

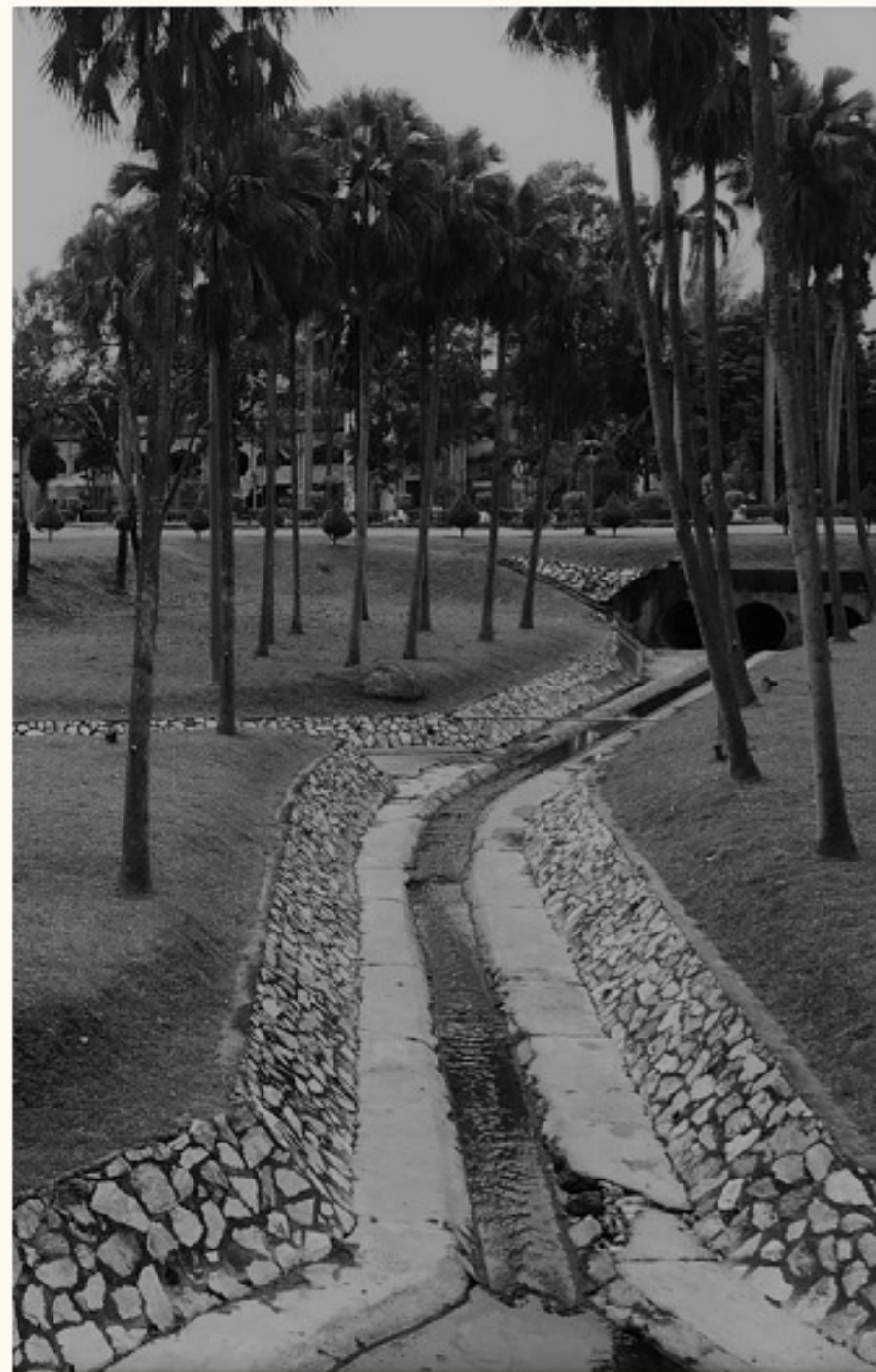
INDEPENDENT LANDSCAPE DESIGN

RIVER WITHIN CAMPUS

Rivitalization Alur Ilmu and regenerating
unutilized space to a vibrant community
space at Universiti Kebangsaan Malaysia.

DESIGN BY
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ACKNOWLEDGEMENT

INDEPENDENT LANDSCAPE DESIGN

First and foremost, praises and thanks to Allah, the Almighty, for His showers of blessings throughout my final year project to complete everything successfully. I would like to express my deep and sincere gratitude to my studio master, Dr. Nur Huzeima Mohd Hussain, Dr. Siti Rasidah Md Sakip and Miss Siti Syamimi Omar for giving me the opportunity to do final year project and providing invaluable guidance throughout this semester. Their dynamism, vision, sincerity and motivation have deeply inspired me. It was a great privilege and honor to study under their guidance. I would also like to thank them for their empathy and great sense of humor. I am extending my heartfelt thanks for their acceptance and patience during the discussion I had with them on completing this final project.

My Special thanks goes to my super visor, Dr. Atikah Fukaihah Amir for the guidance and keen interest shown to me for complete this final project successfully. I am extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and preparing me for my future. I would like to say thanks to my friends and colleagues for their constant encouragement, helps and genuine support throughout this final project. Finally, my thanks go to all the people who have supported me to complete the final year project directly or indirectly.

SITE INTRODUCTION

site context

1

Residential



Taman Desa Sentosa
Kampung Jeras Jernang
Kampung Sungai Tangkas
Kampung Bahagia

2

Commercial



Seksyen 15
Seksyen 3
Seksyen 16
Bandar Baru Bangi

3

Institutional



Taman Desa Sentosa
Kampung Jeras Jernang
Kampung Sungai Tangkas
Kampung Bahagia

“Every good design begins with an even better story”

site location

Universiti Kebangsaan Malaysia,
Bangi, Selangor.

site acres

27 Acres

site background

Sungai Alur Ilmu is a 1.8 km waterways located at the core area of Universiti Kebangsaan Malaysia, Bangi.

The Alur Ilmu UKM is a large storm water channel serves to store water and flows into Langat River. Originated from a hilly, forest area in front of Nuclear Science Building and flows nearby the buildings and compounds within the core area in Universiti Kebangsaan Malaysia.



PREVALANT ISSUES

DEGRADATION OF WATER QUALITY AND LIMITED OPTION OF ACTIVITY ALONG WATERWAY



physical connectivity

- Lack of space for activities caused narrow user group
- Poor condition of pedestrian, users feel unsafe and uncomfortable to use



environmental water quality

- Unfunctional sediment trap caused polluted water
- Unutilized space decrease the number of users at Tasik Ghazali



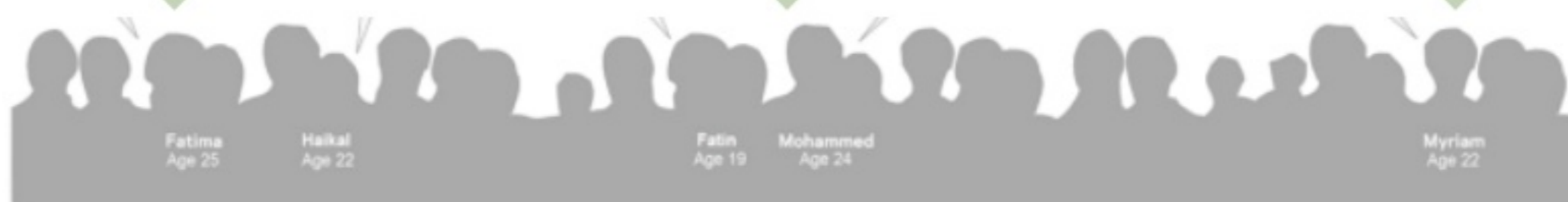
sociocultural activity

- Lack of outdoor activity space caused narrow user group
- Poor condition of shaded area caused unsafe to user

We need an open space and green space where people can sit together with shade watching water flowing

I want a clean, calm and safe place where student can study and associate together with no risk

