UCCA DUNE ART MUSEUM

LOCATION : QINHUANGDAO COUNTRY, CHINA

DESIGNED BY : OPEN ARCHITECTURE

AREA: 930 M

YEAR: 2018

STRUCTURAL ENGINEER : CABR TECHNOLOGY

SERVICES ENGINEER : CABR TECHNOLOGY

LIGHTING DESIGN : SCHOOL OF ARCHITECTURE, X STUDIO, TSINGHUA UNIVERSITY, CHINA + OPEN ARCHITECTURE

Assignment 1:

PRECEDENT ANALYSIS

By:

MACKAY, LARA / MASON, REKO/ MANGWEZA, SHALOM

A100

UCCA MUSEUM

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Assignment 1:

PRECEDENT ANALYSIS

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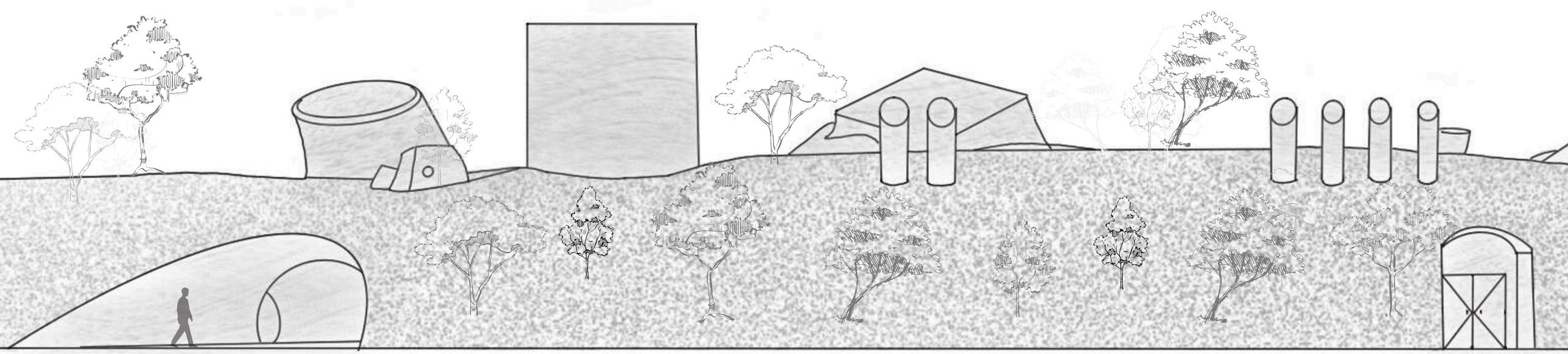
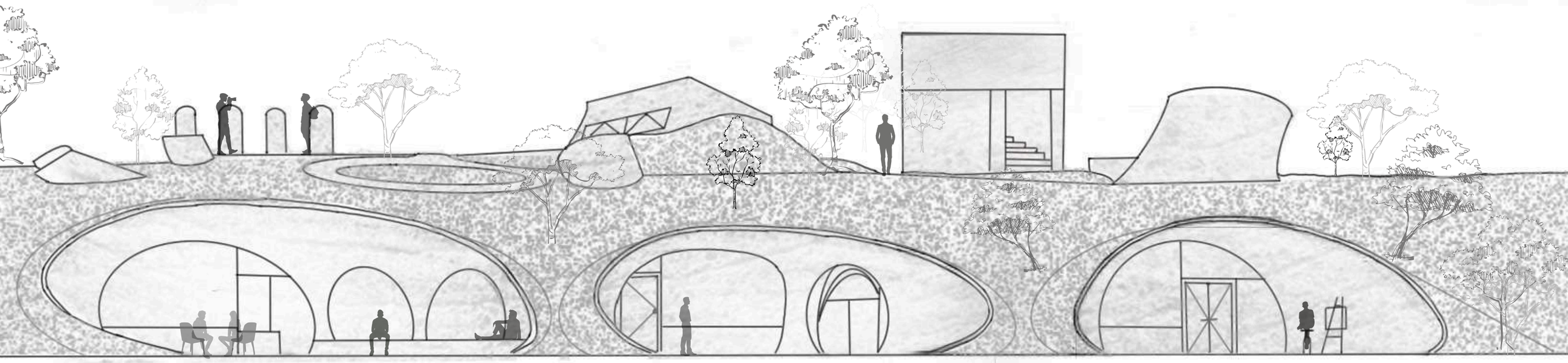
UCCA MUSEUM



NORTH ELEVATION

1m 10m



SOUTH ELEVATION

1m 10m

Assignment 1:

PRECEDENT ANALYSIS

Elevations:

