

# NEPEAN GARDENS

## Landscape Design Response

December 2019



## ACKNOWLEDGEMENTS

Prepared for the Catholic Cemeteries Board & St Johns Park Bowling Club for the purpose of a Development Application to the Penrith City Council, by

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Landscape Design Response 05/12/2019



LANDSCAPE  
DESIGN RESPONSE

We acknowledge the consultant team without whom we could not have developed our vision:

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## 1. VISION 1.1 SUMMARY

### THE PROJECT

The Catholic Cemeteries Board has purchased this site in the view to provide a landscaped cemetery for the whole community in Sydney's West.

The site is over 40 hectares and is currently used as a Golf Course, also known as Wallacia Golf Course.

This DA seeks to subdivide the existing site into two (2) lots with an international standard 9-hole Golf Course on proposed Lot 1 and the Nepean Gardens Memorial Park on proposed Lot 2 (Also refer page 8 - Context)

The Memorial Park site is approximately 21 hectares in size.

Its sits in an area known for its undulating hills, dams and forested pockets.

Our aim is to provide the community with a cemetery which blends into its surrounding, respects the character of the region and pays respect to its current use and to the original custodian of the land, the Dharug people.

The Memorial Park component of the proposal will be located approximately 800 meters away from the village.

The concept is based on the belief that a cemetery can be a park, a sanctuary and open space for all to enjoy.

The result is a landscaped cemetery, nestled into the spaces already created by the Golf Course's planting framework, protected from external views and enjoying the long views onto the iconic Blue Mountains.

### THE LANDSCAPE DESIGN RESPONSE

Building upon a rigorous analytical process the Landscape Design Response:

Firstly, recaps the analytical process, as it is the fundamental building block in the creation of the cemetery's design. It responds to the site's specific constraints and opportunities.

Secondly, incorporates feedback from the community consultation and feedback based on the past DA.

This proposal is therefore different from the previous DA. It has been amended to address the concerns raised by the Independent Planning Commission (IPC) and the local community to :

- Allow for a reduced scale of the development.
- Appropriately site the Memorial Park away from the Village.
- Respect & retain the rural character of the Village.
- Provide upgrade country club facilities for use by the local community, thereby encouraging passive and active recreation for current and future generations.

Thirdly, explores the potential narratives/stories to be told on site , and how these ideas can be interpreted and woven into the overall design of the park, in alignment with the aims and vision of the Masterplan.



Figure 1. Perspective From Chapel

**1.** VISION  
**1.2** INTENT

**THE VISION**

The Vision for the site is:

- A distinctive landscaped cemetery, in line with CCB's aspirations to be the best and the pride of the cemetery industry.
- A respectful space open to all,
- A cemetery which respects and safe keeps any important colonial and indigenous landscapes.
- An Arboretum for future preservation and education of generations to come.
- A concept which respects the Land, its landform and ecology by carefully laying roads and any built environment around existing trees.
- Private burial spaces, partially concealed from the internal roads so as to provide privacy to mourners and minimise visual impact throughout.
- Much needed burial space for the area whilst offering choice, at affordable prices, in varied settings, for a multi-denominational community.

**THE AIMS**

- Minimise the impact on the existing environment, especially the topography and the Cumberland Plain Woodland.
  - By minimising road width, tree removal and cut & fill.
- Protect the existing landscape qualities of the areas currently enjoyed from the public domain.
  - By screening burial rooms from external views and maintaining key views into the site.
- Provide an environmentally sensitive development
  - By minimising environmental impact and hard surfaces, adding biodiversity and green carbon absorbing surfaces in the landscape.
- Achieve Best Management Practices in all aspects of cemetery provision, including Stormwater Management and Ecological Sustainable Developments.
  - By providing sustainable Water Management on the site, key WSUD and greening initiatives.
- Provide an exceptional public and green space for the community, for perpetuity.
  - By welcoming the public for passive recreational pursuits (walking, jogging...), artwork, tourism destination similar to Woodland cemetery in Stockholm. As is the case for all cemeteries ran on behalf of the Crown, the site and all it has to offer will be maintained and opened to the public for perpetuity.
- Provide a quality burial ground for the whole community.
  - By welcoming all faiths and cultural groups in its multi-denominational park.



HEADSTONES PARTIALLY HIDDEN BEHIND SCREEN PLANTING

Figure 2. Artist's Impression - Burial Areas

## 2. SITE ANALYSIS

### 2.1 INTRODUCTION

#### THE SITE

A number of constraints exist on site, some relating to topography and ecology (to name a couple) but also relating to its past history.

The designer's challenge is to turn these constraints into opportunities whilst respecting all applicable legislative requirements from all levels of government.

Furthermore, the operational requirements of a cemetery add another layer of complexity. When combined with the client's high aspirations for a unique cemetery the challenge becomes sizeable.

For these reasons, during the analytical period which precedes the design response and concept, it is imperative to address the issues in a systematic and rigorous fashion.

This produced a concept which uniquely responds to this specific site.

WALLACIA  
COUNTRY CLUB

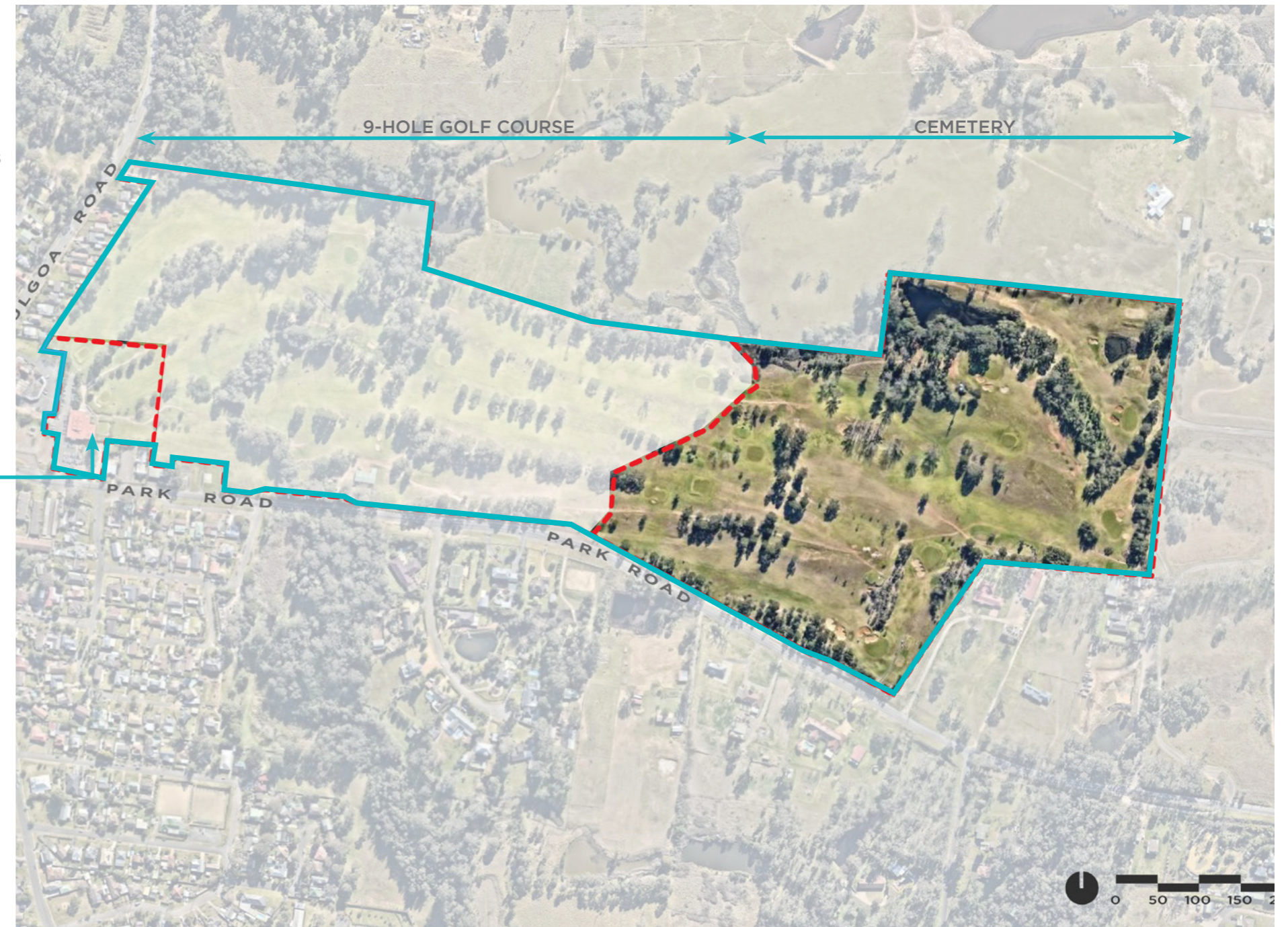


Figure 3. Site Aerial

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### BACKGROUND

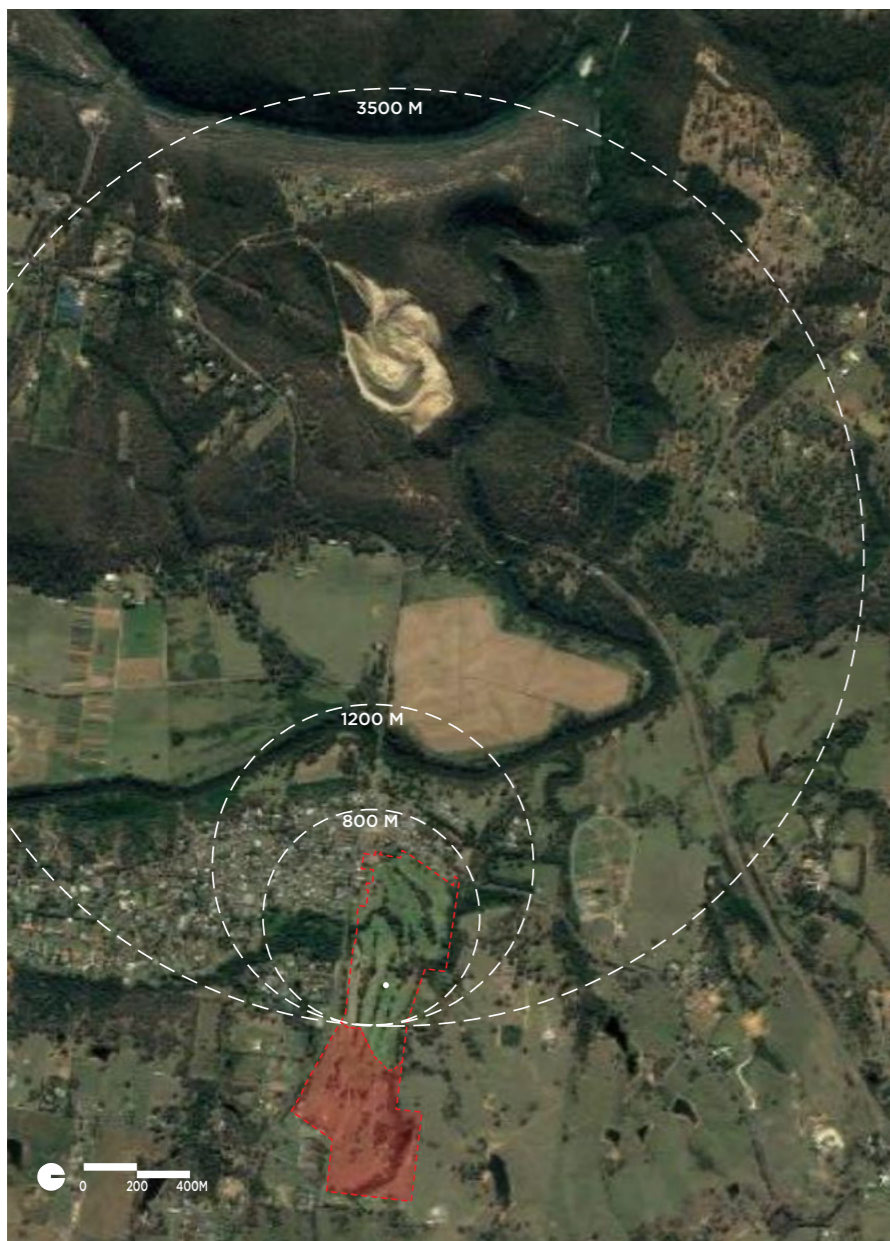
A number of specialists reports informed our concept.

This non-exhaustive list below provides a summary of the main issues.

#### CONTEXT AND TITLE INFORMATION

The proposed cemetery site is to be located on proposed Lot 2 which will be approximately 21 Ha and lies north of Park Rd and east of Mulgoa Rd in Wallacia.

It is approximately 800m from the iconic Tudor-style Wallacia Hotel, approximately 1200m from the Nepean River and less than 3.5 kilometres from the Blue Mountains National Park.



Site Context Map

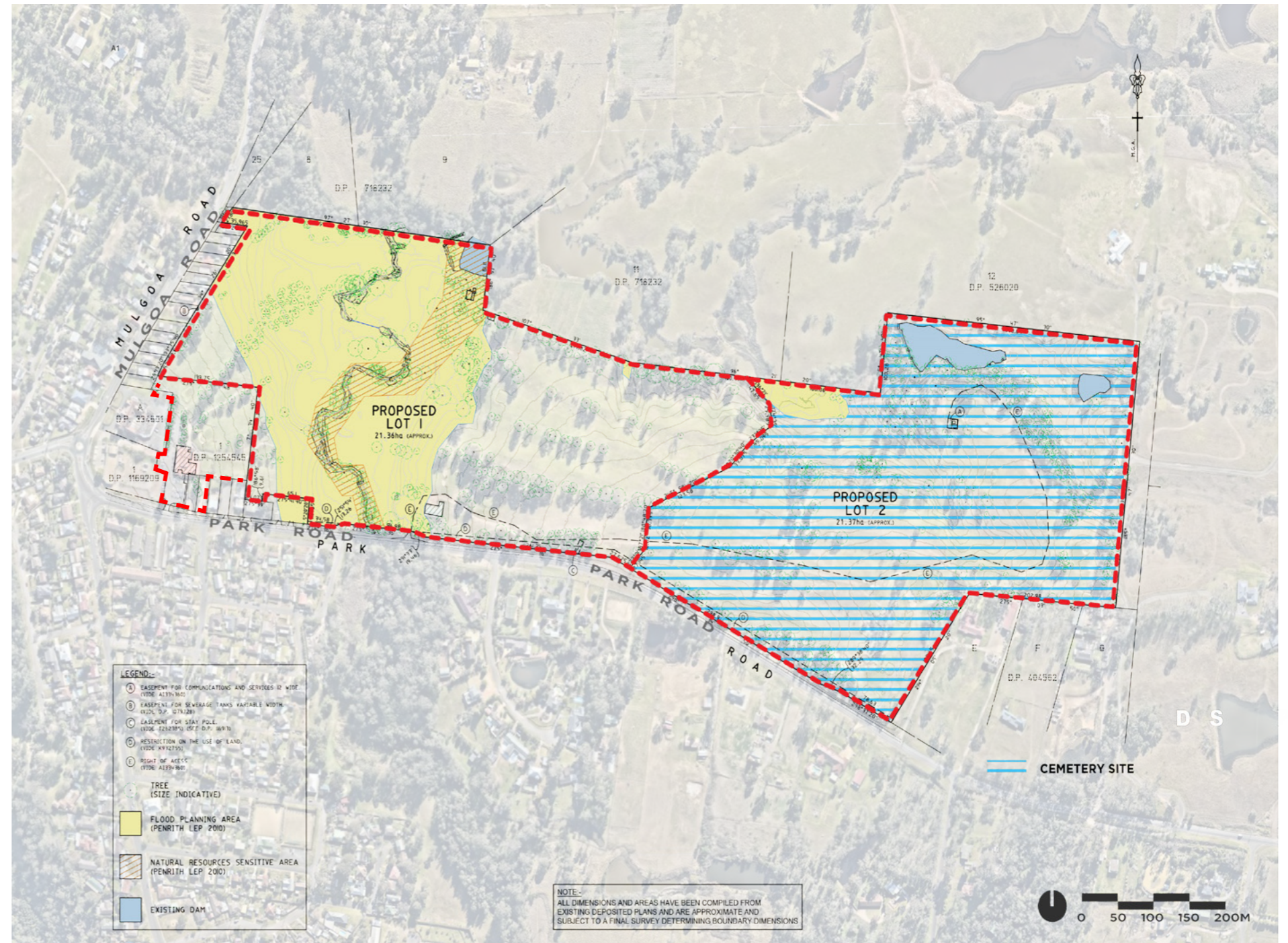


Figure 4. Proposed Titles

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### PLANNING CONTROLS

The Penrith LEP 2010 and DCP 2014 apply to the site.

The site is zoned “E3- Environmental Management” zone under the PLEP 2010.

Cemetery use is permitted with consent.

There are no height controls on proposed buildings within the zone.

A 15 metre wide “burial free” landscape buffer applies along all boundaries, in accordance with DCP requirements.

The site sits with an area defined as land with ‘Scenic and Landscape Values’ where visual impact is to be minimised.

Refer to Planning report by Urbis for more details on planning controls.

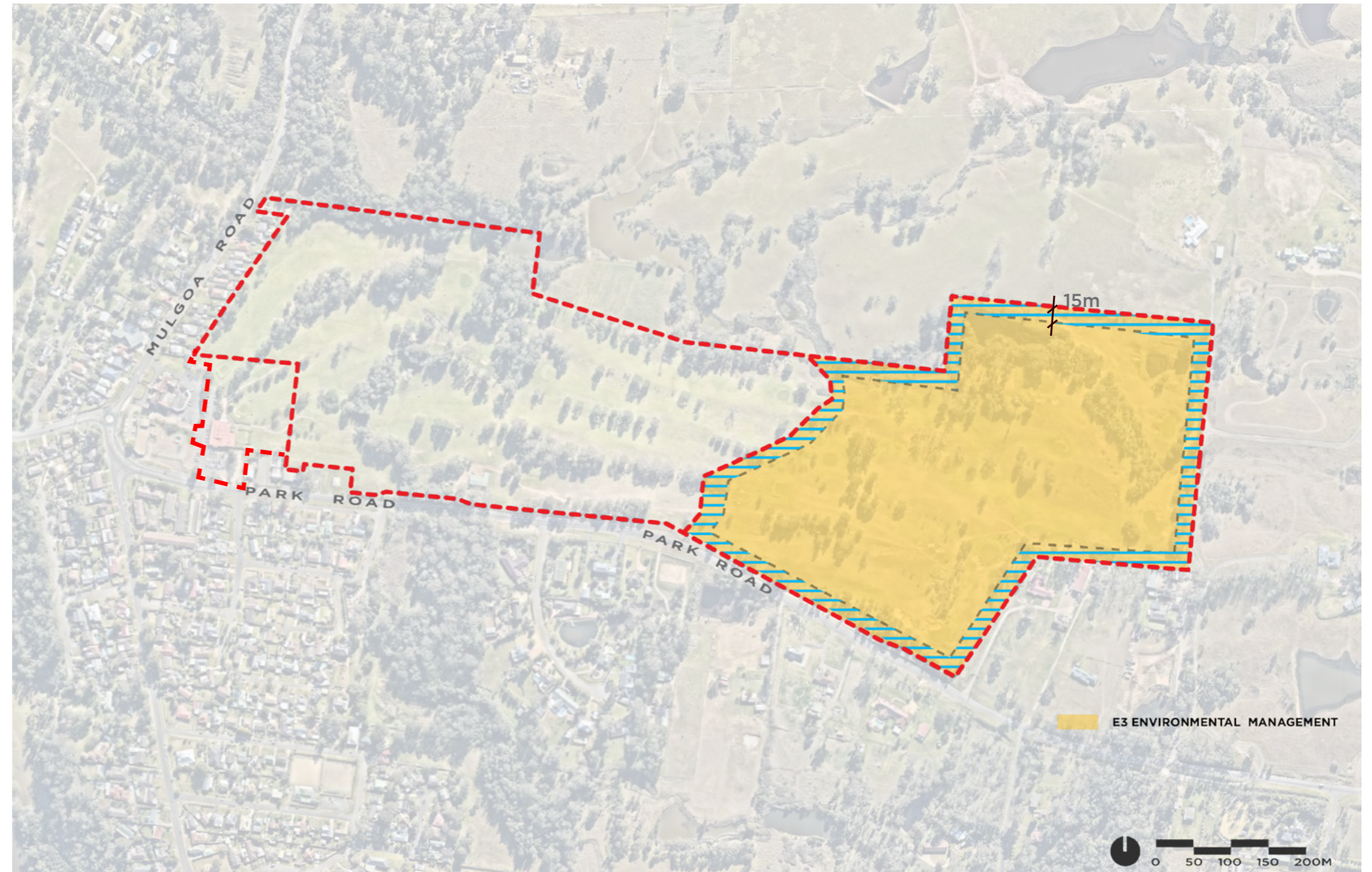


Figure 5. Planning Controls Map

**2. SITE ANALYSIS**  
**2.2 SUMMARY**

**GEOLOGY**

The majority of the site falls within a geological area known as “Bringelly Shale”, consisting of weathered shale over a silty clay base.

The site falls within an area classified as Luddenham soils.

Luddenham is an erosional soil type, typically on ridge tops. It is loamy sand/clay moderately reactive.

Geotechnical testing on site reveals that the site is suitable for burials (Refer geotechnical report by Martens and Associates).

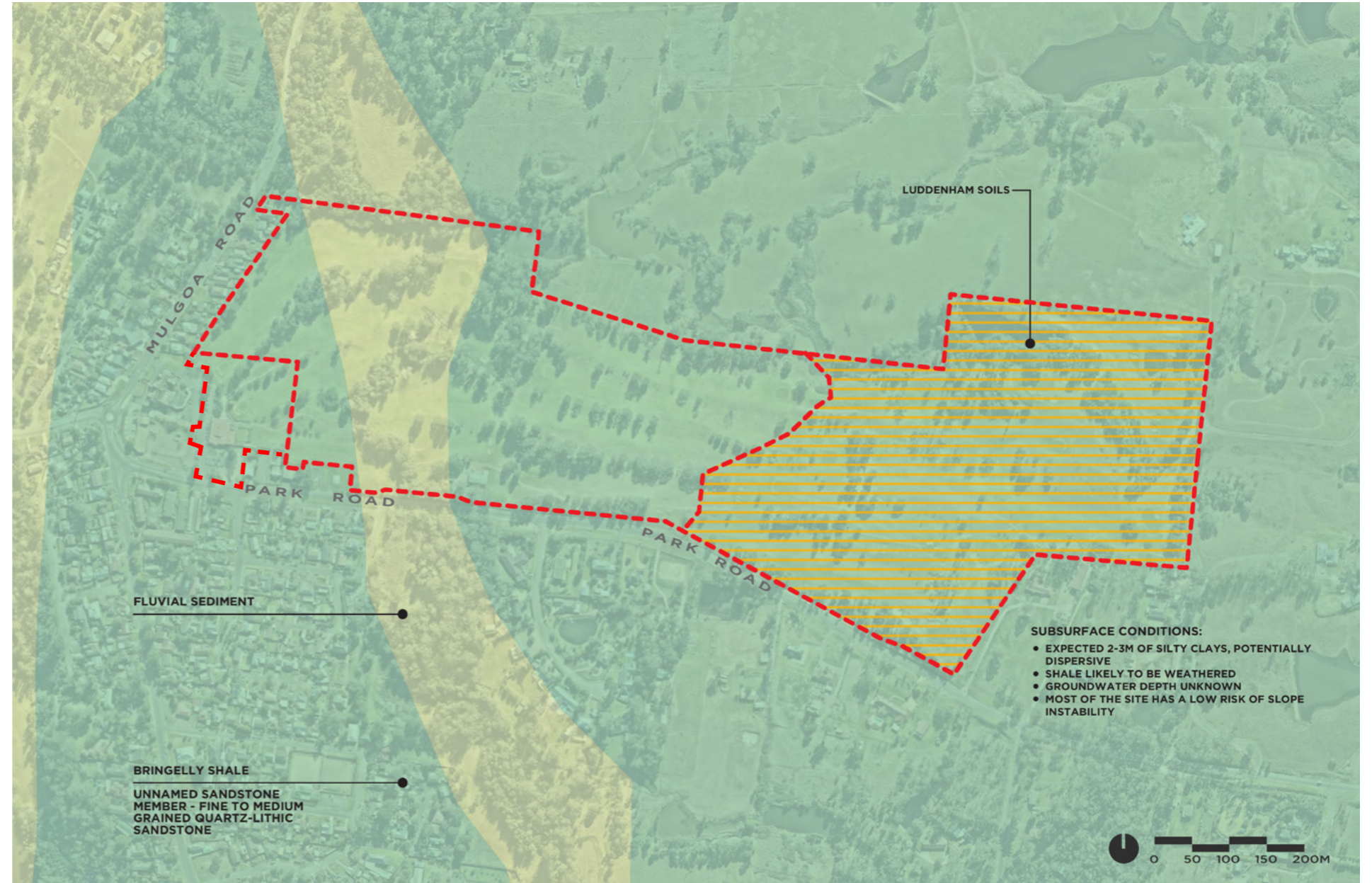


Figure 6. Geology Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### TOPOGRAPHY

The site is separated into 3 distinctive spaces. From west to East:

- The slope east of the ridge running towards the existing main dam.
- The valley between the two main ridges.
- The slope south of the southern ridge, towards Park Road.

This topography creates a number of secluded pockets, invisible from the streets especially where vegetation lines the boundaries.

The most visible portion of the site from the public realm is the south-facing slope facing Park Rd at the eastern end of the site. The rest of site looks mostly inwards.

#### CLIMATE

The climate of Wallacia is temperate with cool winters and warm to hot summers. January's temperatures can average at 30°C whilst July average temperatures are 17°C during the day and 4°C during the night.

Being in the shadow of the Blue Mountains, the prevailing winds come from the south-east.

The annual rainfall is much less than Sydney (67 raining days/year on average and with a mean annual rainfall of 680mm/year).

