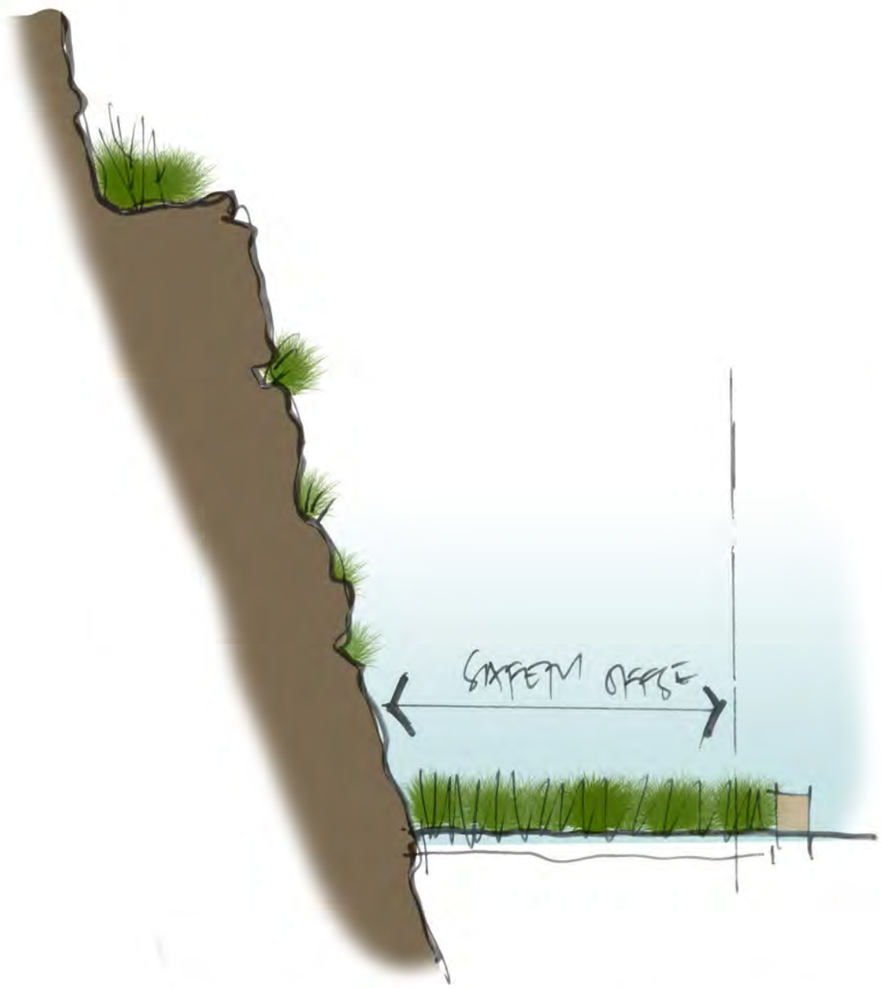
WAYFINDING AND SIGNAGE PRECEDENTS



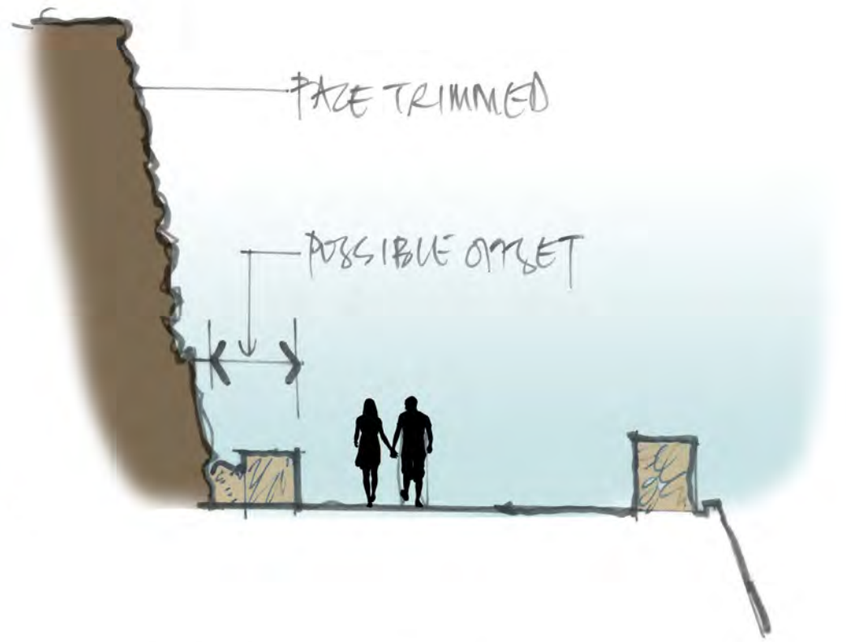
A OMV LAWN SEATING WALLS
1:50 @ A3

B OMV LOOKOUT WALL
1:50 @ A3

