



Chapter 4

Design

Concept

The project is based on nature; how it was, what's destroying it and how to fix it, so the design should stem from that concept.

I based my design on the petals and leaves of a rose bud (a symbol of new beginnings) & the symbol of biohazards (to represent the hazards that damage living organisms specifically & the environment in general).. I.e. the concept is:

“Giving nature a new beginning by healing it from hazards that are damaging it”

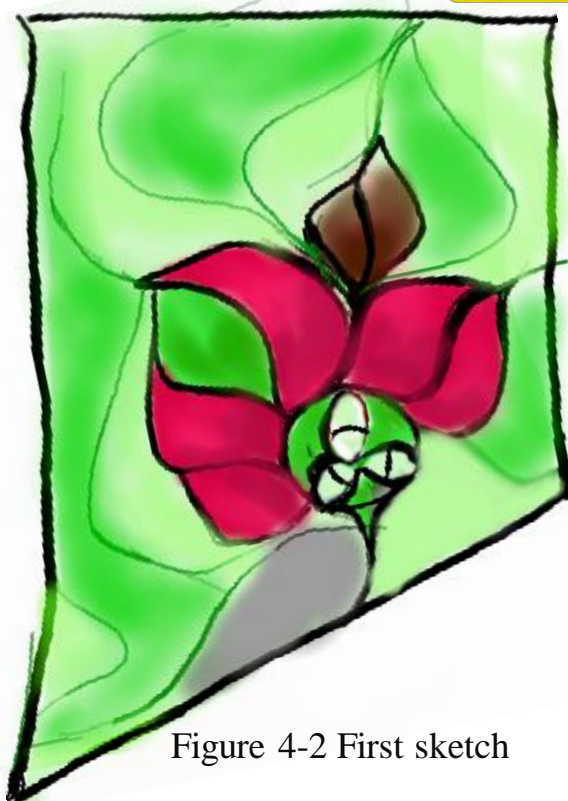
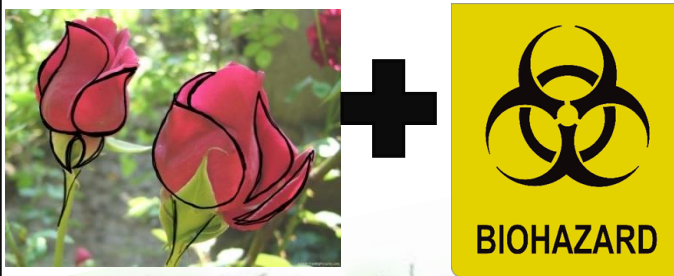


Figure 4-2 First sketch



Figure 4-3 Improved design

- ✓ The basic idea combined the concept with the zoning while taking care the orientation is as closest possible to the optimum orientations.
- ✓ The outdoor was treated to match the rose-bud concept
- ✓ The petals where separated but linked to allow visitor flow between them
- ✗ The design lacked outdoor treatment and the petals direct adjacency causes structural problems
- ✗ The literal interpretation of the bio hazard symbol and the straight entrance break the harmony between the form

Site



Figure 4-4 Final site

The biohazard symbol was abstracted to achieve better harmony with the petals and the main entrance walkway was curved to give it a more natural flow of circulation.

Site highlights

Animal reserves:
animals are kept here when young or new

Bio domes: greenhouses that mimic Sudan's 5 biomes. Structurally, the main arch (dark green) is a mega structure space-truss that holds the sloped curtain walls.