The campus community need to clean the space and i want a clean river



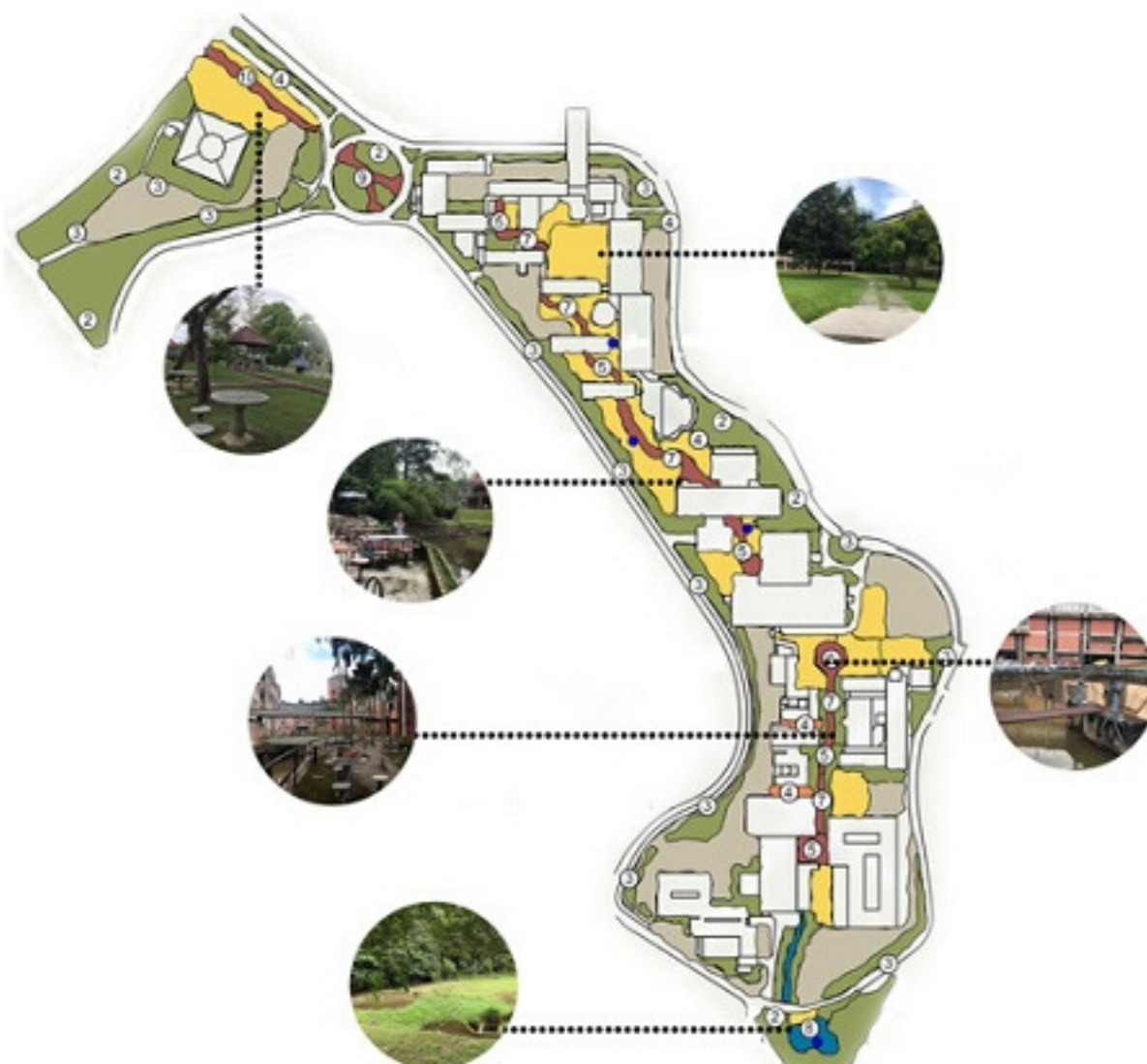
Fatima
Age 25

Haikal
Age 22

Fatin
Age 19

Mohammed
Age 24

Myriam
Age 22



polluted area

- Poor condition of sediment trap
- Poor condition of existing space along waterways caused uncomfortable

space for community

- Poor condition of pedestrian caused user feel unsafe and uncomfortable
- Poor connectivity between spaces caused lost space

good water quality

- Exposed baresoil at Tasik Ghazali caused dirty rivebed

existing green space

- Existing green area are not fully utilized caused lack of outdoor activity

parking area

- Lack of vegetation caused hot surface

SWOT ANALYSIS



design idea

- Proposed phytoremediation method
- Proposed wetland to improve water quality
- Improve parking facilities
- Proposed bioswale to collect water runoff
- Provide outdoor spaces to make livable area





CONCEPTUAL PLAN

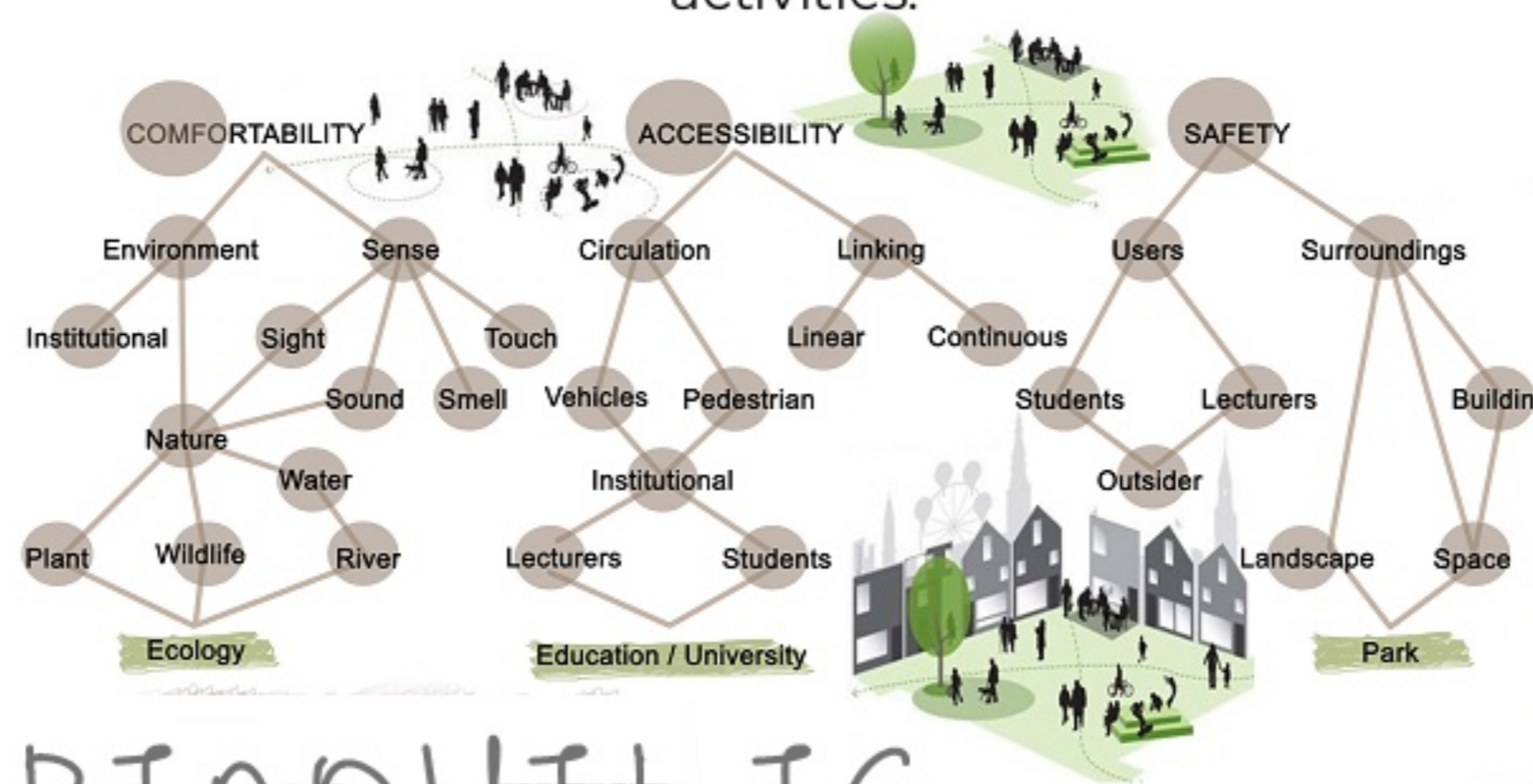
Towards revitalization Alur Ilmu and surrounding environment through ecological approach a Universiti Kebangsaan Malaysia, Bangi.

objectives

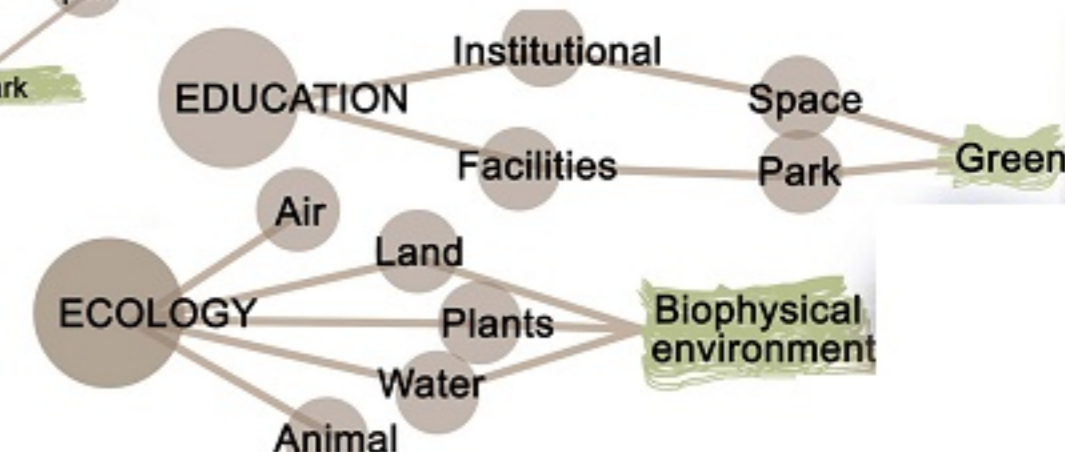
- + To provide comfort along waterways and space with human needs for the area using ecological approach.
- + To create an appealing and functional accessibility for UKM users to enhance the communities quality of life.
- + To provide masterplan that encourage user to experience the livable community space that have safety with various of activities.

