

NARRATING AN URBAN ADVENTURE

MONTESSORI PRE-SCHOOL AND DAY-CARE CENTRE, KINGSPARK ZOO REDEVELOPMENT

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THIS DISSERTATION IS SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE MASTER IN ARCHITECTURE (PROFESSIONAL),
THE DEPARTMENT OF ARCHITECTURE, FACULTY OF NATURAL AND AGRICULTURAL SCIENCES,
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DATE OF SUBMISSION: 30 SEPTEMBER 2014

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ABSTRACT

This thesis addresses the rejuvenation of a large part of the inner city. The design is motivated by the circumstances of the current urban landscape which fails to provide adequate play spaces for children. Karsten (2005 cited in Beneker, Sanders, Tani, Taylor, 2010: online) recognizes the disappearance of children playing freely in public spaces and that children only appear in the urban landscape under the strict supervision of adults. It is therefore of vital importance to incorporate this as a requirement into the brief for future urban planning schemes, and will also be addressed in this thesis.

For the purpose of this thesis it is assumed that the existing premises of Bloemfontein Kingspark Zoo are proposed for low-scale low-density development while preserving this area as a green lung in the inner city. This inner-city development programme comprises a supervised park, coffee shop, private offices and pre-school and day-care centre and is driven by the hypothetical Bloemfontein Development Agency. As part of the zoo development masterplan the pre-school and day-care centre will provide a safe and supervised space within the city for children. Bringing children to the city should mediate adults with children and generate a landscape with new characteristics by means of architecture and urban planning.

The park-like landscape of the existing zoo in contrast to the 'concrete jungle' renders a dramatic playscape where children, protected from harm, can allow their imaginations to roam free. From children's natural ability to translate 'things' of the everyday world into the obstacle and creature of an epic adventure, this thesis finds its conceptual basis. The proposed project will analogously attempt an architectural translation of the innate narrative qualities of children. As a conceptual basis the thesis will investigate this playscape and imaginative adventures as navigational tools for the design Spatial representation of Fairy Tales will be explored and will form part of the design rationale with the intention of generating exhilarating spatial experiences.

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CHAPTER 1

INTRODUCTION





INTRODUCTION:



The thesis focuses on creating an exhilarating childhood experience within the urban landscape of Bloemfontein. Kingspark Zoo is proposed for redevelopment with the provision of space for children as main outcome. A Montessori Preschool and Daycare centre is proposed in order to claim an institutional space that will be maintained and operational in the long term in order to secure territory for children within the urban environment. The aim is to reconcile the childhood experience through designing an architectural space that resonates with the child's desire or adventure.



Fig 1.1: deteriorated playgrounds in Kingspark Zoo (photograph, 2014).

CLIENT:

The Bloemfontein Development Agency has maintained a reputation for executing projects with the aim of promoting urban environments into public-friendly and interactive spaces (JDA, 2014: online). The results of these projects have succeeded in attracting investment through rendering the inner city as a desirable environment for tenancy.BDA programmes which concerns the theme of the dissertation include:



Greenways:

This programme commences projects which aim to create more pedestrian friendly transport facilities. These facilities include safe sidewalks, green circulation routes, roads constructed for bicycles and pedestrians etc. The programme will take interest in the redevelopment scheme of Kingspark Bloemfontein Zoo as this enclosed green area holds multiple opportunities for pleasant outdoor circulation routes once the site becomes accessible to the public (BDA, 2014: online).

Priority area:

A focus on urban design elements such as streets, buildings and spaces of work and play aims to create sustainable human settlements. The Kingspark Zoo has been identified by the client as a priority area as it is located on a historical and naturally rich property and is surrounded by neighbourhoods but lacks design elements of a desirable suburbs. For this reason the BDA will have special interest in developing the proposed site so that the site can be more accessible and user-friendly, preserving and promoting Kingspark Zoo by means of perforating its solid barriers for public use and circulation (BDA, 2014: online).

PROPOSED SITE:



Fig 1.3: Satellite imgagery of Kingspark Bloemfontein Zoo visible within its urban surroundings (Google Earth, 2014: online).

It is quite clear that Kingspark Zoo together with Loch Logan Waterfront and Kingspark Rose Garden form a large green node within a highly urban environment. It currently reads as an urban 'ecotone' as it is situated between the residencies on the western periphery and the Central Business district towards the east. Despite its central location, the Kingspark Zoo is enclosed with high solid fencing which deprives and withholds surrounding communities of the privilege of experiencing a nearby natural landscape. In order to maintain essential historical traces, the client has selected the lion's den for conservation and argues that its mysterious quality will render a special sensory and bodily experience for children.



Fig 1.4-1.5: Photographs taken of existing Kingspark zoo enclosures (2014: photograph).



USER:

Fig 1.6: The South African Montessori Association's logo (SAMA, 2014: online).


Fig 1.6


Fig 1.7


Fig 1.8.

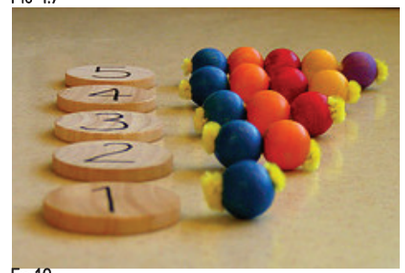


Fig 1.9.


Fig. 1.10


Fig 1.11

Fig 1.6: Montessorri sensorial play equipment (Flicker Hive Mind, n.d.: online).
Fig 1.7: Outdoor learning principles (SAMA, 2014: online).
Fig 1.8: Montessorri classroom interaction (The Montessori Method, n.d.: online).
Fig 1.9. Montessorri sensorial play equipment (Flicker Hive Mind, n.d.: online).
Fig 1.10. Child engaging with Montessorri curriculum (Flicker Hive Mind, n.d.: online).
Fig 1.11. Montessori classroom arrangement (Chitwood, 2011: online).

The South African Montessori Association is a non-profit organization devoted to the educational methods founded by Maria Montessori. Their aim is to unite educators in service of the Montessori method and to provide the necessary services and facilities for the curriculum. They are also available to answer inquiries from the public regarding the Montessori method. This international educational system requires updates regarding teaching methods which SAMA receives and communicates to practicing schools.

SAMA will be considered as a user for the dissertation as a Montessori school is proposed for the design and therefore has to comply with their requirements (Samontessori, 2013: online).

CHAPTER 2

PROPOSED PROJECT PARAMETERS


CORN FLAKES
Kellogg's
CORN
FLAKES

INTRODUCTION:

This chapter emphasises the different challenges and requirements that will guide the design towards a holistic solution. Requirements regarding the client, brief, site and user will be discussed so that a conclusion can serve as part of the design rationale.

CLIENT:



UNIVERSITAS

PARFITT AVENUE



Fig 2.1: View from Parfitt avenue of western boundary of Kingspark zoo (Google Earth, 2014: online).

The client has identified the problematic phenomenon of disintegrating residencies within the urban landscape and intends to promote the proposed area. An understanding of the current problem can be gained by means of analysing the existing condition of the site within the urban framework of Bloemfontein.

Kingspark Zoo

David Simon (1989: 191-203) observes the dynamics of current South African cities by referring the existing layout as the result of apartheid planning principles. According to his writings the apartheid city model was designed so that any form of urban growth would take place in an outward direction maintaining further racial separation. Not only was the separation movement focused on the racial society, but also on making a sharp distinction between the workplace and residential areas (Simon, 1989: 191). It is this continuous outward capital growth of the Central Business District surged by the foundations of the apartheid city model which causes problems for the post-apartheid society.

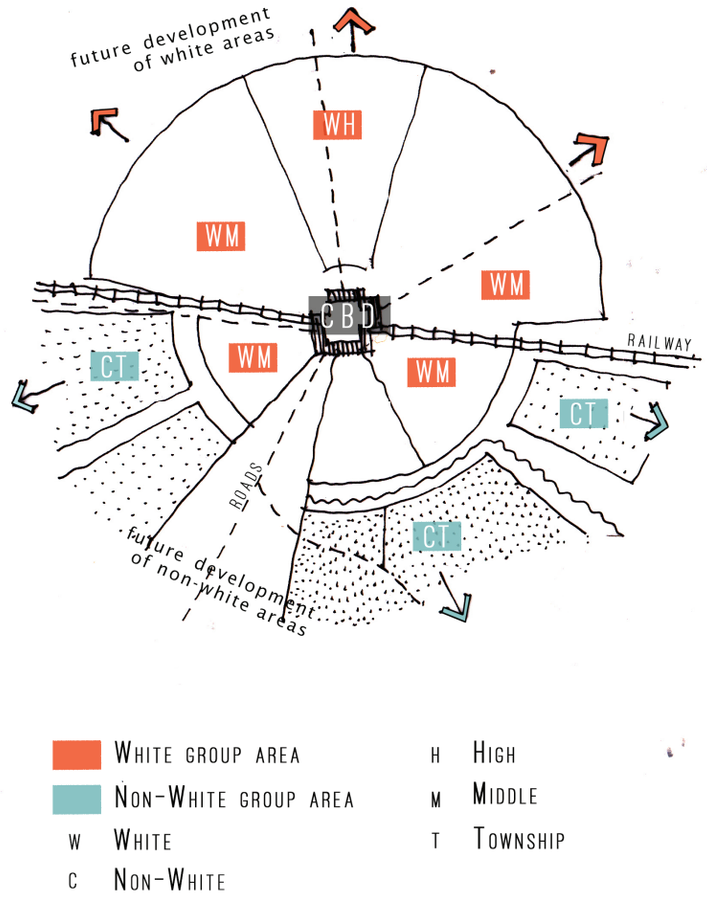


FIG 2.2: APARTHEID CITY MODEL INDICATING THE RAILWAY AS BARRIER BETWEEN WHITE AND NON-WHITE AREAS WITH RADIAL DEVELOPMENT PRESERVING FURTHER SEPERATION.

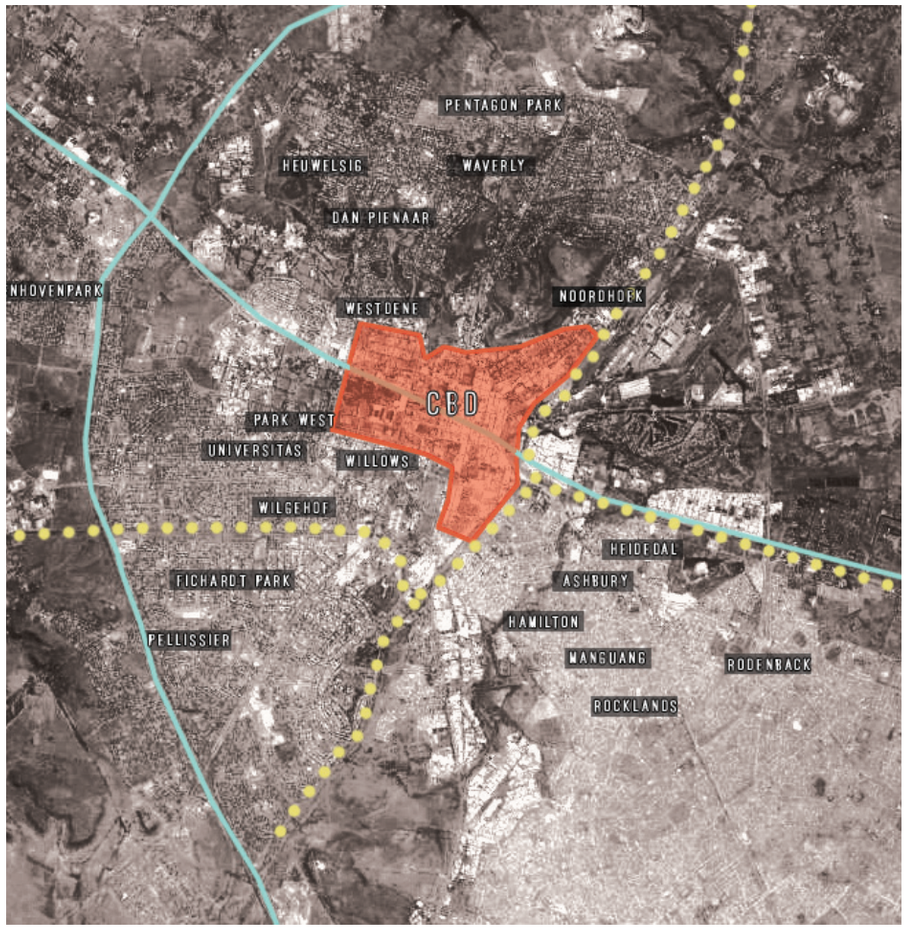


FIG 2.3: THE CITY OF BLOEMFONTEIN ANALYZED ACCORDING TO UNWIN'S APARTHEID CITY MODEL (UNWIN, 1989:191).

WH CBD BOUNDARY
WM ROADS
T RAILWAY TRACKS

The yellow dots and blue lines indicate the railway tracks and main roads that function as a solid barrier between certian residential areas. The Central Business District (CBD) is placed north of the railway track which indicates that is is originally layed out for the convenience of white neighbourhoods. Heuwelsig, Dan Pienaar, Noordhoek, Waverly and Pentagon Park can be considered as white high class areas where Park West, Universitas, Wilgehof and Willows can be considered as white middle class areas. The townships of Heidedal, Ashbury, Hamilton, Manguang etc. is clearly placed south of the railway tracks which indicates deliberate seperation intentions.

Fig 2.4 summarises the intentional placing of white and non-white neighbourhood areas. Industrial areas on the eastern periphery are also wedged between the white and non-white area which aggravates the seperation phenomenon.

The orange dots indicate the consumption of residential areas due to the radial development of the CBD.

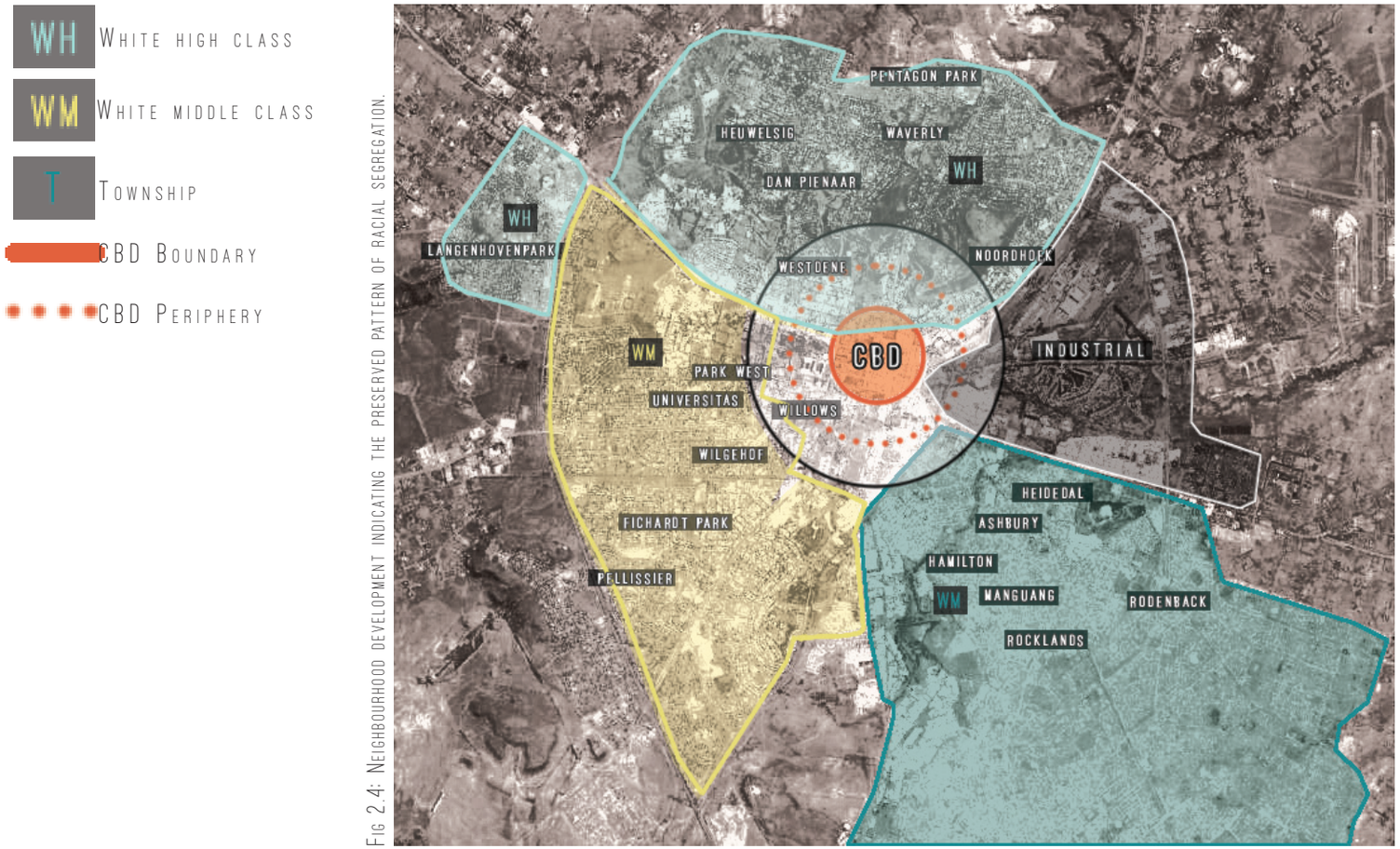


Fig 2.4: Neighbourhood development indicating the preserved pattern of racial segregation.

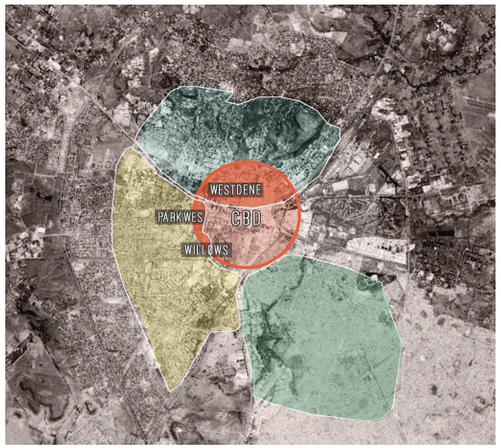








Fig 2.5: Renovated houses in Westdene for commercial purposes (photograph:

This type of growth has caused a shift in commercial facilities towards residential areas which has consumed pedestrian friendly peripheries of existing residencies over the past years. Communities have become introverted or have been relocated further away due to the disruption of the commercial landscape. Bloemfontein is by no means different as a sharp distinction between urban and residential can be observed from the current urban grain. Racial segregation is most evident due to the great distance between white communities located far west and non-white communities located east.





Fig 2.6: Kingspark Zoo playframe

Children are most victimized by the apartheid city model as pedestrian-friendly spaces used to serve as their mode of freedom, play and communication (Brandreth, 1998: 93; Moore, *et al.*, 1986: 15). A lack of safe, environment-friendly playscapes restricts the childhood experience to the indoors of homes and classrooms. Children are nowhere to be seen and are being neglected by the urban community as commercial developments are consuming the opportunity for outdoor play.

The client considers it priority to render children as part of the urban community and therefore aims to incorporate their needs as indispensable factor in the urban planning scheme. Due to this urban phenomenon, children tend to spend most of their time indoors, engaging with electronic devices which transfer them to a 'virtual reality'. A lack of social friction and bodily development with peers equips children with poor social and cognitive skills for the future (Subrahmanyam, *et al.*, 2000: 132). This tendency of the current 'information age' needs to be heeded by the community responsible for healthy child development.

BRIEF:



Fig 2.7: Zoo cages as perceived from open green spaces.



The thesis proposes mediation between children and the urban landscape by means of preserving the site in the form of a public low-scale, low-density development. In this proposal, the focus is placed on the design of an institute for children that will be accommodated within the proposed large-scale development.

Darryl Barnes (2014: personal communication), who is the current manager of the Kingspark Zoo confirms the public announcement for the zoo's future evacuation. The site has therefore been identified as priority area by the Johannesburg Development Agency for the purpose of conservation and public use.
The thesis focuses on preserving the site as a green 'oasis' in the form of a public park where public tenants can temporarily retire from the vibrations of a fast paced urban lifestyle. Low-scale public facilities are provided. A future development plan for Kingspark Zoo will therefore be proposed in chapter 6

A pre-school and day-care centre will be proposed as part of the large-scale framework in order to house a facility for children within an ideal natural landscape without isolating them completely from the city's inhabitants. The existing lion's den has been identified by the client for this purpose and is considered as an essential epitome to the site that needs to be maintained as historical reference. It therefore forms part of the architect's challenge to conserve the lion's den by means of superposing an alternative long-term function on the site.
The client requires specific catering for the South African Montessori Association. A detailed design of a Montessori school is presented as the main focus of the dissertation. It will house prescribed combined classrooms within a sensory stimulating environment. The design will comply with the standard facilities such as an art exhibition, outdoor & indoor play areas, staffroom, principal's office, parent consulting, separate adult and children's ablution, storage and a teachers' copy- and research room. The building will translate the fictional elements present in European Fairy Tales into an exhilarating spatial experience.



Fig 2.8:



Fig 2.9:



Fig 2.10:

Fig. 2.8: Child within a social and educational stimulating environment.

Fig. 2.9: Eastern panorama of the Lion's den in Kingspark Zoo.

Fig. 2.10: The existing retaining wall of the lion's den.

ACCOMMODATION LIST:

40–100 children
10–15 per classroom/supervisor

ADMINISTRATION:

	AREA M²	TOTAL AREA M²
M²		
Reception/foyer	120	120
Principal's office	36	36
Safe	18	18
Storage	18	18
Toy library	18	18
Research room	25	25
Porch	58	58
Staff room	75	75
Kitchenette	20	20
		388 **m²**

MULTIFUNCTIONAL HALL:

	AREA M²	TOTAL AREA
Open floor	220	220
Porch	50	50
Ventilation lobby	65	65
Kitchen	50	50
Pantry	7	7
Scullery	10	10
Walk-in fridge	8	8
Storage	64	64
Toilets	56	56
		530 **m²**

3,25m² per child interior, 7m² per child exterior
8–15 children per class

CLASSROOM 1-3 YRS:

	AREA M²	TOTAL AREA M²
Floor area	95x3	285
Art display	67	67
Classroom kitchen	8,5x3	25,5
Classroom toilet	6,5x3	19,5
Adult toilets	22	22
Storage	26,5x3	79,5
Cleaning storage	12,5	12,5
Refuse	8	8
Outdoor playground	300	300
Covered playground	265	265
Porch	40	40
		1124 m²

CLASSROOMS 4-6 YRS:

	AREA M²	TOTAL AREAM²
Floor area	95x3	285
Classroom kitchen	10x3	30
Classroom toilet	3,5x3	10,5
Children's toilets	65	65
Storage	25x3	75
Cleaning storage	12	12
Circulation	250	250
Storage	64	64
Outdoor playground	400	400
Porch	70	40
Covered playground	300	300
		1261,5 m²

40–100 children
10–15 per classroom/supervisor

LIBRARY:

	AREA M²	TOTAL AREA M²
Open reading area	150	150
Outdoor communal space	180	180
Kitchenette	8,5	8,5
Toilet	8,5	8,5
Sensory play areas	36x3	108
Reading alcoves	15x3	45
Storage	20	20
Computer area	100	100
Circulation volume	130	130
		660 m²

	AREA M²	TOTAL AREA M²
Administration		388
Multifunctional hall		530
Classroom 1–3 yrs		1124
Classroom 4–6 yrs		1262
Library		660
TOTAL FLOOR AREA		**3964 m²**

SITE:

Kingspark is a historical park scheme that currently functions as a barrier between the western residential and the eastern commercial facilities. Adjacent to the eastern edge of Kingspark lies the Loch Logan Waterfront which houses Bloemfontein's largest shopping mall.

Several residencies such as Universitas, Willows, Brandwag and Langenhoven Park extend towards east. This urban edge effect between the residential and commercial areas also currently serves as the only outdoor recreational experience within the city of Bloemfontein.



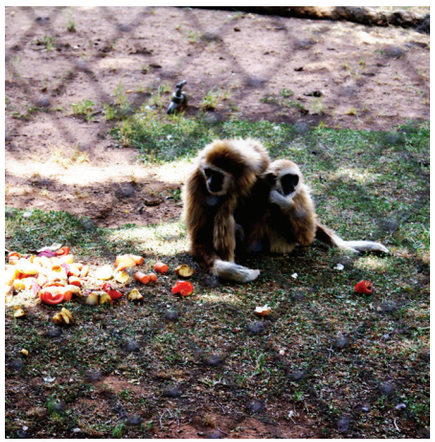


Fig 2.11:



Fig 2.12:



Fig 2.13:

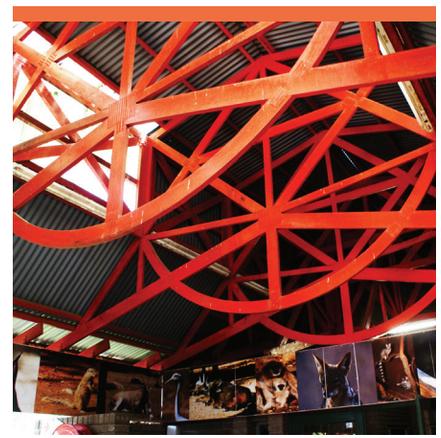


Fig 2.14:



Fig 2.17:



Fig 2.15:



Fig 2.16:

Fig. 2.11: Primates on site..

Fig. 2.12: Existing cage structures.

Fig. 2.13: Circulation paved along enclosures.

Fig. 2.14: Roof structure of the zoo's reception.

Fig. 2.15: White Rhinoceros in mud puddle.

Fig. 2.16: Goose at the pond on site.

Fig. 2.17: Large game enclosure with northern urban backdrop.

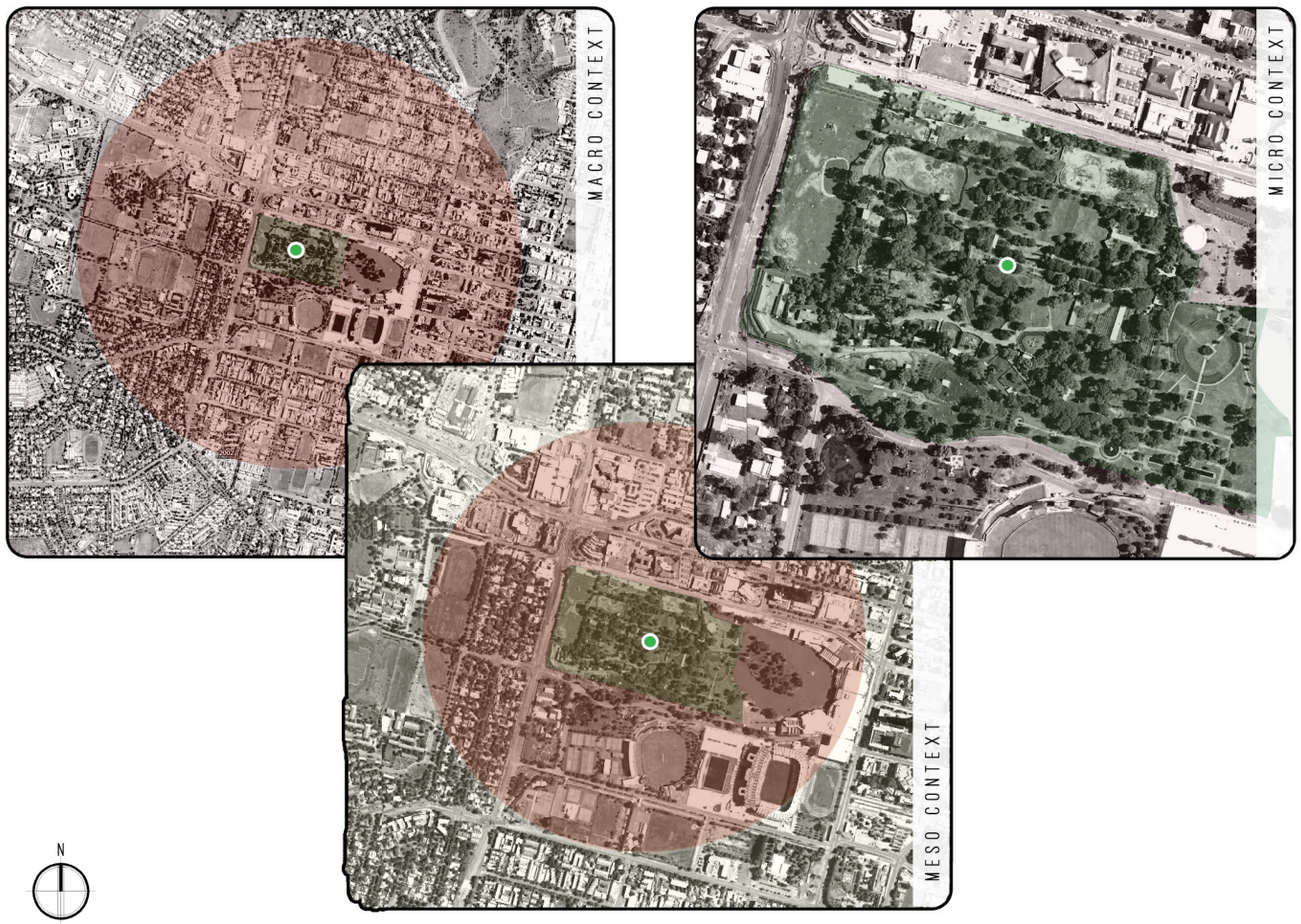


Fig 218: Satellite images of site on different scales (Google Earth, 2014: online).

Considering the location of the site renders the possibility for both the residential and commercial tenants to engage with the site. Kingspark in reference to a historical park scheme (Schoeman, 1987: 182) with its dense vegetation and natural resources should be preserved as an indispensable cultural, recreational and environmental oasis. This urban 'ecotone' also justifies and motivates the location for a preschool and daycare centre where parents employed in the CBD can drop their children on their way to work in a supervised and stimulating environment. Challenges connected to the site need to be considered cautiously in order to execute the brief successfully.

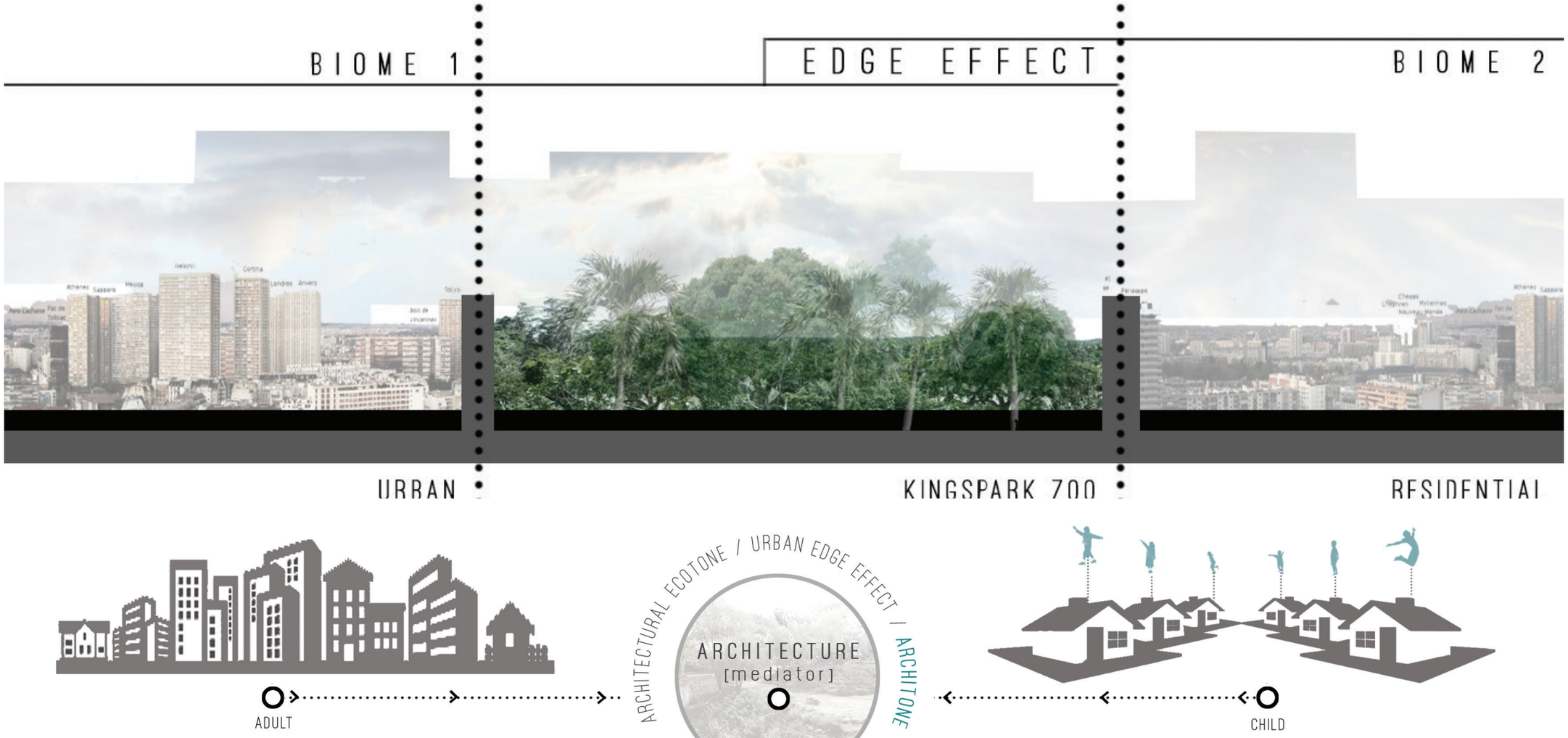
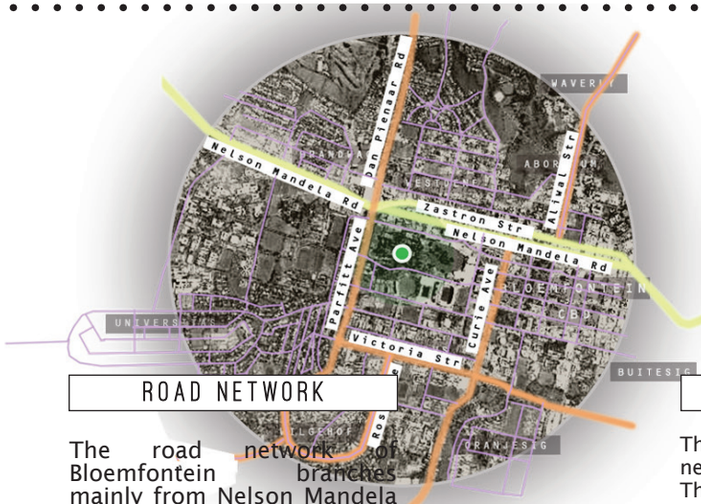


Fig 2.19: Diagram illustrating the site as living organism and how it can serve as a design outcome.



ROAD NETWORK

The road network of Bloemfontein branches mainly from Nelson Mandela Rd. The proposed site is located in the center of Bloemfontein's road network, which makes the site very accesible.



NEIGHBOURHOODS

The map incidcates the different neighbourhoods and suburbs. The proposed site is located on the buffer of the CBD and suburbs due to the outwards radial development derived from an apartheid city model. The location of Kingspark Zoo is approachable to most suburbs.



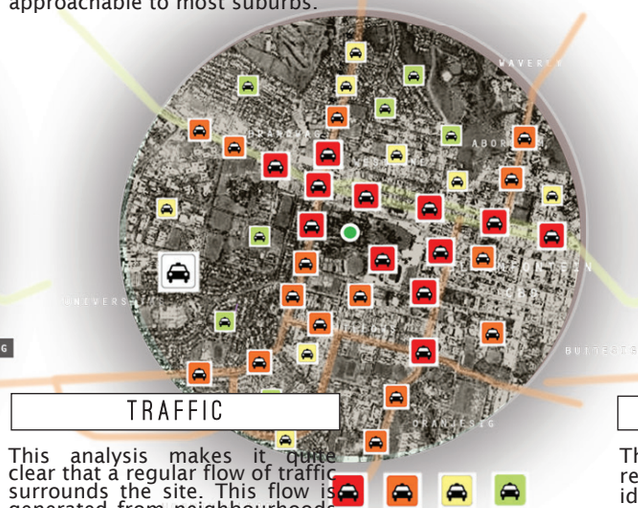
OPEN GREEN AREAS

Bloemfontein's open sites within the city are limited to school and public sport fields. The proposed site is a large open green site within a dense commercial environment which adds appeal to its location.



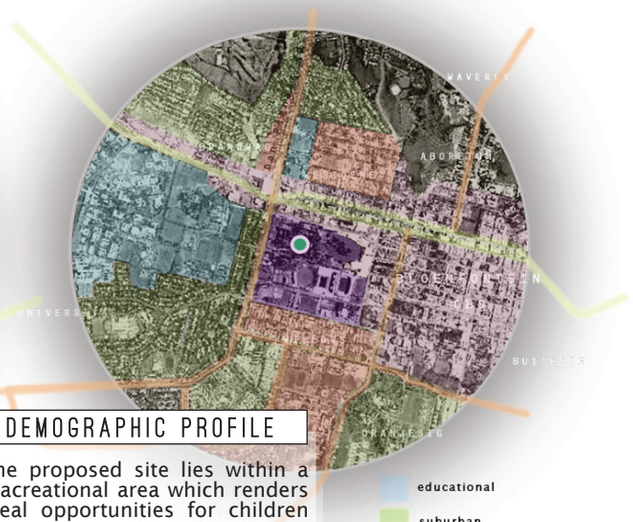
SERVICES

Due to the proposed site's location on the buffer zone between the CBD and suburbs, a wide variety of services are available. These services indicate a high imployment density which renders the site as an appealing option for working parents to have their children nearby.



TRAFFIC

This analysis makes it quite clear that a regular flow of traffic surrounds the site. This flow is generated from neighbourhoods towards commercial areas. Working parents therefore most likely passes Kingspark Zoo before reaching their daily destination.



DEMOGRAPHIC PROFILE

The proposed site lies within a reacreational area which renders ideal opportunities for children to engage in physical activities. This analysis also supports the location of a school as it is situated between the suburban and commercial areas.



Fig 2.20: Parking entrance of Loch Logan Shopping Mall via Henry Street.



Fig 2.21: Rubble present at the parking of Protea Hotel.



Fig 2.22: Old Mutual Headquarters on Henry Street.



Fig 2.23: Pedestrian bridge at mall parking leading to Kingspark.



Fig 2.24: Large scale housing visible from Kingspark Rose Garden.



Fig 2.25: Braai Lapas at the Loch Logan lake.

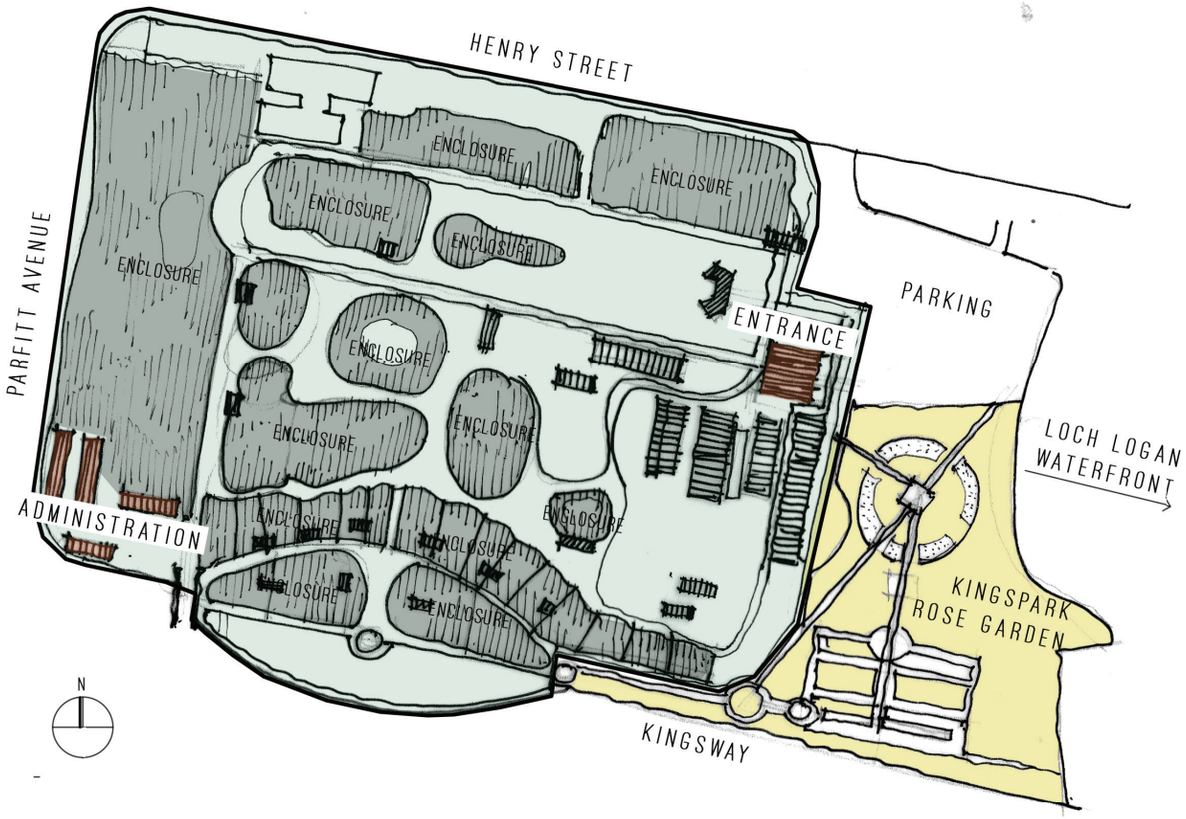


Fig 2.26: Layout of Kingspark Zoo and rosegardens.

The current layout of the zoo lacks strategic and hierarchical principles. According to Barnes (2014: personal communication) the structures and enclosures present on site are not laid out or constructed according to formal architectural plans. This caused the zoo to develop in an organic manner with minimal reference to holistic planning initiatives. Applicable historical references need to be identified so that an underlying existing hierarchy may navigate the process of laying out a masterplan for the site. Observations regarding the site analysis must be pinned down in order to determine influences present on the site. This should guide the design process towards a holistic solution.

The solid barrier that currently disguises the natural vibrancy of the site needs to perforate in such a manner that the public will be regulated to the site without disrupting the safety of the proposed school. Historical monuments such as the Canadian obelisk should be made available for public viewing.

The lion's den consists of dramatic dimensions that have to be safeguarded for children through sophisticated design. This den will not be operational after the evacuation of the Zoo (Barnes, 2014: personal communication). The existing masonry foundation wall of the den represents the craftsmanship of builders from a preceding century. It therefore needs to be considered as an essential and fragile element during the design process.



Fig. 2.28: CURRENT PEDESTRIAN EXPERIENCE OF KINGSPARK ZOO.