Endangered plants greenhouse:
plants for exhibits are grown here

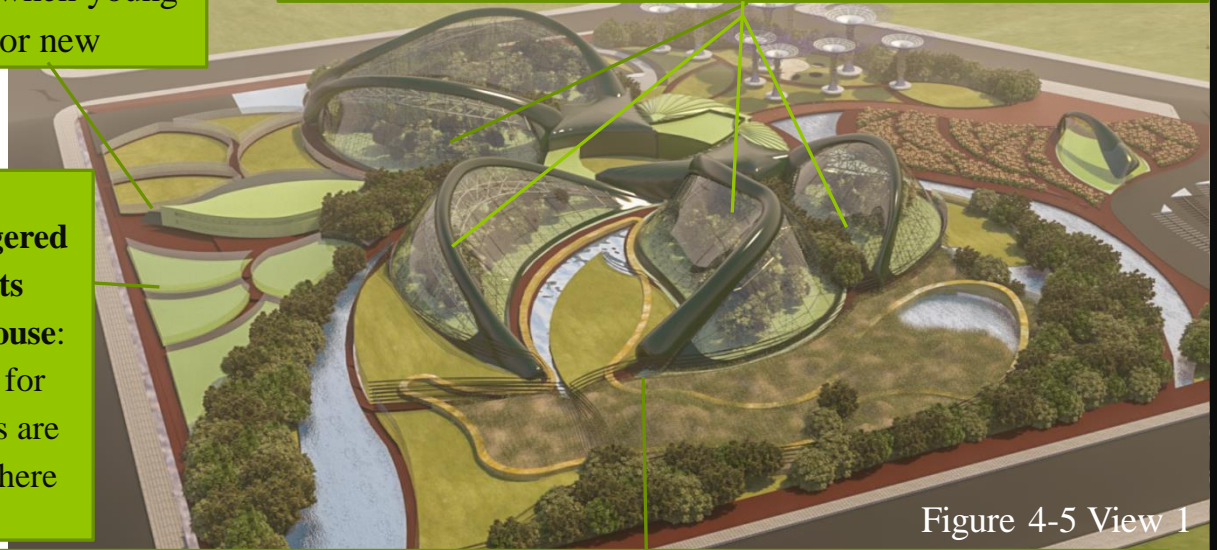


Figure 4-5 View 1

Safari: for protection it is surrounded by water in all directions and has double gates and a watch post at the middle, electric buses tour visitors through the 5 main areas: gazelles + hippos+ leopards and cheetahs + lions + waterhole area (buffalo, elephant, zebra, giraffe, eland, baboons).

Conference hall:
major environmental conferences are held here

open exhibit:
changes according to conference subject and shaded by supertrees

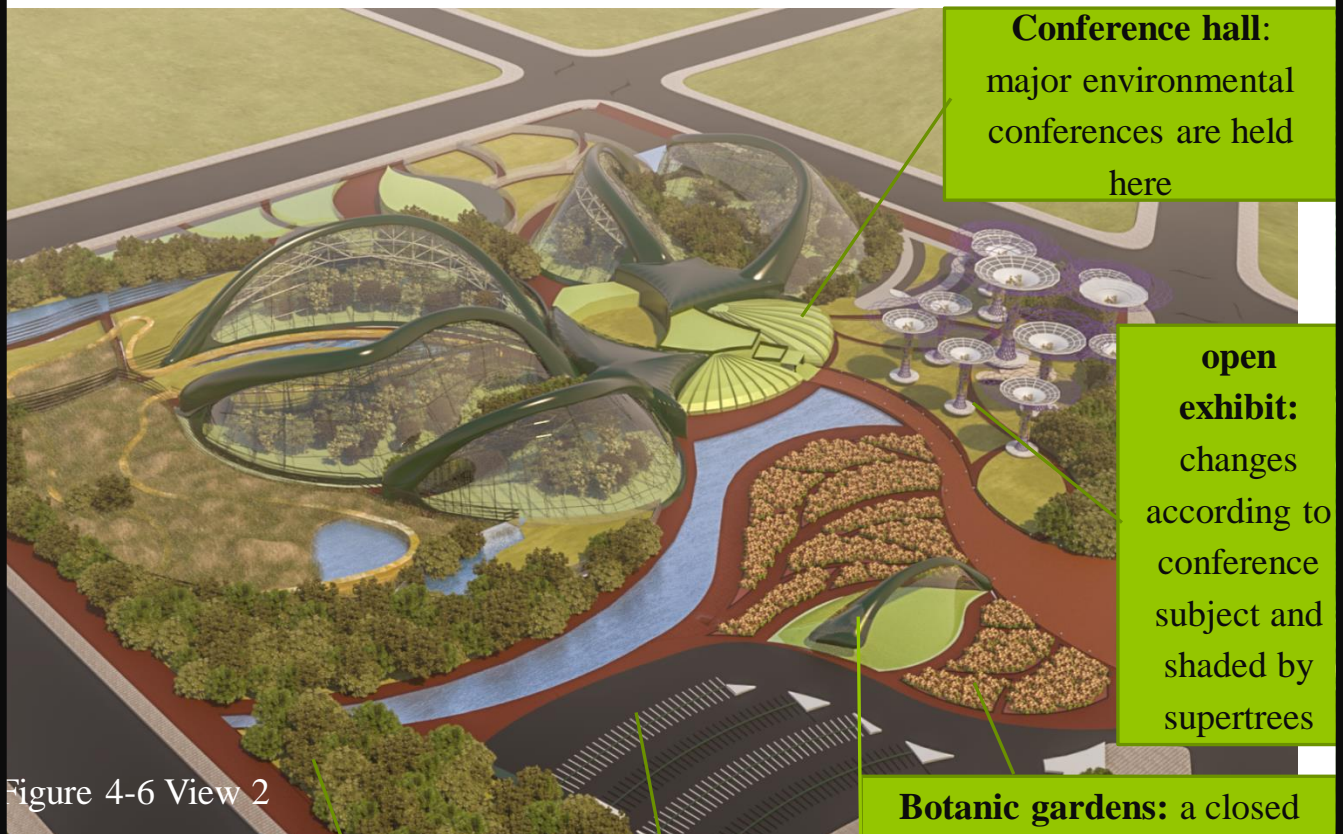


Figure 4-6 View 2

Green belt: surround site to give natural background & reduce heat

Main parking:
organic design to flow with nature

Botanic gardens: a closed greenhouse & an open garden where plants are sold at reduced prices & then taken directly to the parking

