



Sydney Zoo

Architectural Concept Statement

Buildings 1 - 6

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Buildings 1-6



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1. Introduction



Proposed Entry and Retail Pavilion



Introduction

The proposed new series of buildings that are set within the design of the new Sydney Zoo are to be secondary to the main feature, the animals.

The primary concept is to have the building mimic the landscape and blend into the existing and proposed new landscape solution for the site. The buildings on the site will each create a point of difference within the area of the master plan, the buildings own expression based on the use and the position.

The innovative approach and careful proportioning of the proposed built forms will adds a new and innovative character to the surrounding streetscape/landscape, and closely relates to the neighbouring landscape in the colour, material, scale and detail. The form of the buildings will maximises the opportunity offered from the site without impacting on surrounding landscape, and the amenity of the area. The buildings will becomes identifiable from afar, yet sits comfortably in the landscape. The façades, create a visually rich screen of constantly changing patterns of light and movement, expressing its internal functions whether an entry pavilion, retail, workspace, breakout or lobby area, adding an ever changing layer of visual delight to the landscape.

Service, parking and cycle access have been carefully considered, providing simple and secure facilities without impacting on the pedestrian movements through and across the site.

A simple palette of materials detailed carefully, creates an impression of quality and longevity. The lack of applied decoration masking the design is clear. Decoration is applied through the layering of light and shadow over the building structures.

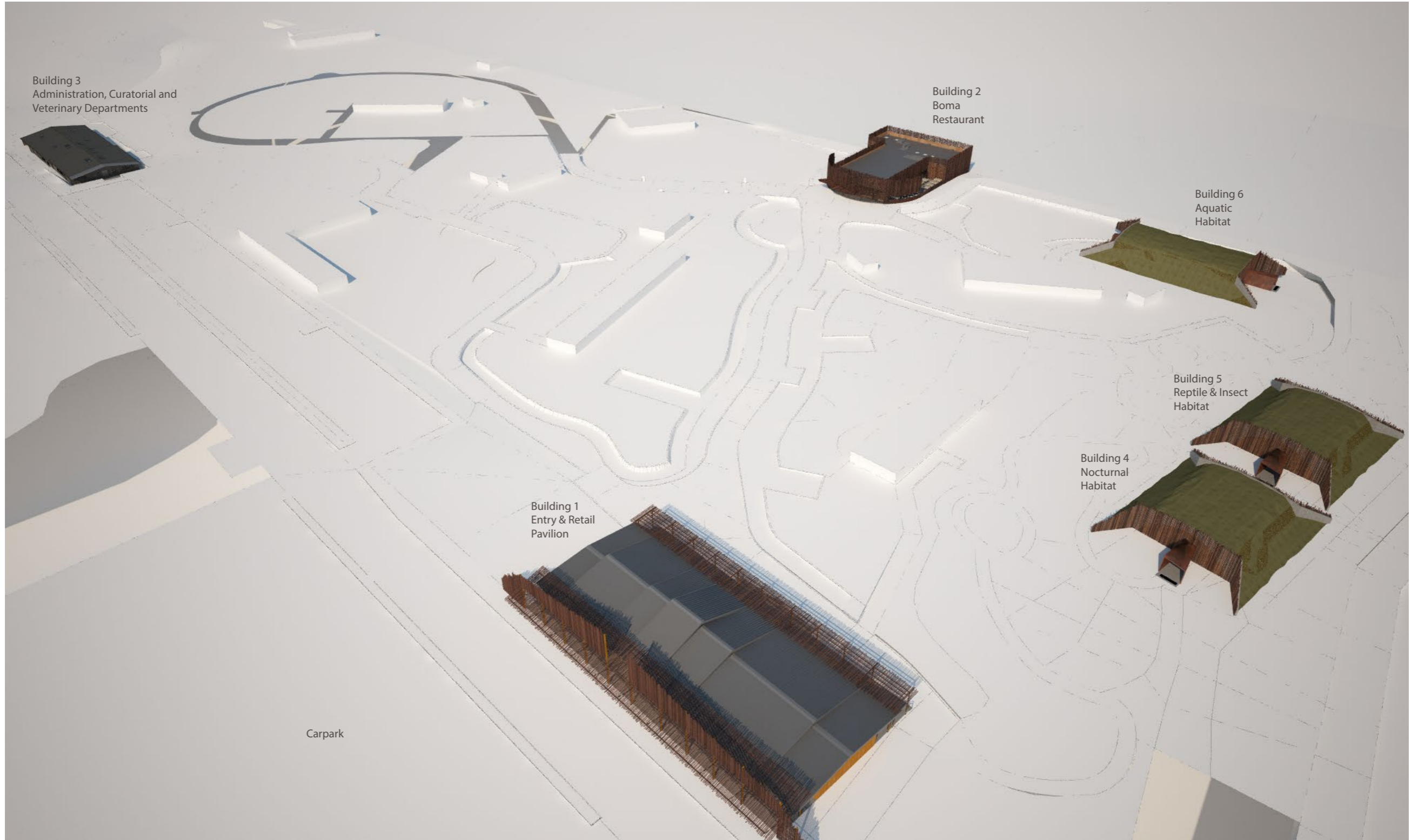
Understated yet elegantly simple.

This document is to support the State Significant (SSD) Development Application (DA) submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and assessment Act 1979 (EP&A Act).

This Application seeks the approval for the construction of new buildings associated with a new public zoological park, Sydney Zoo.



Site Plan : not to scale



3D Site View - Buildings 1 - 6 : not to scale



2. Design Principles

Architectural Design Principles

The new Sydney Zoo Entrance Pavilion Precinct will breathe new life into a once-neglected part of the City of Blacktown. Dispensing with the traditional boundary between the Zoo and its surrounds, the new Entrance Pavilion invites visitors to view the sights and sounds of the Zoo from Public Park to the north of the site and from the existing Great Western Highway. The new Sydney Zoo present new 'green roof habitats', environmentally sustainable buildings and will support an extensive planting of native plants and exotic planted habitats, making it a significant horticultural park and research centre as well as a world class zoo.

The new Sydney Zoo is the result of an ambitious integration of physical, cultural and organisational strategies. The Sydney Zoo Precinct has been designed around the core drivers of conservation, environment, education, and research.

Landscape and built forms for the project have been considered as a single interwoven environment to create a unique Australian civic space. The external colour palette and materials for the precinct reflect the Australian landscape incorporating charcoal, spotted gum timber and native plants.

- a. Create Buildings that respond to the landscape and experience of the zoo.
- b. Environmentally sustainable

Environmental Sustainability Design Principles

The new Sydney Zoo is presented with a significant environmental opportunity to be involved with the life functions of a building.

Substantial benefits are available, by careful selection of building materials, components and assemblies and the practices used to incorporate them into a built environment. These benefits range from conserving resources to reducing environmental impacts, improving environmental quality and accruing subsequent savings through improved productivity and waste reduction.

Incorporating sustainable design elements into the building will keep the comfortable levels consistent year-round and save on heating and cooling costs. The owners will reduce their electricity bill, save money and produce fewer greenhouse gas emissions.

It is intended that the new Sydney Zoo will incorporate design, construction and operational practices that significantly reduce or eliminate the negative impact of development on the environment and occupants.

The new buildings will provide an integrated, holistic approach to addressing the environmental impact of buildings consistent with meeting triple bottom line principles. Many of the features are directly linked to resource reduction and selection of environmentally sensitive materials. The designed buildings will address factors such as resource use (energy, water, materials), waste reduction including re-cycling, and efficiency in processing and construction, storm water re-use strategies, preservation of biodiversity and the natural environment. It includes consideration of social and cultural heritage issues, building-user amenity (e.g. indoor air quality, light, acoustics), and the conservation and selection of low energy, renewable, construction materials and processes.

The 'green' roof habitats are the first of its type in Australia to support wildlife shelter and biodiversity intensification.

Roof storm water will be diverted into a series of water traps that are contained within the exhibits. Runoff from the car park is first filtered through biofiltration garden beds to remove contaminants. Biofiltration garden beds, also known as 'rain gardens', are low depressions planted with native plants which capture rainwater runoff from paved surfaces, naturally filtering the rainwater before it is stored in open settlement ponds. The biofiltration garden bed uses a combination of sand and gravel layers and the plant's root systems to filter the water as it soaks down through the soil. It is then collected by an underground pipe and directed to the water feature areas within the new zoo exhibits.

While ESD principles may appear to be ancillary to a discussion of design, it is important that they are actually embedded in the DNA of the design of the new Sydney Zoo, both in the buildings and the public spaces. In terms of the natural and proposed landscapes, this proposal collects and stores all rainwater for the irrigation of the landscape and storm water runoff from the paved areas will drain through a series of rain gardens before entering the storm water system. In this new zoo habitat, the landscape will merge with the architecture and making a major contribution to holding the buildings within the natural landscape. This will ensure that the totality will be read from many view points in the public domain.

Sustainable Design

“Buildings and the built environment play a major role in the human impact on the natural environment and on the quality of life”

Sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land-use, and an aesthetic sensitivity that inspires, affirms and ennobles;

Sustainable design can significantly reduce adverse human impacts on the natural environment while simultaneously improving quality of life and economic well being”

The International Union of Architects ‘Declaration of Interdependence for a Sustainable Future’ (adopted in 1993 by the RAIA)

As Australia’s population increases, water supplies dwindle, the climate changes, and the environment suffers. After two centuries of intensive exploitation, Australians are becoming increasingly concerned about the state of environment and how we can prevent further degradation from taking place. How can we leave a precious environment for our grandchildren to enjoy and benefit from as we have?

Architects are well placed to apply their problem solving talents to creatively resolving issues that arise in the design of buildings and their surroundings in a way that ensures the least possible damage to the local and global environment.

It is this challenge that has been the driving force behind Misho + Associates since it started in 1990.

We understand that the successful exploration of these ideas requires commitment not only from the architect, but also the client, other consultants and the builders. We consciously select suitably qualified and trained teams to work with us to assist our clients in achieving the most sustainable and successful architectural solution for each project.

The project will act as a platform for ongoing research into the potential for alternative models of built form to support and promote urban ecology, to manage storm water appropriately and enable more efficient performance in solar power generation.

Water management is a key environmental issue in Australia and as such, the Sydney Zoo project incorporates a number of water conservation initiatives.



Local Flora – Hakea Sericea – Silky Hakea

Environmentally Sustainable Building Materials Selection

Sustainability is now established as a fundamental requirement for building today. There is universal acceptance that conservation of the earth's resources is essential to our survival. Our regulatory framework is rapidly reshaping to meet this imperative.

The material selection used in the new building will be based on the embodied energies of production and longevity.

The three main materials to be used will be:

1. CLT panels (Cross Laminated Timber)
2. Pre fabricated concrete panels to create an earth covered building/habitat.
3. Recycling timber bi product from timber saw mills that would be pulped for paper.

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Water management is a key environmental issue in Australia and as such, the Sydney Zoo project incorporates a number of water conservation initiatives.

Cross Laminated Timber Panels (CLT) – Renewable Resources

(Materials from natural, renewable sources such as plantation forests)

- CLT is a green building technology. Wood is the world's most sustainable building material.
- Unlike concrete and steel, wood has zero "embodied carbon" (i.e. the amount of carbon used in the process of manufacturing a building product).
- Wood also stores carbon as the trees grow, and therefore has a negative total carbon footprint.
- Wastage is eliminated through digital design and factory manufacture to precise dimensions.
- Wood structures give flexibility for alteration to meet changing needs because they are light and easy to work on.
- Simple connections allow panels to be disassembled and re-used elsewhere.
- The air tight nature of CLT construction makes buildings more efficient to heat and reduces energy demand.
- Untreated timber is acceptable in many situations, bringing both cost and environmental benefits.
- CLT is manufactured using a locally grown wood resource, sustainably harvested within 500km of the factory.
- At the end of a building life, CLT panels may be recycled into new buildings.



Cross Laminated Timber Panels

Pre fabricated concrete panels to create an earth covered building/habitat.

- A higher embodied energy level in buildings can be justified if it contributes to lower operational energy over the life of the building. For example, large amounts of thermal mass, high in embodied energy, can significantly reduce cooling and heating needs in well designed and insulated passive solar buildings, particularly in climates with greater cooling or heating requirements and significant day/night temperature variations.
- This will apply to the three buildings that are habitats and require stable environments.
- As the operational energy of a building over its life cycle far exceeds its embodied energy, using the high thermal mass of concrete to virtually eliminate heating and cooling energy requirements results in saving lots of energy that creates a carbon neutral outcome over the life of the building.
- Also the structure allows for the roof and side of the building/habitats to become "green roofs" and to also expand into other exhibits with a blurring of the building envelope and the environment that the building sites within.



Construction of Pre Fabricated Concrete Panels

Reuse, salvaged or recyclable

Easily dismantled or recovered materials, components and assemblies can be reused or salvaged at the end of their useful life or for purposes of renewal or replacement. Not only does this reduce waste that would otherwise go to landfill, but saves embodied energy and water and other resource inputs. Designing to facilitate easy recovery, disassembly and de-constructability of materials, products, components and assemblies can therefore contribute significantly.

This will be in the use of external cladding and external cladding over the new structural frames.



Timber Waste from a mill in Tasmania to be used for decorative architectural screening

Other Building design consideration that have been incorporated in the Sydney Zoo

- a. The design of each building incorporates the most environmentally sustainable solution possible. This includes the implementation of passive design principles.
- b. Encourage ecologically sustainable practices for the staff and visitors.
- c. Minimise the effects of the built form on the surrounds, including the integration of the buildings within the landscape.
- d. To maximise natural light in the building and keep temperatures comfortable year-round, it's best to plan and orientate the building to face north.
- e. In Sydney, the cooling breezes in Summer generally come from the North East. By minimising West-facing windows and locating windows along North East facing walls will create a cooler building. To encourage cool air flow in a room, have small window openings on the side of the building that faces the wind, and large openings on the opposite side of the room.
- f. Niches in the external wall of buildings can create pressure zones that force air into correctly located window openings.
- g. Small hatches at ceiling level will encourage the release of warm air.
- h. Materials are selected based on the following principles:
 - i. Materials are sourced locally, nationally and no further than NZ.
 - ii. Maximise re-cycling of materials
 - iii. Select renewable resources
- iv. Minimise the use of materials
- v. Design for durability and re-configurability
- vi. Ensure appropriate properties for application
- vii. Consider embodied energy
- viii. Consider toxicity, off-gassing and pollution
- i. Mechanical Services within Buildings
 - i. Use of Split System Air Conditioners only where essential
 - ii. Use of ceiling fans to public and administration areas
 - iii. Maximise natural ventilation, especially to public internal areas
 - iv. Passive ventilation: An important principle for sustainable design is good natural ventilation avoiding mechanical or electrical powered systems to move the air.
 - v. By understanding local weather patterns including wind direction, and by employing the principles of air movement, sustainable design encourages hot air to rise and escape from a room and directs cool air into a room.
 - vi. Windows are responsible for large amounts of heat loss from the building in winter and up to 50% unwanted heat gain in summer. Heating and cooling of a building to compensate, can make up around 22% of your energy bill. Window and door seals prevent drafts, heat loss, noise and water infiltration.
 - vii. Shade windows from summer sun with extended eaves, pergolas or external blinds.
 - viii. Apply double-glazing or other performance-improving technologies to your windows to help keep your home comfortable
 - ix. Install lined curtains or close fitting drapes or blinds
- j. Hydraulic services within buildings
 - i. The Installation of dual flush toilets will be installed with all areas.
 - ii. All storm-water will be used and reticulated onsite for use in exhibits and irrigation of landscape areas.
- k. Lighting within buildings
 - i. Maximise the use of Natural daylight. (Buildings should be designed to maximise availability of natural light without creating major heat gain or heat loss pathways. Ideally, artificial lighting should not be necessary for general activities in a room during daylight hours in winter. This is our intent)
 - ii. Use of LED light fittings
 - iii. Where outdoor decks are provided maximise the comfort and usability of these areas by considering wind protection, winter solar access and summer shade. Consideration of the effect these structures may have on shading and solar access to internal areas of the building
 - iv. Photovoltaic- For all new buildings where possible, and regardless of immediate intentions, roof specifications will allow for installation of a photovoltaic array. Consideration to the best position of an array, inclusion of relevant conduit and wiring, and structural capacity of roof to bear the load should be made in preparation for potential future installation.