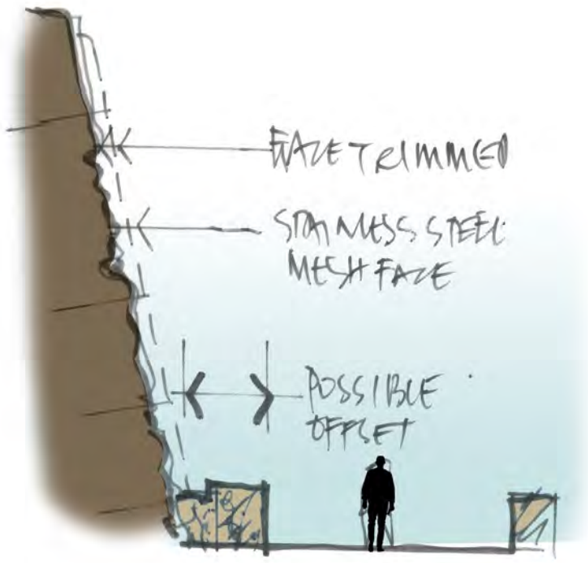
DETAIL SECTIONS OF WALLS



A QUARRY FACE RETAINED WITH FALL ZONE
NTS

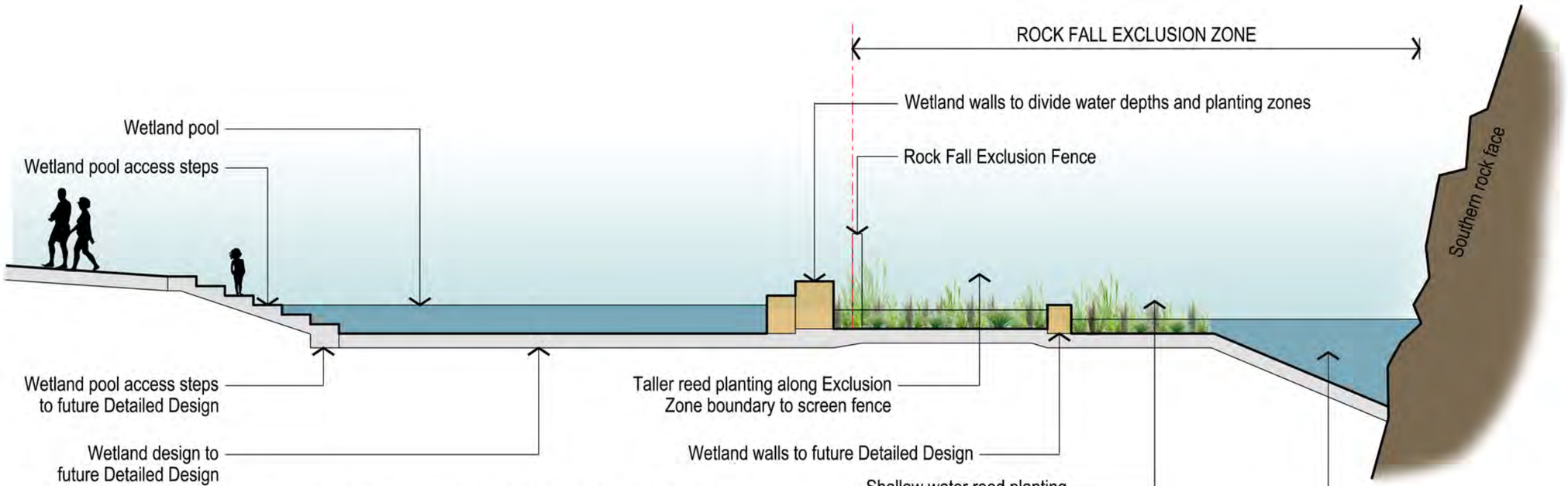


B QUARRY FACE TRIMMED AND OFFSET
NTS