Ground floor plan

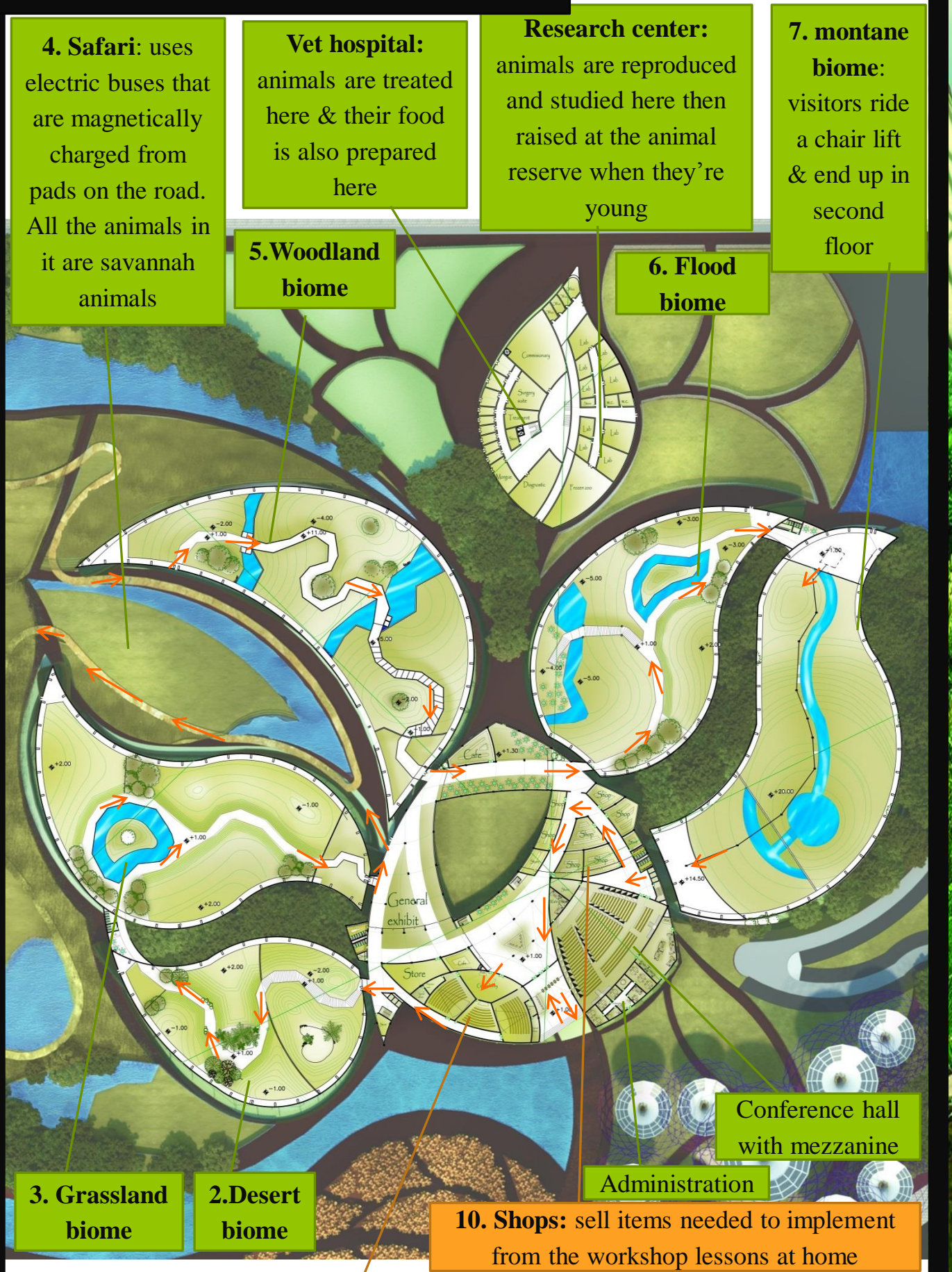


Figure 4-7 Ground floor plan

Biome details

1. Desert biome

Service road: for direct access to animals without crossing visitors

Animals are above eye-level at 1 side and below it at the other to mimic sand dunes

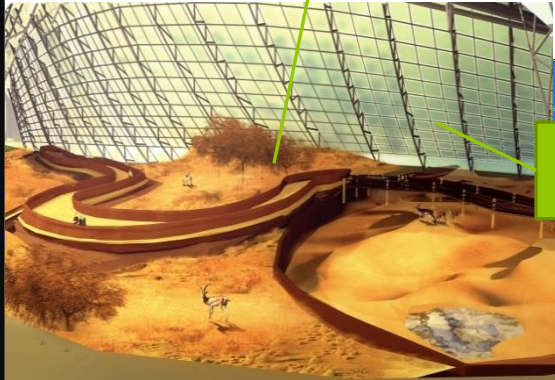


Figure 4-9 Desert biome view

2. Grassland biome

Dry V moats

Monkey island

3. Woodland biome

Circular panoramic lift covered with vines as the supertrees to give it a natural look.