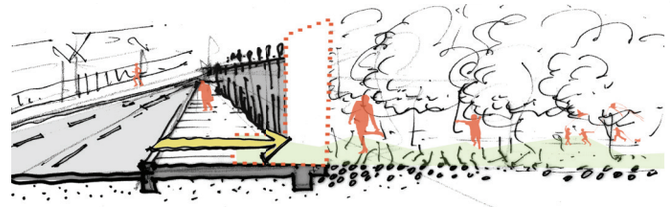


Fig. 2.29: PROPOSED PERFORATION OF BARRIER FOR PUBLIC ACCESS

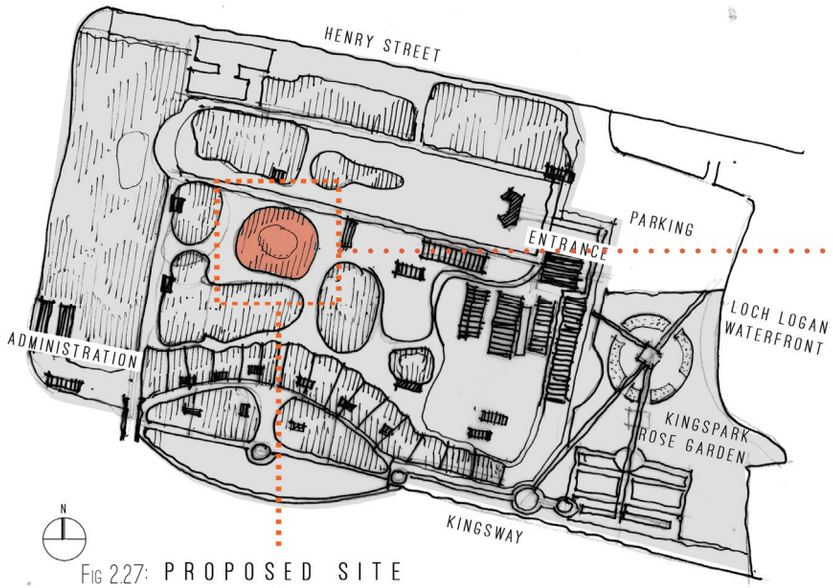


Fig 2.27: PROPOSED SITE

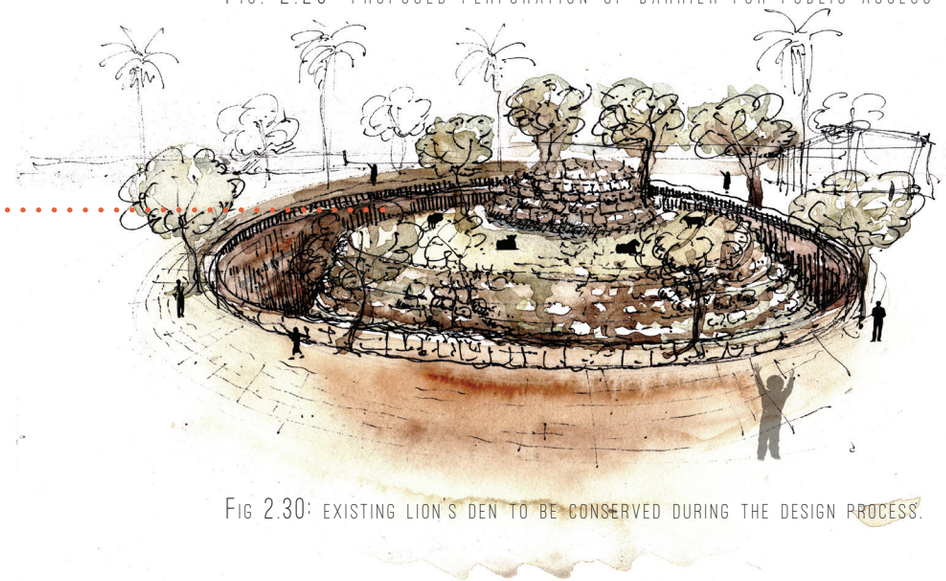


Fig 2.30: EXISTING LION'S DEN TO BE CONSERVED DURING THE DESIGN PROCESS.



Photographic study

Fig. 2.31: Series of photographs depicting the character of the lion's den.



Karsten (2005 cited in Beneker, *et al.*, 2010: 130) recognizes the disappearance of children playing freely in public spaces and that children only appear in the urban landscape under the strict supervision of adults. This can be seen in malls and plazas where children can spend their time in game centres, movies and jungle gyms in restaurants. This trip to the city currently provide for children's "physical, sociological and psycological needs" that used to be satisfied by playing in outdoor public spaces (Spencer and Wooley, 2000 cited in Beneker, *et al.*, 2010: 130). Limited childhood opportunities has caused a shift towards romanticizing the countryside as the desired landscape for cultivating childhood experiences (Beneker, *et al.*, 2010: 131). Cele (2006 cited in Beneker, *et al.*, 2010: 131) contradicts this statement by presenting further research which supports parents' approval of the urban landscape as a desired setting for children. It is therefore important to determine the current circumstances of the urban landscape and how children's needs can be met within the city.

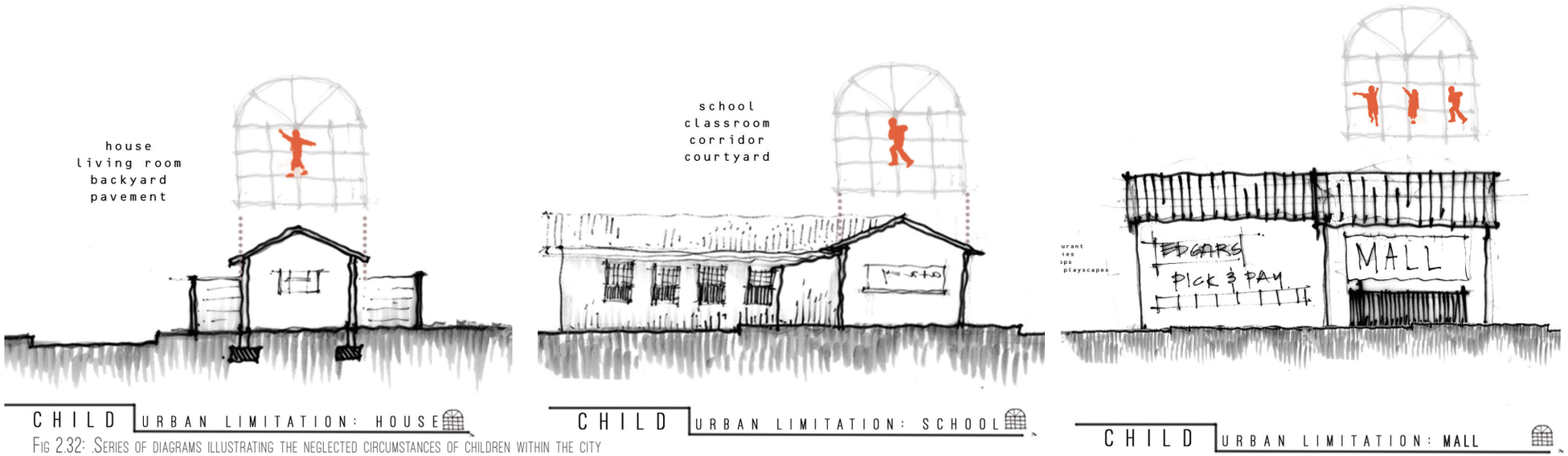


Fig 2.32: .Series of diagrams illustrating the neglected circumstances of children within the city

If children are nowhere to be seen in the urban landscape, it indicates that they are currently hidden in the backyard or the indoors of their parents' homes. Once there is a lack of safe communal spaces for outdoor play, children's imagination will be left unsatisfied. Children are therefore spending most of their time in a virtual landscape by means of engaging with technological equipment. This serves as an alternative for the physical landscape which influences healthy physical, emotional and cognitive development (Subrahmanyam, et al., 2000: 130). This is important especially for children in preschool phase, as their communication skills and self -esteem start to develop from age three to six (Edmondson, 1963: 37). Samer Akkach (2009: 18) emphasises the nature of virtual landscape as "duplicating the real by means of technology". This is true for the current adolescent culture as children are restricted from the outdoor urban landscape which causes an escapism to a **virtual 'utopia'.** The cosmology of a virtual 'utopia' is unrestricted and requires minimal bodily engagement.

Akkach (2009: online) describes this experience as "though they are floating in a place unbounded by geographic proximity and free from all physical limitations". This creates an exhilarating and extraterrestrial experience for children which substitute the necessary physical and social interaction. It is therefore the responsibility of the adult society to create an alternative 'utopia' where children can claim the space with their bodies and expand their inner landscapes into the space.

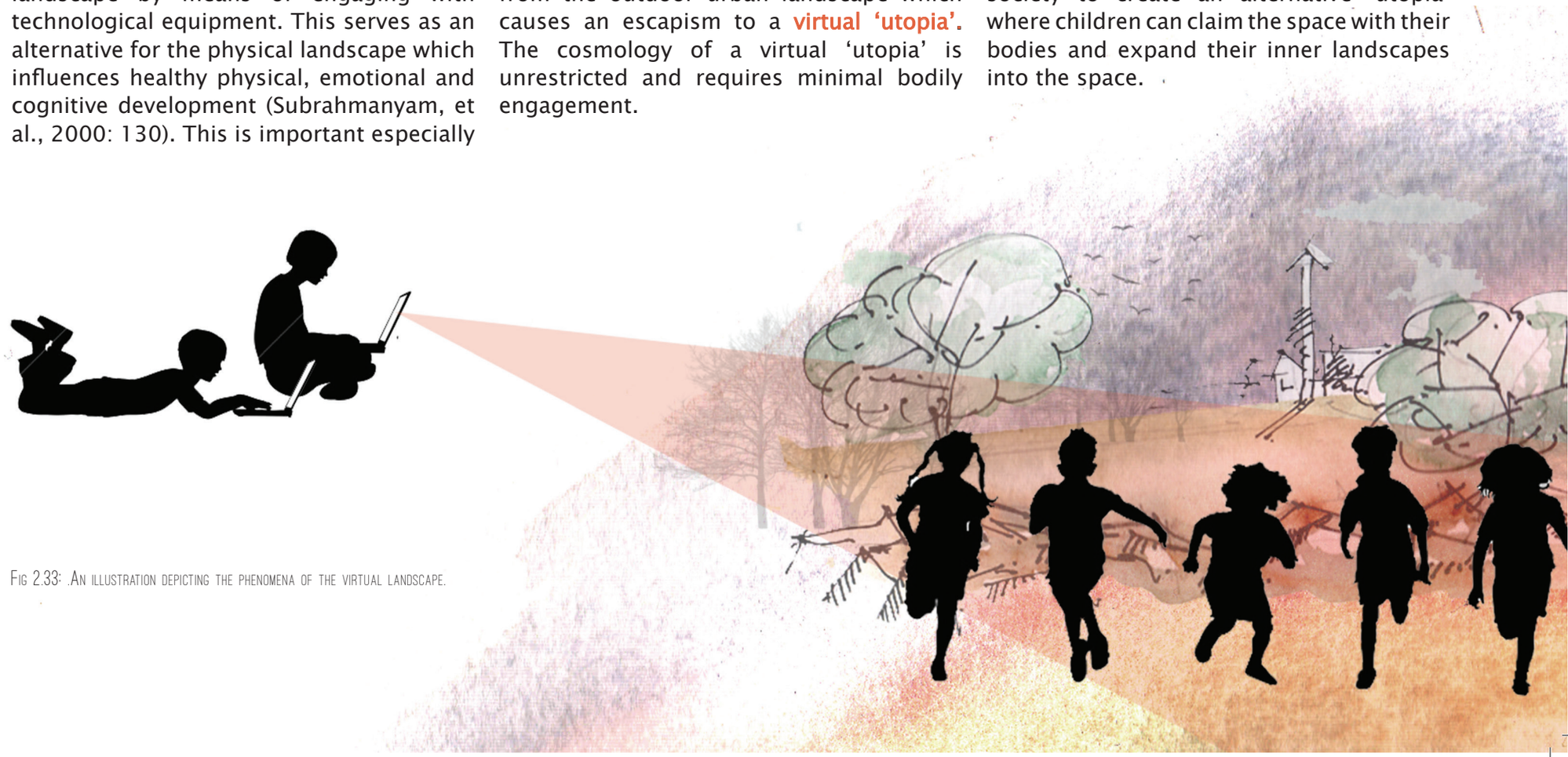


Fig 2.33: .An illustration depicting the phenomena of the virtual landscape.

In catering for children in the urban landscape, Sandra Melville (1978: 71–74) emphasises the importance of providing a sense of ownership for children by means of giving them a territory where they are encouraged to play spontaneously. Melville (1978: 71) also illustrates a child's ability to inhabit leftover spaces and transform it into dramatic playscapes.

Aldo van Eyck understood this principle in designing the first playgrounds during the 1940's (Merijnoudenampsen, 2013: online). In designing playgrounds, Van Eyck was the first to oppose the principle, 'tabula rasa' generated from the modernist movement of the time. He reconstructed neglected open spaces into playscapes rather than designing completely new ones. This allowed children to interact with the surrounding environment and claim a space within the urban landscape.



Fig 2.34



Fig 2.35

"Whatever space and time mean, place and occasion mean more. For space in the image of man is place, and time in the image of man is occasion"

(Van Eyck, 1959 cited in Merijnoudenampsen, 2013: online).

Van Eyck (1959, cited in Merijnoudenampsen, 2013: online) renders the importance of physical encounters within a designed landscape. It can therefore be concluded that the design needs to provide a supervised 'leftover' space for children by means of translating extraterrestrial elements of the virtual landscape into a physical landscape.

2.6. Conclusion:

The design parameters can be summarised as follow:

- Kingspark Zoo is to be conserved with a public function relating to its current natural condition;
- A safeguarded space in the form of a formal institute should be provided for children; and
- Translate the spatial elements of a virtual landscape into a physical landscape for children.



Fig 2.36

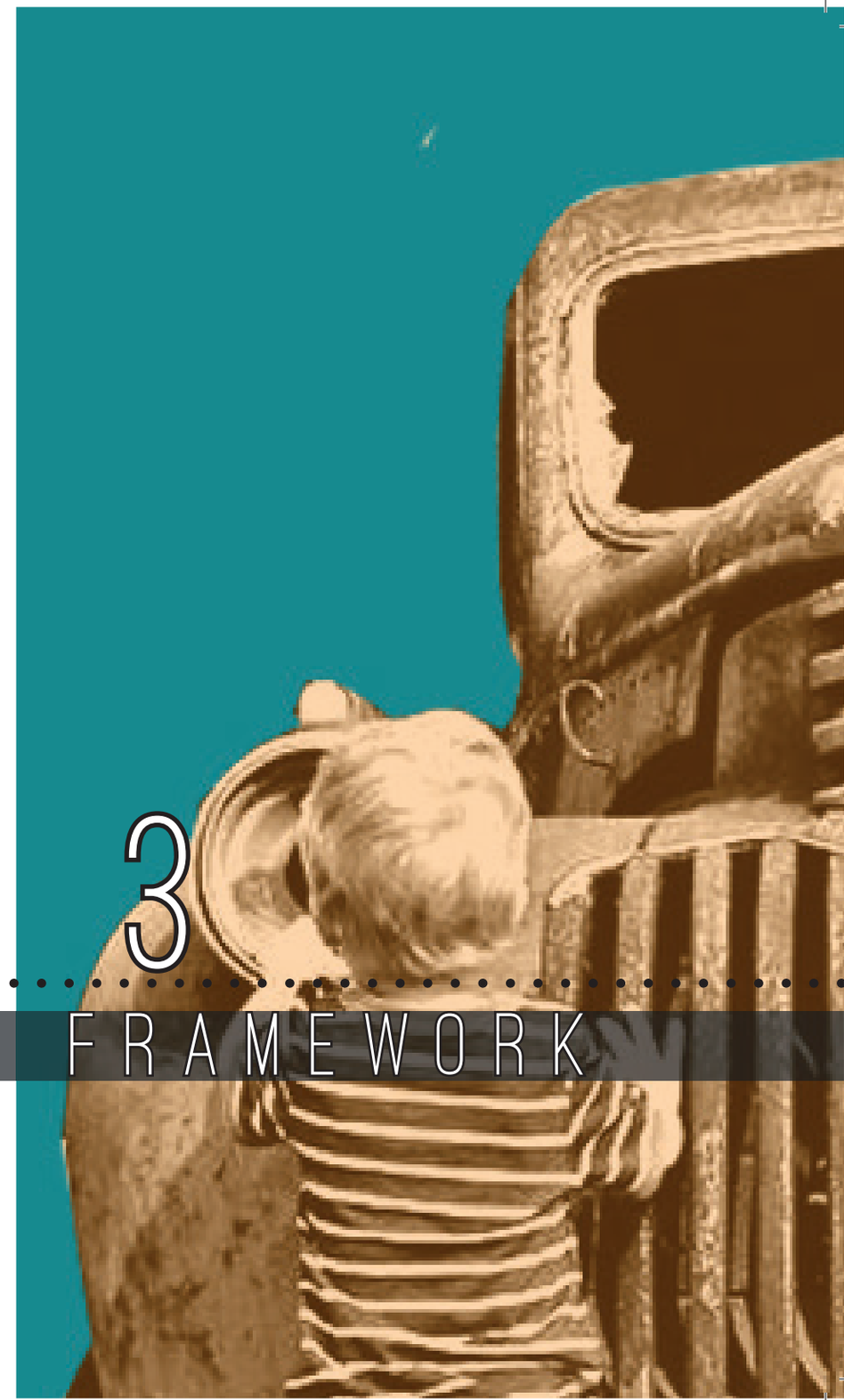


Fig 2.37

Fig 2.34: Dilapidated site in Amsterdam before renovation (Merijnoudenampsen, 2013: online).
Fig 2.35: The site in Fig 2.34 after renovation as done by Van Eyck (Merijnoudenampsen, 2013: online).
Fig 2.36: Dilapidated alley in Amsterdam before renovation (Johnson, 2013: online).
Fig 2.37: The site in Fig 2.36 transformed into a playground (Johnson, 2013: online).

CHAPTER 3

CONCEPTUAL FRAMEWORK





INTRODUCTION:

The project parameters and architectural brief requires theoretical consideration in order to generate an effective design. Putting these parameters into perspective guides the design towards a holistic solution and renders desirable architectural vehicles. In this chapter possible approaches towards the design will be presented that will guide further conceptual studies to be applied to the design. Placing the desired outcome beside the parameter will motivate and generate hypotheses for the design process.

CHALLENGE 1:

Kingspark Zoo is to be conserved with a public function relating to its current natural condition.

In order to achieve a public typology it is necessary to investigate the dynamics behind the idea of a public space. According to Herman Hertzberger (1991: 12) a public space is accessible to anyone at all times where its maintenance is the result of collaboration.

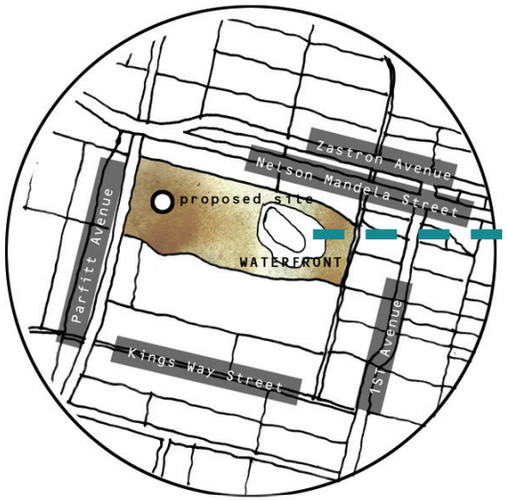
This leads to forming a hypothesis towards the management of the site on macro scale; that is, the increase of access points to the site in order to promote a sense of vibrancy, maintenance and appreciation of the site.

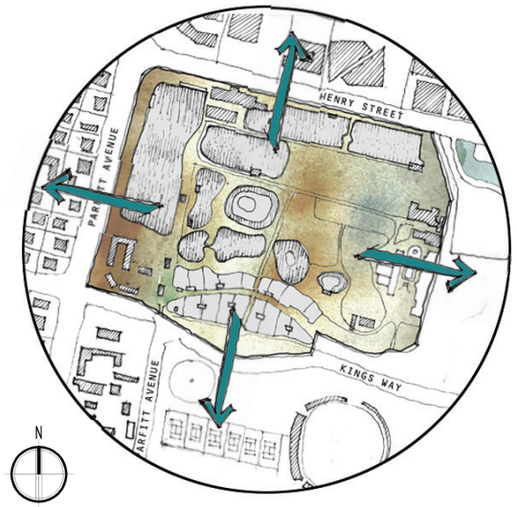
In reference to a natural solution, Ian L. McHarg (1964: 1-12) emphasizes the importance of a relationship between man and nature and how there is no such thing as a pure natural or manmade landscape. The article therefore praises the understanding man and nature as a living ecosystem. The author refers to a steady ecosystem as a balance between its consisting organisms.

This statement motivates the use of city parks as a natural 'organism' in relationship with its man-made surroundings. Harriet Jordan (1994: 85-86) defines the park's original function as "large public spaces operating as the 'lungs' within crowded cities or towns". Terrence Young (1995: 536-537) refers to the park as a means of intentionally connecting urban with tenants with a natural environment with the effect of eliminating urban misconducts.

HYPOTHESIS 1:

Layering the site with a public function in the form of an urban park should preserve its natural conditions and promote urban society.





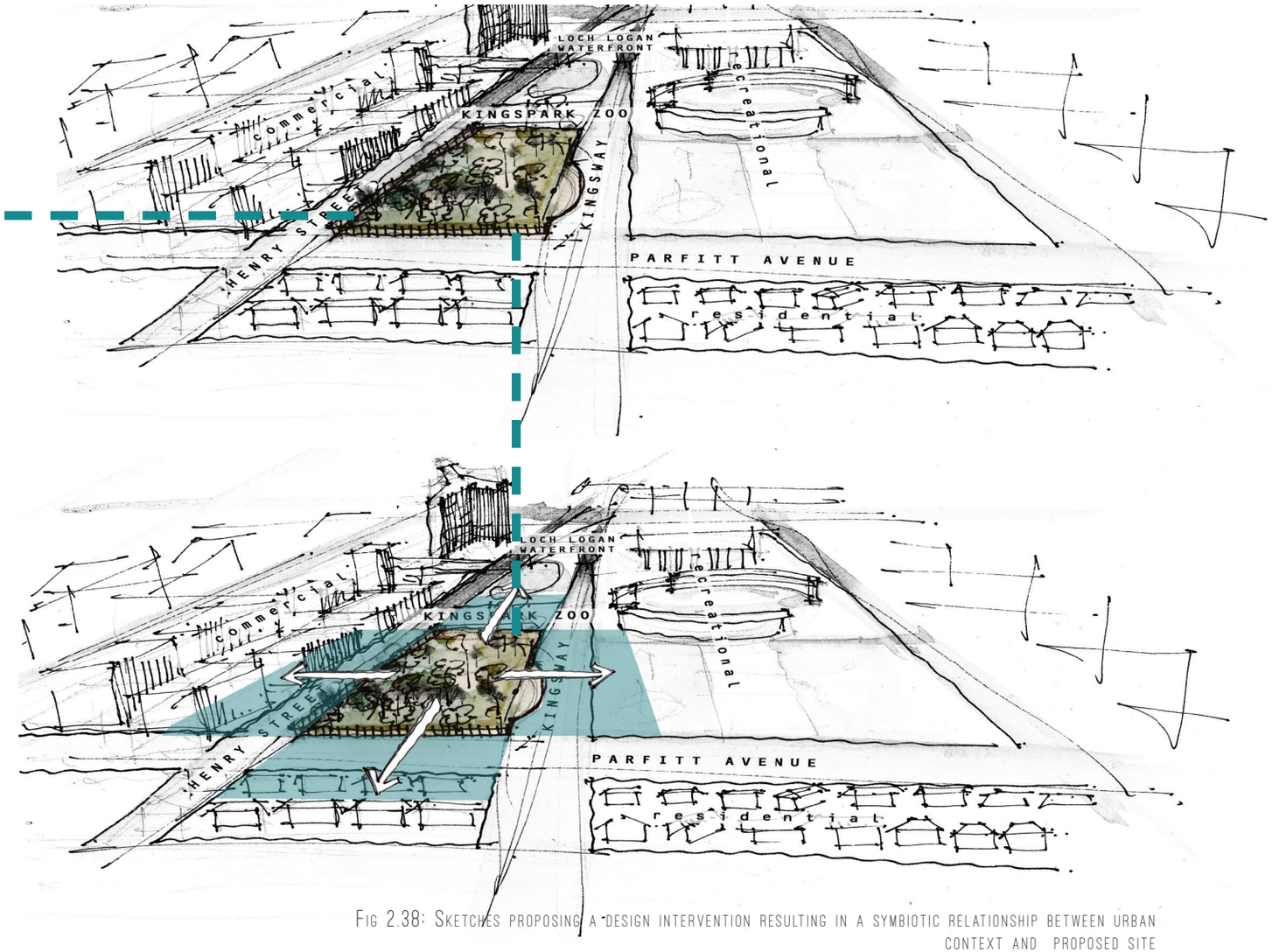


Fig 2.38: Sketches proposing a design intervention resulting in a symbiotic relationship between urban context and proposed site

CHALLENGE 2:

A safeguarded space in the form of a formal institute should be provided for children.

Melville(1978:71)arguesurbanplannersshouldcompensate for the safe space lost due to capitalist forces. Streetscapes used to serve as children's communal playground but has deteriorated over time due to safety concerns (Karsten & Van Vliet, 2006: 152). The design therefore proposes a space supervised and managed by adults with the intention that children can play spontaneously with minimal interruption of the urban environment. Melville (1978: online) further states that children's play experience is mainly influenced by the type of access they have to available play facilities. This refers to independence and freedom made possible in play experiences.

Therefore, play spaces and experiences should be safeguarded in such a way that children will experience minimal adult interference and restrictions.

The requirements of an enriching, independent play experience resonate with the curriculum of the Montessori Method. The Montessori vision considers the role of the adult primarily as observer, scientist and interpreter of the environment rather than a teacher in the conventional sense. This principle cultures independence and good self esteems amongst children.

HYPOTHESIS 2:

Designing according to the principles of the Montessori Method should provide children with independent play experiences.

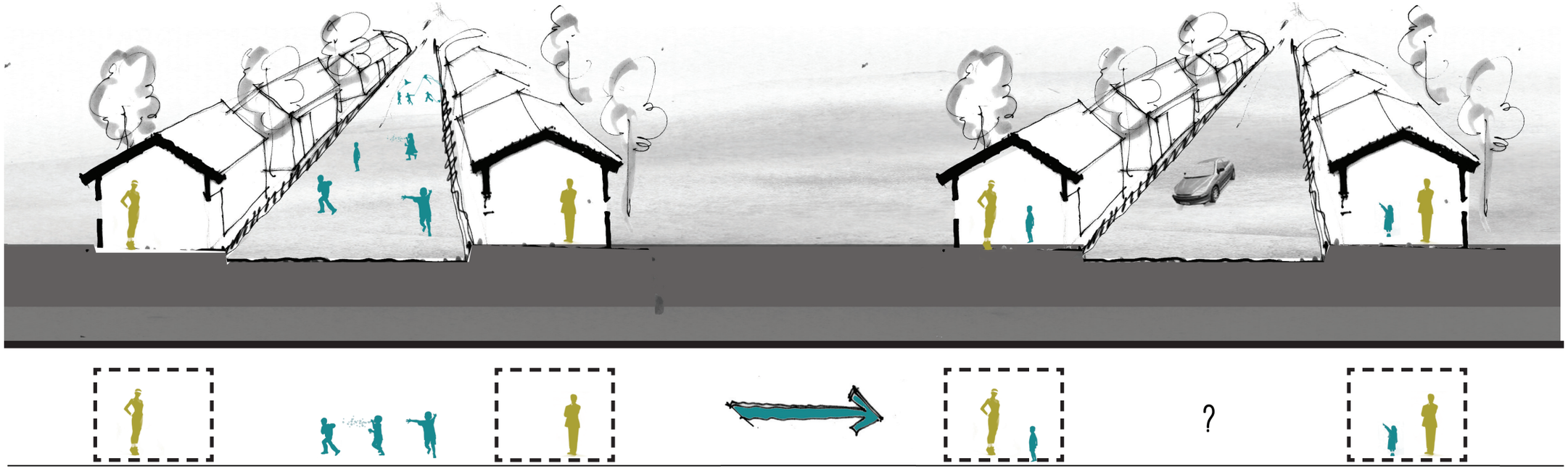


Fig 2.39: Diagram indicating the shift from the streetscape as playground towards indoor isolation under adult supervision.

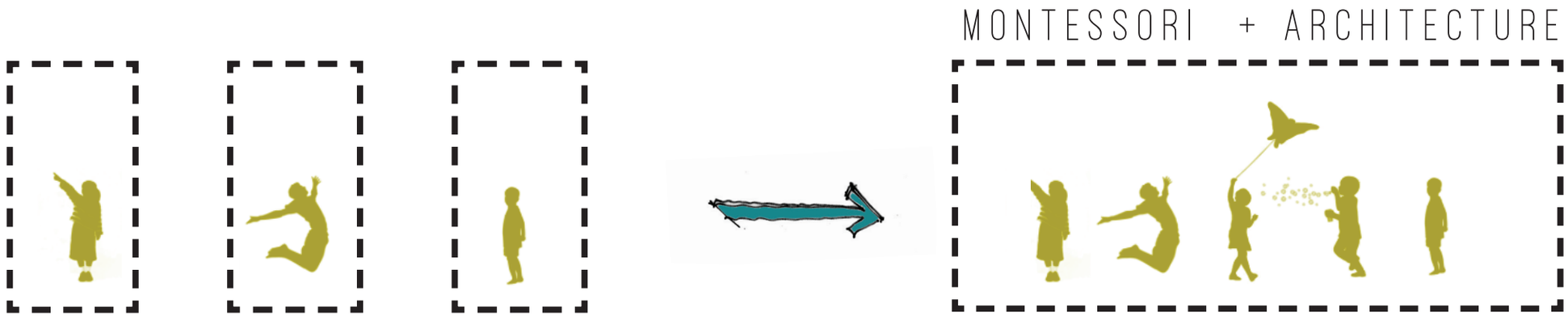


Fig 2.40Transferring neighourhood children to communal safeguarded space by means of design intervention

CHALLENGE 3:

Translate the archetypes of virtual landscapes that are responsible for an **exhilarating** experience into a **physical** landscape for children.

The purpose of the design involves liberation from the limiting circumstances of modern childhood by creating a bodily adventure by means of architecture. Architecture should therefore serve as mediating vehicle between the child's desire for virtual adventure and neglected physical experiences.

Melville states (1978: 71) that adventure is only experienced when a child confronts their sense of danger by independently engaging with physical obstacles and overcoming it with confidence and innovation. This leads to the observation that children should be given the opportunity to claim a space with independence where they can move the same way adults currently own the urban landscape. Providing children with a challenging landscape will not only stimulate their bodily senses, but also provoke a sense of escapism from the limiting urban landscape. The lion's den is therefore proposed for the school design as its great dimensions and mysterious aesthetics will create an uncanny experience, as a transition from the urban to a 'mystical' landscape will be experienced. The design should be considered as an adventure that requires research in narrative concepts.

For designing a narrative for children, the spatial elements present in European Fairy Tales will be investigated. Hansjörg Hohr (2013: 600-610) describes the positive long-term effect fairy tales have in children's memories. In contradiction to the virtual landscape experienced in cyberspace, fairy tales, which also takes place in imaginary landscapes, serve to equip children with moral values to be applied to their lived experiences (Hohr, 2013: 601). In other words, the virtual adventure created by fairy tales does not remove children from their limiting circumstances; it rather encourages them to embrace and improve their life by means of dynamic actions. This constructive nature of fairy tales will therefore be investigated in order to narrate a constructive adventurous experience.

HYPOTHESIS 3:

The existing lion's den combined with spatial elements present in European fairy tales translated into physical architecture will provide children with a physical adventure.



TRANSLATING IMAGINATION INTO REALITY

Fig 2.41: Rapunzel's tower (Inkgypsy, 2009: online).

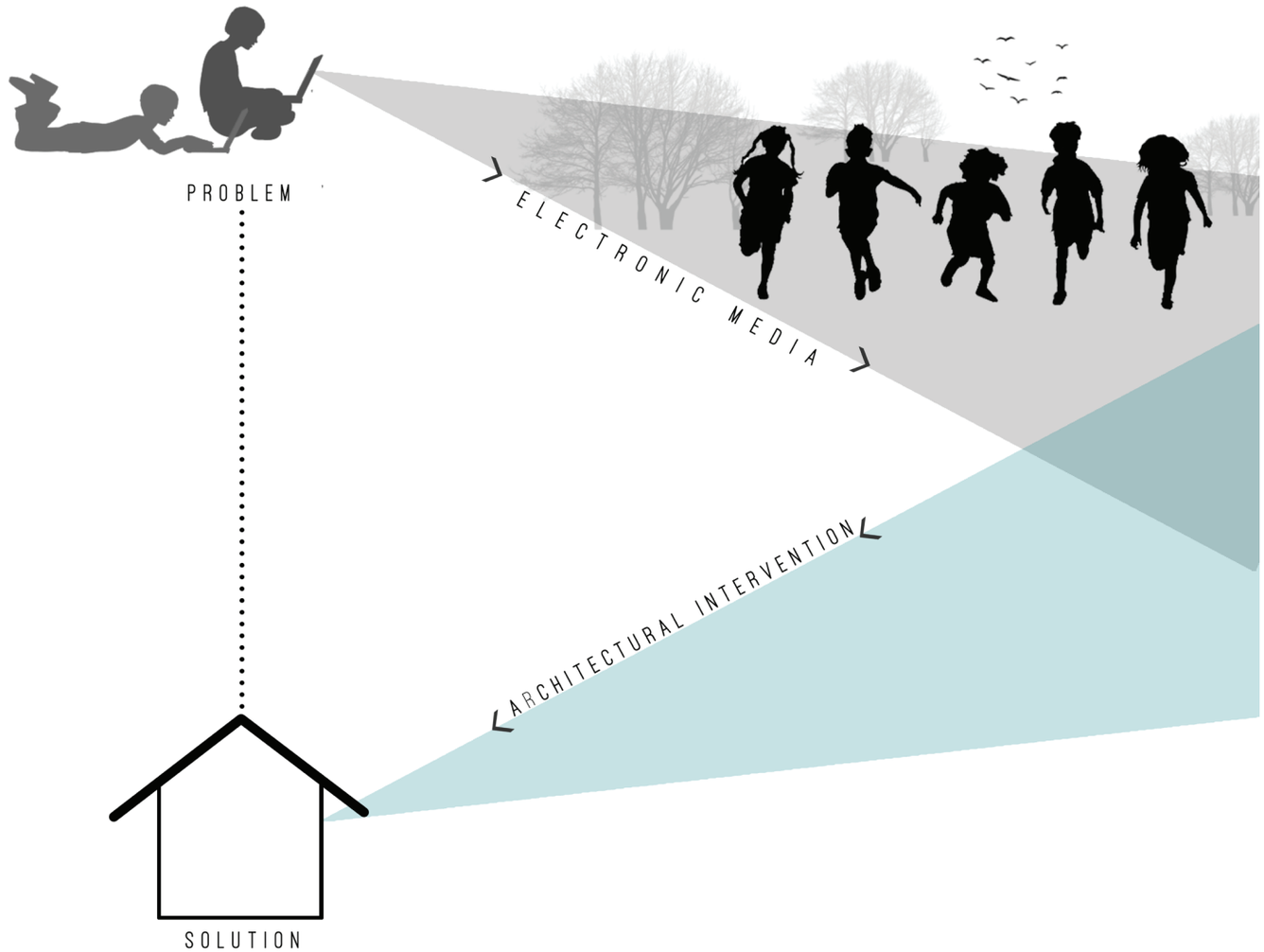
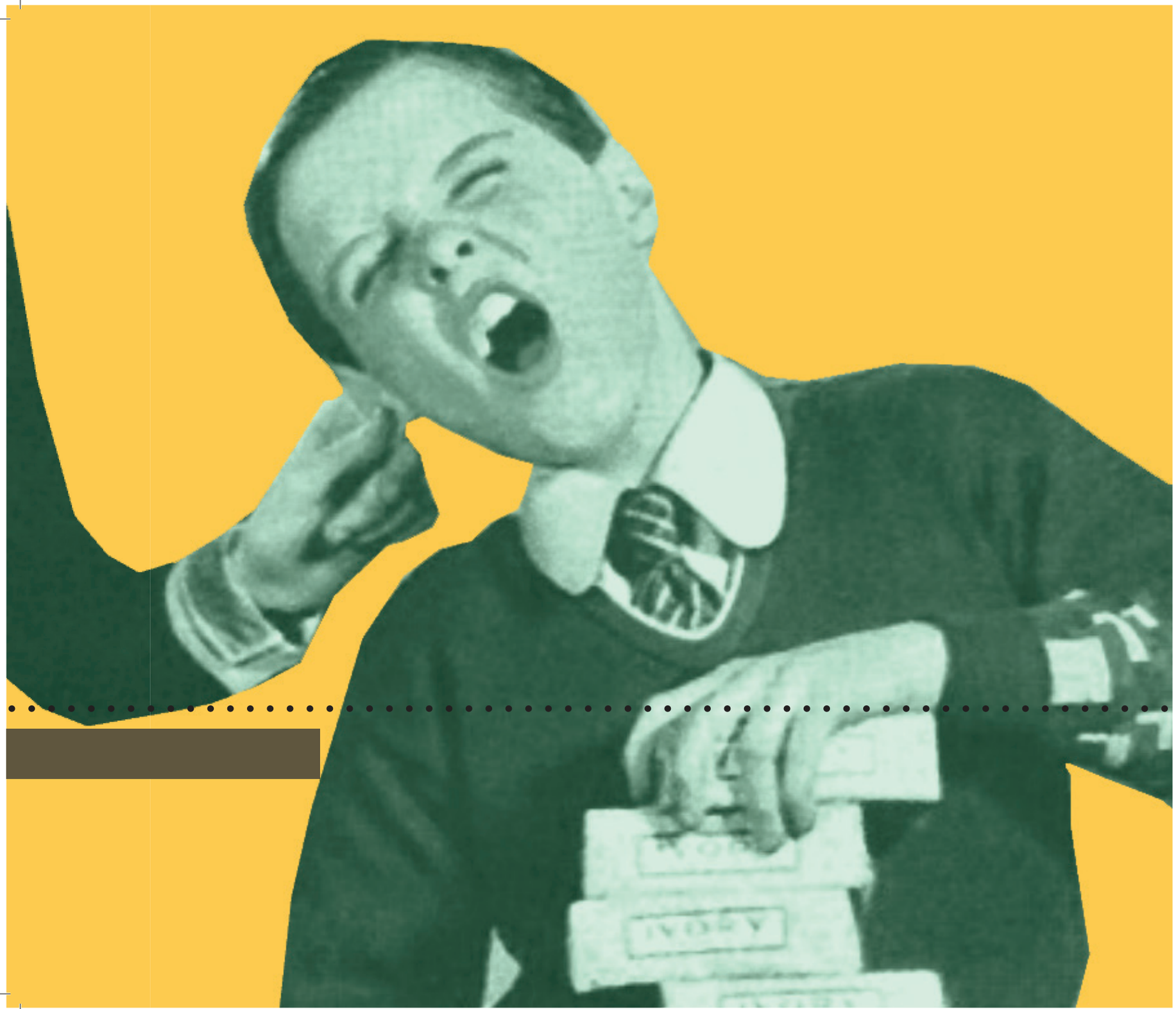


Fig 2.42: Diagram illustrating how architecture should reproduce characteristics of the virtual landscape.

CHAPTER 4

ARCHITECTURAL TOOLS





INTRODUCTION:

Different theoretical considerations are discussed in order to generate a applicable design rationale. Design challenges are analyzed and supported by further research in order to apply design strategies.

Literature review:

Anastasia Loukaitou-Sideris & Athanasios Sideris (2009: 101-102) stipulate modern principles in designing and improving urban parks. Although the a**rticle focuses on children's needs, their vision is holistic and renders family-friendly park settings. Elissa Rossenberg (1984: 89-90) emphasizes the display of natural infrastructures as an appealing aesthetic element. This article especially focuses on the display of the mechanics of water infrastucture which automatically adds a soothing aesthetic quality to the urban landscape. The design requirements according to these articles can be summarised as follow:**

- **Recreation facilities such as sport facilities should be made available and should have a maintained green appearance;**
- **Structured play events should be made available to children which requires the appointment of play supervisors;**
- **Programmes should be determined by the preferences of the surrounding community;**
- **The safety of girls is often an issue of urban parks and should therefore provide organized and supervised activities according to their needs;**
- **Park activities are often considered as 'dull' and therefore require facilities that will attract both children and adults;**
- **Activities that attract the engagement of families should be made available; and**
- **Several access points should be made available and executed in such a way that it is safe and visible at all times.**



Fig 3.1: Blaxland Riverside Park in Sydney australia: the park provides play opportunities for children and family (Sydneyfun, 2013: online)..



Fig 3.2:Zhongshan Shipyard Park in Zhongshan , China as designed by Turenscape Architects (Turenscape, 2007: online).

Literature review:

According to Standing's (1966 cited in Du Plessis, 2010: 24) documentation of the Montessori Method, the Montessori Method is mainly based on "the principle of freedom within a prepared environment". The system tries to organize and structure a sensory stimulating environment where learning is evident without having to learn through the limited knowledge of the supervisor.

Background:

Maria Montessori (1870-1952) developed the Montessori Method in her practice as a medical doctor combined with psychology, literature and a special interest in child development (Edmondson, 1963: 40; Beyer, 1962: 5). Montessori's findings on children states that their learning processes are integrated with their first-hand engagement with the environment and should therefore be stimulated in a holistic manner (Beyer, 1962: 5). Montessori focuses on providing learning materials that stimulate the child's senses on a physical, mental and emotional level. She especially focuses on children's inherent nature to take in information up to the age of three where learning materials are provided in the form of sensory-motivated activities. From three till the age of six a child's cognitive thinking starts to play a dominating role where his character, motivation, decision-making and concentration contribute to his self-esteem and engagement with peers. In the latter stage adults are responsible for encouraging independent thinking and learning among children in order to cultivate positive healthy mindsets among children (Edmondson, 1963: 41).



Fig 3.3: Young Maria montessor
(VS Vereinigte Spezialmöbelfabriken, 2014: online).



Fig 3.4: The pedagogue playing the role of supervisor during learning activities (Ontiveros, 2014: online).

The Montessori system can be characterized by the following aspects (South African Montessori Association, 2014: online):

- Classes consist of combined, non-graded age groups (1-3, 3-6, 6-9, 9-12, 12-15 and 15-18). The reason for this is that younger children can be stimulated by the older children and develop a sense of community and socialisation.
- Periods of a minimum of three hours are scheduled for uninterrupted play. During this period, the child may engage in an activity of his/her own choice.
- The child is not rewarded for his/her performance nor corrected or punished for misbehaviour.
- An organised environment is a crucial aspect for spontaneous learning:
- It encourages freedom of movement;
- It supports free choice of activity;
- Montessori materials are involved and are age specific.
- The adult's role in the child's learning process involves:
- A high consideration and respect for the child's individuality;
- An appropriate discretion for when to accompany the child or to merely supervise the child's activity;
- Considering the role of the adult primarily as observer, scientist and interpreter of the environment rather than a teacher in the conventional sense;
- Considering the adult as the mediator between the environment and the child rather than a conservative pedagogue;
- The adult should be able to manage and assist the development of the child on all levels; and
- All learning materials are exhibited in classroom spaces and are accessible to the children at all times. Only one set of playing equipment is made available so that a child is forced to engage with other materials as well and to learn how to wait patiently for his turn to play with specific equipment (Edmondson, 1963: online).







Fig 3.5: Independent play with Montessori Equipment (Larson, 2012: online).



Fig 3.6: Food preparation in the Montessori curriculum (Santan Learning Center, 2014: online).

Fig 3.7: Children dancing and interacting with each other as part of Montessori curriculum (VS Vereinigte Spezialmöbelfabriken, 2014: online).



Fig 3.8: Free play within a prepared environment (Olaf, 2012: online).

Architectural application:

This education method contributes to the current state of the urban landscape by means of providing both sensory and intellectual stimulation in the form of alternative learning experiences. It is a universal teaching method which is made available to all classes. Programmes such as ELF Montessori are currently training people in townships to teach this method to children in disadvantaged areas in order to establish independent thinking (Khan, 2013: online). This method is becoming more prominent in the educational field of South African communities. As the Montessori Method focuses on both physical and intellectual nourishment, the curriculum might be able to compensate for limited stimulating childhood experiences currently available in the urban landscape. The fact that the unique nature of a child is respected in this curriculum liberates the child from the unforgiving urban environment and restricted experiences of indoor residential spaces. Combining the Montessori Method with rich outdoor play opportunities, children will have access to a highly enriching and liberating childhood experience while growing up in the urban landscape of Bloemfontein.