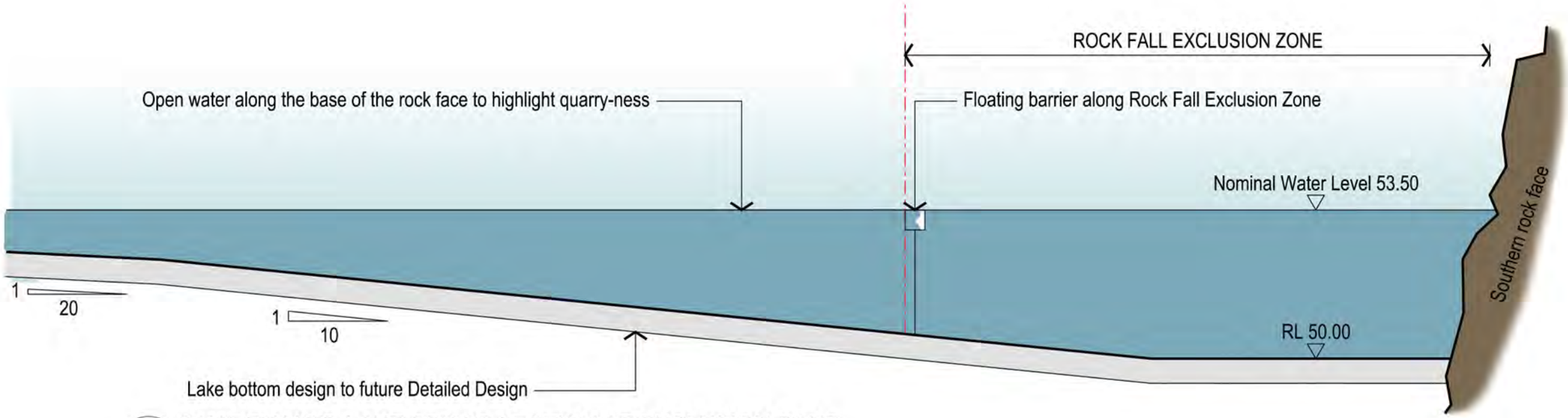


C QUARRY FACE MESH PROTECTION
NTS

DETAIL SECTIONS OF WALLS



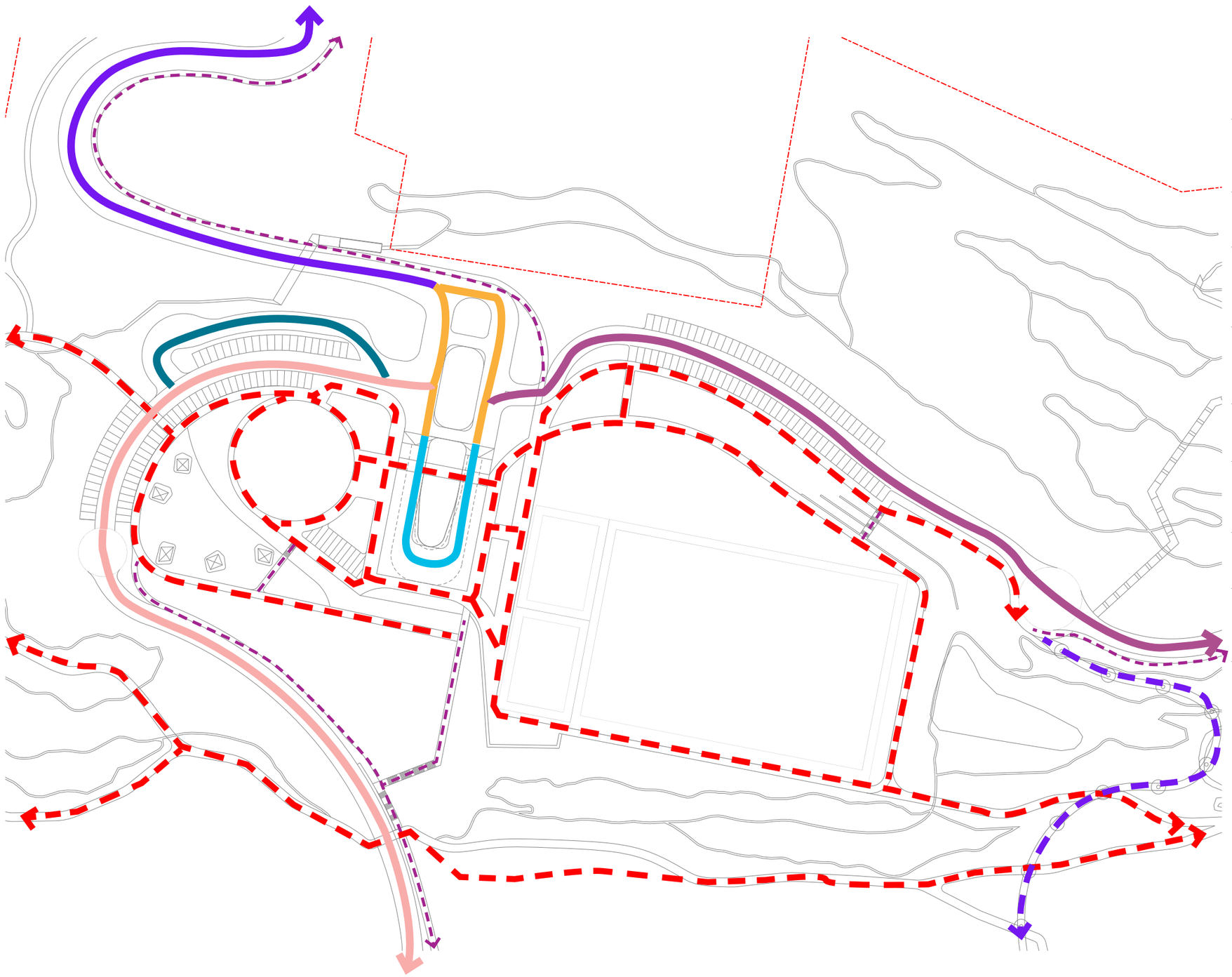
A QUARRY VOID WETLAND TYPICAL CROSS SECTION
1:100 @ A3