Elevated pathway provides a panoramic view & protection from carnivores below while adding the element of excitement

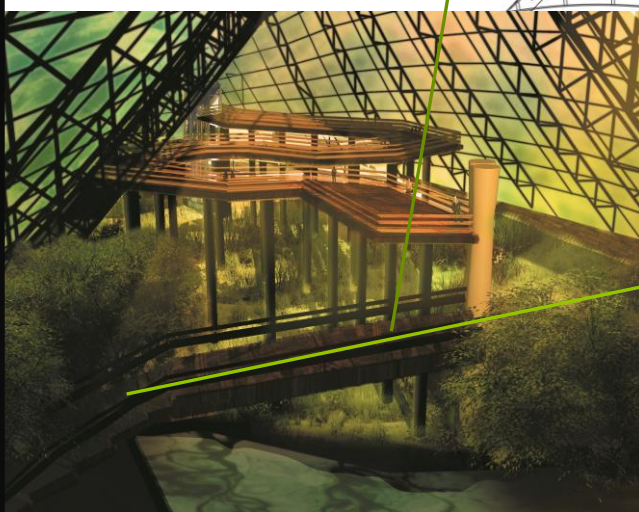
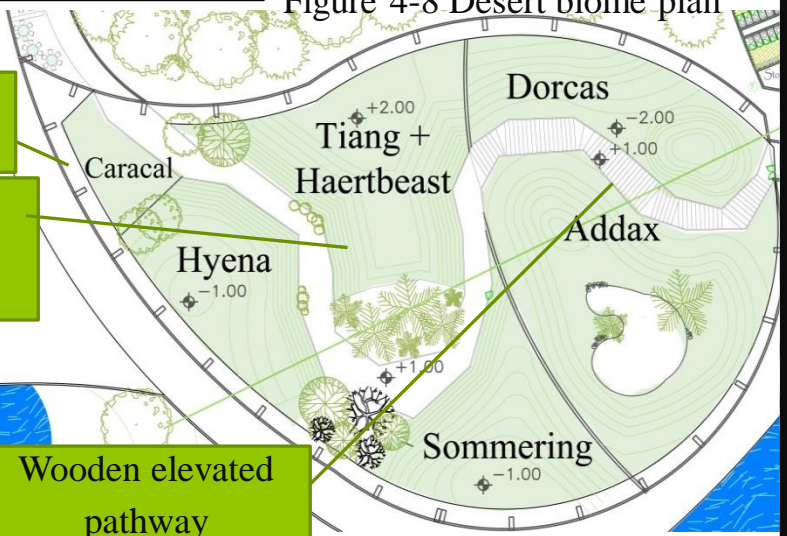


Figure 4-11 woodland biome view

Figure 4-8 Desert biome plan



Wooden elevated pathway

Piano wire zone allows close contact with small animals that are hard to see far away

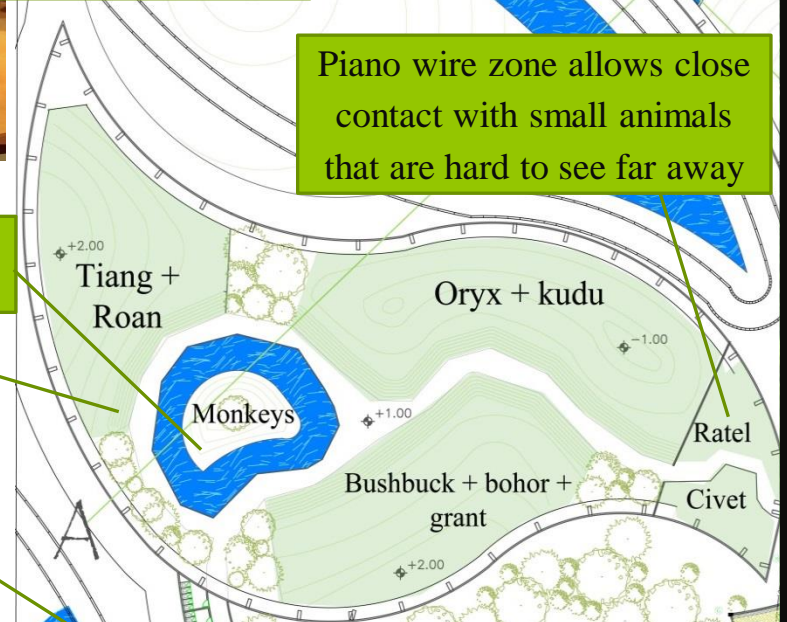
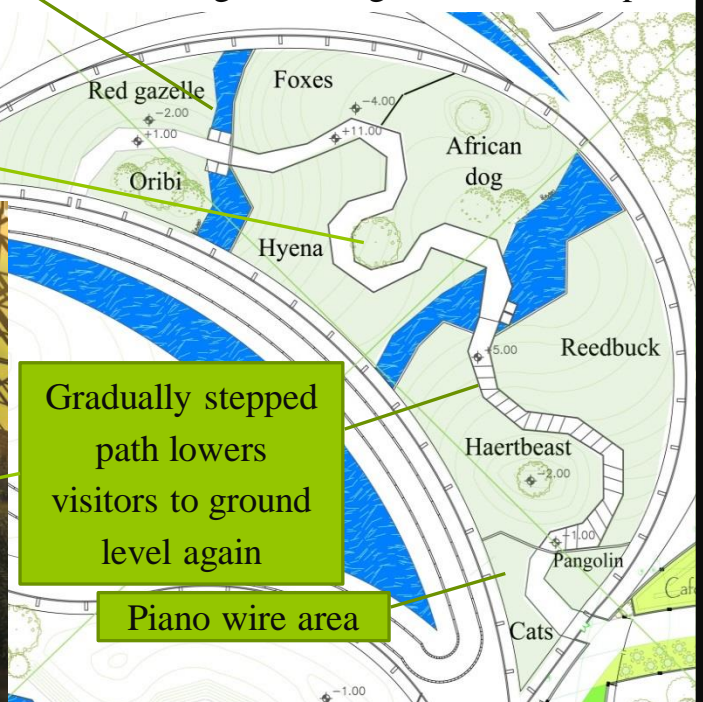