In order to create a stimulating environment combined with the principles of the Montessori Method, it is important to investigate architectural elements that will generate a sensory experience. According to Pallasmaa (1996: 65) the body continuously engages with its surroundings. The bodily experience in space should be investigated and combined with the spatial criteria of the Montessori Method.

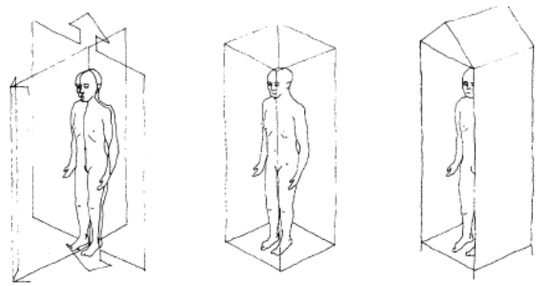


Fig 3.9

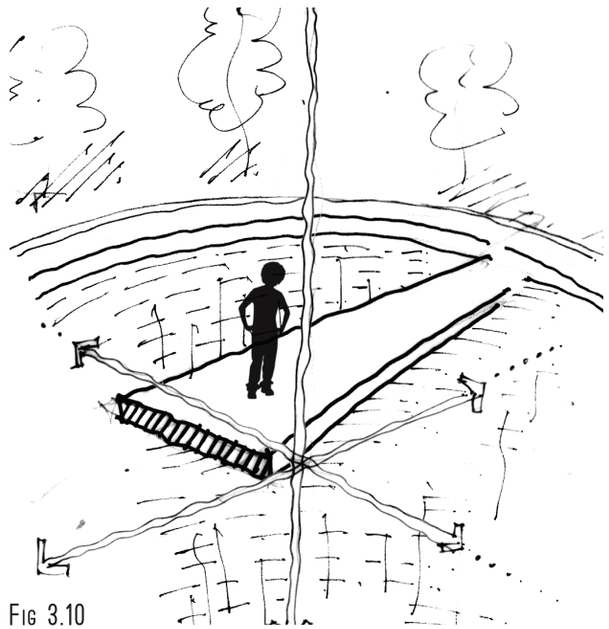


Fig 3.10

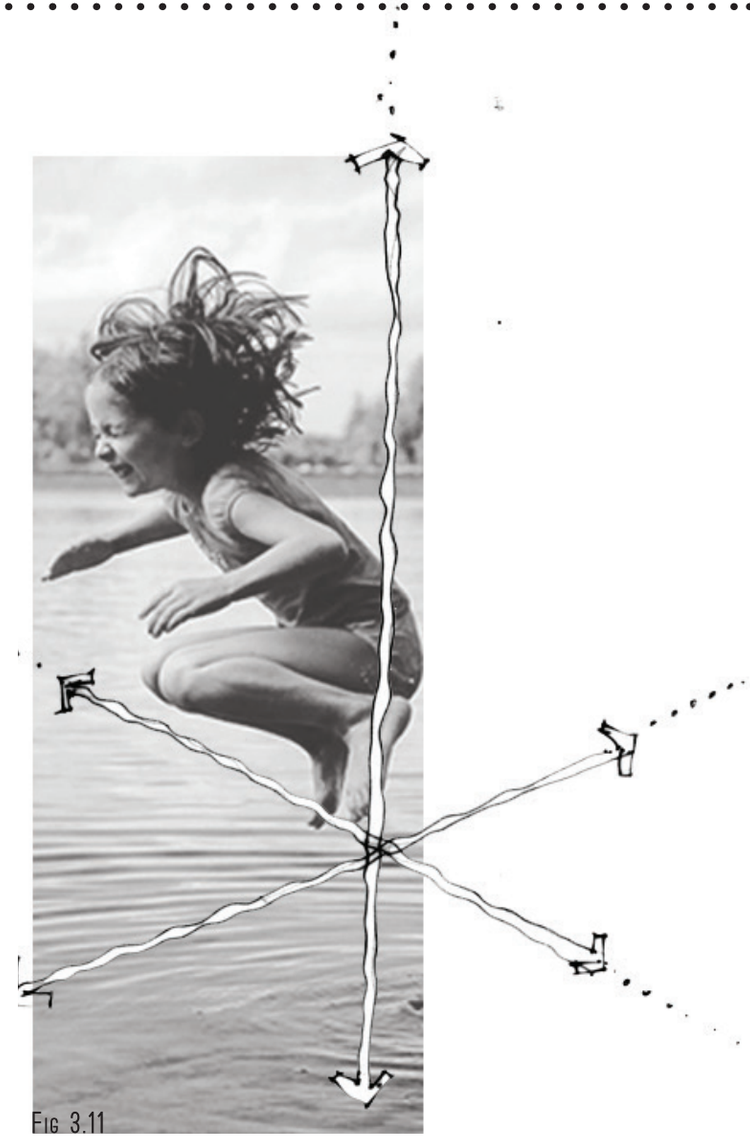


Fig 3.11

Fig 3.9: Simon Unwin's diagram of a 6-dimensional experienc 1997: 108).

Fig 3.10: The lion's den experienced in 6 dimensions

Fig 3.11: A demonstration of a 6-dimensional experience (Sister's Guild, 2013: online).

CHALLENGE 2: PRECEDENT STUDY FOR MONTESSORI DESIGN PRINCIPLES

Delft Montessori School:
Herman Hertzberger
Delft, Amsterdam
1960

The principle of this building was influenced by "territorial differentiation" (Genyevna, 2013: online). Classrooms are organized around a large interactive space with maximized accessibility and flow. The terraced-shaped plan is articulated with fixed panels that connect children with all the spaces throughout the building. This creates as sense of community territorial space among children.

Architectural elements are given a 'layered meaning' which allows children to physically interact with the building in more than one way. This is mainly demonstrated through the design of alcoves. It has been applied to the window sills and interior walls of the buildings. In the centre of the plan is a platform which can both be used as a stage, table or climbing object. In each class customed designed boxes are fixed into the floor which can be disassembled by the children and used in various ways.

This precedent inspires a design that can be independently used by children with architectural elements that addresses the inquisitive nature of children.

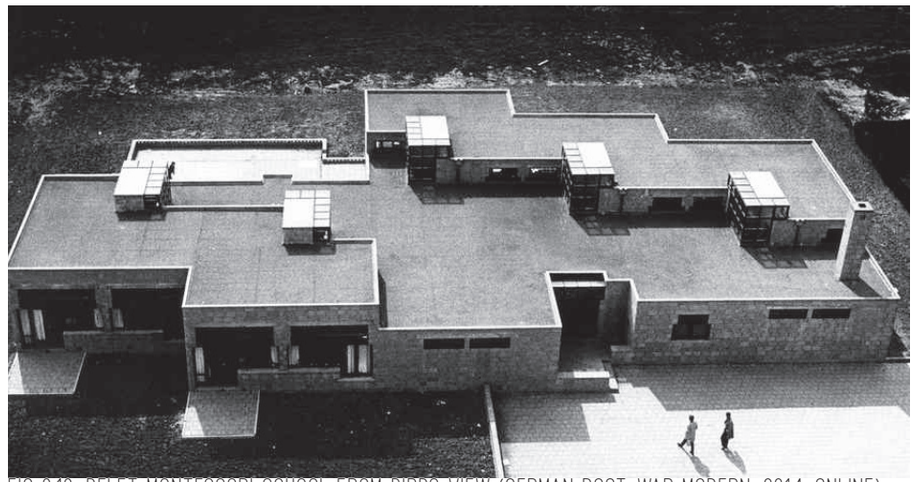


FIG 3.13: DELFT MONTESSORI SCHOOL FROM BIRDS VIEW (GERMAN POST-WAR MODERN, 2014: ONLINE)



FIG 3.14: CLASSROOM ELEVATIONS (FLICKR, 2014: ONLINE)



FIG 3.12 (ABOVE): CHILDREN INTERACTING WITH CUSTOM DESIGNED BOXES INSTALLED INTO THE FLOOR (GERMAN POST-WAR MODERN, 2014: ONLINE)



FIG 3.15 (RIGHT): SCHOOL PLAYGROUND ARTICULATED BY HOLLOW BRICK CONSTRUCTED WALLS (FLICKR, 2014: ONLINE)

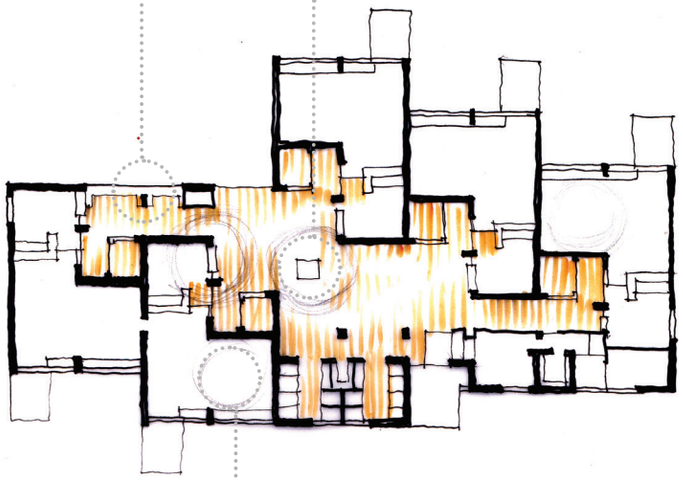


Fig 3.16: Sketch emphasizing the central spaces.

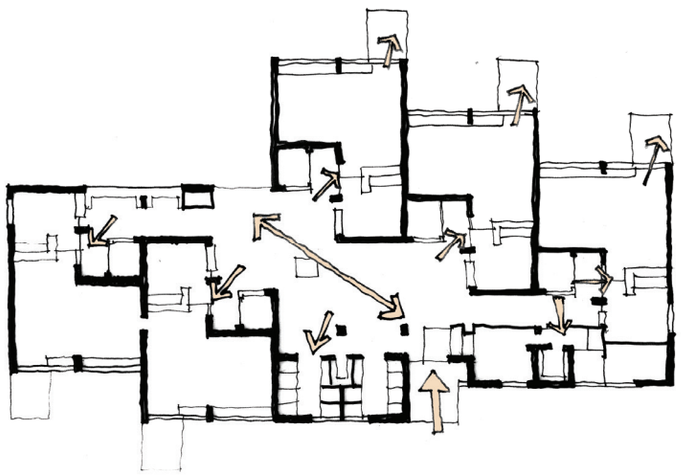


Fig 3.18: Illustration of circulation routes throughout the building.

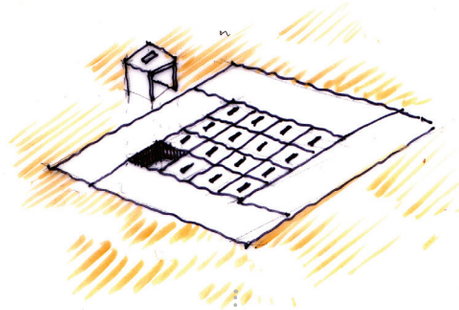


Fig 3.17: Custom designed boxes installed into the floor.

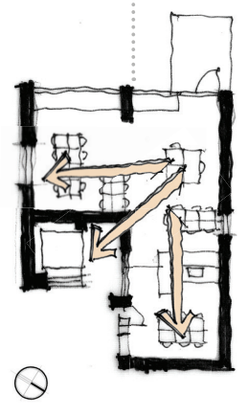


Fig 3.19: Classroom layout allowing adult supervision from all angles.

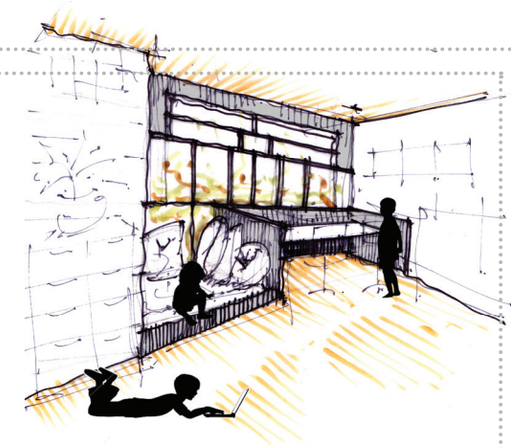


Fig 3.20Alcoves as seating and working space.

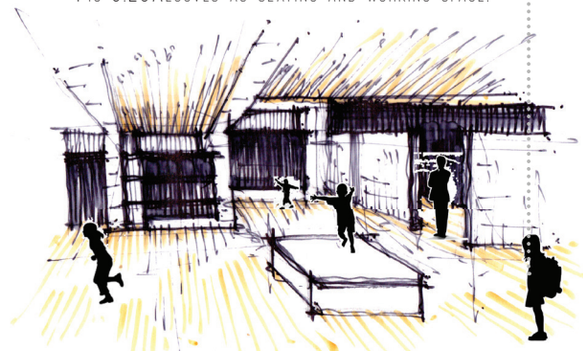


Fig 3.21: Interactive platform.

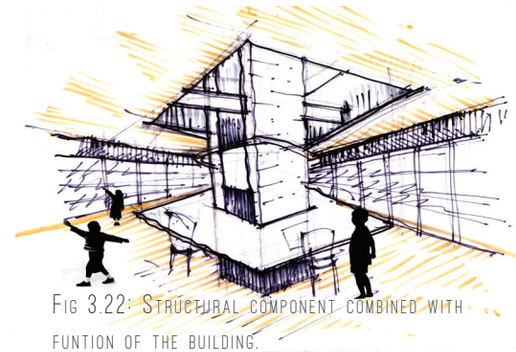


Fig 3.22: Structural component combined with funtion of the building.

Pre-Primary School and Creche, UFS:
Smit Architects
Bloemfontein, South Africa
2013

This Montessori design is located on the campus of the University of the Free State, catering mainly for parents employed on campus. The functions are grouped into a crèche, administration and a senior group (Louw, 2013: 96-97). Each of these functions are placed within a rectangular block facing north. Services such as storage and ablution accomodate the classrooms and are connected by means of a corridor. This layout will be applied to the design as it proves to benefit from northern sunlight and structures the daily school routine.

The seperate rectangular volumes are connected by means of a central covered play area which allows surveillance from the administration block and fluid circulation. The design clearly includes outdoor playscapes into the design by means of integrating shading devices into its structure. This can be seen on the western playground as a linear canopy cantilevers over the sandpit.

Security and control are incorporated into the design through providing one entrance infront of the principal's office which allows surveillance of people coming and going on site. Refuse areas are made accessible to public workers through placing it out of reach of the interior spaces. The volume organization will serve as key element to be applied to the design.


FIG 3.23: NORTHERN FACADE.


FIG 3.23: SECURITY GATE ENTRANCE.


FIG 3.24: COVERED SANDPIT.


FIG 3.25: NORTHERN FACADE OF CRECHE.


FIG 3.26: COVERED ENTRANCE WITH VIEW TOWARDS NORTH.



Fig 3.27: Ground floor plan (not to scale).

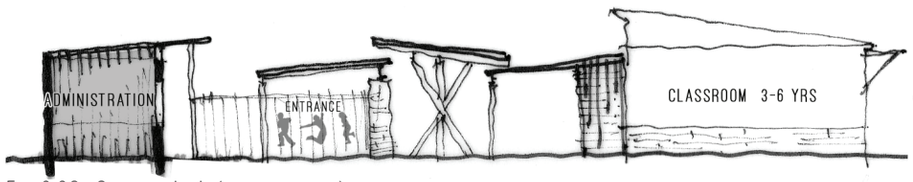


Fig 3.28: Section A-A (not to scale).

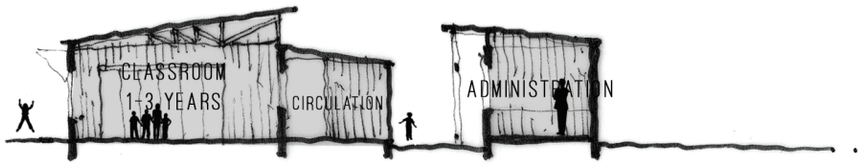


Fig 3.29: Section B-B (Not to scale).

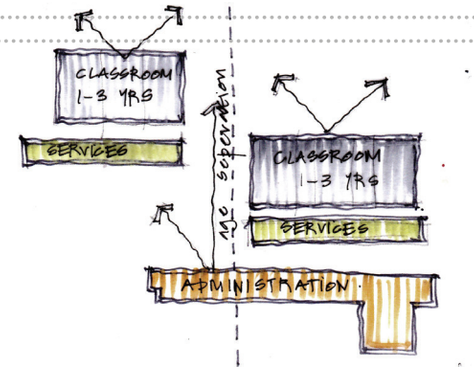


Fig 3.30: Arrows indicating surveillance and age

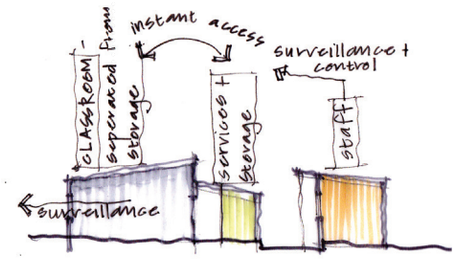


Fig 3.31: Relationship between spaces

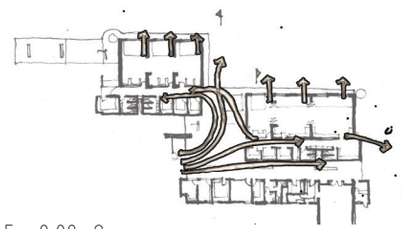


Fig 3.32: Circulation takes place mainly in the central play area.

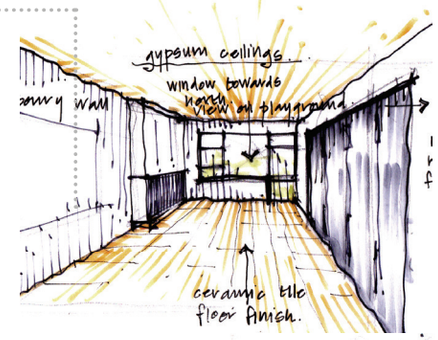


Fig 3.33: Classroom layout.

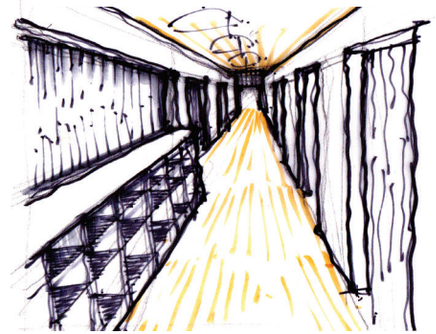


Fig 3.34: Classroom corridor with custom fitted storage cubbies.

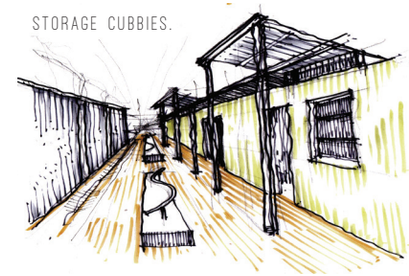


Fig 3.35: Administration block with outdoor circulation.

Interplay between reality and a magical world is a distinguishing characteristic of fairy tales. It is both an exhilarating and scary experience as challenges are an essential part of the magical experience (Zipes, 1982: 310). Zipes (ibid.) further describes how French authors in the 17th century intentionally wrote fairy tales for the purpose of refining the culture of the public by means of contrasting their mediocre and primitive existence with a magical or royal plot. The protagonist in a fairy tale carries out actions in order to conquer obstacles in his quest for an ideal 'home' or utopia. Aristotle specifically emphasizes the written *action* above the written *character* found in a fictional text (Hohr, 2013: 605). The same applies to a fairy tale as the action of the hero carries greater weight than his character. This notion of a fairy tale is known for cultivating a longing for better circumstances among the public that can only be overcome by intentional actions. This also places importance on architecture provoking a meaningful experience rather than merely being a beautiful object.

This aspect of fairy tales can be applied architecturally to the problem addressed in the design proposal. The architect who carries awareness of this problem can use his architecture to narrate an adventurous experience for children that should subconsciously leave them with a substantial longing for adventure and play that has been suppressed by the urban community. Through introducing an exhilarating play experience, children will be able to carry this positive memory with them into the future that will remind them how important and essential it was for them where adults will sentimentally adhere to children's adventurous nature by means of establishing a child-friendly environment.

There is a specific underlying structure in fairy tales that communicates social ideas and liberating thoughts (Parey, 2009: 432). The different themes of fairy tales are not as important as the reoccurring underlying structure that is being emphasized by the narrative. It is important to pin down this structure in order to apply it architecturally to the design.

Fig 3.36: French peasant girl painted by Henry Mosler (1st-Art-Gallery, n.d.: online).
Fig 3.37: Cinderella painting (Desktop Nexus, 2013: Online).
Fig 3.38: "The Peasant Meal" painted by Le Nain in 1642 (Back to Classics, n.d.: online).
Fig 3.39: Fairytale ball (Blanco, 2013: online).



Fig 3.36


Fig 3.38

ESCAPISM VIA LITERATURE


Fig 3.37


Fig 3.39

TRANSITION

Transition from a concrete world towards magical space represents a longing for utopia (Zipes, 1982: 315). 'Once upon a time' refers to the starting point of the narrative structure, which always takes place in primitive and disadvantaged circumstances. The protagonist finds himself in these circumstances which he seizes to liberate himself from in order to live a promoted lifestyle. The protagonist, as opposed to mythical heroes, is usually described as a normal individual with limited authority, often under the leadership of a dictator (Hohr, 2013: 612).

This creates opportunity for ethical retrospection on issues regarding everyday life where mythical heroes do not have this moral effect as they are placed out of a realistic context. Architecturally this should be applied making a sharp distinction between the urban surrounding and the chosen site that represents the utopia for children. The two contrasting worlds are only to be entered by means of a 'formula' (Messerli, 2005: 280). This formula refers to the means of getting from the one world to another. The protagonist moves purposefully and effortlessly between these two spaces.

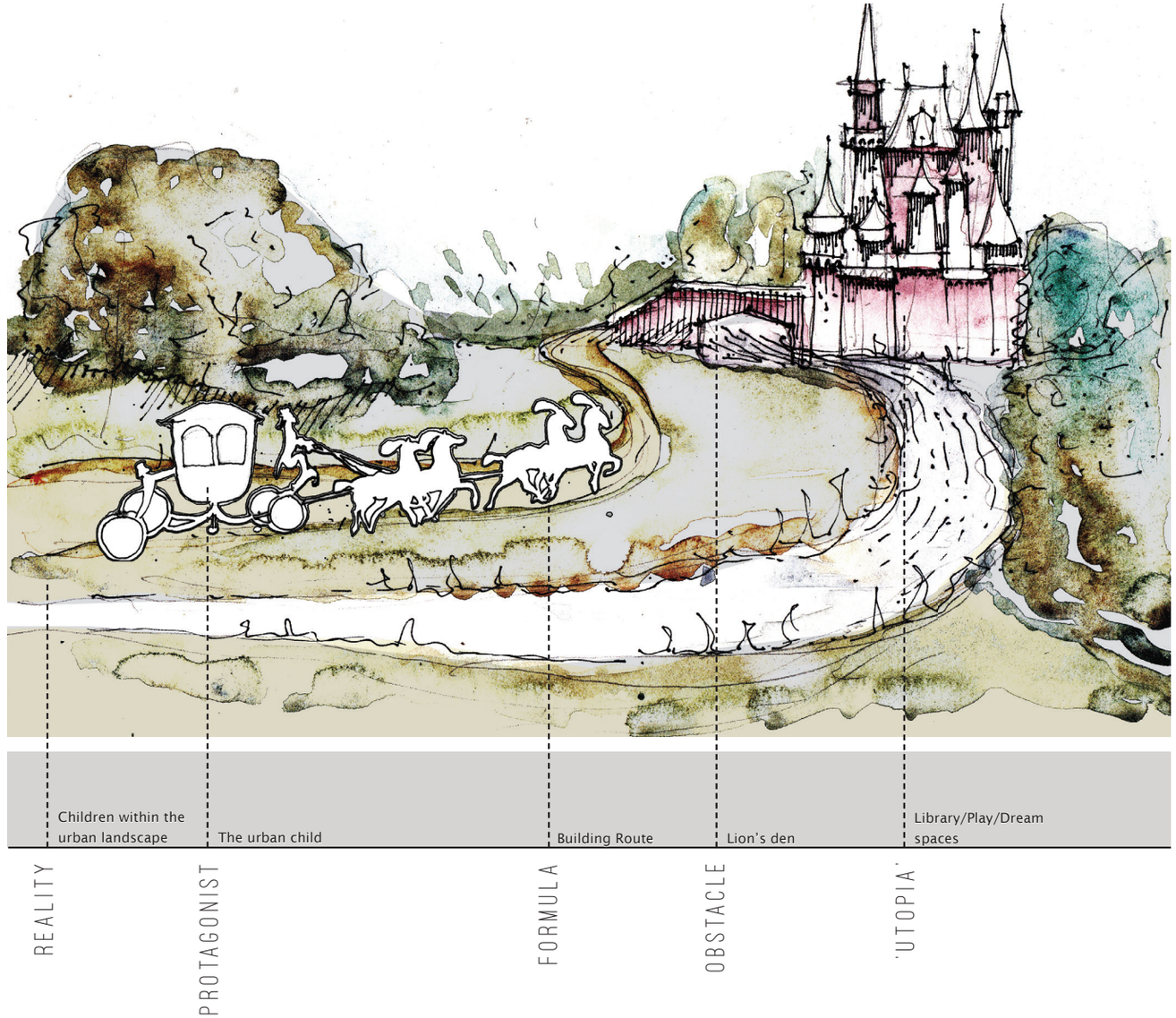


Fig 3.40 : The principle of transition demonstrated in the tale of Cinderella.

OBSTACLE

The narrator plots adventurous events, which creates an exhilarating reading experience (Zipes, 1982: 316). Adventure according to Hughes (1996 cited by Melville, 1978: online) takes place when one is “experimenting with the most troubling and threatening ideas”. A transition from the mediocre to the supernatural world takes place in a borderline area such as bridge, pond, river, well etc. that at the same time renders an obstacle towards the final destination placed in the narrative. The forest is the most popular method of portraying a borderline area, which communicates a hazardous area where characters are usually advised not to enter. The large wall or fortifications of a castle also creates the idea of frontality. An encounter with a physical boundary or barrier should be incorporated into the design that will provoke the notion of transition to an adventure

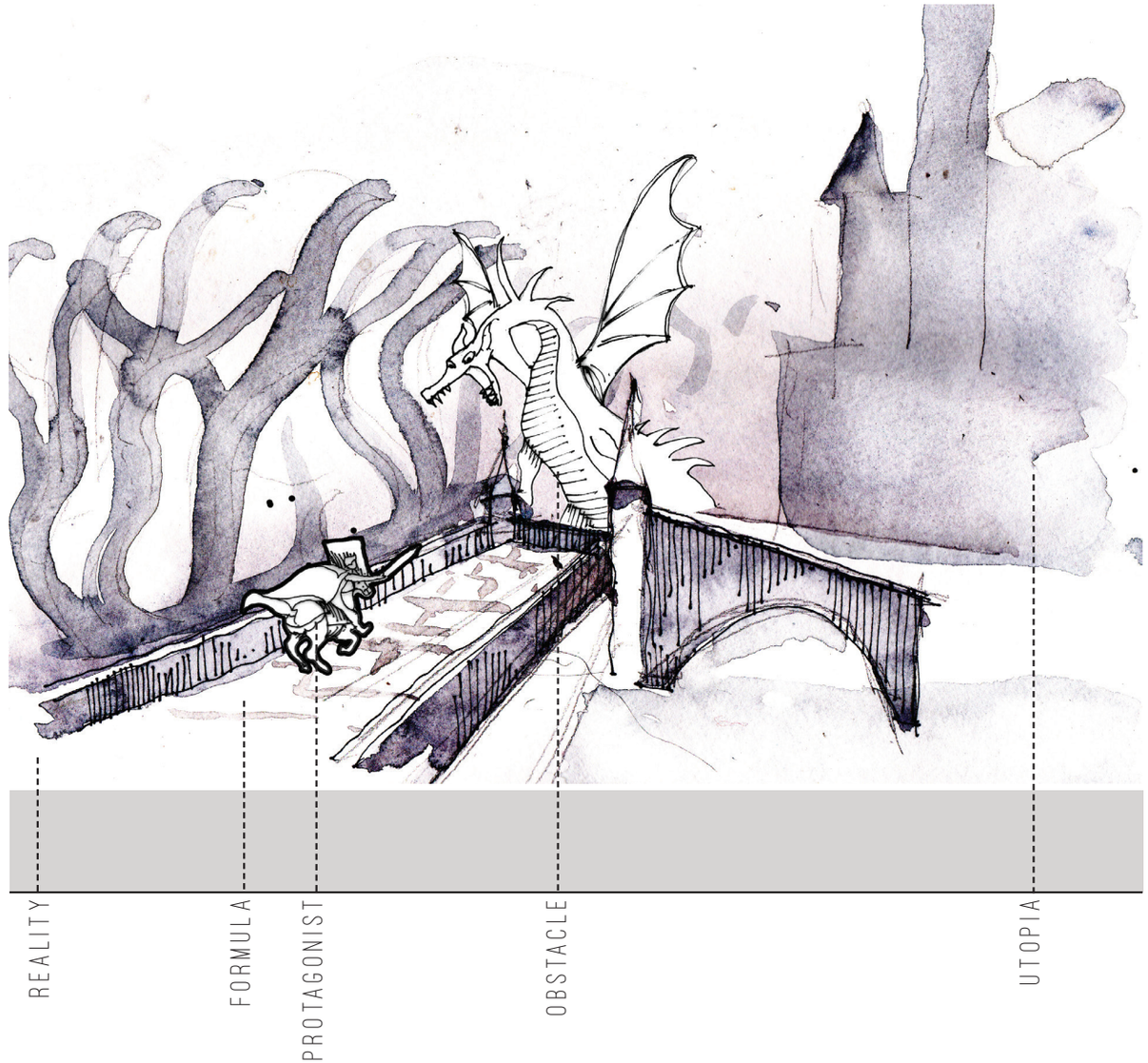


Fig 3.41: Slaying the dragon in order to save Sleeping Beauty.

In fairy tales, the spaces and objects are only given an outline when described in the text which gives the reader the opportunity to render the rest of the image with his imagination. Messerli (2005: online) refers to this as “spots of indeterminacy”; for example, although a castle is implied, the narrator would refer to it as ‘the house of the king’s daughter’ and not directly refer to it by name. “Fairy-tale space is one of places and channels, not of space itself” (Messerli, 2005: online). These routes seem to appear as random linear connections between objects indicated in the tale. The landscape is erratic rather than homogenous.

This can be applied through designing spaces which can be accessed in more than one way. A building that can be discovered in several ways should resonate with this narrative principle.

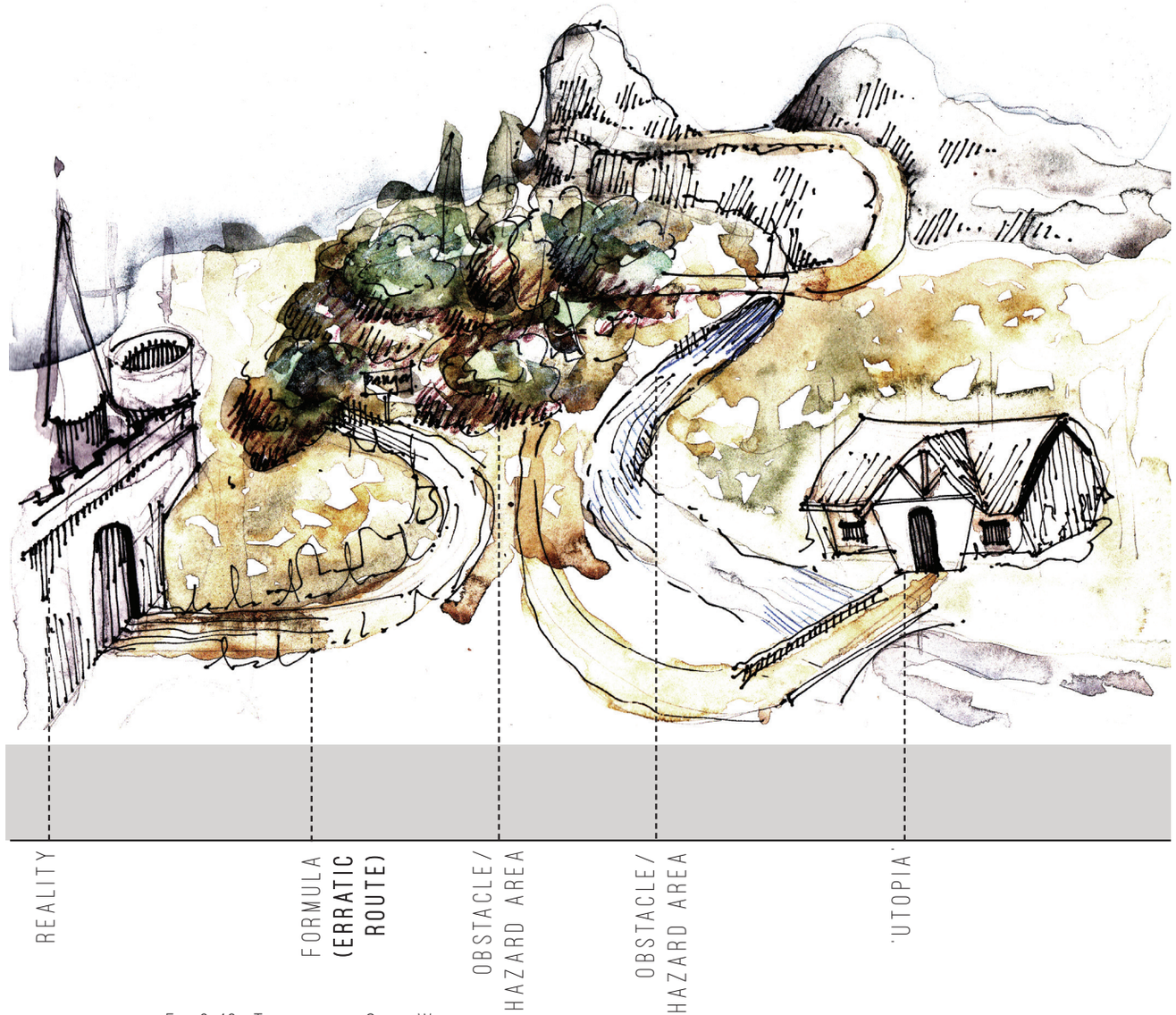


Fig 3.42: The journey Snow White embarks which ends in finding refuge at the home of the seven dwarfs..

VERTICALITY

Vertical positions are described in order to indicate class differences or oppression for ex. Cinderella works and lives in the kitchen where the stepsisters' bedrooms are located upstairs (Messerli, 2005: online) . Prohibited spaces as described earlier can also be placed in a vertical context such as the dungeon or sleeping beauty remaining in a guarded castle for over 100 years. Usually a great discovery is made after conquering a vertical dimension in a narrative such as the prince climbing the tower in order to claim Rapunzel as his wife.

It can be concluded that after a horizontal transition takes place, the adventure commences when engaging with a vertical obstacle. A vertical component should therefore be translated into the design in order to enhance the child's heightened bodily experience.

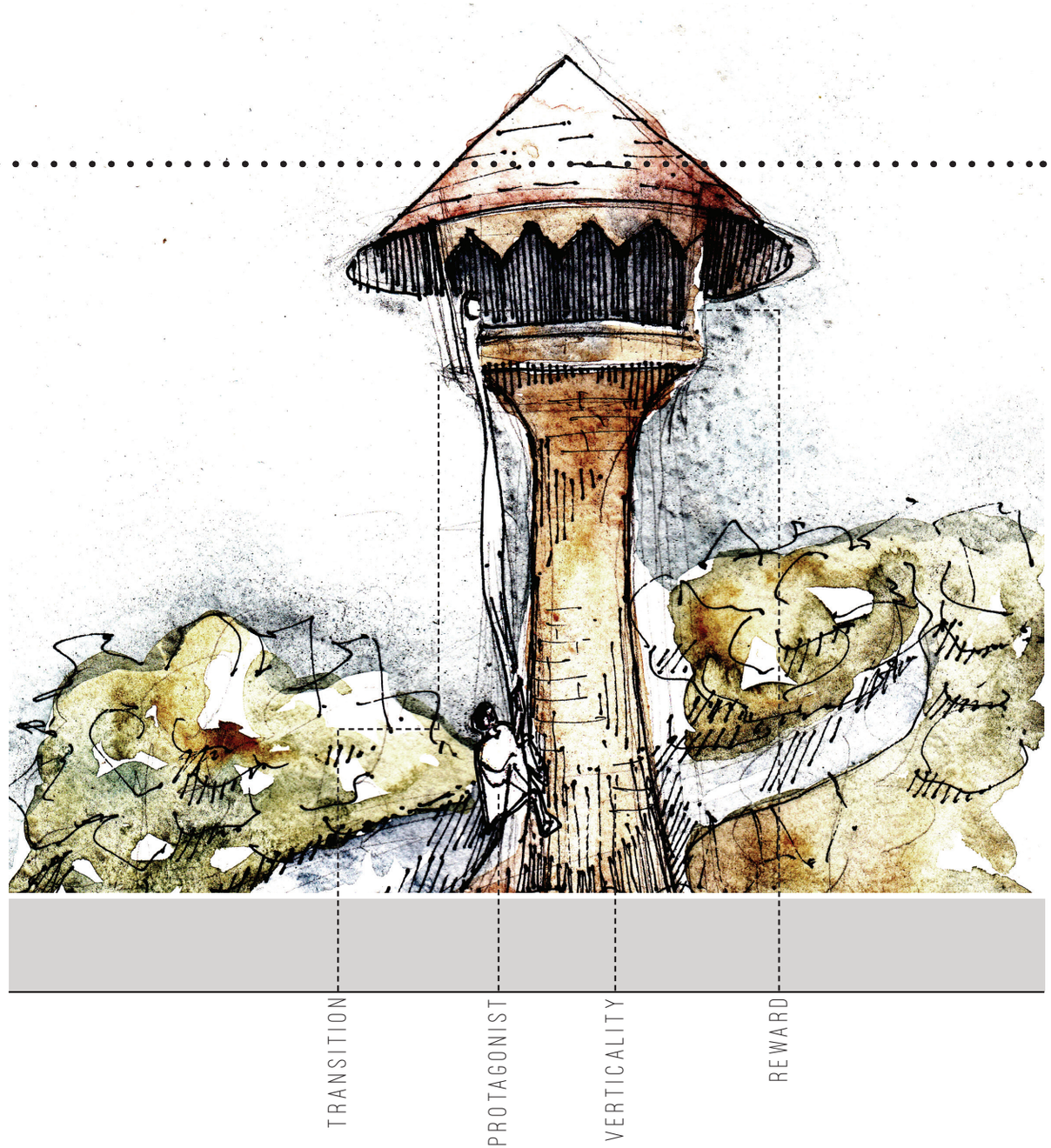


Fig 3.43: The prince's courageous act in order to free Rapunzel from the tower.

Transition from a concrete world towards magical space represents a longing for utopia (Zipes, 1982: 315). 'Once upon a time' refers to the starting point of the narrative structure, which always takes place in primitive and disadvantaged circumstances. The protagonist finds himself in these circumstances which he seizes to liberate himself from in order to live a promoted lifestyle. The protagonist, as opposed to mythical heroes, is usually described as a normal individual with limited authority, often under the leadership of a dictator (Hohr, 2013: 612).

This creates opportunity for ethical retrospection on issues regarding everyday life where mythical heroes do not have this moral effect as they are placed out of a realistic context. Architecturally this should be applied making a sharp distinction between the urban surrounding and the chosen site that represents the utopia for children. The two contrasting worlds are only to be entered by means of a 'formula' (Messerli, 2005: 280). This formula refers to the means of getting from the one world to another. The protagonist moves purposefully and effortlessly between these two spaces.

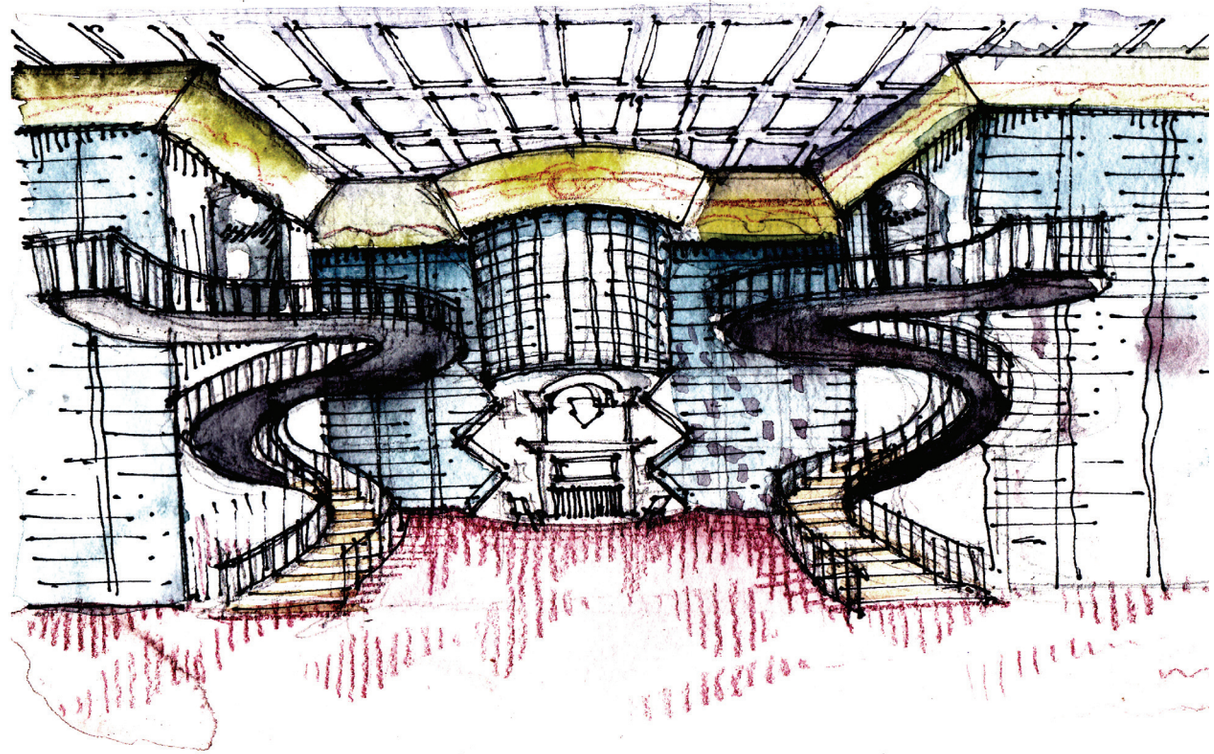


Fig 3.44: The secret library Beast reveals to Belle in Disney's "Beauty and the Beast"...