B QUARRY VOID LAKE CROSS SECTION AT EXCLUSION ZONE
1:100 @ A3

DETAIL SECTIONS OF WALLS

PRECINCT STRATEGY DETAILS



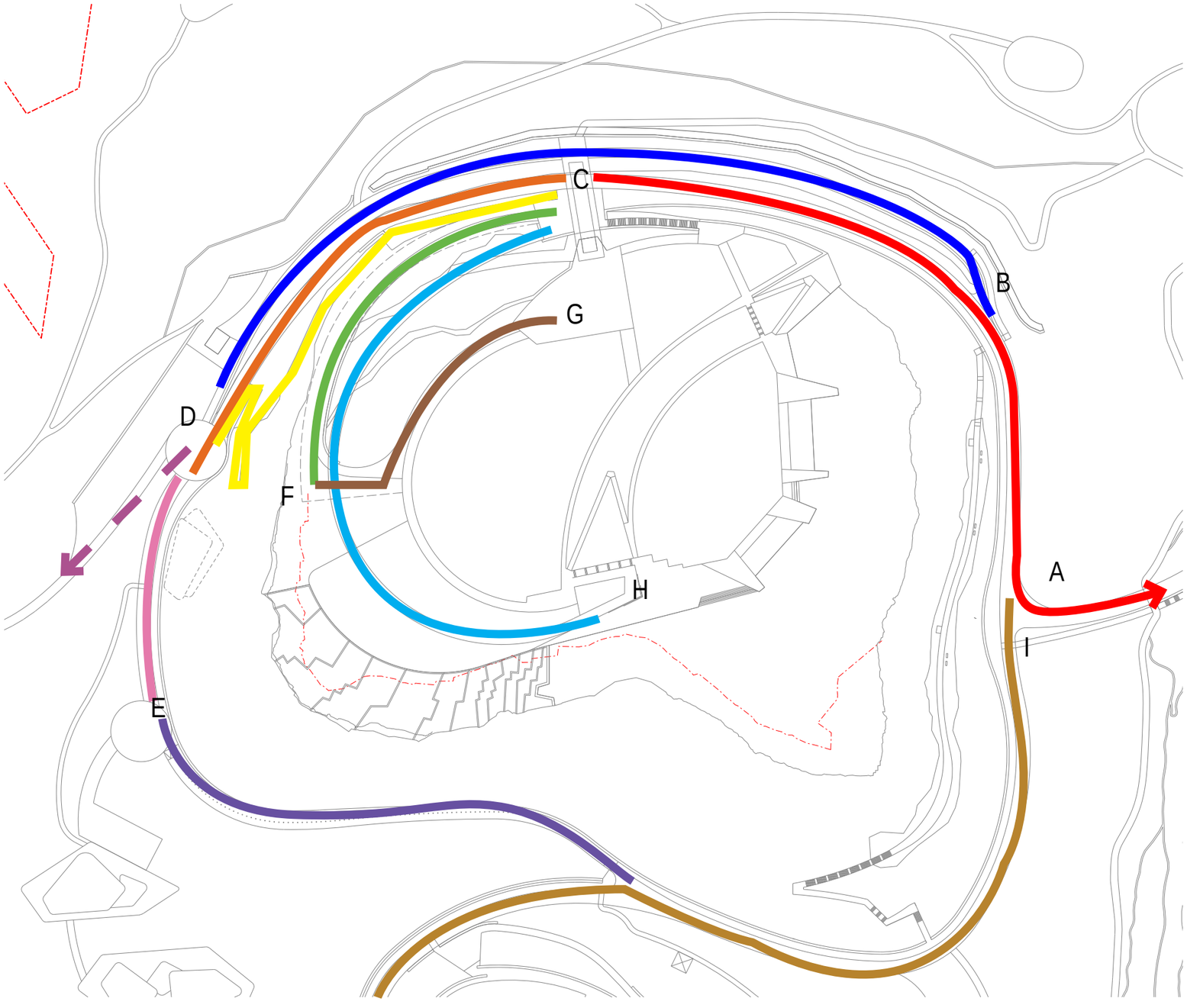
MINIMUM WIDTHS

Existing Bridge	- 13.5m Road
Road Entry	- 1.5m Pedestrian
Typical grades: 1:5.5	- 15m TOTAL
One way Vehicle Orientation	- 9m Road
Typical grades: Flat	- 9m TOTAL
One way Shared Zone	- 9m Road and Pedestrian
Typical grades: Flat	- 9m TOTAL
Northern Carpark and Quarry Road Access	- 6.5m Road - 3-2m Pedestrian
Typical grades: 1:40 / 1:10	- 9.5m TOTAL
Southern Carpark and Quarry Access	- 7m Road - 3-2m Pedestrian
Typical grades: 1:40 / 1:10	- 10m TOTAL
Bus layover	- 7m Road
Typical grades: 1:40	- 7m TOTAL
Accessible Path	- 2-3m Pedestrian
Typical grades: flatter than 1:20	- 3m TOTAL
Accessible Skywalk	- 4m Pedestrian
Typical grades: 1:20	- 4m TOTAL
General Path	- 1.5-2.5m Pedestrian
Typical grades: steeper than 1:20	- 2.5m TOTAL