Figure 4-10 grassland biome plan



Gradually stepped path lowers visitors to ground level again

Piano wire area

Figure 4-12 woodland biome Plan

4. Flood region biome

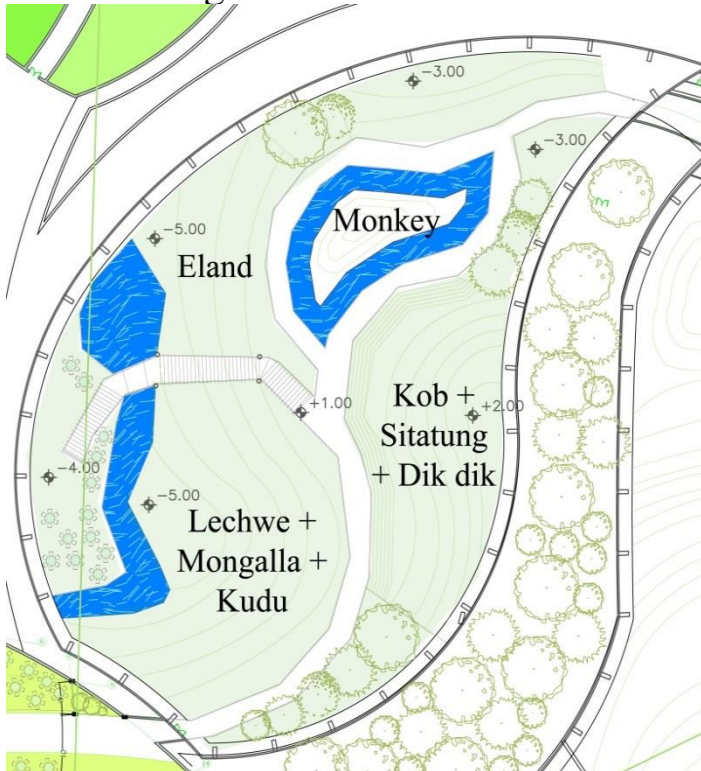


Figure 4-14 flood region biome Plan

A bridge lowers visitors to a sitting area at the same level as the animals to make the visitors connect with them.



Figure 4-13 flood region biome view

A chair lift lifts visitors through the biome where they end up entering the second floor in the building

The montane area is an artificial mountain that has a small waterfall at its tip. The wall separating it from the rainforest area is covered in plants to hide it