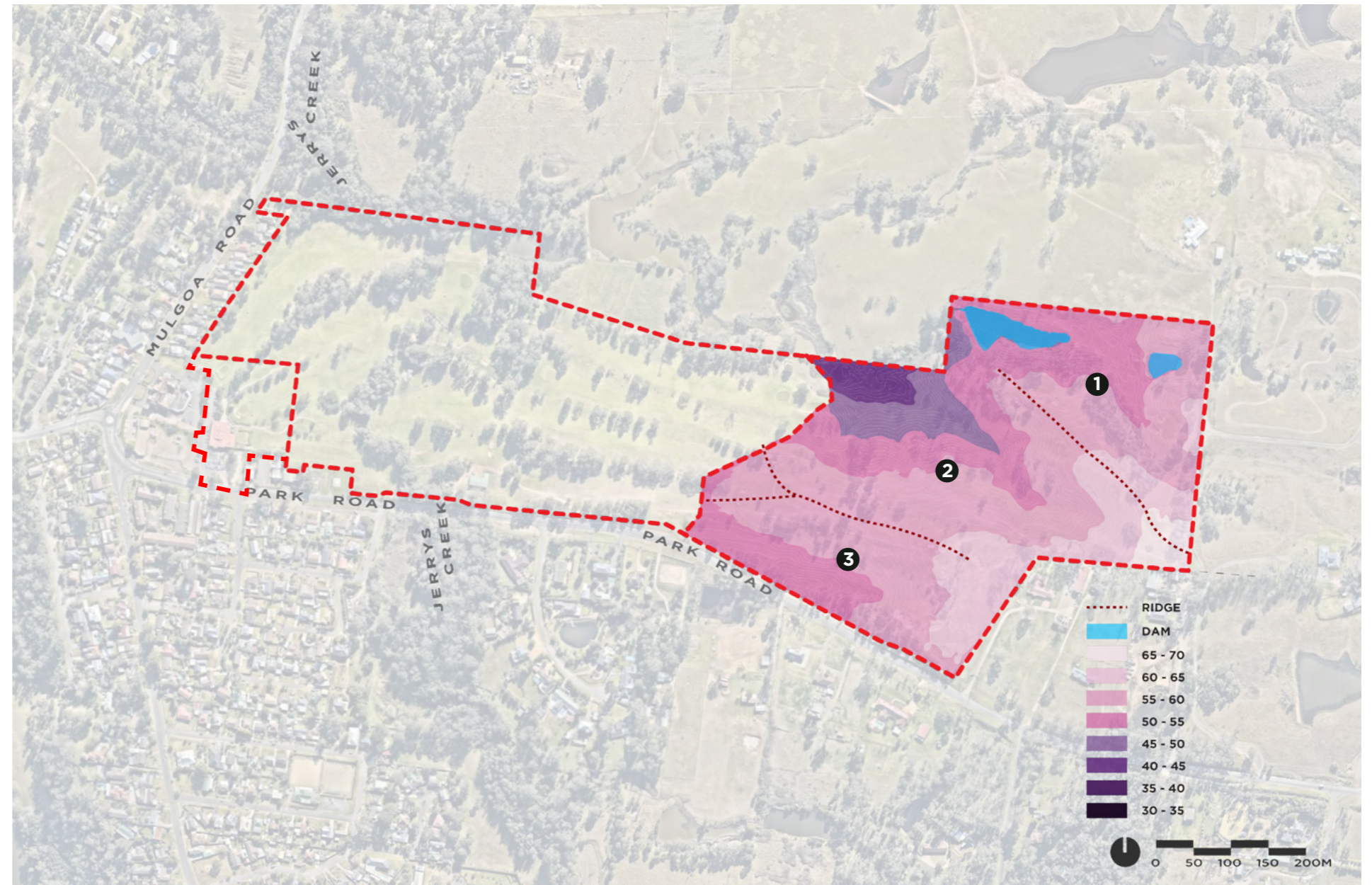


Figure 7. Topography Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### GRADIENT

Due to cemetery equipment's limitations and for OH&S reasons, it is important to analyse the steepness of the site to allocate burial zones to the flatter zones and Ash Memorials (together with infrastructure) to the steeper, less useable areas.

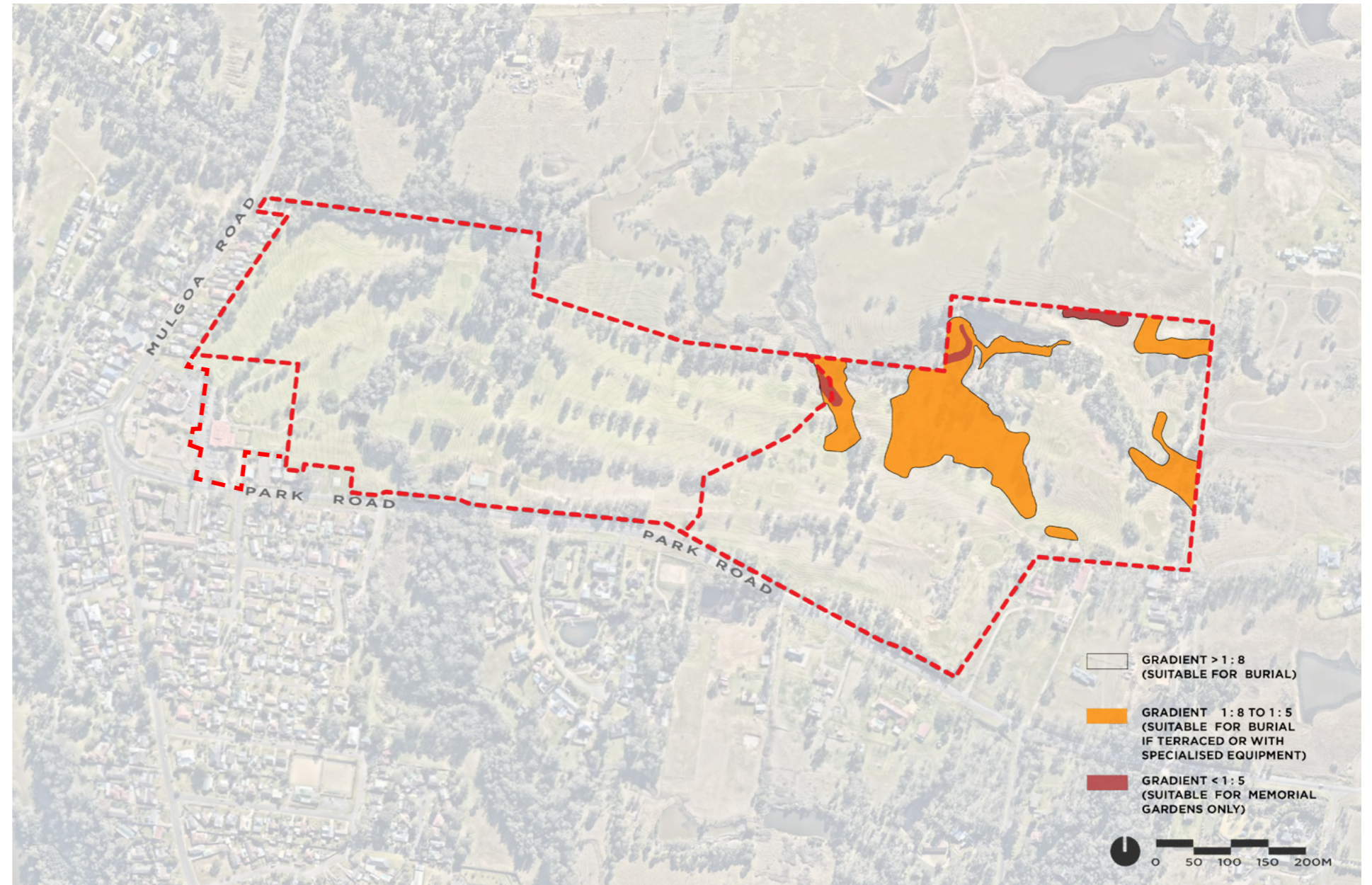


Figure 8. Gradient Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### VIEWS

The site is heavily planted, with rows of trees along its boundaries and along each fairways. The views into the site from the public realm (Park Rd) therefore tend to be short and filtered.

A number of private properties enjoy views onto the site.

- Dwellings located south of Park Rd have tree-filtered views onto the site but only to the extent of the first ridge.
- Dwelling north of Park Rd and to the north-east of the site also enjoy tree-filtered views into the site over their back fence. All are limited by various ridges.

A Telecom tower sits on the most easterly ridge on the site. Although not visible from Park Road and partially concealed by trees, it detracts from internal views with its towering presence.

Within the site, the outlook is very scenic due to the undulating topography, the existing landscape ponds/dams, the scatter of trees and long views onto the Blue Mountains to the west.



① Filtered views in from Park Rd



② Long views to Blue Mountains along fairways



③ Long Views



④ Telecom Tower

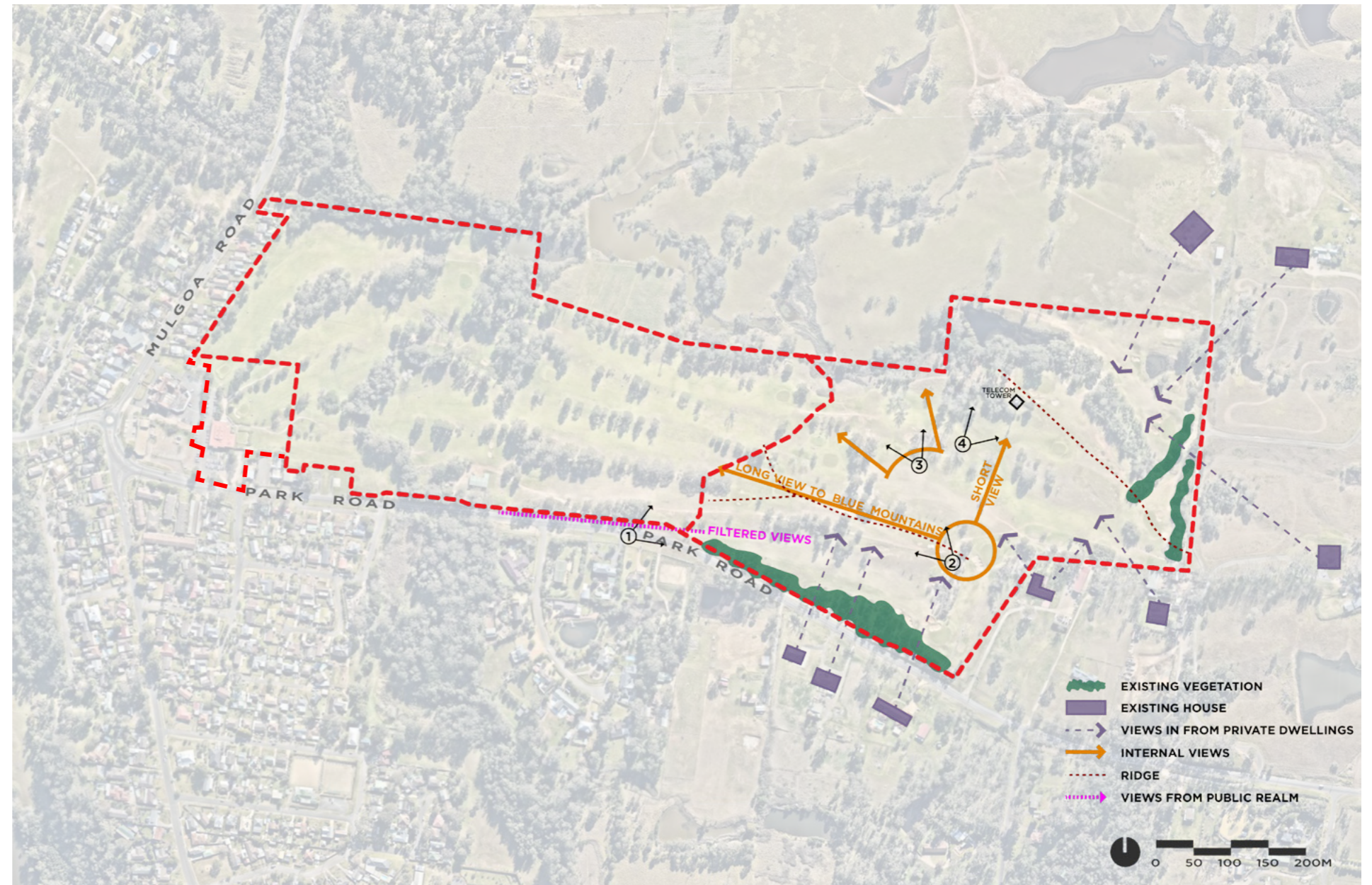


Figure 9. Views Map

**2. SITE ANALYSIS**  
**2.2 SUMMARY**

**LANDSCAPE CHARACTER**

The site is characterised by lawn with rows and pockets of vegetation. Its use as a Golf Course has given it a very structured layout with straight fairways and tree plantings, dominated by exotic and man-made plantings.

The eastern ridge tops enjoy long views to the Blue Mountains.

A number of existing man-made landscape ponds and watering dams give it a rural character in keeping with neighbouring properties.

Around the water course which traverse the site, the vegetation is more informal with a predominance of indigenous species.

The Golf Course is currently fenced off with galvanised chainmesh fencing with 2 strands of barbed wires along Park Rd. The entrance to the Golf Club building and carparking facilities is open to the street and fenceless.

Other boundaries are delineated by low farm fences (post & wires).



Figure 10. Site Photos

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### ECOLOGY

Two sensitive vegetation communities were found on site.

- The Cumberland Plain Woodland
- The River-flat Eucalyptus Forest on Coastal Floodplain

Approximately 7 Hollow - bearing trees were found on site, none of which were considered large enough or suitable for larger threatened species (forest owls or cockatoos)

There are no endangered fauna populations within the Penrith LGA.

Refer to Travers' Bushfire and Ecology P/L - Flora & Fauna Assessment (2019) for details.

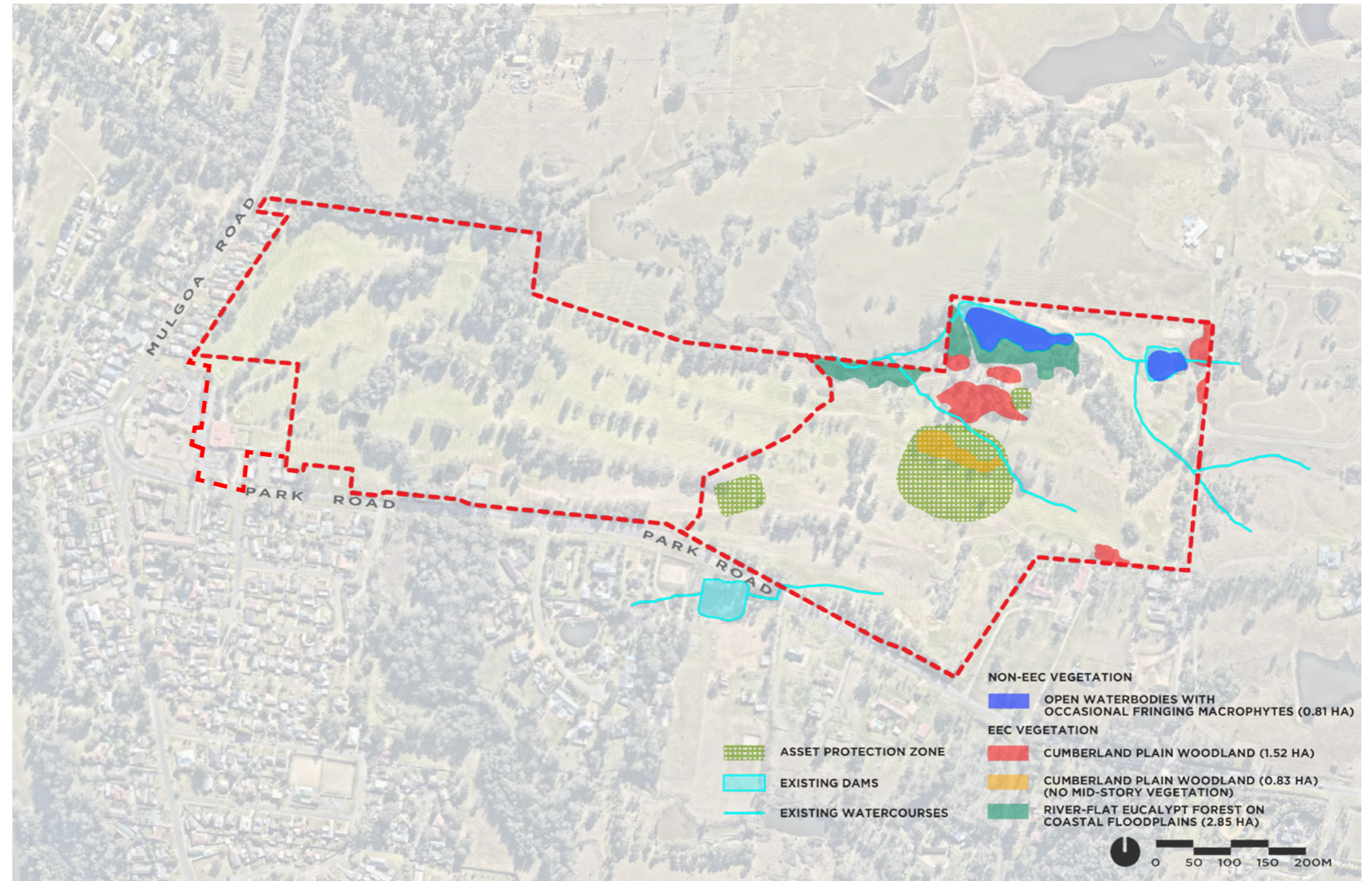


Figure 11. Ecology Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### WATERCOURSES AND DAM

First to Third order streams are present on site, for which riparian protection zones apply in accordance with NSW Controlled Activity Guidelines.

Two man-made dams are present in the eastern portion of the site.

Refer to Travers' Bushfire and Ecology P/L- Watercourse Assessment (2019) for details.

Penrith Council have previously indicated that any cemetery DA should comply with "Cemeteries, Burials and the Water Environment" from Northern Ireland, in regards to minimum distances from burial to groundwater/water elements.

Although it should be noted that :

- Guidelines which relate to soil conditions in Northern Ireland are unlikely to be relevant to Australian soil conditions.
- Previous groundwater study for the site have demonstrated that horizontal groundwater movements from graves to any groundwater supplies on site or in the vicinity of the site are unlikely.

We have complied with the request. This translates in:

- Minimum 50m distance from permanent water bodies (refer Fig. 13)
- Minimum 10m distance from drainage lines (agi drains, ephemeral swales and other water structures)

#### BUSHFIRE

The site lies within a Bushfire Prone area.

This affects the number of exit points required on the site, the width of roads, parking and planting within the Asset Protection Zones (APZ) around each building.

- Two-way carriageways are to be 6.5m wide minimum
- One way carriageways are to be 3.5m
- Perimeter roads (between buildings and Bushfire hazard) are to be 8m wide with no parking on the bushfire hazard side.

Refer to Travers' Bushfire and Ecology P/L - Bushfire Protection Assessment (2019) for details.

Refer to Swept Path Analysis by WSP (2019) for details.

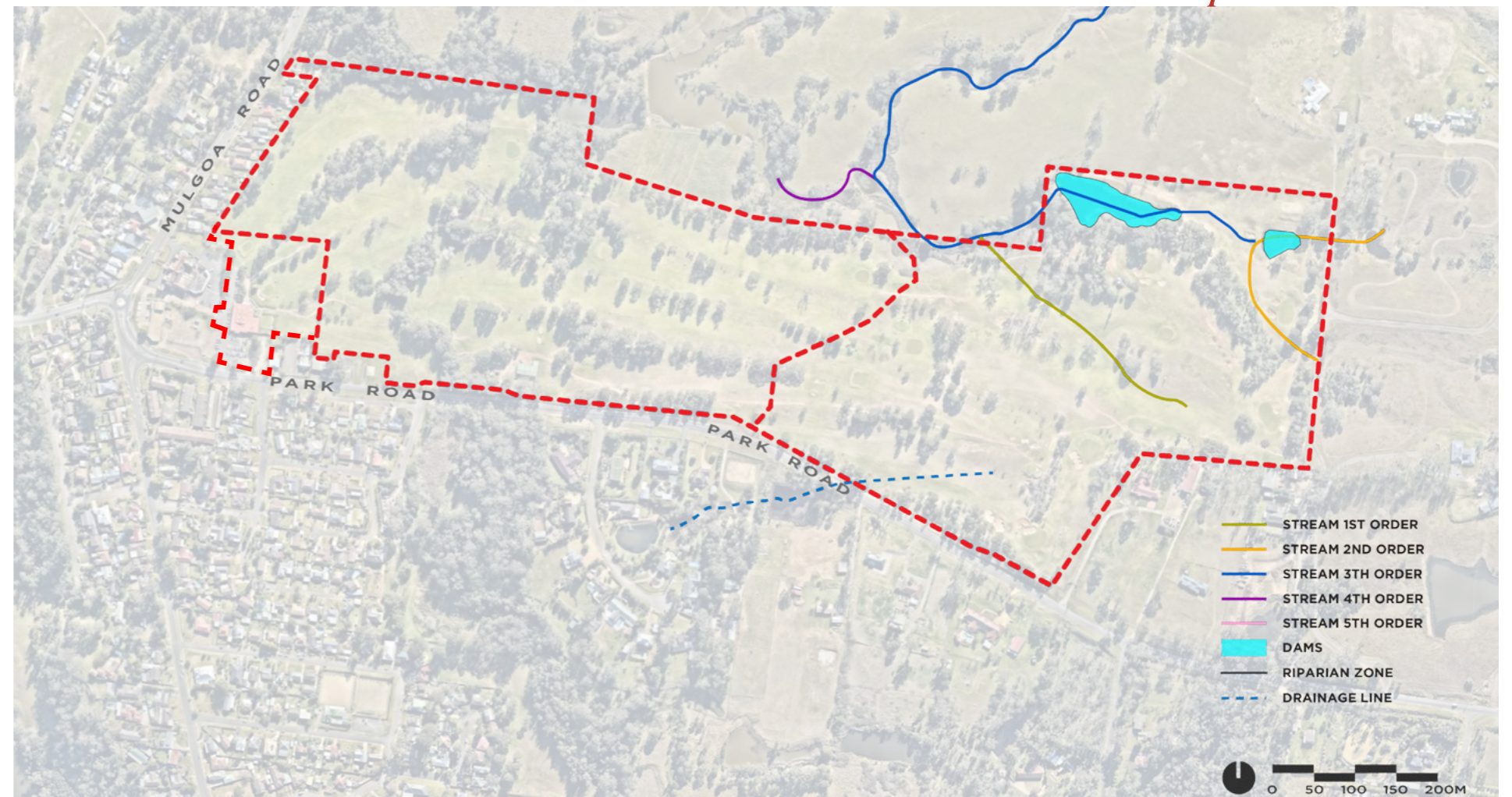


Figure 12. Watercourses Map

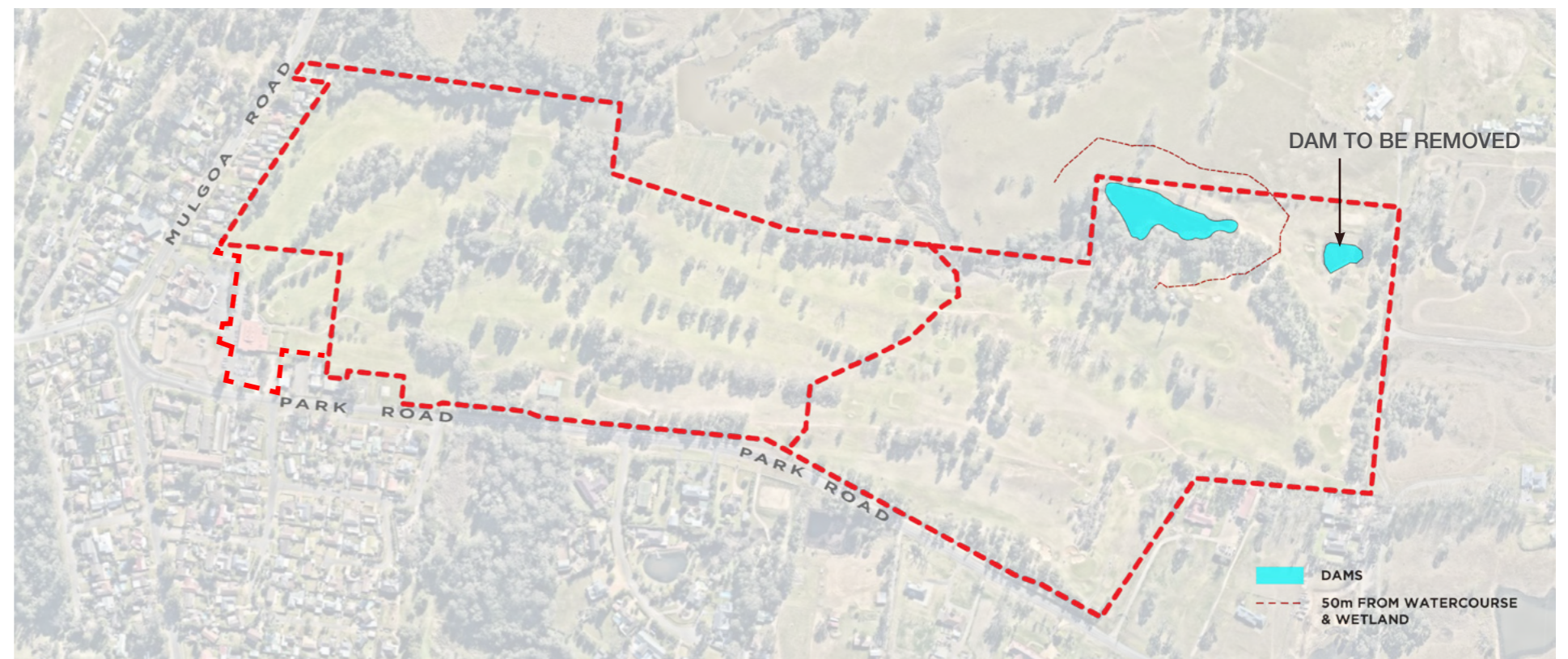


Figure 13. Prescribed burial distances from permanent water bodies

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### FLOODING

The likelihood of flood impact on the cemetery site was investigated by specialist consultants (refer GRC P/L report 2019)

Their findings include:

- The site is **not** impacted by Jerry's Creek local flood (Jerry Creek is located a significant distance west of the proposed cemetery site)
- The site may be subject to flood via the Nepean River gradually flowing back into the site and areas upstream of the site.
- The floods associated with the Nepean River have very low or no velocity and therefore no scouring potential. These flood events should not be a criteria to inform proposed interment locations.