theme and concept

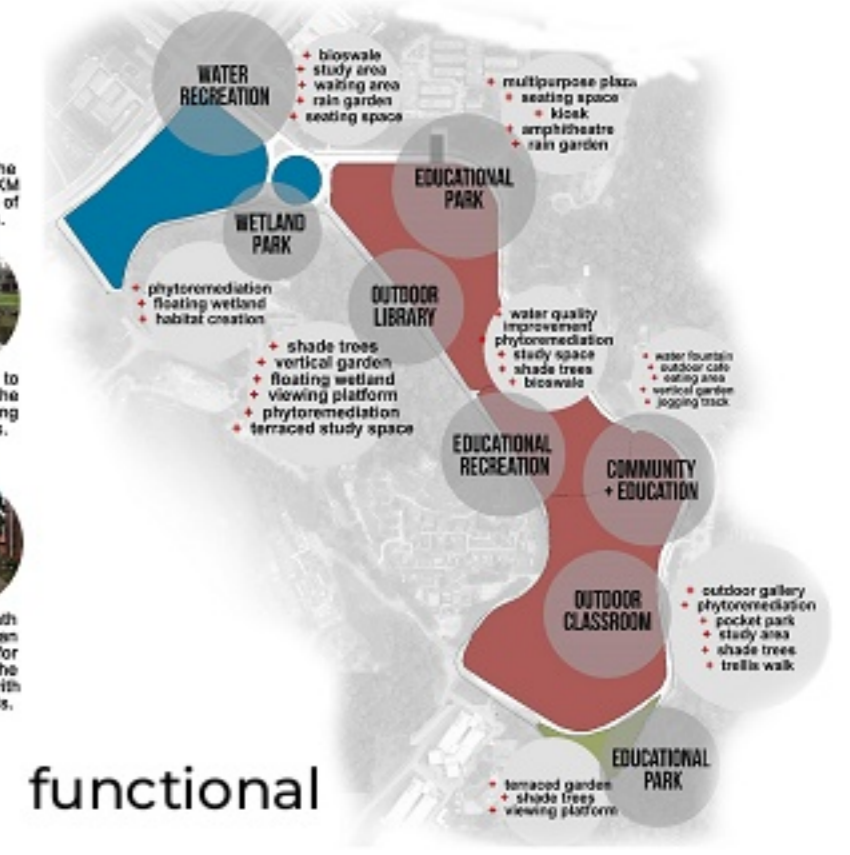
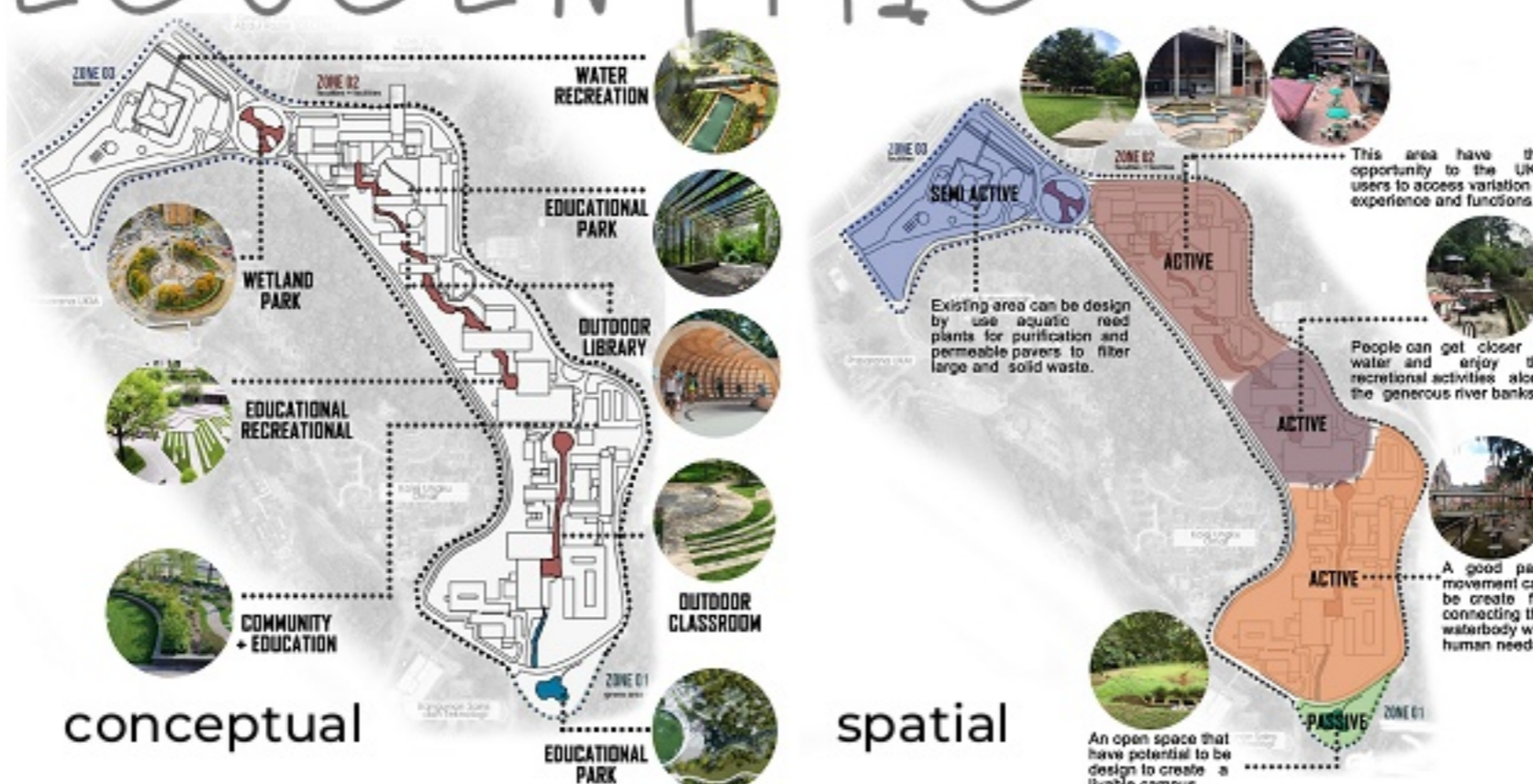
Humans have an inherited need to connect with nature and other biotic forms due to our evolutionary dependence on it for survival and personal fulfilment.



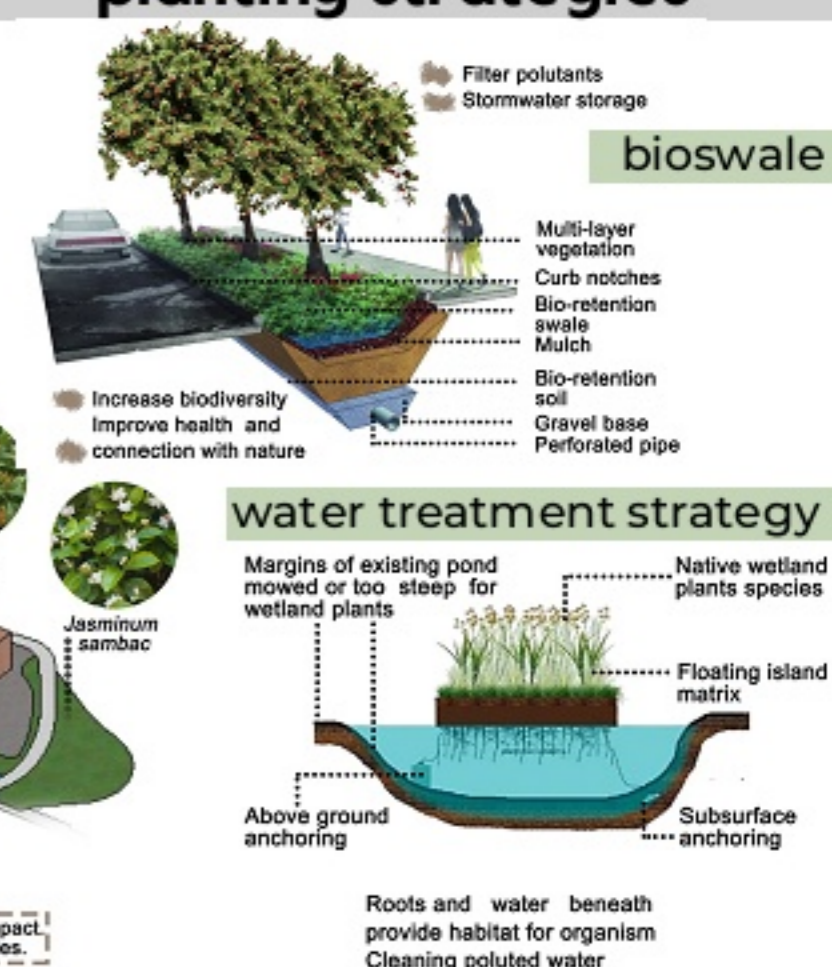
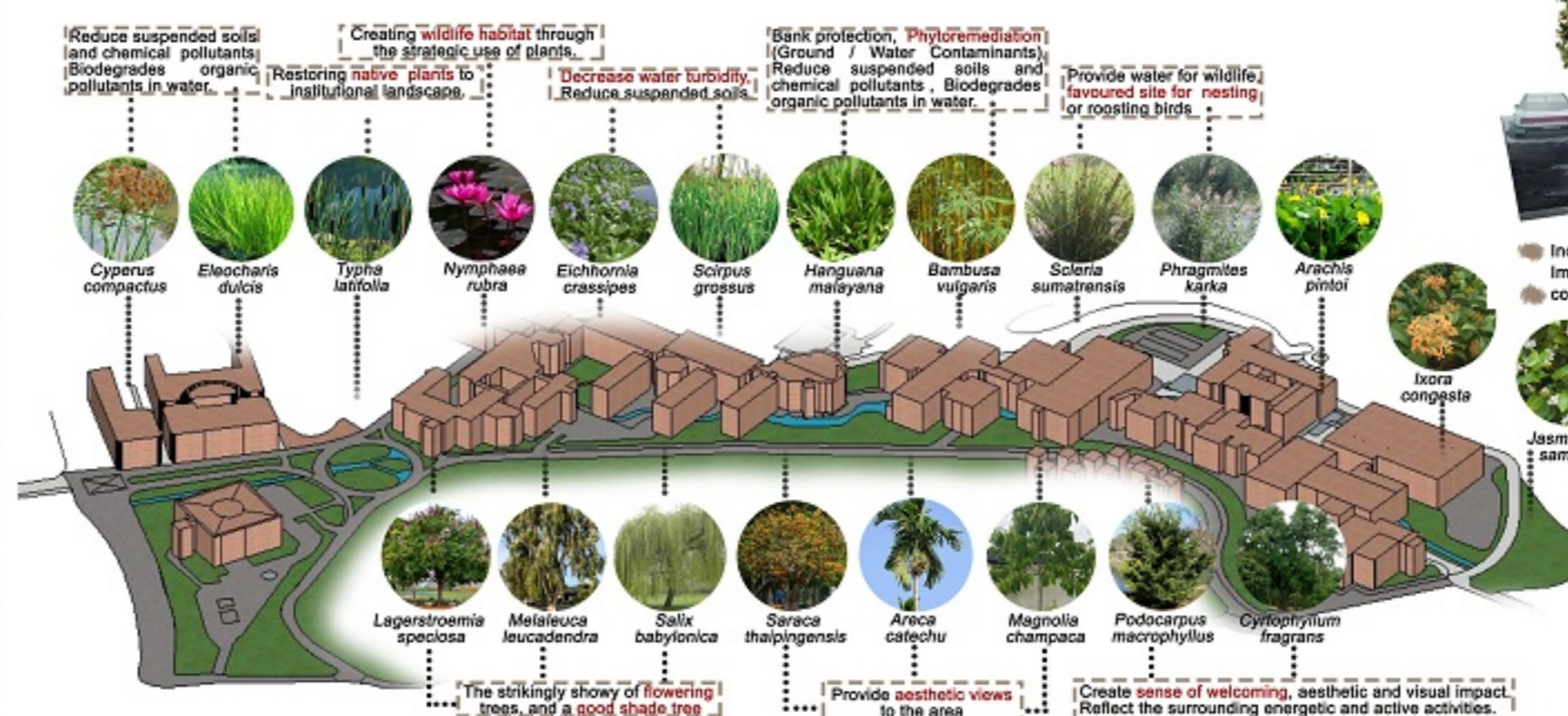
BIOPHILIC ECOCENTRIC