Summary

In summary, the environmental objectives pursued by the new Sydney Zoo when selecting materials, products, components and assemblies during the building and construction process can be summarised as follows:

- reduce impact on natural environment and biodiversity;
- reduce use of finite resources in accordance with achieving a sustainable eco-footprint;
- resources must be used more effectively and efficiently in material, product, component and assembly production and during construction i.e., improve output per unit input;
- reduce energy and water inputs to reduce embodied energy and water;
- reduce waste generated during the material life cycle flows;
- select durable, long lasting materials;
- select materials and components with low maintenance and cleaning requirements;
- use efficient, flexible space configuration;
- where available opt for local materials and product to reduce transport energy impacts;

- promote renewable, reusable, recycled and recyclable material content;

and

- select materials, products components and assemblies that enhance human health and contribute to a healthy indoor air quality e.g. low VOC emissions, toxicity and flammability in the event of fire.



3. Building Methods

Building Methods

Cross Laminated Timber Panels (CLT)

- Buildings 1, 2 and 3.

- Cross laminated timber (CLT) is like jumbo sized plywood except that it uses timber boards rather than peeled veneers for the glued layers. CLT panels span and support loads, and connect together to provide a very strong and stable building system. A CLT structure eliminates conventional stick framing since the panels do all the work of joists, studs and rafters.
- CLT is manufactured in a range of thicknesses to suit floors, internal and external walls and roofs. It may be utilised as individual components or as a complete structural system encompassing all of these.
- CLT is particularly suited to compartmentalised buildings which have permanent internal walls, such as single and multi-unit residential buildings, schools, health care facilities and commercial offices.
- CLT panels are manufactured in sizes of up to 15m long and 3.3m wide and thicknesses of 60mm to 200mm or more. They are made by face-gluing together 3, 5 or 7 layers of finger-jointed Radiata Pine or Douglas Fir boards measuring 140mm wide x 20, 35 or 45mm thick. The layers run in alternate directions with the top and bottom layers running in the direction of primary span. Glue is applied to the face of each board but not between board edges in the same layer. Once glued, the layers are pressed together to form a structural panel which can then be machined to the exact sizes and profiles required.
- The CLT pre-fabricated building system offers dimensional precision and a very speedy assembly at the site. This allows rapid closing in of the building. Compared with conventional framed construction it provides advantages of air-tightness, thermal insulation, internal moisture management, acoustic insulation and fire resistance.
- CLT is widely used in Europe for both residential and commercial construction and is gathering strong momentum in North America. Several CLT projects are already built in Australia.



Cross Laminated Timber Panels

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- CLT is manufactured using a locally grown wood resource, sustainably harvested within 500km of the factory.
- At the end of a building life, CLT panels may be recycled into new buildings.



Timber sourced from plantation forests

CLT – Design Aspects

- World-wide there is a growing rediscovery of the benefits of wood and wood products. Today, wood offers an infinite variety of opportunities for beauty, innovation, ecology, efficiency and adaptability.
- Wood has a timeless appeal, outlasting transitory fashions.
- Wood gives our surroundings a feeling of welcome, comfort and harmony. It adds character to spaces while disguising defects and irregularities.
- Wood is hard wearing yet warm to the touch.
- Wood is healthy. CLT can improve human comfort by naturally controlling internal humidity and ambient temperature. It buffers variations of indoor humidity by absorbing indoor moisture and releasing it when the humidity drops.
- Wood is a good insulator. CLT panels can provide an air tight barrier which substantially assists thermal insulation.
- Wood is fire-resistant. Through charring, CLT panels will self-protect against fire.
- Wood is robust, easy to work with and maintain. Wood structures can be easily adapted and modified to suit changing life needs.
- Wood structures are safe. Has a proven perform in earthquake conditions.



Cross Laminated Timber Panel building under construction

Building Methods

Pre-Cast Concrete Tunnel Structures - Buildings/habitats 4,5 and 6

- Pre-cast arch system is unparalleled in its ability to deliver a high performance, and cost effective bridge solution with excellent visual appeal.
- Pre-cast arch systems have been the exclusive Australian manufacturer of BEBO™ arches since 1984. The arch units are ideal for a wide variety of bridge structures, offering a span of 6 m to 21 m, and heights to 7.5 m.
- There are four different arch types available to meet the needs of the design: 1) one piece arches, 2) two piece arches, 3) 3-pin arches, and 4) top arches. The necessary span, the transportability of the units, and the loadings imposed on the structure will generally determine the type of arch required for each project.

The pre-cast arch system provides many benefits:

- Design versatility - Several arch types can be customised to suit almost all clearance envelope requirements, with multiple cell arches providing easy application to most site configurations including sloped sites, curved pathways, rail impact, and skylight openings. Precast spandrel walls and wing walls are available to provide a complete arch solution.

- Fast installation - pre-cast arches are fast and easy to assemble without the need for formwork. Simple strip footings are suitable for the arch. All arches are free standing and require no scaffolding during erection.
- Impressive durability - The combination of backfill and overfill provides protection for the arch element. All arches are designed for a 100 year life in accordance with Australian Standard - Bridge Design (AS5100 - 2004).
- Minimal maintenance - The system provides a continuous pavement (no joints) for overpasses which means asset owners avoid the cost and inconvenience of bridge deck maintenance, and support bearing or expansion joint repairs. The use of high strength concrete manufactured under tight quality systems also ensures minimal inspection requirements throughout the life of the structure.
- Great aesthetic value - Arches present a graceful appearance in any environment, and are suitable for a wide range of surface treatments to further enhance their design.
- No differential settlement - Precast arches don't need approach slabs to prevent differential settlement at the abutments.



Construction of Pre Fabricated Concrete Panels

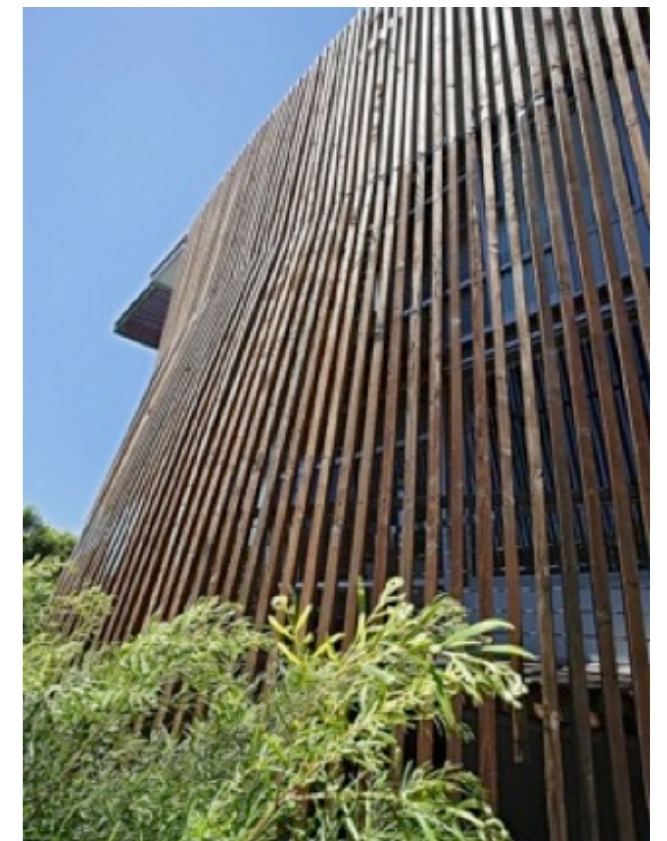
Building Methods

Recycled/waste timber for building cladding over base structures of steel & heavily insulated building shells for Buildings 1, 2, 3, 4, 5 and 6

We are securing the supply of timber waste from sawmills for reuse in façade cladding and wall cladding. This timber would be pulped for paper and shipped to Japan. By supporting local sawmills we can buy their waste timber for use in cladding and shading of buildings and structures.

- Recycling and waste timber**
 - Recycling is an important way to prolong the life of wood products and to keep the carbon stored in wood for longer. The longer a timber product is used, the longer the carbon remains in the product.
 - Over half of building and demolition wood can be reused, 15 percent as sawn timber, 36 percent recycled and 36 percent as wood-based panels.¹⁴
 - Each year nearly 500,000 tonnes of waste wood from end-of-life is recovered and in Australia and not sent to landfills.
 - While some carbon is released when a tree is harvested, carbon remains stored in the timber used in buildings and wood products.
 - A timber house frame for an average dwelling is storing around 10 tonnes of CO₂.
 - Wood releases carbon only when it is burnt or when it decays.
- Carbon storage**
 - For the environmentally conscious architect, engineer or building professional, timber is a logical choice. With the ability to store carbon for its entire service life, using sustainably sourced timber can help tackle climate change and transition to a low carbon economy.

- Life Cycle Analysis**
 - A life cycle analysis measures the environmental impacts of building products throughout their life.
- Low embodied energy**
 - When compared against other common building material alternatives, timber's low embodied energy is another reason why choosing timber is a positive choice for our environment.
- Maximise Green Star Ratings**
 - The Green Star Energy Rating system has accelerated industry focus on sustainable design and development. Using timber can help maximise green star credits.
- Recycling and wood waste**
 - In the timber industry rarely is there such a thing as a wasted piece of wood. Learn here about some of the more unique and innovative uses of timber waste and offcuts.



Timber Waste from a mill in Tasmania to be used for decorative architectural screening



4. Buildings 1, 2 and 3

Building 1

Entry and Retail Pavilion

Design Principles

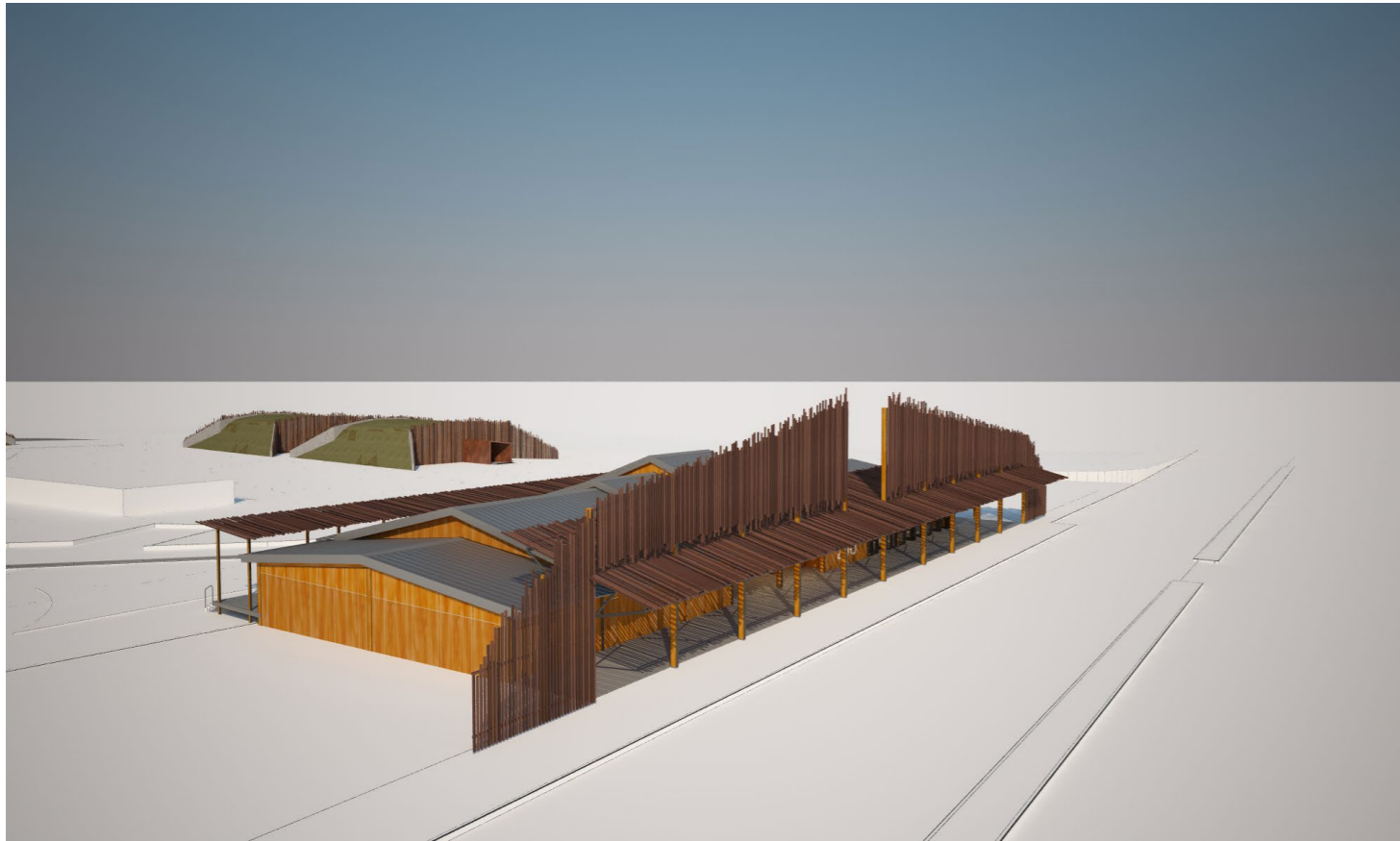
- a. The primary concept is to have the building mimic the landscape and blend into the existing and proposed new landscape solution for the site. The building on the site will each create a point of difference within the area of the master plan, the buildings own expression based on the use and the position
- b. A simple palette of materials detailed carefully, creates an impression of quality and longevity. The lack of applied decoration masking the design is clear. Decoration is applied through the layering of light and shadow over the building structures.
- c. A solution inspired by a massing, formulating a structural response, creating a visual expression, responding to the semi urban fabric.
- d. To create an iconic entry/Retail building that responds to the landscape and creates a scent of arrival to something special. The building is to evoke the richness of the environmental landscape within which the building is sited.