1:1500 @A3

0 15 30 45 75m

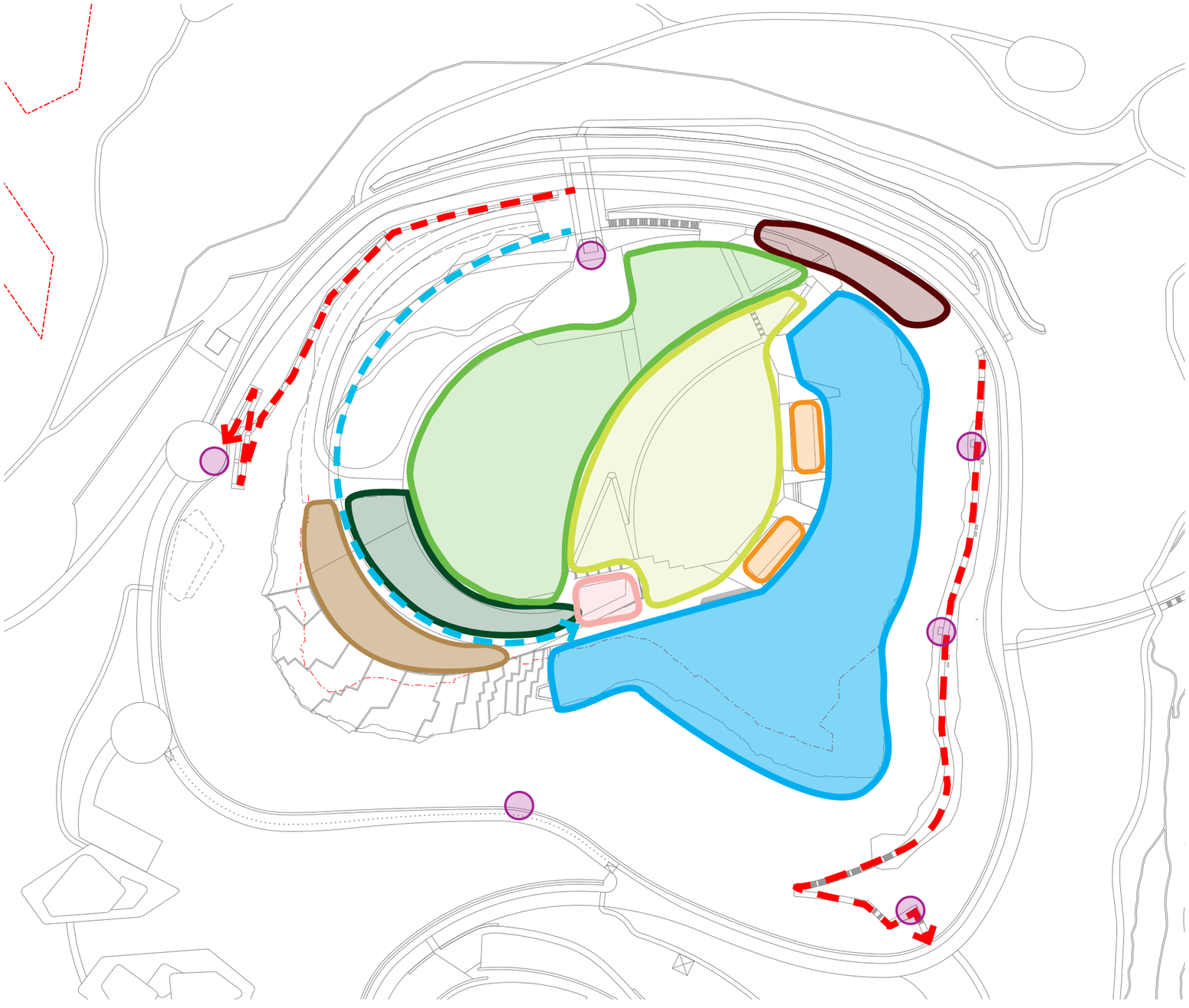
OMV CIRCULATION STRATEGY



MINIMUM WIDTHS

90 Track Typical grades: Flat	- 3m Shared Pedestrian, Cycle and Maintenance Path - 1m Landscape Buffer - 1m Gabion Barrier Wall - 5m TOTAL
2 Way Shuttle Typical grades: 1:10	- 6m Road - 3m Pedestrian - 2m Cycleway - 1m Buffer - 1m Gabion Barrier Wall - 13m TOTAL
Western Vehicle Access Typical grades: 1:10	- 6m Road - 1m Gabion Barrier Wall - 7m TOTAL
Western Pedestrian Access Typical grades: 1:14	- 3m Pedestrian (Floating structure/on grade options) - 0.5m Future Lighting and Drainage - 0.5m Gabion Barrier Wall or Balustrade (where path is on grade) - 3-4m TOTAL
Maintenance Ramp Access Typical grades: 1:10	- 4m Road and Cycle - 4m Buffer - 1m Gabion Barrier Wall - 9m TOTAL
Maintenance Access Typical grades: Flat	- 4m Road and Cycle - 4m Buffer - 1m Gabion Barrier Wall - 9m TOTAL
Accessible Pedestrian Typical grades 1:20	- 3m Pedestrian - 3m TOTAL
Southern Access Typical grades up to 1:7	- 3m Oneway Road and Mountain Bike (Uphill Only) - 0.5m Drainage - 2.5m Pedestrian - 1m Gabion Barrier Wall - 7m TOTAL
Southwest Fill Access Typical grades: 1:10	- 6m Twoway Road - 3m Pedestrian and Cycle Shared Path - 1m Gabion Barrier Wall - 10m TOTAL
Crusher Plant Access Typical grades up to 1:10	- 6m Twoway Road - 3m Pedestrian and Cycle Shared Path - 1m Gabion Barrier Wall - 0.5m Drainage - 0.5m Buffer Planting - 11m TOTAL
National Park Access Typical grades up to 1:20	- 3m Pedestrian and Cycle Shared Path - 3m TOTAL

QUARRY VOID CIRCULATION STRATEGY



QUARRY VOID PASSIVE RECREATION STRATEGY

Quarry void recreational strategy covers the ways to optimise the exprience of 'quarryness' and maximise the opportunities for range of recreational activities in this key precinct. The locations where these experiences can generally be found is mapped on the adjecent strategy plan. However, just because a space is shown as a particular experience does not exclude opportunities for other types of use to co-exist in a space. Key features and experiences of the park generally fall into the following categories.

PASSIVE

Upper and lower lawn terraces to provide kickabout and gathering area to tackle various of recreational needs. Provide interactive lake edge to enhance the experience of water. Locate amenity facilities and BBQ / picnic area at the south of quarry void.

ADVENTURE

Provide adventure recreational such as rock climbing at the north-eastern quarry wall.

EVENTS

Opportunity for principle event on the upper lawn terrace, and special events on the lower terrace and the lake,

INTERPRETATION / EDUCATION WALKING TRACKS

Explore opportunity for rock face interpretation and education by providing cliff walks. Provide engaging panorama scenic walk and lookouts at different location to reveal the drama and scale of quarry void. Provide opportunity for education and exploration on local fauna and vegetation community.

Legend

- Upper Lawn Terrace Kickabout Area
- Lower Lawn Terrace Gathering Area
- Amphitheatre Seating
- Picnic / BBQ Area
- Active / Adventure Recreation
- Interactive Lake Edge
- Visitor Hub / Amenity
- Cliff Walk / Rockface Interpretation Walk
- Panorama View Scenic Walk
- Lookouts / Birdwatching