map programming



planting strategies



MASTER PLAN



ENLARGEMENT



SUPPORTING DRAWING



OUT DOOR CLASS ROOM

This active area located in the middle of two faculties. Proposed outdoor classroom for UKM students to provide functionally as a study and associate place with comfort, aesthetic and no risk.

REFRESHING AREA

Students are most likely to enjoy and engage with environment that are flexible.



FLOWER FIELDS

Proposed variety of flowers as the colors and scents can boost energy to users.



A POND

Provide boulders along waterways for people to enjoy river view. This pond contains additional water plant that create food and shelter for fish.



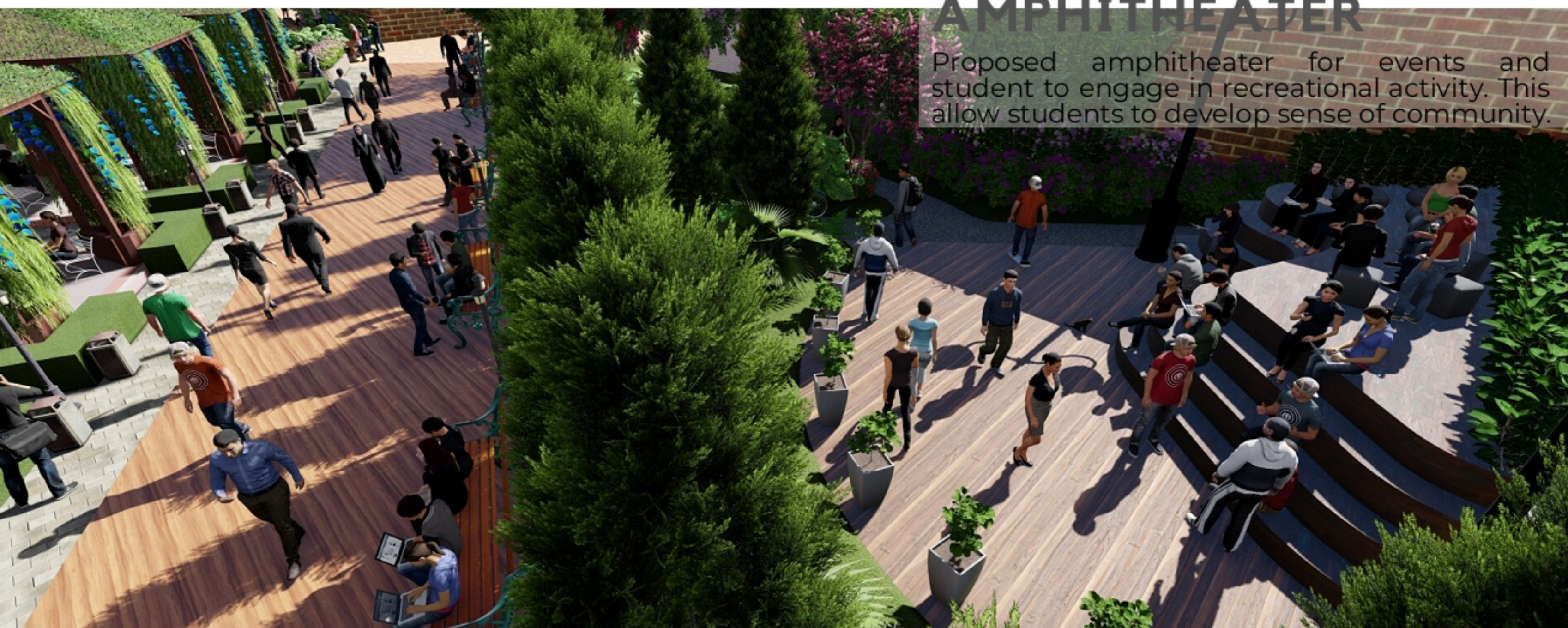
RESTING AREA

Using deck material and stone for pedestrian walk to create nature feeling. This area provide drinks for user to rest while enjoying scenery.



AMPHITHEATER

Proposed amphitheater for events and student to engage in recreational activity. This allow students to develop sense of community.



SUPPORTING DRAWING



Proposed amphitheater as a place for people to meet and interact while enjoying the nature vibes around them. Long versatile benches to encourage social engagement.



VIEWING PLATFORM

This area provide socializing space to fulfill user needs for social interaction, self-expression and retreat while enjoying river view.

OUTDOOR GYM

The addition of nature and fresh air helps exercising fun and effective. Combining natural light, exercise and sensory stimulation can reduce stress.

THE GARDEN THROUGH

Walking in green provide enjoyment feelings to users. Climbing plants provide shade for user comfort and supply habitat for birds as well.

CAMPUS COMMUNITY PARK UKM

Campus community park is located behind Masjid UKM and linked to the green UKM roundabout that provide variety of activity spaces with variety of plantings to strengthen the connection between human and nature to make the institutional livable and sustainable.



TASIK GHAZALI



Tasik Ghazali provide campus community garden for user to go outside and be active. Proposed plenty of trees and bushes that can growth a healthy ecosystem to make UKM more sustainable.



SERENITY IN GARDEN

Proposed relaxing spaces that provide outdoor patio umbrella table for people to enjoy some much-needed shade and safe from rain.