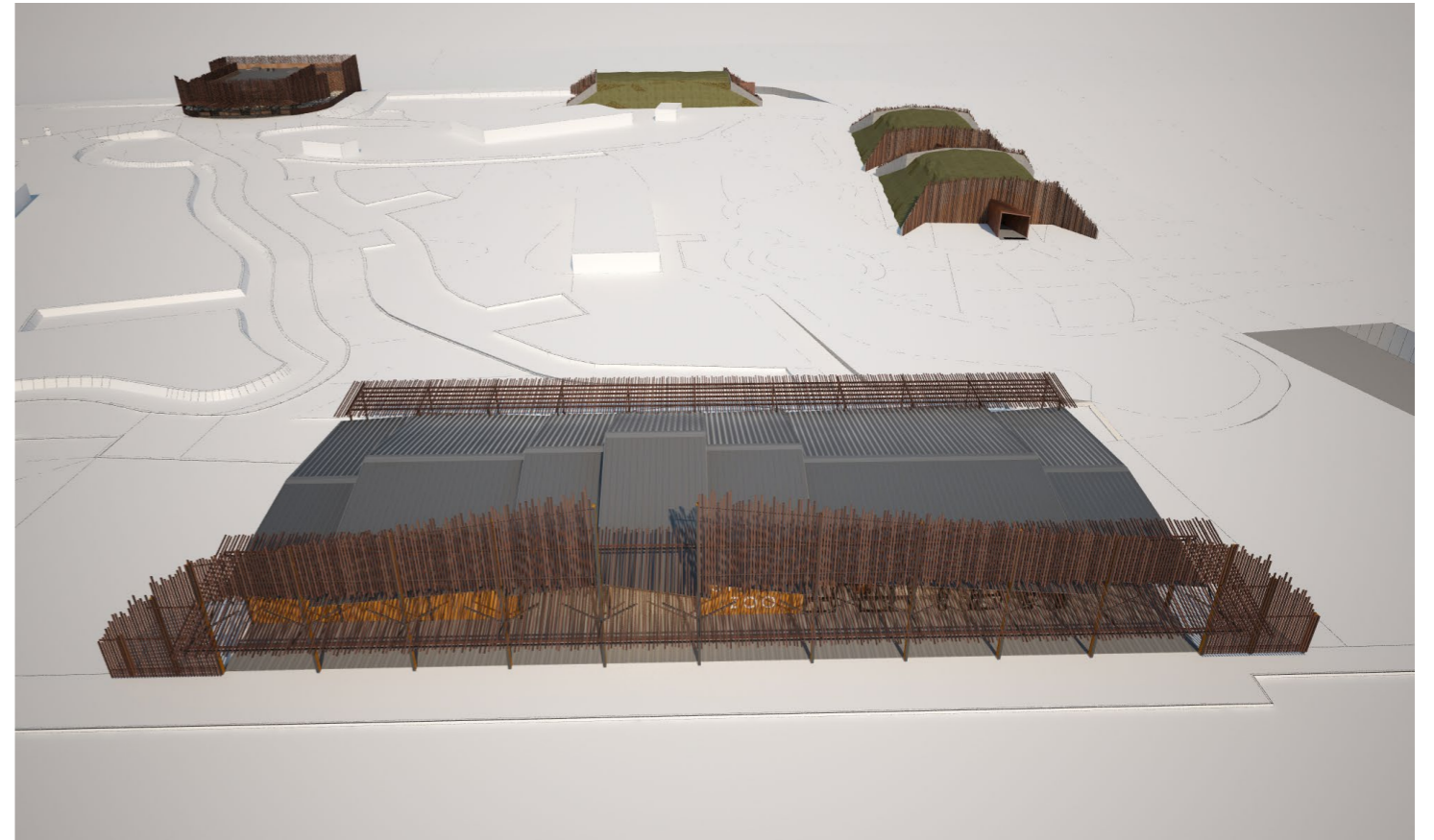
Proposed New Entry and Retail Pavilion - View 1



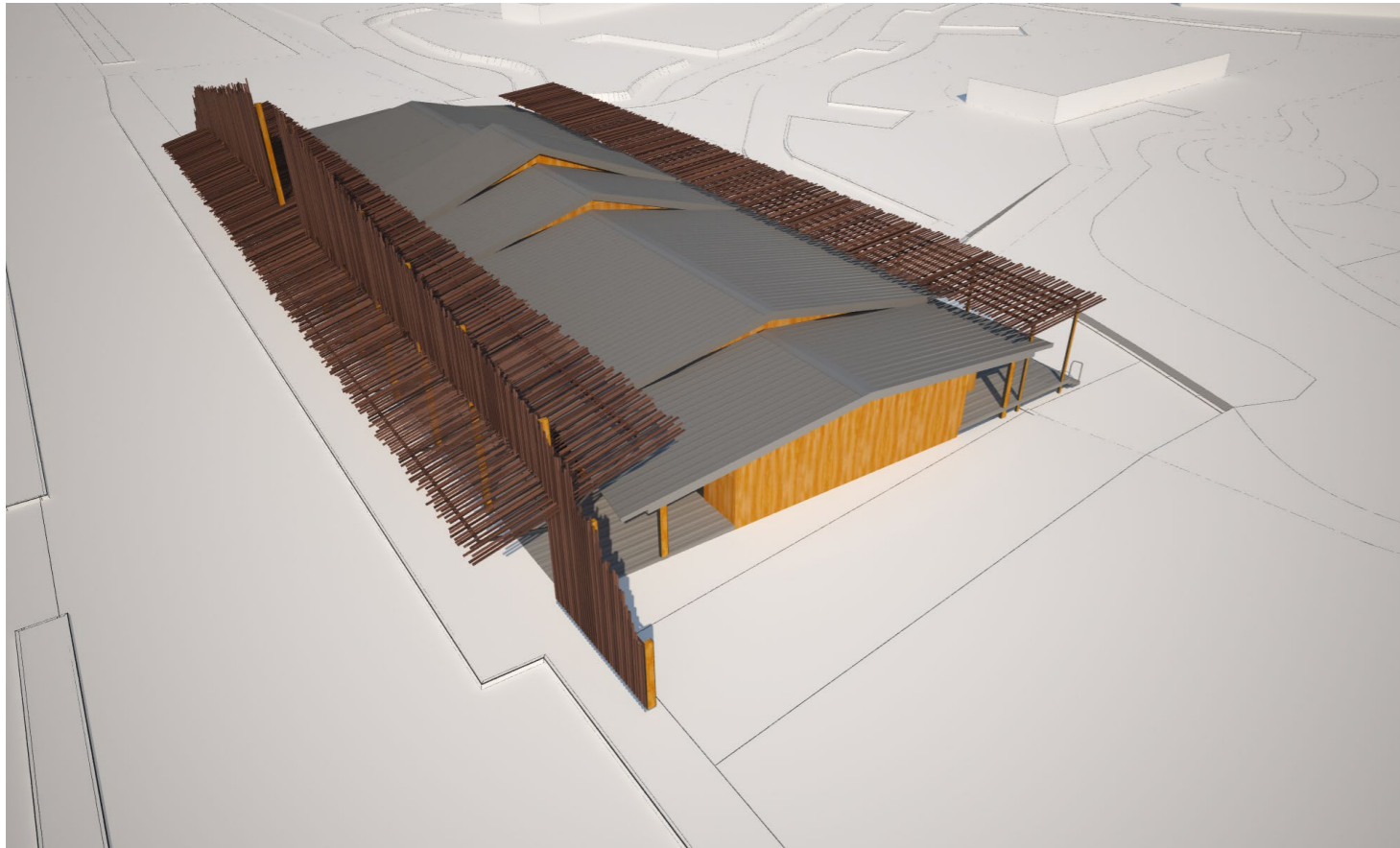
Proposed New Entry and Retail Pavilion - View 2