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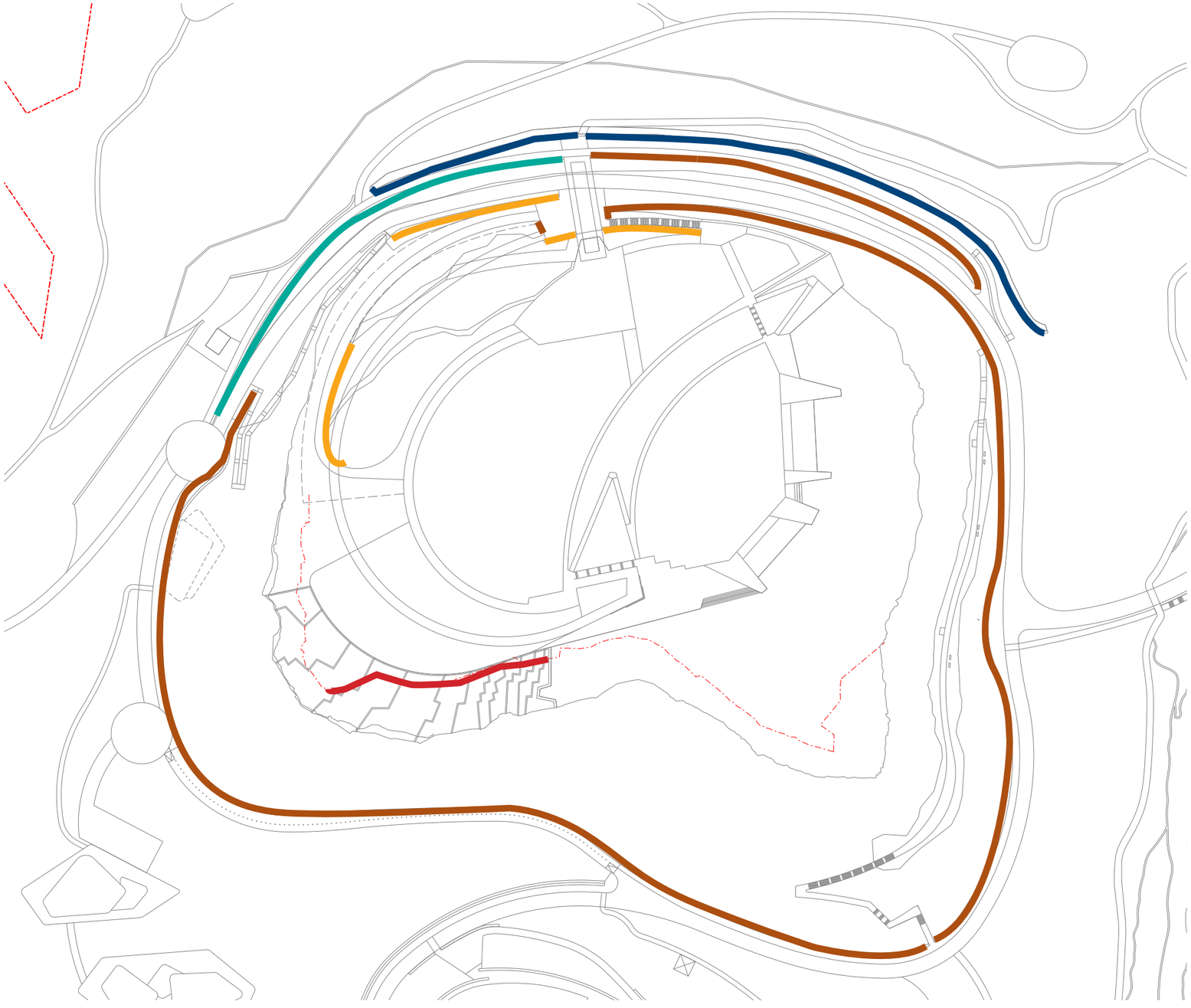
QUARRY VOID PASSIVE RECREATION STRATEGY



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QUARRY VOID WALL STRATEGY

Quarry void wall strategy covers the treatments of existing quarry walls and the guidelines on different types of proposed walls to enhance the character of quarry walls and ensure the safety and water management in quarry void.

CHARACTER AND VISUAL AMENITY

Ensure the character of 'quariness' is respected and emphasised through wall design. Highlight the uniqueness of four exisiting walls by clearing existing vegetation and minimising the visual impact of cliff walks and suspended structures on existing walls. Using sandstone / breccia welded mesh gabion walls and sandstone log walls to provide similar appearance to quarry rockface.

SATEFY AND MANAGEMENT

Apply barrier walls or fence at roads, paths and lookouts to prevent falling. Apply rockfall fence and other rockface stabilistation treatments as per Engineer's design to ensure the public safety in quarry void.

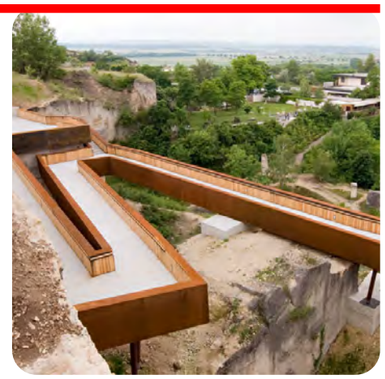
OVERLAND FLOW MANGAGEMENT

Provide concrete walls and impermeable gabion walls at quarry north to control overland flow.

Legend

- Back-lean Sandstone / Breccia Welded Mesh Gabion Wall
- Low Sandstone / Breccia Welded Mesh Gabion Barrier Wall
- Concrete Wall
- Impermeable Sandstone / Breccia Welded Mesh Gabion Wall
- Low Concealed Rock Fall Fence (if required)

WESTERN PEDESTRIAN ACCESS + QUARRY RL88 BENCH PEDESTRIAN ACCESS



Cantilevered walkways and ramps

Raised walkways and stairs

Existing Quarry RL88 bench - cantilever path and stairs to provide access

CANTILEVERED PATH TO QUARRY VOID

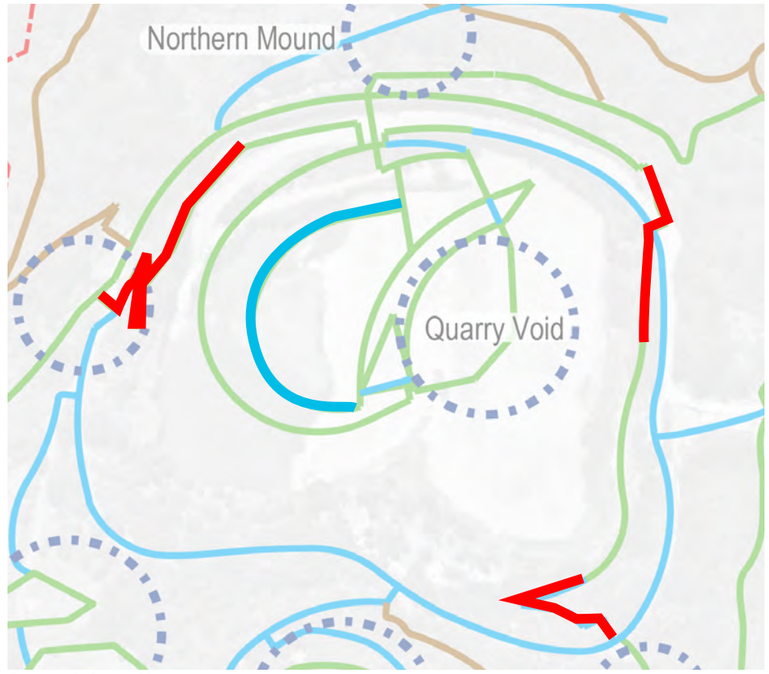
Floating ramps and walkways

Floating ramps and walkways

Existing Quarry north west corner - cantilever path to provide DDA access into void

CANTILEVER WALKWAYS

The extreme quarry landform found on site coupled with the need to provide accessible pathways a small number of raised / cantilevered walkway structures are required around the Quarry Void precinct. Precedent imagery of the potential forms these structures may take are provided for guidance.