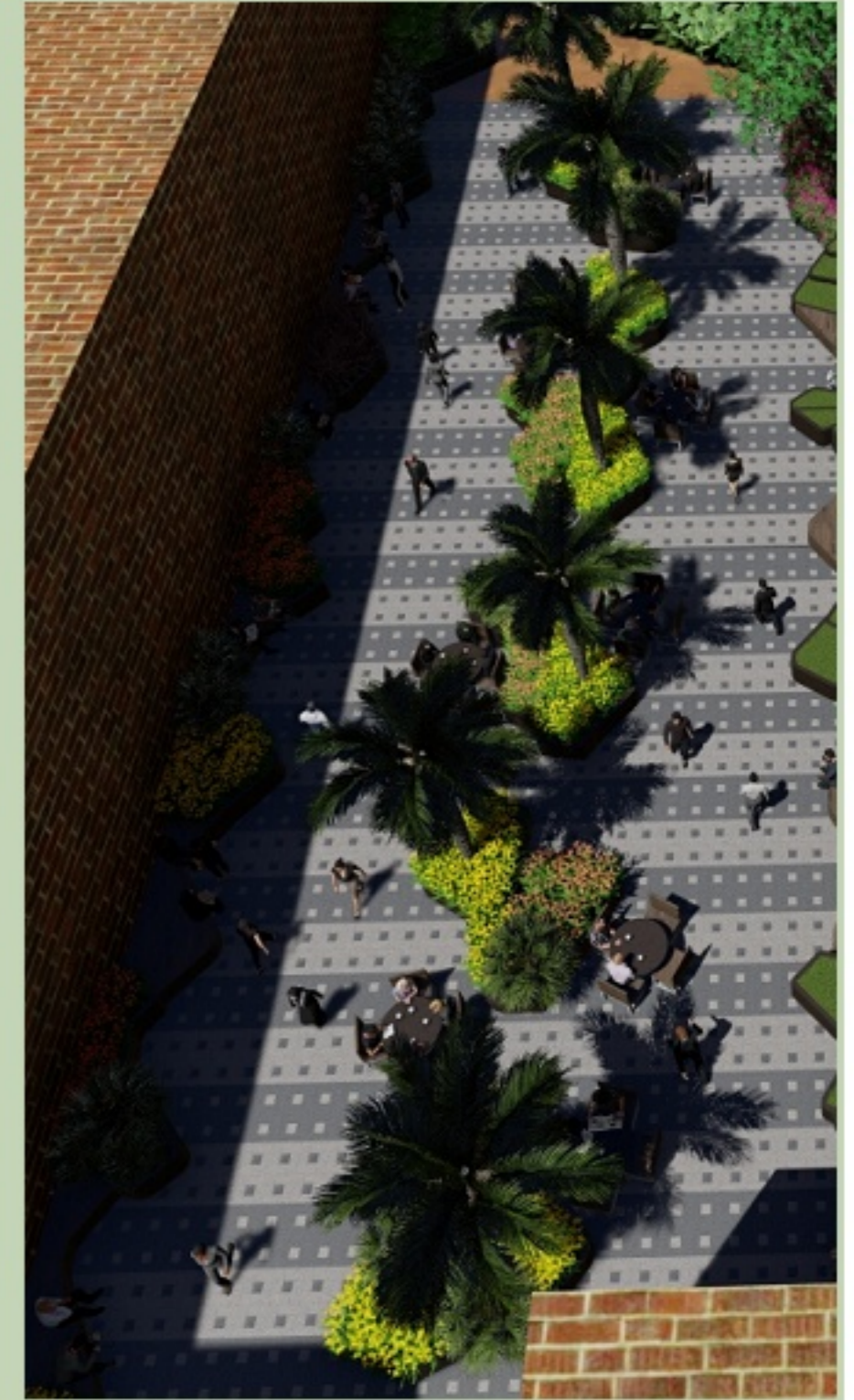
RIVERSIDE WALK

Proposed floating plant along waterways for filtration and create shelter for aquatic life. Riverside walk surround by plantings can give calm feeling and reprieve from noise.



VIEWING PLATFORM

This sunny-feel water area preserve the biodiversity and habitat for the area. Student can do recreation and get natural lights while enjoying the lake view.



TAMAN SISWA

Taman siswa provide gathering space for UKM users to associate and study outdoor. Provide colourful shrubs to create therapeutic ambience surrounded with relaxing space.

TERES EKO-NIAGA

SUPPORTING DRAWING



Green parking and bioswale replacing conventional drainage system.



High roof shaded with sitting space for user comfort.



Proposed food stalls to make healthy food more accessible to UKM users.

Teres Eko Niaga is the place where provide connection between UKM users and nature to make the area livable and sustainable.



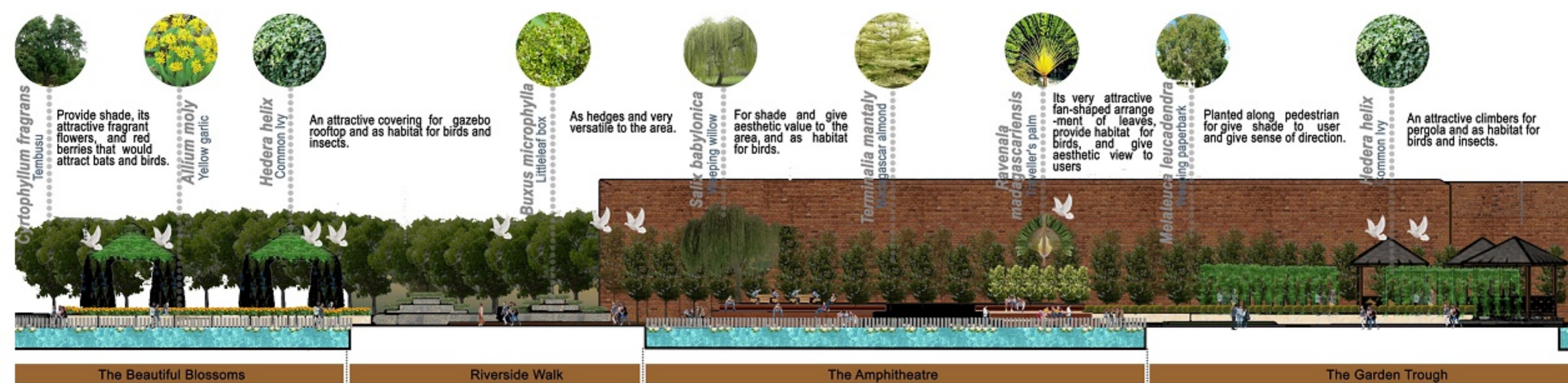
Susur Harmoni as the nodes for student to associate surround waterways.



Laman Seri Lanang as the leisure area to strengthens campus community image and the sense of place.

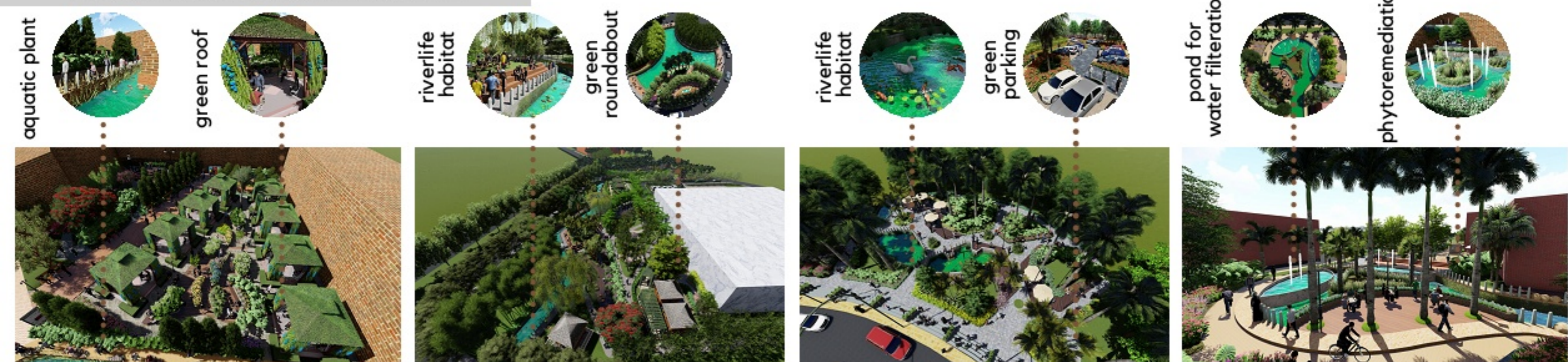


Plaza to gather for curriculum or other event activity. Provide ramps for disabled people to access.

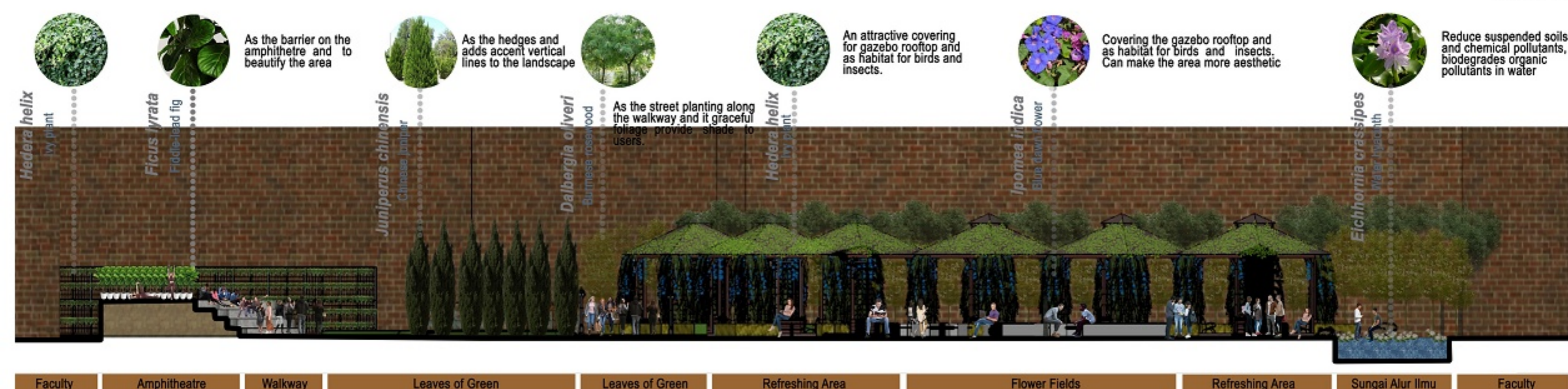


PLANTING INSPIRATION

ECOLOGICAL APPROACH



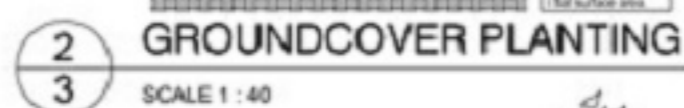
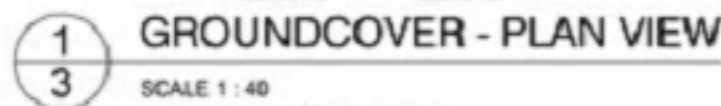
SCALE 1 : 350