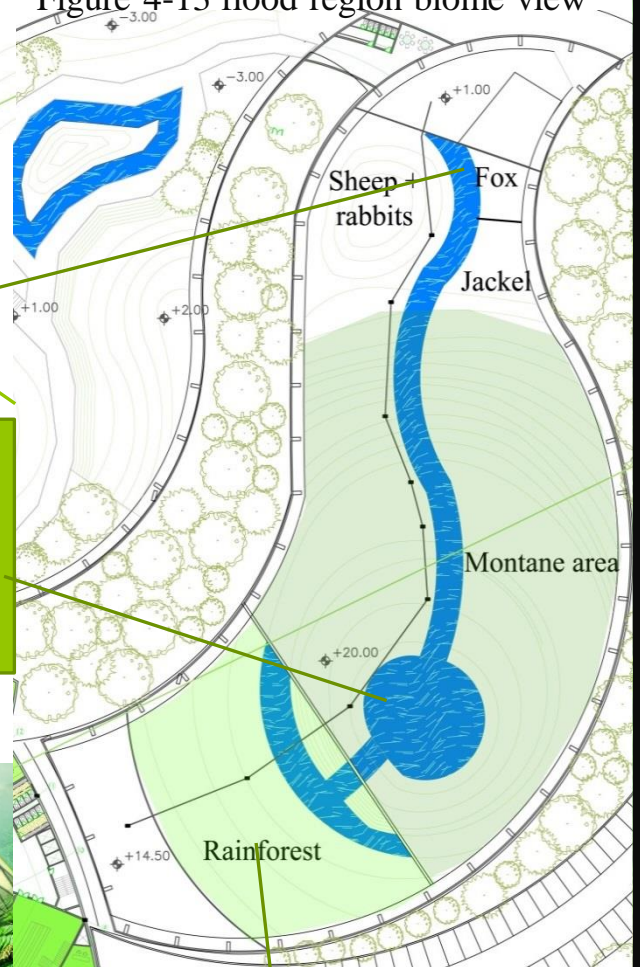


Figure 4-15 montane region biome Plan

Under the rainforest area lies the energy center that controls all the biomes environmental controls using sustainable biomass & solar energy produced at the site.

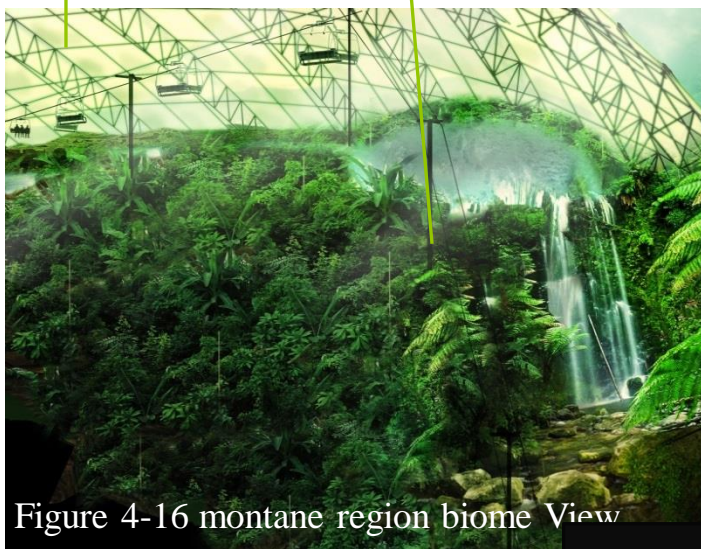


Figure 4-16 montane region biome View

Upper floors

9. Future exhibition: models & pictures show the forecast future if eco-problems like global warming are not solved, this helps visitors understand the extent of the problem & how global it is.

8. Present exhibition: models & presentations of the present state of Sudan's biomes, and how urban areas affected them; helps visitors understand how their personal actions harm the environment directly and indirectly

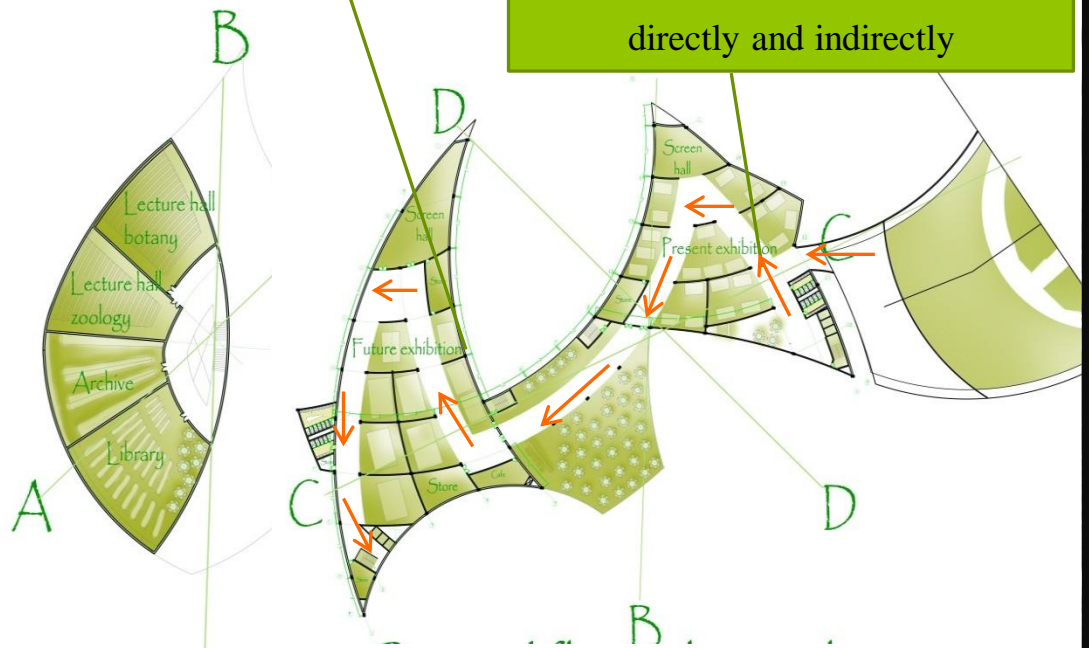


Figure 4-17 second floor plan

9. Workshops: To show visitors how they can become eco-friendly, each workshop has an open demonstration explaining its subject such as recycling, planting, animal preservation, water & energy saving and a closed practical class for those who want to try it themselves to make sure they understood the lesson