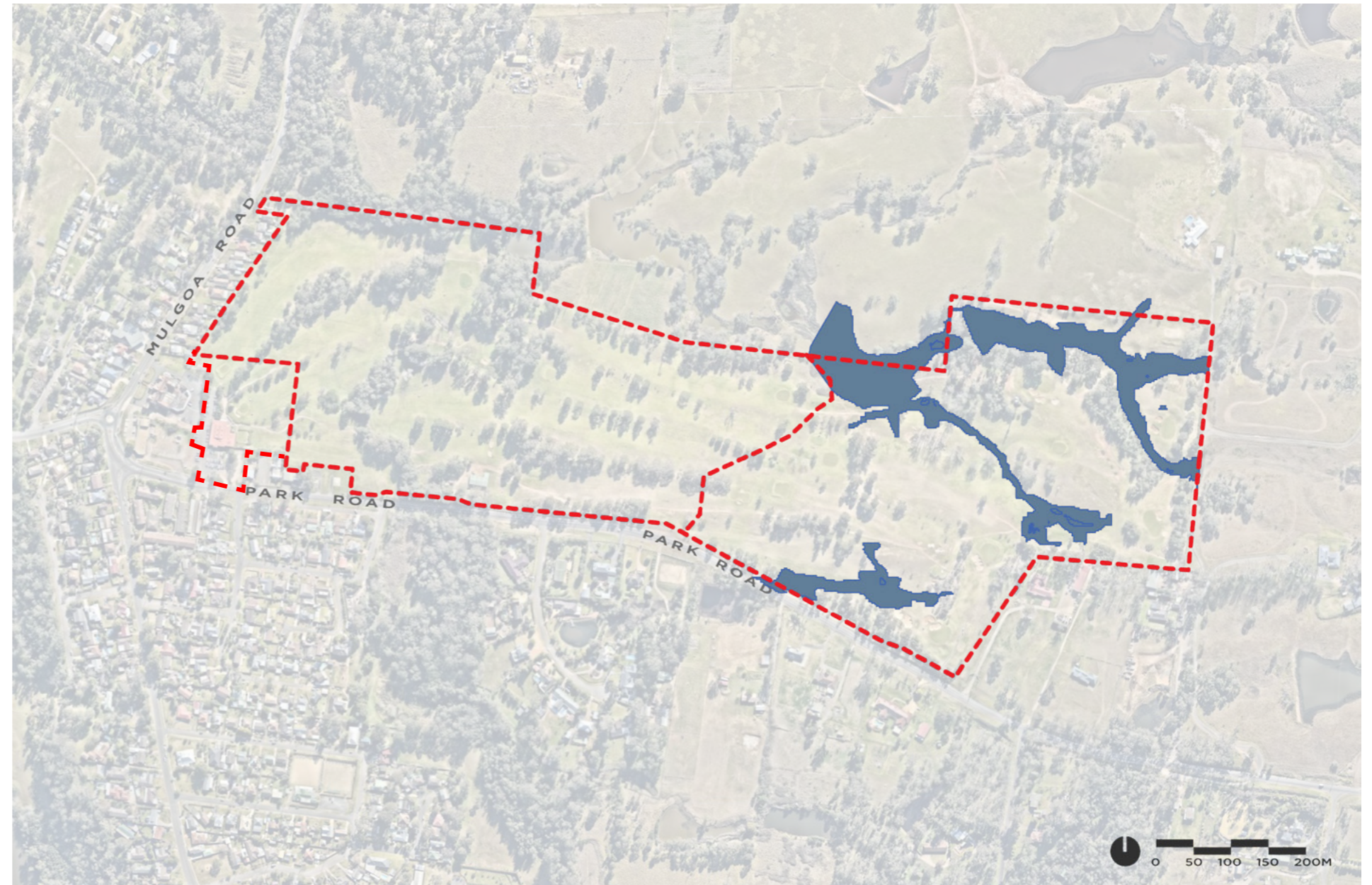


Figure 14. Flooding Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### SERVICES

As shown and as available from DBYD.

#### TRAFFIC AND NOISE

Refer to the Traffic Impact Assessment report by The Transport Planning Partnership (2019).

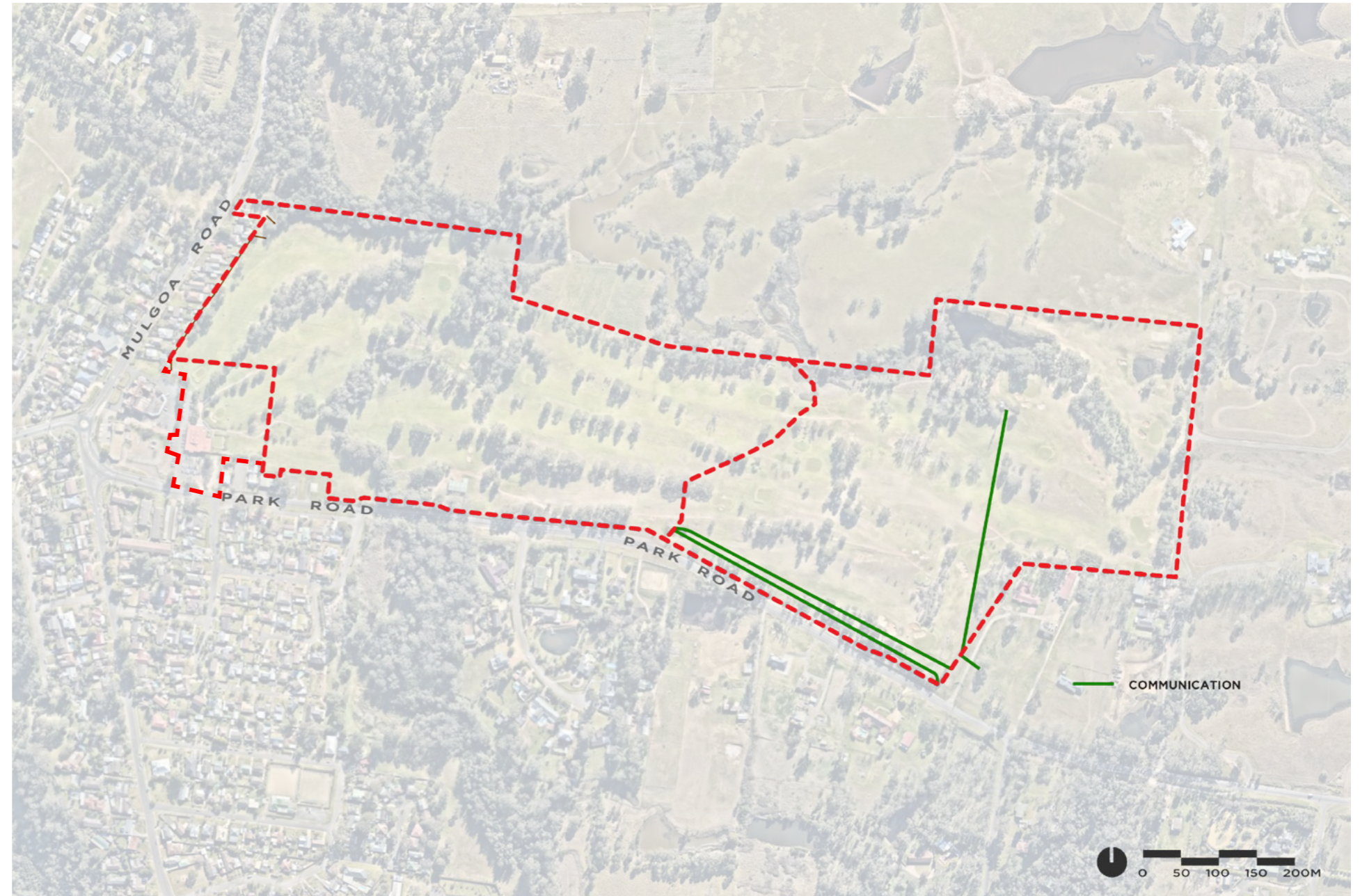


Figure 15. Services Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### ABORIGINAL HERITAGE

The present study area is thought to lie near the boundary of two major Aboriginal language groups, with Darug speakers occupying the region to the north and east of the Mulgoa valley, while the Gundungarra speakers were located to the south and west.

The moderate climate of the Cumberland Plain and its location within the wider Nepean River catchment is likely to have been conducive to Aboriginal occupation in the past. The study area lies within a resource base associated primarily with the Jerry's Creek watercourse, itself a tributary of the Nepean River. Habitats associated with the river would have supported a wide range of animals, fish, birds and mammals.

Due to the environmental setting, the Nepean River landscape would have been subject to a variety of human activities. This primarily would have been due to the presence of permanent water sources, followed by the sheltered camping locations and good resources availability in the immediate area. Activities would have included camping, hunting, gathering, cooking, ceremonies, and other cultural activities associated with semi-permanent settlement sites in the region. Some of these activities, mainly stone tool knapping, are seen in the archaeological record.

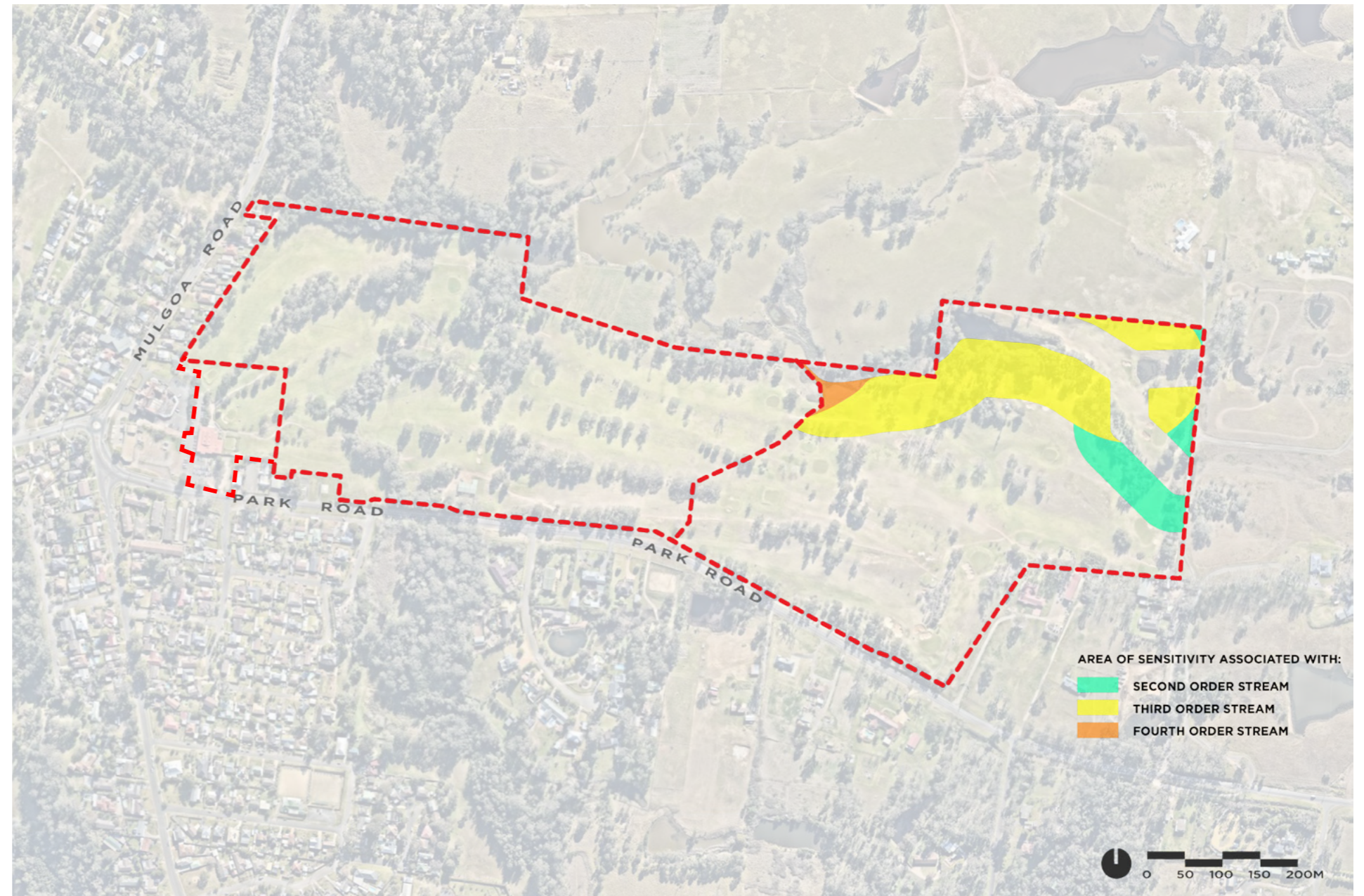


Figure 16. Aboriginal Heritage Map

## 2. SITE ANALYSIS

### 2.2 SUMMARY

#### EUROPEAN HERITAGE

The study area was originally part of a grant of 6,710 acres (2,715.4 hectares) given to John Blaxland on 30 November 1813 which he named 'Luddenham' and he used primarily for the grazing of livestock while preferring to reside at his Newington estate, on the banks of the Parramatta River.

The Luddenham estate was sold and subdivided in 1859, with the study area forming part of the central division. The Wallacia family moved into the cottage after Henrietta Wallace took over the lease in the early 1870s, several years after the death of her husband, Robert.

By the start of the 19th century, the Wallacia family were acknowledged as being the oldest continuous residents of the district, and named the Wallacia town after them.

The Wallacia golf club was founded in 1932.

The golf club was used for exercises during the Second World War, and an air raid shelter was reportedly constructed below the green of the 10th hole.

Beside potential remnants of an old track between Wallacia and Luddenham, there is no historical significance attributed to the proposed cemetery site.

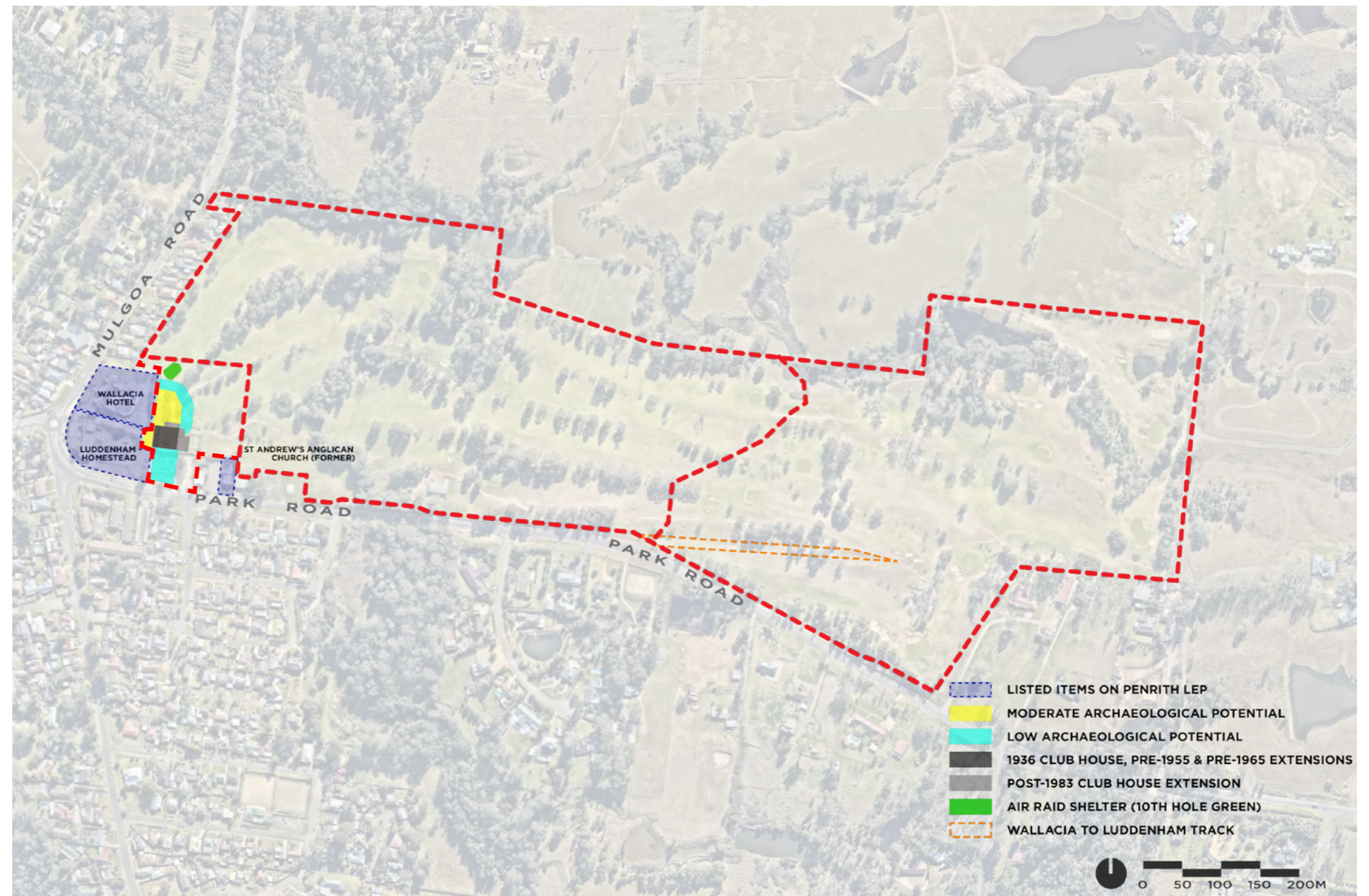
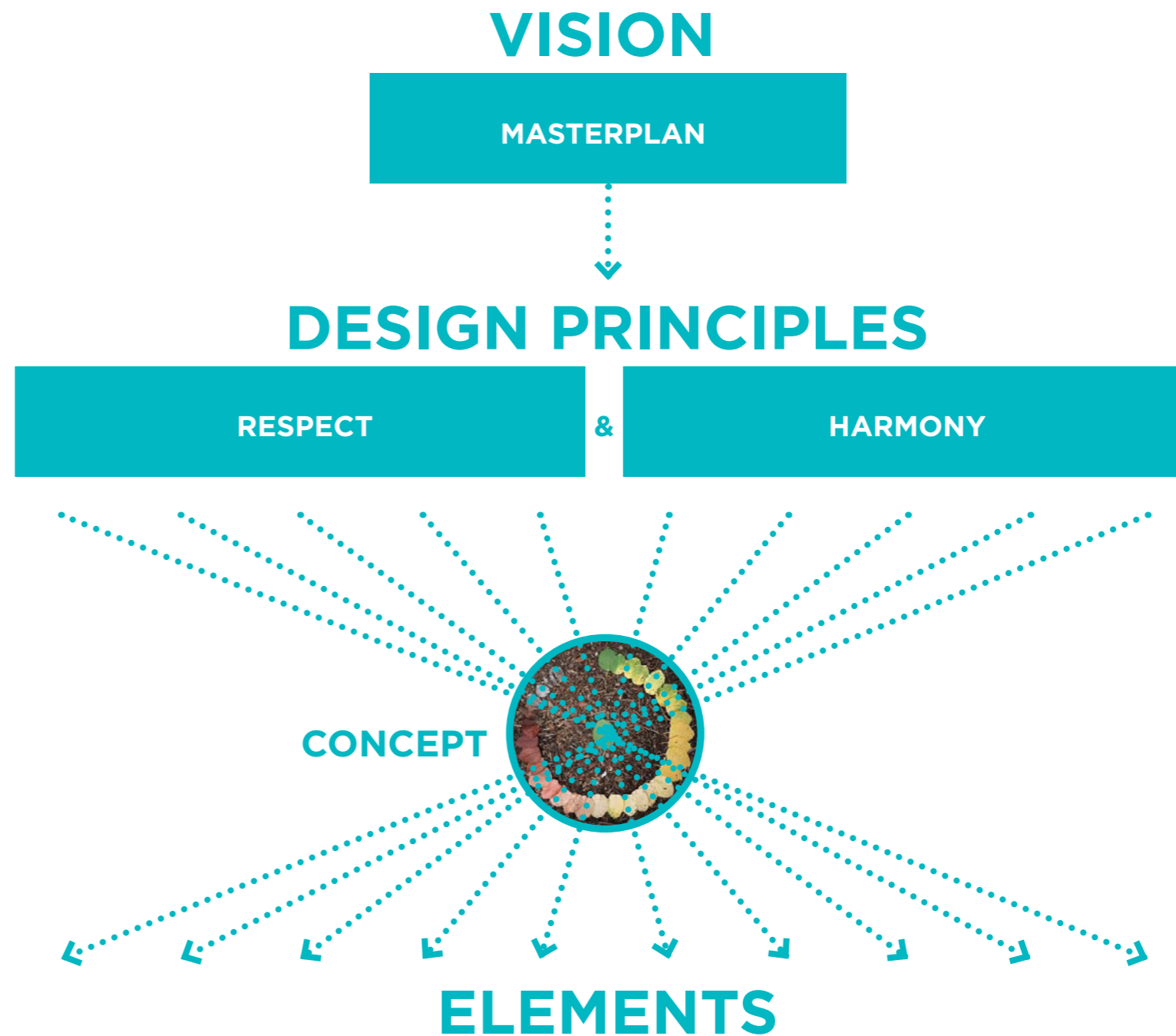


Figure 17. European Heritage Map

**3. DESIGN**  
**3.1 STRUCTURE**

HIERARCHY



FENCING, ROADS, PARKING STRATEGY, PEDESTRIAN NETWORK, BURIALS TYPES, ASH INTERMENTS, SCULPTURES, CUMBERLAND PLAIN WOODLAND, RIPARIAN ZONES & DAMS, WSUD, PLANTING PHILOSOPHY

### 3. DESIGN

#### 3.2 OBJECTIVE & PRINCIPLES

##### DESIGN OBJECTIVE

“ To create an inspirational, multi-denominational contemporary cemetery and public park ”

##### DESIGN PRINCIPLES

###### SUSTAINABILITY

Cemeteries need to consider their on-going function and sustainability.

Cemetery landscapes are evolving fast and moving with the times.

Long gone are the days of a “functional” cemetery, with “efficiency” as the only driver for its design.

Long gone should be the days when cemeteries fill, become forgotten, unusable and unmanageable destinations, with no connection with the community it used to serve.

The Cemetery Industry is responding to change and recognising that cemeteries are a part of the community’s life and landscape, that functionality need not be synonymous with barrenness and that their client’s expectations are evolving with their appreciation of environmental issues and a greater shift towards sustainable solutions.

The design of a cemetery should consider the continuing relevance of the site, to the community it serves, well after it is full.

It should be designed as a park, encouraging the community to use it for recreation pursuits like walking, jogging, relaxation and contemplation.

As others have already done , it should consider the use of its grounds and facilities for other community functions (weddings and other celebrations), film nights and art exhibitions.

It is also important to protect and respect the environment for a sustainable future:

- Minimise cut and fill.
- Minimise sealed surfaces.
- Minimise, capture, treat and re-use surface run-offs wherever possible.
- Minimise impact on the ecology of the site
- Retain vegetation and replace dead trees with healthy ones to maximise carbon-absorption and oxygen production.
- Re-use fill on site
- Source local products.



Figure 18. Mount Pleasant Cemetery, Toronto CA

### 3. DESIGN

#### 3.2 OBJECTIVE & PRINCIPLES

##### DESIGN PRINCIPLES

###### MULTI-CULTURALISM

Although operated by CCB, a Catholic organisation, this Memorial Park will be welcoming all regardless of faiths and colour.

As such it symbolises the multi-cultural society Australia is made of.

The design will therefore take into consideration the grieving process, traditions and necessary references relevant to a range of cultural groups. Yet the design needs to be flexible enough to adapt to the changes Australia is likely to face over the next century as migration patterns change.



Figure 19. *Competition of Multicultural Practices and Symbols*

### 3. DESIGN

#### 3.2 OBJECTIVE & PRINCIPLES

##### DESIGN OBJECTIVE

###### LEGACY

The role of a cemetery is also to keep a record of social patterns as well as individuals' information.

Cemeteries are also the repository of rare or significant specimen trees as they can be allowed to grow to their potential and protected from excessive development.

The site already contains a great collection of mature trees. Building upon this great resource, the cemetery will strive to provide more variety through the concept of an Arboretum.

The presence of artwork in cemeteries can also contribute to the contemplative function of the site and grieving process, all of which used to be represented through funeral artwork. Contemporary artwork can now take over the same function.

We see any artwork and an Arboretum as important legacies to future generations and key destinations for the local community and the broader region.

Both art and trees offer countless opportunities to interpret the site specific heritage and stories.



Figure 20. Legacies

### 3. DESIGN

#### 3.2 OBJECTIVE & PRINCIPLES

##### DESIGN PRINCIPLES

###### THE CIRCLE

The "Circle" is the most protective of all shapes. Its concave and perfect shape is psychologically reassuring.

All of humanity throughout the times have revered its shape as a symbol of fertility, as the ultimate protection, as a symbol of eternity, timelessness, sacredness and the Divine.

It represents all cyclic movements, the rhythm of time, the revolutions of the earth around the sun, the cycle of seasons, the cycle of life and death.

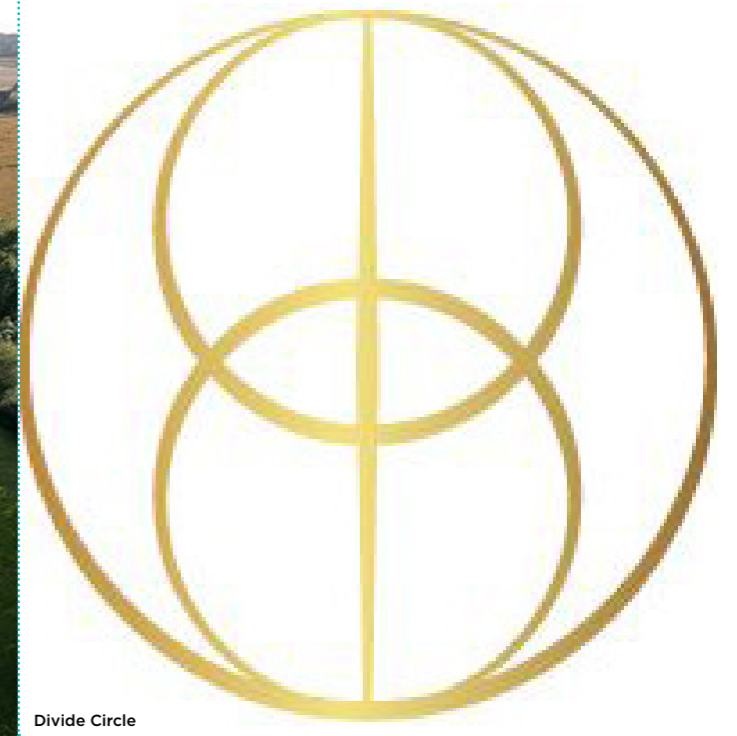
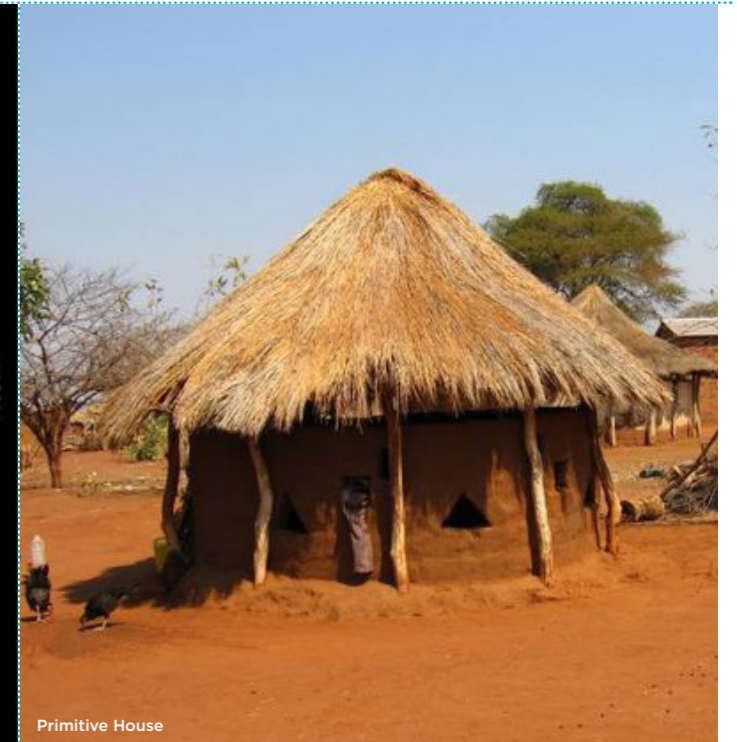


Figure 21. Circle Symbolism

## 4. NARRATIVE 4.1 DESIGN NARRATIVE

### THE CYCLE OF LIFE

The circle or cycle of life is a foundation of many religions: Life and Death without begin or end, reincarnation, rebirth, resurrection and life after death.