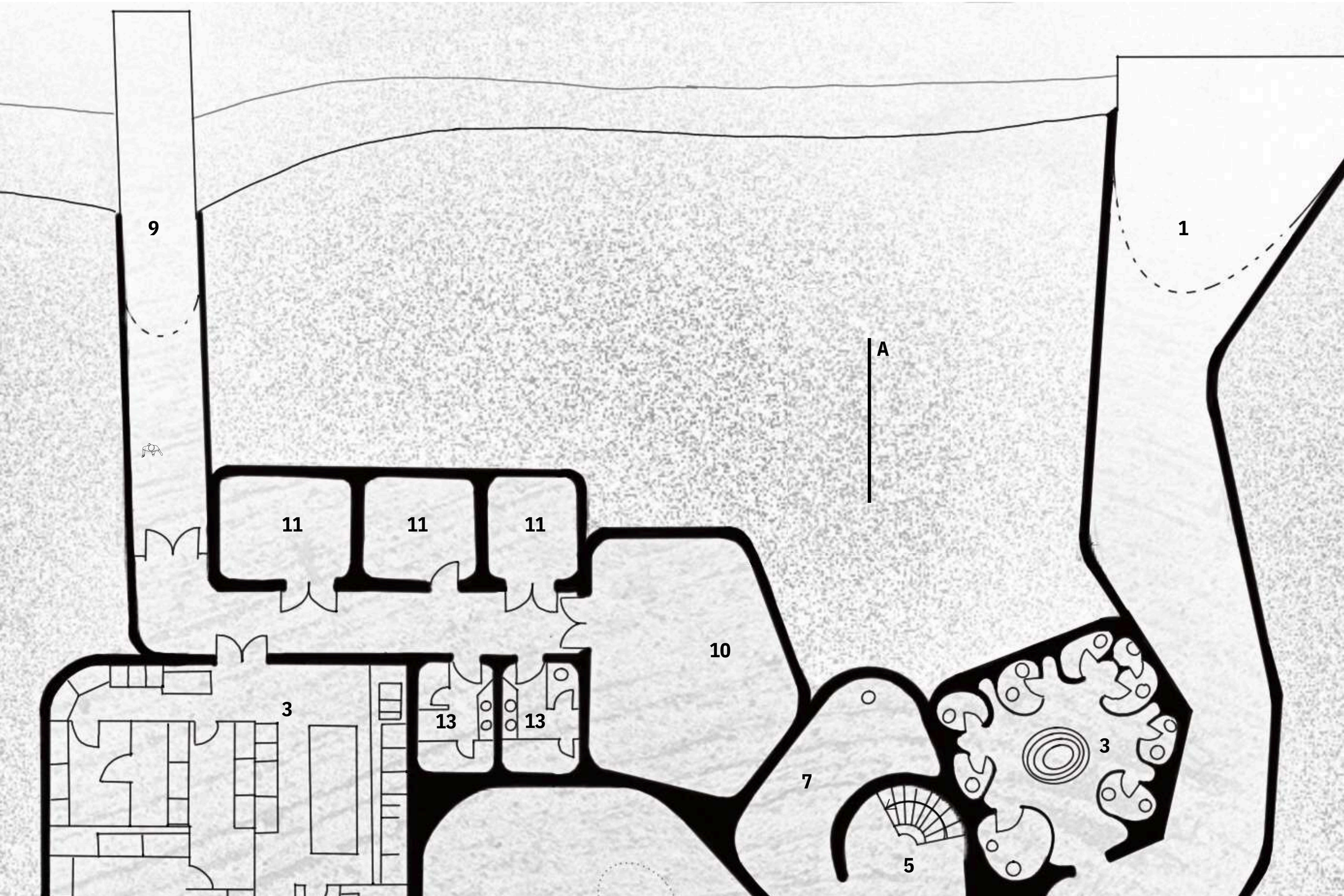
SOUTH ELEVATION, NORTH ELEVATION

SCALE

1:100

A102

MACKAY, LARA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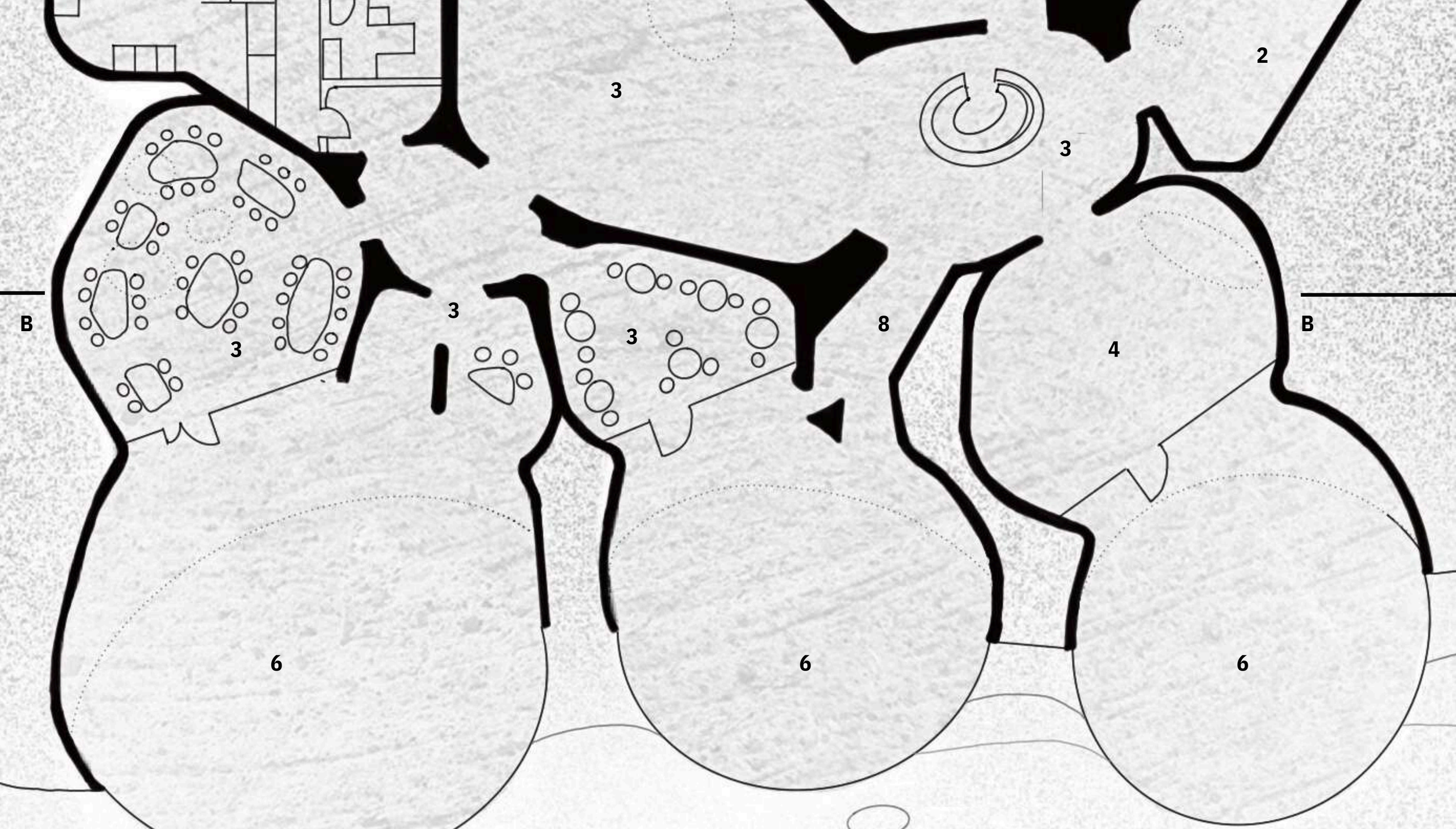


Assignment 1:

PRECEDENT ANALYSIS

Floor Plan

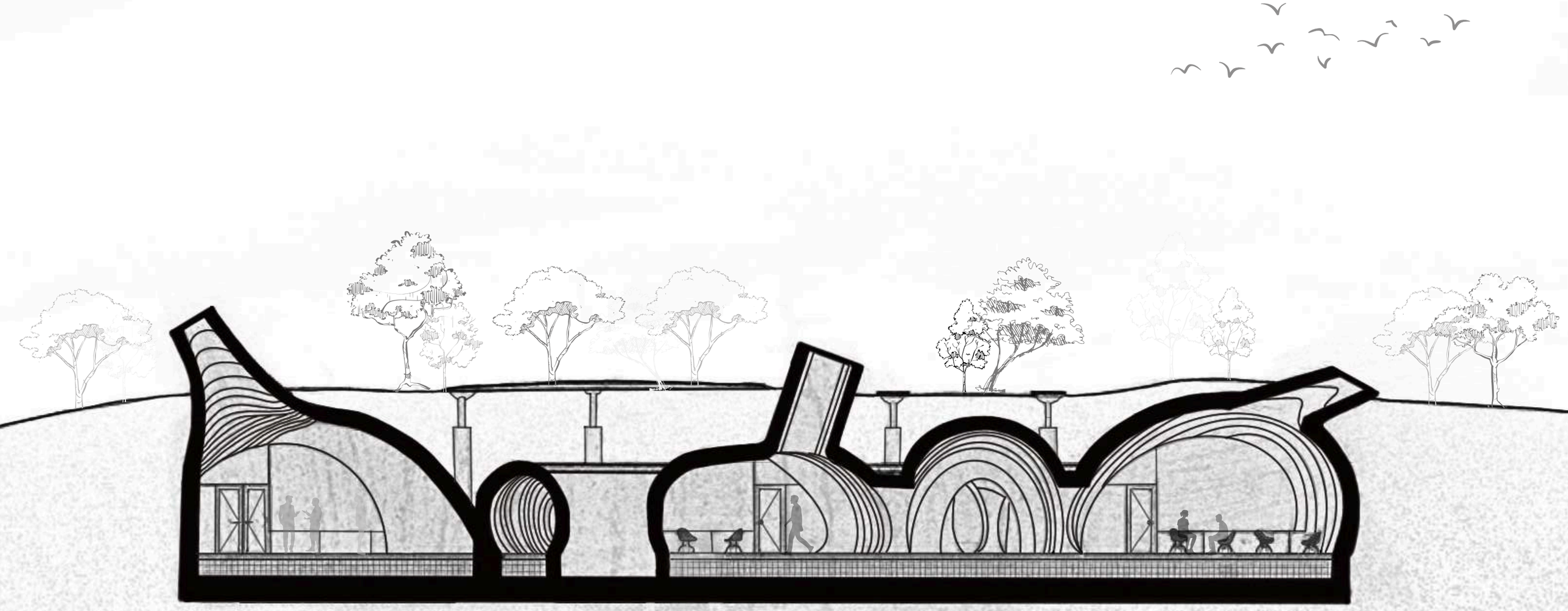
SCALE

1:100

A103/ A104

MACKAY, LARA

1. MAIN ENTRANCE
2. LOBBY
3. GALLERY
4. CAFE
5. STAIRS
6. CUTDOOR EXHIBITION
7. TOILET
8. SECONDARY ENTRANCE
9. SERVICE ENTRANCE
10. GEOTHERMAL PLANT
11. LOW VOLTAGE ROOM
12. ELECTRICAL
13. SPARE ROOM



1m 10m

Assignment 1:

PRECEDENT ANALYSIS

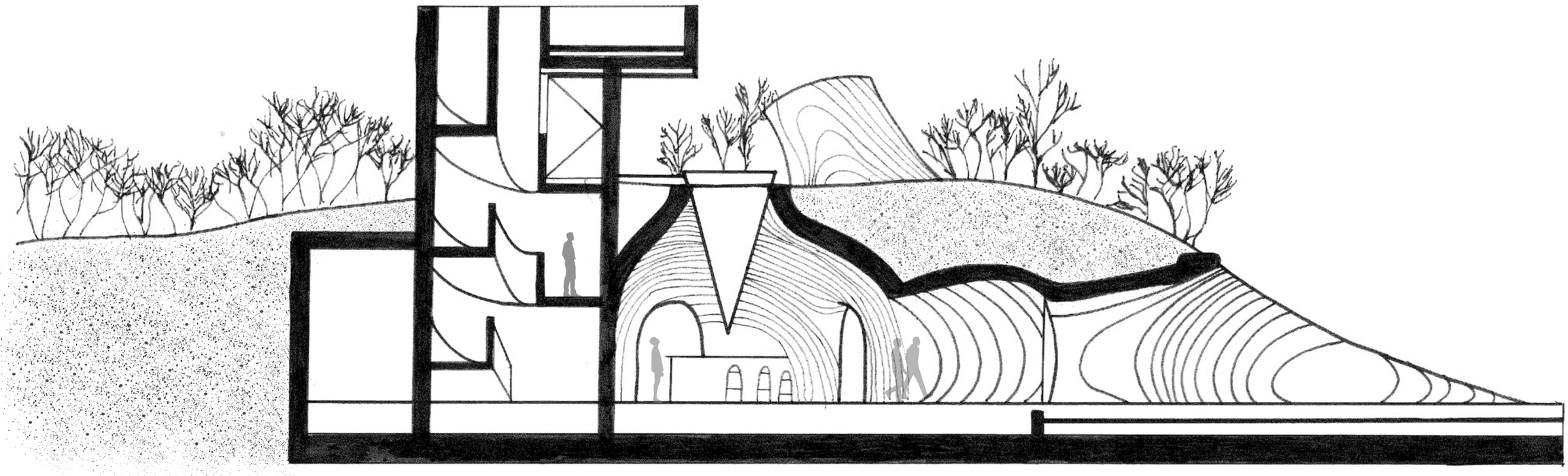
Section BB

SCALE

1:100

A105

MACKAY, LARA



1m 10m

Assignment 1:

PRECEDENT ANALYSIS

Section AA

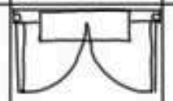
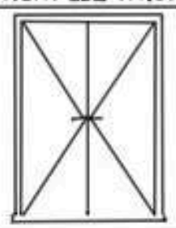
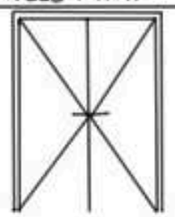
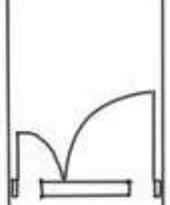
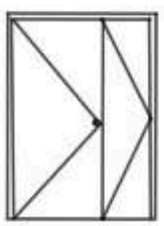
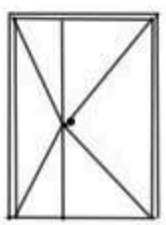
SCALE

1:100

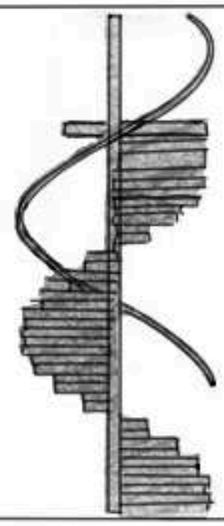
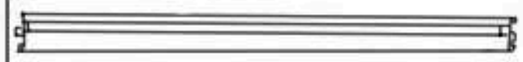
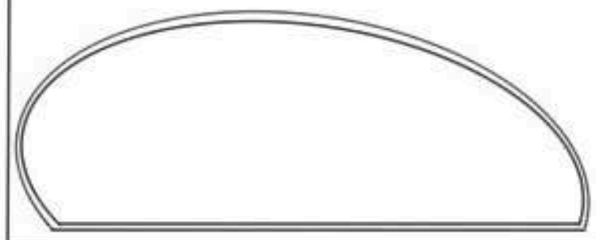
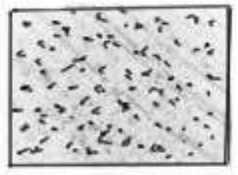
A106