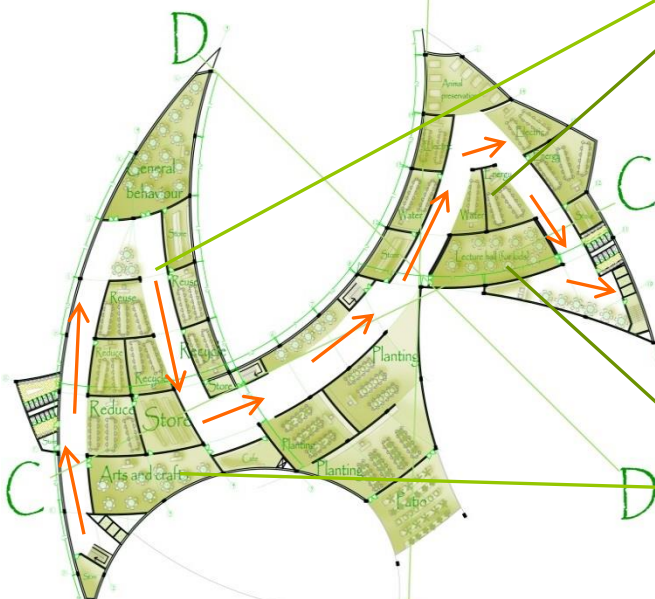


Figure 4-18 First floor plan

Kids area: kids are dropped off on one side and received from the other after their parents finish their tour, one is an arts and crafts room using recycled materials the other is a lecture hall with cartoons about being eco friendly