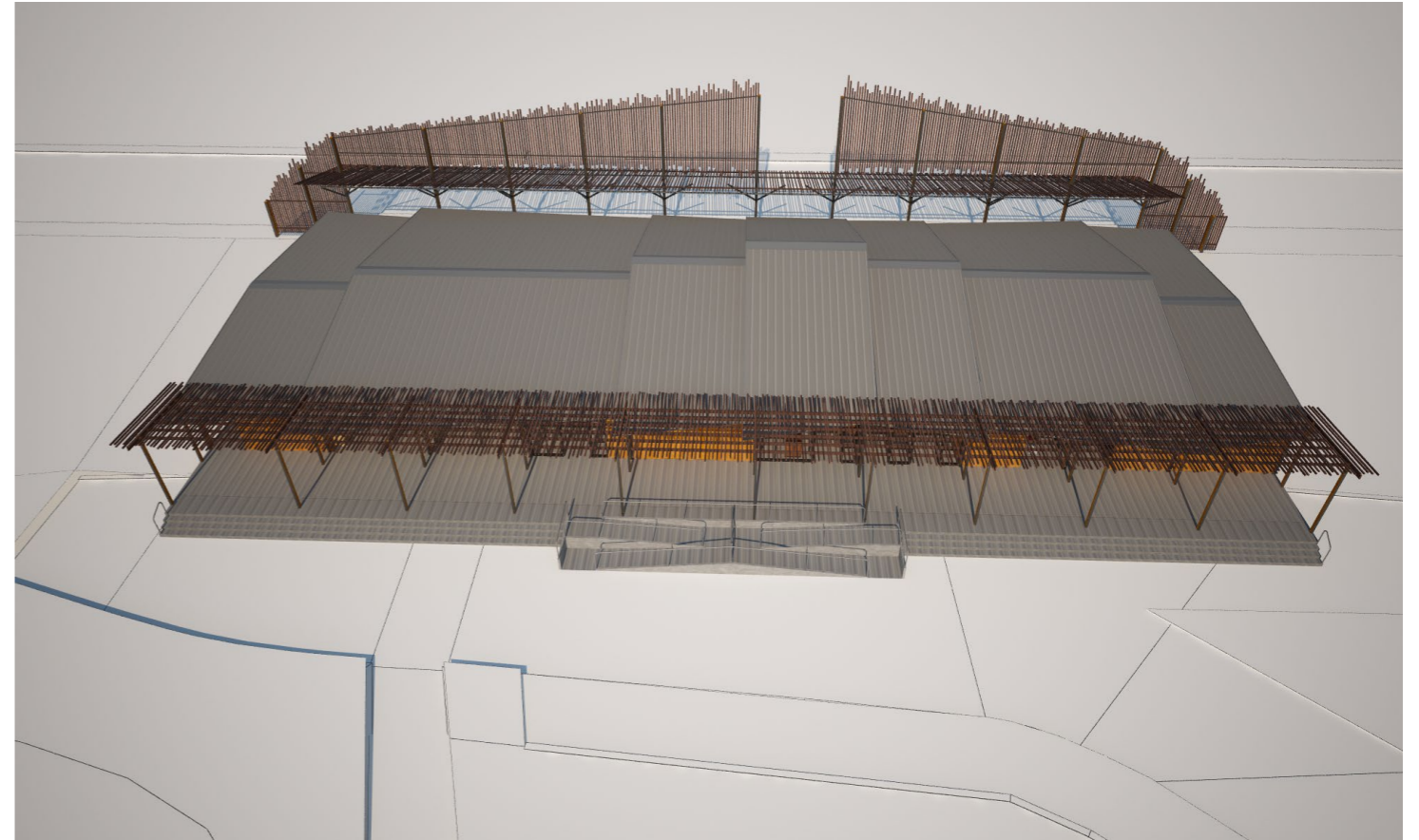
Building 1 Study - View 1



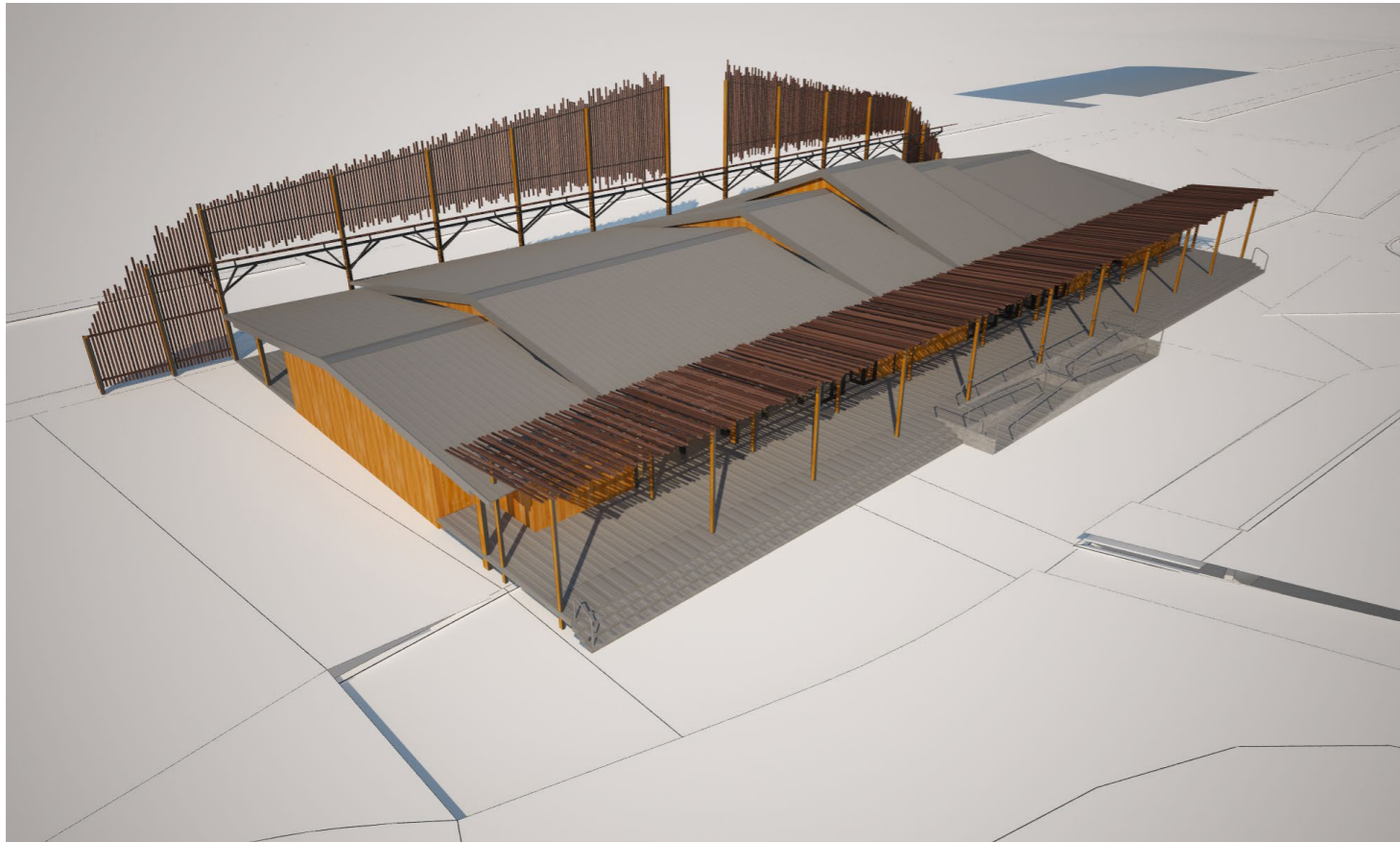
Building 1 Study - View 2



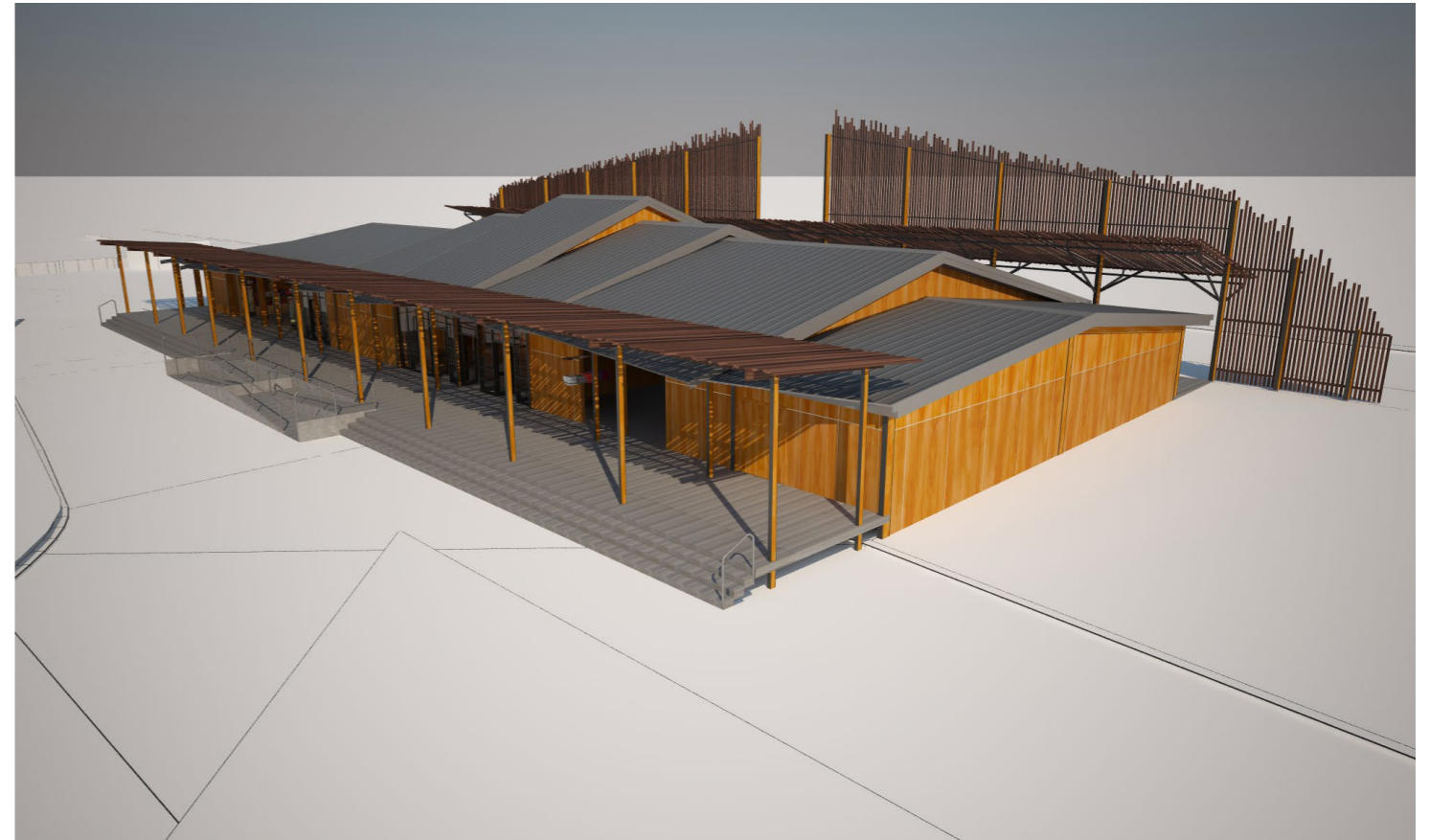
Building 1 Study - View 3



Building 1 Study - View 4



Building 1 Study - View 5



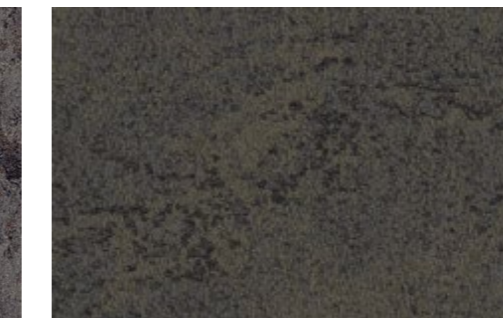
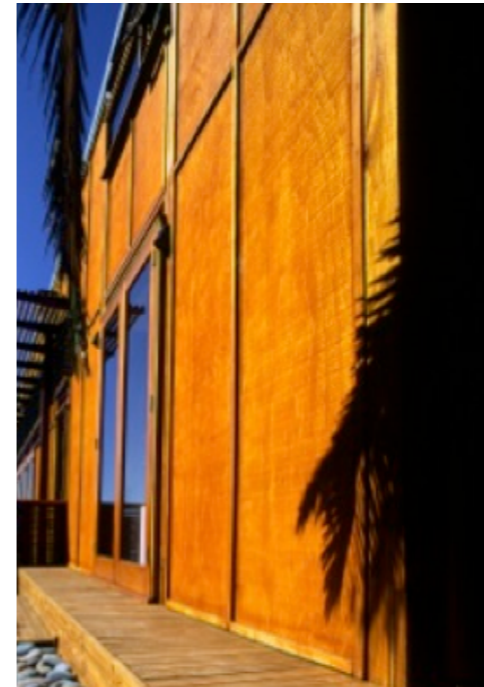
Building 1 Study - View 6

Building 1

Entry and Retail Pavilion

Material Palette

- a. Concrete slab on ground.
- b. Walls and roof structure from CLT panel .
- c. Roof structure lined with Colorbond.
- d. External Walls to be lined with external ply cladding with clear finish
- e. Internal Walls to be exposed CLT panels with a clear finish.
- f. Entry floor- Linoleum.
- g. Retail and Admin Floor- Carpet Tiles (from recycled material)
- h. Wet Areas Floors and Walls- Vinyl.
- i. Timber slatted screening



h

f

g

c

Building 2

Boma Restaurant

Design Principles

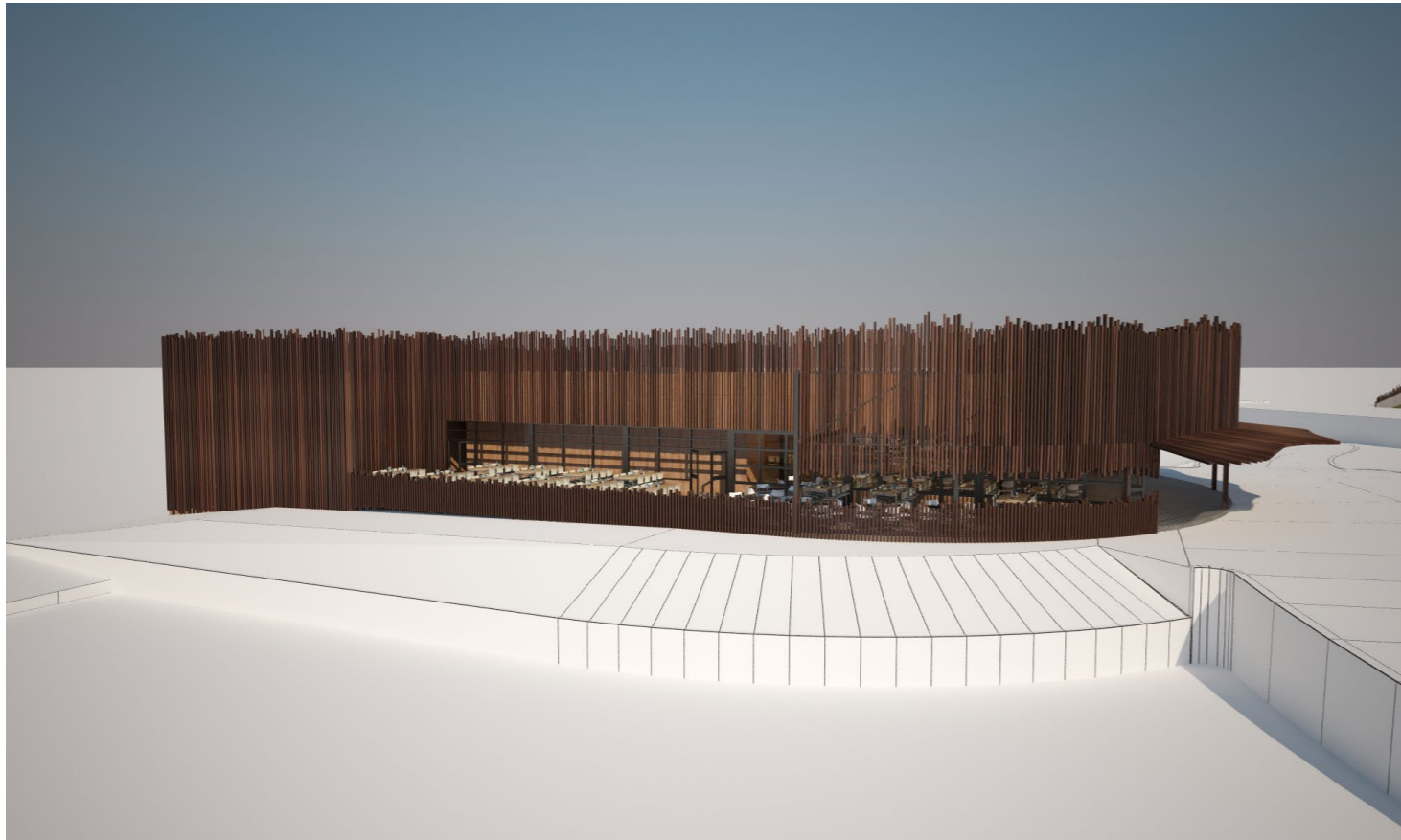
- a. Boma is the word for an African enclosure usually made of thorn buses, tree limbs and latterly of steel fencing for the protection of tribal people and their animals from carnivorous animals at night. Bomas are scattered all over the savannah areas and are large enough for sleeping, cooking and the protection of livestock.
- b. The Design principles for the Boma Restaurant are derived from the tradition African enclosure into a more contemporary solution.
- c. The primary concept is to have the building mimic the landscape and blend into the existing and proposed new landscape solution for the site. The building on the site will each create a point of difference within the area of the master plan, the buildings own expression based on the use and the position
- d. A simple palette of materials detailed carefully, creates an impression of quality and longevity. The lack of applied decoration masking the design is clear. Decoration is applied through the layering of light and shadow over the building structures.
- e. A solution inspired by a massing, formulating a structural response, creating a visual expression, responding to the semi urban fabric.
- f. To create an iconic transition building that responds to the landscape. The building is to evoke the richness of the environmental landscape within which the building is sited.