MASON, REKO

ELEMENTS ANALYSIS

TYPE	DESCRIPTION	PLAN VIEW	FRONT ELEVATION	REAR ELEVATION
01	DOUBLE SWING DOOR			
02	SINGLE SWING DOOR			
03	SLIGHTLY LARGER SINGLE SWING DOOR			
04	UNEVEN SWING DOOR			

ELEMENTS ANALYSIS

TYPE	DESCRIPTION	PLAN VIEW	SECTIONAL VIEW
01	CONCRETE SHELL WALL		
02	CONCRETE SPIRAL STAIR CASE FIXED TO WALL		
03	TULBAR SKYLIGHT		
04	CUSTOM SAFTEY WINDOW		
05	POLISHED CONCRETE FLOORING		

DOOR LEDGEND

WALL, FLOORS, STAIRS AND WINDOWS LEGEND

Assignment 1:

PRECEDENT ANALYSIS

Elements Analysis :

DOOR LEGEND
WALL, FLOORS, STAIRS AND WINDOW LEGEND

SCALE

1:100

A107

MACKAY, LARA

Concept Analysis

UCCA dune art museum foregrounds humanities earliest connection to home, and primitive man's integration into caves which resulted in mankind's initial practice of the arts. The concept takes inspiration from a child's exhaustion at the effects of never-ending digging.

The location of the museum pays its role of blending into the vulnerable dune ecosystem, born from the architect's internal admiration for nature. The link between building and site is blurred in a way that becomes an extension of the museum's artistic contents.

The museums deep, intricate vascular network of dome-like spaces house the variety of different areas, all illuminated by circular apertures that encapsulate the seamless sculpted grottos.

The architect was responsible for the decision to retain the irregular formwork and shortcoming texture left behind by the building's manual construction, allowing traces to be seen and felt throughout the sites structure.

VEGETATION

SAND

OCEAN

Assignment 1:

PRECEDENT ANALYSIS

Context Analysis A

A109

MACKAY, LARA

The museum is purposefully built within the sand dunes as a way of preserving the sand dune's structure. This is due in part to China's developmental strategies to demolish coastal sand dune ecosystems for profitable seaside real estate.

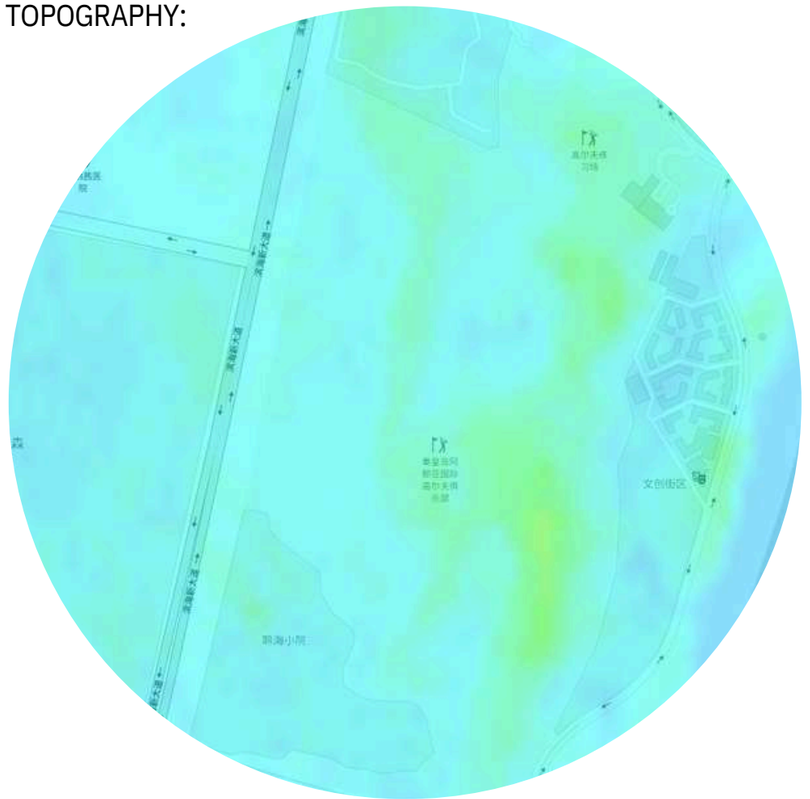
Shaqiu art museum nested on Changi county's coastline in Hebei, China displays relatively flat and low-lying coastal topography, with the sand dunes providing the primary variation in elevation.

Vegetation throughout the site consists almost entirely of salt-tolerant plants capable of withstanding the harsh windy, sandy, and saline conditions. The sand dunes also feature a limited coverage of trees that ensure the site remains unobstructed and blends harmoniously with the dune system.

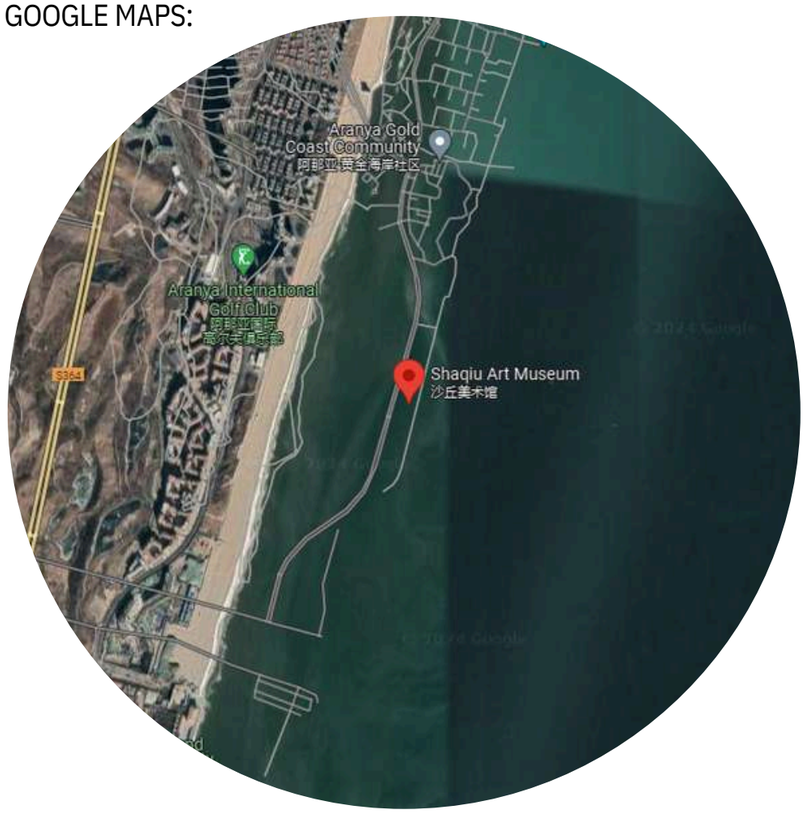
A minimized footprint of tourist facilities like small pavilions and rest areas are limited in number so that the connection to the environment remains visible. This is also foregrounded through the use of natural materials and low-impact construction techniques.