Basement floor

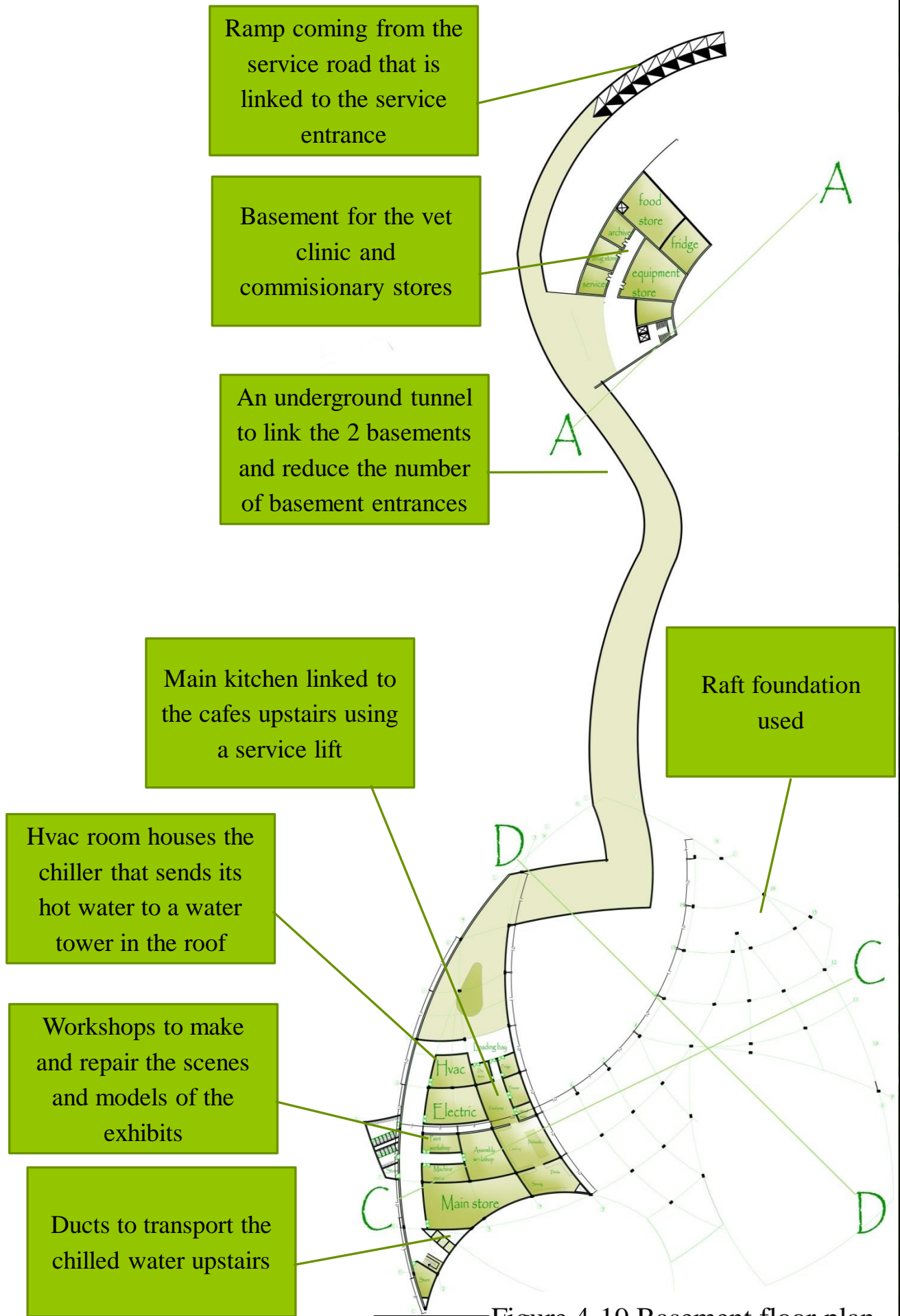


Figure 4-19 Basement floor plan

Sections

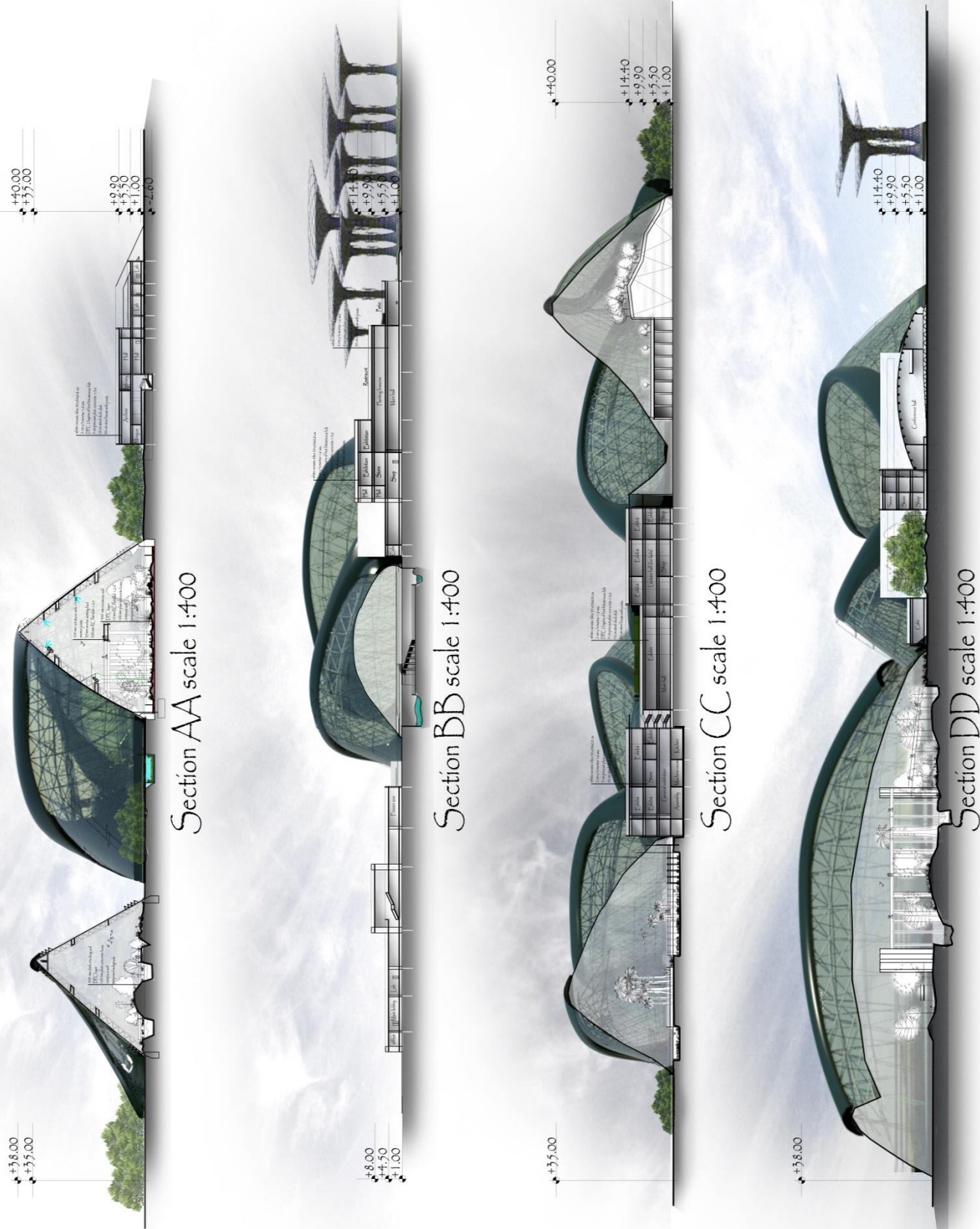


Figure 4-20 Sections

Elevations



Figure 4-21 elevations