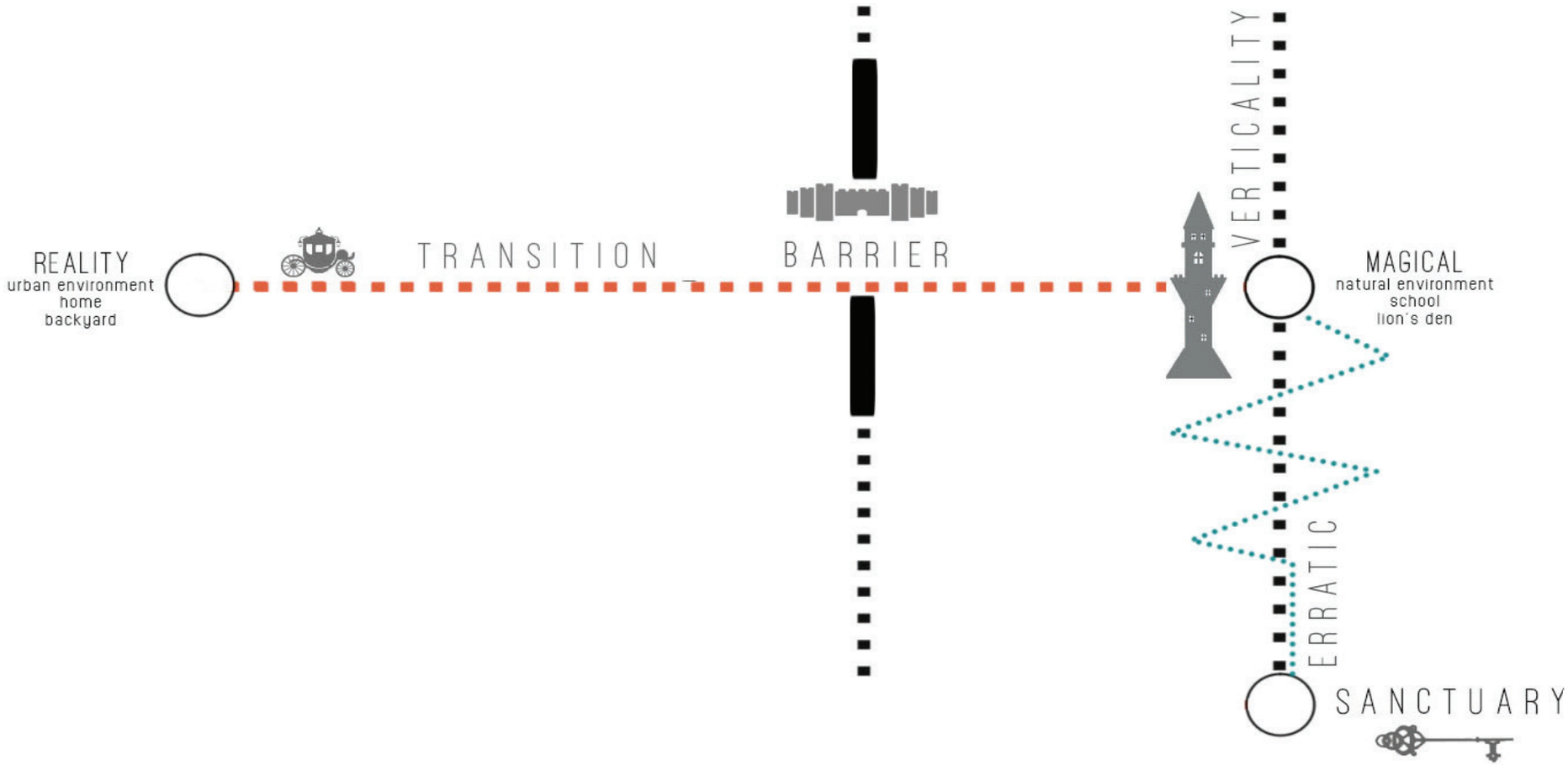


Fig 3.45: Diagram which concludes the archetypes to be applied to the design.

Blur Pavilion
Diller & Scofidiio Architects
Yverdon-Les-Bains, Switzerland
2002

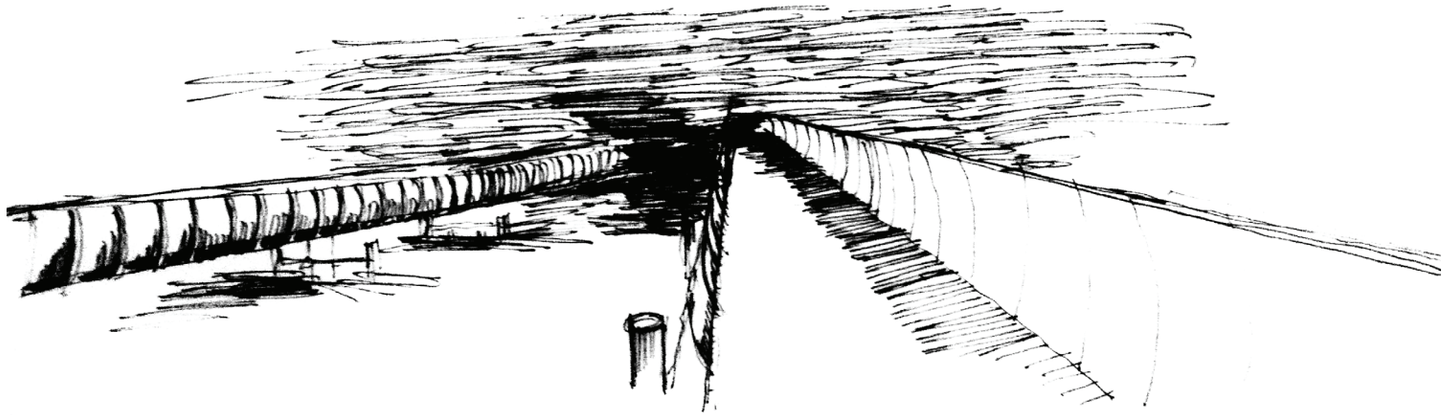
Built for the Swiss National Expo 2002, this pavillion consists of a platform suspended from a steel structure which produces artificial mist. This The pavilion is constructed from a 100 x 60 x 20m steel construction which distributes artificial mist from 31400 jets attached to the structure. The idea is to make fine mist at all times to disguise the metal structure.

This metal framework consist of rectilinear struts and diagonal rods that serves to support the platform. Together with the thick cloud of artificial mist, this platform seems to be hovering over the lake. Approaching the building creates an uncanny experience for visitors as they travel along a 400ft long ramp towards the building which gives them enough time to perceive the mysterious mass before entering it.

The plan takes the form of an elliptical shape and appears to be fluid with minimal boundaries or enclosures. After entering the building all traditional references of enclosure are removed which creates an unregulated yet sensory movement. At the entrance each visitor completes a personality survey and receives a 'braincoat' which protects them from the mist.

Conclusion:
This design demonstrates the principle of moving effortlessly between two distinct worlds. The ramp serves as a horizontal connection or 'formula' between two nodes as described in fairy tales. A dramatic transitional experience is provoked when travelling on the bridge from the 'normal' landscape towards the 'magical'. The fog produced by the building creates an uncanny mysterious atmosphere which refers almost directly to the hazardous woods present in a fairy tale. The mysterious effect is produced by creating an fog which disguises the structure of the building.

Design application:
The school will be connected to the park with a route that ends in a ramp towards the main entrance. This will give the visitor time to perceive the change in typologies present on the site. It will amplify the experience of adventure as the route ends with a specified node. The rest of the building will either be disguised behind the mound or within the void of the lion's den. This will only be experienced once the child engages with the enterior. The interior layout is unpredictable which activates the body in the space.



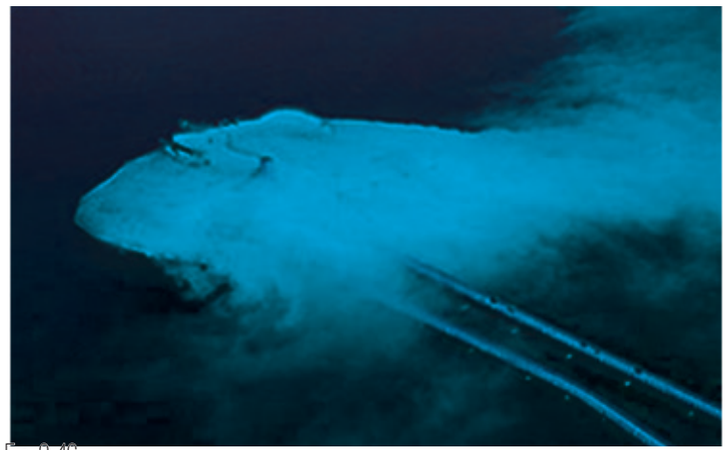


Fig 3.46



Fig 3.47

Fig 3.46: Aerial view of blur pavillion (Pohl, 2009: online).

Fig 3.47: Uncanny approach of the building and transition of bridge (Openbuildings, 2012: online).

Blaxland Riverside Park
JMD Architects date
Sydney, Australia
2012

The adventure of engaging with challenging obstacles in a landscape can be seen in the Blaxland Riverside Park. A playscape has been designed next to the river where parents can bring their children to have an optimal outdoor experience. Large swings, high slides and a tall climbing tower activates the child's body in all of its dimensions. This extreme type of playground stimulates the child's sensory and cognitive senses on a high level. The child engages with an extreme adventure as they claim this large territory with minimal adult provision. This is achieved through constructing large-scale structures that are completely safeguarde by the architect. The design proves that playscapes do not necessarily have to be small in scale in order to be safe, but can be safeguarded through careful planning combined with creativity.

Conclusion:
This adventure playground supports Melville's statement (1978:71) of an adventure consisting of a confrontation of physically challenging objects. The scale of the play structures are larger than traditional playgrounds but succeeds in being safe and appropriate for children. The scale of the objects promotes the child's body in space which creates an exhilarating experience.

Design application:
This example of an extreme playground confirms the possibility of designing an adventure experience on a large scale without comprimising the safety of children. It is clear that for ex. the lookout point is built on a large scale but is safeguarded on every 2m. Climing nets cover dangerous heights which keep children in contact with the great height distance but they are comforted by the reliable net. Designing an adventure school within the great depth of the lion's den will be safeguarded in such a way that children will still experience the thrill of the height but will engage confidently with the space.

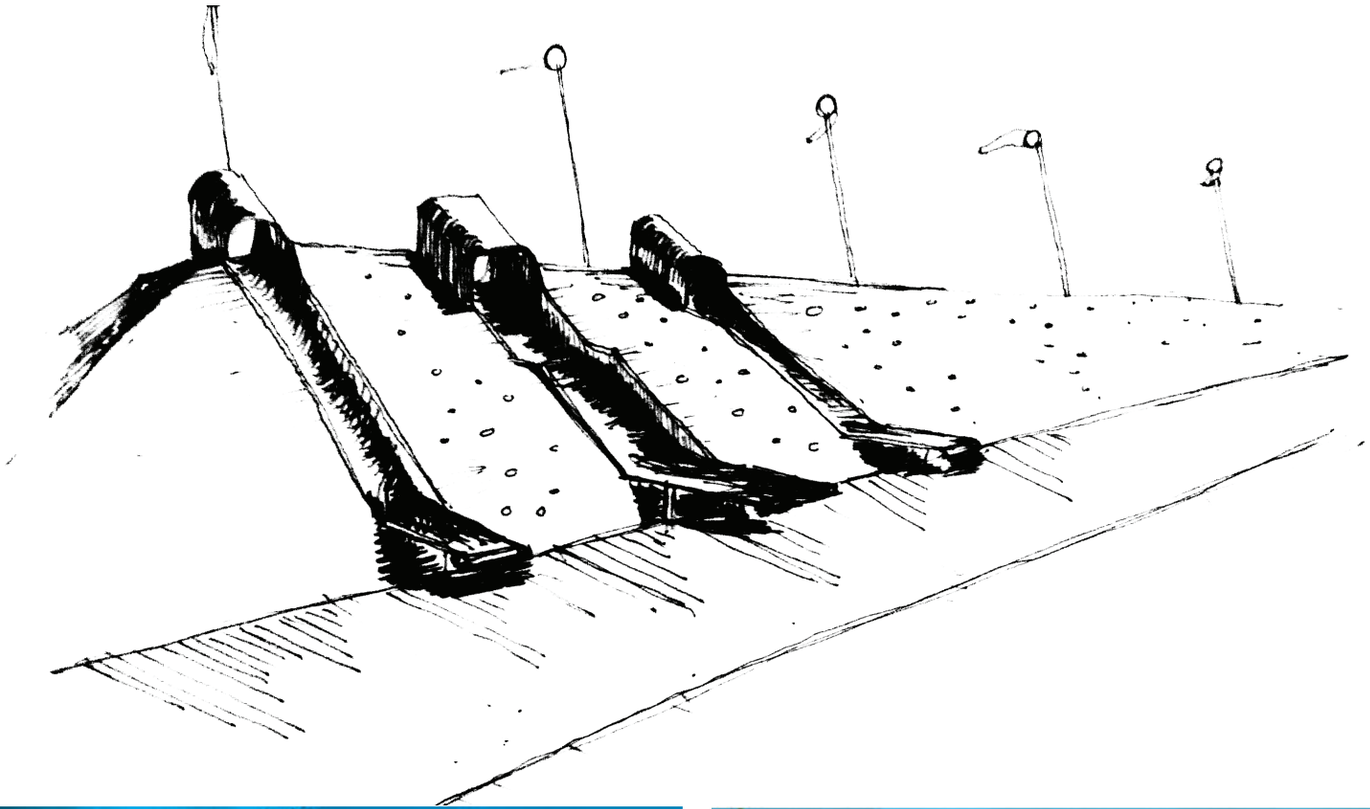






Fig 3.48: Water play at Blaxland Riverside park (McCredie, n.d.: online).

Fig 3.49: Children having a good time on the large obstacle course (n.a., 2013: online).

Ecological Children Activity and
Education Centre
24H Architects
Koh Kood Island, Thailand
2007

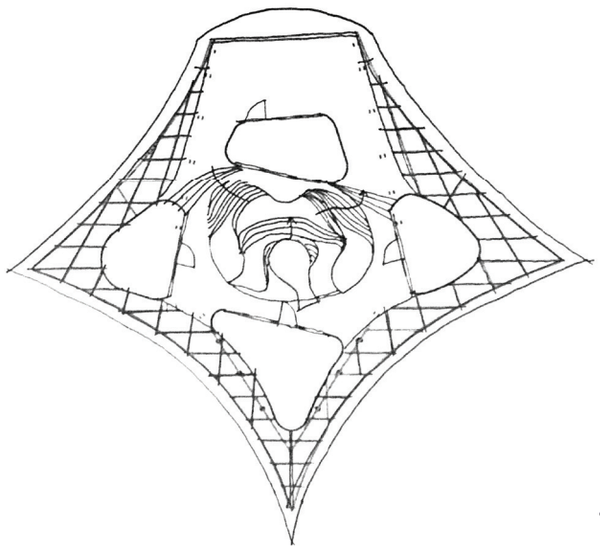
This entertainment centre forms part of the six-star hotel on an island in the Gulf of Thailand. It is elevated from an uneven site with a view towards the sea. The organic shape refers to the metaphor of a mantis. Its unique formgiving generates interesting organic shapes which contributes to the adventurous experience. It offers a range of entertainment activities for children such as a theatre, library and lecture and play areas with the purpose of raising awareness for ecology among children (Archdaily, 2009 online).

Conclusion:
Spatial qualities in fairy tales are chaotic and unpredictable. This is due to the limited description of objects in a space in order for the reader to render the rest of the space with his/her own imagination. The Ecological Children's Activity and Education Centre's formgiving is based on the metaphor of a mantis. The organic formgiving of this building is the only suggestion towards the notion of the chosen metaphor. The child needs to apply his imagination for this image to become visible. The metaphor also gives the building an irrational appearance which gives the building an intriguing and mysterious quality. The interior layout of the building is anything but rational and orderly which contributes to the excitement as the layout of the building unravels as one engages with the space.

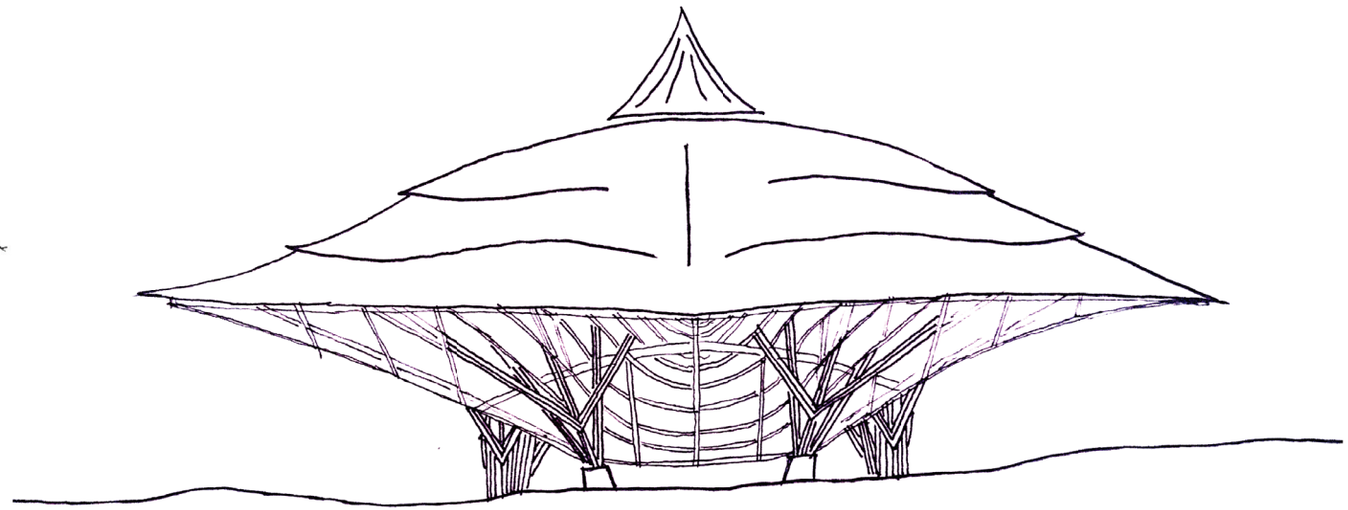
Design application:
This design illustrates how erratic spaces create a mysterious and adventurous space. Through creating spaces that are more undpredictable, children will have the freedom to investigate and explore the space with their bodies. Considering the alternative circulation methods and three-dimensional spaces of this design will bring forth an approach towards designing and placing space. Considering alternative organic shapes should also have an innovative effect on the morphology of a Montessori school.



Fig 3.50: Organic construction of interior (Archdaily, 2009: online).



Organic layout of plan with a central double volume space.



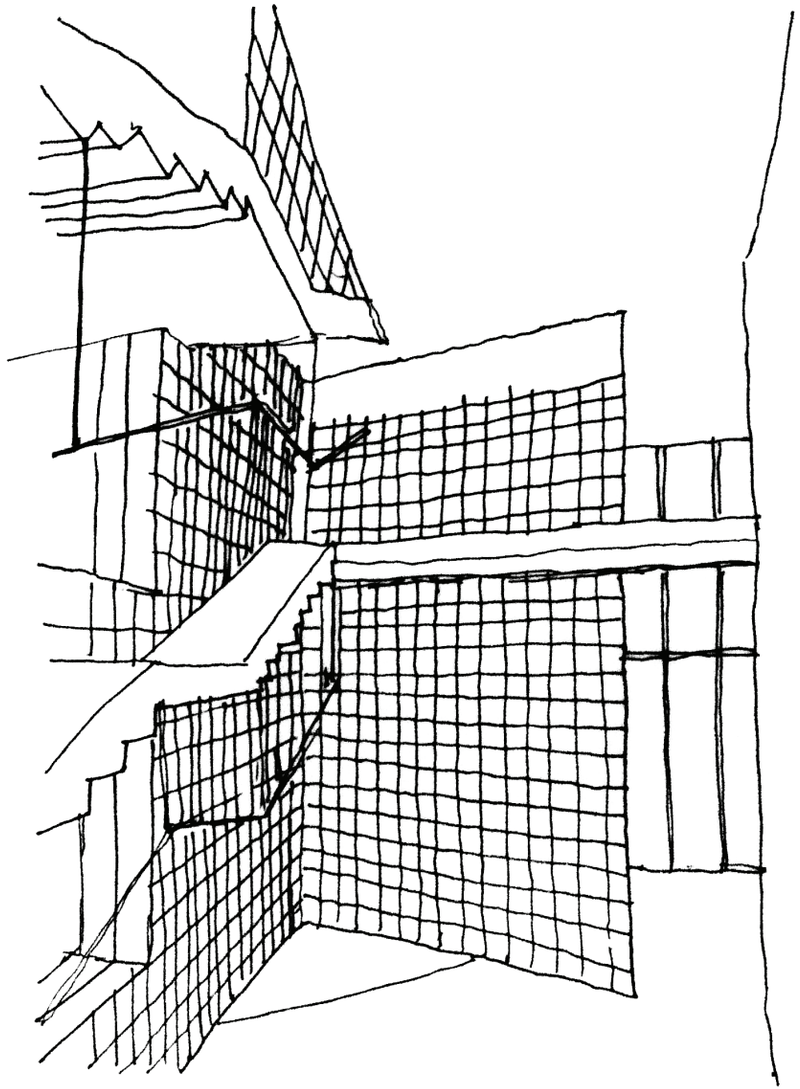
Front view of ecological centre..

Iwaki Picture Book Museum
Tadao Ando
Iwaki city, Japan
2005

This library consist of a concrete building which creates a dramatic contrast when entering the colourful interior filled with picture books. A stair which is layered with double function of seating and circulation connects these display shelves with the public. The green hills are visible from any point from the interior which contributes to the exhilarating interior of the building.

Conclusion:
The protagonist's quest for the ideal 'home' results in a discovery of an utopia or sanctuary. This guarded space becomes a platform for freedom, victory, magic and success in the narrative. It is therefore important that the design incorporates a space that is isolated yet interactive, vibrant and imaginative. This principle is successfully narrated in Tadao Ando's Picture Book Museum. The concrete appearance of the building does not seem appealing to children at all. Once one has embarked the journey, an uncanny experience is provoked as one approaches the building. The interior is a pleasant surprise as a constrasting, colourful and exciting interior awaits the child. Children are intoxicated by the height, colour, freedom and opportunity of this type of space. One can visualize the surprise and enlightenment of a child when entering the space and instantly reacting to and engaging with the space. Visual staircases immediately activates the child's cognitive perception which invites him to engage with the interior.

Design application:
The design will aim to create the same exciting effect by means of creating a double volume space that is filled with the display of books. Outdoor views of the densely vegetated site will be created the same way the picture museum has a view on the green hills. Layered functions will be applied in designing a staircase that can be used both as seating and circulation. Contrasting the staircase with a solid appearance to the colourful books will guide children in using the space.



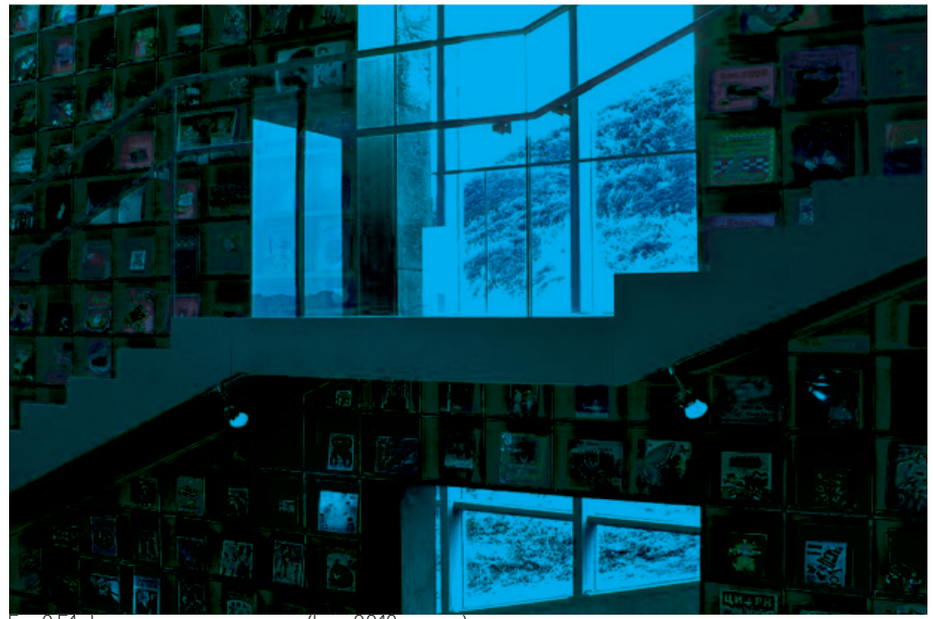
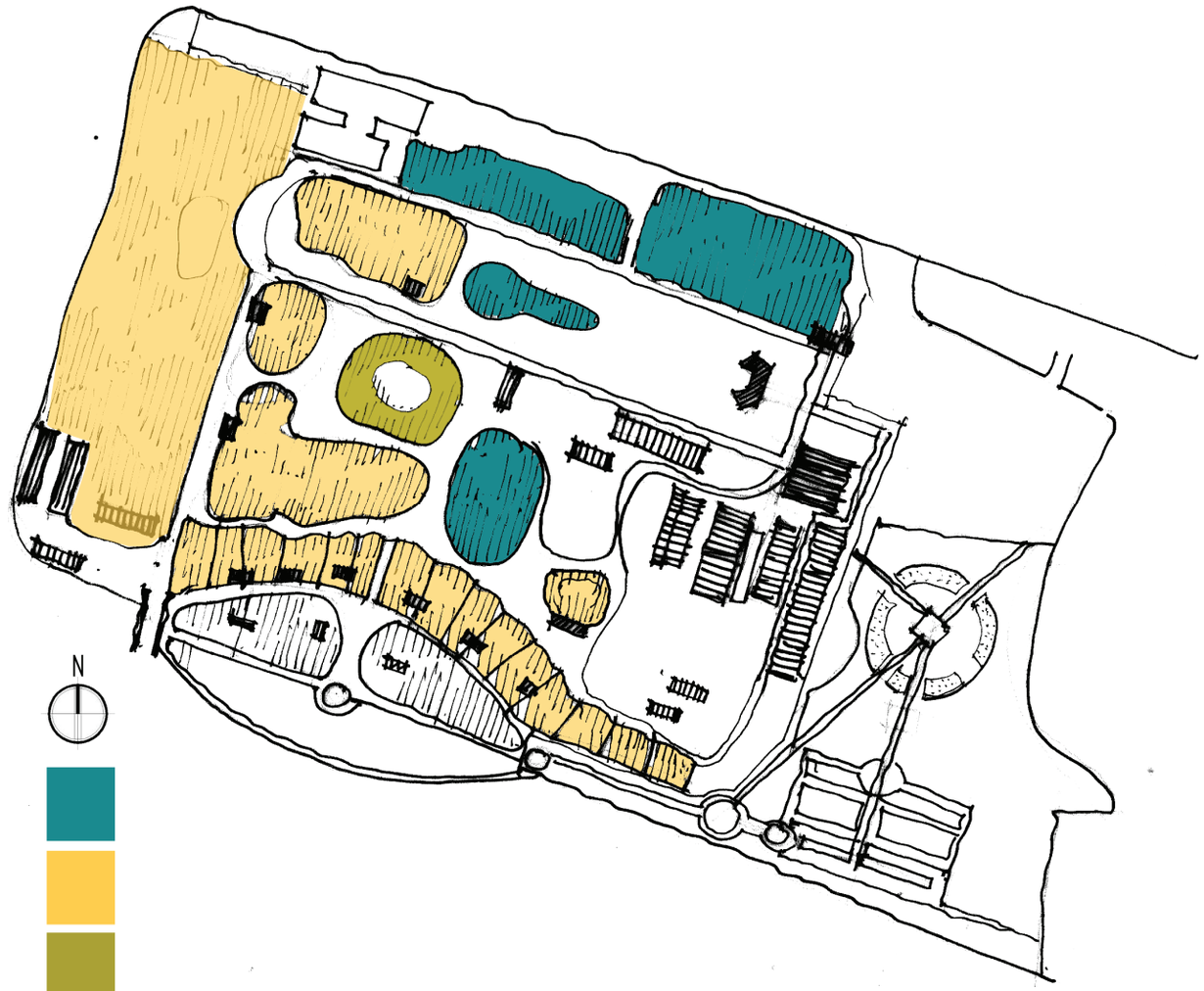


Fig 3.51: Landing next to window (Lee, 2010: online)



Fig 3.52: Simple concrete exterior of building in contrast to its colourful interior (Lee, 2010: online)



shallow excavation (1-2m)

medium excavation (3-4 m)

deep excavation (5-6m)

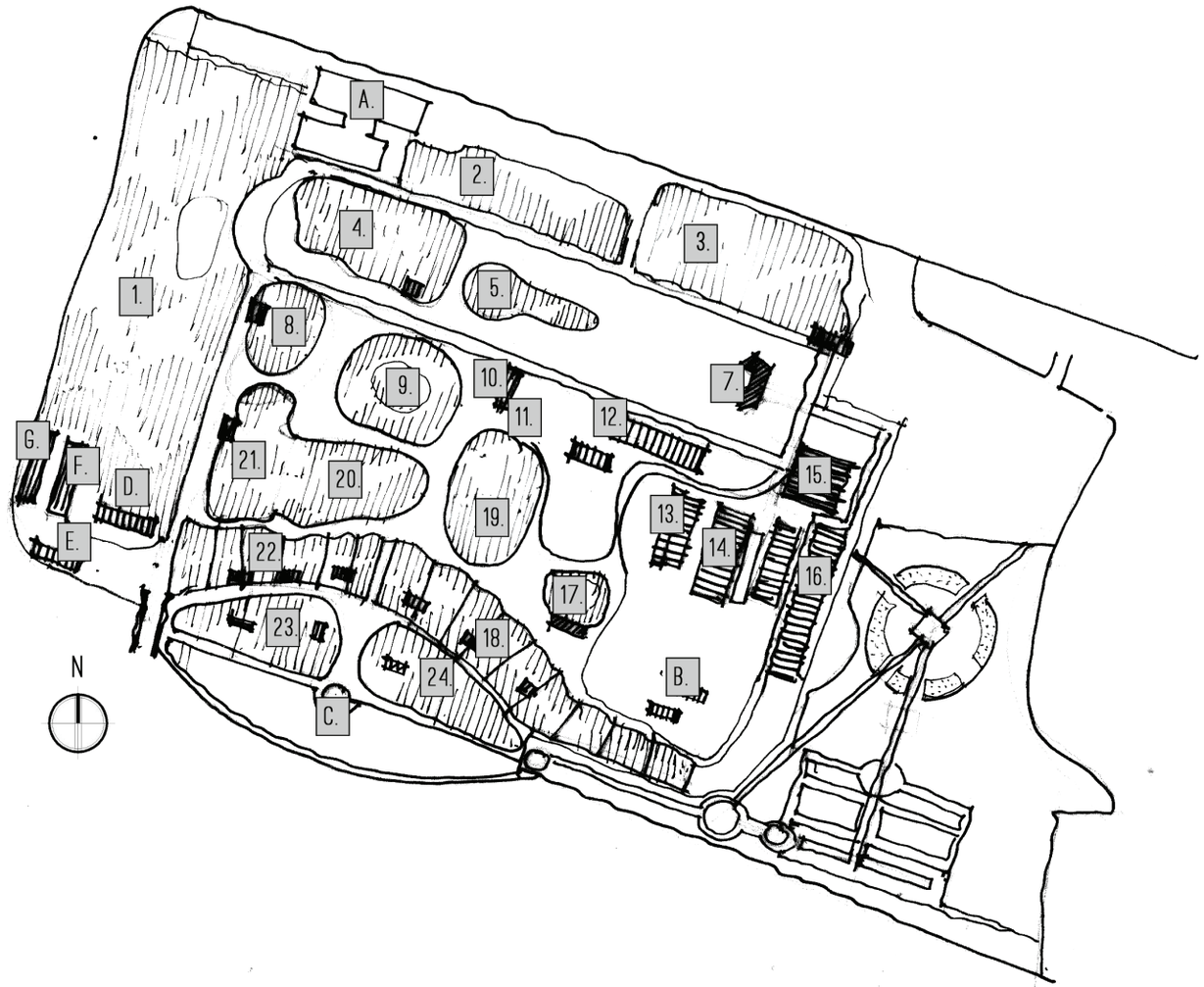
SOIL EXCAVATIONS



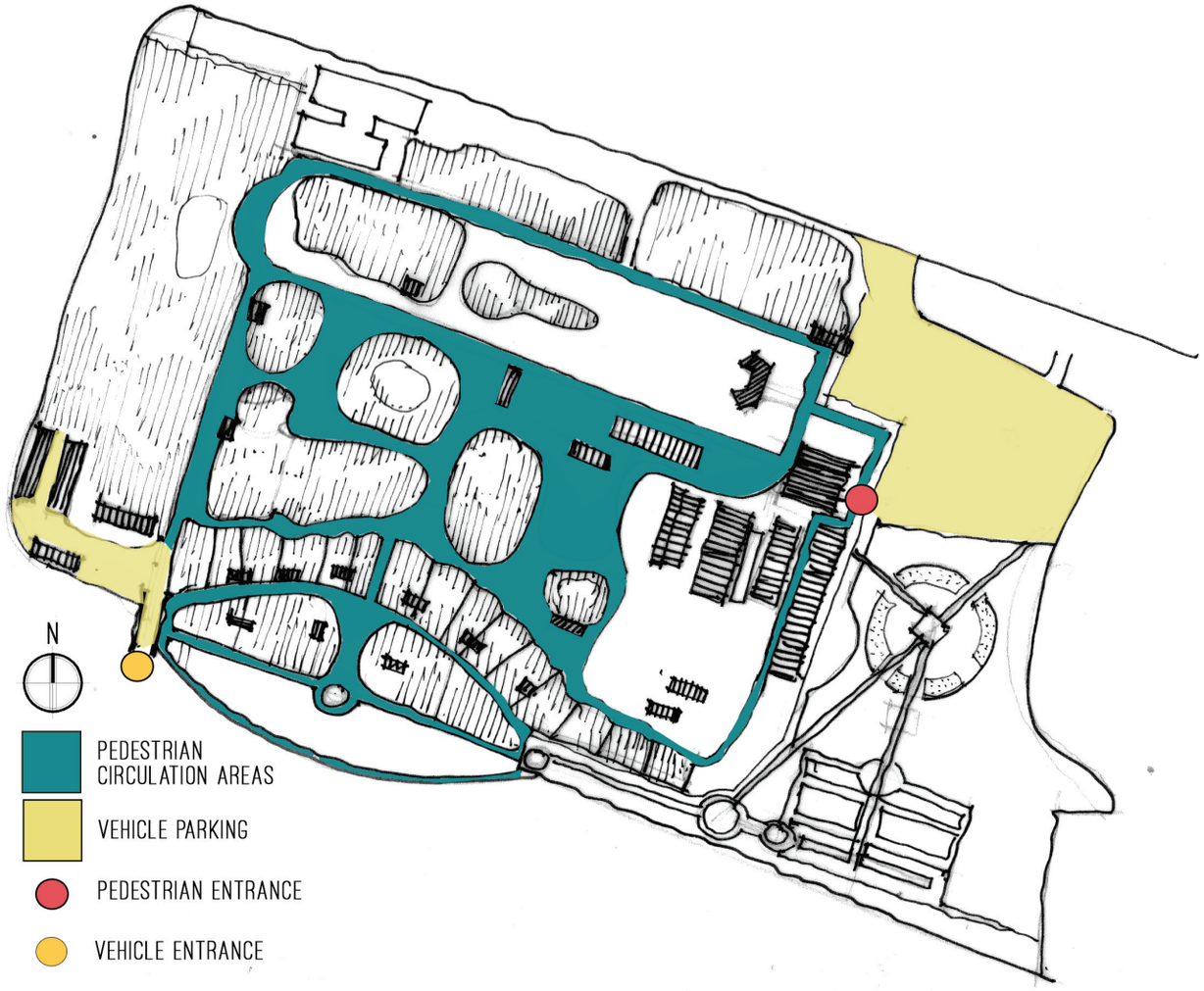
EXPERIENTIAL DENSITY

1. Large game camp
2. Small game camp
3. White rhinoceros
4. Elephants (removed)
5. Suricate mongoose
6.
7. Snakes
8. Porcupine
9. White lions (proposed site)
10. Tree squirrel
11. Rabbit
12. Bird cages
13. Mongoose
14. Small cats
15. Reception
16. Primates
17. Chimpanzee
18. Jackal, hyena, wild dog
19. Barbary sheep
20. Cape buffalo
21. Hippopotamus
22. Big cats
23. Leopards
24. Zebra

A. Protea Hotel
B. Kiosk/Coffee shop
C. Canadian monument
D. Friends of the Zoo
E.Friends of the Zoo
F. Curator’s residence
G. Lapa



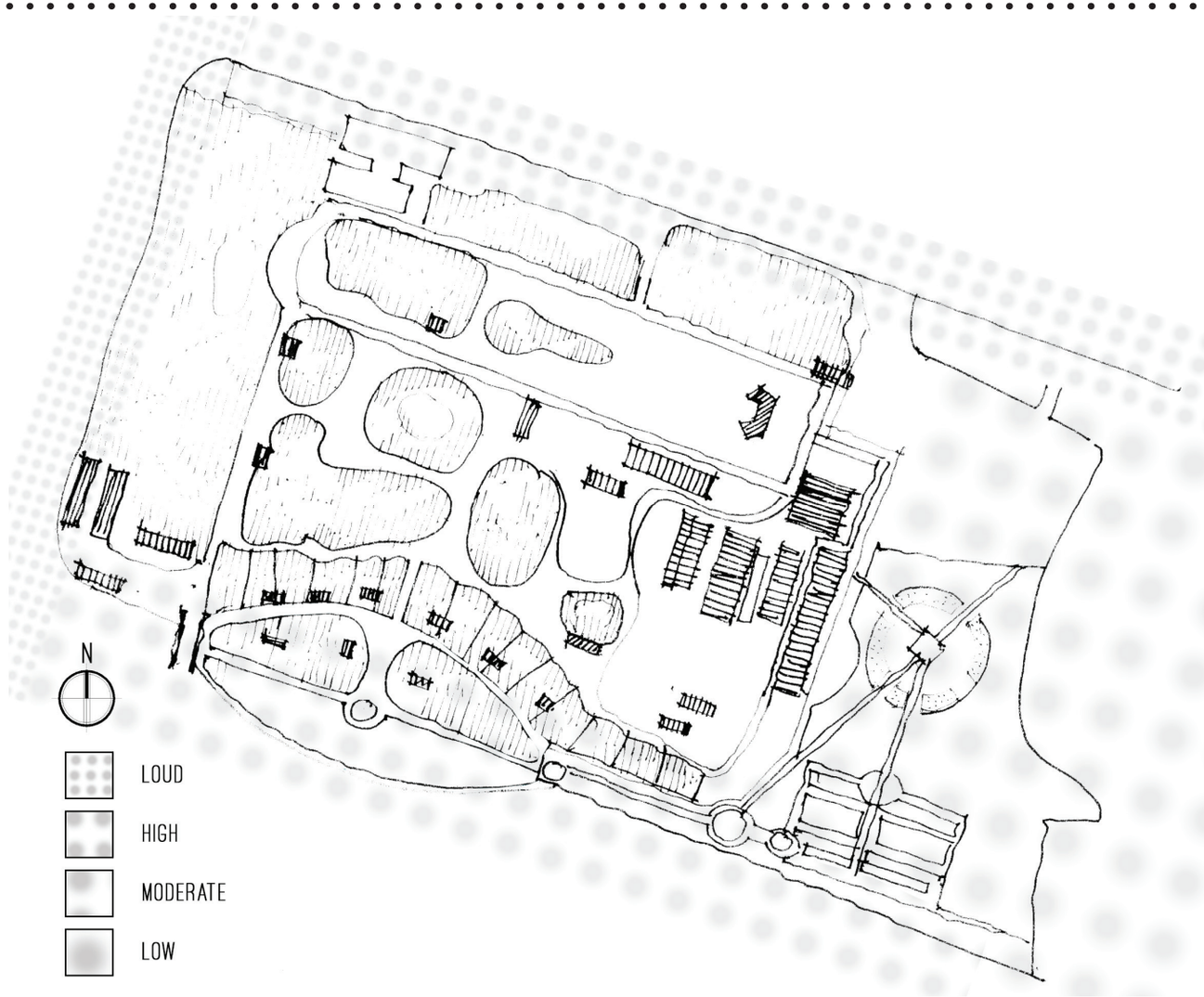
ZOO LAYOUT



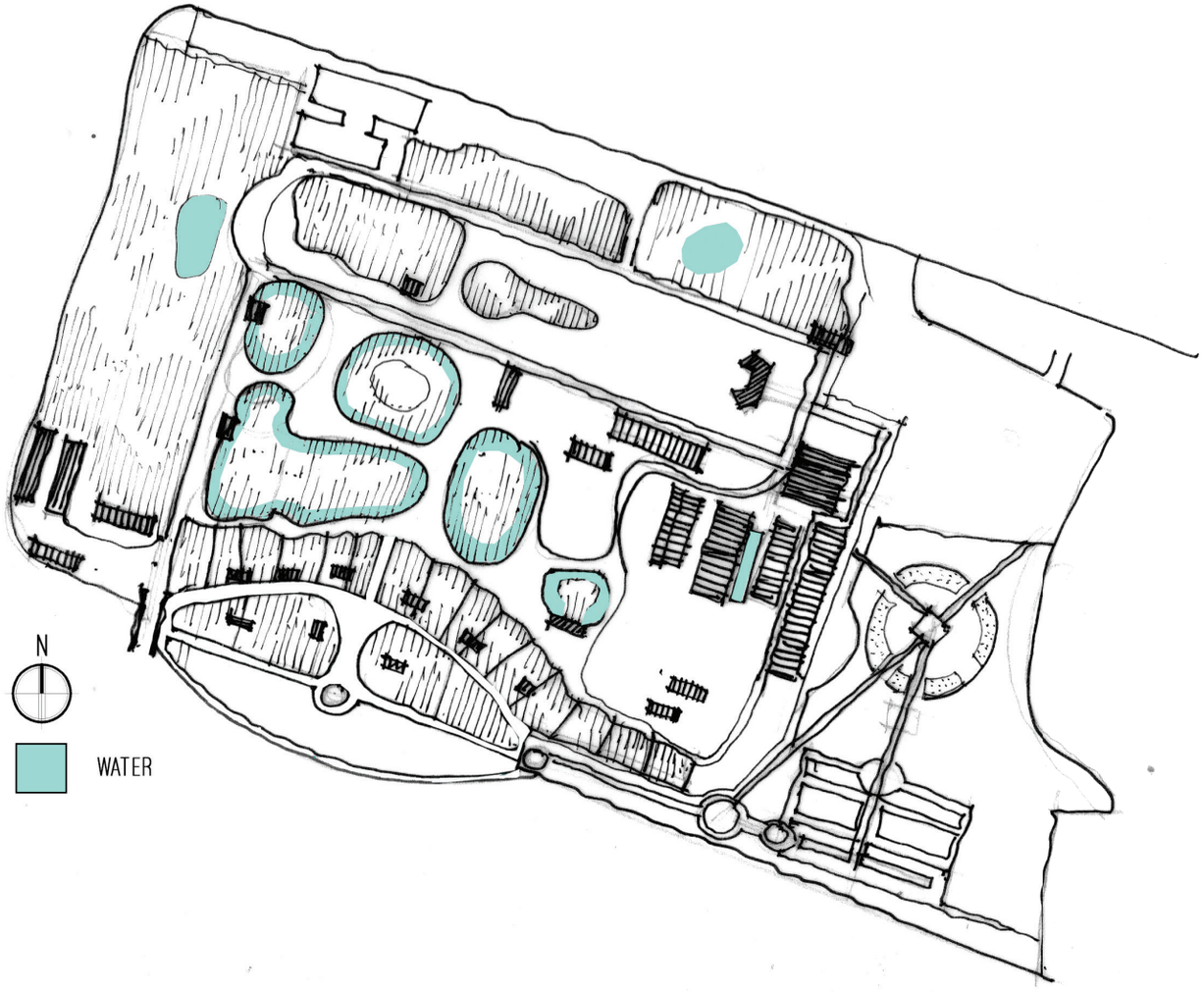
CIRCULATION



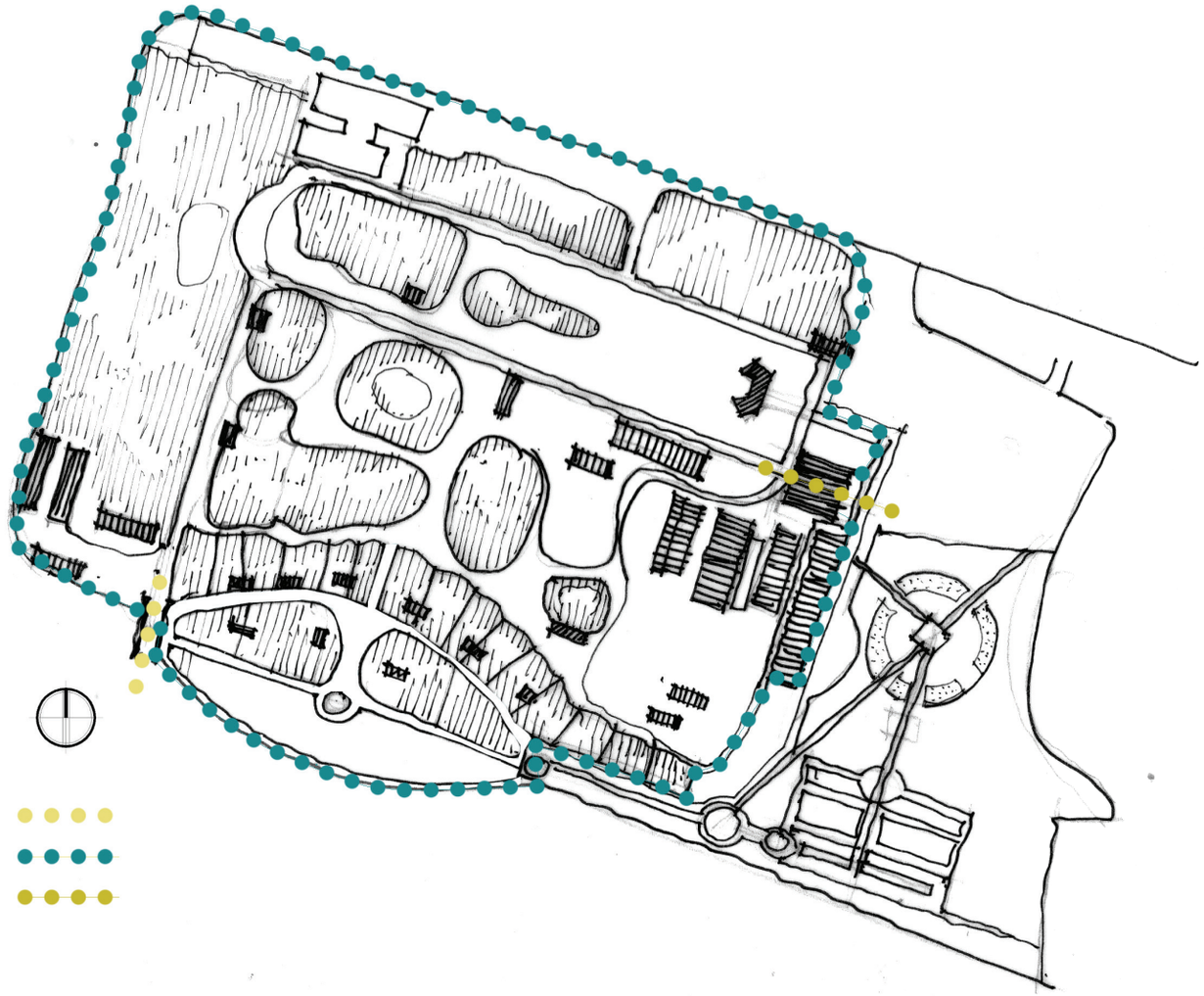
TEXTURES AND SURFACES



NOISE AND VIBRATIONS



WATER

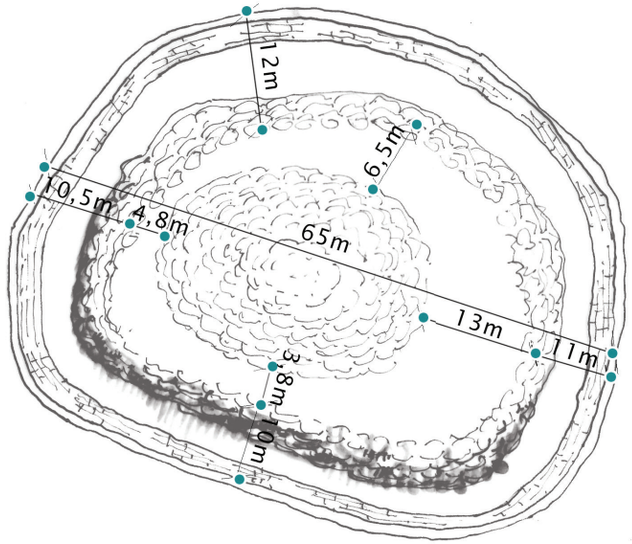


vehicle entrance (maintenance)