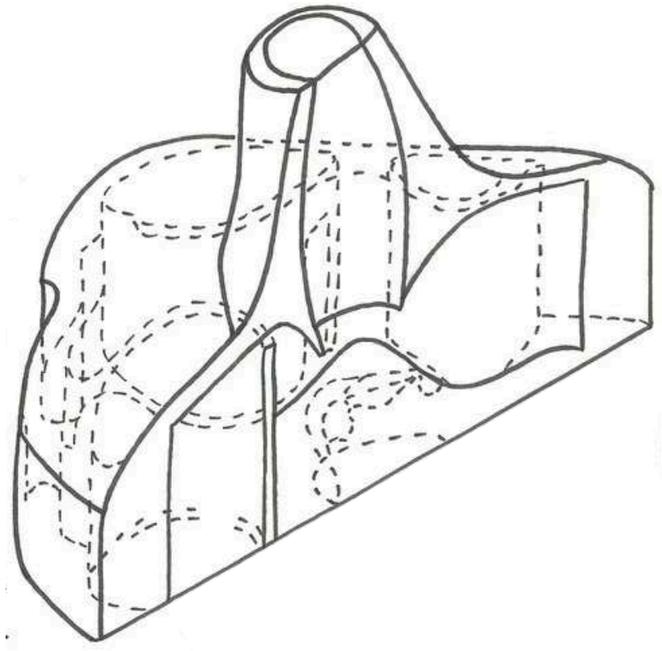
Along with access roads, the museum promises a designated parking area that is designed with permeable surfaces that manage the run-off of storm water. This preserves the integrity of the dune site and reduces the environmental impact.

TOPOGRAPHY:



GOOGLE MAPS:



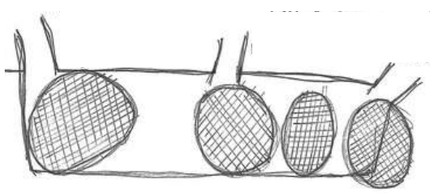


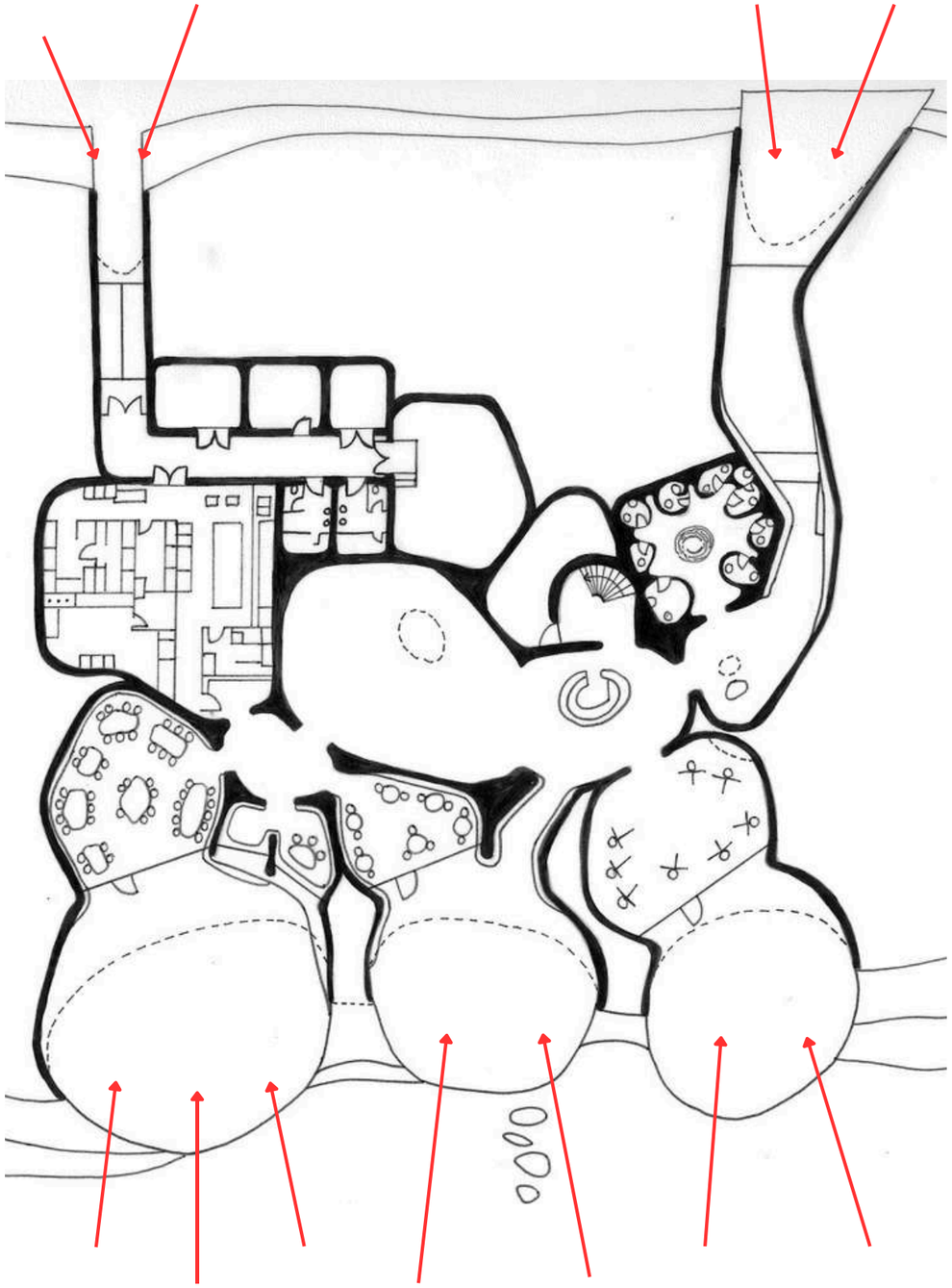
The site works well to create many pockets that have the opportunity to create social interactions and social relations.

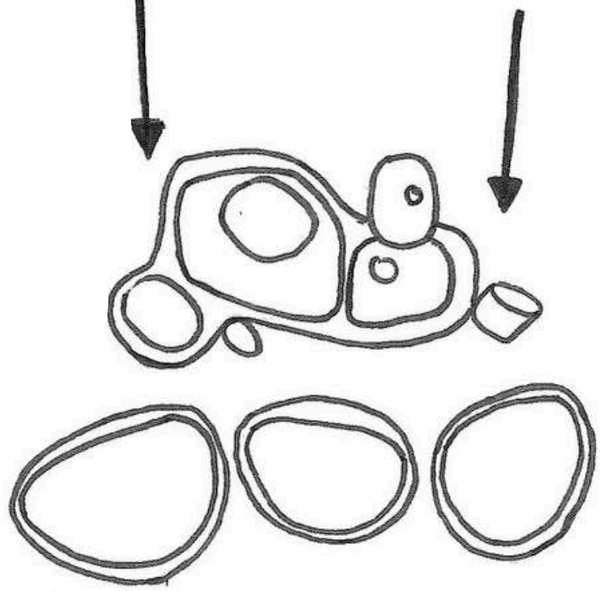
The importance of the spatial experience combined with being close to a natural setting produces different mood and experiences in what are often neutral exhibition spaces.