SCALE 1 : 110

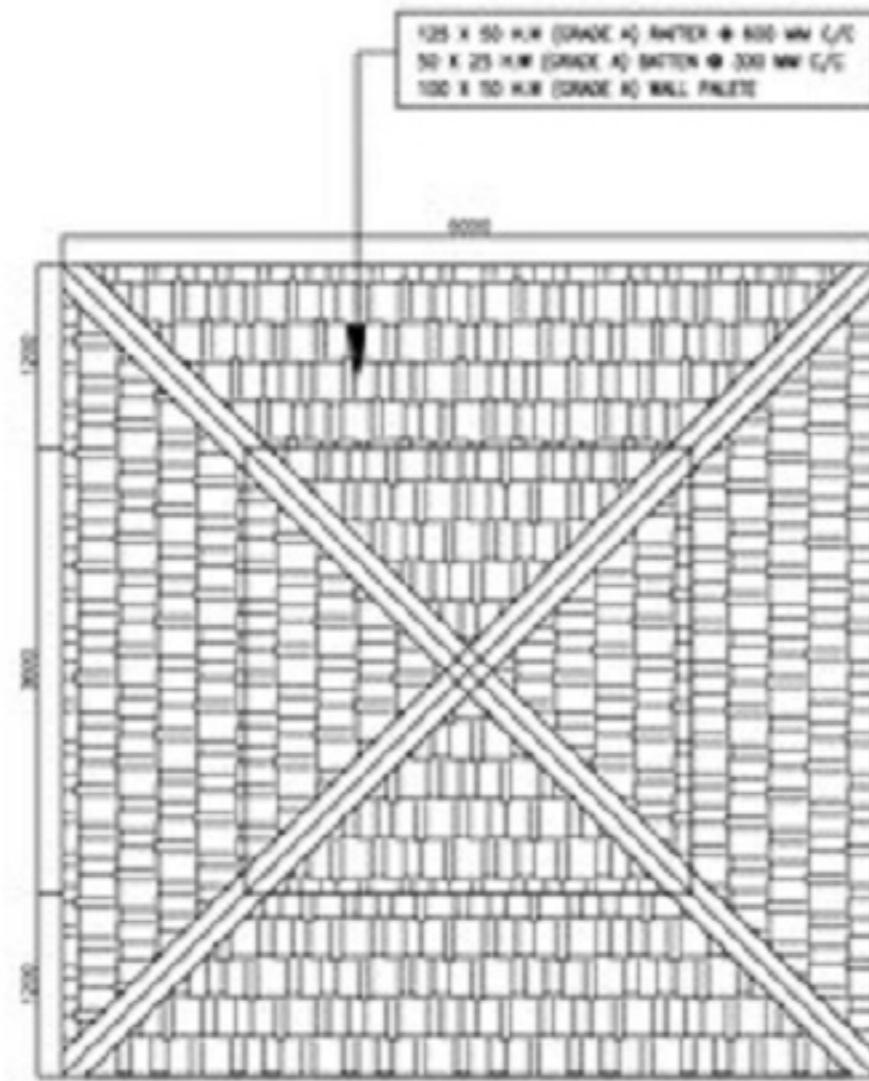


2 TRE
2 SCALE

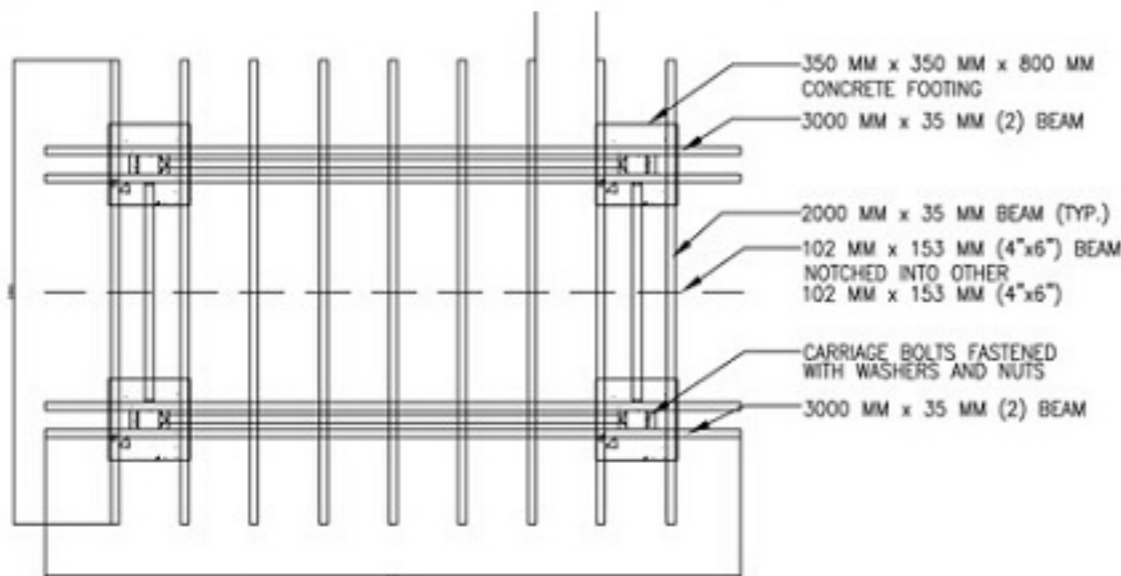


1. All work shall be performed by "border" with planting work and under the supervision of a qualified planting specialist. All plantings to be installed shall conform with the master's requirements as stated herein and approved for planting.
2. The Contractor is to verify the location of all on-site utilities prior to commencing the work. The Contractor shall be responsible for the repair of any damaged utilities during his work.
3. Plant material installed outdoors in plan are diagrammatic and will be subject to adjustment as laid by the Landscape Architect/Design symbol on plans do not necessarily represent individual plant material as necessary.
4. The Landscape Architect reserves the right to make substitutions, additions and deletions in the planting schedule as necessary.
5. Quantities shown on the landscape material list are for the convenience of the contractor only. It is responsibility of the contractor to provide and install the necessary landscape materials. In quantities sufficient to fulfill the design of the space(s)which specified and in the locations indicated on the planting plans.
6. All trees and materials shall be approved by the Landscape Architect prior to installation on site.
7. Plant and shrub plants shall be dug and prepared prior to moving plants to their respective location. All tree plants shall be shade barked prior to arrive adequate drainage. Notify the Landscape Architect in writing of all tree or shrub damage situations encountered during planting operations which the contractor considers detrimental to the health of the plant material.
8. The Landscape Contractor shall make reasonable inspections in the field for approval of the Landscape Architect prior to installation. The Contractor shall also verify location of all utilities, gaslines, and drains with the Landscape Architect prior to planting.
9. The Contractor shall take all reasonable precautions to coordinate work and to minimize damage to completed and related work.
10. All tree/plants to be installed or planted in accordance with the planting details.
11. Submit samples for approval of all planting materials to installation on site.
12. All groundcover planting will be placed no further than 150mm from edge of pavement, edge of border or back of site.