Concept images of the traditional African Boma



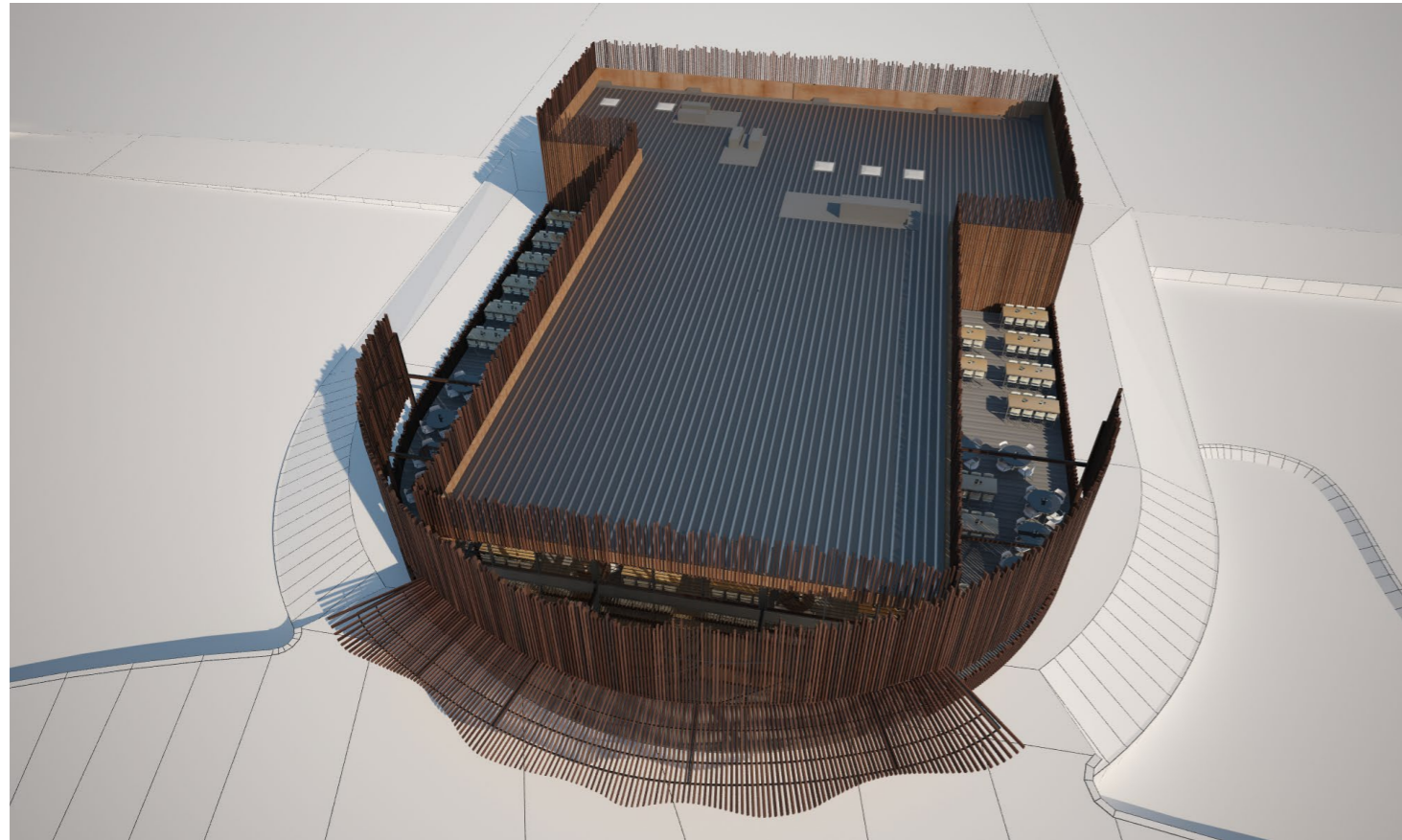
Proposed new Boma Restaurant - View 1



Building 2 Study - View 1



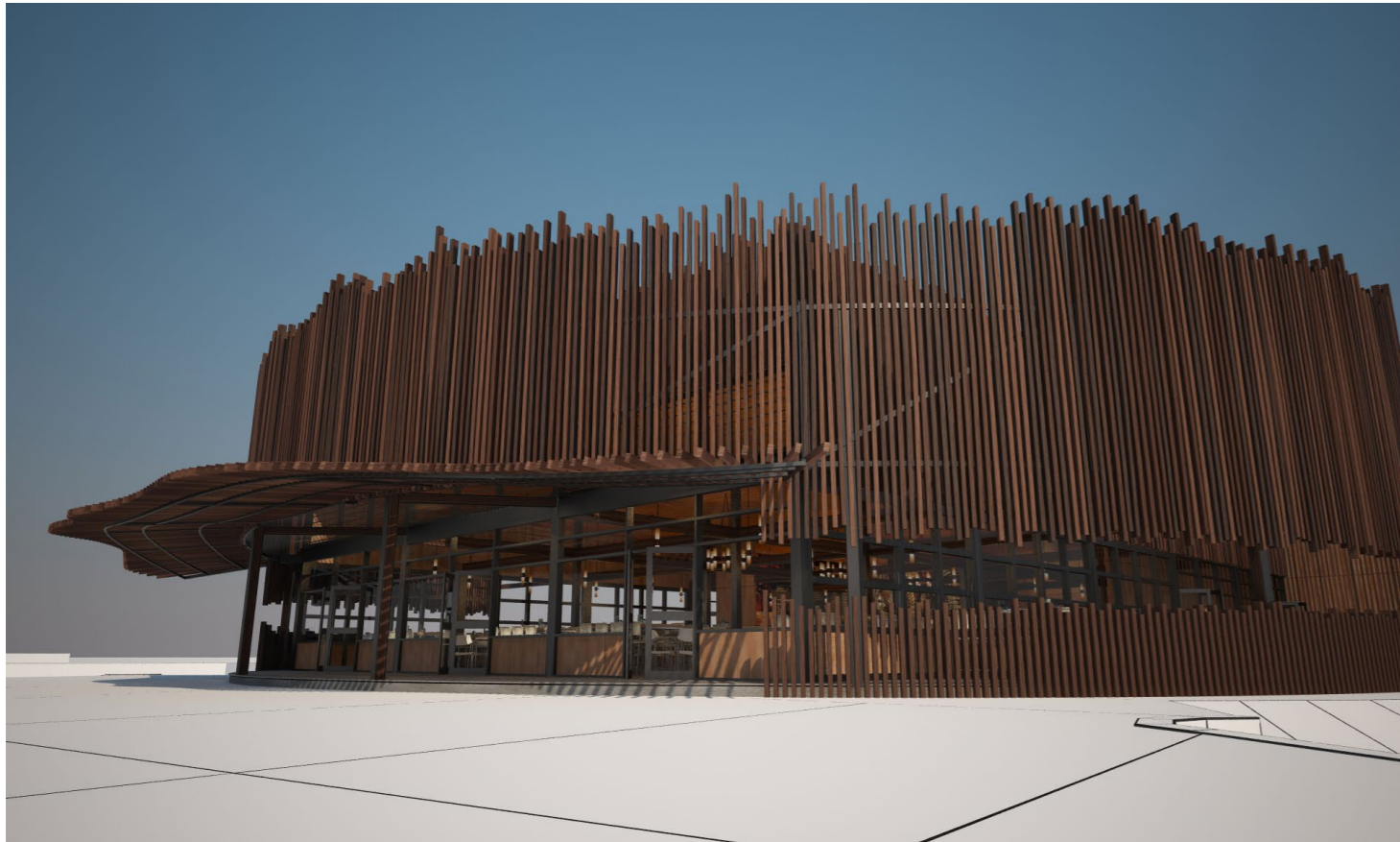
Building 2 Study - View 2



Building 2 Study - View 3



Building 2 Study - View 4



Building 2 Study - View 5



Building 2 Study - View 6



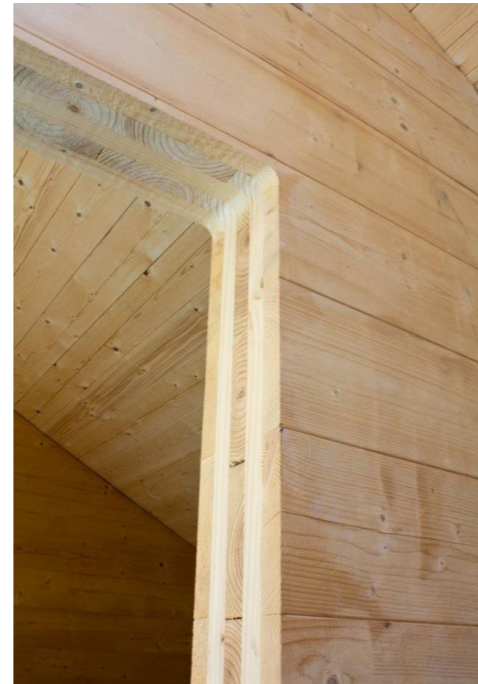
Building 2 Study - View 7

Building 2

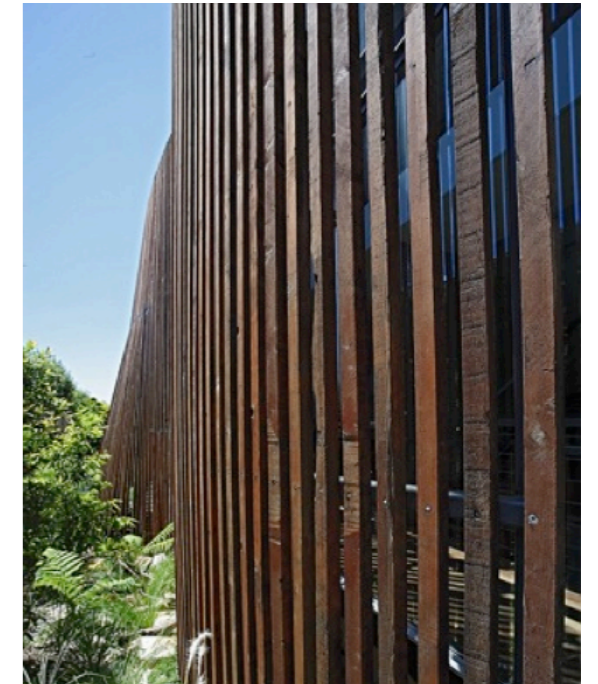
Boma Restaurant

Material Palette

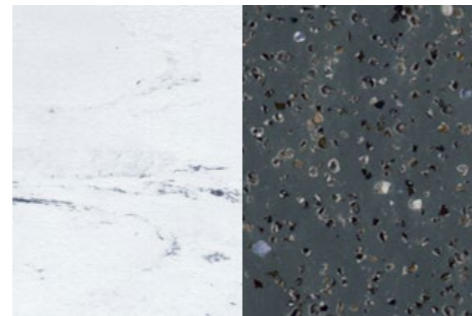
- a. Concrete slab on ground.
- b. Walls and roof structure from CLT panel and steel structure.
- c. External Walls will be a combination of glass windows, louvers and solid panels with recycled timber cladding
- d. Roof structure lined with Colorbond roofing with heavy insulation fixed over a CLT roof/ceiling panel
- e. Internal Walls to be exposed CLT panels with clear finish
- f. Entry floor- Linoleum
- g. Retail and Admin Floor- Carpet Tiles (from recycled material)
- h. Wet Areas Floors and Walls- Vinyl.
- i. External vertical surfaces to be painted compressed fibre cement sheeting and cladding in recycled timber.



b



c



h



g



f



d

Building 3

Administration, Curatorial and Veterinary Departments

Design Principles

- a. To create simple low scale building that blends into the surrounding landscape and forms a key function of the organizational framework for the new Sydney Zoo.
- b. Create an environmentally sustainable work environment for the staff.
- c. A simple palette of materials detailed carefully, creates an impression of quality and longevity. The lack of applied decoration masking the design is clear. Decoration is applied through the layering of light and shadow over the building structures.
- d. A solution inspired by a massing, formulating a structural response, creating a visual expression, responding to the semi urban fabric.



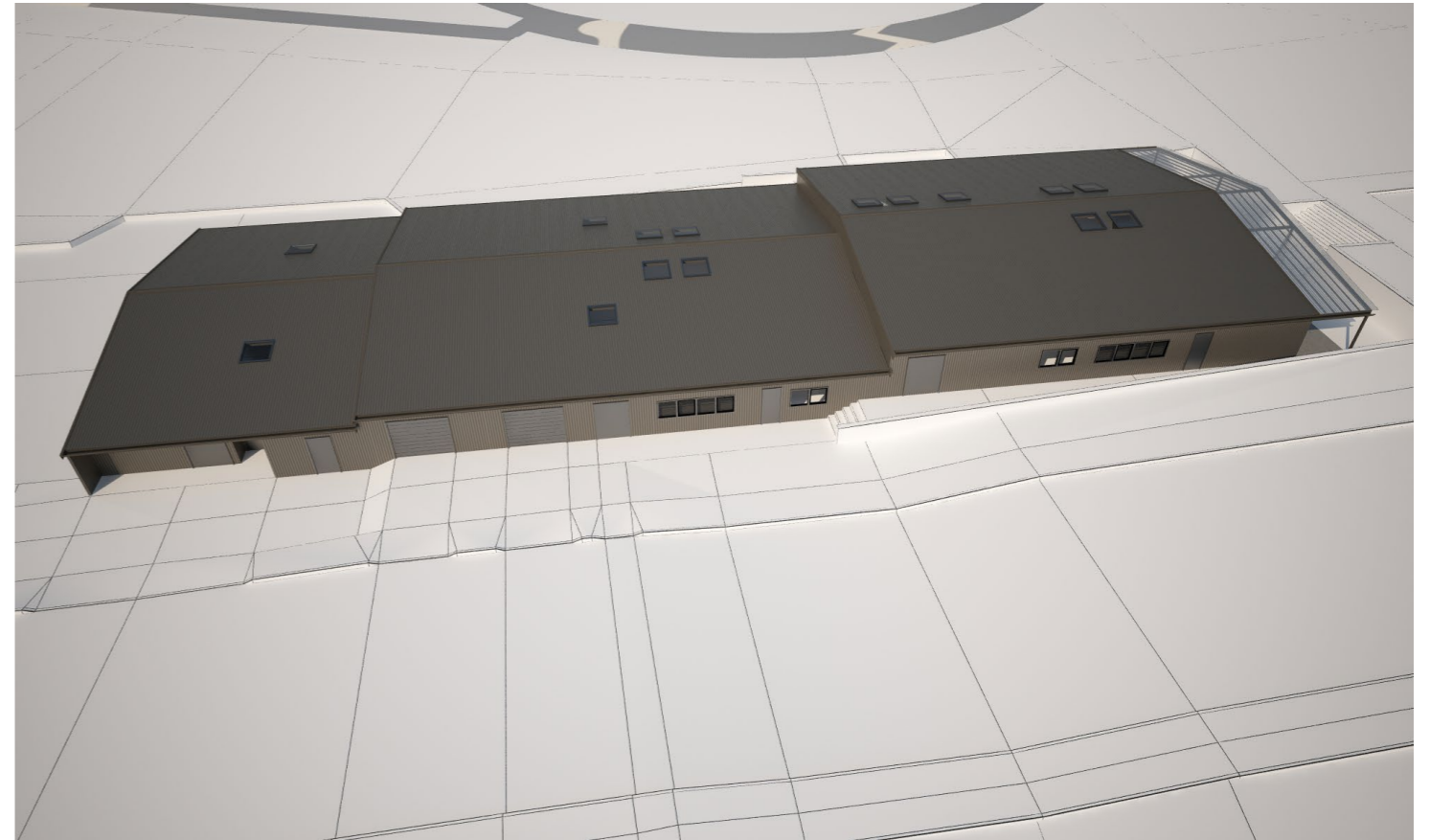
Concept images for Building 3 : exterior and open plan office areas



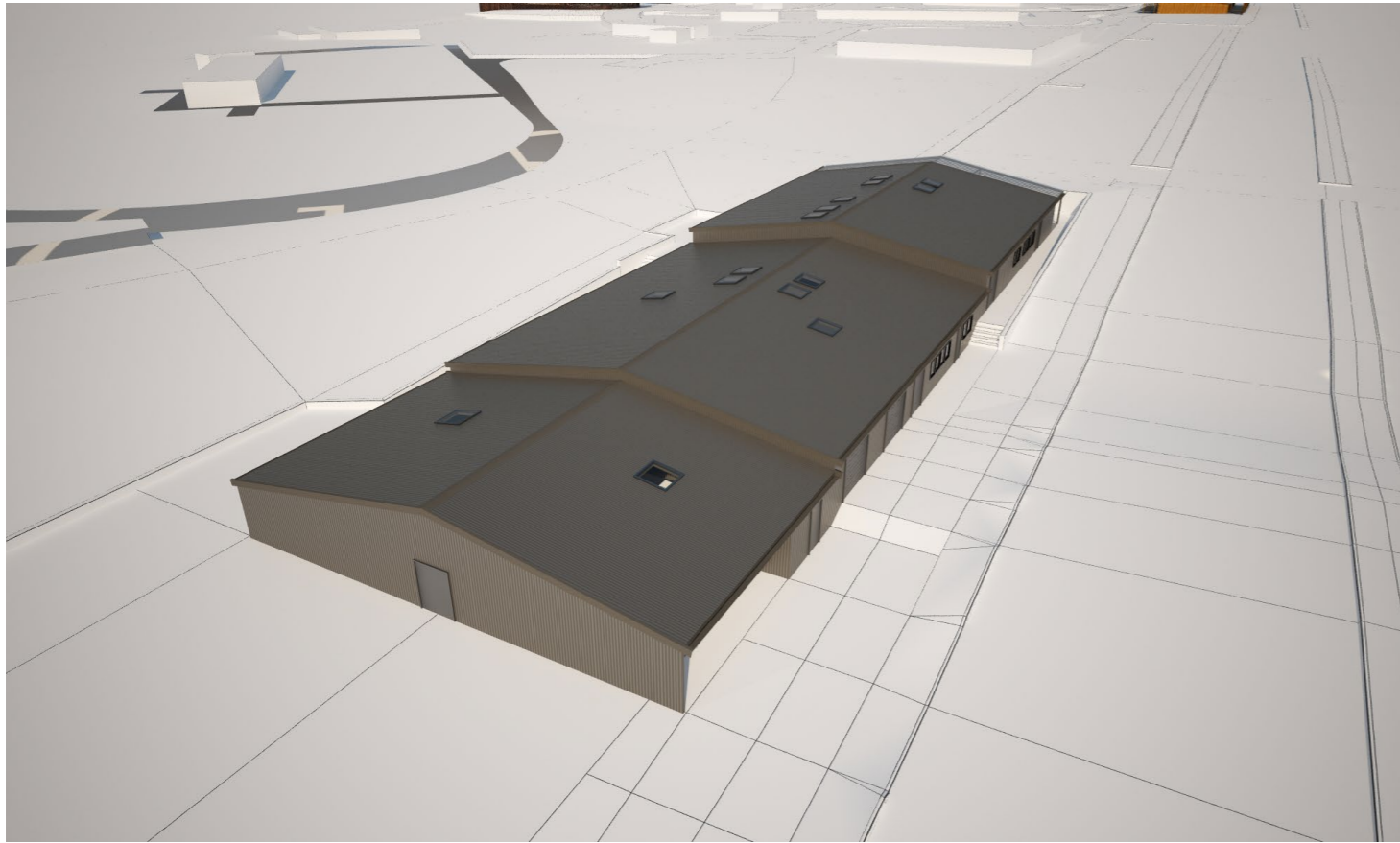
Proposed new Administration, Curatorial and Veterinary Building-View 1