It is also visible in all living things on earth:

- The inevitability of death in all living things, with the return to earth after death regardless of one's beliefs after death.
- The passing of the seasons, with seasonal colours and loss of leaves.
- The passing of time, with the sun's endless rotation from East to West.



Figure 22. Cycles of Life

**4. NARRATIVE**  
**4.2 FORM**

**SITE INTERPRETATION**

**CIRCLE**

The 3 circles representing life's cycle (Birth, maturity and death) all aligned on the continuum of life represented by the strong landscape axis.

Like the sun it start small to the East to set, much stronger, to the West.

**JOURNEY**

The meandering of life's journey represented by a path meandering though the cemetery.

**COLOUR**

The colour changes in the vegetation, the spring blossoms and the autumnal colour displayed throughout the cemetery.

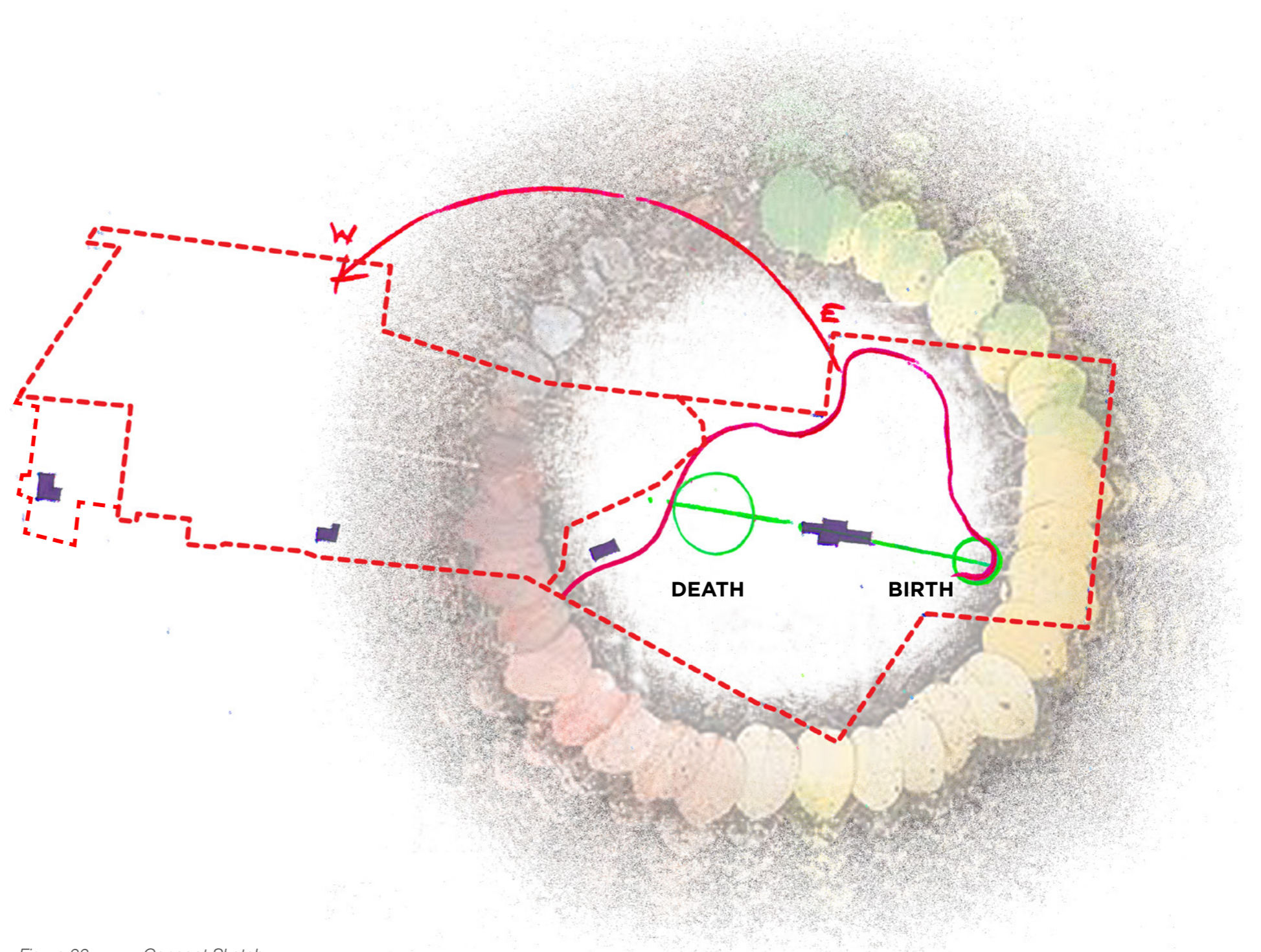


Figure 23. Concept Sketch

**4.**  
**4.2**      **NARRATIVE**  
              **FORM**

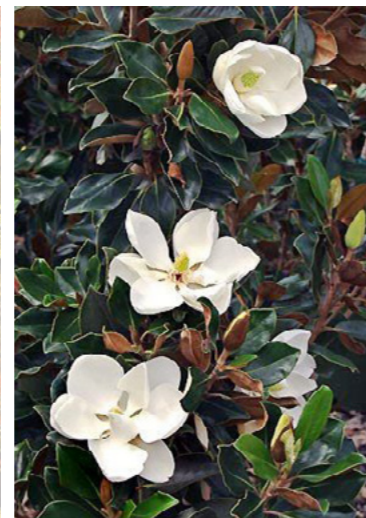
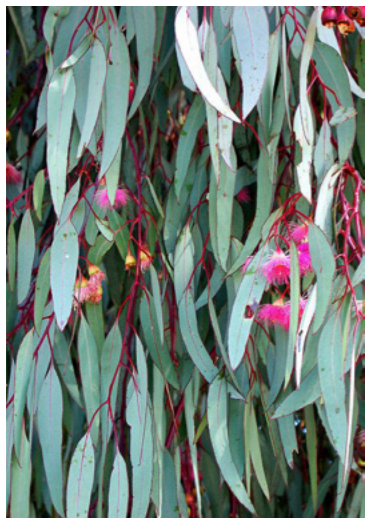
**CIRCLE**



**JOURNEY**



**COLOUR**



## 5. MASTERPLAN

### THE VISION

As previously mentioned, the Vision for the site is:

- A distinctive landscaped cemetery, in line with CCB's aspirations to be the best and the pride of the cemetery industry.
- A respectful space open to all,
- A cemetery which respects and safe keeps any important colonial and indigenous landscapes.
- An Arboretum for future preservation and education of generations to come.
- A concept which respects the Land, its landform and ecology by carefully laying roads and any built environment around existing trees.
- Private burial spaces, partially concealed from the internal roads so as to provide privacy to mourners and minimise visual impact throughout.
- Much needed burial space for the area whilst offering choice, at affordable prices, in varied settings, for a multi-denominational community.

### KEY ELEMENTS

- A road network which respects the Land onto which it sits and minimises cut and fill.
- A parking strategy which provides formal parking at all building locations and informal road-side parking elsewhere
- Short walking distances to all interment areas (50-70m max)
- Landscaped grounds with seasonal colours and well maintained.
- Plantings along the internal roads and around the burial zones for screening and beautification.
- Retention of water features/dams
- Creation of new ones for water treatment and retardation (WSUD and stormwater management)
- Views and vistas preserved and enhanced with new ones added by creating focal points
- Burial zones with flat plaques to high headstones in a lawn setting
- Memorial gardens for ash interments

For more details, refer to next Chapter - "Design elements"

**5. MASTERPLAN**



Figure 24. Masterplan

## 5. MASTERPLAN

### PURPOSEFUL LANDSCAPE

The proposal offers distinctive landscapes, each responding to its own setting and requirement:

#### THE RECREATIONAL LANDSCAPE

Generally located around the northern watercourse, it gives a reflective and contemplative “spine” to the site.

It goes deep into the site along its waterways, linking dams and pockets of significant vegetation for all to enjoy and appreciate. It is associated with a 2 kilometre network of paths through changing vegetation and topography, enjoying views onto the Chapel whilst keeping a respectful distance.

#### MEMORIAL LANDSCAPE

Generally related to the burial areas which are the most visible forms of memorialisation.

Generally located deeper into the site and away from preying eyes, the memorial landscape blends into the site’s character with strong tree structure and lawn on rolling hills.

It responds to the need for privacy, cultural diversity and protection from the elements by providing some pockets of burial grounds, open or protected by vegetation screens.

It respects the grieving process by generally separating it from the recreational areas. It assists the same grieving process by providing a beautiful, well-managed setting for contemplation and commemoration. These landscapes have a healing function and provide a better setting for mourning.

The memorial landscape is host to the Chapel and Administration building.

Most importantly, the Memorial landscape has been designed as if it was a park to ensure that:

- The public feels an affinity with and respect for the site,
- A sense of ease in contrast to the unease often felt around cemeteries,
- A sense of pride that the Memorial Park is well cared for and a beautiful place for loved ones and,
- An uplifting experience each time they visit.

And when the cemetery is full, the Park will still offer the same advantages it did when operating, as it will be regarded as a park in its own right.

#### THE BUFFER LANDSCAPE

Within the 15m buffer/setback zones running along all boundaries, the landscape is expected to perform a screening function for the benefit of neighbouring properties but primarily for the privacy of mourners.

It will be hosts to the existing windbreaks and future memorial gardens for ash interments.

#### THE SCULPTURAL LANDSCAPE

The role of the Sculptural landscape is to link the Recreational and Memorial landscapes and create a thread between the two throughout the site.

A number of quality, contemporary and non-religious sculptures will adorn the site along the main landscape axis. They will become focal points in the landscape. They will be in keeping with the “Circle of Life” theme.

#### THE PLANT COLLECTION/ARBORETUM

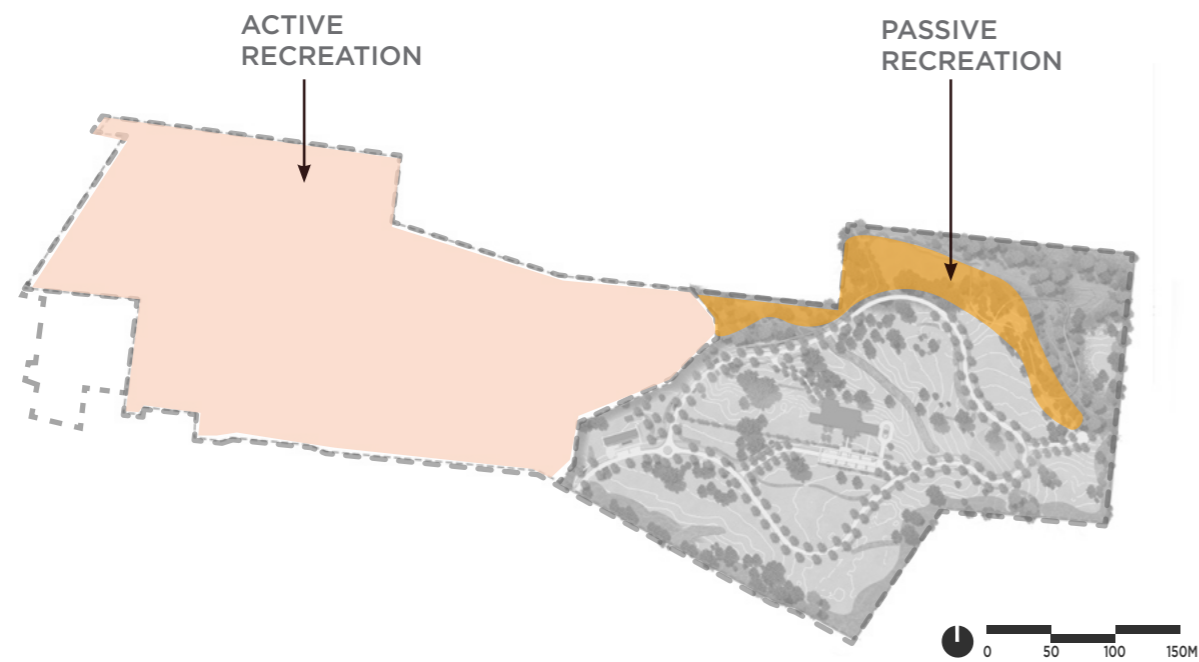
As previously mentioned and as is often the case, cemeteries can be the repository of significant or rare specimen plants. This is an important role cemeteries play for future generations and the proposals enable this tradition to continue by:

- Protecting the CPW on site
- Building up a tree collection over time

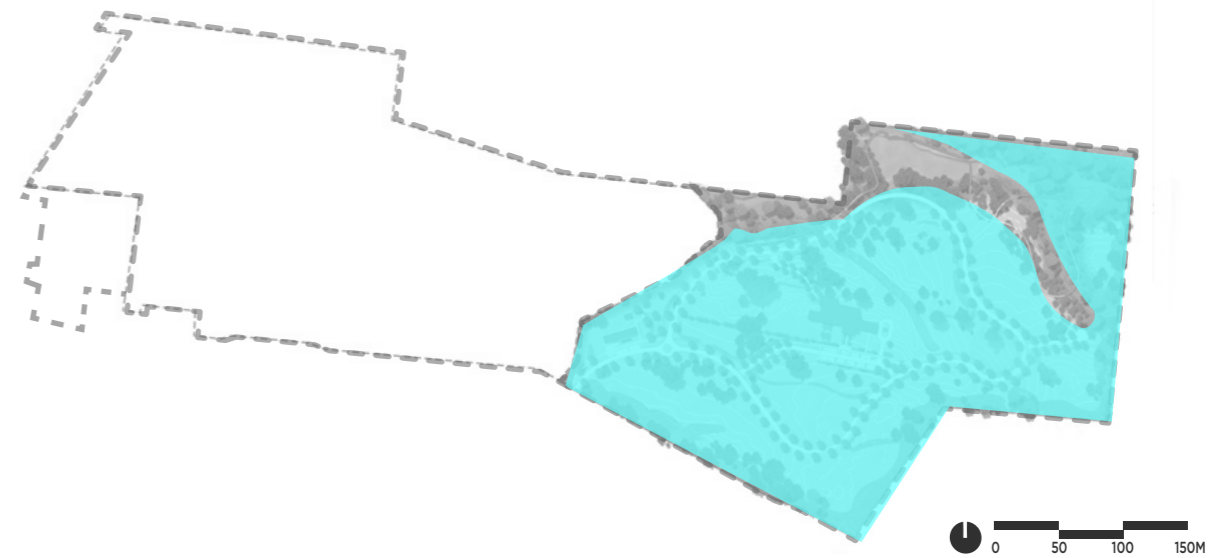


Figure 25. *Rainbow Eucalyptus*

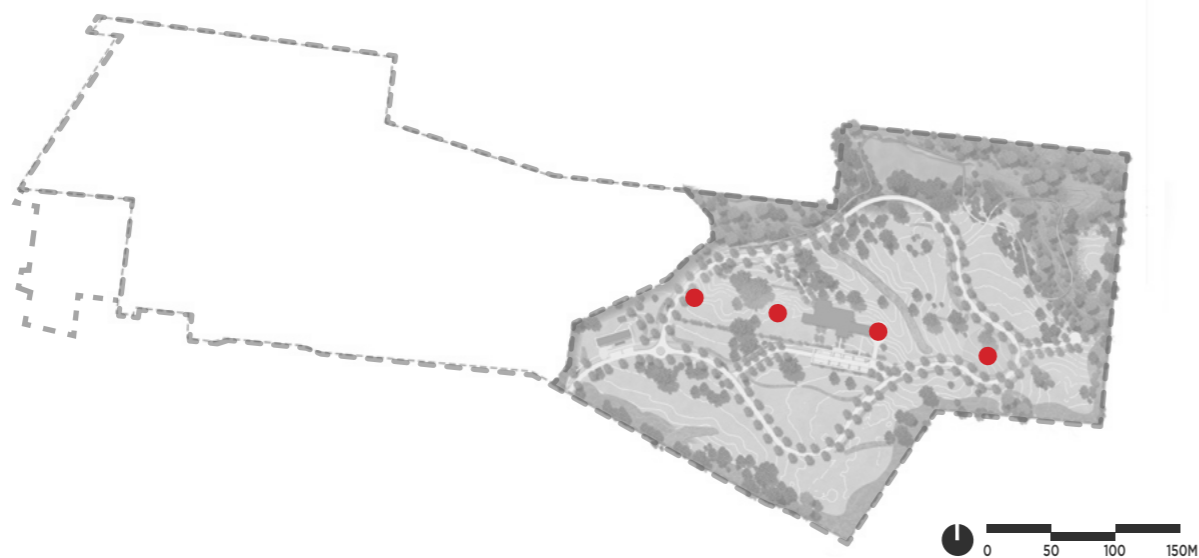
## 5. MASTERPLAN



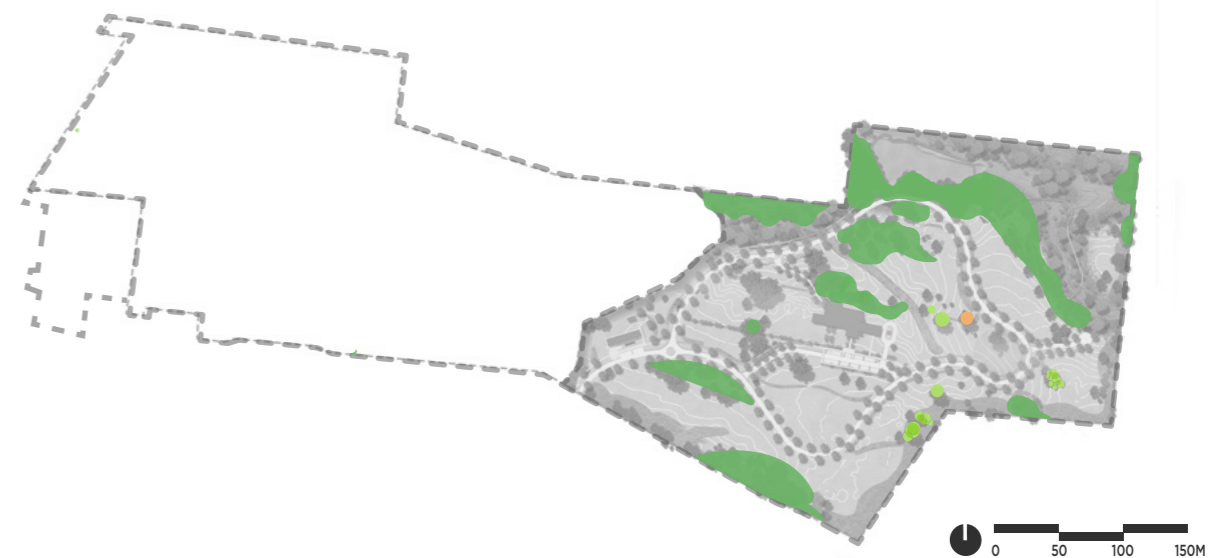
THE RECREATIONAL LANDSCAPE  
(IN CONTEXT)



MEMORIAL LANDSCAPE



THE SCULPTURAL LANDSCAPE



THE PLANT COLLECTION/ARBORETUM

## 5. MASTERPLAN

### THE MOURNING PROCESS

The Masterplan proposals are primarily targeting the experience of the mourner:

The experience of the recreational visitor is important but secondary.

- His/her arrival, journey through the site,
- His/her destination to the Chapel for a service,
- His/her destination to the Administration building for an enquiry,
- or a grave site for visitation.

The experience of the recreational visitor is important but secondary.

### PSYCHOLOGY BEHIND THE GRIEVING PROCESS

To design a cemetery, it is important to understand the funeral process, the psychology behind the grieving process and the changing moods of the mourners evolving along their journey through the funeral rituals. It is crucial to incorporate all of it into the design of buildings and the surrounding landscapes.

First impression is always important: the gates complement the architecture and the stunning landscape of rolling hills and trees.

Wayfinding needs to be clear in time of grief with simple road systems, a main road leading to exits and main buildings.

Accessibility is an issue for both mourners and the elderly (which constitutes the majority of visitors) so clear paths, short walking distances and easy parking throughout are a must.

A caring approach needs to be displayed in all aspects of the design but also in all aspects of operations. Both are intrinsically linked.

The burial grounds must remain at human scale. They have therefore been divided into smaller areas. This enables to provide more intimate spaces as well as cater for a variety of cultural and religious groups which often demands physical separation.

### BUILDINGS AND CIRCULATION

The administration/office is the first visible building from Park Rd and the main entrance. It is a destination on its own, usually for enquiries and pre-arrangements. It is half way between the workshop and the Chapel and provides a link in staff movements between all buildings.

The Chapel is carefully sited on the edge of a steep hill and way from the main ridge on site to minimise its visual impact and take advantage of the topography for basement access.

It is located in the eastern part of the site, where views onto the iconic Blue Mountains can be enjoyed. This elevation (even if not on top of the ridge) responds to its religious function and the aspiration of faithful mourners to be close to their God.

From the main gate, the Chapel will be visible after the first bend and mourners will be logically drawn to it, following the sweeping roads gently climbing towards the east.

The road leads to carpark provided adjacent to the buildings. A small "off-shoot" road enables visitors to drop off any less-able relatives directly at the entrance of the building complex. It will also be used by the hearse to deliver the coffin to the Chapel as part of the funeral service.

The funeral wakes can be held at the proposed St John's Bowling Club function rooms. It is purposely separated from the Chapel to respond to the change of sentiment/mood experience by mourners after a Chapel service. Their journey between the two buildings represents the journey between the "mournful service" and the "celebration of life" which follows.

Its separation from the Chapel gives it a more private venue in which mourners can mingle, talk and commemorate... loudly if need be, something that would be detrimental if located close to the quiet Chapel.

It is envisaged that the condolence rooms may be available for use by the community for other celebratory functions like weddings or birthdays as is increasingly the case around the world.

This reflects a growing trend to re-incorporate cemetery activities into the heart of communities and break down the taboo of Death.

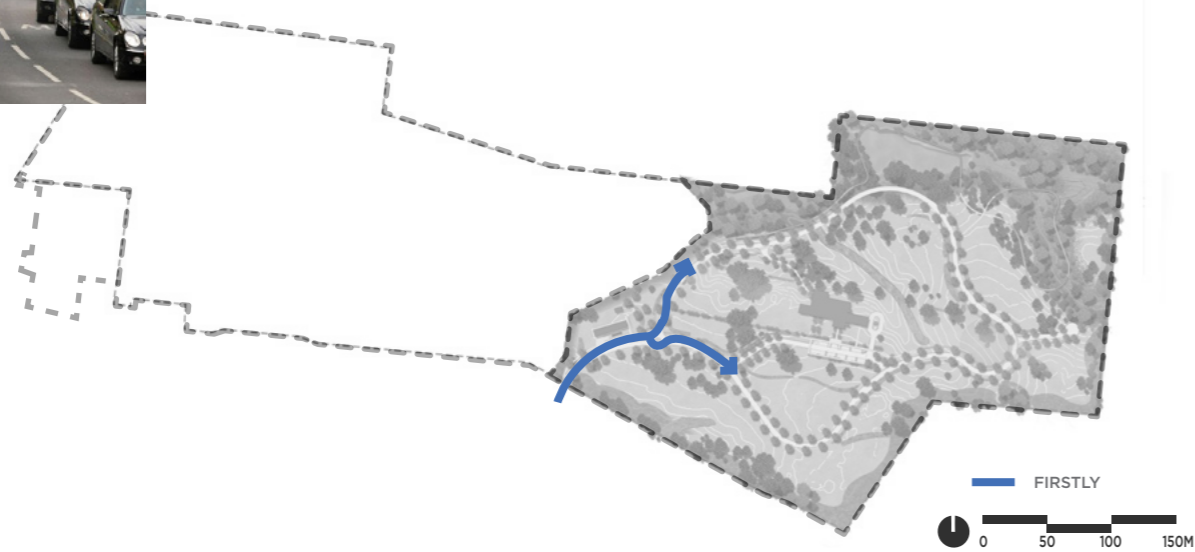
The workshop and ground staff facilities for both the Golf Course and the Cemetery will be combined in the vicinity of the existing Golf Course Workshop, just off Park Road. It is easily accessible. It is centrally located and accessible from within the cemetery. It therefore provides easy access to the interment areas for the day-to-day operations.

In summary, the Masterplan delivers a stunning Memorial Park, well integrated and respectful of its surroundings, the pride of the cemetery industry at large, an inspiration to others and an example of how cemeteries should continue to be designed in the future.

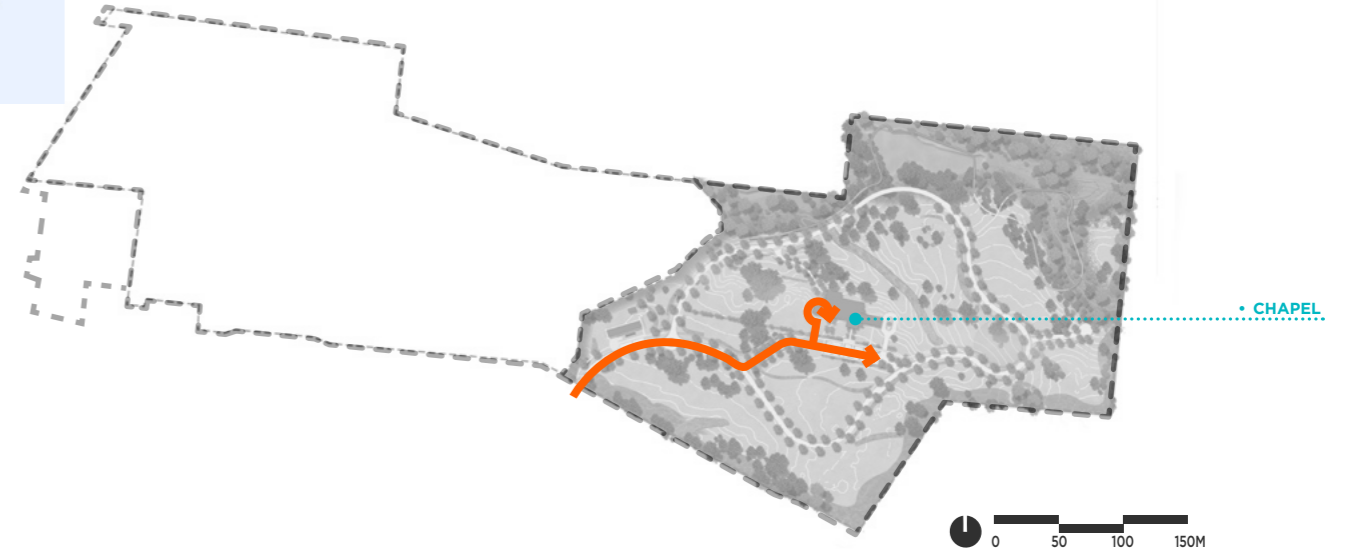
The next chapter concentrates on the detail of each design element, theme by theme, describing:

- The design principles which guided it
- The rationale behind the design
- The aesthetics and
- The location and distribution of each one.