The structure is submerged to create timeless, primal forms to enhance the skeletal aesthetic, this being formed and structured reminiscent of a shell and cave.

The museums lack of plentiful entryways foregrounds the sites portrayal as a cave alongside its imperfect textures in and around the site.



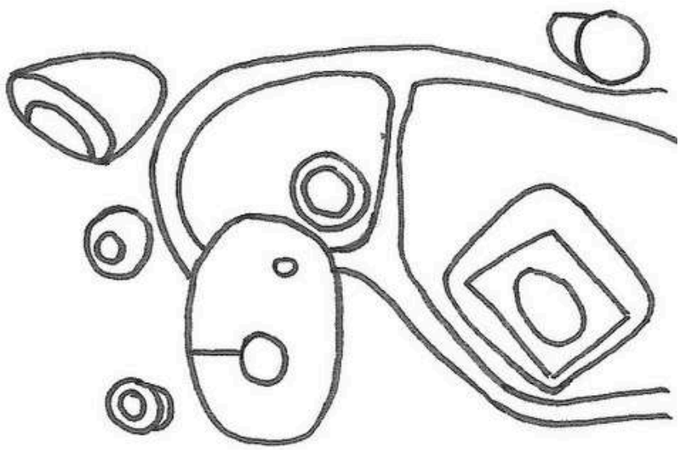




The site cohesively joins each sectioned pocket within the site to integrate a social network that works well to circulate populations within the museum.

This promotes the structural integrity as the layer of sediment sits bot above and below the museum.

Circulation is also displayed throughout the museums main entry points situated at the seaside front and entrance way towards the residential area.



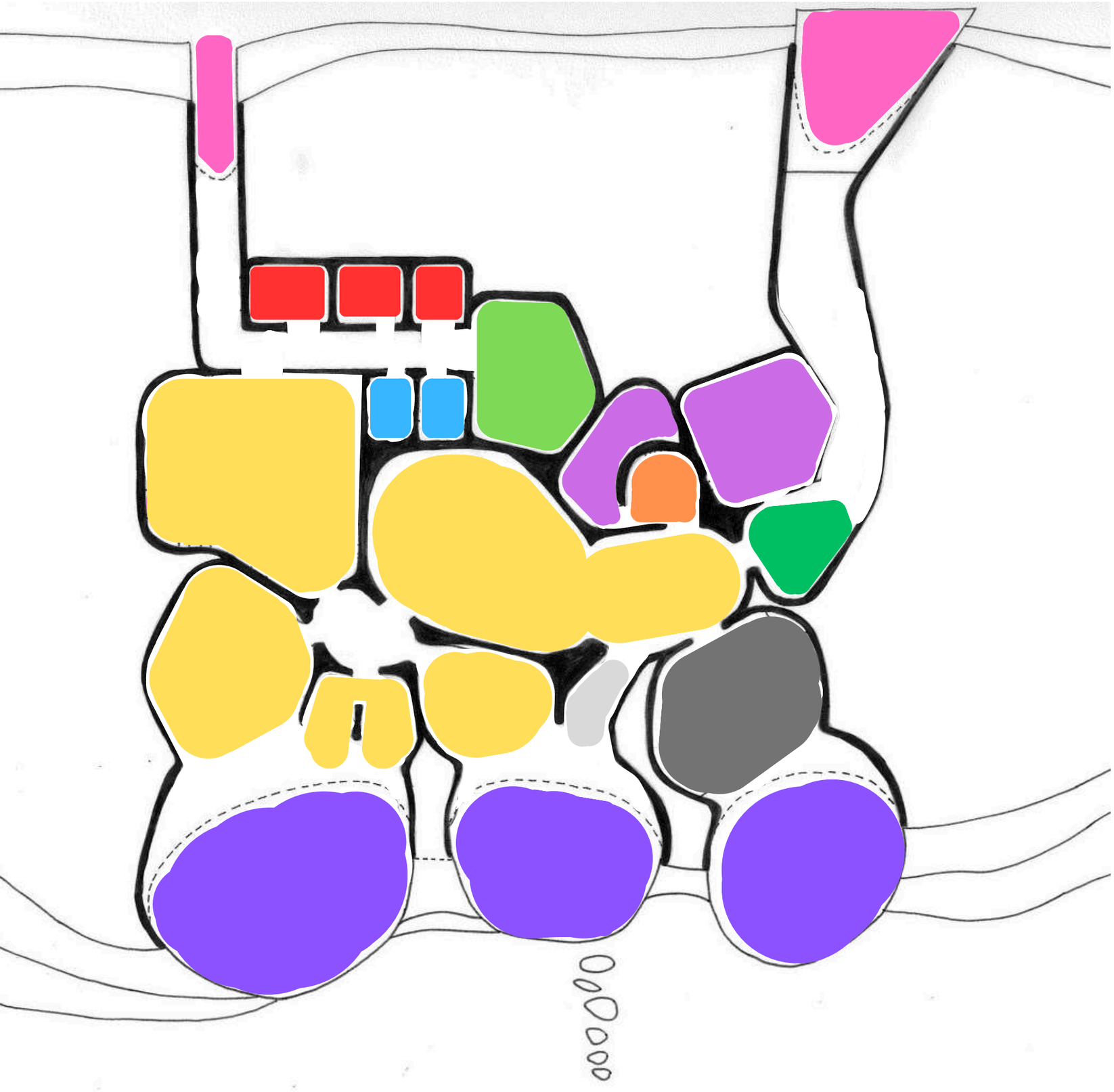
Assignment 1:

PRECEDENT ANALYSIS

Concept Analysis C

A111

MASON, REKO



MAIN ENTRANCE

LOW VOLTAGE ROOM

GEOTHERMAL PLANT

SPARE ROOM

GALLERY

STAIRS

LOBBY

CAFE

SECONDARY ENTRANCE

OUTDOOR EXHIBITION

TOILETS

Assignment 1:

PRECEDENT ANALYSIS

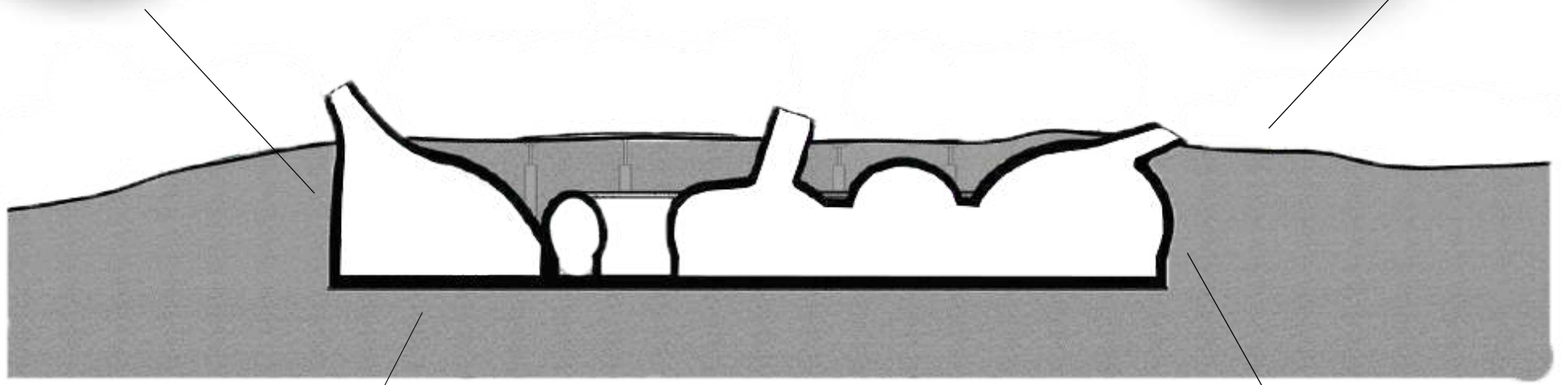
Concept Analysis D

A112

MASON, REKO

The sand covering the museum provides natural insulation, helping to regulate the internal temperature.

Visitors enter the museum through a tunnel that leads them down into the dune. This descent creates a sense of immersion and discovery.



The museum is carved directly into a sand dune, making it a part of the landscape rather than an imposition on it.

The tactile, irregular textures of the concrete and the handcrafted interior elements create a sense of intimacy and connection to the human effort behind the building's construction.

Assignment 1:

PRECEDENT ANALYSIS

Site Integration

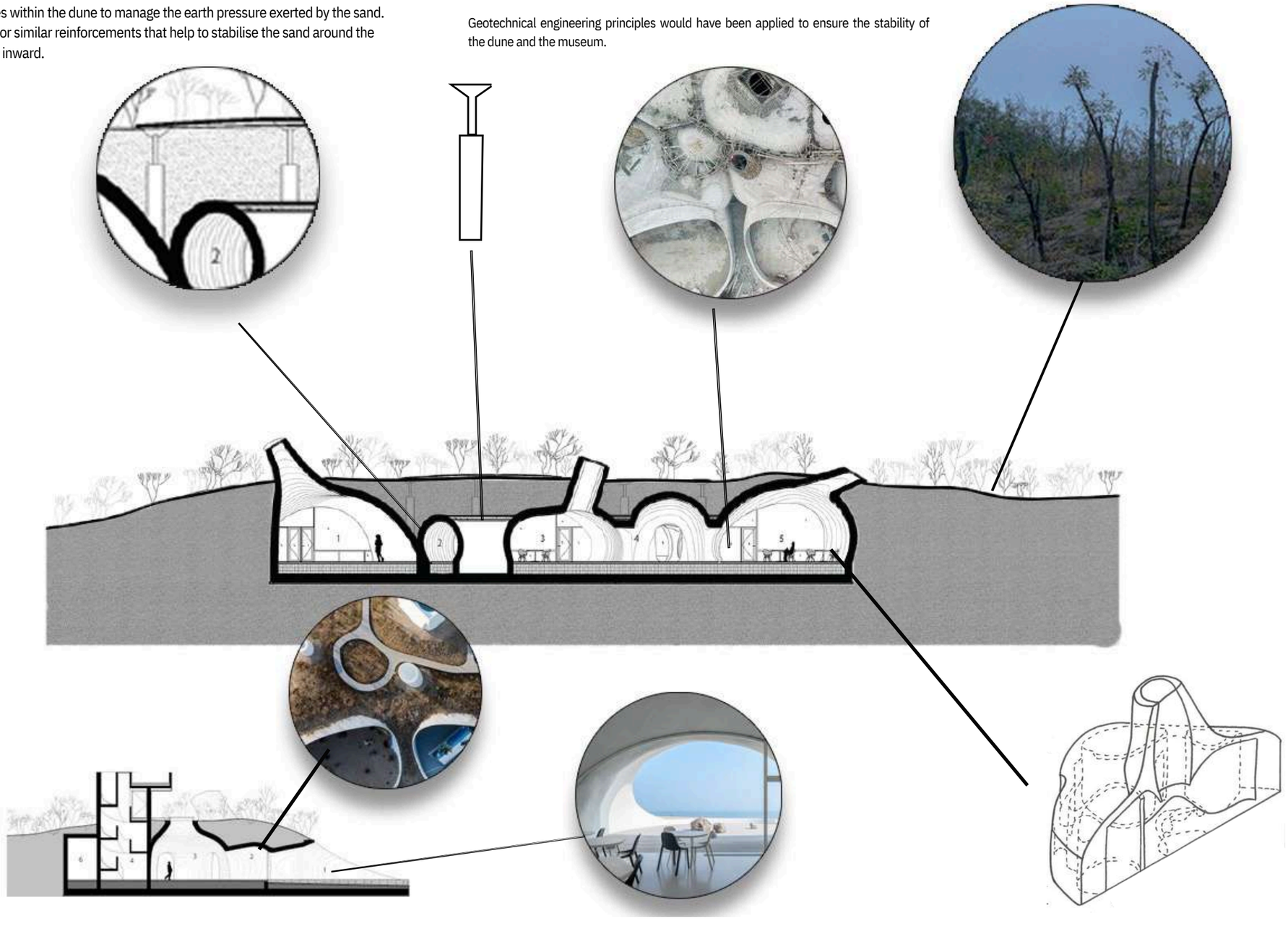
A113

MANGWEZA, SHALOM

The vegetation includes low-rising shrubs and grasses that are native to the area, helping to stabilize the sand and prevent erosion.

The design likely includes retaining structures within the dune to manage the earth pressure exerted by the sand. These structures can include retaining walls or similar reinforcements that help to stabilise the sand around the concrete shell and prevent it from collapsing inward.

Geotechnical engineering principles would have been applied to ensure the stability of the dune and the museum.



The vegetation includes low-rising shrubs and grasses that are native to the area, helping to stabilize the sand and prevent erosion.