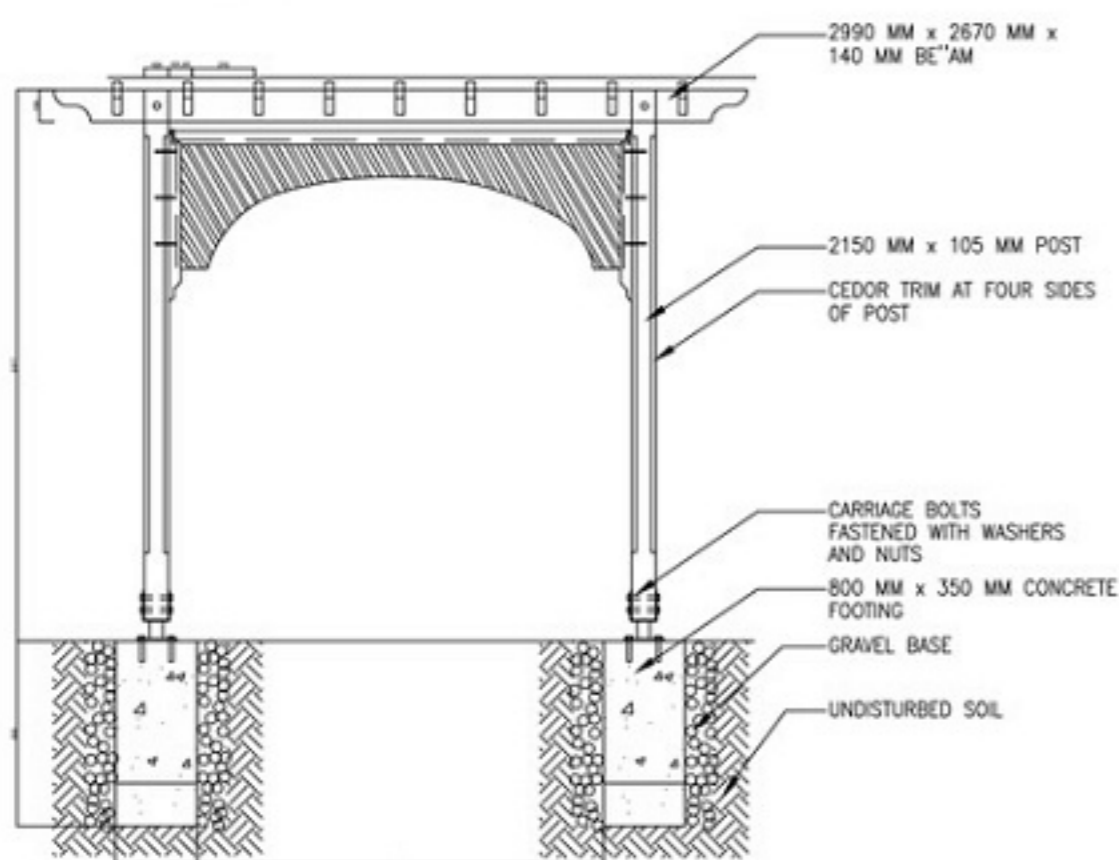
HARDSCAPE DETAIL



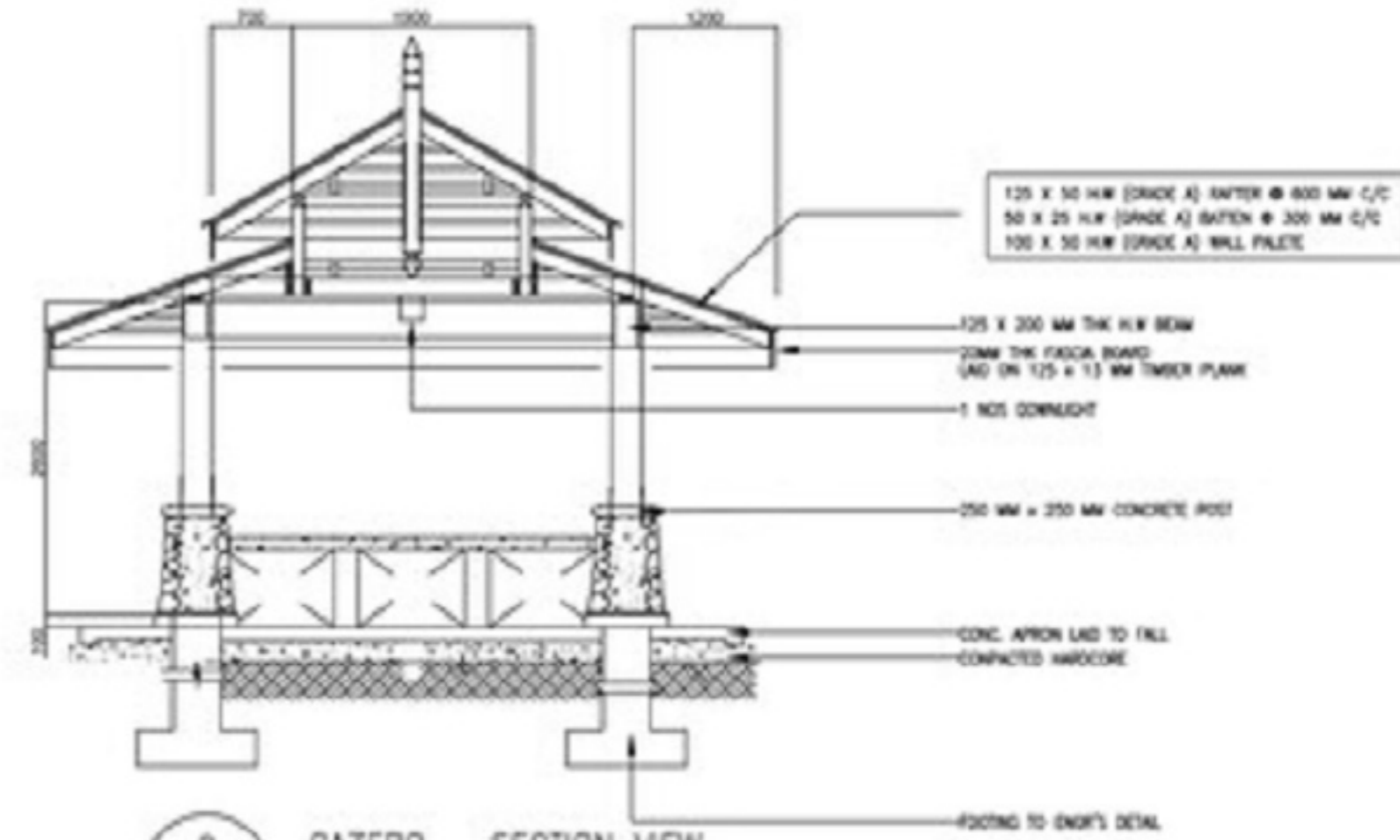
1 GAZEBO - PLAN VIEW
3 SCALE 1 : 35



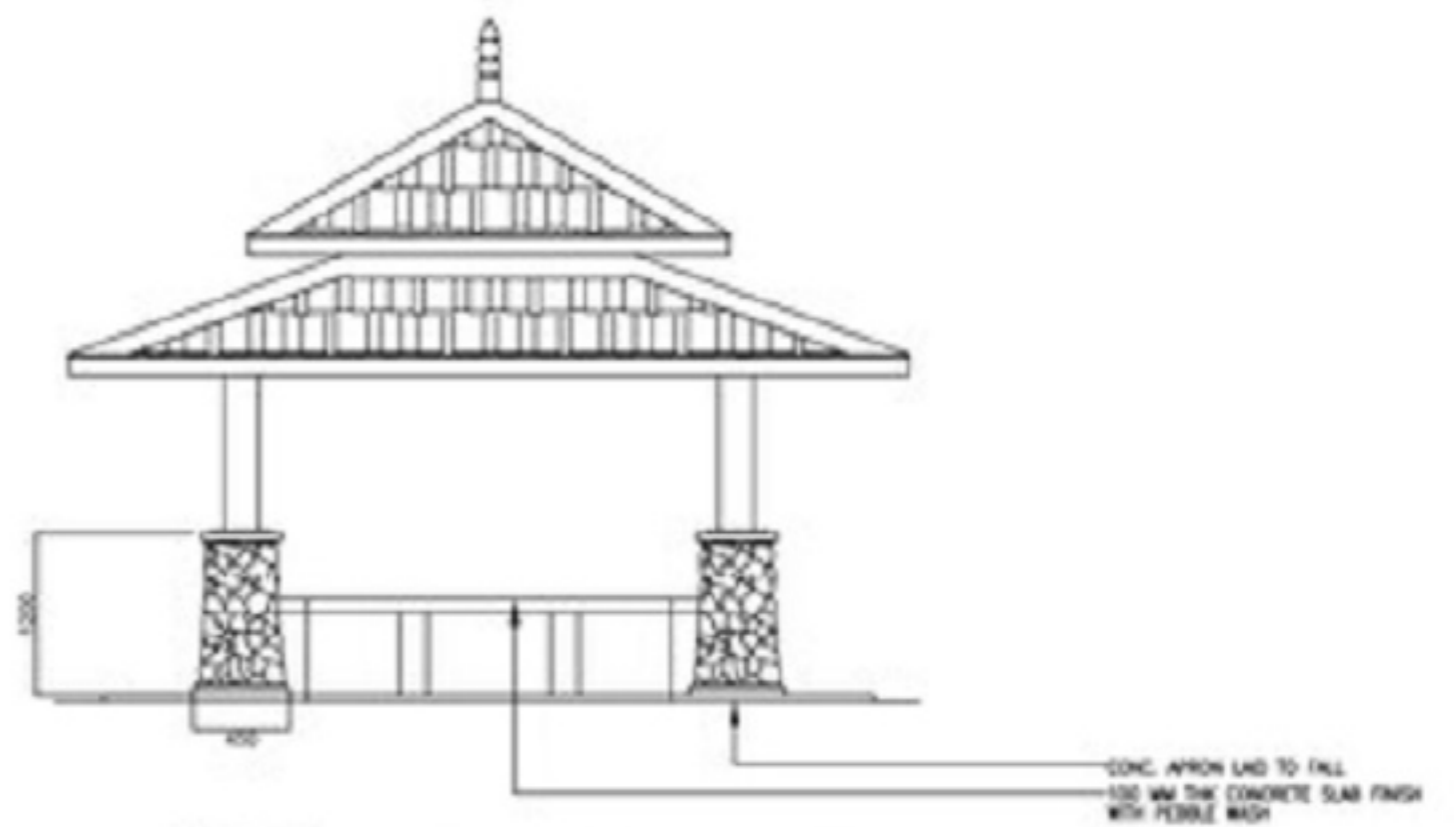
1 ARBORS - PLAN VIEW
2 SCALE 1 : 25



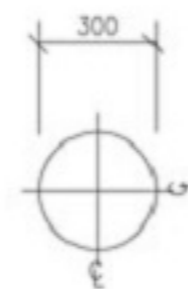
2 ARBORS - SECTION VIEW
2 SCALE 1 : 25



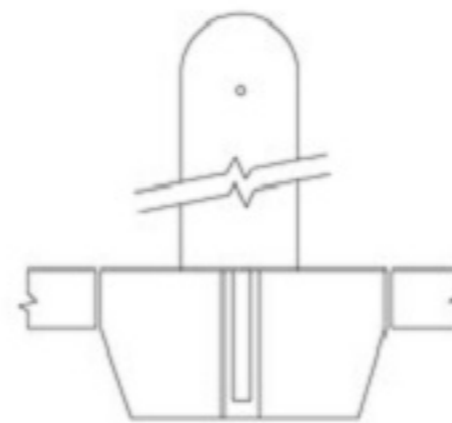
2 GAZEBO - SECTION VIEW
3 SCALE 1 : 35



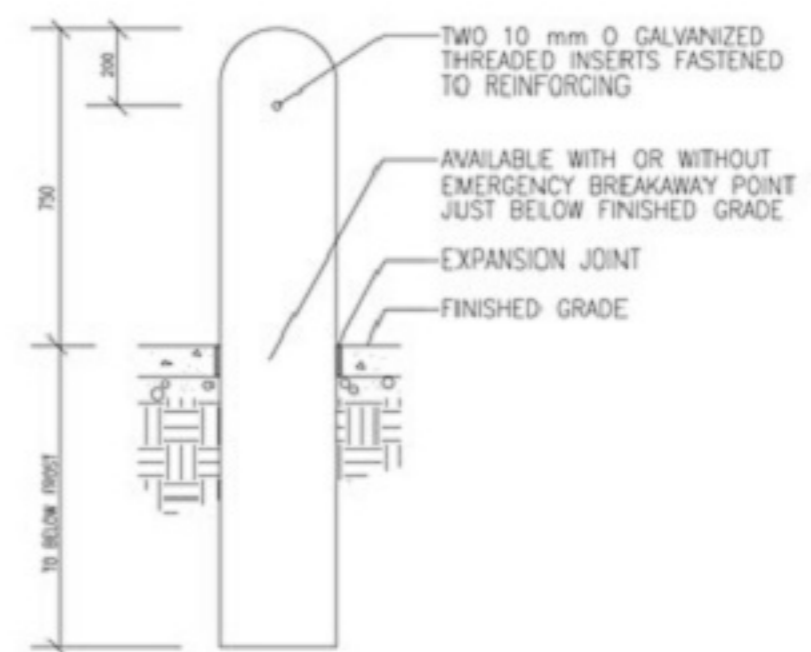
3 GAZEBO - ELEVATION VIEW
3 SCALE 1 : 35