solid boundary

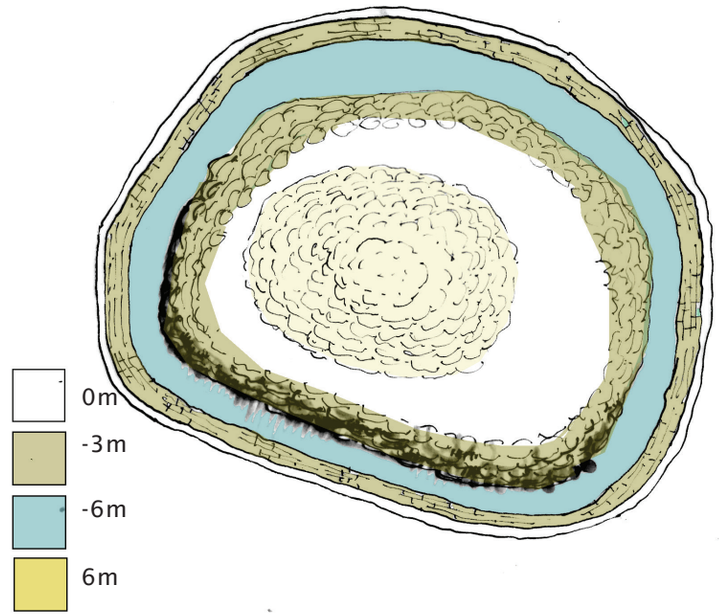
pedestrian boundary

BOUNDARIES



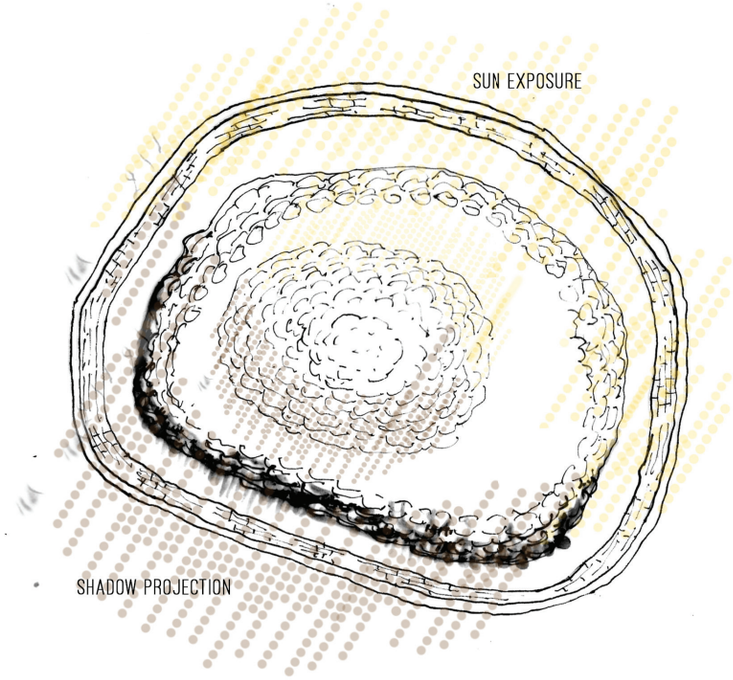
SITE DIMENSIONS

This diagram indicates the approximate measurements that will mainly inform where building will cantilever and where it will be stabilized on solid ground due to the excavations on site.



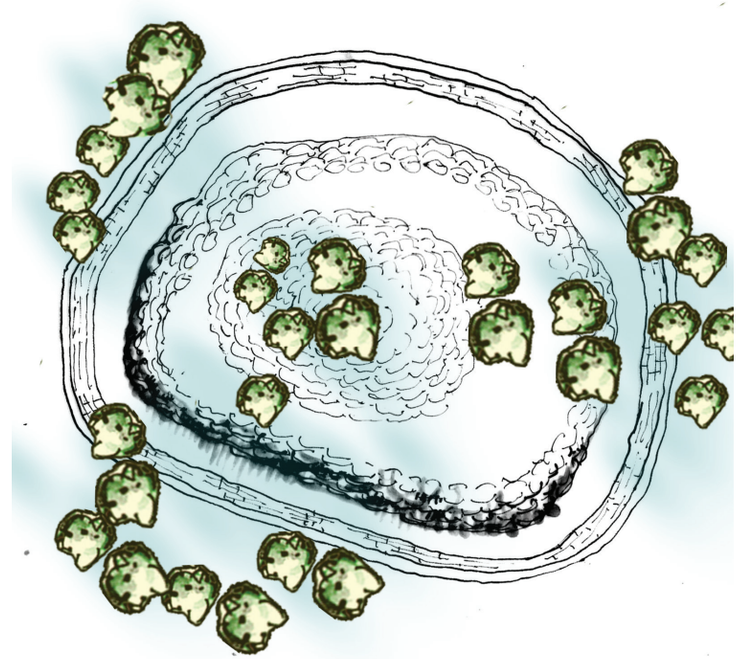
HEIGHTS

A thorough understanding of the site's height dimensions are crucial in order to safeguard the design. A combination of both the site dimensions and heights needs to be considered on a three-dimensional level throughout the design process.



SUN EXPOSURE

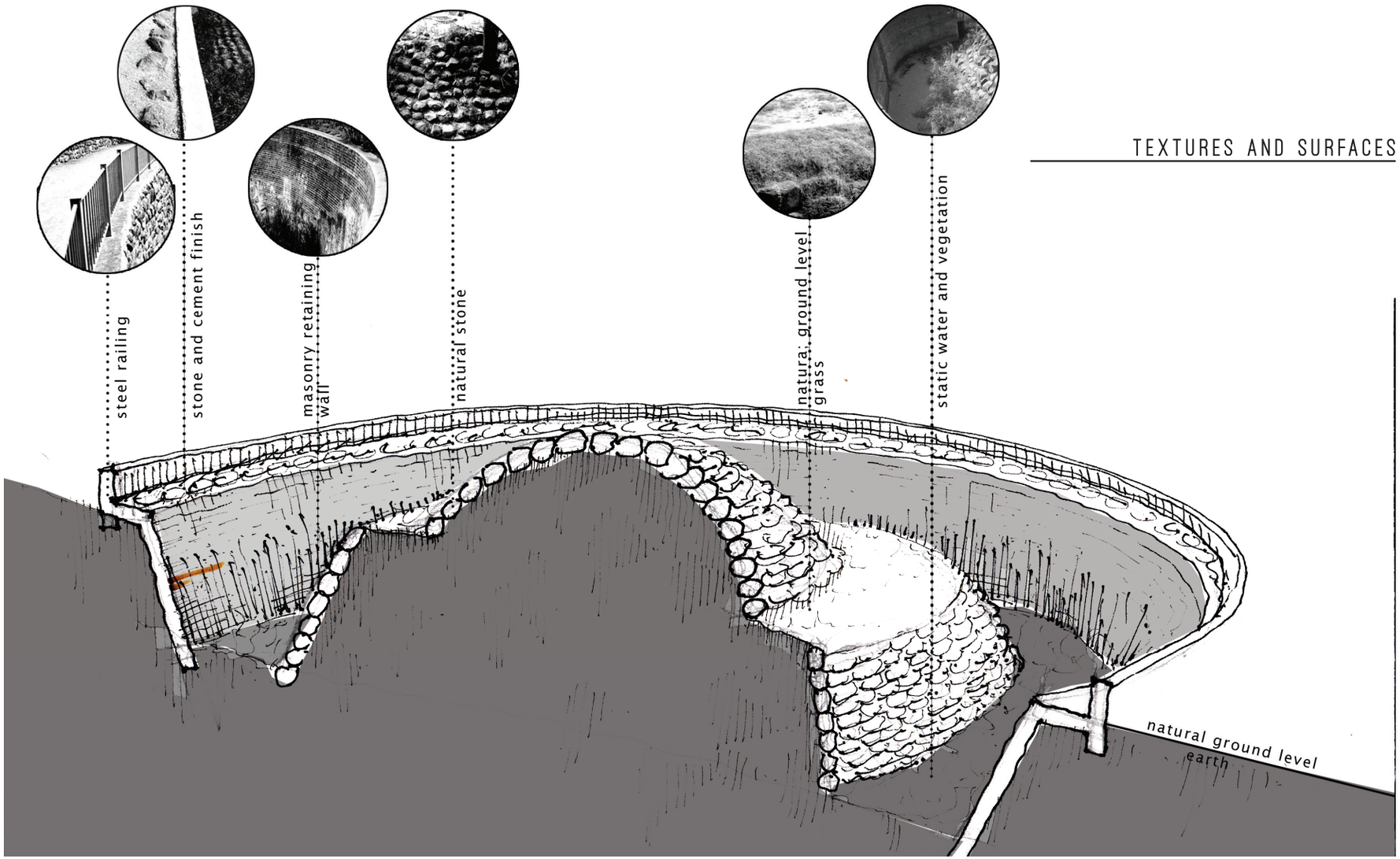
Due to the drastic height differences on site, an analysis of daily exposure to sunlight is necessary in order to determine where what functions should be placed.

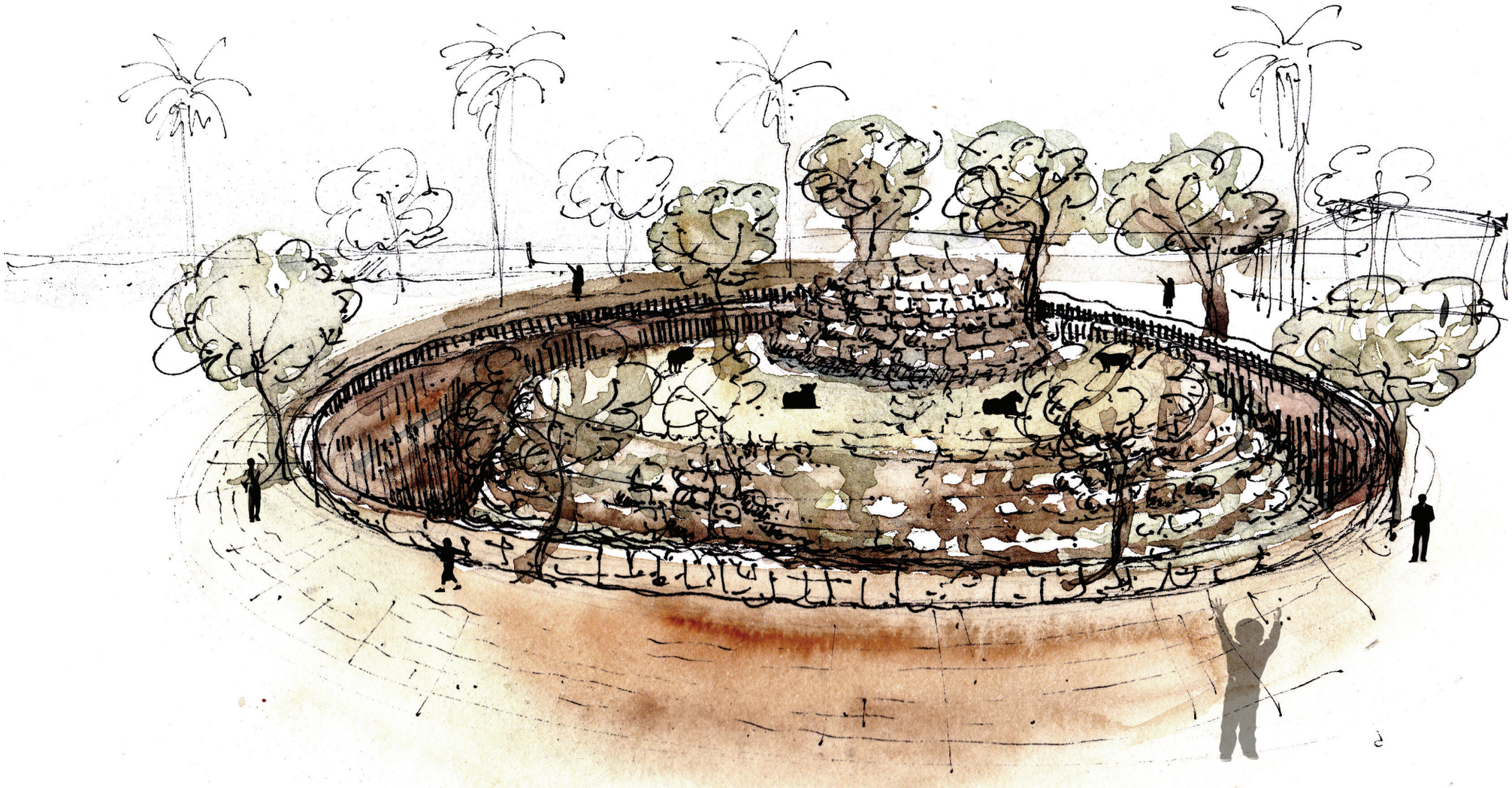


TREES AND SHADING

Removal of trees on site should be avoided but rather be incorporated into the design. For this reason the diagram pins down the current location of trees on site. Shading of vegetation is indicated in blue in order to place functions where it will receive reasonable sun exposure.

TEXTURES AND SURFACES



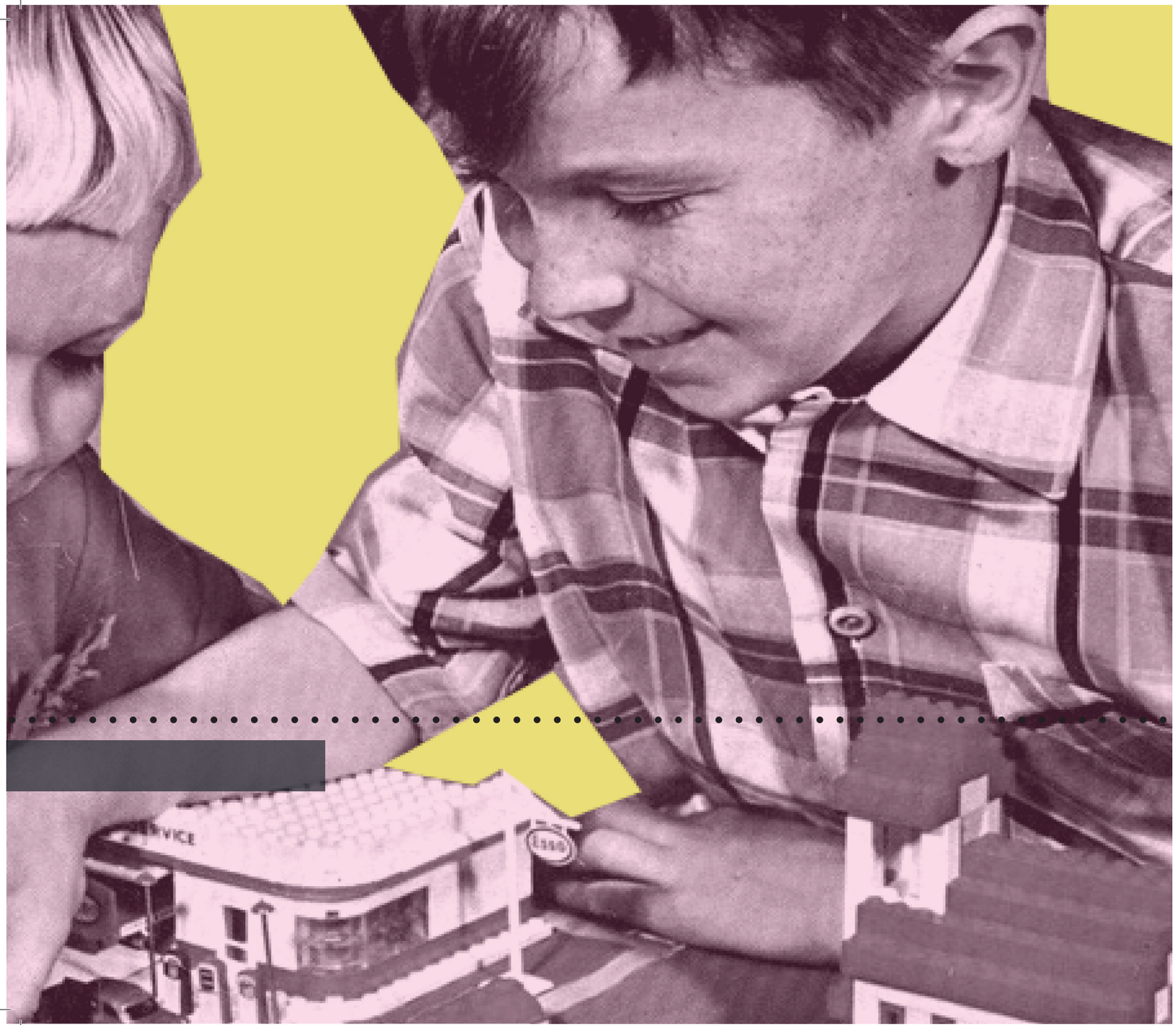


PERSPECTIVE OF LION'S DEN

CHAPTER 5

PROJECT SYNTHESIS





INTRODUCTION:

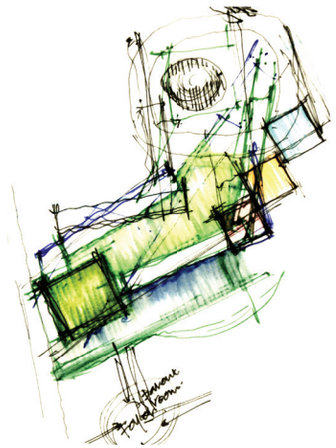
The process of applying architectural tools is graphically conveyed in this chapter. It consists of programmatic challenges combined with narrative archetypes where solutions are investigated by means of sketches, drawings and model building.

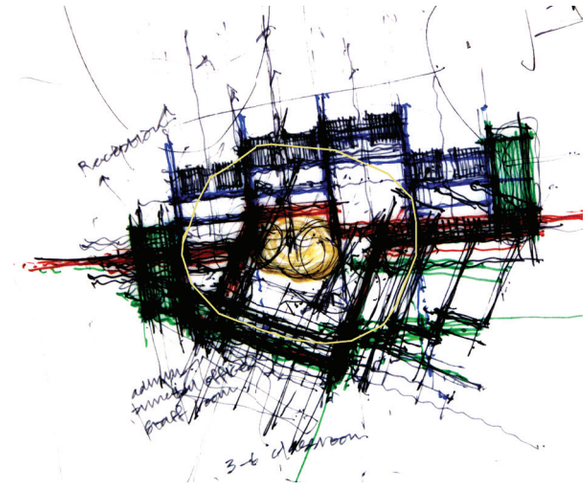
DESIGN DEVELOPMENT:

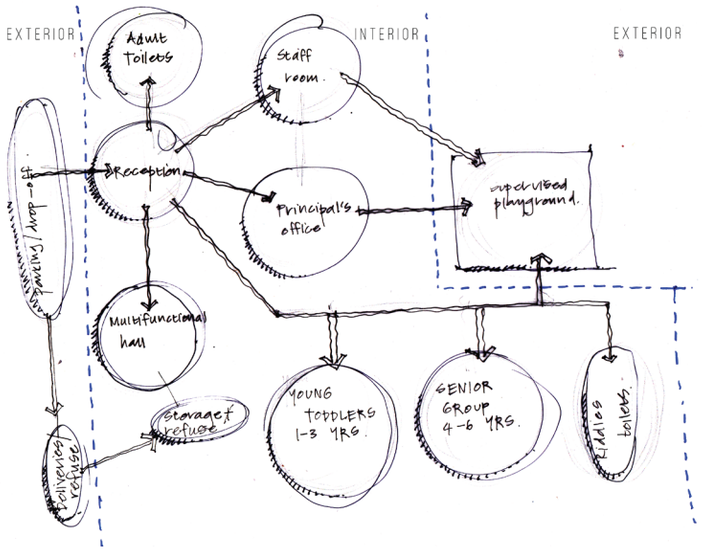
Establishing a functional diagram:

The first challenge of the design was to organize a rational location of functions with the added parameter of the site's dimensions.

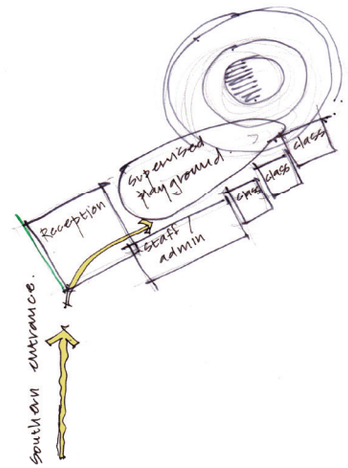
The conlusion was made that there are endless solutions, therefore the aim was to come up with the most elegant and effortless layout.

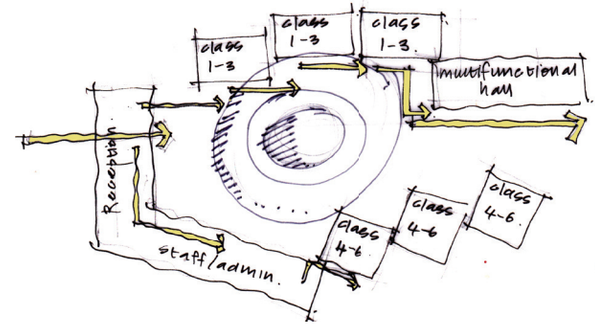


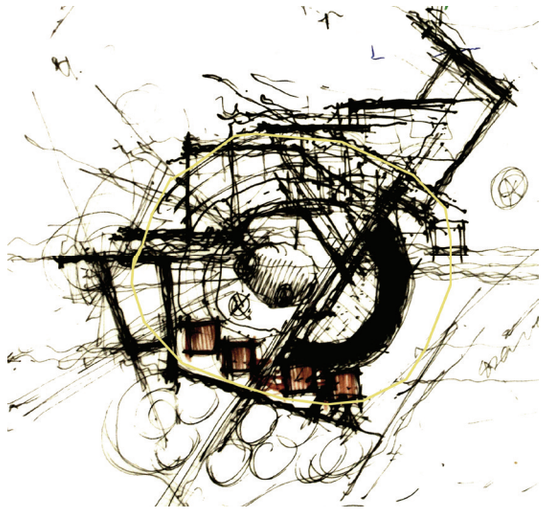


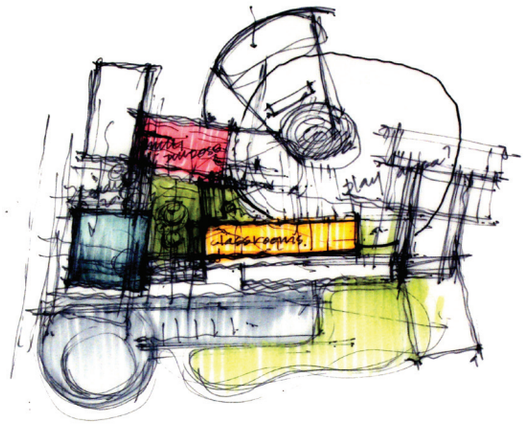


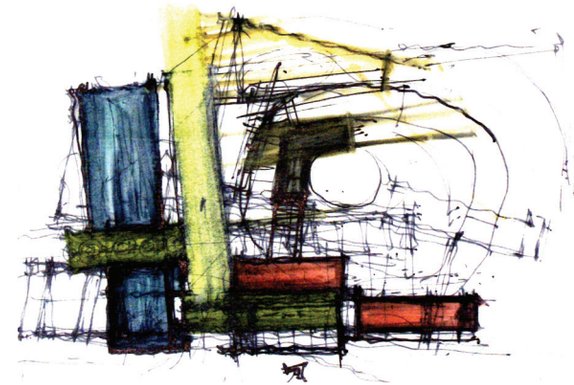
FUNCTIONAL BUBBLE DIAGRAM

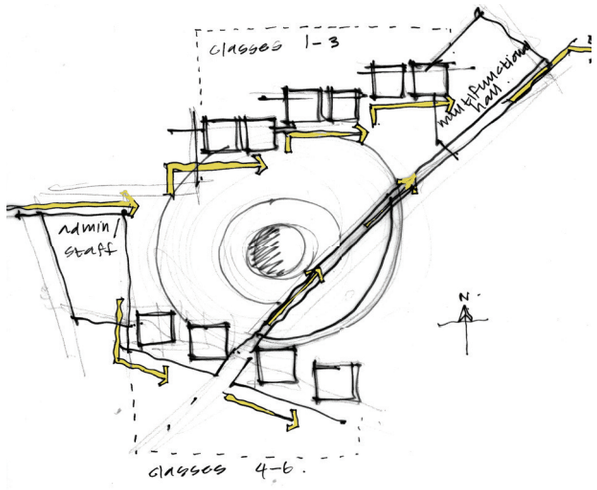


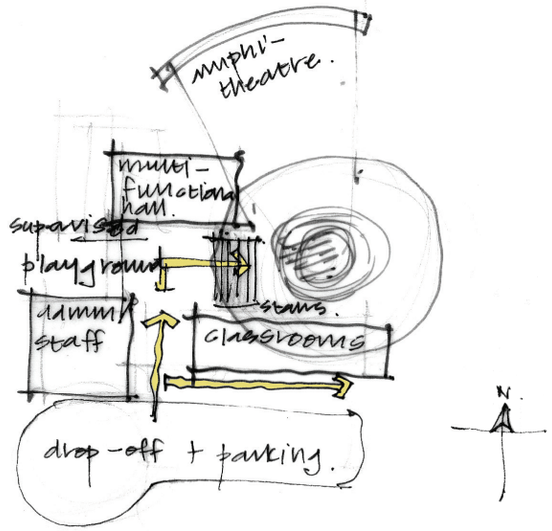


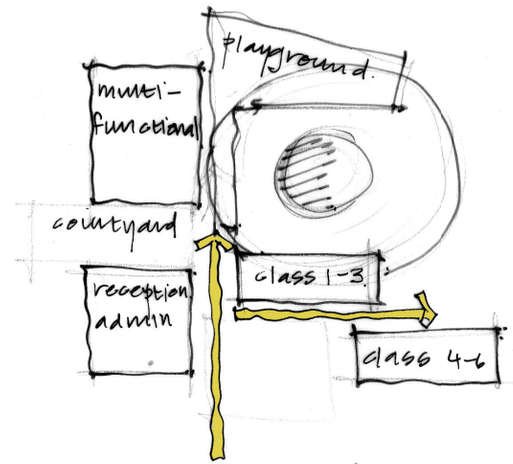



classrooms




classes 1-3
admin/
staff
classes 4-6.
N


amphi-
theatre.
multi-
function
hall.
supervised
playground
admin/
staff
stairs.
classrooms
drop-off + parking.
N


playground
multi-
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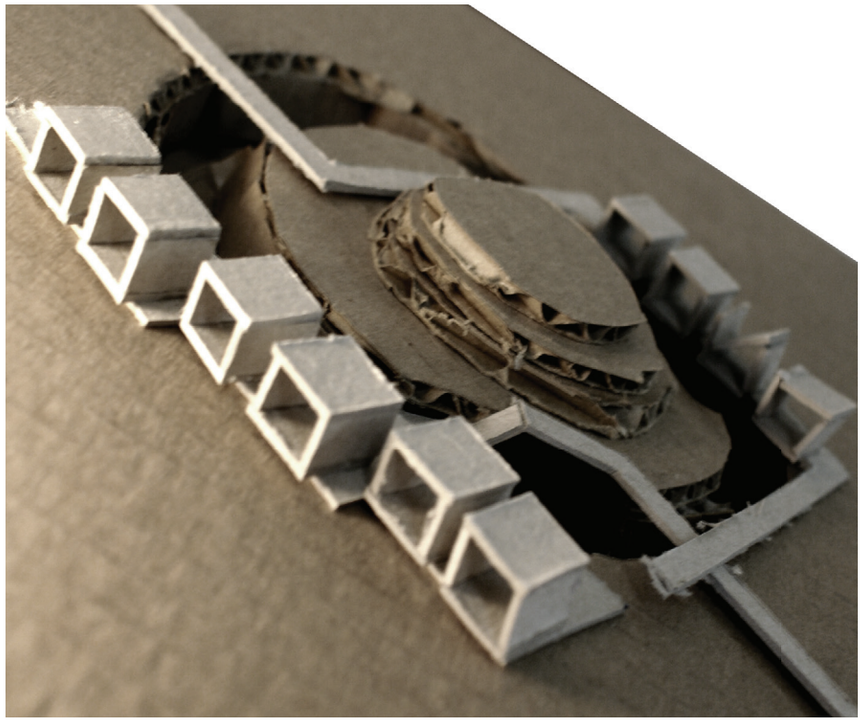
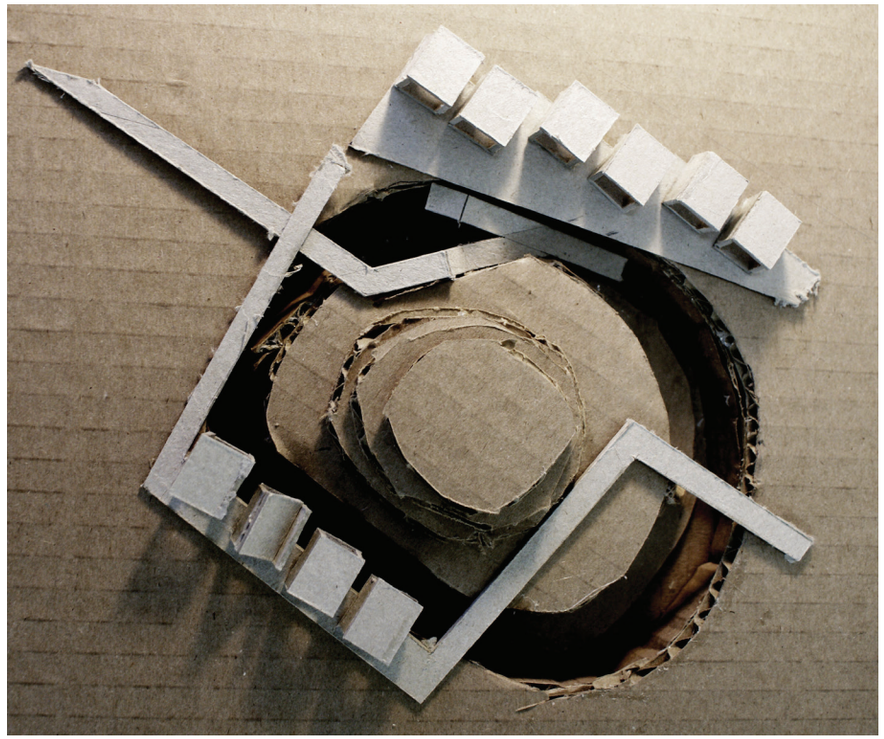
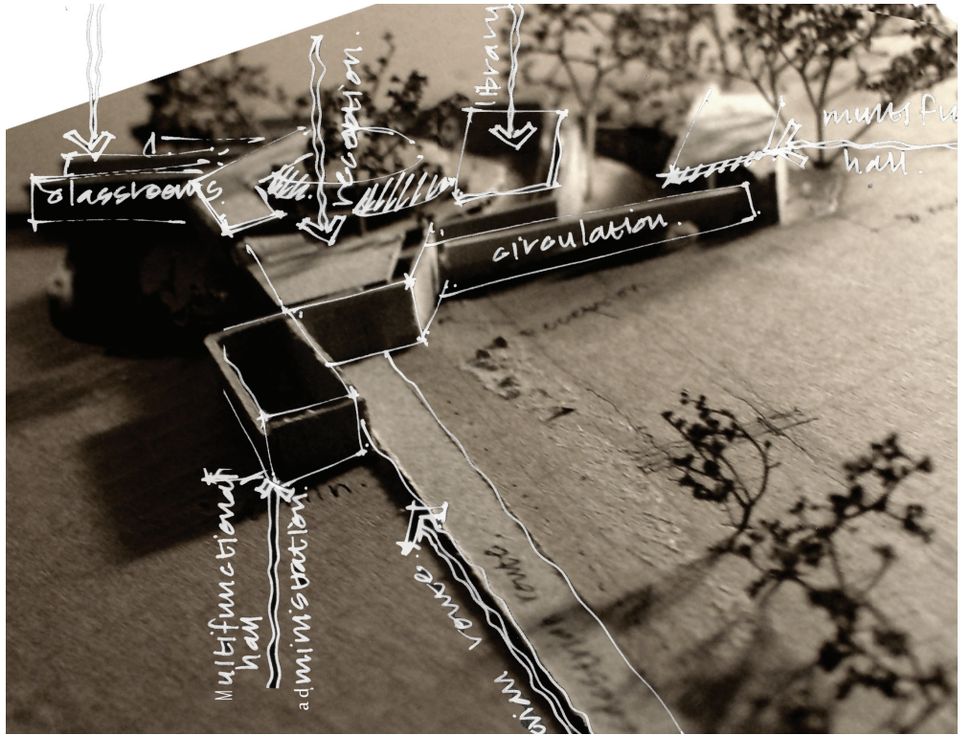
courtyard
reception
admin
class 1-3
class 4-6



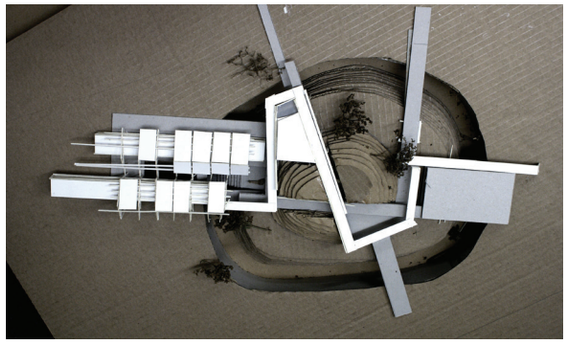


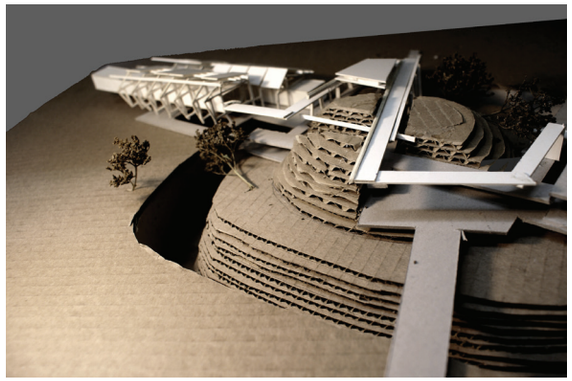
Intitial concept models.

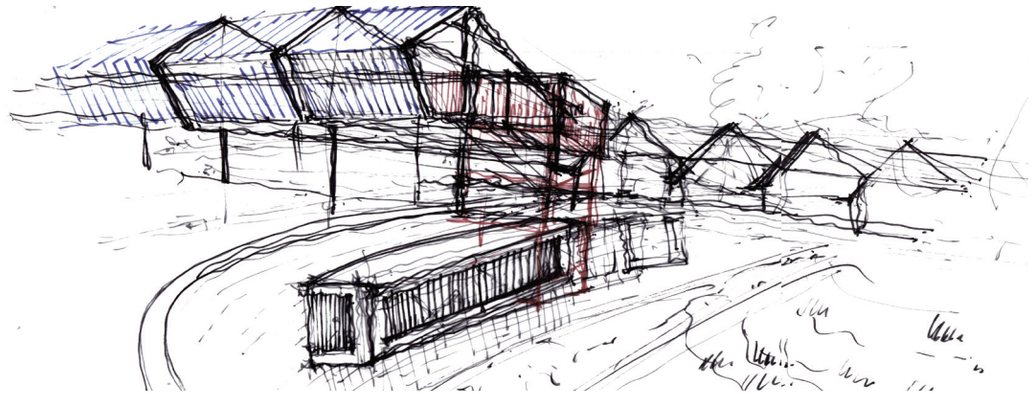


Intitial concept models.