Precinct B Quarry Void cantilevered walkway structures

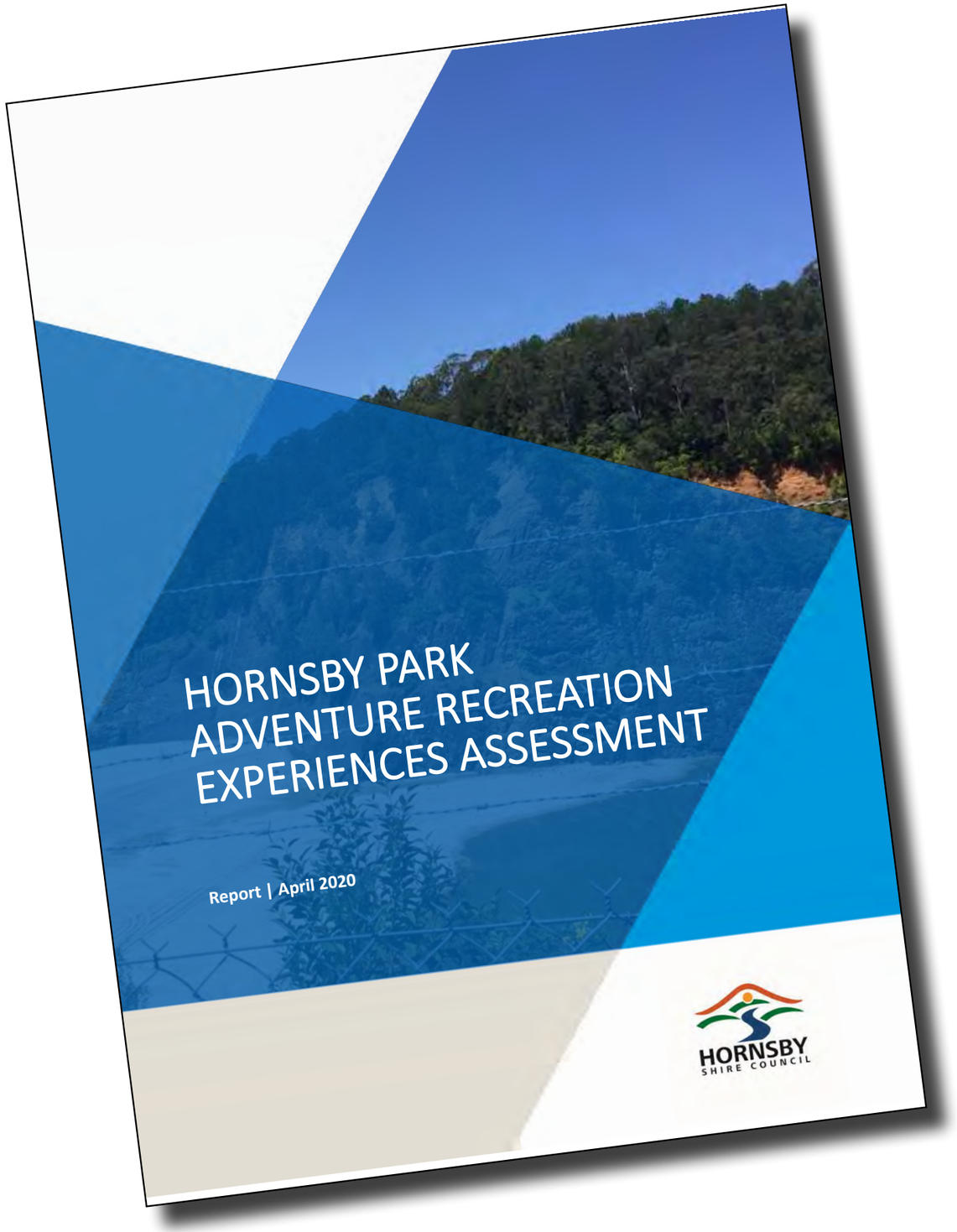
LEGEND

NTS

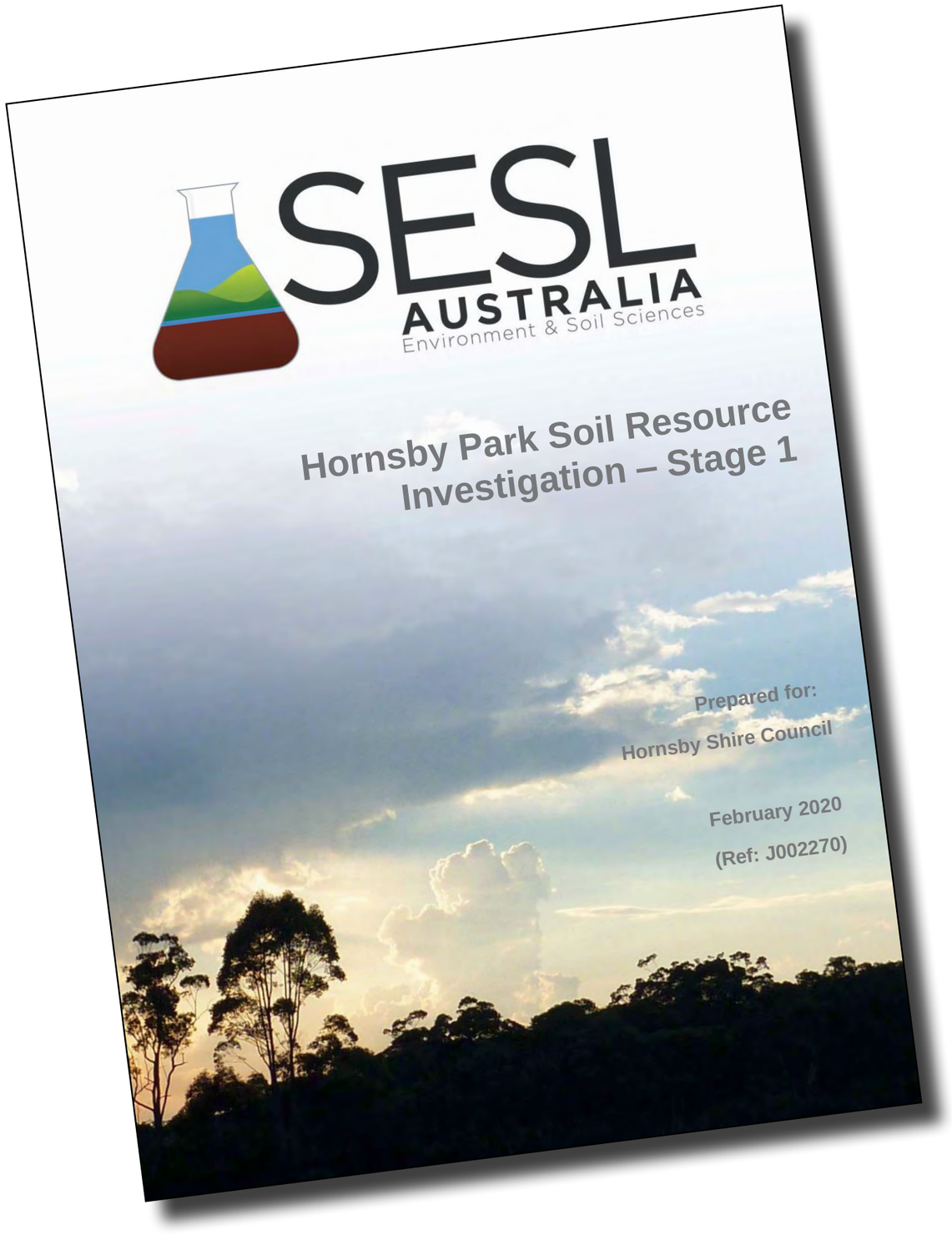
Western pedestrian access + Quarry RL88 bench pedestrian access

Cantilevered path to Quarry Void

TECHNICAL REPORTS



ACCESS REPORT (MGAC)



SOIL REPORT (SESL)

Storm
A Division of Craig & Rhodes Pty Ltd

Water Management

Hornsby Park

Prepared for: Hornsby Council
Location: Hornsby Park
Date: July 20

Our Reference: 2191

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DRAFT

WATER MANAGEMENT REPORT (STORM CONSULTING)

VEGETATION MAPPING ANS SURVEYS (VARIOUS)

Trail through the bush

GLOSSARY OF TERMS

Accessible Paths/Routes
A DDA compliant path for pedestrian and bicycle travel, meeting relevant requiments of AS1428. Generally primary paths within the Park meet this requirement, such as the main precinct linking path.

Active Recreation
Outdoor physical activity for the purposes of relaxation, health and wellbeing or enjoyment which can be self-directed or facilitated by a provider or organisation.

Adventure Recreation
Recreational activities utilising an interaction with the natural environment that contains elements of real or apparent danger in which the outcome, while uncertain, can be influenced by the participant and circumstance.

Bushland
Vegetation which ie either a remainder of the natural vegetation of the land or if altered is still representative of the structure and flora of the natural vegetation.

Diatreme Face
Exposed Diatreme rock formation from the quarry process. Formed from magma vents and seen throughout Sydney basin - rich soils were formed from the diatemes and specific vegetation communities are found on diatreme soils. An exposed diateme face exposing the cross section of the rock, such as seen at the quarry is extremely rare.

E-bike
E-bike and E-bike stations are a form of electronic bikes for hire to help with visitor movement throughout the park. Stations are small structures where bikes can be hired and recharged.