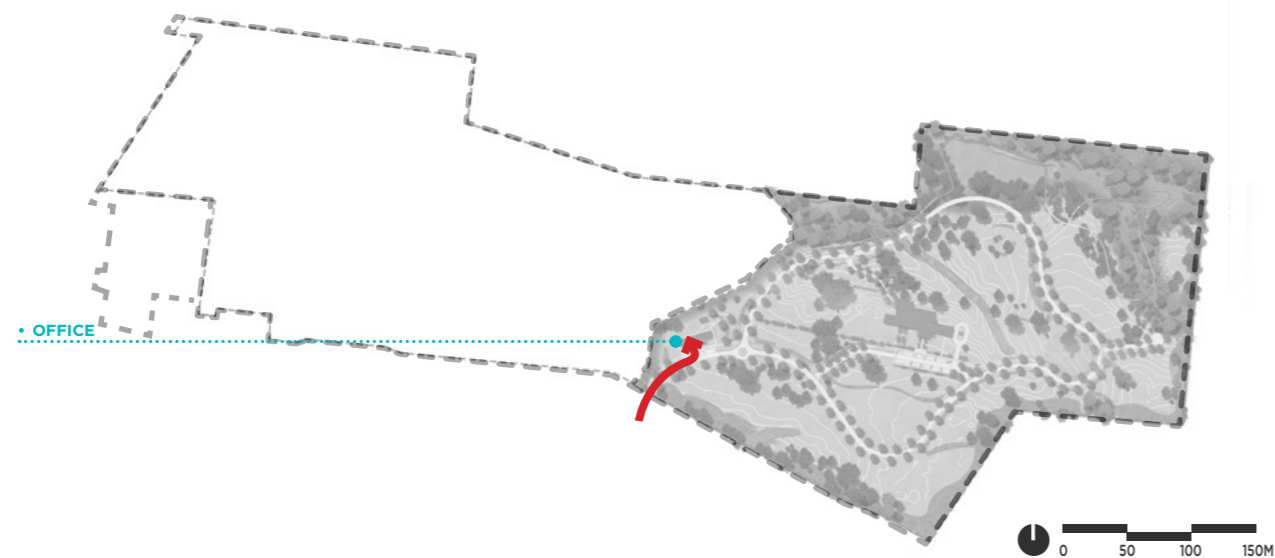
## 5. MASTERPLAN



FUNERAL CORTEGE TO GRAVE SITE



CHAPEL SERVICE



OFFICE ENQUIRIES



CASUAL VISITOR

## 6. DESIGN ELEMENTS

6.1	FENCING
6.2	ROADS
6.3	PARKING STRATEGY
6.4	PEDESTRIAN NETWORK
6.5	BURIALS TYPES
6.6	BURIAL ROOMS
6.7	ASH INTERMENTS
6.8	SCULPTURES
6.9	CUMBERLAND PLAIN WOODLAND
6.10	RIPARIAN ZONES & DAMS
6.11	WSUD
6.12	PLANTING PHILOSOPHY

## 6. DESIGN ELEMENTS

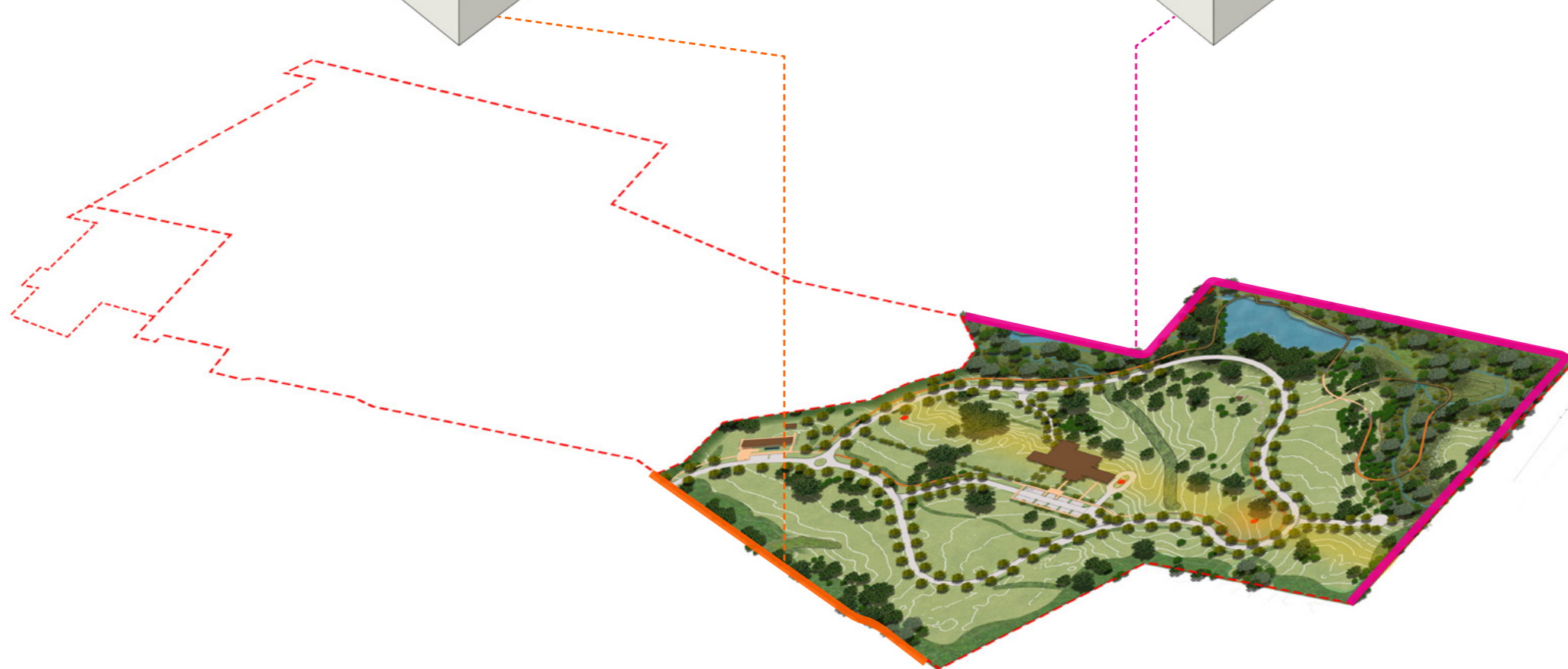
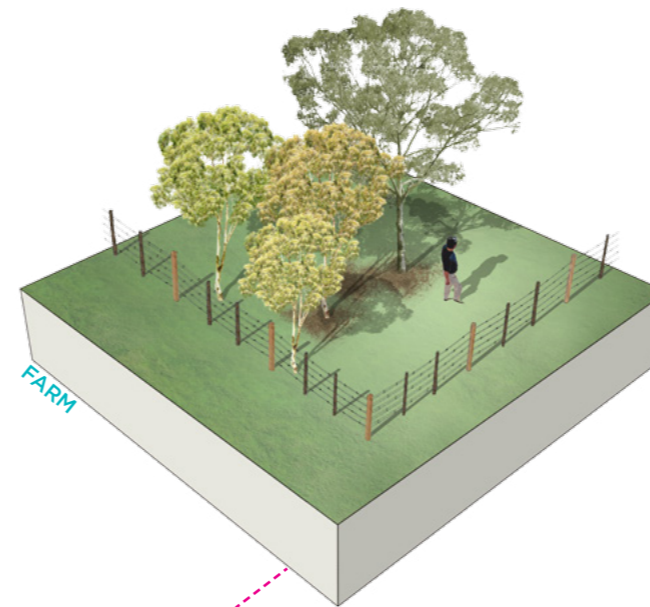
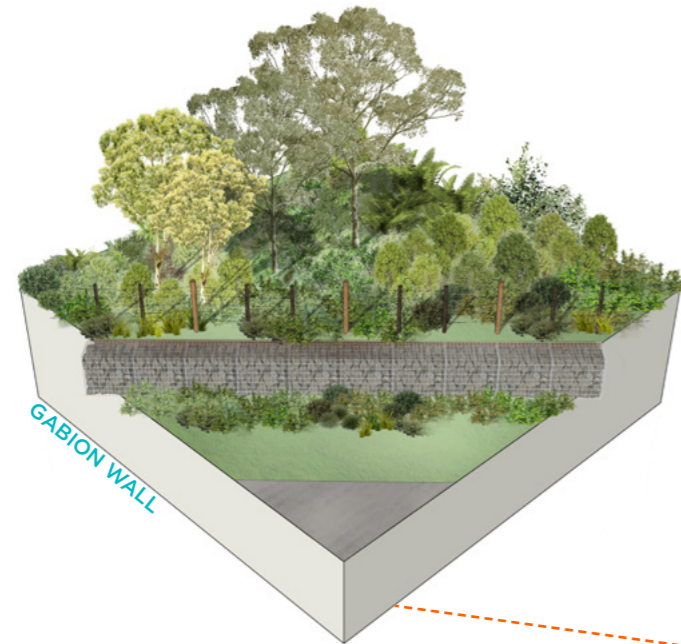
### 6.1 FENCING

#### DESIGN PRINCIPLES

- Contemporary
- Sustainable through longlife materials
- Sustainable through recycles materials

#### RATIONALE

- Retain 'post and wire' or existing rural fencing on all private boundaries.
- Provide long lasting, low and transparent fencing on frontage to public land.
- Recessive amongst vegetation
- Provide fencing which restrict vehicle access outside of nominated entry points yet allows pedestrian access 24/7.
- Provide entry points with entry statement and signage.
- All entry points to be gated. Entry gates and walls to be larger at main entrance.
- Vehicular entry points to be closed/locked at night.
- Fencing to be implemented in stages and associated with the progressive expansion of the cemetery.



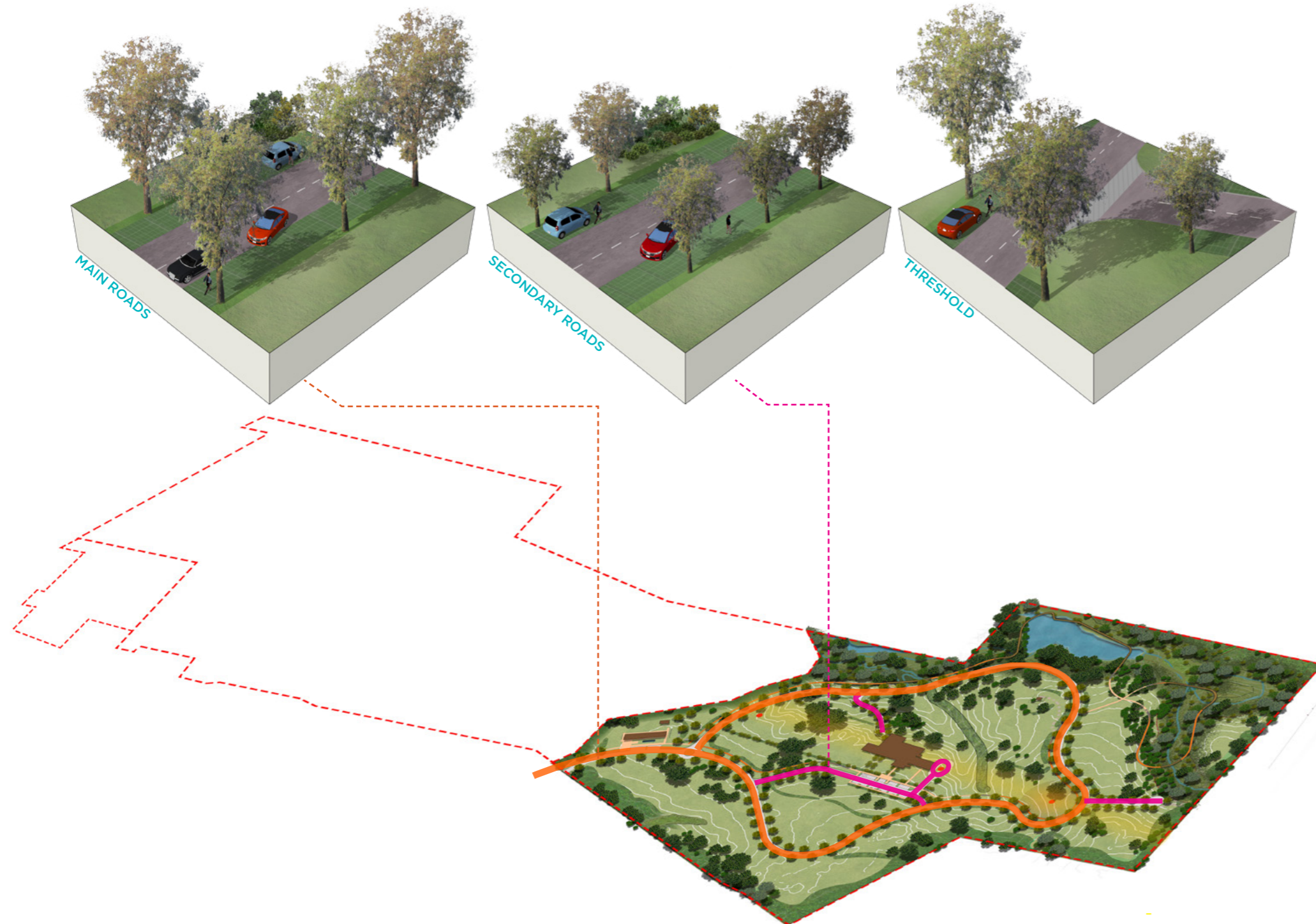
## 6. DESIGN ELEMENTS

### 6.1 FENCING



## 6. DESIGN ELEMENTS

### 6.2 ROADS



#### DESIGN PRINCIPLES

- In harmony with funeral and mourning process
- Respect visual quality of the site
- Sustainability through minimal sealed surface
- Sustainability through minimal cut and fill
- Sustainability through limited tree removal

#### RATIONALE

- Roads have been placed to minimise impact on the landscape and the ecological areas.
- Cut and fill has been kept to a minimum by setting the centre line of all roads at existing ground level (except where gradient is too steep for road standards)
- Cut and fill on road edges is treated with gabion walls where space is restricted or 1:3 embankments where planted or 1:6 to 1:8 slopes where grassed.
- Road width and layouts are compliant with RFS requirements and other relevant standards (refer civil and traffic reports).
- Stormwater run-offs are collected either at the road side with and “end -of-line” treatment or directly into ponds/retarding basins. (refer WSUD report)
- Main roads are defined as links between public entry and the main exit point.
- Main roads are sealed with flush or rollover kerbs and flanked with larger street trees.
- All secondary roads have a threshold treatment at its junction with the main road to highlight the hierarchy difference and assist in way finding.
- Above mentioned thresholds are to be noticeable, durable, decorative and in keeping with the design narrative.
- Materials are asphalt with concrete kerbs.

## 6. DESIGN ELEMENTS

### 6.2 ROADS



## 6. DESIGN ELEMENTS

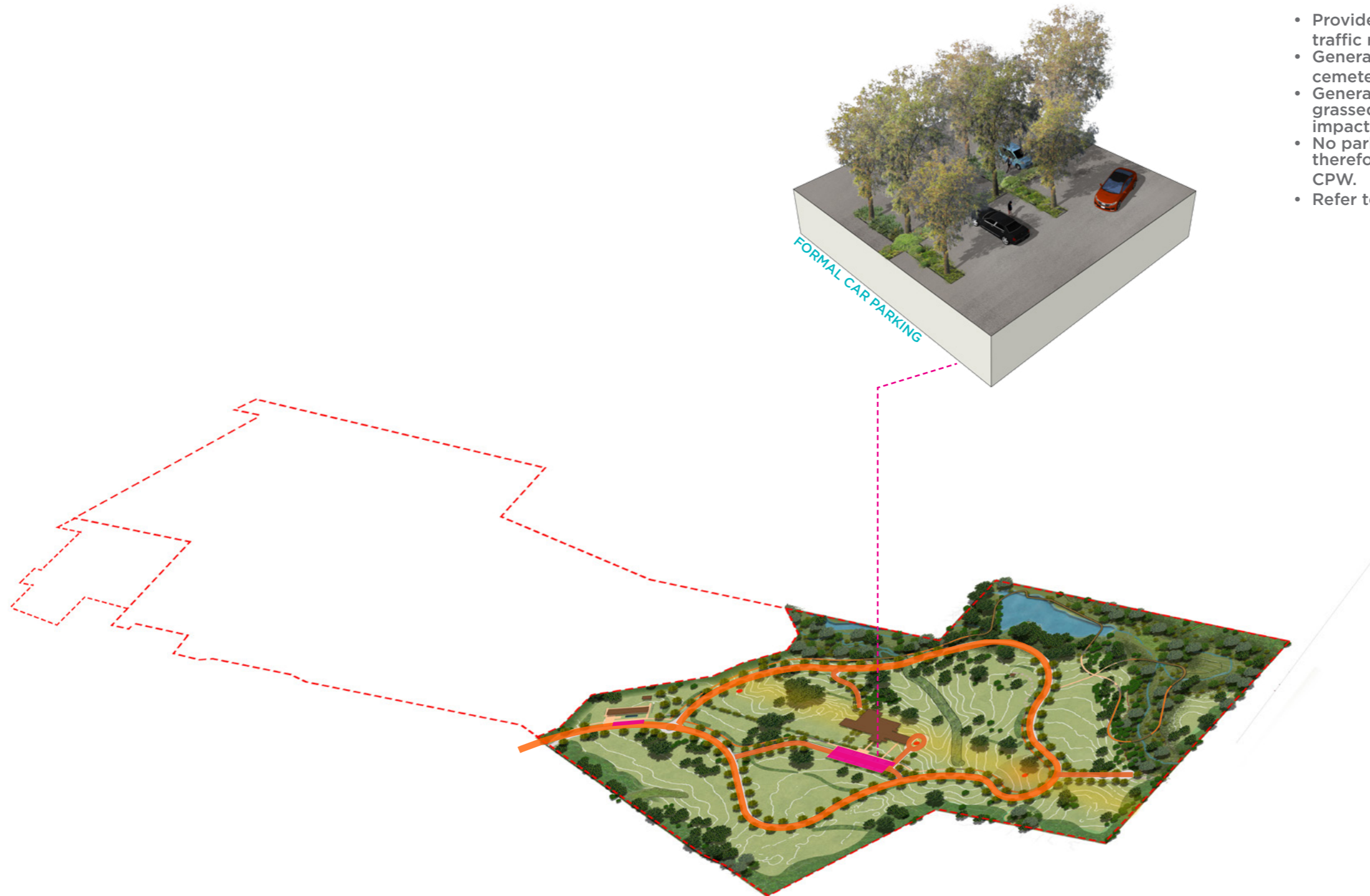
### 6.3 PARKING STRATEGY

#### DESIGN PRINCIPLES

- Minimise Visual and Environmental Impact
- Minimise cut and fill
- Minimise sealed surfaces

#### RATIONALE

- Provided in the vicinity of all buildings (refer Architectural and traffic reports for numbers)
- Generally road side elsewhere, to facilitate access to grave site by cemetery visitors and minimise walking distances.
- Generally provided on both sides of the roads, on reinforced grassed surfaces to minimise hard impervious surfaces and visual impact.
- No parking verge provided near CPW to minimise width and therefore minimise cut and fill and ultimately minimise impact on CPW.
- Refer to civil drawings for detailed extent of parking.



## 6. DESIGN ELEMENTS

### 6.3 PARKING STRATEGY



## 6. DESIGN ELEMENTS

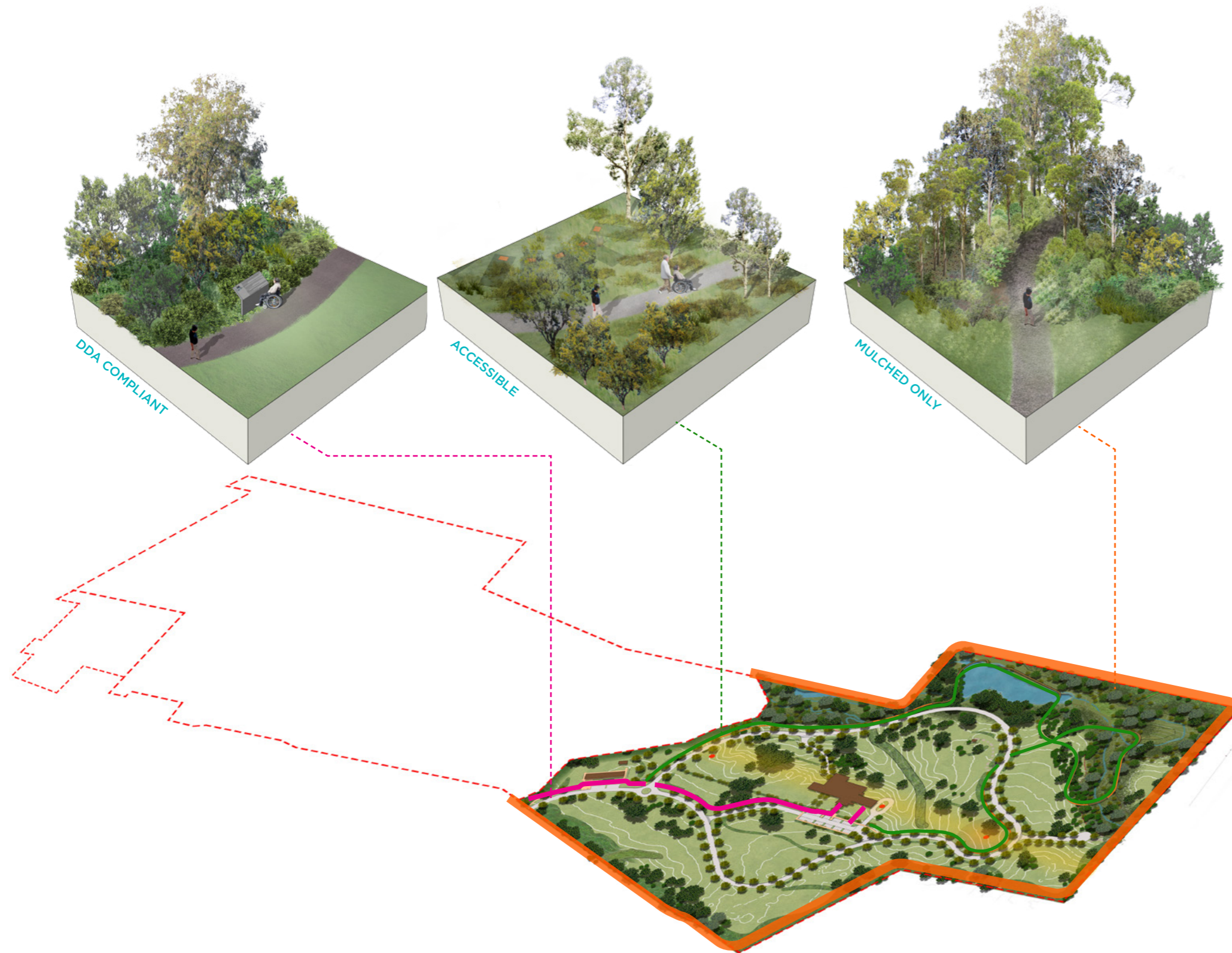
### 6.4 PEDESTRIAN NETWORK

#### DESIGN PRINCIPLES

- In harmony with environment
- Minimise Visual and Environmental Impact
- Accessibility for all

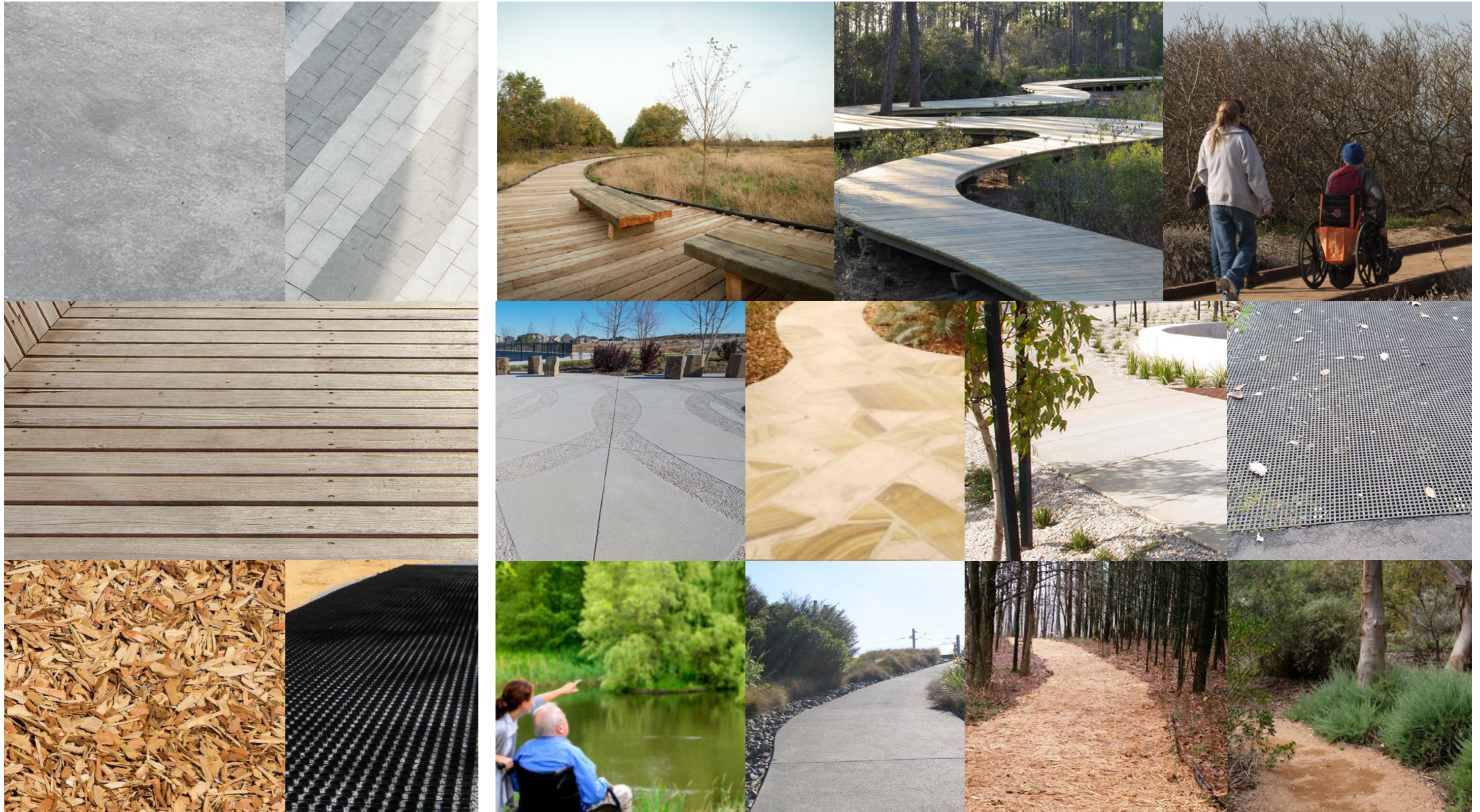
#### RATIONALE

- Generally 1.5m wide for sealed paths
- Providing access through all areas of Public Open Space and linking them through a network of approximately 2 kilometres of walking paths.
- Paths are memorialised in places, consisting of individual interment markers of contemporary style, with sculptural qualities, along the edge of selected paths. (refer Ash Interments herein)
- Paths are either:
  - DDA compliant: near and in between buildings. Materials will be either concrete or asphalt.
  - DDA - non compliant:
    - Wheelchair accessible through most of the Public Open Space areas and to the entrance of each burial areas.
    - Materials will be either concrete, asphalt, timber or matting .
    - Mulched in the memorial forests and buffer zones.
- Boardwalks are generally located where a crossing is required over water courses and drainage lines
- Boardwalks are generally timber with non-slip property, on steel frame structure for ease of maintenance and durability.