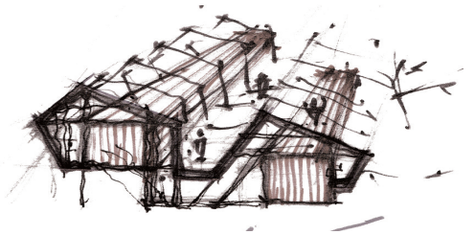


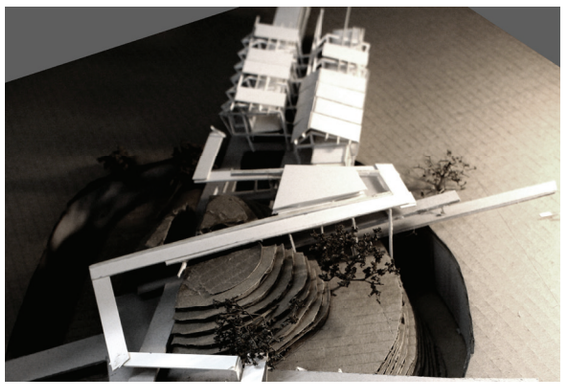


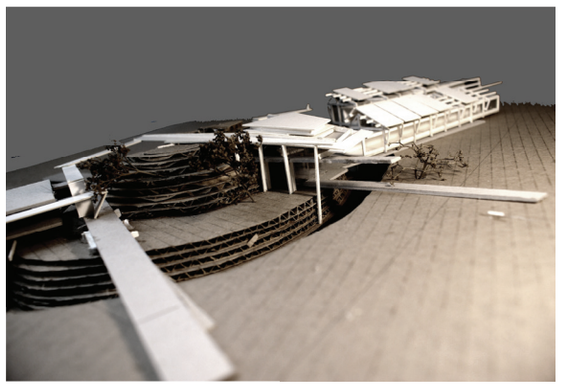


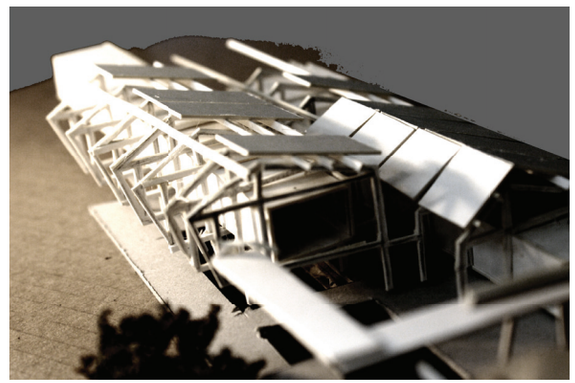


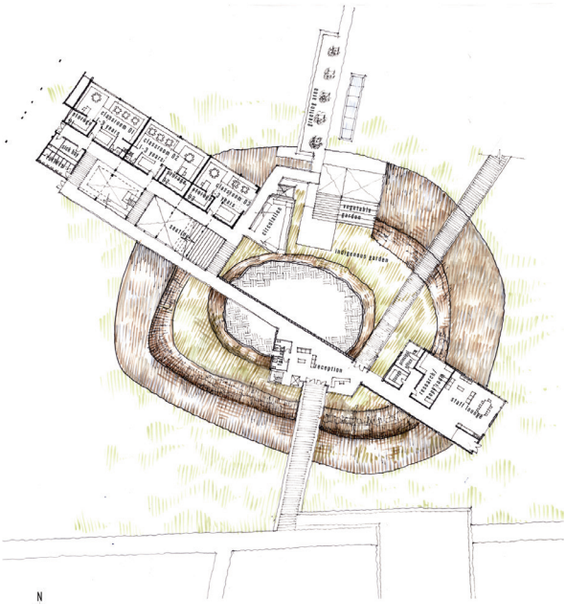




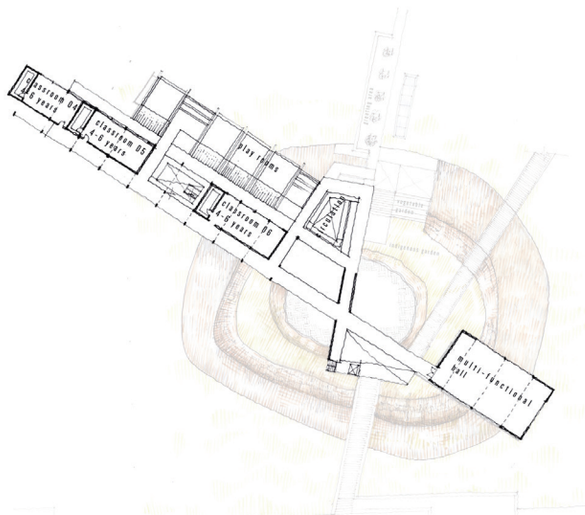




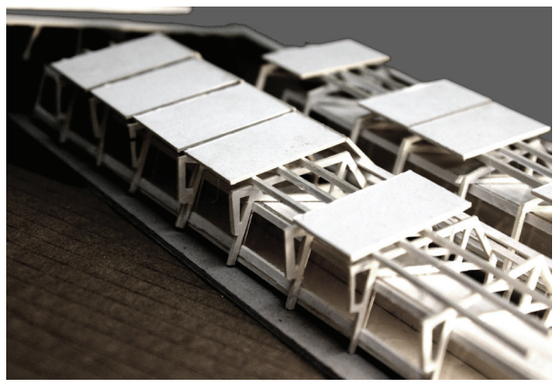


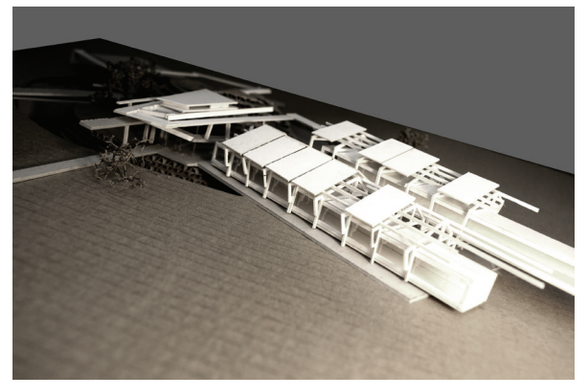


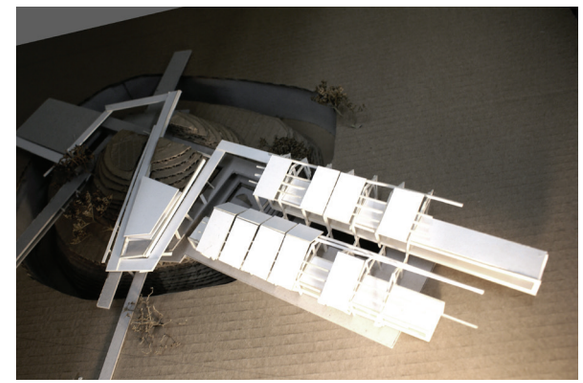
GROUND FLOOR PLAN



FIRST FLOOR PLAN







CONCLUSION

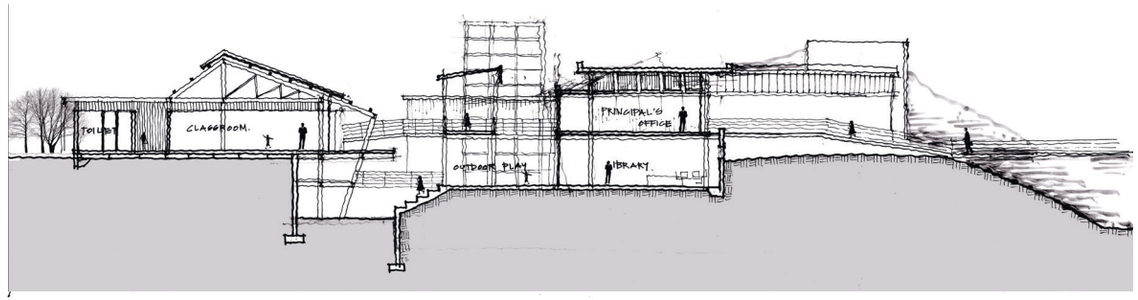
Building is not interacting enough with depth of site.

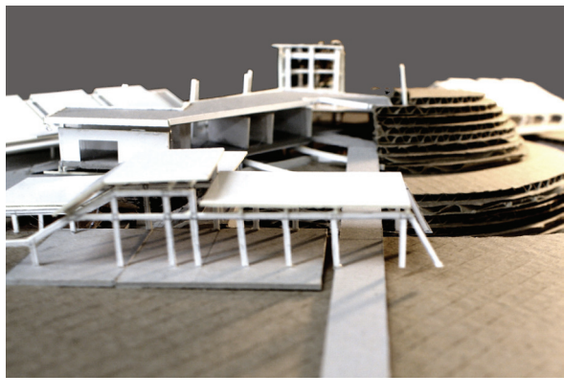
Classrooms should be placed along lion's den and not extend into the landscape.

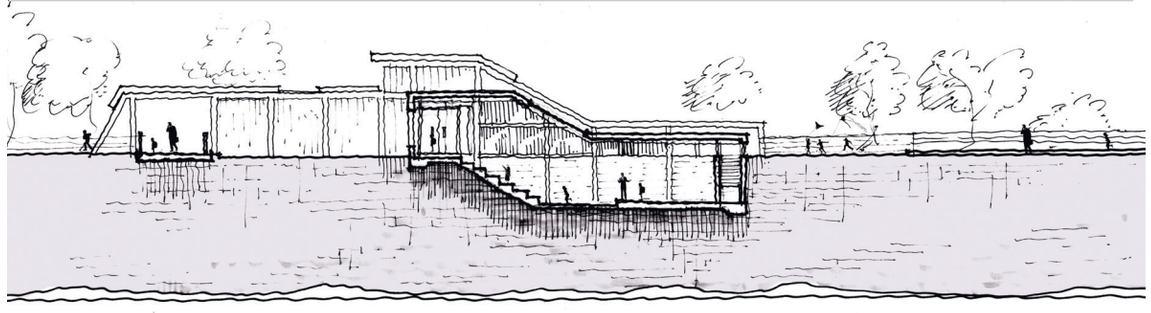
Reduce entrances for the sake of security.

Classrooms are too narrow.



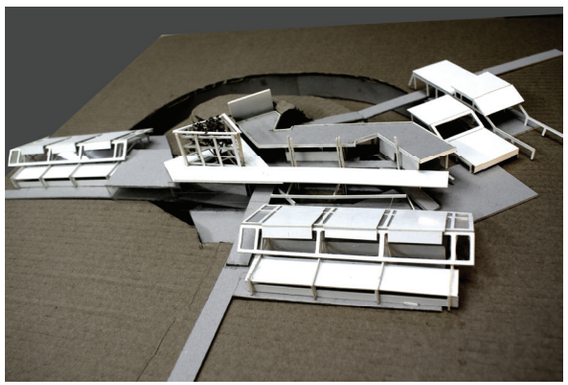




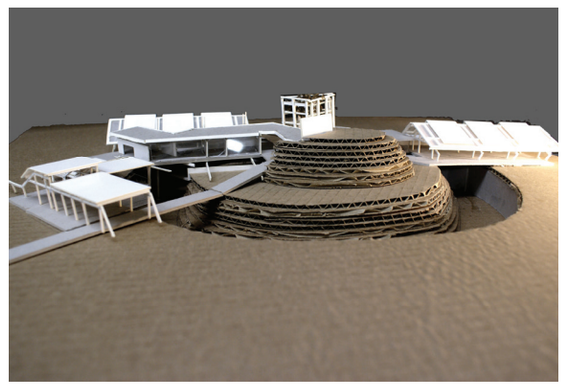


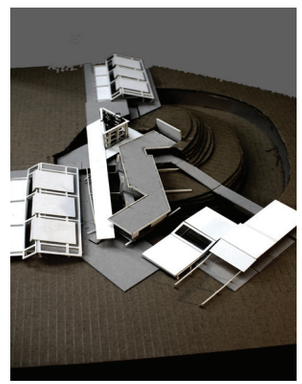
Design Sections

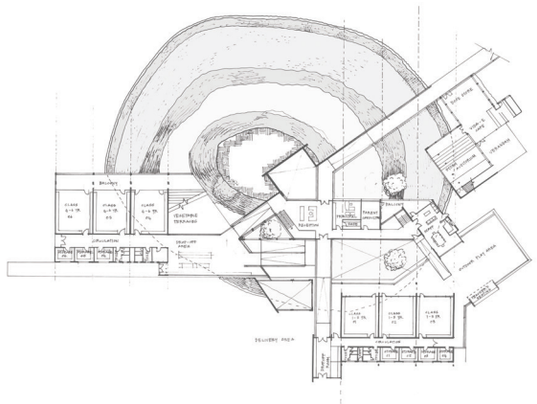
Not to scale





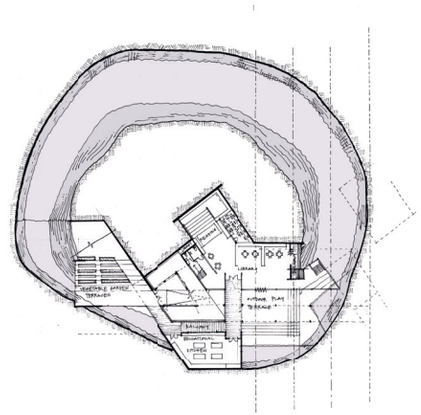






GROUND FLOOR PLAN

NOT TO SCALE



LOWER FLOOR PLAN

NOT TO SCALE

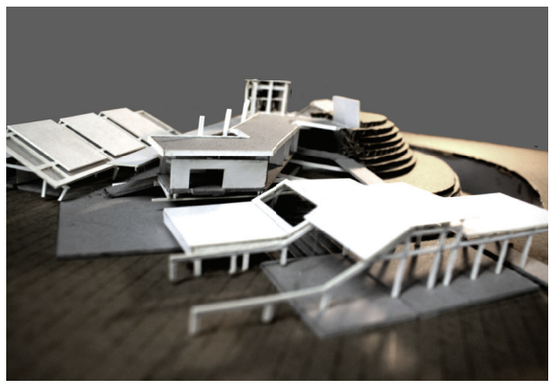
CONCLUSION

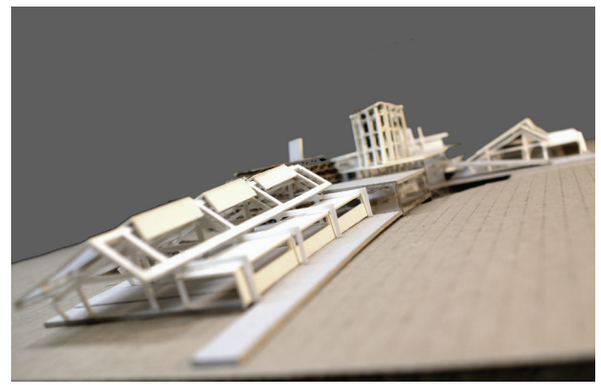
Building still not interacting enough with depth of site.

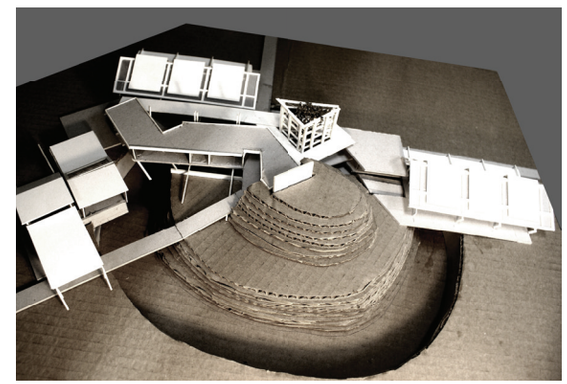
Too many open spaces which should be applied for children's play activities..

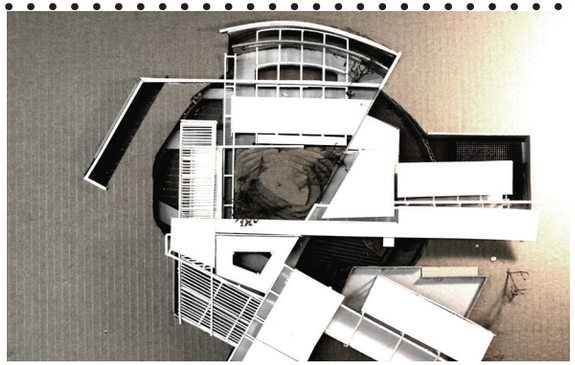
Plan too compound.

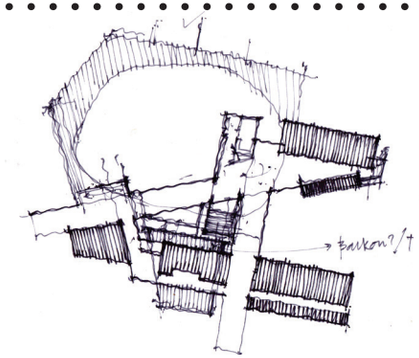
Good morphology - to be maintained to adjustments.

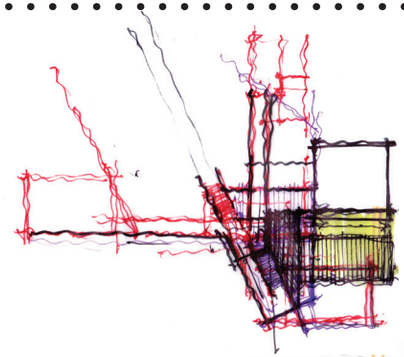


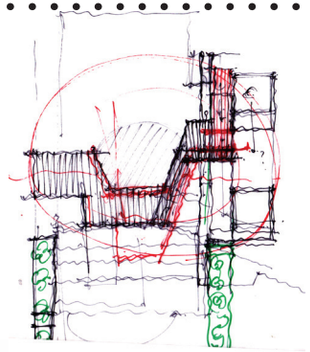


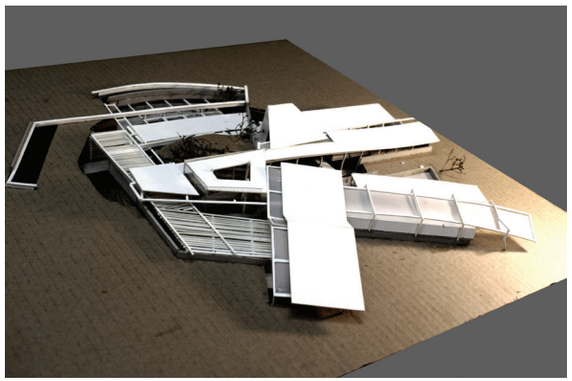


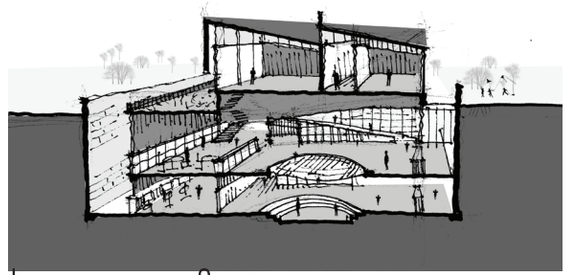






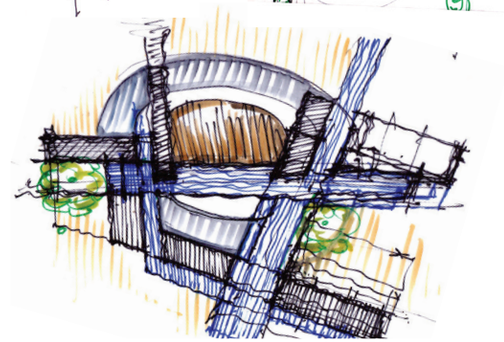


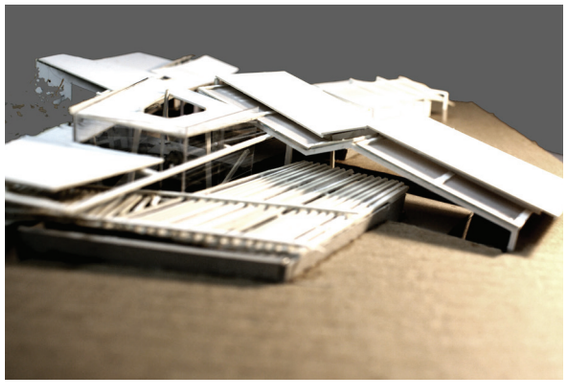


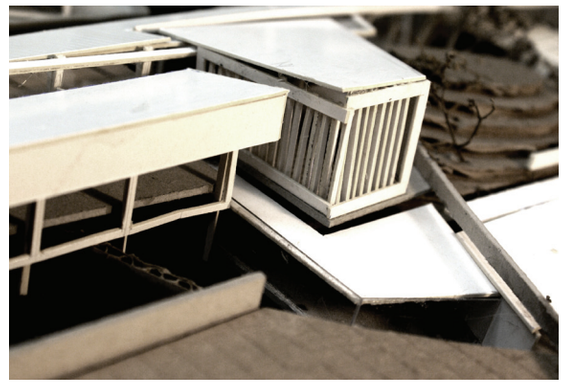


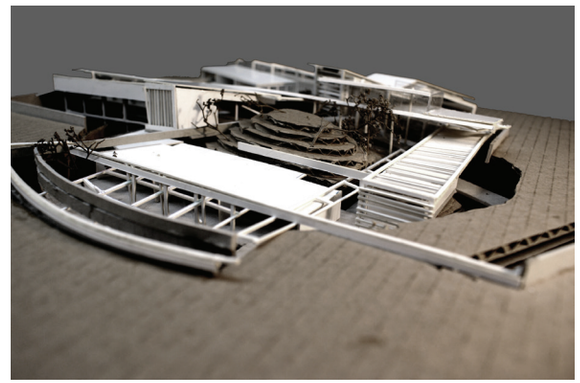
Library and Staff section

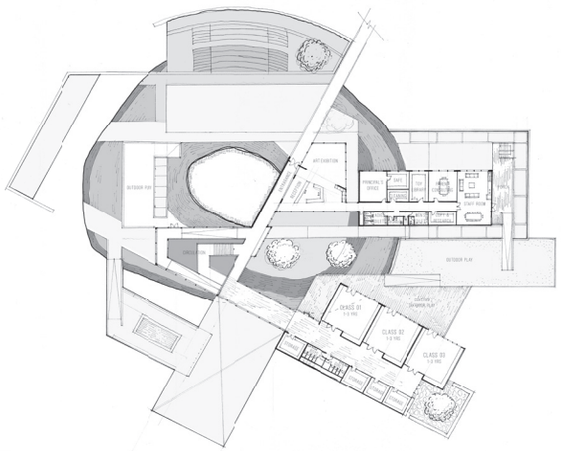
Not to scale



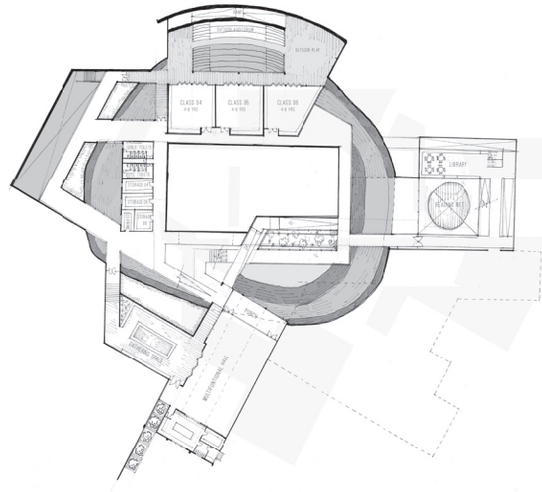








GROUND FLOOR PLAN
NOT TO SCALE



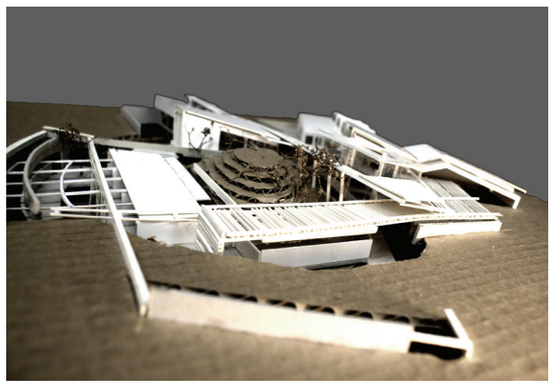
LOWER FLOOR PLAN
NOT TO SCALE

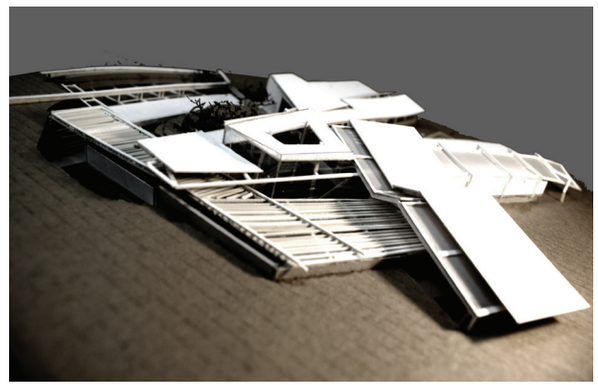
CONCLUSION

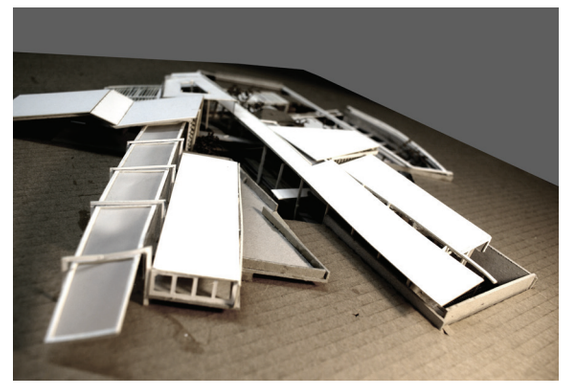
Building interacts well with site.

Spaces are too irrational.

Simplify morphology.





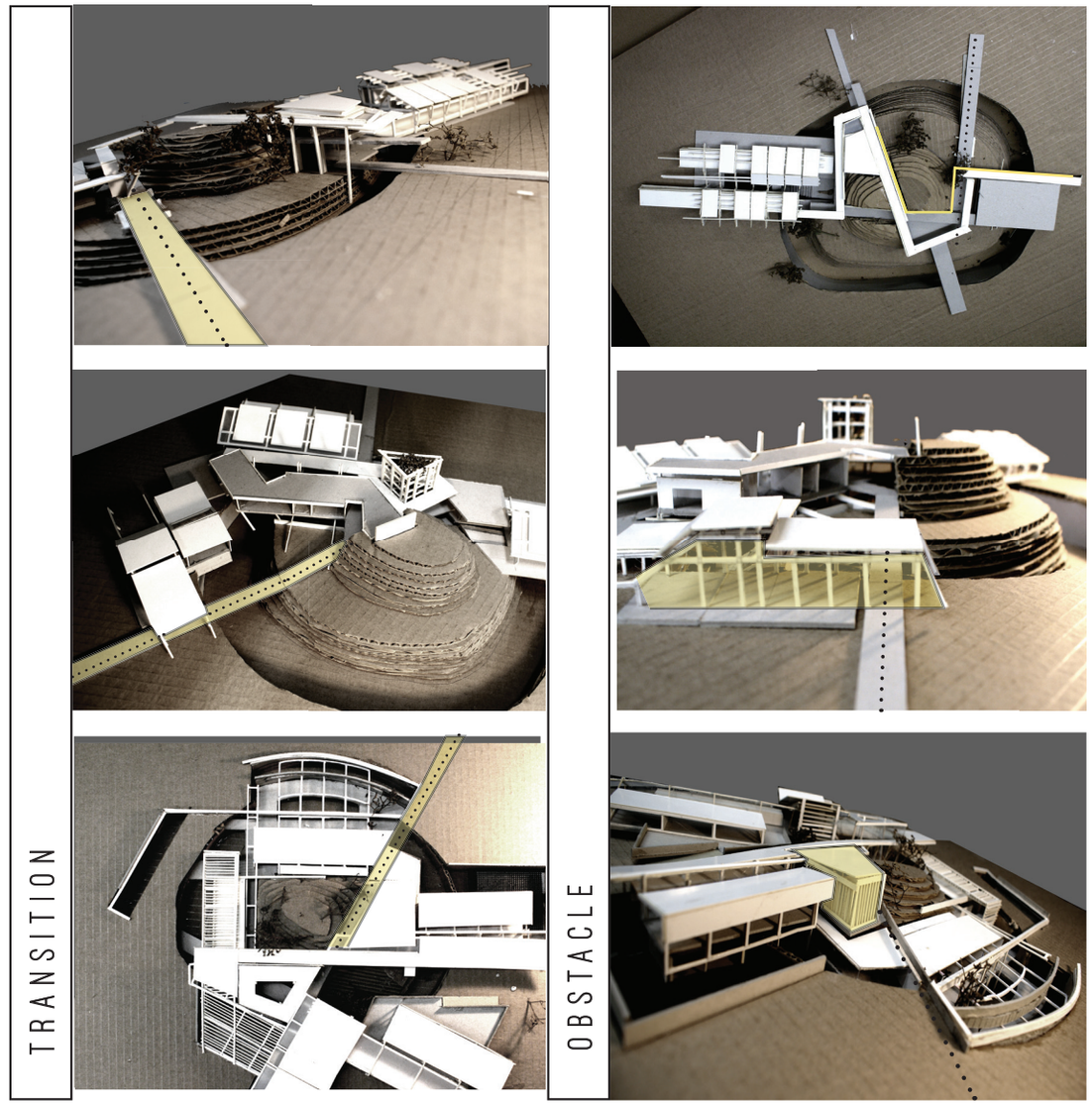


THEORETICAL APPLICATION:

Design 1:

Design 2:

Design 3



VERTICALITY

THE ERRATIC

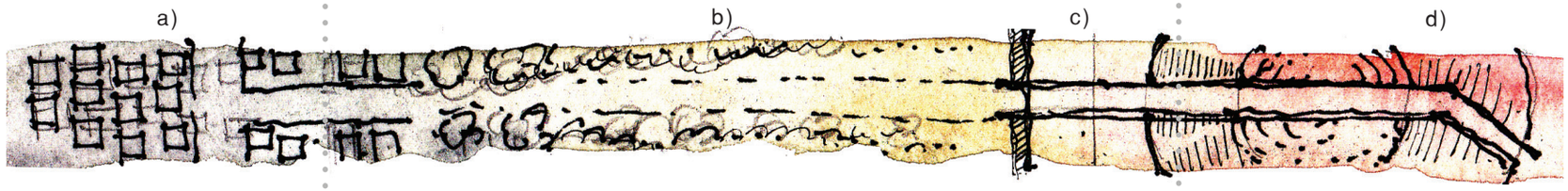
SANCTUARY

DESIGN SYNTHESIS:



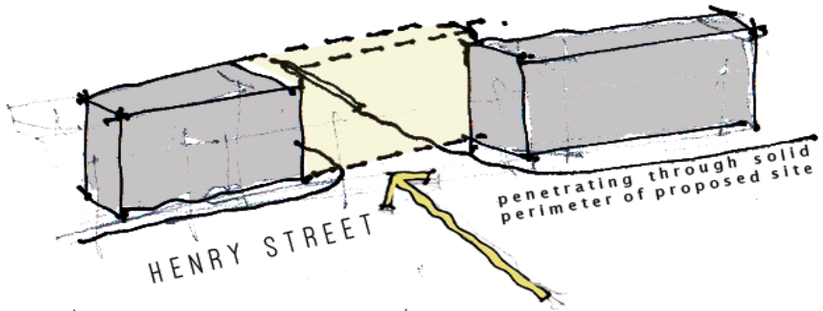
Designing an architectural ecotone in the form of a master plan.
Crafting an experience of shifting landscapes.



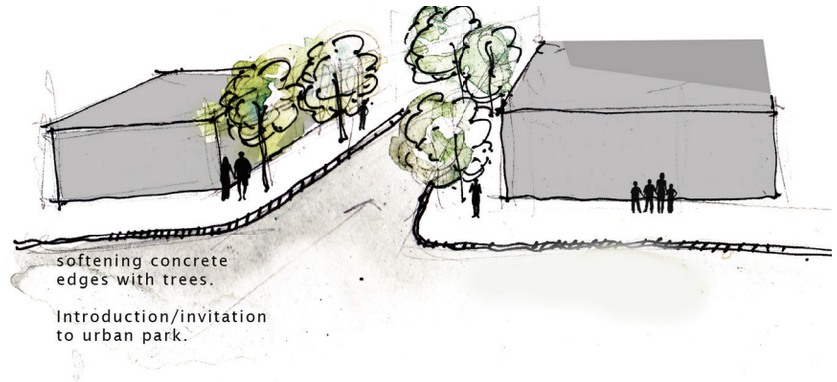


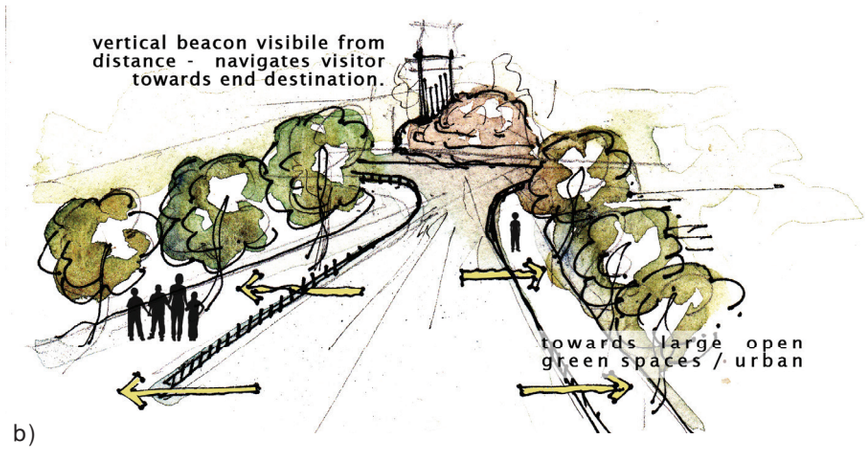
A TRANSITIONAL EXPERIENCE. IN THE FORM OF A MASTERPLAN.

TRANSITION

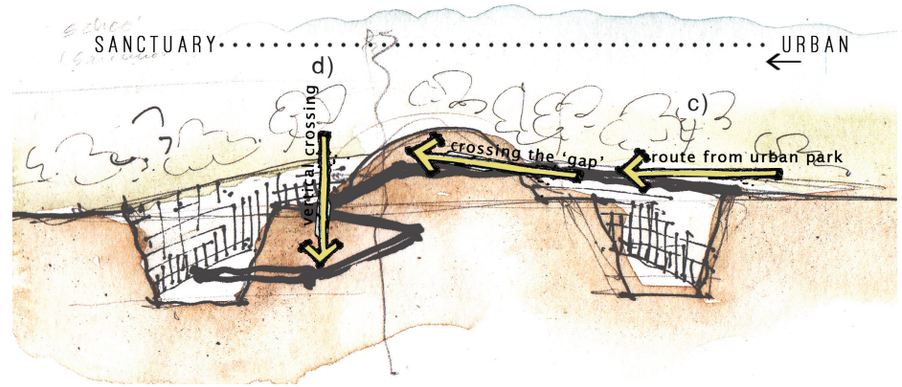

HENRY STREET
penetrating through solid perimeter of proposed site

a)


softening concrete edges with trees.
Introduction/invitation to urban park.

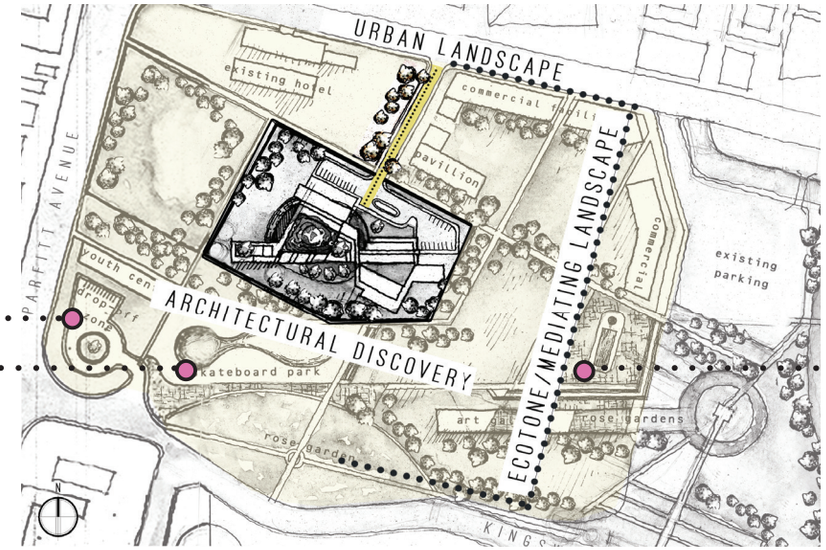

vertical beacon visibile from distance - navigates visitor towards end destination.
towards large open green spaces / urban

b)

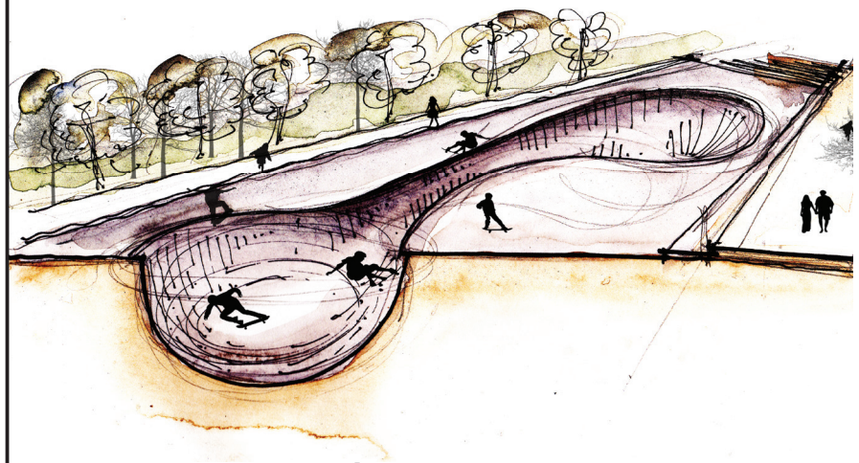

SANCTUARY
URBAN
d)
c)
vertical crossing
crossing the 'gap'
route from urban park



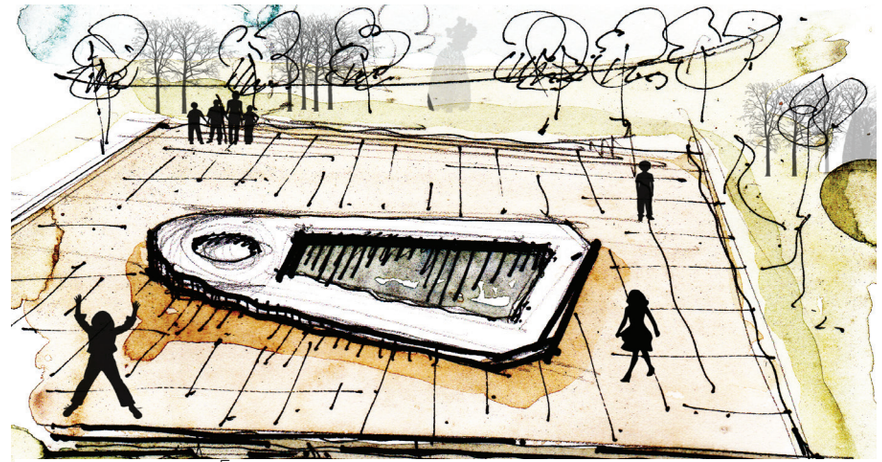
Youth centre with green drop-off zone.



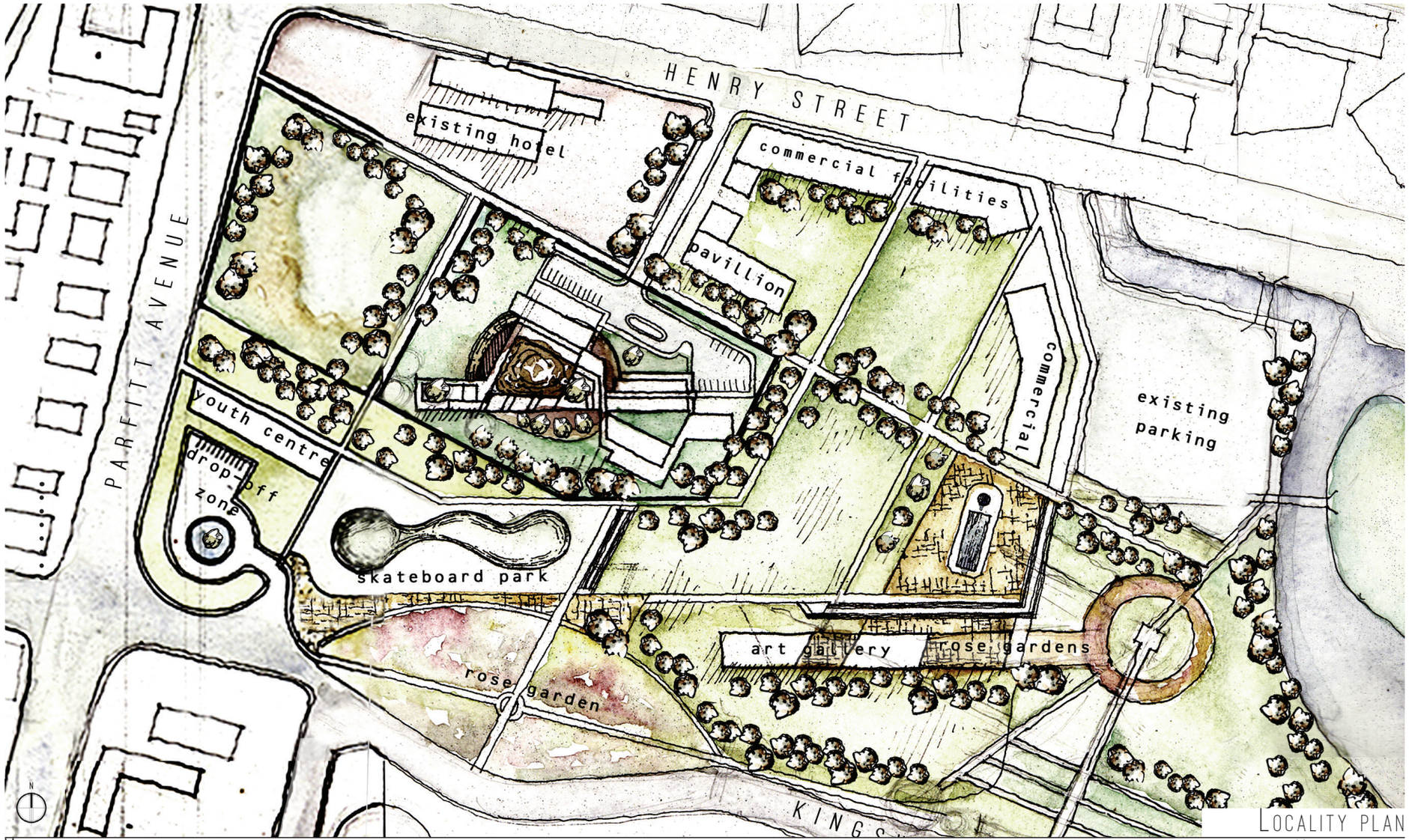
Transition route indicated in yellow.



Diagrammatic section of skateboard park.



Existing pond to be preseserved as public gathering space.



Masterplan proposed for future development.

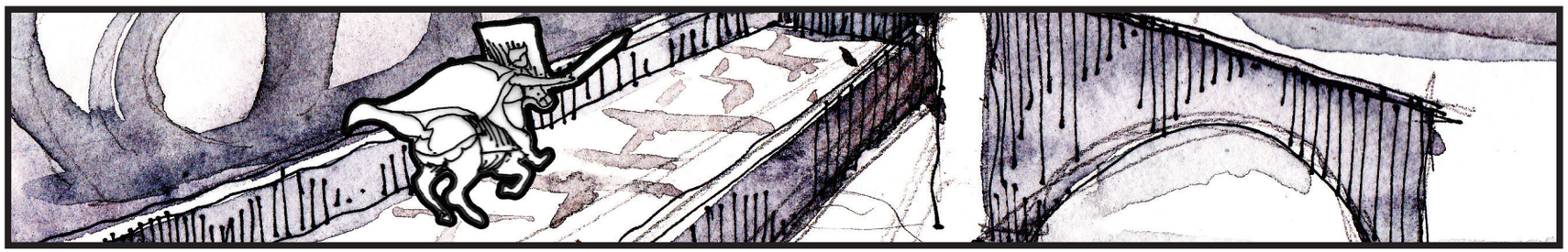
Locality plan

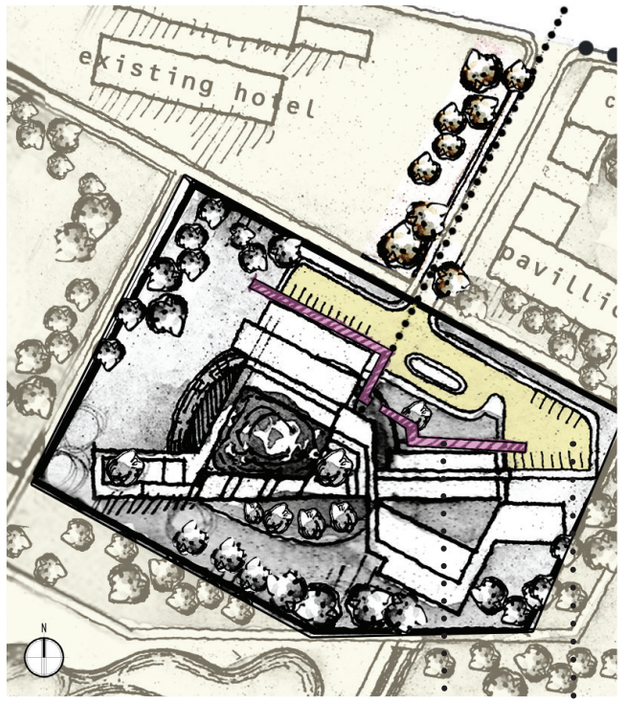
Not to scale



Creating a deliberate confrontation with the user and the building as a threshold for adventure.

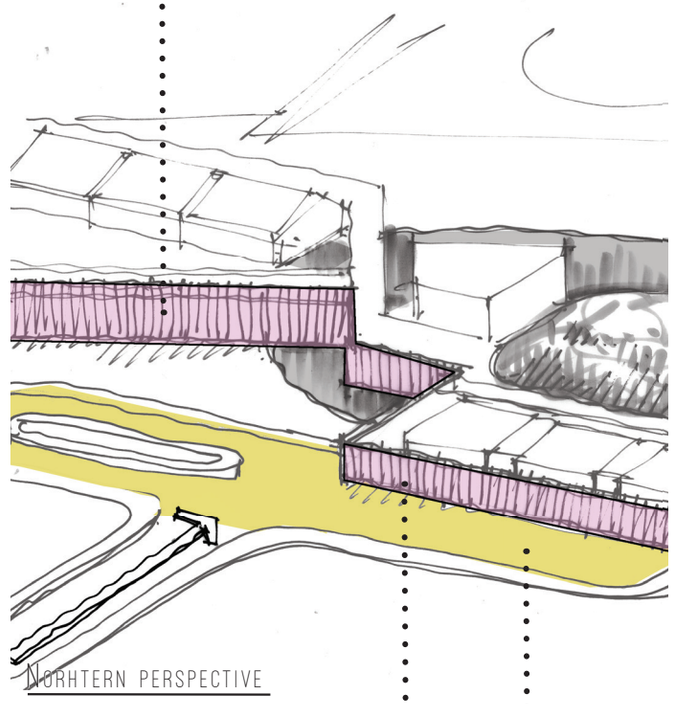






Facade creates solid boundary in perspective of building.