This might involve soil compaction techniques, reinforcement with geotextiles, and careful analysis of the dune's natural behaviour under various conditions

Assignment 1:

PRECEDENT ANALYSIS

Site Integration

A114

MANGWEZA, SHALOM

10m 50m

Assignment 1:

PRECEDENT ANALYSIS

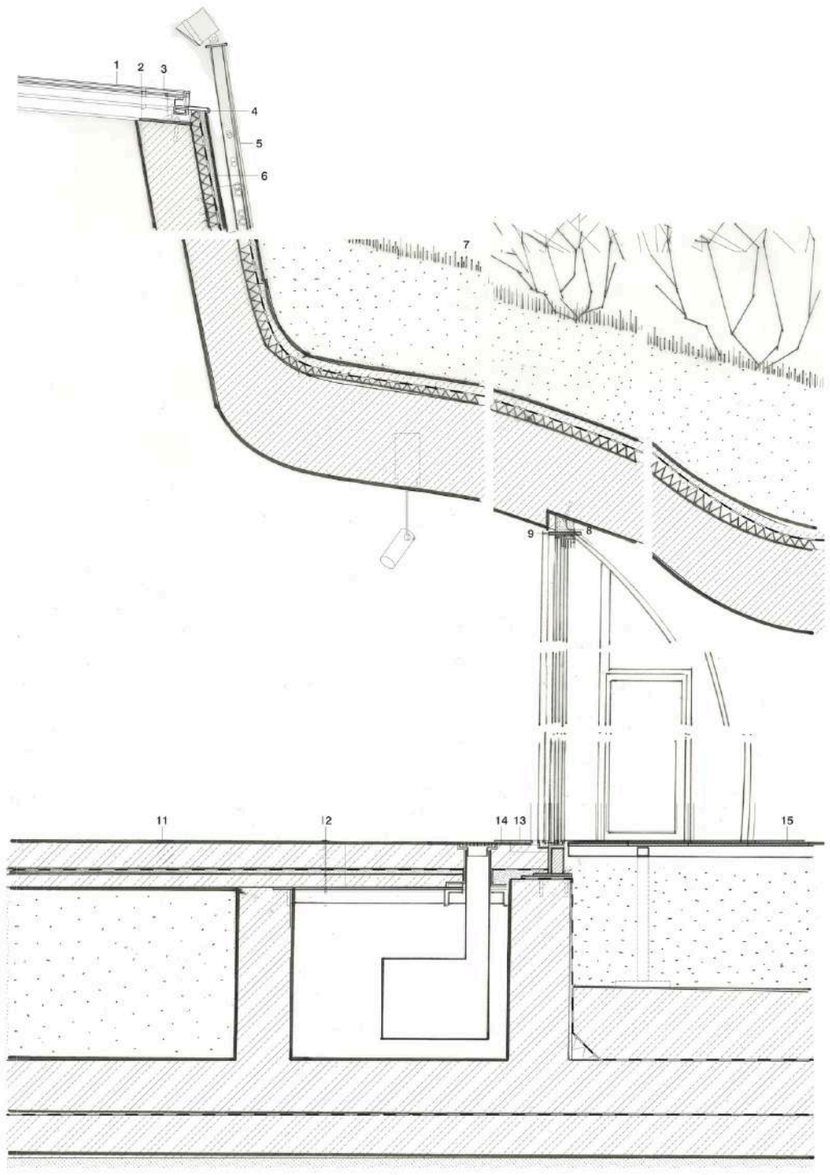
Site

SCALE

1:500

A115

MANGWEZA, SHALOM



#	Roof Construction Material
1	Low-iron thermal glazing: toughened glass 6 mm + cavity 12 mm + laminated safety glass 12 mm
2	12 mm steel panel fixed to reinforced concrete with chemical anchor
3	50/4 mm galvanised steel angle; galvanised steel tube 60/30/3 mm; galvanised steel angle 50/4 mm
4	100/20 mm extruded aluminium section, plastic-coated
5	Spotlight fixing
6	Mineral plaster 30 mm; seal/root barrier PU coating 2 mm; 40 mm sprayed PUR foam thermal insulation; 250 mm reinforced concrete
7	7 roof construction: vegetation layer; 300–600 mm mix of sand and plant soil; 40 mm fine-grained concrete protective layer; seal/root barrier; 2 mm PU coating; 40 mm spray foam insulation; 250–500 mm reinforced concrete; concrete sealant, white
8	Cement-based barrier; 60/80/8 mm stainless-steel angle; distance piece; filling mortar
9	150/14 mm stainless-steel frame, white, PVDF-coated
10	2×12 mm laminated safety glass
11	Floor construction indoors: 125 mm exposed concrete, white polished; 1.5 mm cement-based seal with vapour barrier; 20 mm mortar levelling course; 60 mm reinforced concrete; 750 mm sand
12	10 mm steel cover plate; 500/400 mm galvanised steel ventilation duct
13	30/50/4 mm galvanised steel condensation channel
14	Stainless steel frame white, PDVF-coated
15	Floor construction outdoors: 20 mm composite wood decking; substructure: 50/50/2 mm galvanised square steel tube; 500–600 mm sand; 250–300 mm concrete levelling layer; 2 mm root barrier foil; 250 mm waterproof concrete foundation slab; 2 mm root barrier; 200 mm unreinforced concrete blinding layer

500mm 2m

Assignment 1:

PRECEDENT ANALYSIS

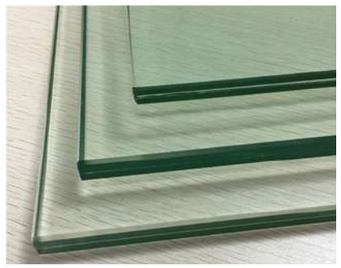
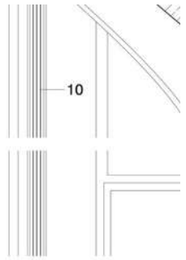
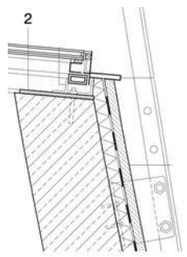
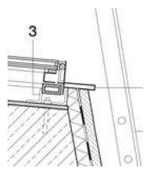
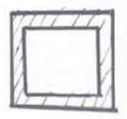
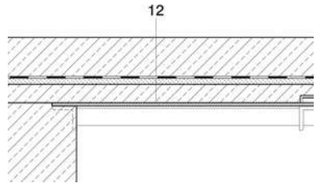
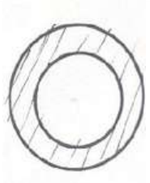
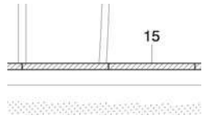
Detailed Section

SCALE

1:20

A116

MANGWEZA, SHALOM

	Materials	I mage	Observatory 1:20	Symbol
1	2×12 mm laminated safety glass			
2	12 mm steel panel xed to reinforced concrete with			
3	50/4 mm galvanised steel angle; galvanised steel tube			
4	10 mm steel cover plate; 500/400 mm galvanised steel ventilation duct			
5	oor construction outdoors: 20 mm composite wood deck ing; substruc ture			

Assignment 1:

PRECEDENT ANALYSIS

Materials and Construction Methods

A117

MANGWEZA, SHALOM

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