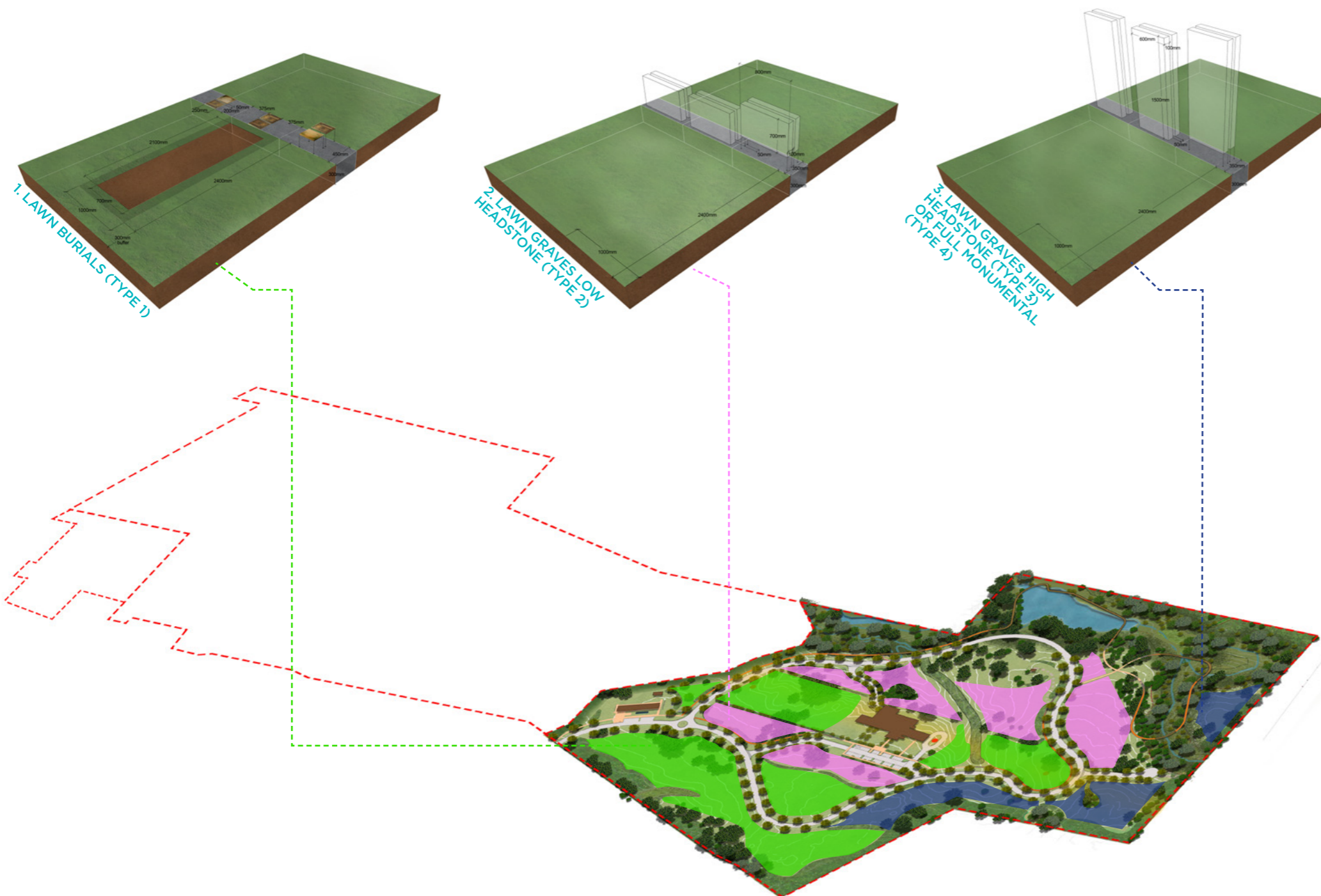
## 6. DESIGN ELEMENTS

### 6.4 PEDESTRIAN NETWORK



## 6. DESIGN ELEMENTS

### 6.5 BURIALS TYPES



### DESIGN PRINCIPLES

- Contemporary
- Respect visual quality of the site
- Respect mourning process
- Respect multi-faith and multi-cultural society

### RATIONALE

- Minimise visual impact of cemetery along the main axis.
- Generally, grave rows follow existing contouring of the land.
- Re-grading only where localised water ponding may occur.
- Minimise visual impact of cemetery from the main internal and Park roads.
- Create “screens” to minimise visual impact of memorialisation from the main roads.
- Provide 4 types of “burial interments”:
  1. Lawn graves  
Plaques on beams
  2. Lawn graves  
Low headstones (700mm max) on concrete beams in a lawn setting (Type 2).
  3. Lawn graves  
High headstones (1.5m high max) on concrete beam in lawn setting (Type 3).
  4. Full monumental (Type 4).
- Provide occasional specimen tree for shade and respite.
- Provide ash memorialisation options within each burial area, typically located along the edge of the screen planting (internally only).  
(Refer to Ash Interments for more details)

## 6. DESIGN ELEMENTS

### 6.5 BURIALS TYPES



## 6. DESIGN ELEMENTS

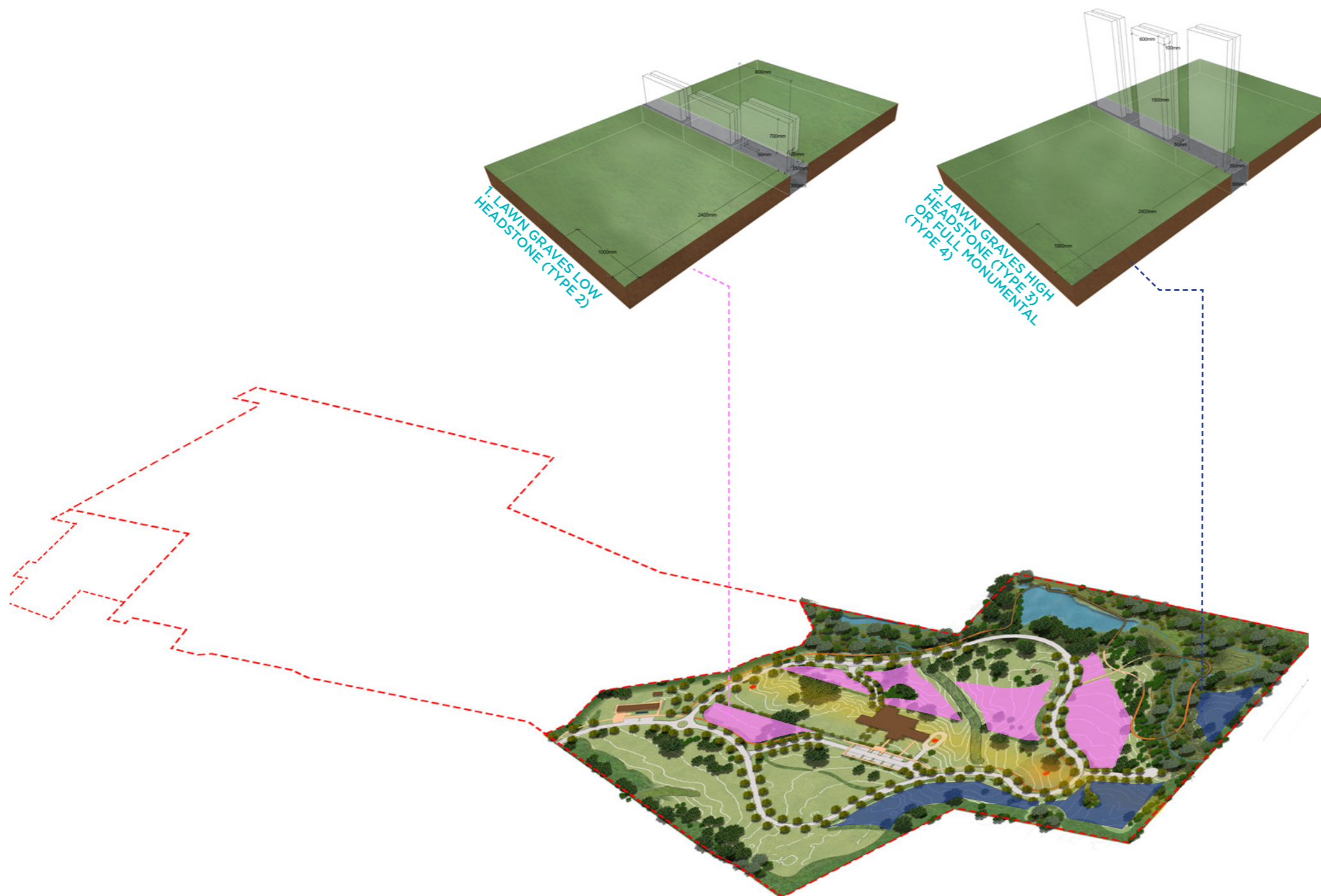
### 6.6 BURIALS ROOMS

#### DESIGN PRINCIPLES

- Unique
- Contemporary
- Respect visual quality of the site
- Respect mourning process
- In harmony with the environment

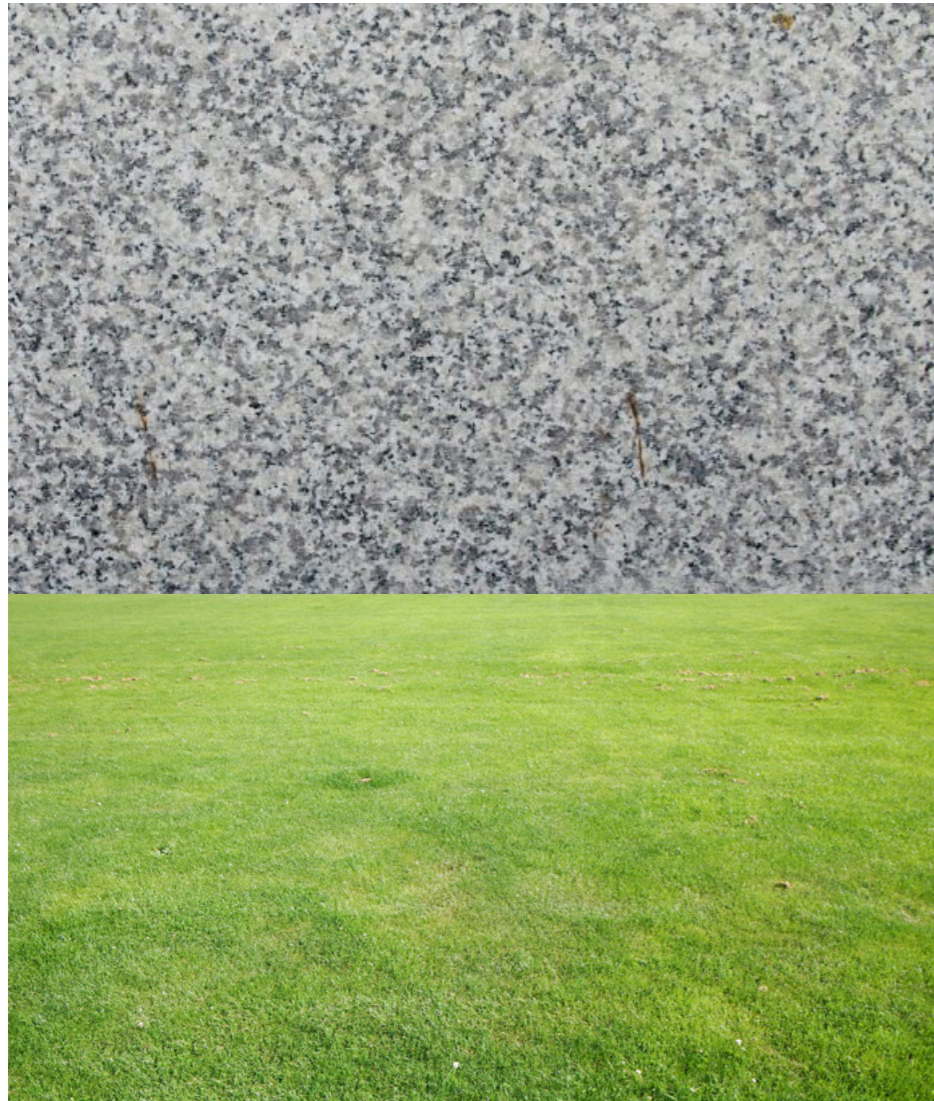
#### RATIONALE

- Minimise visual impact of cemetery from the main internal and external roads, Wallacia township and Park Road.
- Create “burial rooms” to conceal all headstones and memorialisation from the above vantage points.
- Provide screening in the form of native planting of varying height, ensuring the planting blends into the existing rural and CPW landscape.
- Set the “burial rooms” against the backdrop of the existing and future CPW zones.
- Provide 3 types of “burial rooms”:
  1. Lawn graves  
Low headstones (700mm max) on concrete beams in a lawn setting (Type 2).
  2. Lawn graves  
High headstones (1.5m high max) on concrete beam (Type 3).
  3. Full monumental (1.5m high max) (Type 4).
- Provide ash memorialisation options within each “burial room”, typically located along the edge of the screen planting (internally only). (Refer to Ash Interments for more details)



## 6. DESIGN ELEMENTS

### 6.6 BURIALS ROOMS



## 6. DESIGN ELEMENTS

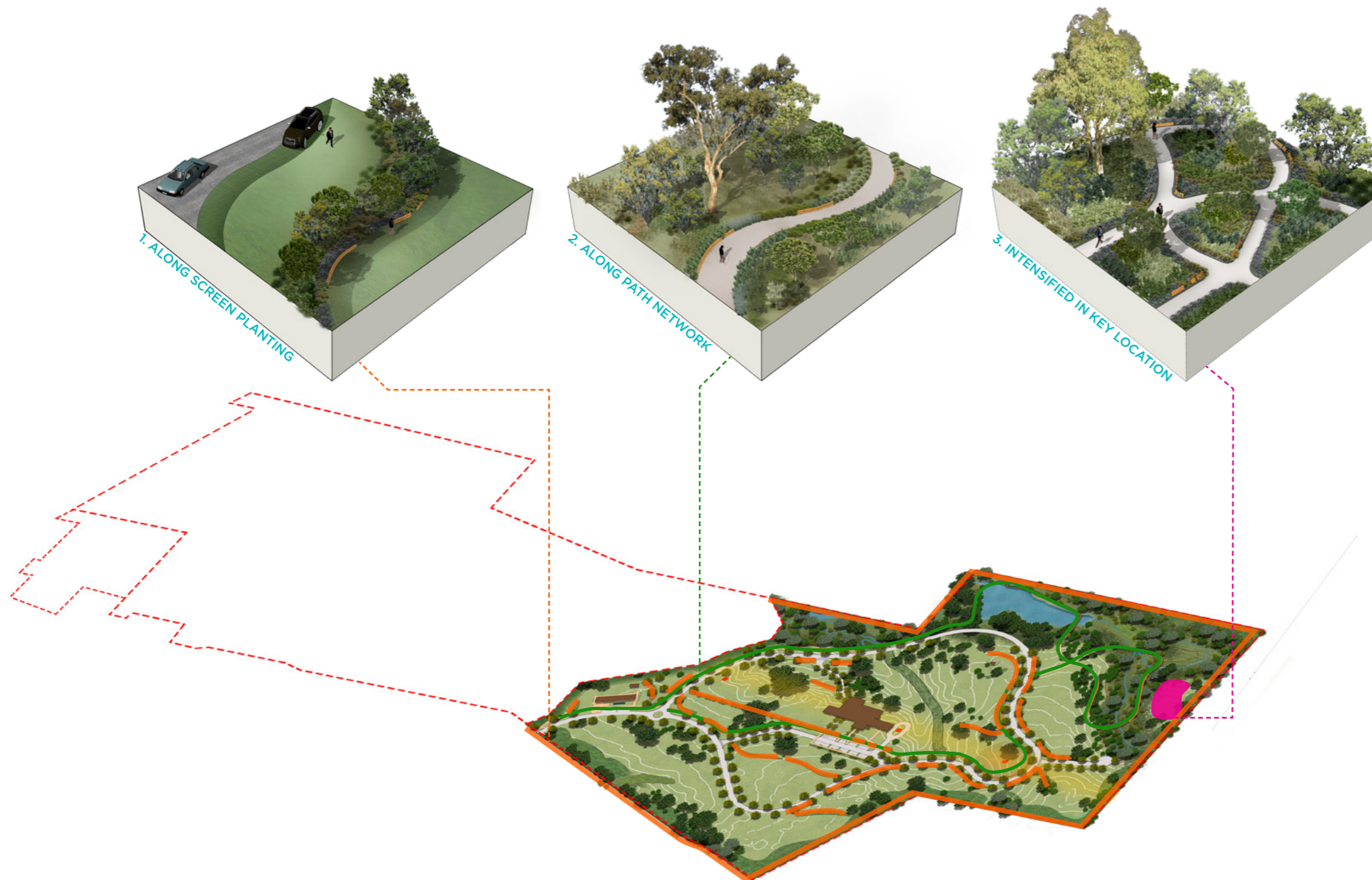
### 6.7 ASH INTERMENTS

#### DESIGN PRINCIPLES

- Contemporary
- Respect visual quality of the site
- Respect mourning process
- In harmony with the environment
- Cycle of life inspired designs

#### RATIONALE

- Minimise visual impact of cemetery from the main internal and external roads.
- Provide new and sculptural designs in keeping with design rationale.
- Complimentary to the 'Park-like' setting and public activities within.
- Provide a variety of 'Ash interment option' varying in prices, aesthetics and cultural relevance:
  1. Along the edge of the screen planting's garden beds (internally only).
  2. Along all path networks which are within 50m of a road. Memorialisation will be more sculptural to compliment the 'park-like' setting as these paths will also be used for recreation.
  3. Within 'Memorial Gardens' which are more compactly laid out. Memorialisation will be more intensified in key location. Each garden will have a theme.(native, colour, scented, music...)

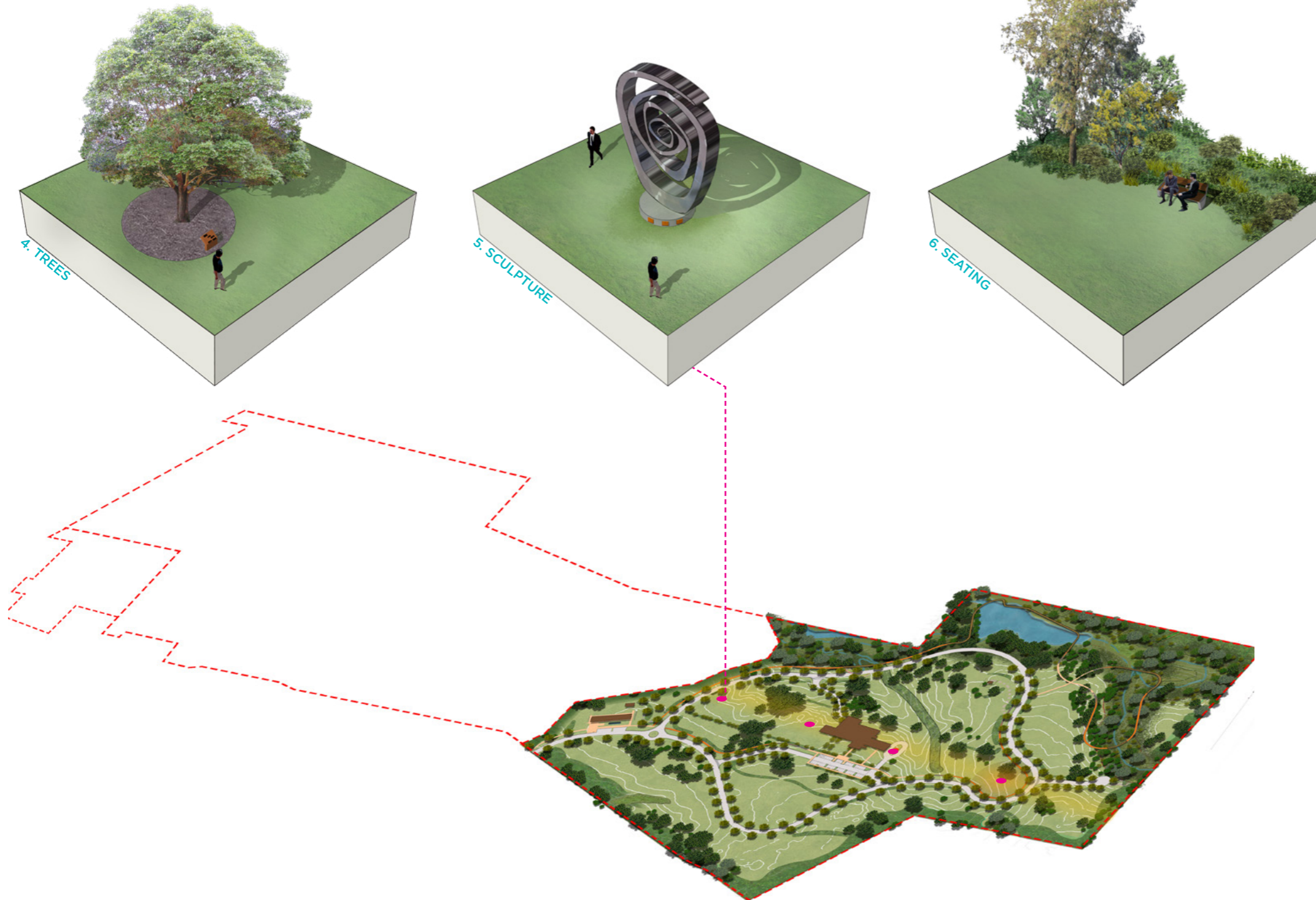


## 6. DESIGN ELEMENTS

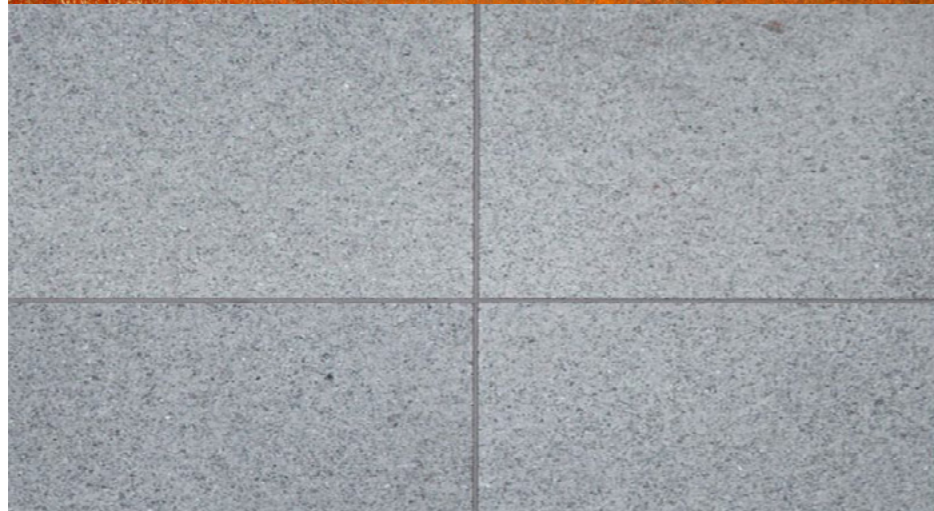
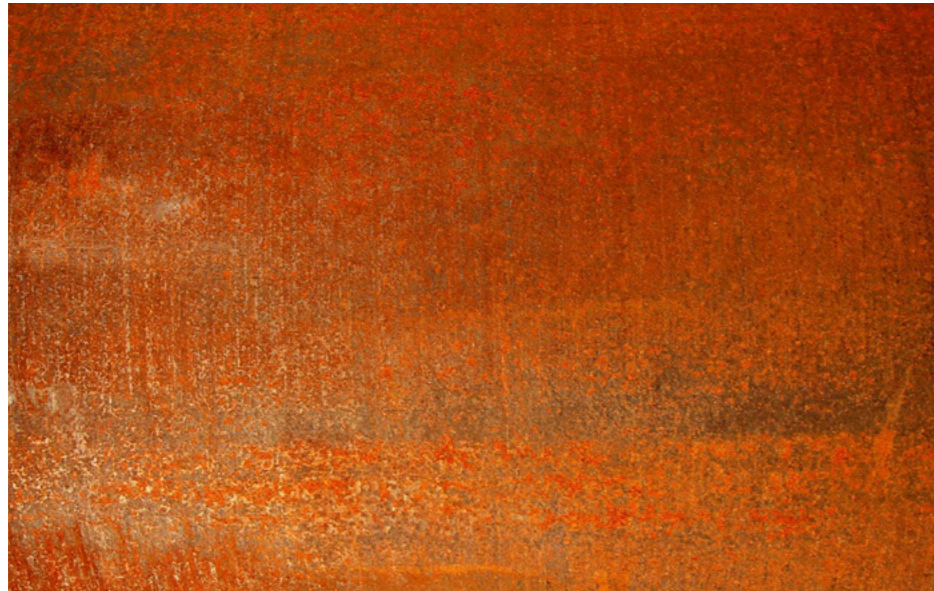
### 6.7 ASH INTERMENTS

#### RATIONALE

- 4. Associated with a tree  
This is particularly appealing to families and couples and ensures long term funding of tree maintenance and replacement.
  - 5. Associated with a sculpture  
This is particularly appealing to families and assists with the long-term maintenance funding.
  - 6. Associated with seating
- In general, cremation are kept in standard plastic urns and buried in the close proximity of the memorial plaque (behind, in front or below).