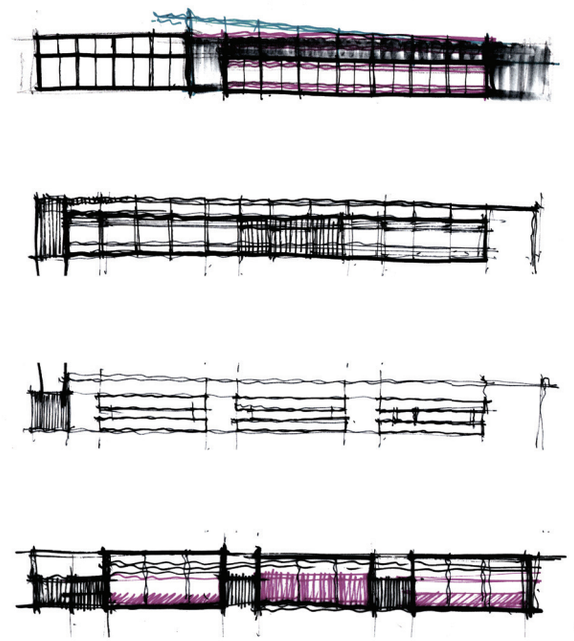
Parking lot functions as horizontal plane disrupting the transitional route.

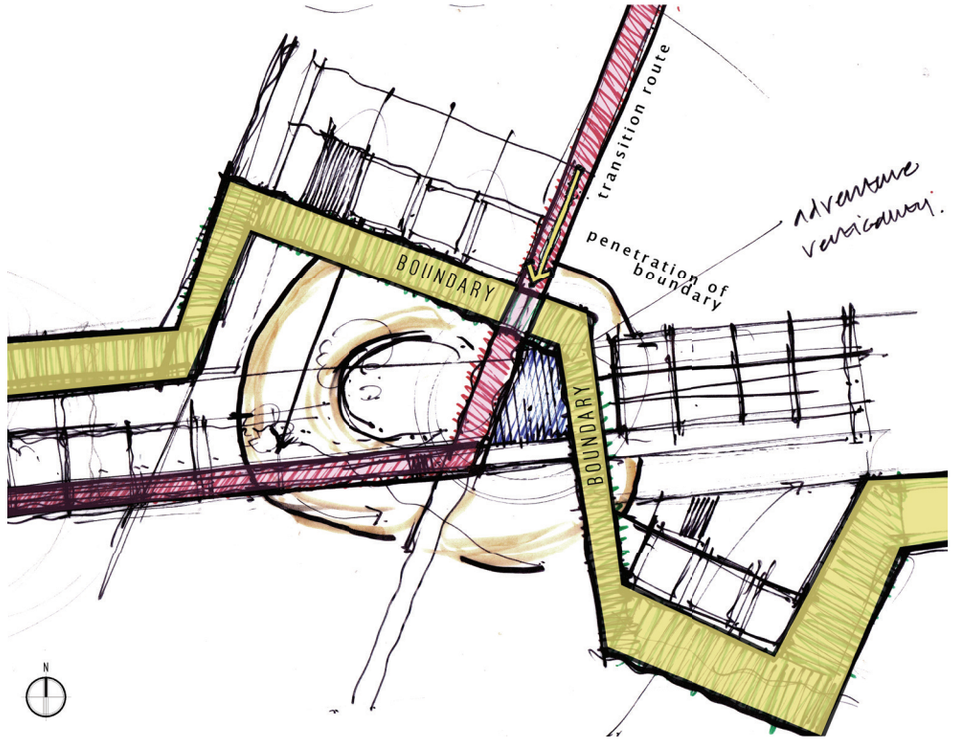


NORHTERN PERSPECTIVE

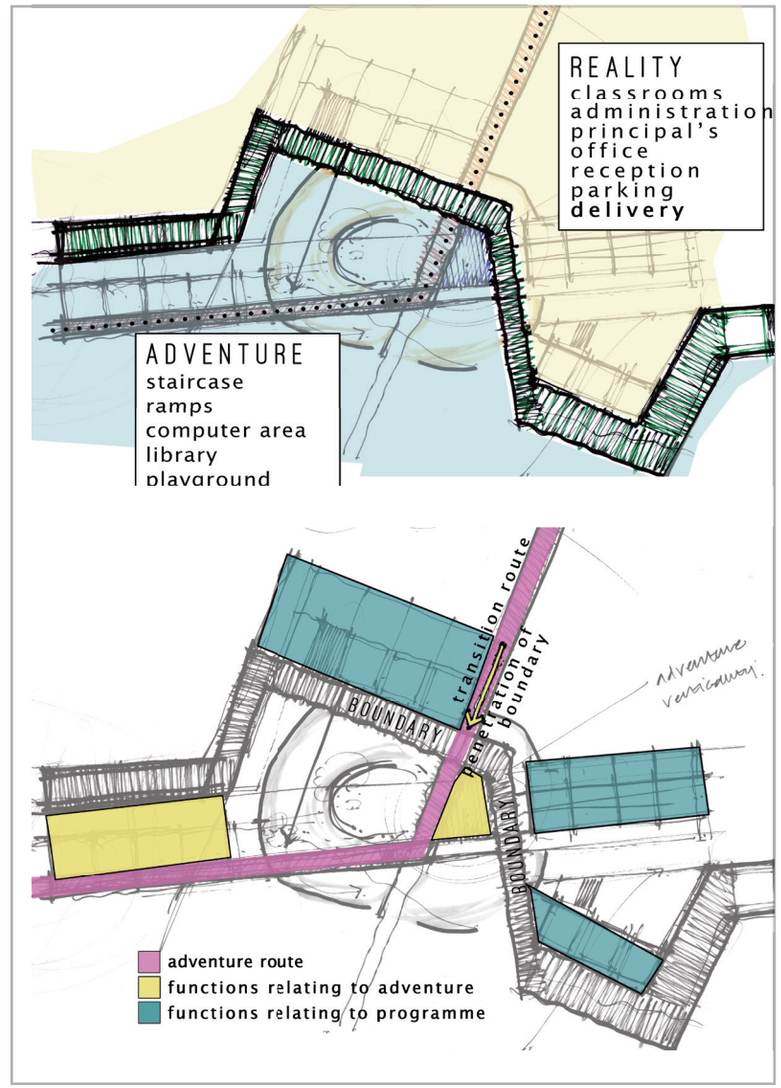
Solid facade functioning as barrier.

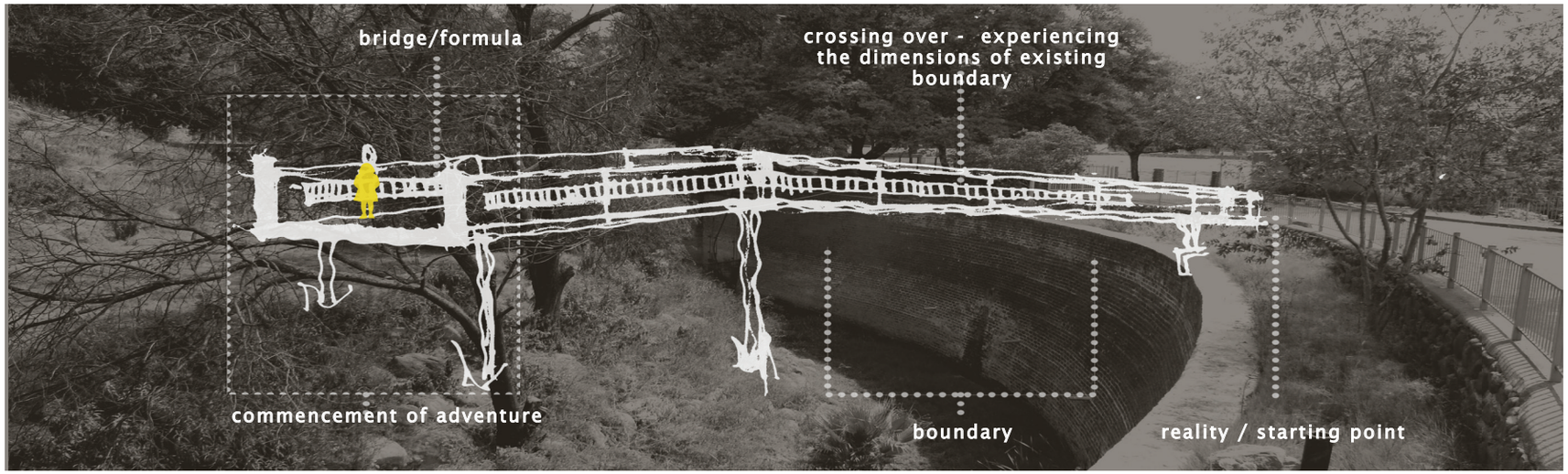
facade development

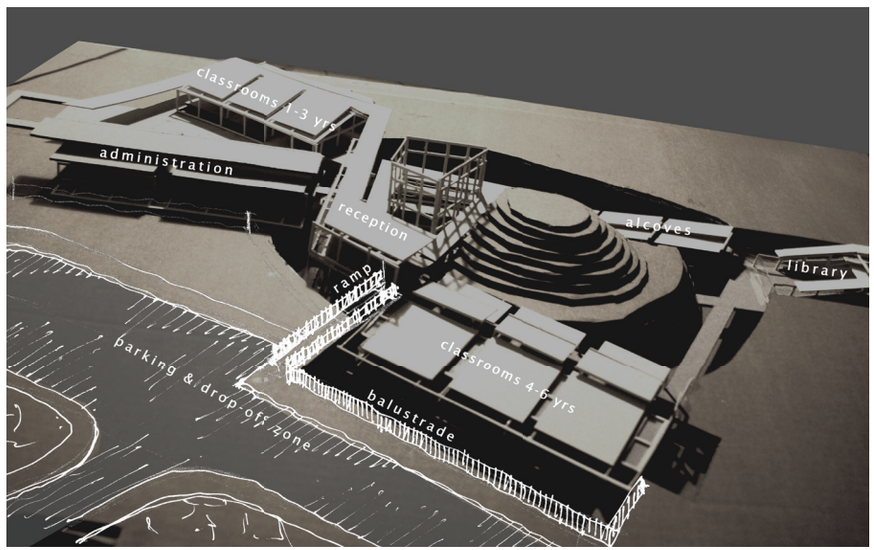


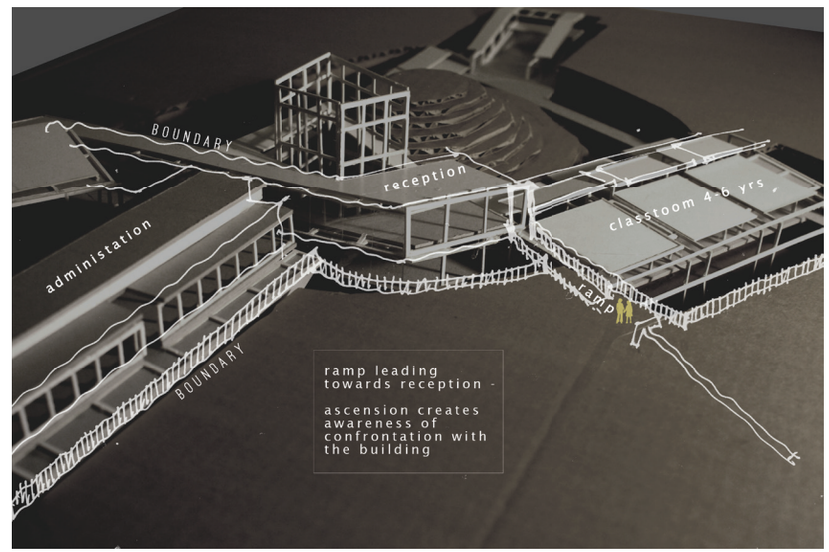


A boundary is created through placing a barrier which seperates the building with its surroundings. An uncanny experience is provoked when approaching the building as a ramp ascends towards the entrance of the building. This ramp will hover over the existing excavations which will create a six-dimensional experience as described by Unwin (1997: 108-109). A sense of frontality prepares the visitor for the introduction with the building.

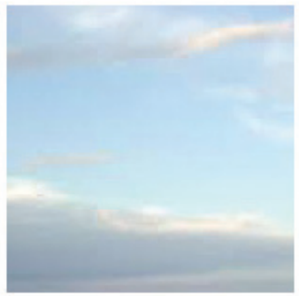



bridge/formula
crossing over - experiencing the dimensions of existing boundary
commencement of adventure
boundary
reality / starting point


classrooms 1-3 yrs
administration
reception
alcoves
library
ramp
classrooms 4-6 yrs
balustrade
parking & drop-off zone


BOUNDARY
reception
classroom 4-6 yrs
administation
ramp
BOUNDARY
ramp leading towards reception - ascension creates awareness of confrontation with the building

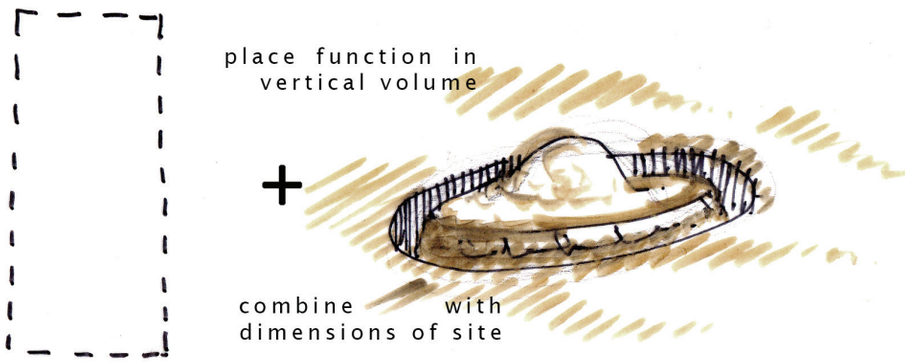
VERTICALITY

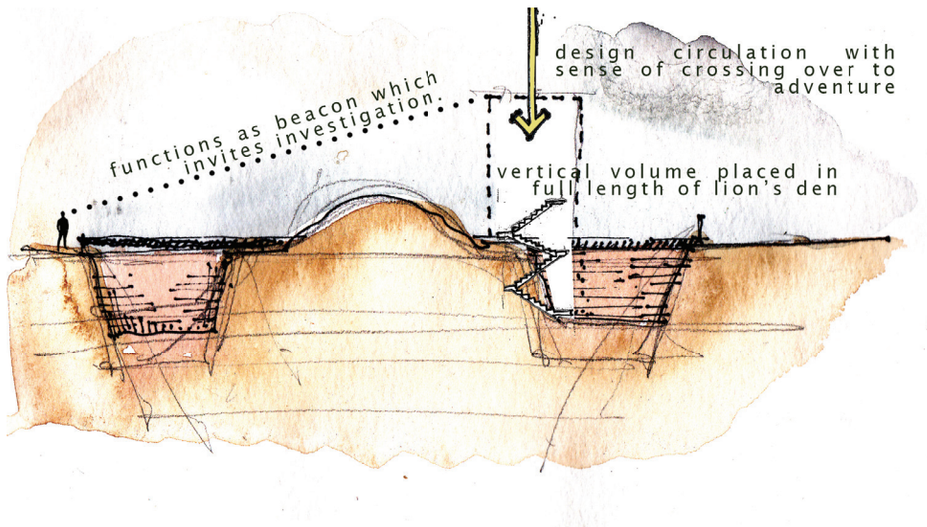


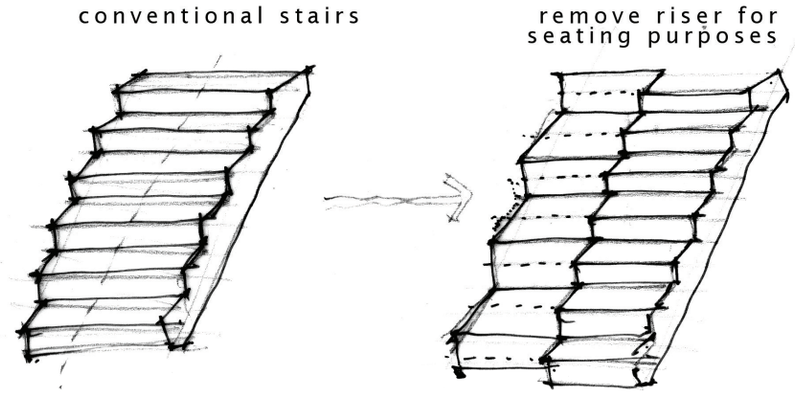


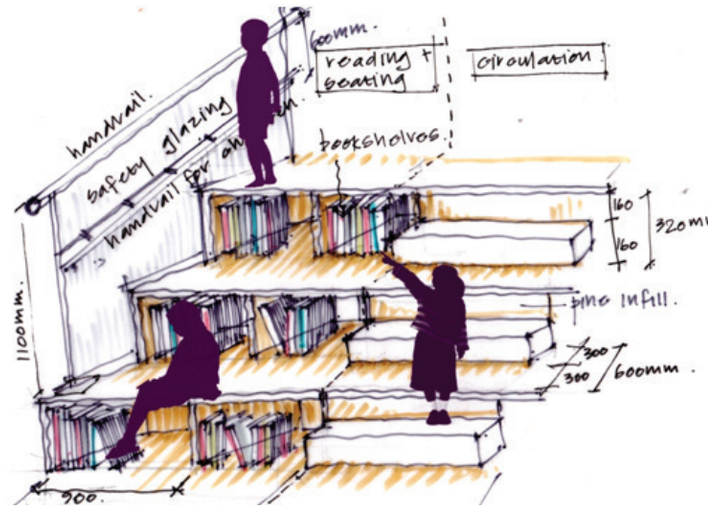
Disrupting the horizontal landscape by means of placing and designing spaces on a vertical axis.

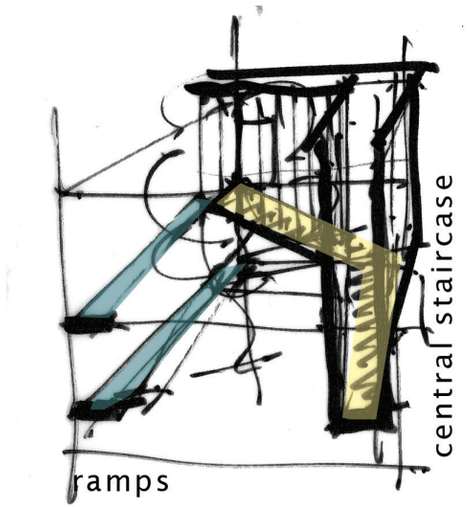



place function in
vertical volume
+
combine with
dimensions of site


functions as beacon which
invites investigation
design circulation with
sense of crossing over to
adventure
vertical volume placed in
full length of lion's den

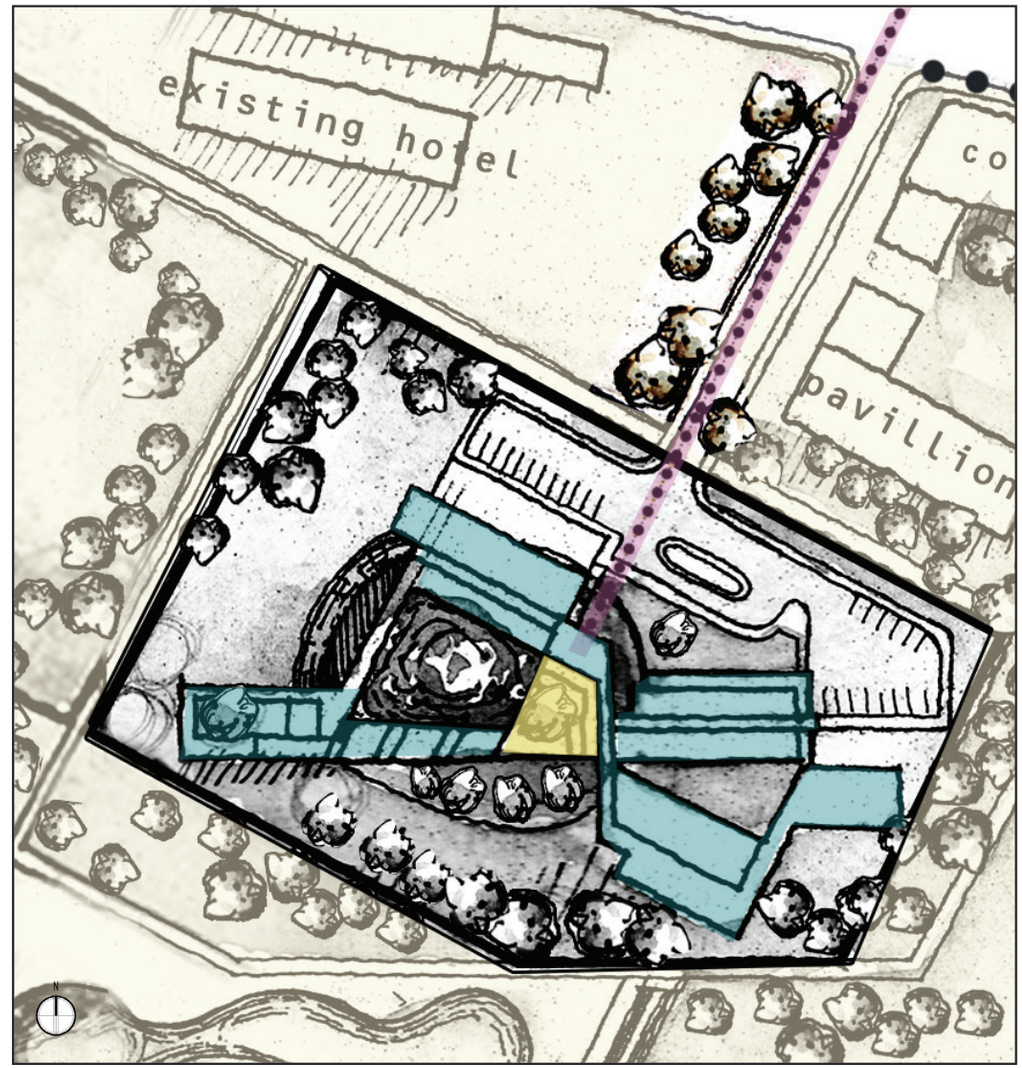

conventional stairs
remove riser for
seating purposes

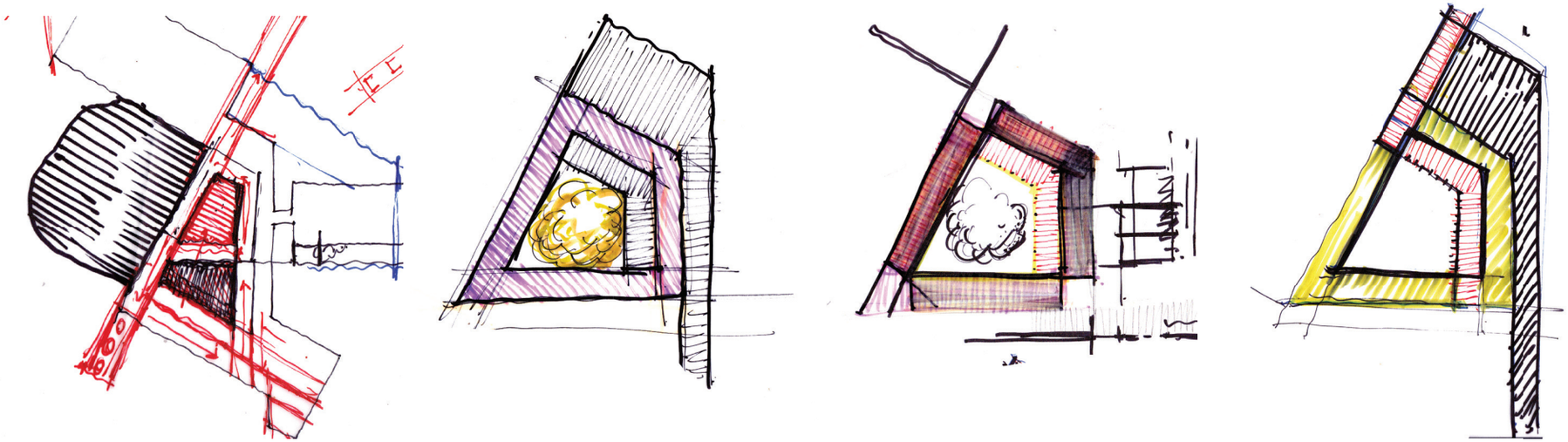

600mm.
reading +
seating
circulation
handrail.
safety glazing
handrail for
bookshelves.
160
160
320mm
pine infill.
300
300
600mm.
1100mm.
900.



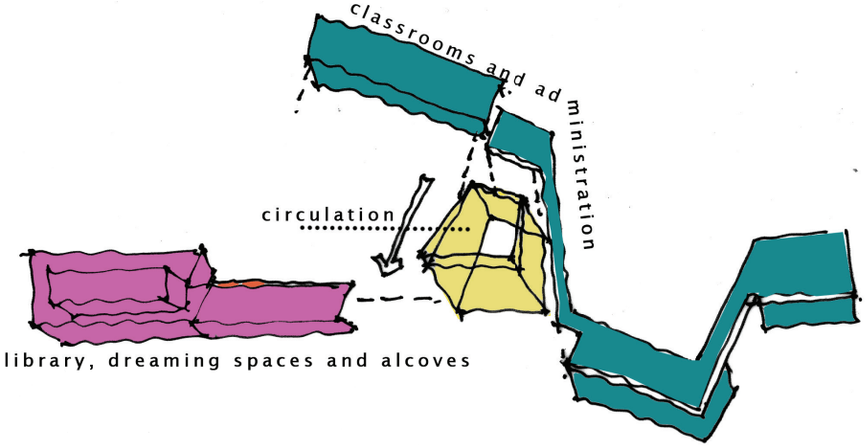
The vertical compontent will serve as the circulation volume for the building. It consists of a ramp- & staircase leading the child lower into the lion's den. Descending into the double volume space creates a sense of adventure as one experiences a change of scenery. All the other functions are connected to this space which emphasizes the vertical structure as the backbone for the design. Therefore its height is emphasized so that it becomes visible from almost anywhere in the landscape.

Hertzberger (1991: 28) demonstrates how architectural elements should have layered functions, especially for the use of children. This principle is applied through giving the staircase an additional function. Bookcases will be incorporated in to the structure which transforms the the conventional use of a staircase.





DESIGN DEVELOPMENT OF VERTICAL COMPONENT



Different functions connected to the circulation volume.

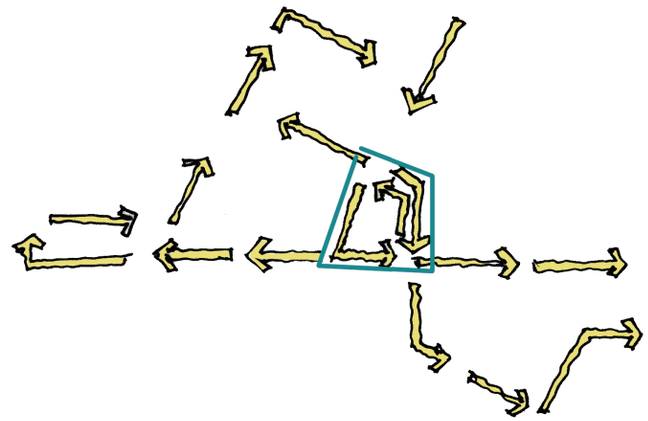
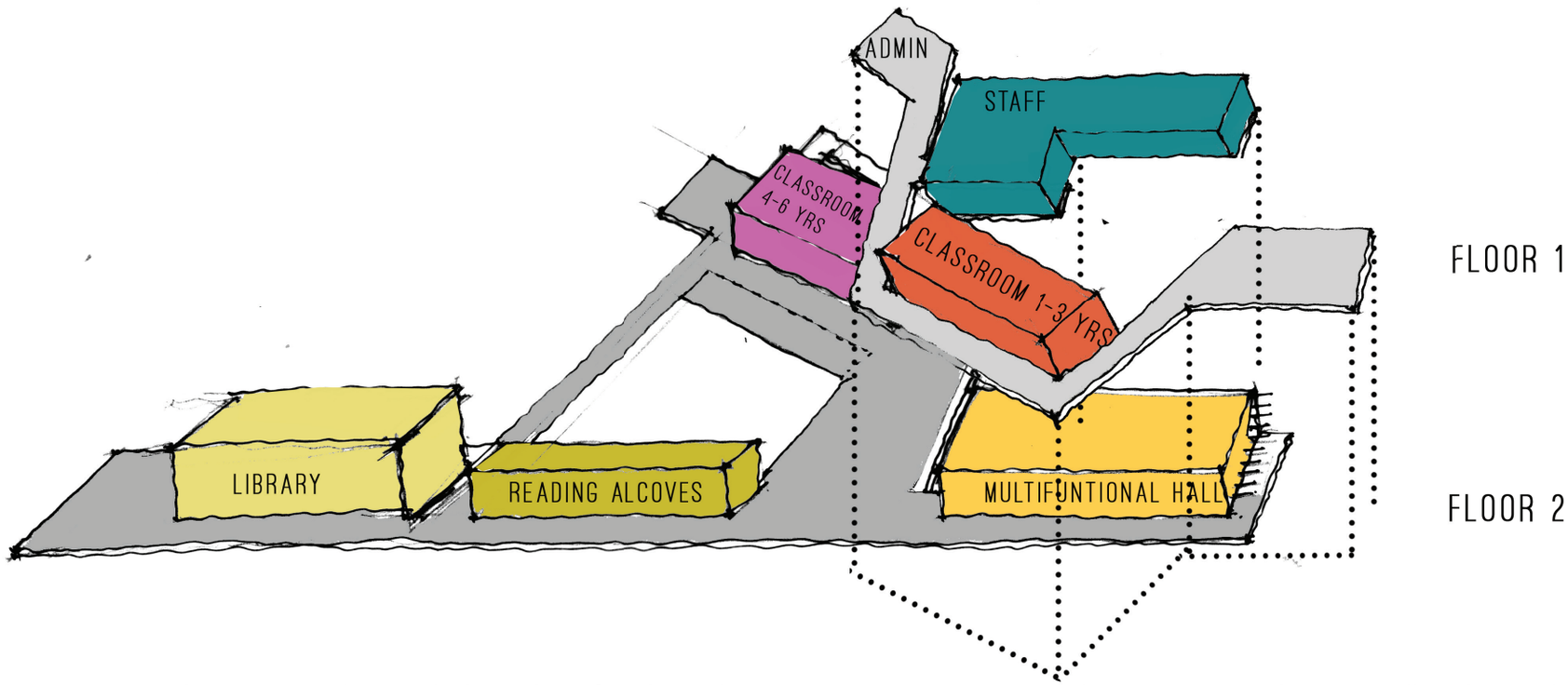
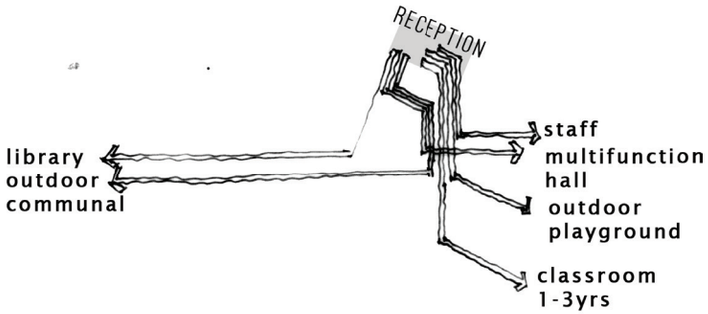


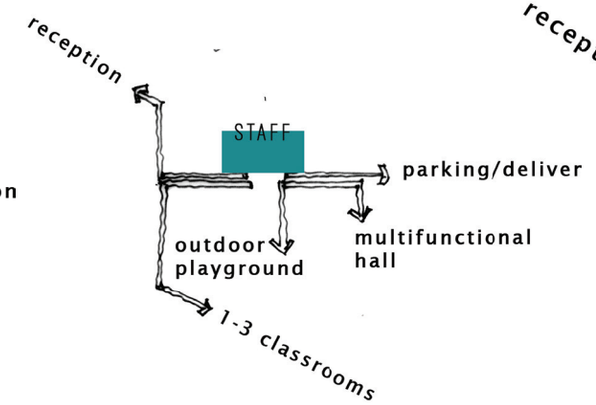
Diagram indicating cirulation which revolves mainly around the circulation volume.

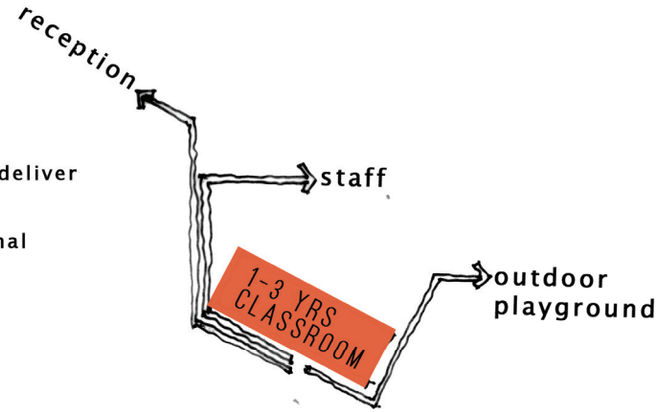


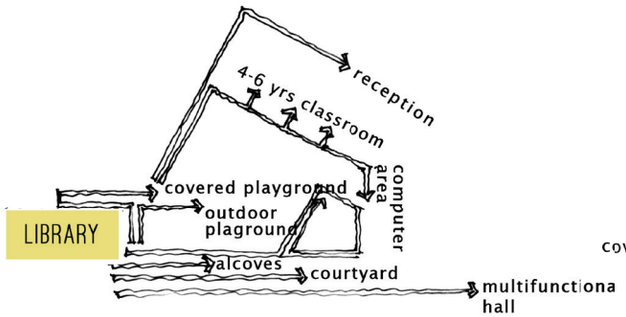
An erratic playscape is designed through pivoting the functions around the existing lions's den. This allows an unique connection of functions where more than one circulation route is possible. This contributes to children's promotion of a schooling experience as they have freedom to explore the space and unravel the spaces for themselves. This kind of independency in space resonates with the Montessori Methods's emphasis on a child navigating himself through educational processes with the teacher merely being a supervisor.

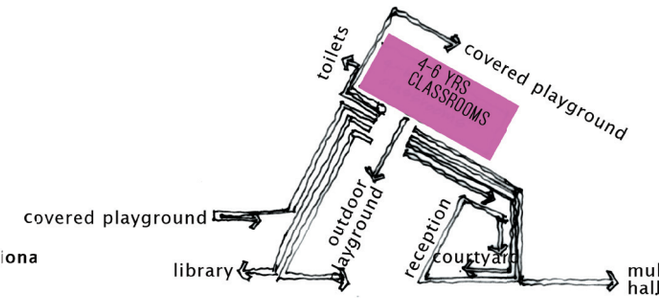
Through analyzing connections of spaces, it becomes clear that the layout of the building resonates with Rem Koolhaas' spatial syntax theory (Dovey & Dickson, 1984: 5) where the design aims to create multiple flow and freedom of circulation. The diagrams reveal various connections between spaces which encourages children to move and explore the building with their senses.

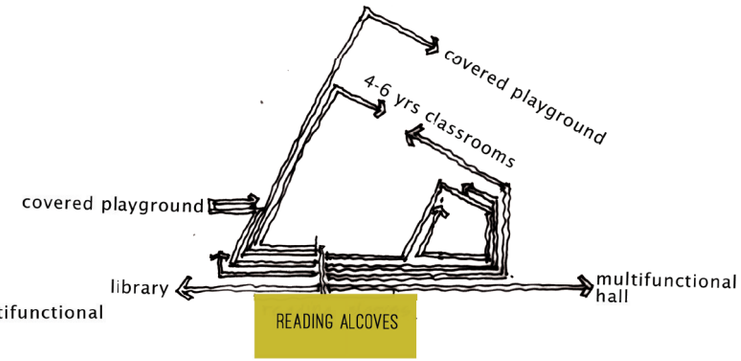

RECEPTION
library
outdoor
communal
staff
multifunction
hall
outdoor
playground
classroom
1-3yrs


reception
STAFF
parking/deliver
outdoor
playground
multifunctional
hall
1-3 classrooms


reception
staff
1-3 YRS
CLASSROOM
outdoor
playground


reception
4-6 yrs classroom
covered playground
computer
area
outdoor
plaground
LIBRARY
alcoves
courtyard
multifunctiona
hall


toilets
4-6 YRS
CLASSROOMS
covered playground
covered playground
outdoor
playground
reception
library
courtyard
multifunctional
hall


covered playground
4-6 yrs classrooms
covered playground
library
multifunctional
hall
READING ALCOVES

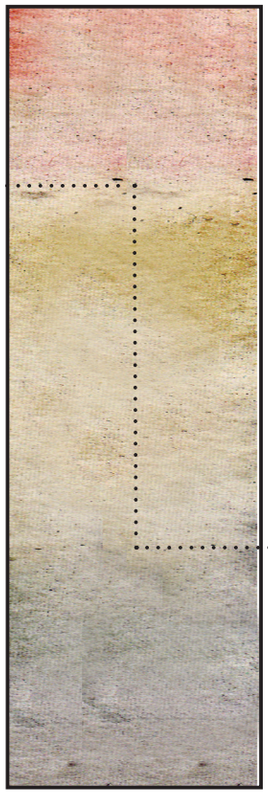


Designing an independent space for children where their bodies and imagination can roam free.

SANCTUARY

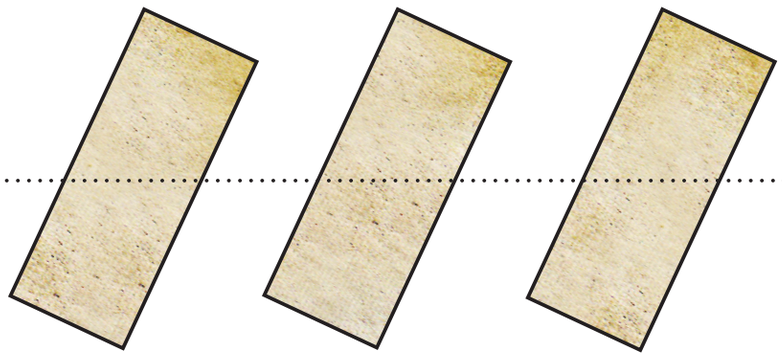
PHASE 1

Reading staircases: One circulation volume combined with reading spaces for children.



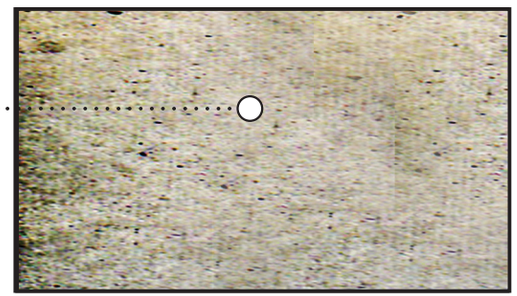
PHASE 2

Sensorial alcoves: Three self-help educational play spaces and child-sized alcoves with sensorial play equipment on display.



PHASE 3

Interactive library: Dubble volume library connected with reading staircases and outdoor reading area.



PHASE 3:

Interactive Library

1. communal outdoor space
2. elevated playscape
3. suspended play net
4. library





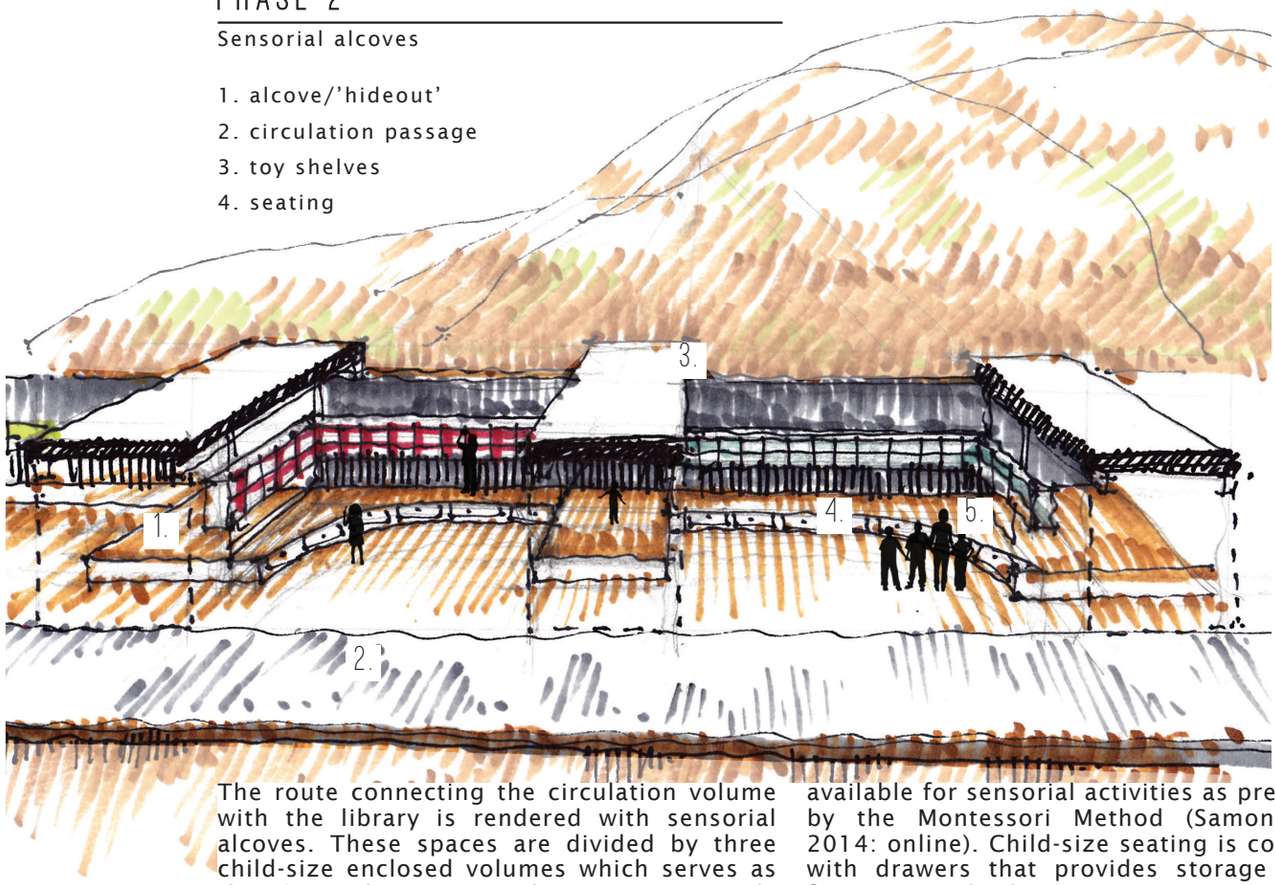
The interactive library consists of a double volume space with bookshelves integrated with the supporting roof structure. These bookshelves seperate the stairs with the interior spaces so that children can access books from both the interior areas and the staircase. The staircase adopts circulation and educational functions which gives it new meaning. A semi-enclosed mezzanine level connects children with the lower outdoor spaces through an opening in the floor. This opening is covered with a suspension net where children can relax and interact with the lower spaces on a new level.