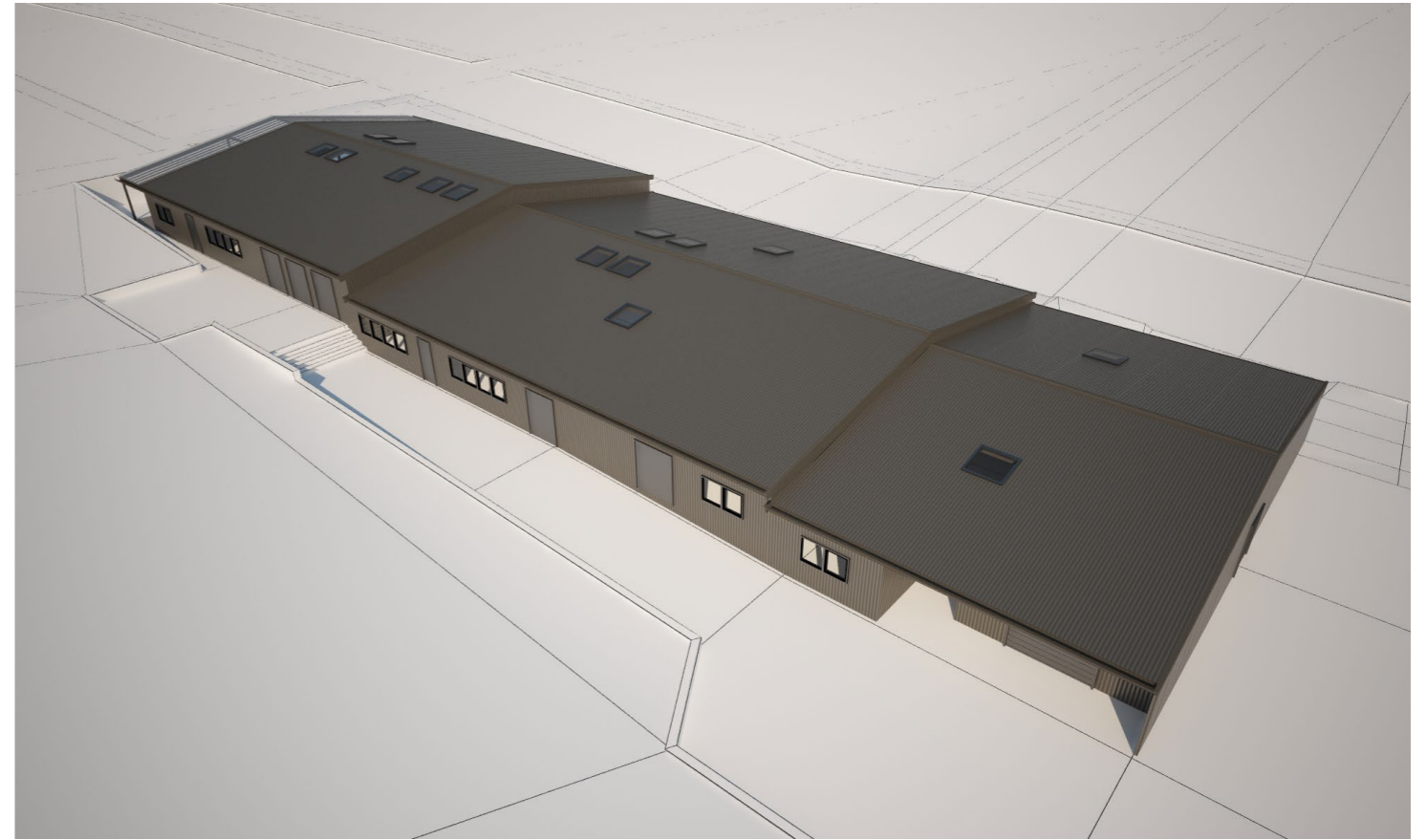
Building 3 Study - View 1



Building 3 Study - View 2



Building 3 Study - View 3



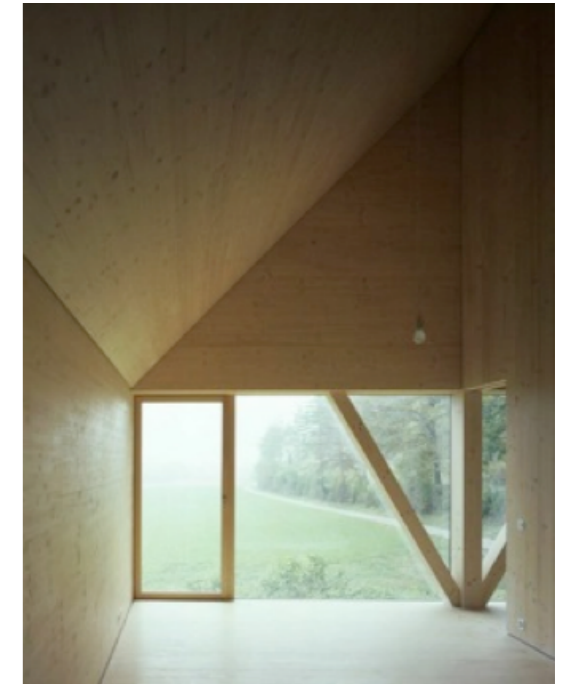
Building 3 Study - View 4

Building 3

Administration, Curatorial and Veterinary Departments

Material Palette

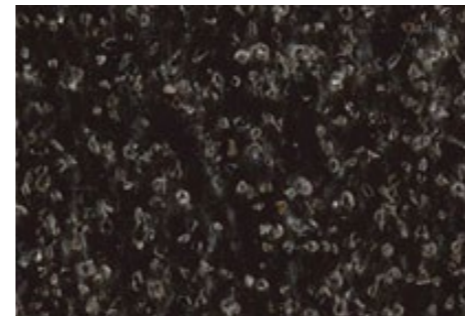
- a. Concrete slab on ground.
- b. Walls and roof structure form CLT panel
- c. External Walls and roof structure lined with Colorbond metal finish in selected dark green colour. Also some of the external walls will be a combination of glass windows, louvres and solid panels with recycled timber cladding
- d. Internal Walls to be exposed CLT panels with clear finish.
- e. Admin Floor- Carpet Tiles from Recycled Material
- f. Curatorial and Vet Floor- Vinyl
- g. Wet Areas Floors and Walls- Vinyl.



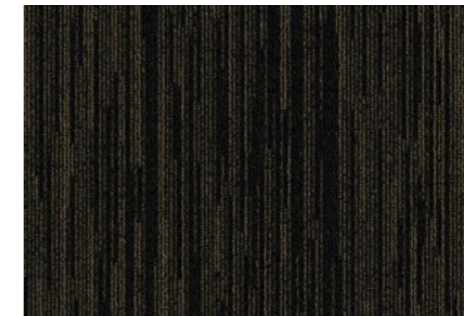
b



g



f



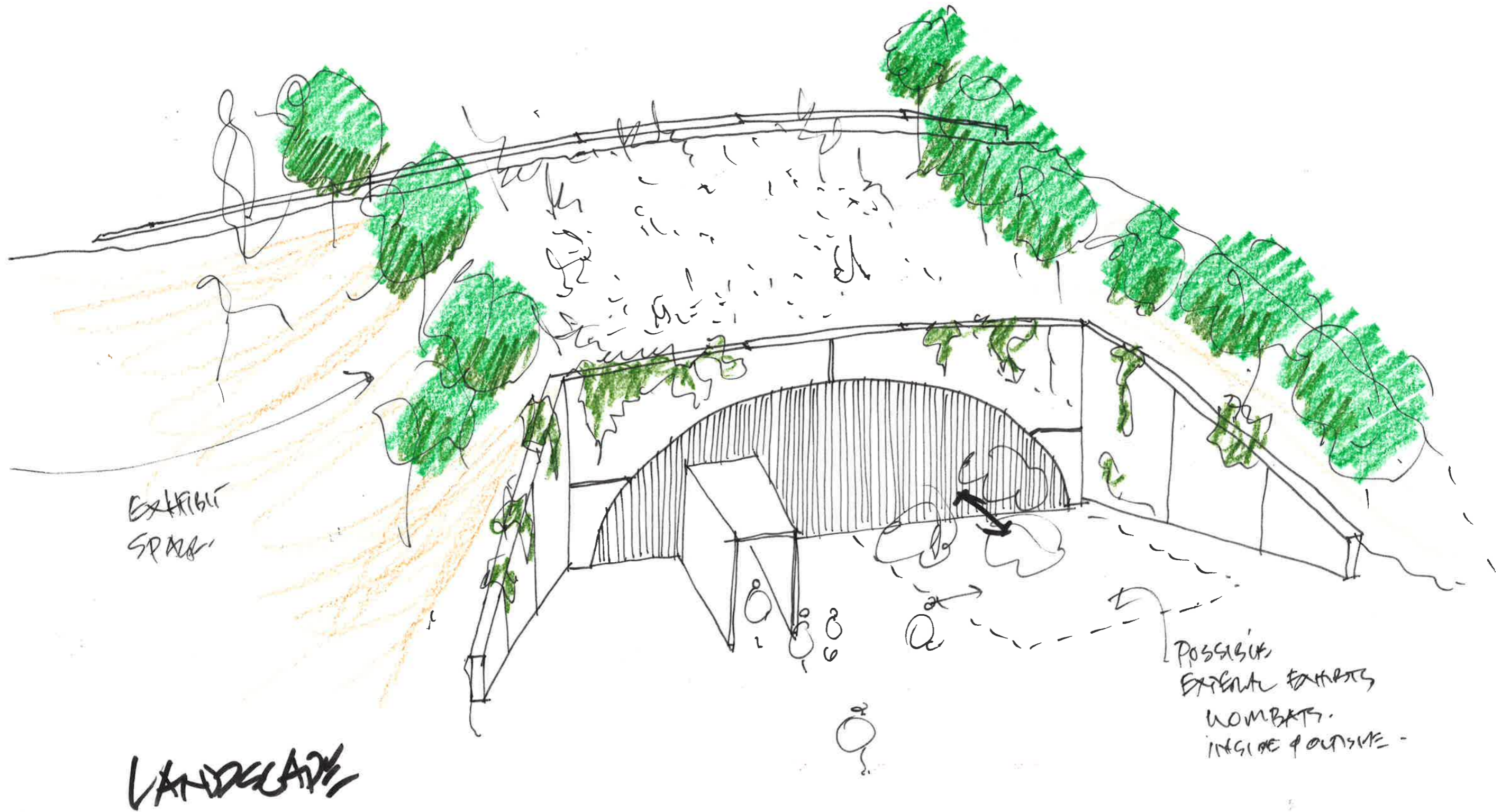
e



c



5. Buildings 4, 5 and 6



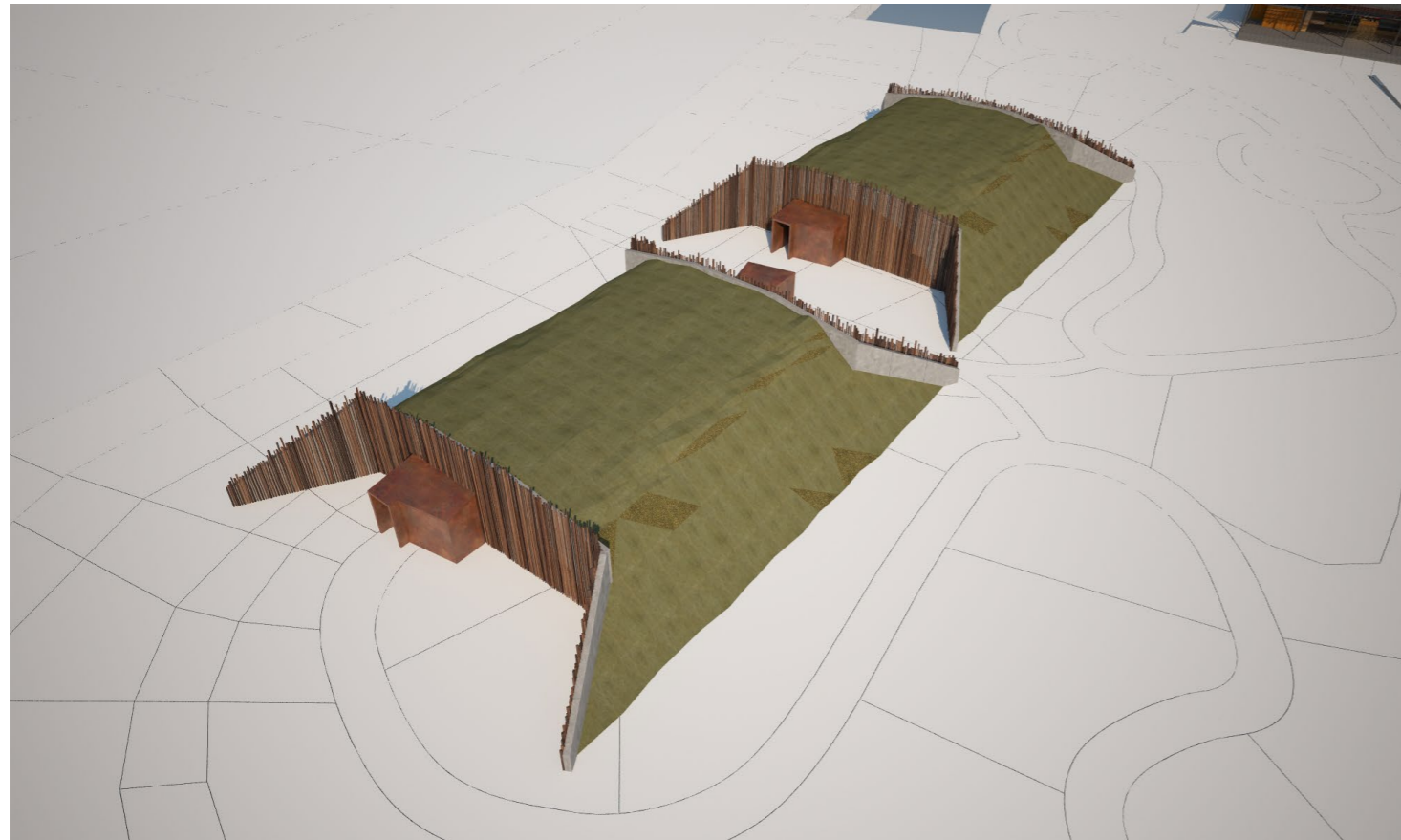
Concept sketch for Buildings 4, 5 and 6



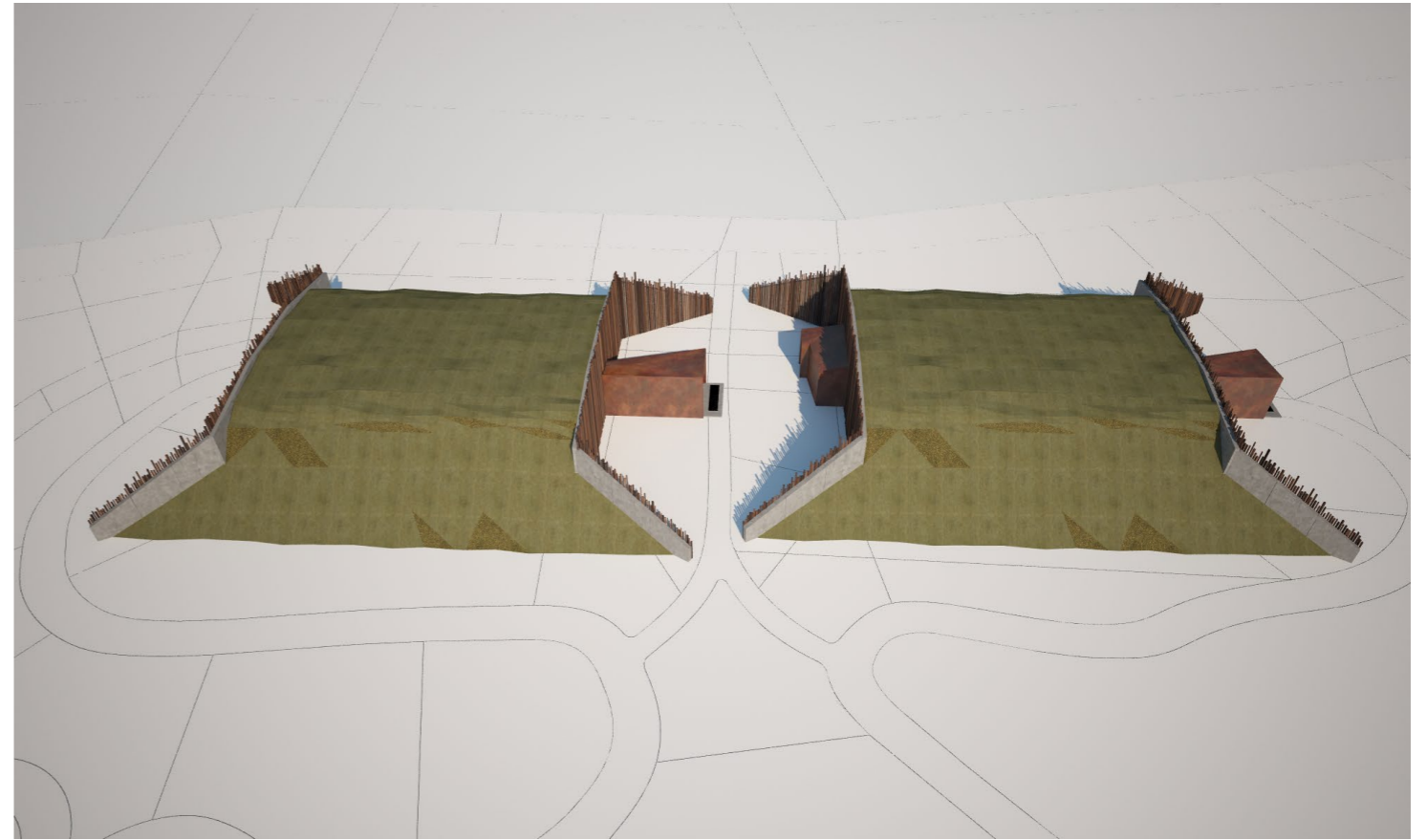
Proposed New Building 4 - Nocturnal Habitat with Building 5 - Reptile and Insect Habitat in the background - View 1