General Paths/Trails/Tracks/Routes
A pedestrian or bicycle route that does not meet DDA requirements, meeting relevant requirements of AS2156. Generally secondary and tertiary path, bushwalks, mountain bike trails, etc fall under this type. Paths that contain stairs also fall under this type.

Hubs
Specific locations within precicnts which are the core of the Precicnt. Hubs may contain amenities such as structures, e-bike stations or medical kits

Passive Recreation
Recreation activities that are not about physical movement or activity. Examples of passive recreation include nature gazing, reading, having a picnic and talking.

Precinct
A system implemented within the Master Plan to better organise the site into more manageable spaces. A precinct boundary is decided based on the extent of themes that each precinct encapulates. Precincts are sorted into major and minor precincts based on a number of factors.

Raised/Cantilevered Paths
A path that is built on structure above rough terrain. Generally these paths are designed to meet DDA requirements.

Shuttle (Autonomous)
A regular shuttle service is proposed for the Stage 1 works to help with pedestrian movements within the park. The extent of this service (to hornsby station/local suburban loop/etc) is to be confirmed. Opportunity to utilise autonomous vehicles as technology allows.

Quarry-ness
'Quarry-ness' encompasses the concept of retaining the character and drama of the quarry's form and experience into the next phases of the site's role as a major regional park.

Closeup of the rock face

Consultant team
The Hornsby Quarry Master Plan was prepared by

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Martin O'Dea - Associate Director
Josh Harold - Senior Landscape Architect
Jessica Tang - Landscape Architect
Jonathon Gallagher - Landscape Architect
Iacopo Rimondi - Landscape Assistant
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