6.7 ASH INTERMENTS



## 6. DESIGN ELEMENTS

### 6.7 ASH INTERMENTS



*Florence Jaquet*  
*Landscape architect*

## 6. DESIGN ELEMENTS

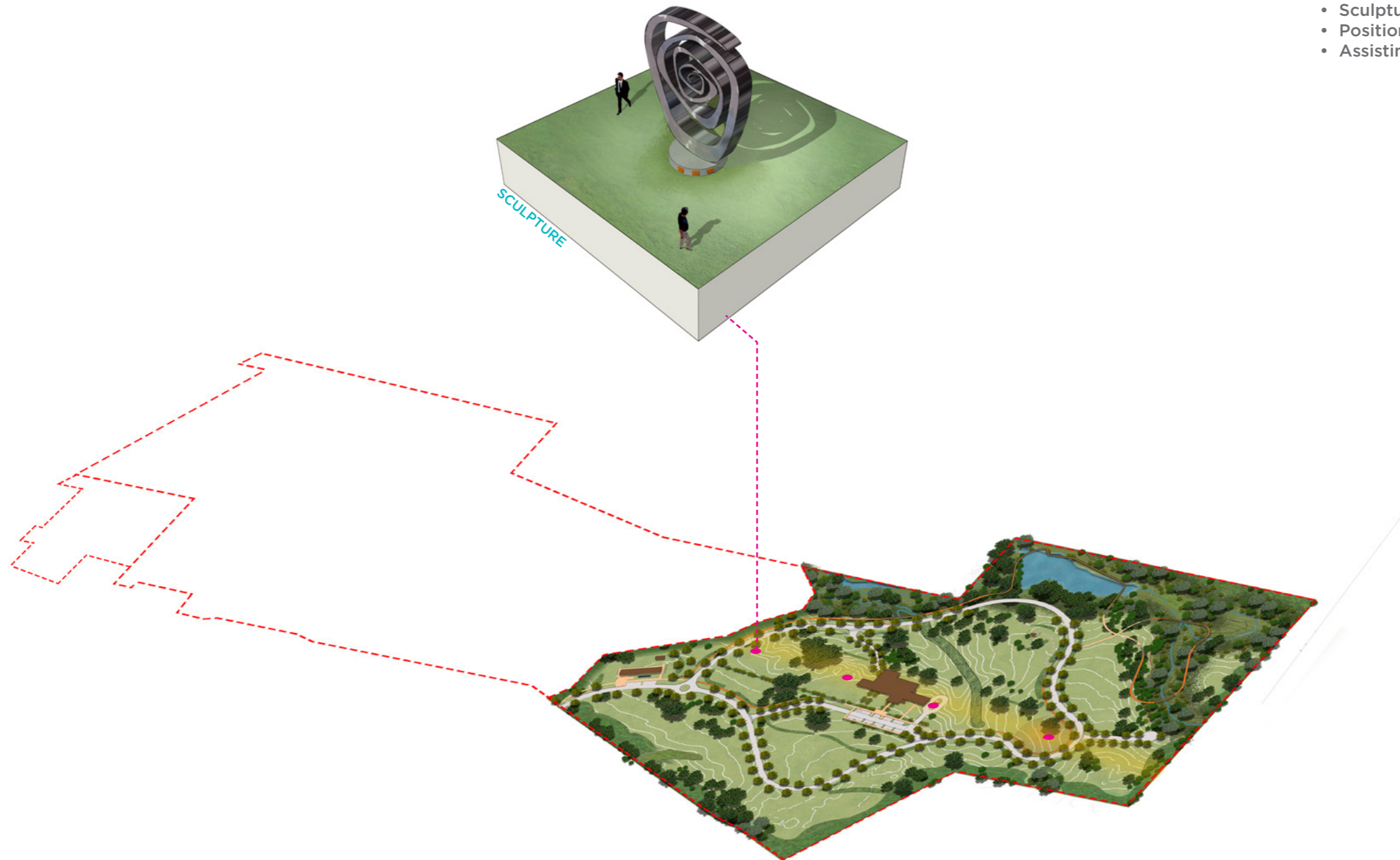
### 6.8 SCULPTURES

#### DESIGN PRINCIPLES

- In harmony with the environment
- Promote local and Australian artists
- Legacy for future generations
- Inspired by multi-culturalism
- Interpreting the cycle of life concept

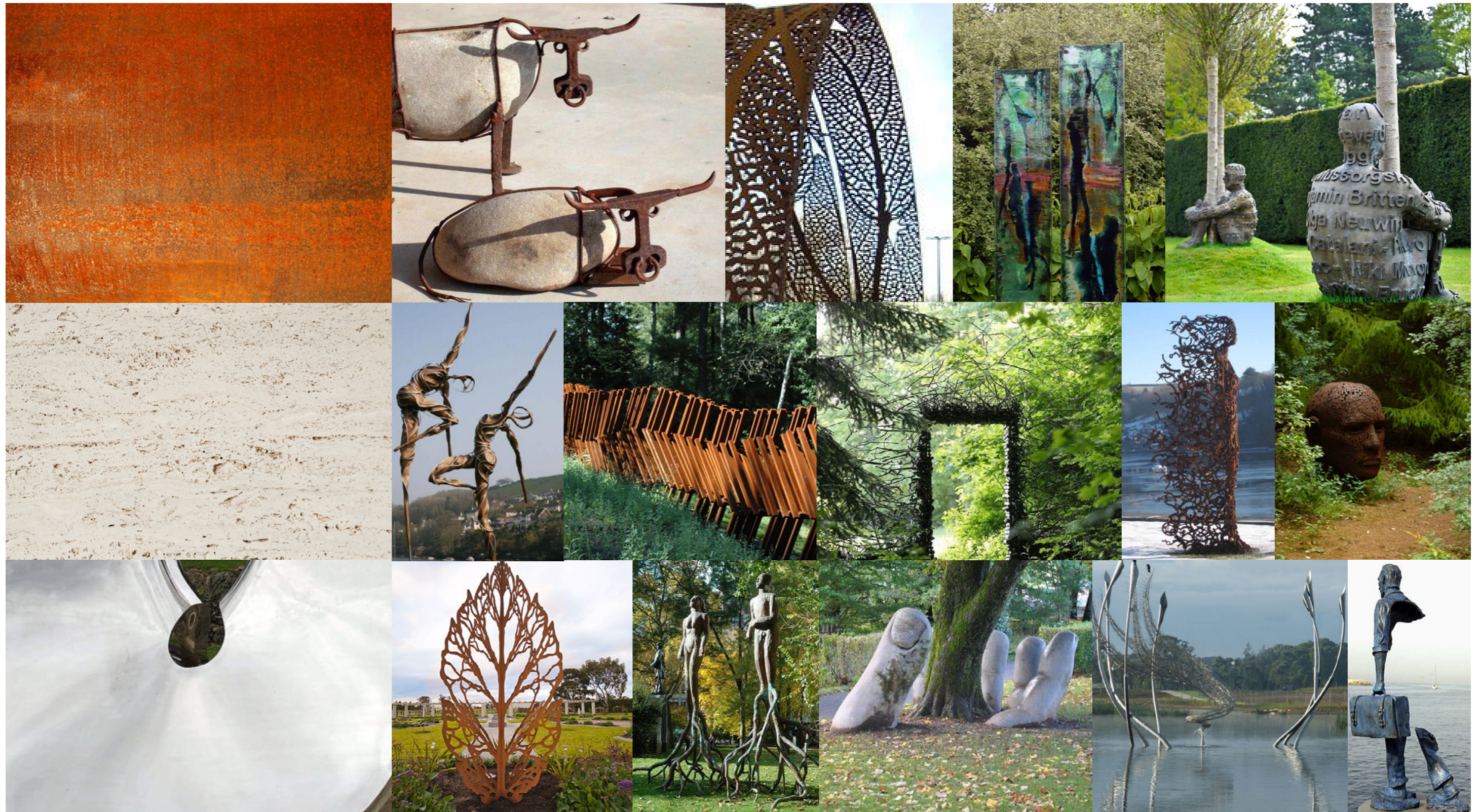
#### RATIONALE

- Offering quality permanent artwork throughout the park as part of the open space provision.
- Art collection to be built up over time.
- Sculptures may be associated with memorialisation.
- Positioned along the main axis
- Assisting with way finding



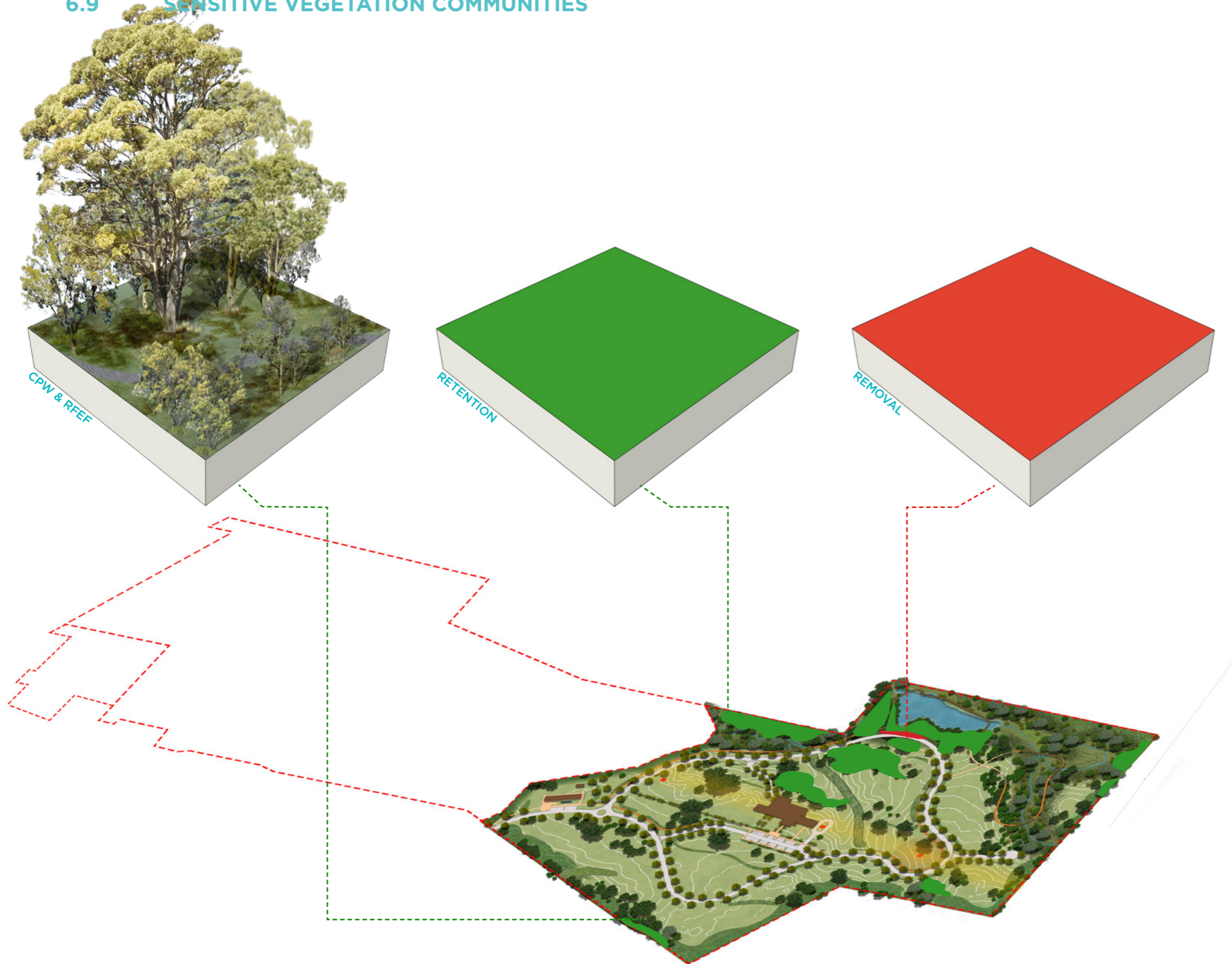
## 6. DESIGN ELEMENTS

### 6.8 SCULPTURES



## 6. DESIGN ELEMENTS

### 6.9 SENSITIVE VEGETATION COMMUNITIES



#### DESIGN PRINCIPLES

- Respect visual quality of the site
- Sustainable ecology
- In harmony with the environment
- Minimal impact
- Legacy to future generations

#### RATIONALE

- Retain Cumberland Plain Woodland (CPW) and River Flat Eucalyptus Forest (RFEF) wherever possible.
- Remove trees only where unavoidable (Dangerous ones, roads and dam edges)
- Fence all CPW outer boundaries with post and wire fencing to prevent pedestrian traffic within.
- Provide interpretive signage and plant identification tags in strategic locations in keeping with Arboretum concept.
- Provide additional habitat and CPW/RFEF where possible.
- Protect all existing habitats (habitat trees etc...) and enhance with additional logs salvaged from tree removal.
- Link CPW/RFEF "pockets" with riparian and additional CPW vegetation where possible to create green corridors and better connection between existing habitats.
- Keep roads' cut and fill to a minimum for minimal impact on CPW/RFEF.
- Refer Vegetation Management Plan ( by Ecologist)

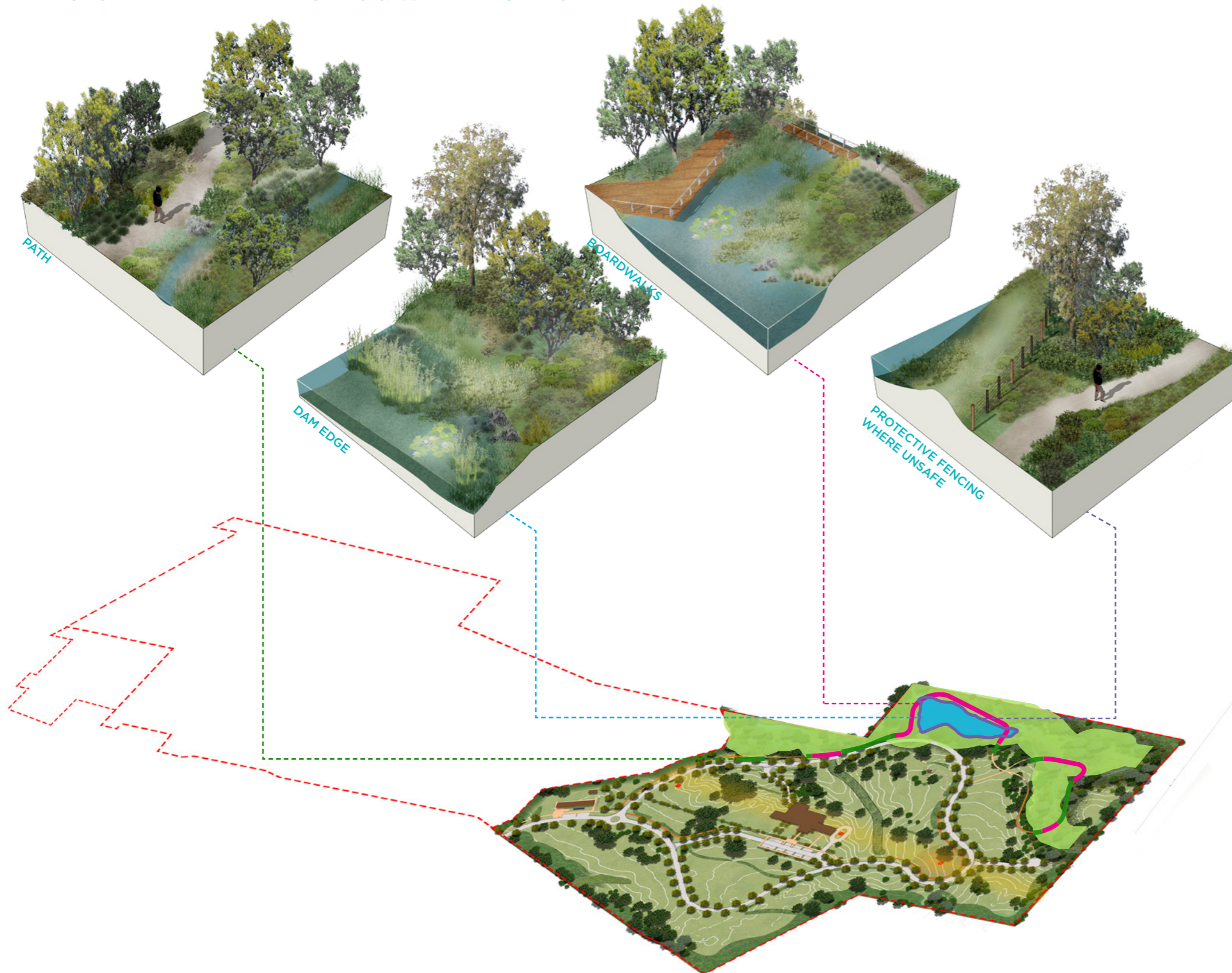
## 6. DESIGN ELEMENTS

### 6.9 SENSITIVE VEGETATION COMMUNITIES



## 6. DESIGN ELEMENTS

### 6.10 RIPARIAN ZONES & WATER BODIES



#### DESIGN PRINCIPLES

- Respect visual quality of the site
- Sustainable water management
- Legacy to future generations
- Demonstrate cycle of life
- Enhancing habitat

#### RATIONALE

- Provide riparian zones along all validated watercourses to the required widths.
- Revegetate with indigenous species.
- Provide habitat for fauna and enhance with extra logs salvaged from tree removal.
- Where possible use riparian zones to link pockets of CPW which are currently isolated, hence providing better habitat.
- Encourage visitors to experience the riparian zones by creating a scenic pedestrian network, especially around the dams, as part of the passive recreation activities.
- Minimise impact on the riparian zone by:
  - Confining paths and structures to the outer half of the riparian zone
  - Using elevated boardwalks and bridges where wet or crossing over watercourses and drainage lines.
- Offset impact onto Riparian zone as required (refer ecologist report)
- Retain all dams and modify dam edges to ensure safety bench compliance (1:5 above NWL and 1:8 below as per RLSS's Guidelines for Water Safety in Urban Water Developments).
- Fence off all dam edges and dam walls where compliance is not possible.
- Plant water's edge for water quality purpose and to hide possible draw down.
- Add wetland retarding basins in selected areas for WSUD treatment (Refer WSUD report)

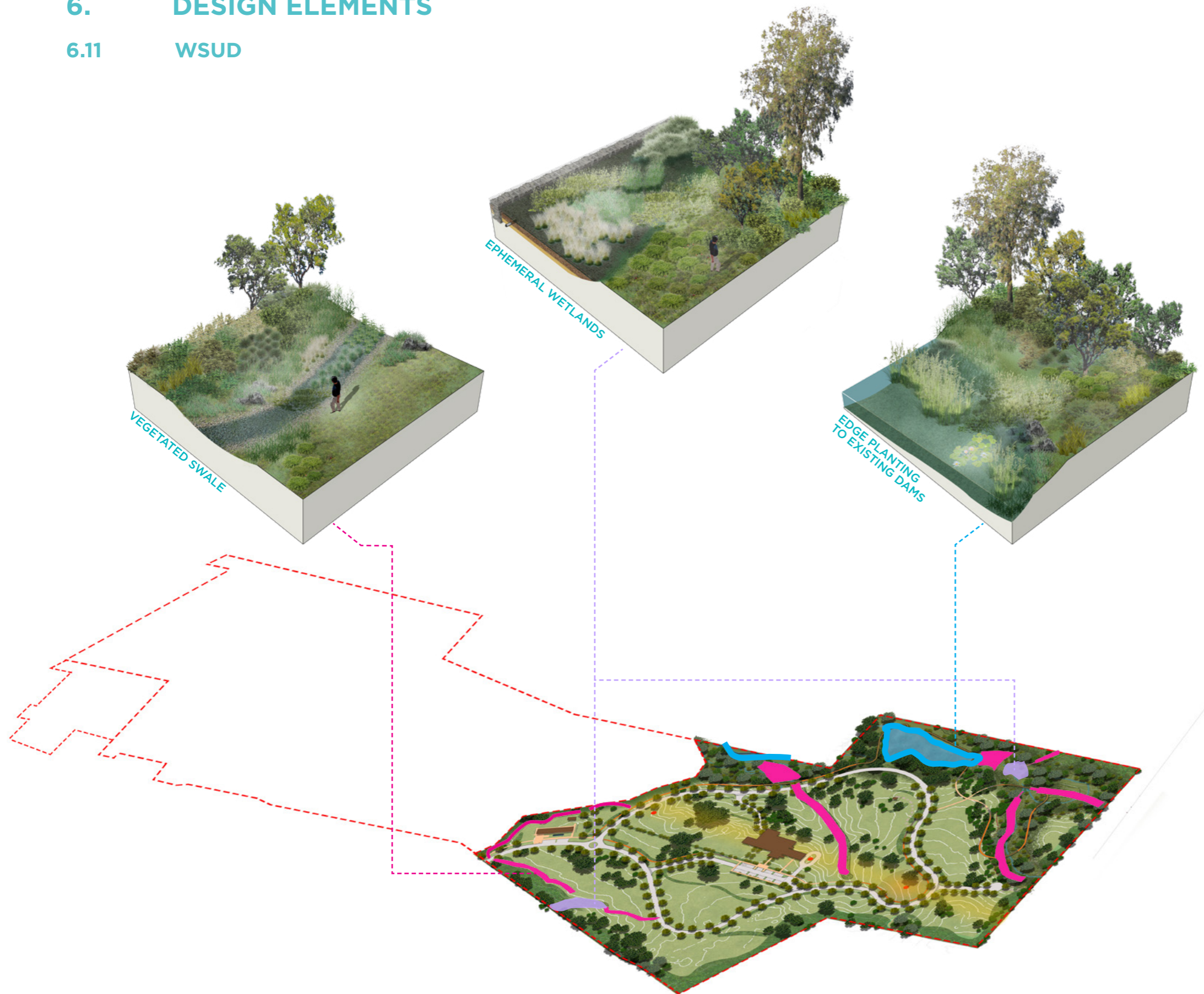
**6. DESIGN ELEMENTS**

**6.10 RIPARIAN ZONES & WATER BODIES**



## 6. DESIGN ELEMENTS

### 6.11 WSUD



### DESIGN PRINCIPLES

- Sustainable ecology
- Sustainable waterways
- Promote sustainable water management
- Follow best practice
- Promote education on WSUD
- Legacy to future generation
- Demonstrate cycle of life

### RATIONALE

- Capture of road run-offs and treatment of pollutants to Best Practice requirements
  - Additional wetlands for water treatment
  - Vegetated swales and bioretention basins for water treatment.
  - Wetland planting to existing dams edges for water treatment and erosion control.
  - Dams of suitable size and depth to limit potential for algae bloom.
  - Safe batter treatment around all dams or fencing to prevent access to unsafe edges.
  - Passive irrigation where possible
  - Water retention on site, within the dams for irrigation purposes.
- (refer to Stormwater Reports by WSP for further details)

## 6. DESIGN ELEMENTS

### 6.11 WSUD



## 6. DESIGN ELEMENTS

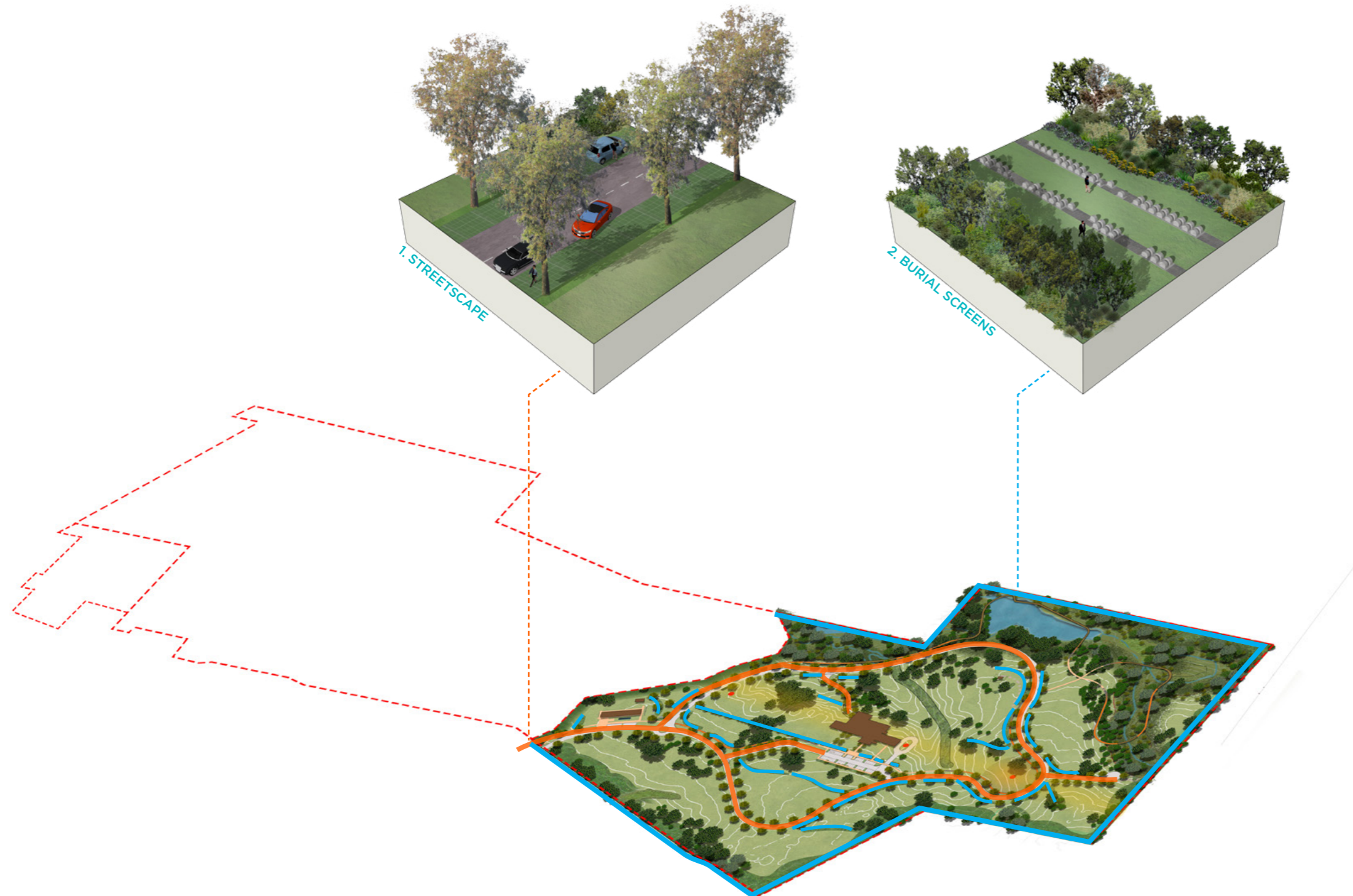
### 6.12 PLANTING PHILOSOPHY

#### DESIGN PRINCIPLES

- Respect visual quality of the site
- Respect environment
- Minimise environmental impact
- Legacy (Arborefum)
- Sustainability (drought resistant)

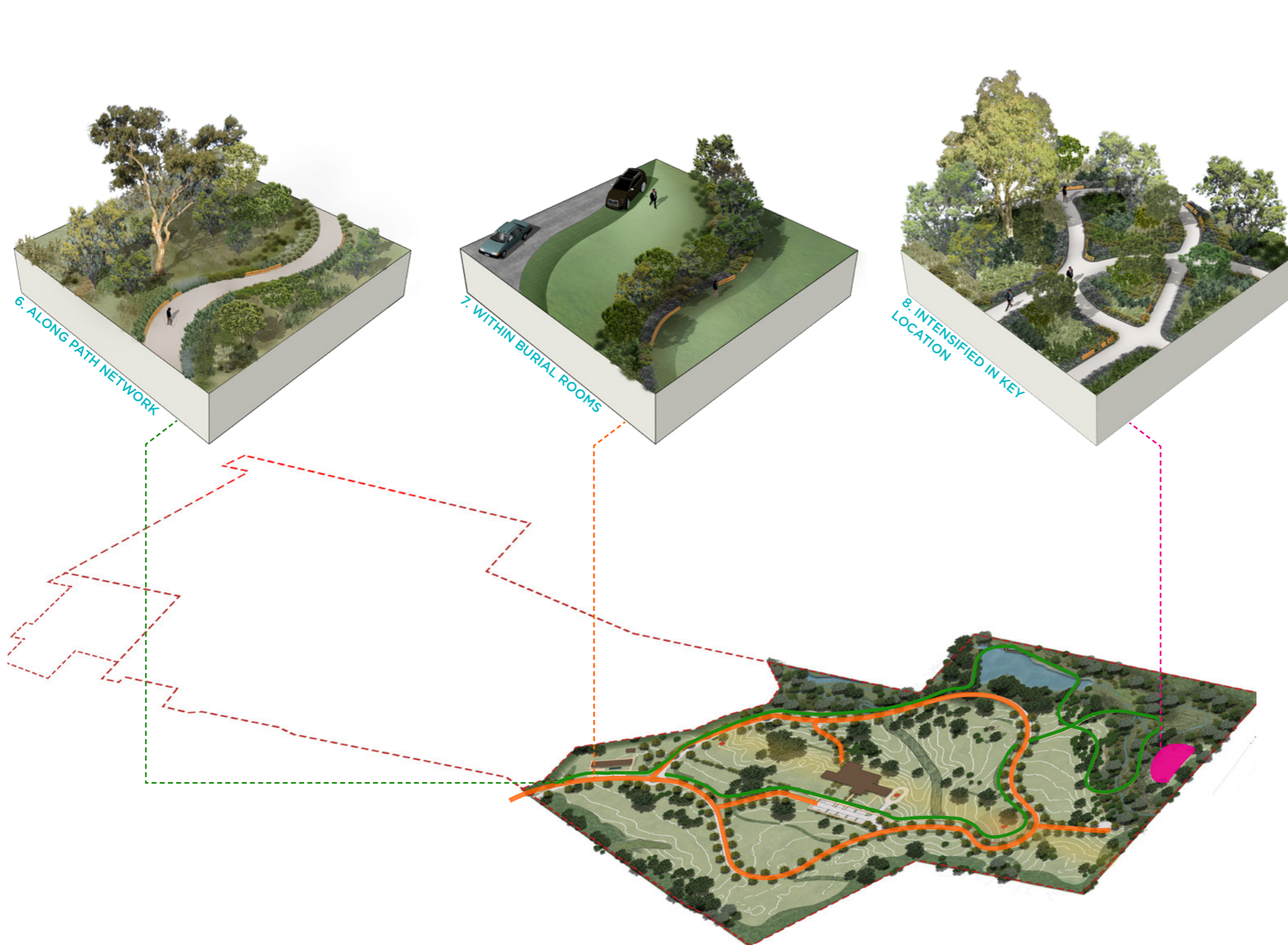
#### RATIONALE

- Blending into the existing landscape character of grassed hills amongst a golf course layout
  1. Streetscape:
    - Providing shade to road side parking.
    - Generally formal to provide a sense of arrival as part of the ceremonial process and to contrast with existing random tree planting.
    - Generally irrigated when required.
  2. Screen planting and buffer zones:
    - Designed and created to respond to the visual sensitivities of the site and the perceived visual impact of a cemetery.
    - Screen planting has been designed to ensure minimise visual impact of headstones from the main internal roads, and Park Rd.
    - Screen planting to provide privacy for mourners whilst retaining some views in and out for passive policing.
    - Predominantly native and drought resistant.
    - Exotic trees and shrubs for seasonal effect and ease of wayfinding.
    - Generally irrigated when required.