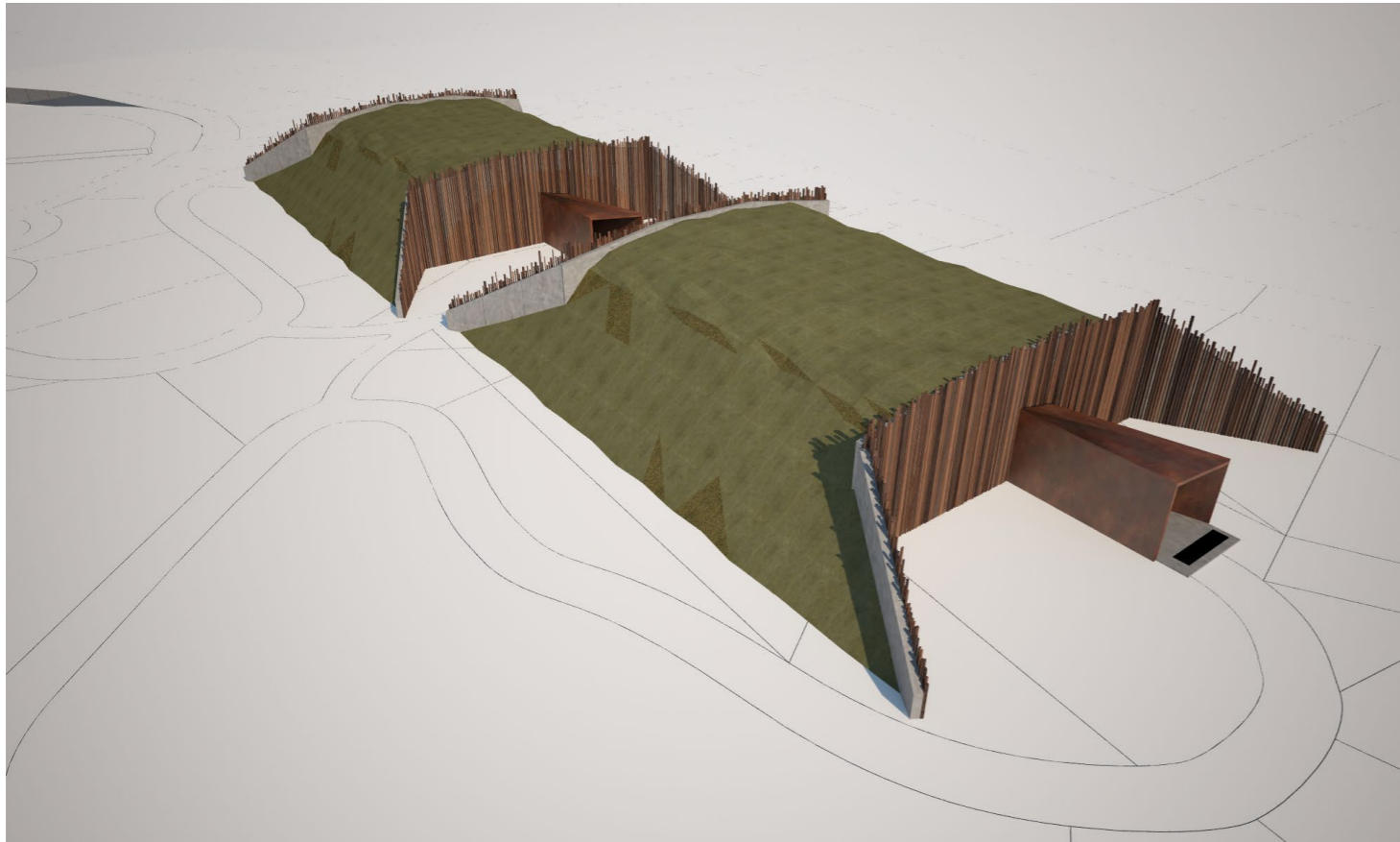
Building 5 - Reptile and Insect Habitat - View 1



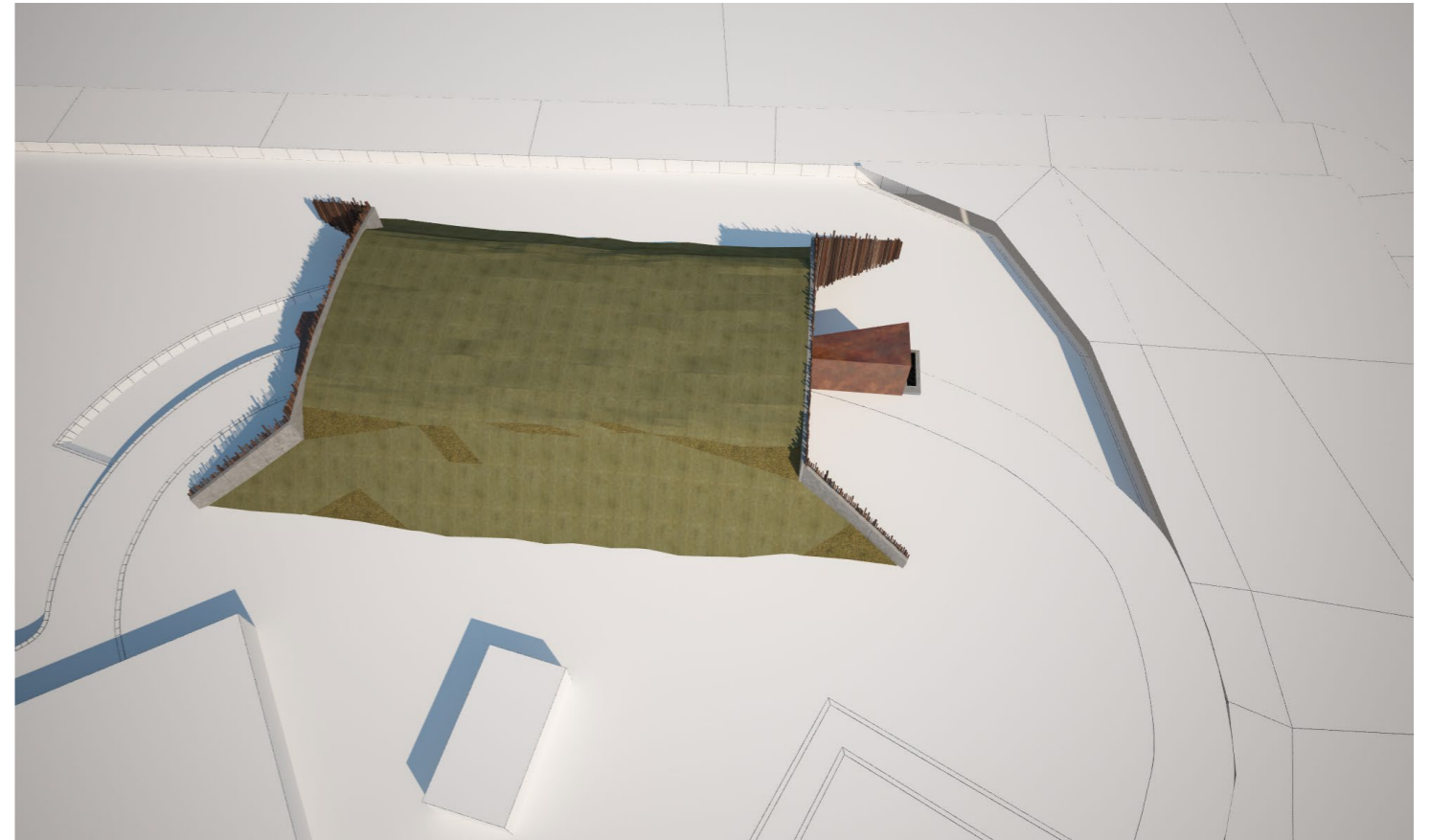
Building 4, 5 and 6 Study - View 1 - Buildings 4 & 5



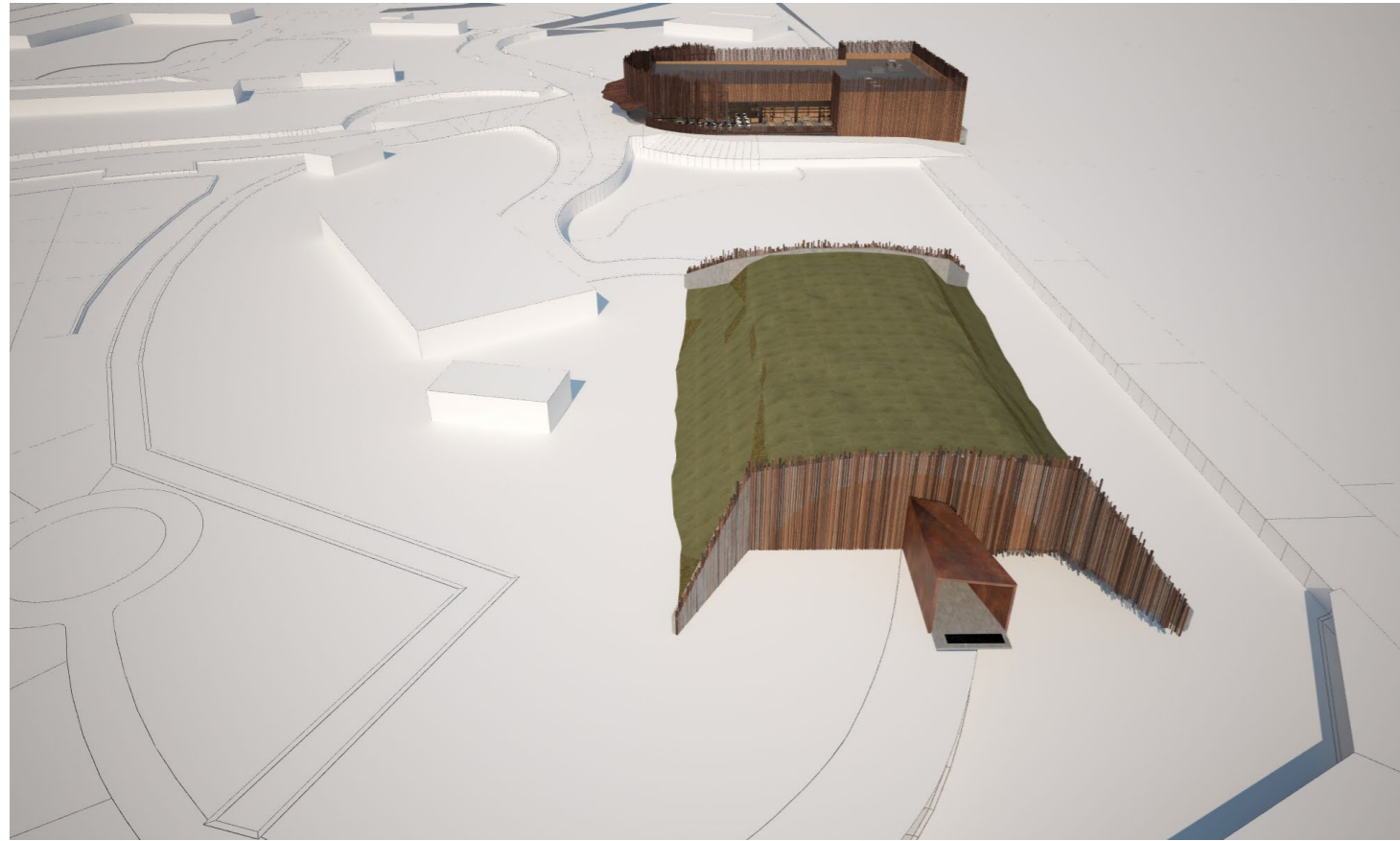
Building 4, 5 and 6 Study - View 2 - Buildings 4 & 5



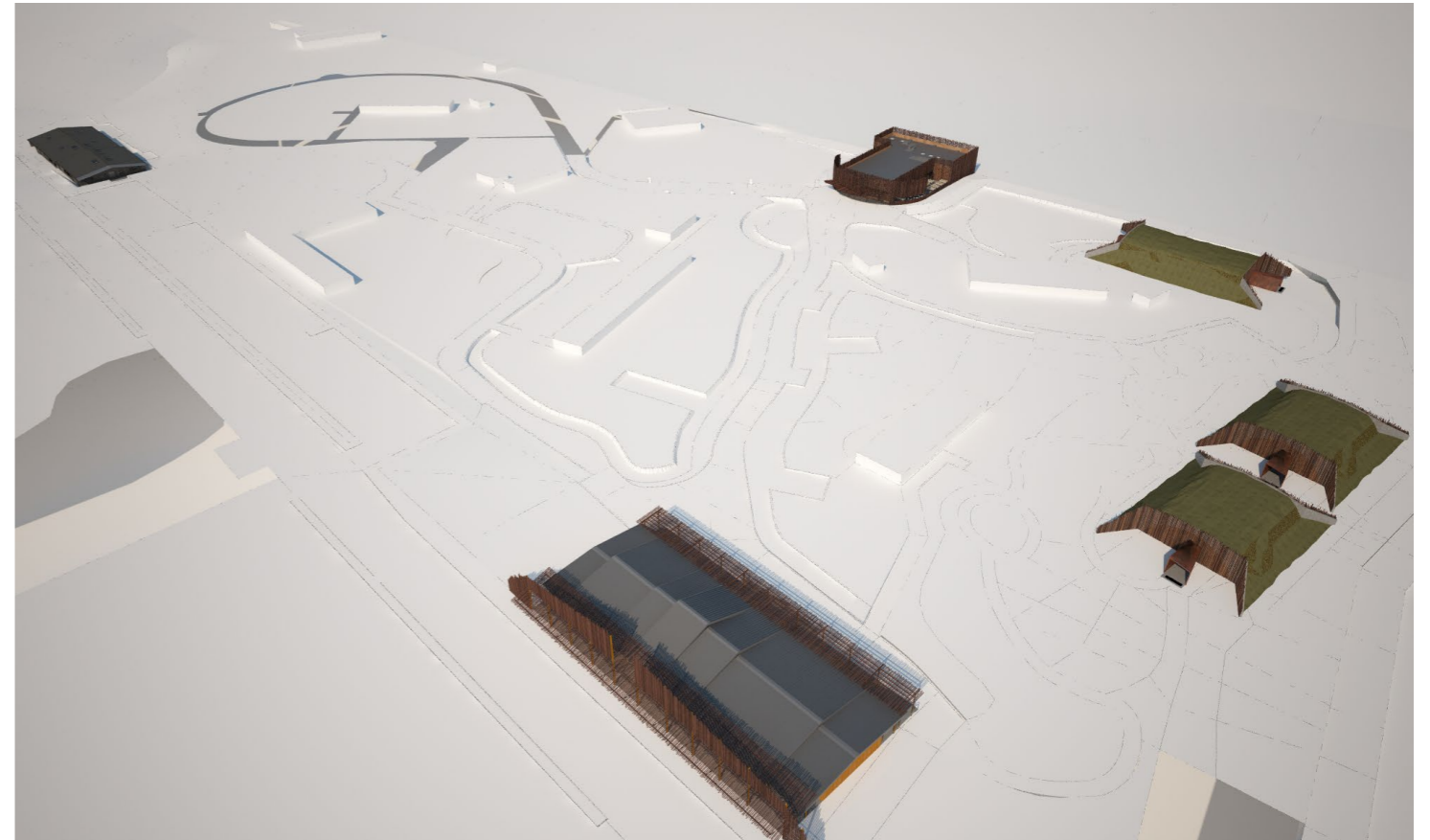
Building 4, 5 and 6 Study - View 3 - Buildings 4 & 5