1 BOLLARD - PLAN VIEW
3 SCALE 1 : 10



2 ALT. FOUNDATION
3 SCALE 1 : 10



3 BOLLARD - SECTION VIEW
3 SCALE 1 : 10

CONCLUSION

INDEPENDENT LANDSCAPE DESIGN

issues

- + Physical connectivity
 - + Environmentally water quality
 - + Sociocultural activity
- (Comfortabilities, Safety and Aesthetic)

design strategies

- + Phytoremediation method
- + Green parking and bioswale
- + Proposed campus community park
- + Variety outdoor campus community spaces
- + sustainable institutional design

outcomes

- + Lost spaces and spaces between buildings has been identified and enhanced by creating active linkages along Sungai Alur Ilmu.
- + Space connection through all of the surrounding area environment increased the quality of campus life with lively and healthy human life.
- + Water quality improvement is being made through ecological approach to mitigate the pollution of the waterways.
- + Outdoor social spaces that supports the livability of Alur Ilmu has been enhanced by adding campus community elements according to user needs.



REFERENCES

INDEPENDENT LANDSCAPE DESIGN

issues research

- + http://www.ukm.my/mjas/v19_n5/pdf/NurulAfina_19_5_24.pdf
- + <http://alurilmuukm.blogspot.com/>
- + <https://www.intechopen.com/books/advances-in-landscape-architecture/ecological-landscape-design>

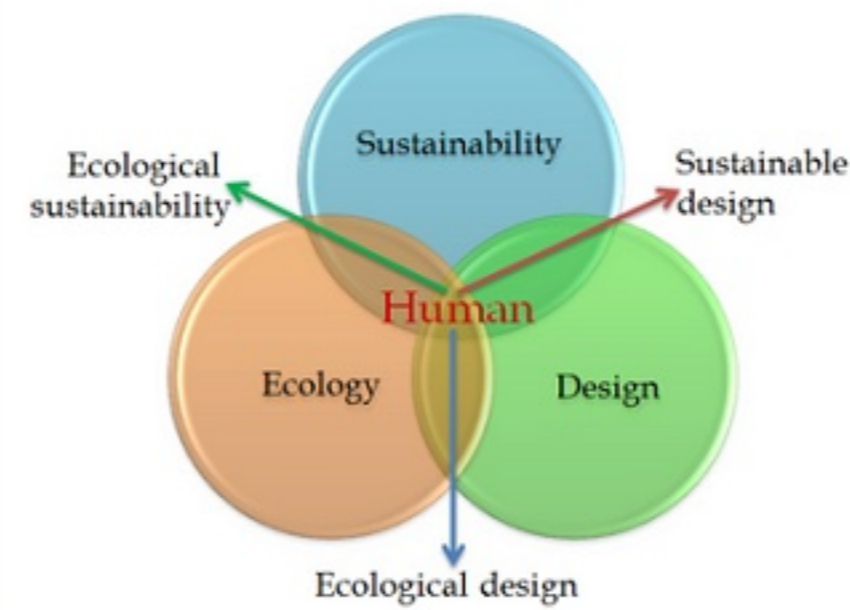


Figure 1.
The relationship between ecology, sustainability and design

In landscape architecture ecology's emphasis on natural processes and the



design research

- + <https://www.google.com/>
- + <https://www.pinterest.com/>

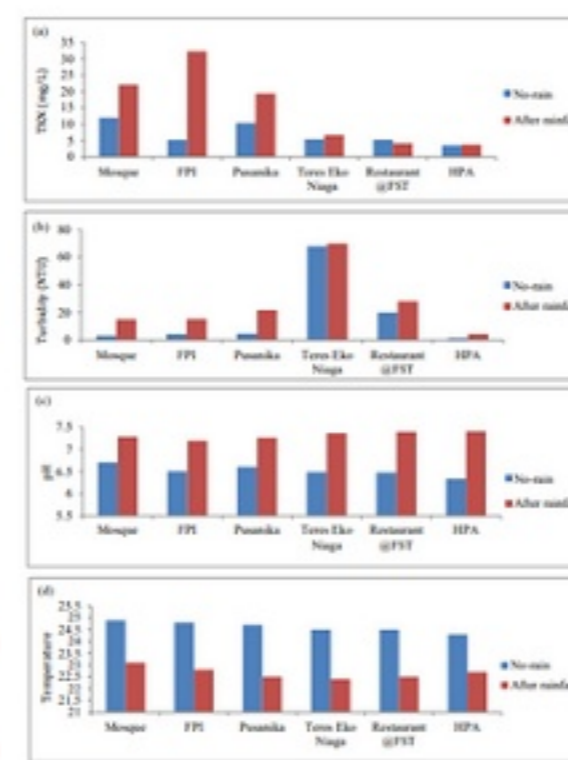


Figure 1. Location of water sampling along Alor Eke river

Results and Discussion
Biochemical Oxygen Demand (BOD)
BOD is a measurement of the quantity of oxygen used by microorganisms to decompose waste. High BOD indicates poor water quality. If there are large quantities of organic waste in the water, then many bacteria will be present to decompose the waste and oxygen demand will be higher. Thus BOD levels will also be higher. The value of BOD in the Alor Eke river is between the range of 7.7 ± 15.1 mg/L during no-rain (Figure 2a). The highest value of BOD is in FPI which is 15.1 mg/L. Factors that contribute to the highest value of BOD such as regularly cleaning activities of the river, debris that are not well managed and sewage from collective nearby. Dry weather conditions also slow the velocity of the water flow to transport the waste into downstream. This shows that there are a lot of organic materials in the sample experiments that may not be decomposed by the organisms that causes the organisms to be at depressed levels and will eventually die. After rainfall the value of BOD are in range of 6.6 ± 9.3 mg/L (Figure 2b). The highest value of BOD is 9.3 mg/L at Teres Eke Naga. Factors that cause increase value of BOD in this area is the contribution of sewage and storm water come from laboratory and collective nearby. During rainfall event the flow velocity will increase and the flow load the contamination coming from upstream thereby making the BOD levels in this area build up. Thus the average value of BOD is 10.8 mg/L during no-rain and 7.6 mg/L after the rainfall. This shows that the oxygen demand by the microorganisms is low after the rainfall event.

Chemical Oxygen Demand (COD)
COD is a measurement of the presence of organic material in water bodies. Normally COD levels are higher than BOD levels. The surface water and domestic sewage for COD levels is between 20 and 30 mg/L, and normally for industry wastewater are highly contaminated that is more than 100,000 mg/L [5]. COD is one of the most important measurement parameters for monitoring water [7] that showed a decrease in the level of contamination of water with pollutants.

Public spaces Plan Garden Residential Backyard Concept Sketch Plan layout Urban Plan outdoor spaces Layout Park Plan g



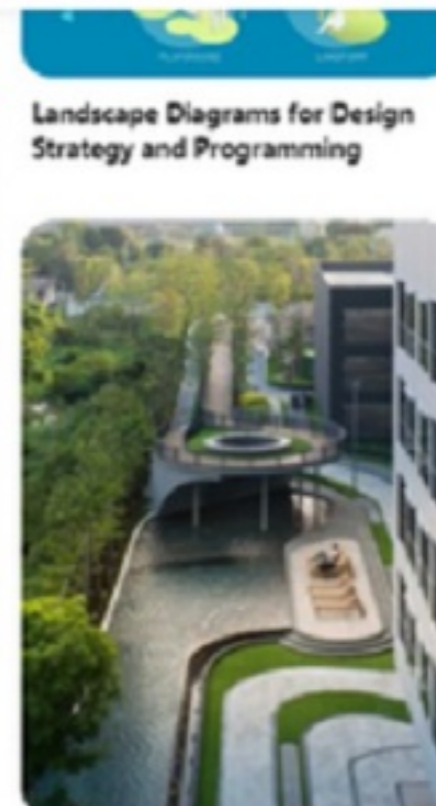
Bendigo Hospital | Bendigo, Australia | OCULUS



OUE Downtown Landscape Design by Shima (II) Public Area



The Garden of Migrations by Agence APS - Landscape...



Ideo O2 Residence by Redland-scape



The Bamboo Garden | Atelier P - Arch2O.com



Partners HealthCare Administrative Campus | OJB Landscape...

final year project

Thank you

All praises are to Allah.
End of my diploma.