## 6. DESIGN ELEMENTS

### 6.12 PLANTING PHILOSOPHY



#### RATIONALE

3. Riparian:
  - (refer "Riparian zones" chapter 6.10 herein)
  - (refer vegetation Management Plan)
4. Cumberland Plain Woodland (CPW) & River Flat Eucalyptus Forest (RFEF):
  - (refer "Riparian zones" chapter 6.09 herein)
  - (refer vegetation Management Plan)
5. Building surrounds:
  - Limited to prescribed vegetation/canopy coverage, layout, distances, plant types and sizes in the buildings' Asset Protection Zones (APZ).
  - Generally minimalist, in keeping with Architectural narrative.
- More ornamental and low (less than 2m), when associated with Memorial Gardens (with ash interments).
6. Memorial Gardens along path network in riparian zones:
  - Mostly indigenous, relevant to EVC, with accent more ornamental flowering, plants compact and directly relating to memorial placement.
7. Memorial Gardens in screen planting and buffer zones:
  - As above.
8. Intensive Memorial Gardens in key locations:
  - May have a planting theme which relates to the name, cultural relevance or sensory focus of the garden.
  - Incorporate more colour, texture and specie variety.

## 7. RESPONDING TO

### 7.1 PRIOR OBJECTIONS

No.	Objection to application	Mitigation measures/Response
1	Layout of various memorial styles will result in unacceptable visual impacts	<ul style="list-style-type: none"> <li>No taller monuments visible from Park Rd. Frontage offers views onto lawn burial areas to minimise visual impact.</li> </ul>
2	Integration of the landscaping and design proposal with the adjacent Wallacia Village has not taken into account its rural character	<ul style="list-style-type: none"> <li>Fence type and lawn graves along the frontage mitigate the visual impact</li> <li>Screen planting is sporadic and allows views into the site to retain the existing character and visual connections.</li> <li>The Memorial Park is removed from the Village (approx. 800m away) and not visually connected to it.</li> </ul>
3	Impacts of the design on views available from the public domain noting specifically the approach adopted of concentrating the taller memorial structures around the circumference of the site.	<ul style="list-style-type: none"> <li>No taller monuments visible from Park Rd. Frontage offers views onto lawn burial areas to minimise visual impact from public domain.</li> </ul>
4	Concerns over access along Mulgoa Road	<ul style="list-style-type: none"> <li>No access proposed from the site onto Mulgoa Rd.</li> </ul>
5	Public participation concerns:	
	<ul style="list-style-type: none"> <li>Scale of development</li> </ul>	<ul style="list-style-type: none"> <li>Memorial Park footprint has been reduced to less than half of the previous proposal (to approx. 21 Ha)</li> </ul>
	<ul style="list-style-type: none"> <li>Loss of existing recreational space</li> </ul>	<ul style="list-style-type: none"> <li>Golf Course is retained and improved.</li> <li>The new Wallacia Country Club will offer a number of new recreational activities such as lawn bowling, hydrotherapy, swim school and gym</li> <li>Nepean Gardens' Open Space provision represents approximately 1/3 of the Memorial Park's site.</li> </ul>
	<ul style="list-style-type: none"> <li>Flooding and stormwater impacts</li> </ul>	<ul style="list-style-type: none"> <li>The burial areas are not subject to flooding</li> </ul>
	<ul style="list-style-type: none"> <li>Proximity to Wallacia Village/context</li> </ul>	<ul style="list-style-type: none"> <li>The Memorial Park site is 800m from the Village centre, located at the furthest end of the site from the Village.</li> </ul>
	<ul style="list-style-type: none"> <li>Impact on Rural character of Wallacia Village</li> </ul>	<ul style="list-style-type: none"> <li>Visual impact of the Memorial Park from the public domain is minimal.</li> <li>Different screen types, views into the site protected and planting concept similar in keeping with local character to maintain existing rural character.</li> </ul>
6	Due to flood risk, recommended that entrance B be moved to allow for possible crossing of Jerry's Creek to be raised.	<ul style="list-style-type: none"> <li>Entrance B is existing and services the existing Workshop, a building easily relocatable in due course</li> <li>Redesign can be managed if and when upgrade is proposed.</li> </ul>
7	Does not comply with objectives of E3 land, namely: <ul style="list-style-type: none"> <li>Protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.</li> <li>Provide for limited range of development which does not have adverse effect on those values.</li> <li>Minimise conflict with adjoining land uses and zones</li> <li>Preserve and improve natural resources through appropriate land management practices.</li> <li>Protect scenic character and landscape values</li> </ul>	<ul style="list-style-type: none"> <li>Visual impact has been minimised through the implementation of different screening types along the edge of the park and internally.</li> <li>Taller monuments are located away from public views.</li> <li>Biodiversity is increased in the proposed development with emphasis on revitalising the watercourses and existing protected vegetation pockets and linking them into an overall green corridor.</li> <li>Natural areas are proposed to be restored and managed. Large bush revegetation areas have been proposed and would positively impact the area.</li> </ul>

No.	Objection to application	Mitigation measures/Response
8	While change to existing landscape is not dramatic, people's perception of the landscape and associated village, rural and scenic values are likely to be impacted by the change of use	<ul style="list-style-type: none"> <li>• The change of use is limited to the Memorial Park site which sits away from the Village and is greatly reduced in size.</li> <li>• The Memorial Park's implementation is gradual over a long period of time, one grave at a time. The presentation of the Memorial Park will be that of a park until it fills up over many decades.</li> </ul>
9	Possible unrecorded orchid habitat on site	<ul style="list-style-type: none"> <li>• Prior surveys have not found it.</li> <li>• Can be managed through seasonal surveys and DA conditions.</li> </ul>
10	Local character and sense of place will be negatively impacted	<ul style="list-style-type: none"> <li>• Mitigating measures proposed would improve the transition between the Village, recreational areas (New Wallacia Country Club and Golf Course) and the Memorial Park.</li> </ul>
11	Preservation of active and passive recreation space is of benefit to the community	<ul style="list-style-type: none"> <li>• Golf Course (currently bankrupt) salvaged and improved to International standards</li> <li>• Golf Club facilities expanded to include other recreational pursuits for all ages.</li> <li>• Memorial Park is designed as a Public Park with 30% of its area offered as Public Open Space.</li> </ul>

## 7. RESPONDING TO

### 7.2 ENVIRONMENTALLY SUSTAINABLE DESIGN PRINCIPLES

A number of key sustainable principles have been integrated into the landscape proposals.

The sustainability strategy addresses a broad range of areas, including sustainability and environmental management, community integration, sustainable and active transport promotion, energy, water, materials and waste efficiency and optimisation.

- Water Efficiency Measures:
  - Potential for water storage for re-use on site.
  - Minimise demand by appropriate selection of plants and grass species which do not have high water needs.(indigenous and Native).
  - Efficient distribution with efficient systems where irrigation is required.
- Sustainable Materials:
  - Use locally sourced materials.
  - Re-use material from site (soil+timber).
  - Select low embodied energy materials or materials which can be re-used or recycled.
  - Gabion walls using recycled materials.
- Waste Management:
  - Reuse of burial spoil on site.
  - Composting of vegetable matter (flowers and garden clippings) to improve soils.
  - Provide clear waste disposal units for visitors and a 2 bin-system (refer water stations herein) to minimise litter throughout the site.
- Stormwater Management:
  - Water harvesting in dams for irrigation.
  - Bio-retention swales and wetland planting for water treatment (WSUD).
  - Passive irrigation from hard surfaces on vegetation.
- Climate Change:
  - Plants selected to resist increased periods of high and low temperatures, drought and heavy rains.
  - Wind breaks to reduce impact or severe weather onto visitors.
- Community Development:
  - New park for the community.
  - Educational material and interpretation opportunities throughout the site.
  - Walking / Running / Cycling routes throughout, with shaded walkways to encourage user comfort.
  - Golf Course for recreation (9-hole).
- Ecology / Biodiversity enhancement:
  - Measures to protect / enhance existing ecology.

For more detailed information refer Steensen Varming - ESD report.

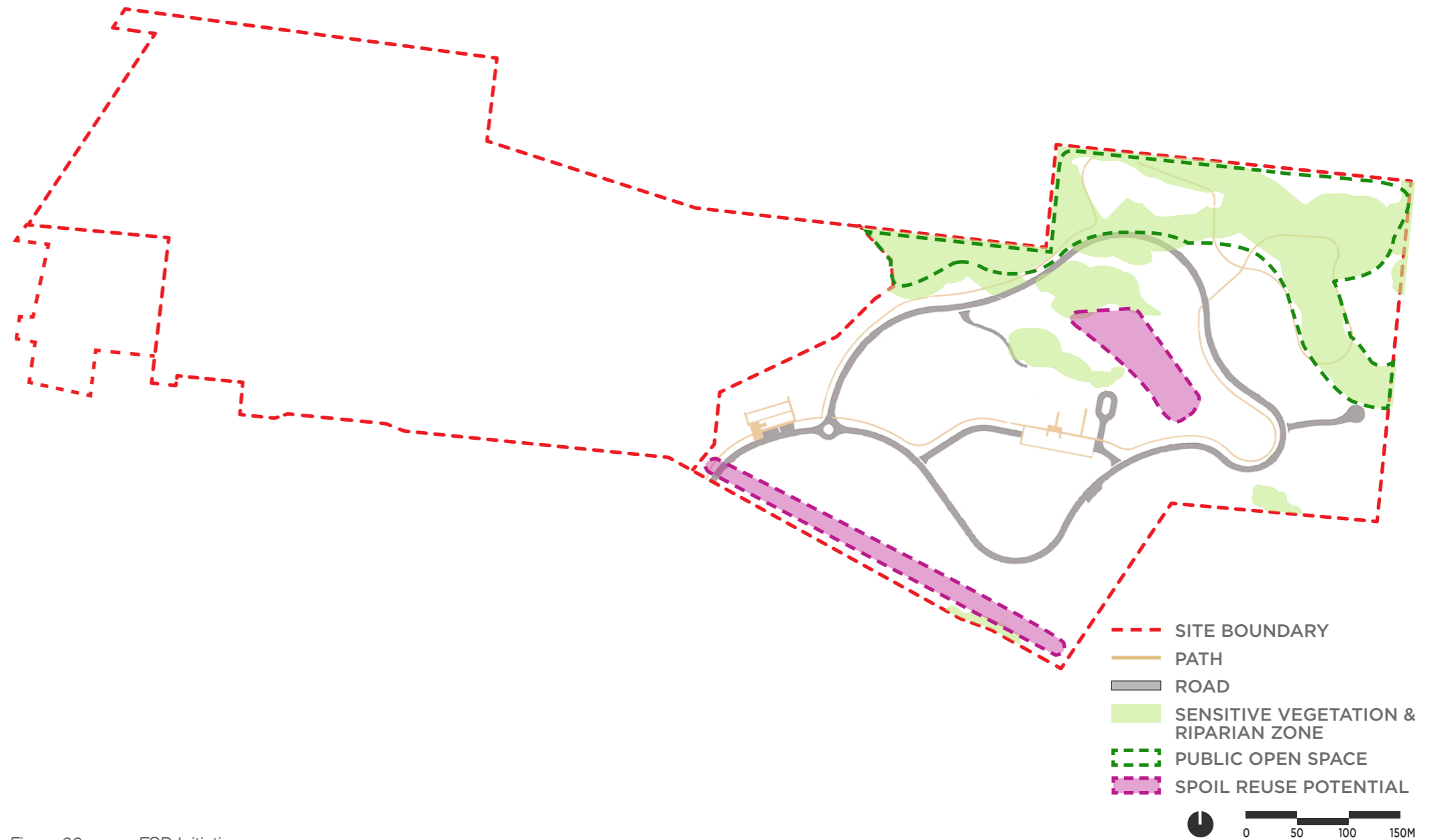


Figure 26. ESD Initiatives

## 7. RESPONDING TO

### 7.3 CEMETERIES' WORLD TRENDS

As old, traditionally granite rich cemeteries fill up, they not only lock land out for other use, they also become forgotten as visitation ceases whilst turning into an economic burden as income generating activities stop.

- The worldwide trend has been to:
  - Promote cremation over burial
  - Change legislation to incorporate renewal and other forms of land re-use.
  - Find more sustainable and environmentally friendly solutions.
  - Generate more income by widening the uses on site (weddings, art galleries, sculpture temporary exhibitions, concerts, movies...)
  - Better integrate cemeteries into the community so they continue to be relevant when full.
  - Design them as parkland so they continue to be green even when full.
- The following significant cemeteries have been of particular inspiration to us when establishing our Vision for the site:
  - Skogskyrkogarden, Stockholm, Sweden  
A cemetery which blends nature and architecture seamlessly.  
A UNESCO's World Heritage listed place since 1994 and the only listed cemetery. This cemetery has greatly influenced cemetery design throughout the world.
  - Forest Lawn, LA, USA  
A scenic cemetery, the creation of Dr Hubert L. Eaton in 1906, "a great park, devoid of misshapen monuments.... But full of towering trees, sweeping lawns..." as is described in his "Builder's Creed".
  - Pinnaroo Memorial Park, Western Australia  
A scenic lawn cemetery, set in protected bushland where kangaroos are left to roam and co-habit.
  - Chiltern Woodland Park, UK  
Designed by John DeJardin, who worked on this project, it is a natural/green burial park with a deep understanding and respect for the ecological processes and values of the site.
  - Oslo Cemetery, Norway and Nieuwer Oster Cemetery, Amsterdam, Netherlands  
Common in Northern Europe and Scandinavia is the concept of cemeteries set in forests and sub-divided into small "burial rooms", where both contemplation and privacy are paramount.



Chiltern Natural Burial - UK



Forest Lawn - Parkland, USA



Stockholm cemetery - Sweden



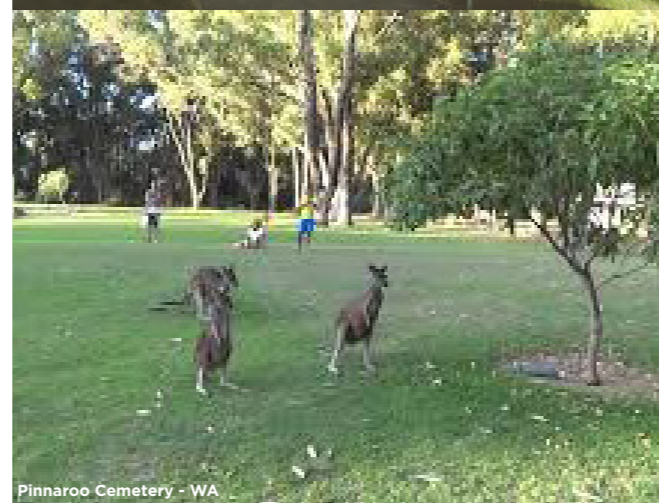
Oslo Cemetery - Norway



Forest Lawn - Museum, USA



Stockholm cemetery - Sweden



Pinnaroo Cemetery - WA



Nieuwer Oster Cemetery - Amsterdam, Netherlands



Nieuwer Oster Cemetery - Amsterdam, Netherlands

## 8. COMPARISON

### 8.1 COMPARISON BETWEEN PREVIOUS AND CURRENT DEVELOPMENT APPLICATIONS

DA 17/1092 ECM Wallacia Memorial Park (2017)	Current DA Nepean Gardens (Including Memorial Park, Golf Course and St John's Park Community Club) (2019)	Differences between DAs
Memorial Park's size is 44.4ha	Memorial Park size: 21.38 ha	Memorial Park has been considerably reduced in size to 21.38 Ha (representing less than half of the proposal's surface area)
Memorial Park offers 88,000 burial plots	Memorial Park offers 27,000 plots.	Reduction in Memorial Park by 61,000 burial plots.
Memorial Park abuts the Village	Memorial Park is located 800m away from Village centre, at the most eastern end of the site.	The Memorial Park is now positioned 800m from the Village centre with limited impact on the character of the village.
Memorial Park Administration building	Position and design unchanged	No difference
Memorial Park Chapel	Position unchanged. Design unchanged Layout flipped so Chapel faces the Blue Mountains Road leading to the Chapel basement has been relocated to respond to the "flipped" layout	No design differences Change of orientation
Dead end court accessing the most easterly burial room straddles the existing (validated) ephemeral watercourse	The dead-end court has been shortened to limit its impact onto the riparian zone. Access to the burial room is via a footpath only.	Reduced impact on the riparian zone.
Retention of most fairway defining tree plantings to respond to historic layer provided by the existing the Golf Course	Unchanged Still retained in the Memorial Park precinct	Trees are to be retained.
Some taller monuments located along Park Rd frontage and screened with planting	No more taller monuments along Park Rd frontage. All taller monuments moved away from view	No impact from taller monuments.
Public footpath (part of the Open Space provision) meanders throughout the site.	Due to community concerns about the perceived clash between mourners and the public, the public path has been separated and is largely out of burial areas.	Separation of public and memorial park pathways.
Limited screening internally to screen monuments. Screen provided either on one side of the road or the other.	Introduced the concept of burial rooms where burial zones with headstones are screened, providing partial views into the rooms. This also provides better separation between the public path and the memorial spaces (refer above point)	Redesign allows for burial zones which improve visual impacts.
15m landscape buffer all around the site as per LEP requirements	Unchanged	Landscape buffer around the site.

DA 17/1092 ECM Wallacia Memorial Park (2017)	Current DA Nepean Gardens (Including Memorial Park, Golf Course and St John's Park Community Club) (2019)	Differences between DAs
Burial zones located away from watercourses and drainage line (In line with Penrith CC's supplied guidelines "Cemeteries, Burials and the Water Environment " UK -2016)	Following the same guidelines	Burial zones are located away from watercourses and drainage lines.
All dams retained	The smaller dam in the north east corner (against the eastern boundary) has been relocated within the natural valley and closer to the large existing dam as part of an improved ecological solution.	Improvement of dam location and better connectivity of watercourses throughout the site.
A 13-hole Golf Course is available for 50+ years A 9-hole Golf Course for a further 15 years	An improved 9-hole Golf Course of international standard.	Improved active recreation offering international standard golf course with supporting refurbished Country Club and putting tee.
A renovated Golf Club facility which acts as a function room for Funeral wakes	<p>Wallacia Country Club</p> <ul style="list-style-type: none"> <li>• Refurbishment of the existing golf club to allow for new passive and active recreation areas.</li> <li>• Offering a wider range of recreational activities for all ages (Hydrotherapy, swim school, bowling greens, gymnasium, function rooms, gaming areas, lounge, dining and bar areas.</li> <li>• New pro golf shop and cart store areas.</li> </ul>	Refurbished and improved Country Club to be owned and operated by the St John Bowling Club providing a range of active and passive recreational activities for the wide Wallacia and Mulgoa communities.
A cemetery staff workshop within the existing Golf Course workshop. Both building and entry point retained as is.	A shared cemetery /Golf staff workshop within the existing Golf Course workshop. Both building and entry point retained as is.	Shared maintenance and upkeep of the golf course and memorial park to ensure better utilisation of the workshop and maintenance equipment.

## 9. IMPLEMENTATION

The development of the Memorial Park will occur over many decades.

It will be gradual over a very long period of time. The presentation of the Memorial Park will be similar to that of a new public open space until it fills up over many decades, one grave at a time.

It is estimated that burials will gradually increase over the first 10 years to reach an average of 500 burials per year. The site has a potential yield of 27,000 plots.

At the above rate, and with an average of two burials per plot, the cemetery will take approximately 100 years to fill up.

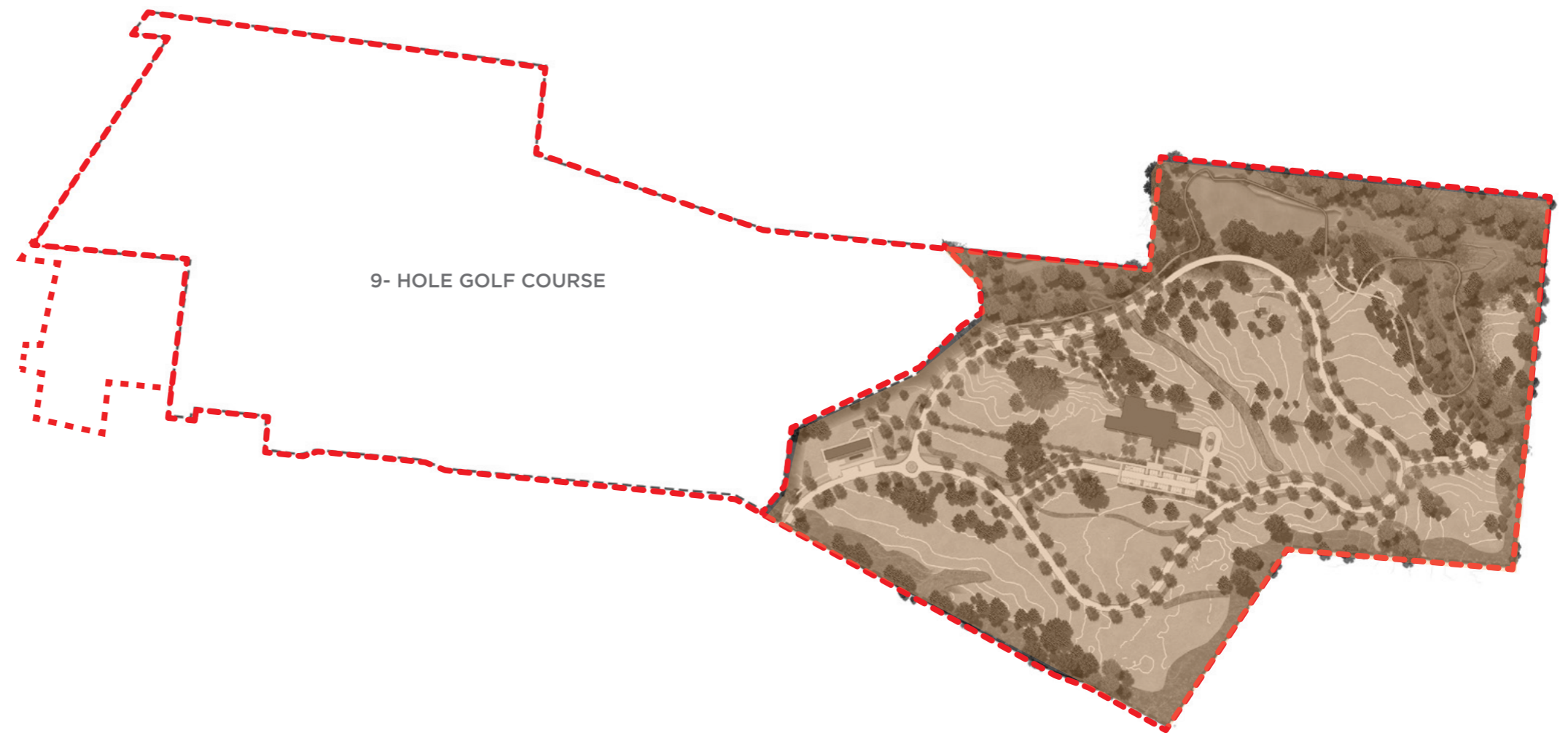


Figure 27. Cemetery's Full Extent