Building 4, 5 and 6 Study - View 4 - Building 6



Building 4, 5 and 6 Study - View 5 - Building 6



Building 4, 5 and 6 Study - View 6 - Buildings 1 to 6

Building 4

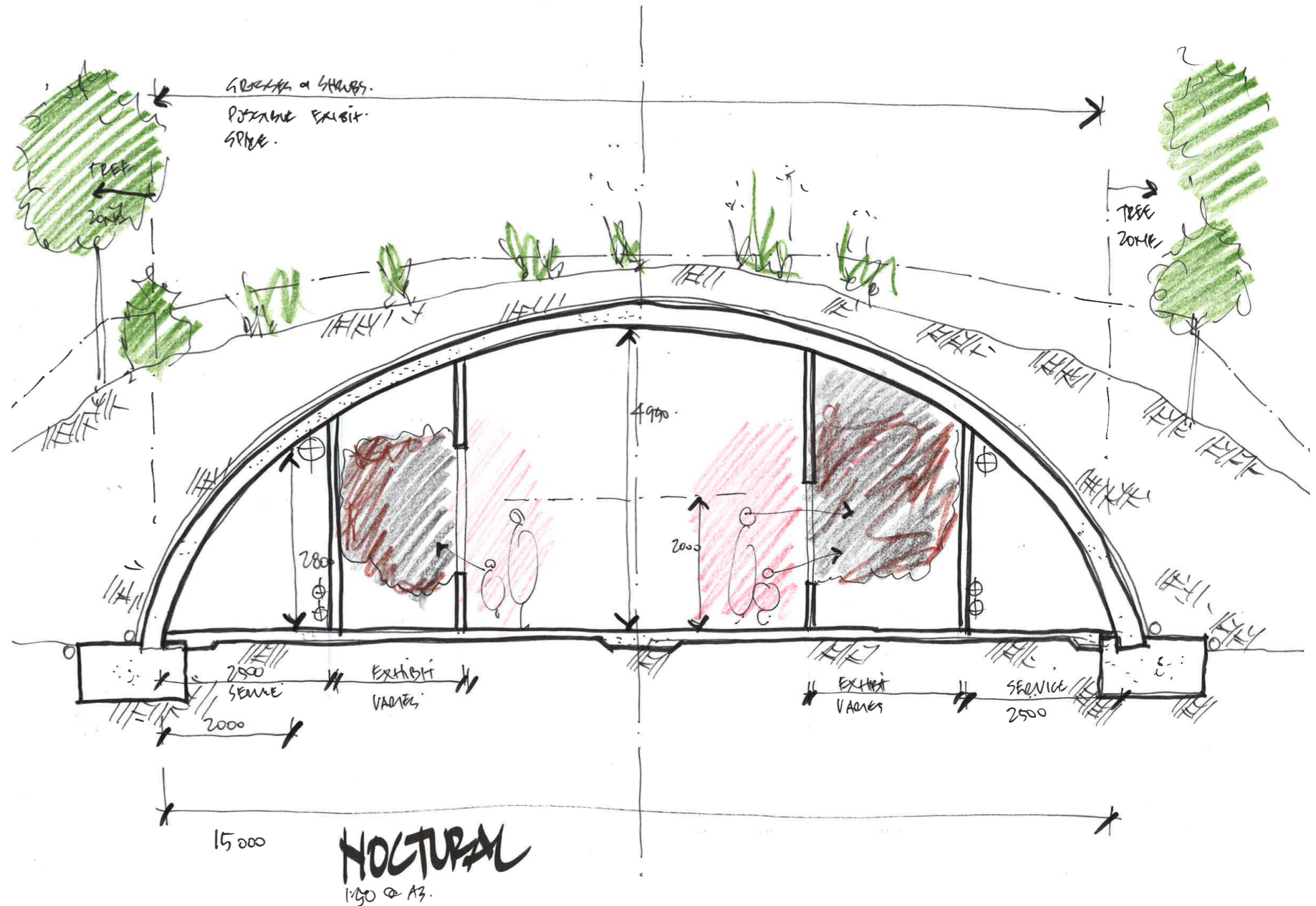
Nocturnal Habitat

Design Principle

- To create a building that will have a stable climatic environment for the exhibiting of nocturnal mammals without mechanical or air conditioning means. The have a controlled lighting environment that allows for controlled lighting conditions.
- Create a building envelope that does not impact on the landscape and blends into the new surrounding environment.
- Create an environmentally sustainable work environment for the animals, staff and visitors.

Material Palette

- Concrete slab on ground.
- Walls and roof structure from pre fabricated concrete tunnel sections.
- External end walls will be lined with Colorbond metal finish in selected dark green colour. Also some of the external walls will be a combination of glass windows, louvres and solid panels with recycled timber cladding
- Internal Walls of the exhibits are to be exposed CLT panels with clear finish.
- Internal Floor- polished concrete floors
- External vertical surfaces to be painted and cladding in recycled timber.
- The roof of the habitat will be landscaped and will be a "green roof and walls."



Concept sketch for Building 4 - Nocturnal Habitat

Building 5

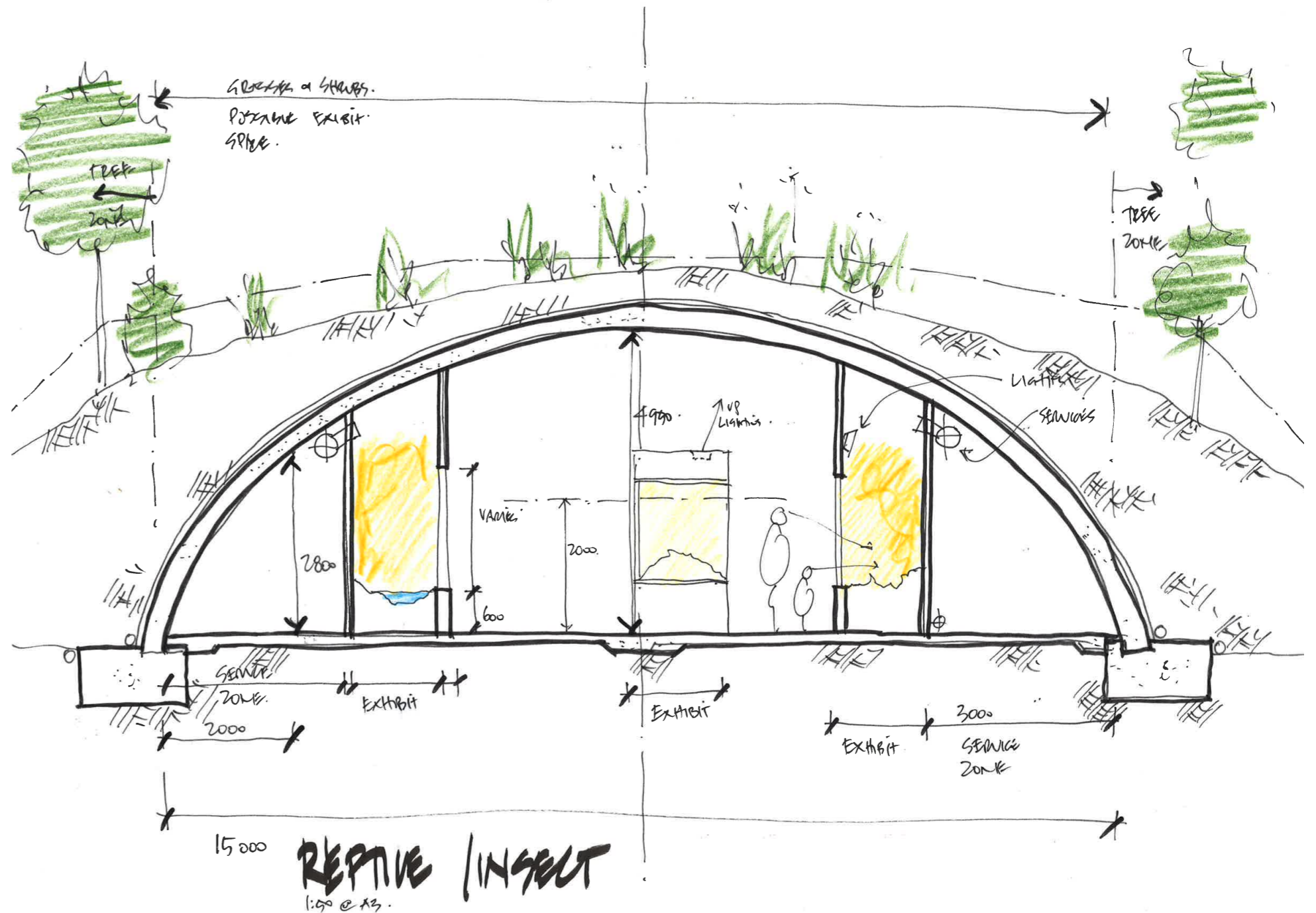
Reptile and Insect Habitat

Design Principle

- To create a building that will have a stable climatic environment for the exhibiting of reptiles and insects without mechanical or air conditioning means. The have a controlled lighting environment that allows for controlled lighting conditions.
- Create a building envelope that does not impact on the landscape and blends into the new surrounding environment.
- Create an environmentally sustainable work environment for the animals, staff and visitors.

Material Palette

- Concrete slab on ground.
- Walls and roof structure from pre fabricated concrete tunnel sections.
- External end walls will be lined with Colorbond metal finish in selected dark green colour. Also some of the external walls will be a combination of glass windows, louvers and solid panels with recycled timber cladding
- Internal Walls of the exhibits are to be exposed CLT panels with clear finish.
- Internal Floor- polished concrete floors
- External vertical surfaces to be painted and cladding in recycled timber.
- The roof of the habitat will be landscaped and will be a "green roof and walls."



Concept sketch for Building 5 - Reptile and Insect Habitat

Building 6

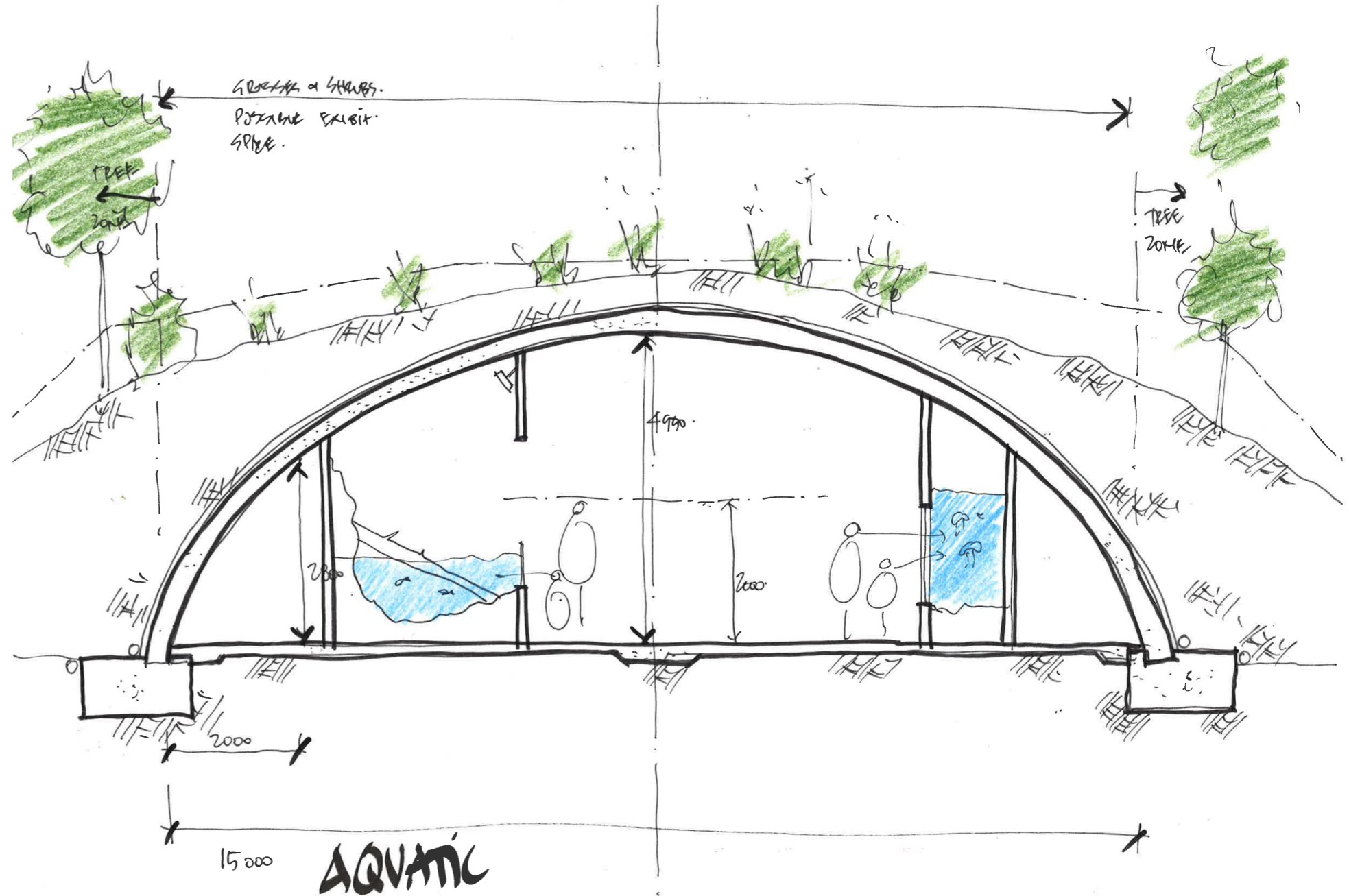
Aquatic Habitat

Design Principle

- a. To create a building that will have a stable climatic environment for the exhibiting of aquatic life without mechanical or air conditioning means. The have a controlled lighting environment that allows for controlled lighting conditions.
- b. Create a building envelope that does not impact on the landscape and blends into the new surrounding environment.
- c. Create an environmentally sustainable work environment for the animals, staff and visitors.

Material Palette

- a. Slab on Ground
- b. Walls and roof structure from pre fabricated concrete tunnel sections.
- c. External end walls will be lined with Colorbond metal finish in selected dark green colour. Also some of the external walls will be a combination of glass windows, louvres and solid panels with recycled timber cladding
- d. Internal Walls of the exhibits are to be exposed CLT panels with clear finish.
- e. Internal Floor- polished concrete floors
- f. External vertical surfaces to be painted and cladding in recycled timber.
- g. The roof of the habitat will be landscaped and will be a "green roof and walls."



Concept sketch for Building 6 - Aquatic Habitat