The communal outdoor space on the lower level is articulated by a courtyard covered with grass and surrounded with benches which hosts activities for sand- and water play as prescribed by the Montessori Method (Samontessori, 2014: online).

PHASE 2

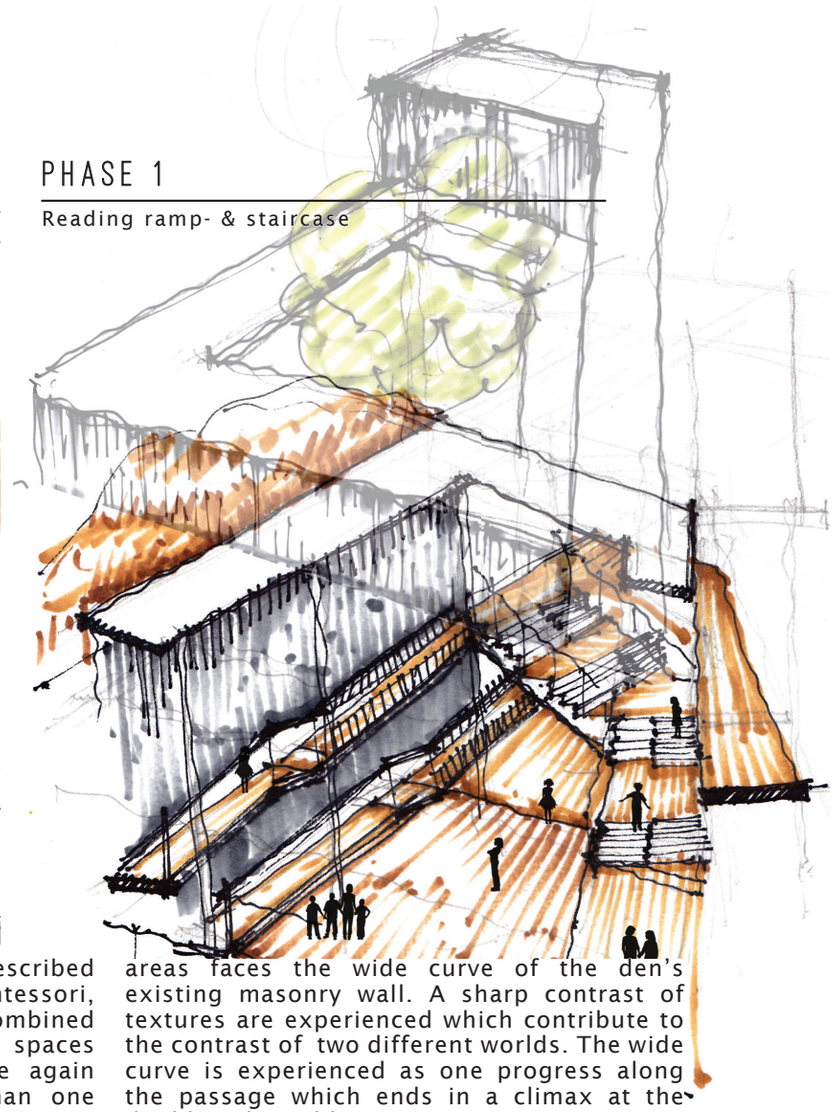
Sensorial alcoves

1. alcove/'hideout'
2. circulation passage
3. toy shelves
4. seating



PHASE 1

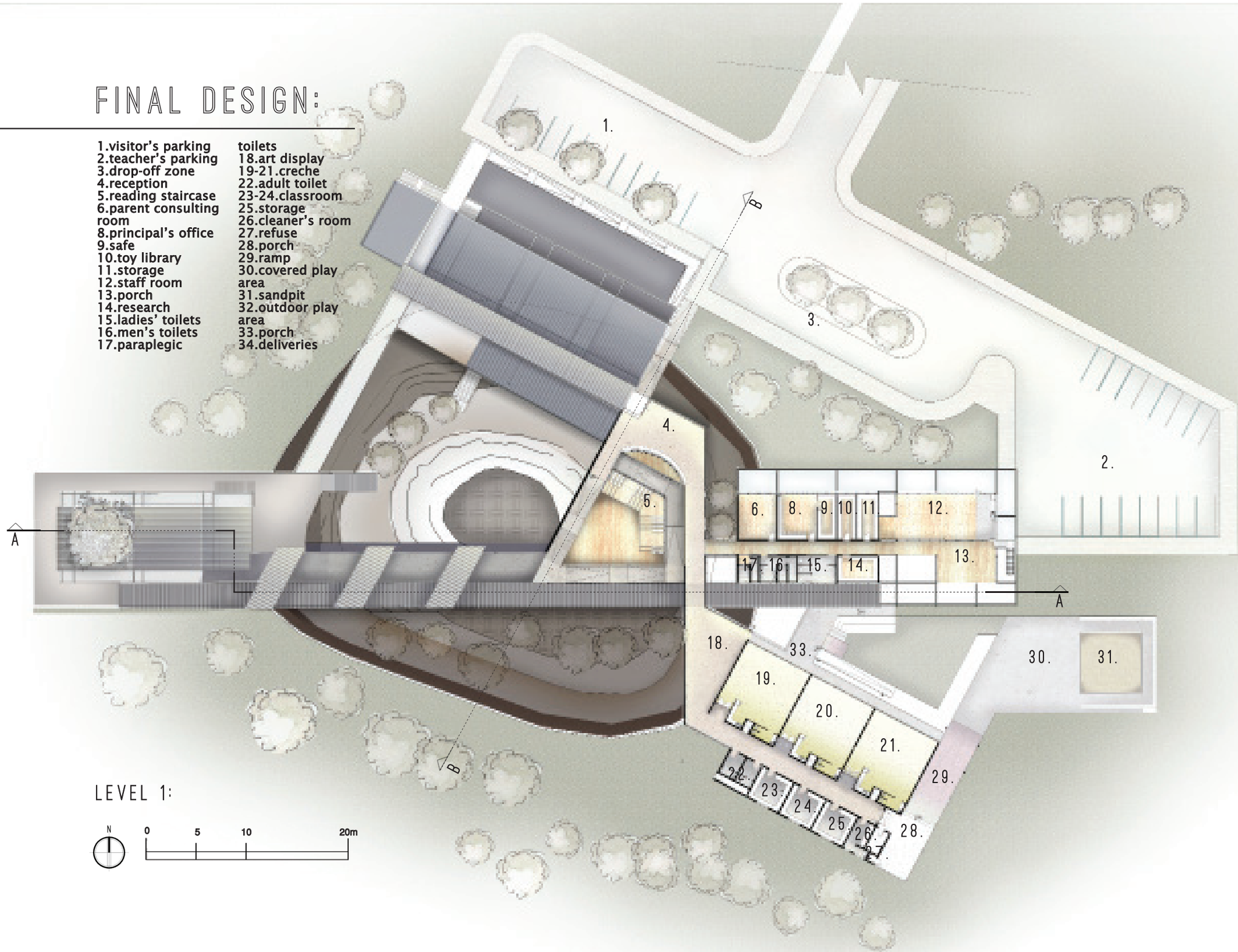
Reading ramp- & staircase



The route connecting the circulation volume with the library is rendered with sensorial alcoves. These spaces are divided by three child-size enclosed volumes which serves as their 'secret' territory. Hideout spaces comply with Melville's statement (1978: 71) regarding children being able to claim a territory.
Three subdivided floor planes are made available for sensorial activities as prescribed by the Montessori Method (Samontessori, 2014: online). Child-size seating is combined with drawers that provides storage spaces for toys and play equipment. Once again elements are layered with more than one function as advised by Hertzberger (2014: 25). The linear organization of these play areas faces the wide curve of the den's existing masonry wall. A sharp contrast of textures are experienced which contribute to the contrast of two different worlds. The wide curve is experienced as one progress along the passage which ends in a climax at the double volume library space.

FINAL DESIGN:

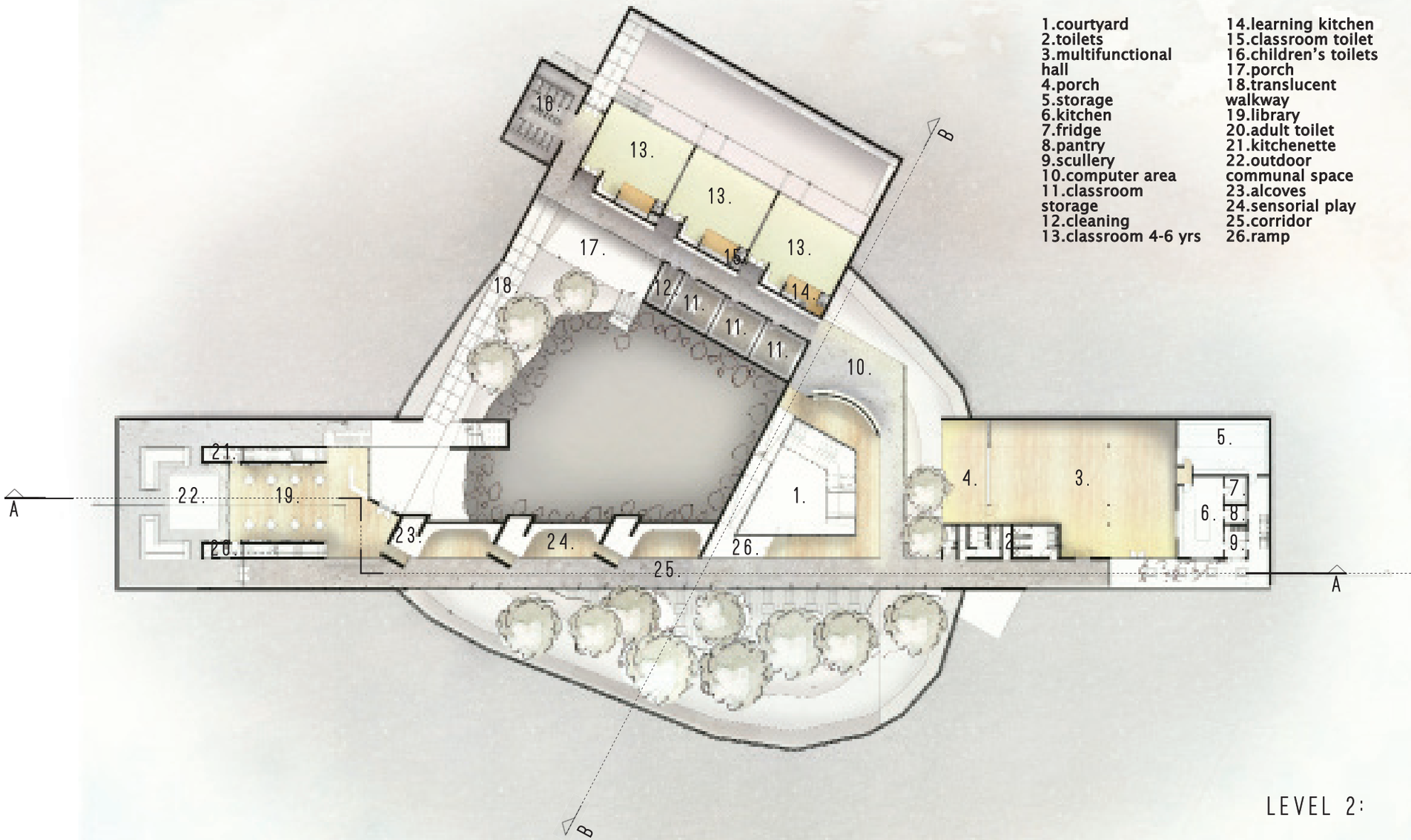
1.visitor's parking
2.teacher's parking
3.drop-off zone
4.reception
5.reading staircase
6.parent consulting room
8.principal's office
9.safe
10.toy library
11.storage
12.staff room
13.porch
14.research
15.ladies' toilets
16.men's toilets
17.paraplegic toilets
18.art display
19-21.creche
22.adult toilet
23-24.classroom
25.storage
26.cleaner's room
27.refuse
28.porch
29.ramp
30.covered play area
31.sandpit
32.outdoor play area
33.porch
34.deliveries



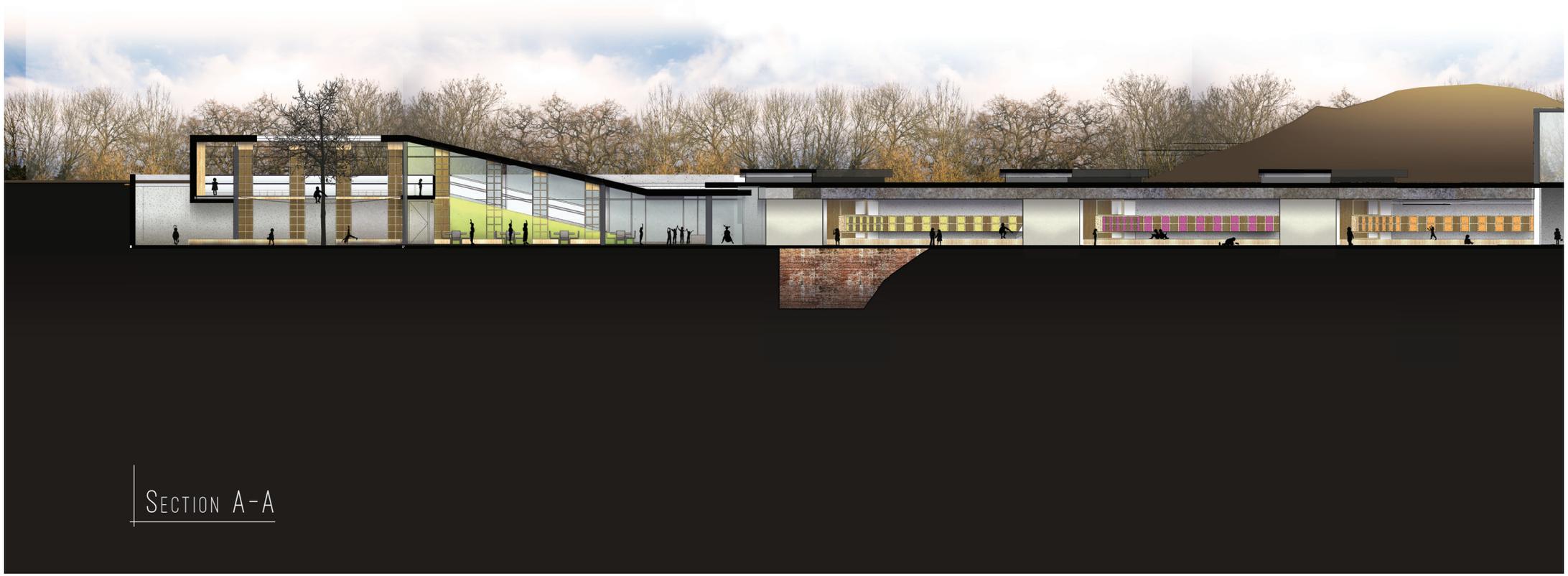
LEVEL 1:

N

0 5 10 20m

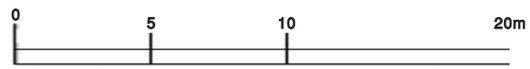

1.courtyard
2.toilets
3.multifunctional hall
4.porch
5.storage
6.kitchen
7.fridge
8.pantry
9.scullery
10.computer area
11.classroom storage
12.cleaning
13.classroom 4-6 yrs
14.learning kitchen
15.classroom toilet
16.children's toilets
17.porch
18.translucent walkway
19.library
20.adult toilet
21.kitchenette
22.outdoor communal space
23.alcoves
24.sensorial play
25.corridor
26.ramp
A
A
B
B
0
5
10
20m
N

LEVEL 2:



Section A-A

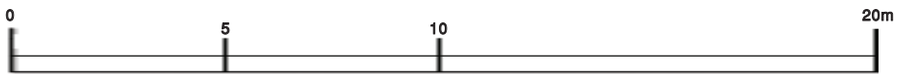



0
5
10
20m


outdoor gathering
elevated play-scape
library
alcove 01
excavation

Section A-A

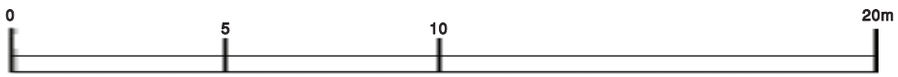

sensorial play
alcove 02
sensorial play
alcove 03
sensorial play


0
5
10
20m


corridor
corrid
circulation volume
reading stairs
porch
excavation

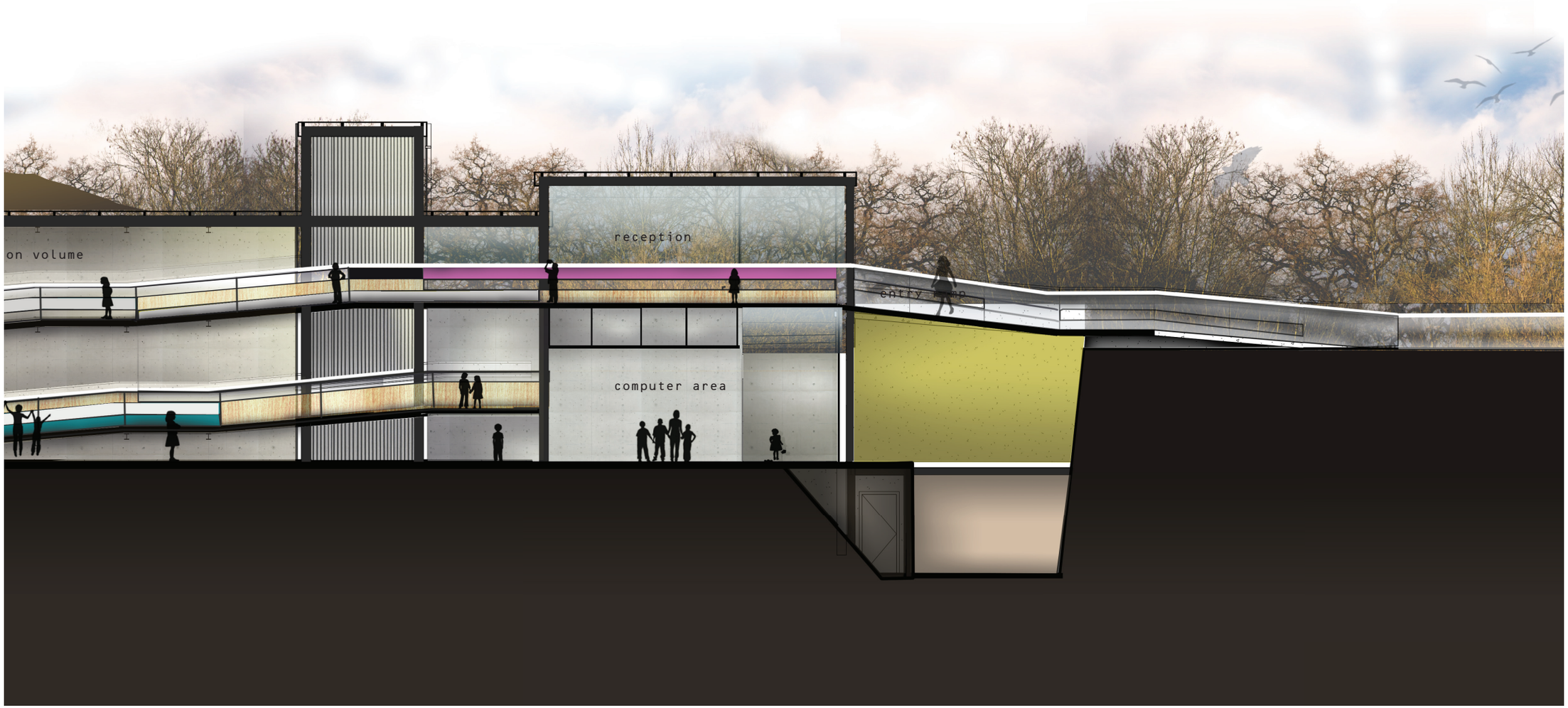
Section A-A


rridor
porch
multifunctional hall
kitchen
scullery


0
5
10
20m

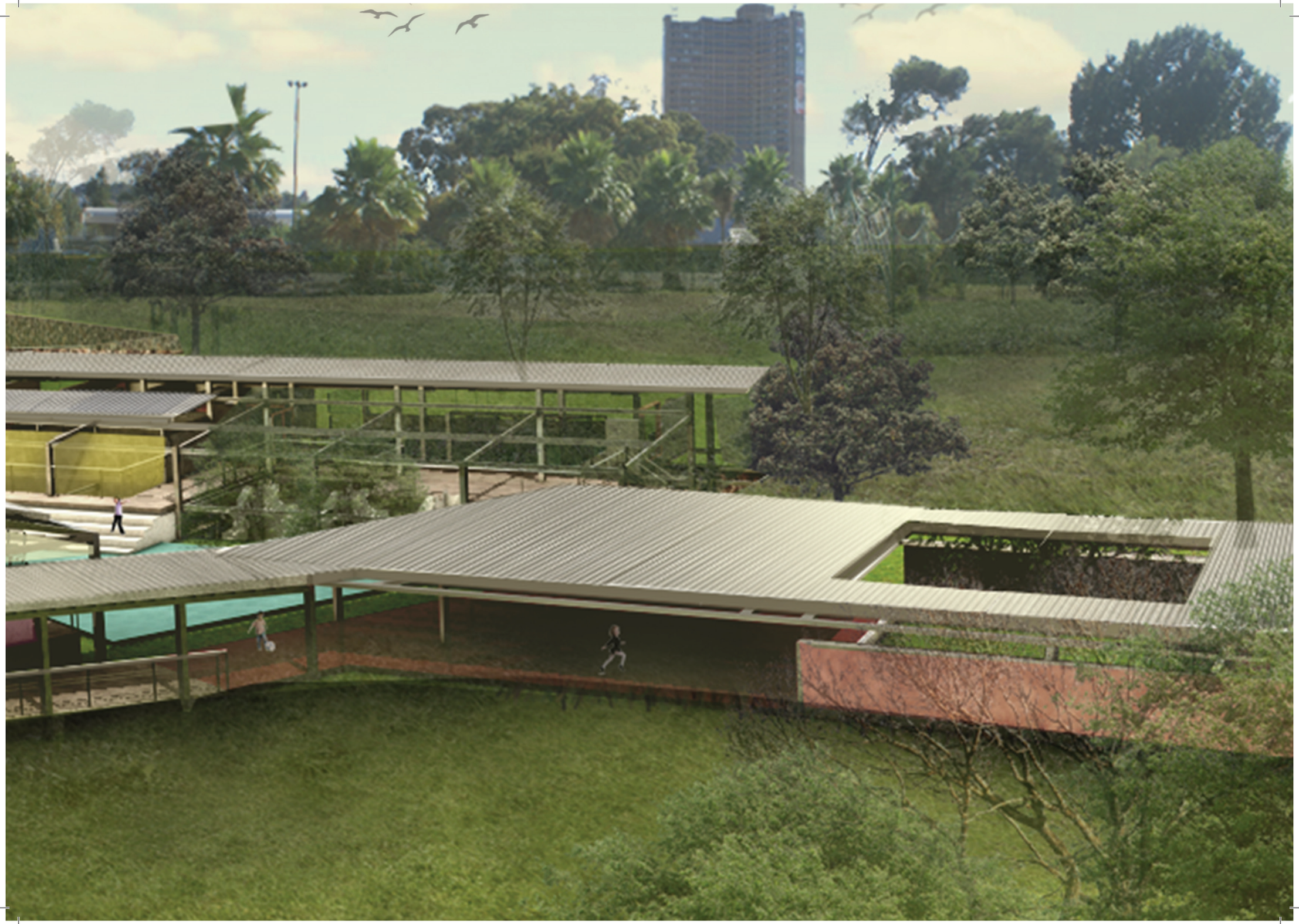


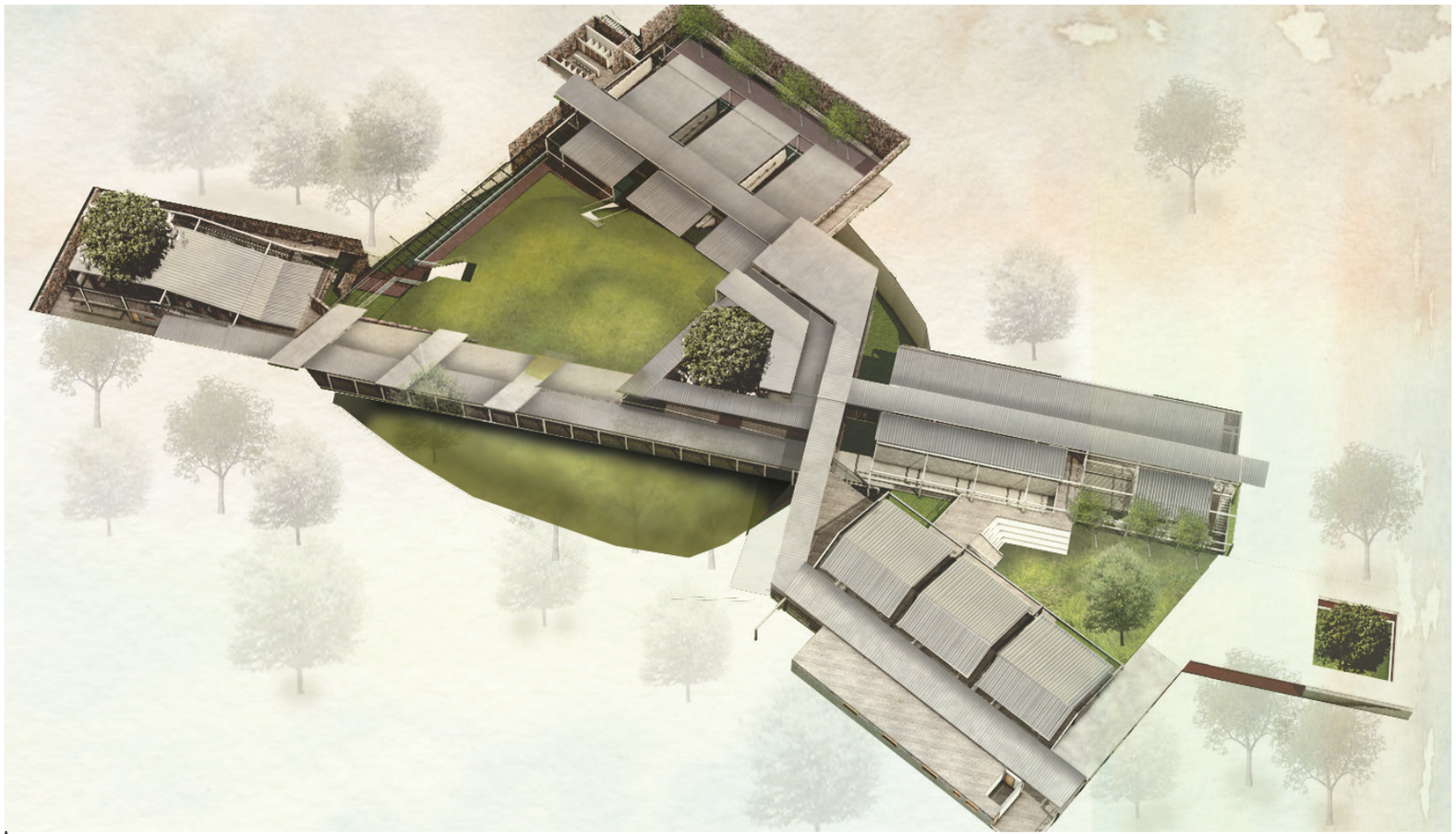
Section B-B



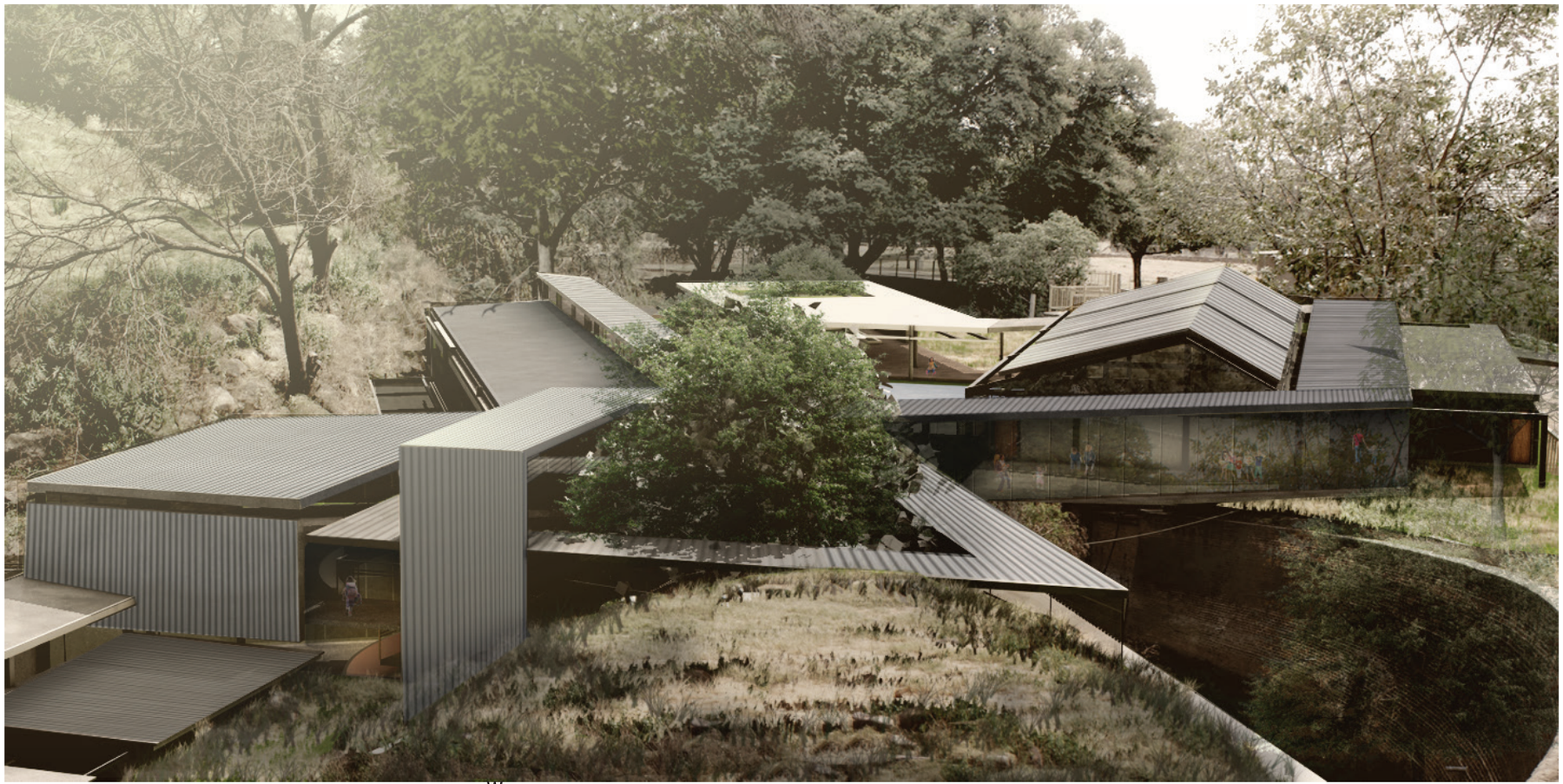
0 5 10 20m







Aerial perspective of the design.



Western perspective of the circulation volume, creche and administration division



Outdoor playground of creche with staircase and ramp integrated into the strucuture and playground.



INTERIOR VIEW OF READING STAIRCASE.



Double volume play-scape as viewed from the communal outdoor playground.



INTERIOR PERSPECTIVE OF LIBRARY WITH COMMUNAL OUTDOOR SPACE IN THE BACKGROUND.

CHAPTER 8

TECHNICAL INVESTIGATION





INTRODUCTION:

It is essential to look at the construction of a building as it is often condemned as a narrow objective part of the design. Mitchell Schwarzer (1996: 14–15) supports this statement in his article regarding the underminded poetic importance of tectonics. Due to the thesis' narrative framework, this chapter will investigate the practical implications of the design in order to translate poetic architectural elements by means of structural composition. This will be done through analysing the existing site conditions in order to come up with structural solutions that will contribute to the aims of the design.

THEORETICAL CONSIDERATIONS:

The concepts and ideas chapter proposes five main concepts to be applied to the structure namely barrier, transition, verticality, erratic and sanctuary. It is important to investigate material and structural qualities that will contribute to the poetics of these spaces.

Transition:

The first archetype of this building is carried out in the form a route towards the entrance. Structurally this is translated by means of a 1:12 concrete ramp. This concrete ramp ascends over the edge of the lion's den towards the proposed building.

Verticality:

This element will be achieved through a steel structure that is stabilized in the centre of the den by means of concrete pile foundations and stroke foundations. A concrete retaining wall according to engineer's specifications will keep the existing soil mass in place.

SITE PREPARATION:

This section introduces preperation and service installations regarding the proposed site.

- Soil:

According to Architective Publications (2013: 160) the soil conditions of the Free State consist of somewhat expansive soils which may cause movement in buildings. Although normal stroke foundations would be advised for standard buildings within the Free State area, it is important to investigate the site's location adjacent to the Loch Logan waterfront.

Considering the contours of the proposed site, it is safe to say that that the site is located on a slight decrease towards the Loch Logan lake. The lake displays a low point in Bloemfontein's topography which indicates a tendency for water accumulation. This therefore indicates the possibility of a high water table on site which might require deviation from the standard stroke foundation.

Another aspect is the fact that the proposed site consist of a deep excavation into the soil. Water present in the canal of the enclosure is mainly due to stormwater accumulation which also indicates a high water table present on site.

According to Laubscher (2013: 164) soil with no impervious covering has the ability to evaporate. This means that the natural condition of the site will most likely not have a high water table due to easy evaporation. This will inform the type of foundations necessary on site.

- Road construction:

Roads are to be constructed according to the masterplan. Double-lane roads of a minimum of 6m are required for the dropoff area for children. A dropoff zone with a minimum of a 14m radius turning point for buses should be provided. The dropoff platform should lead directly to the entrance of the building so that parents can supervise their children while

· Stormwater drainage

The stormwater regarding the building site requires engineer's intervention due to its complicated dimensions and excavations. The existing excavation acts as a dam that will accumulate rain precipation. Therefore it is necessary to investigate stormwater systems in order to avoid water accumulation on site.

Stormwater will not be able to be transferred from site with a standard municpal connection. A sump pump will therefore be installed according to engineer's specifications in order to transfer water to the desired level below grade. Only then a municpal connection can be made possible. It also important to consider the great distance on site that water needs to be transferred to the municpal connection.

STRUCTURE:

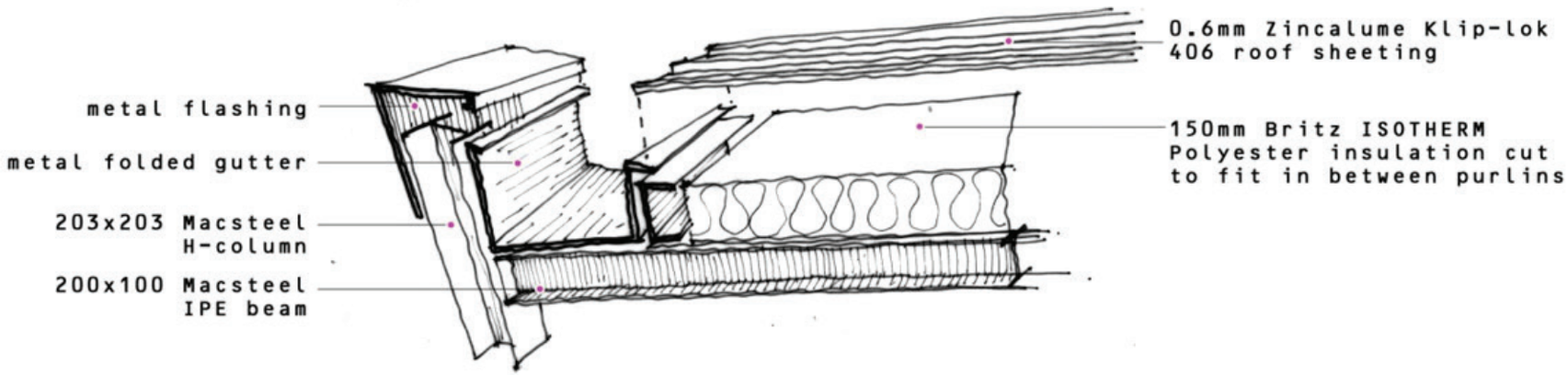
Foundations:

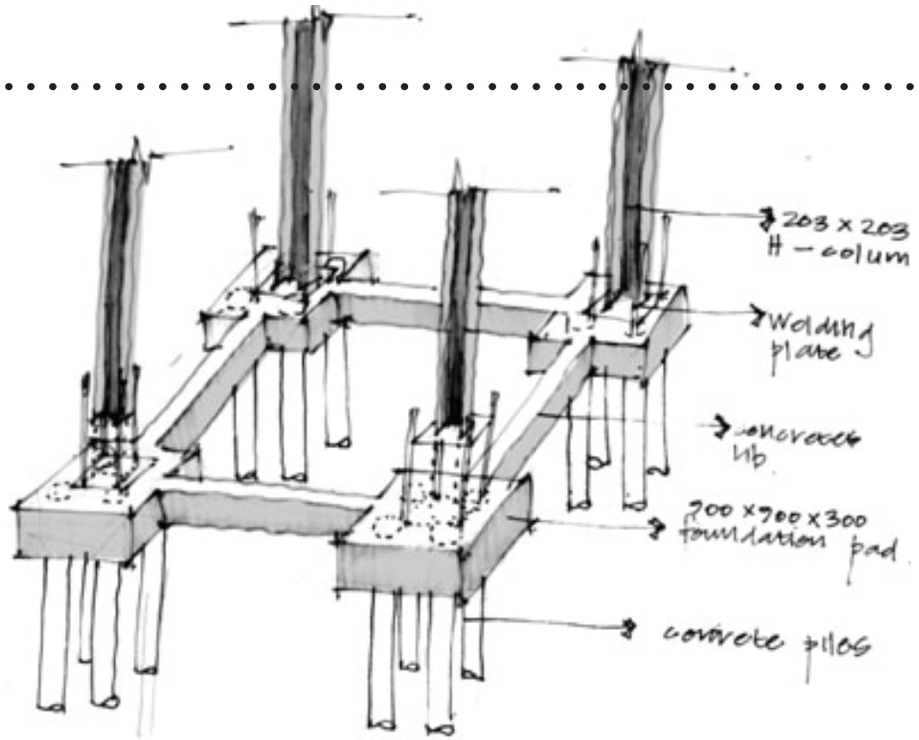
Two types of foundation are proposed in this project; raft foundations for retaining walls placed in existing soil and piled raft foundations for retaining walls placed against the constructed hill in the lion's den. The reason for this is that the existing soil is more stable than the constructed hill. 300mm concrete retaining walls are being used for retaining wall with dimple membrane applied to the exterior face.

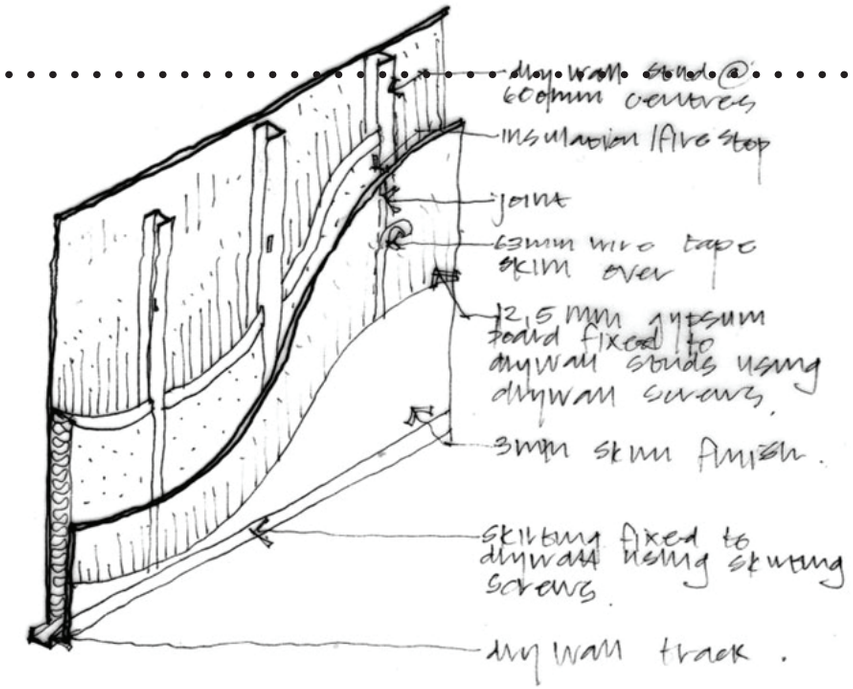
Reception:

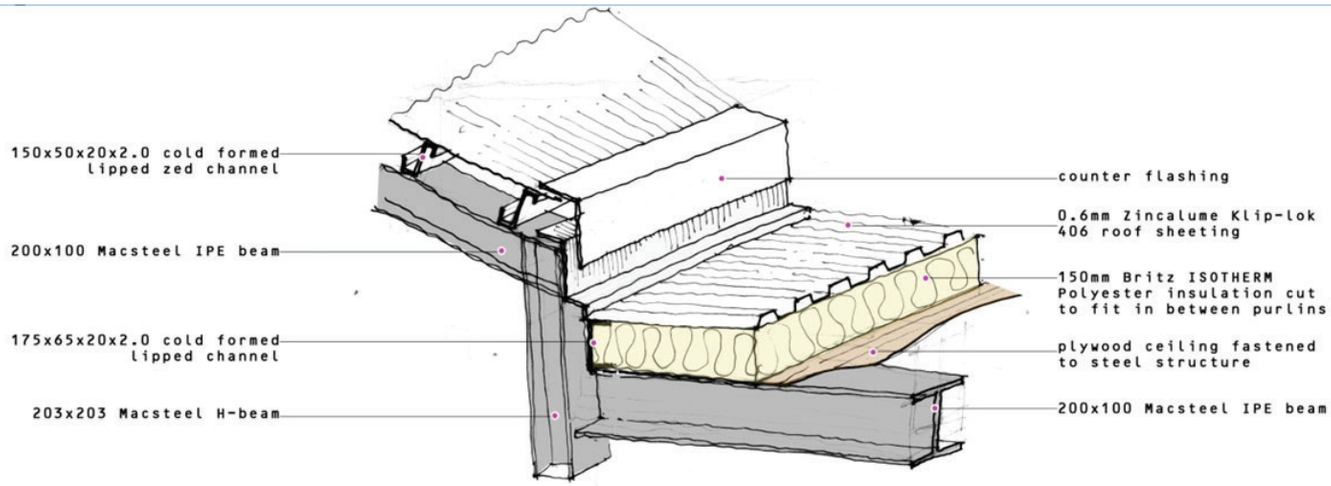
The double volume entrance is supported by means of a steel column and beam structure and stabilized on a raft foundation. This complex steel structure will also support the ramps towards the lower levels. The 250mm concrete floor slabs will be supported on 200x100mm IPE beams. Galvanized steel roofs will be supported on 203x203 H-beams with an 8° slope. Curtain walls will be installed for maximize northern lighting. Louvres will be installed at roof overhang as shading device.

The concrete floors are to be painted with an epoxy finish. Ramps are to finished with rubber floor tiles. Ramps are to accompanied with 1100mm high safety glazing. Additional railing at a height of 500mm are to be attached to the glazing for children. Timber stairs are to be placed central to the double volume space and attached to the steel structure. Riser heights of 160mm and tread depths of 300mm are to constructed from pine. In between stairs with riser heights of 320mm and 600mm tread depths will be constructed with bookshelves as infill function, where deeper treads will serve as seating for children to read books.

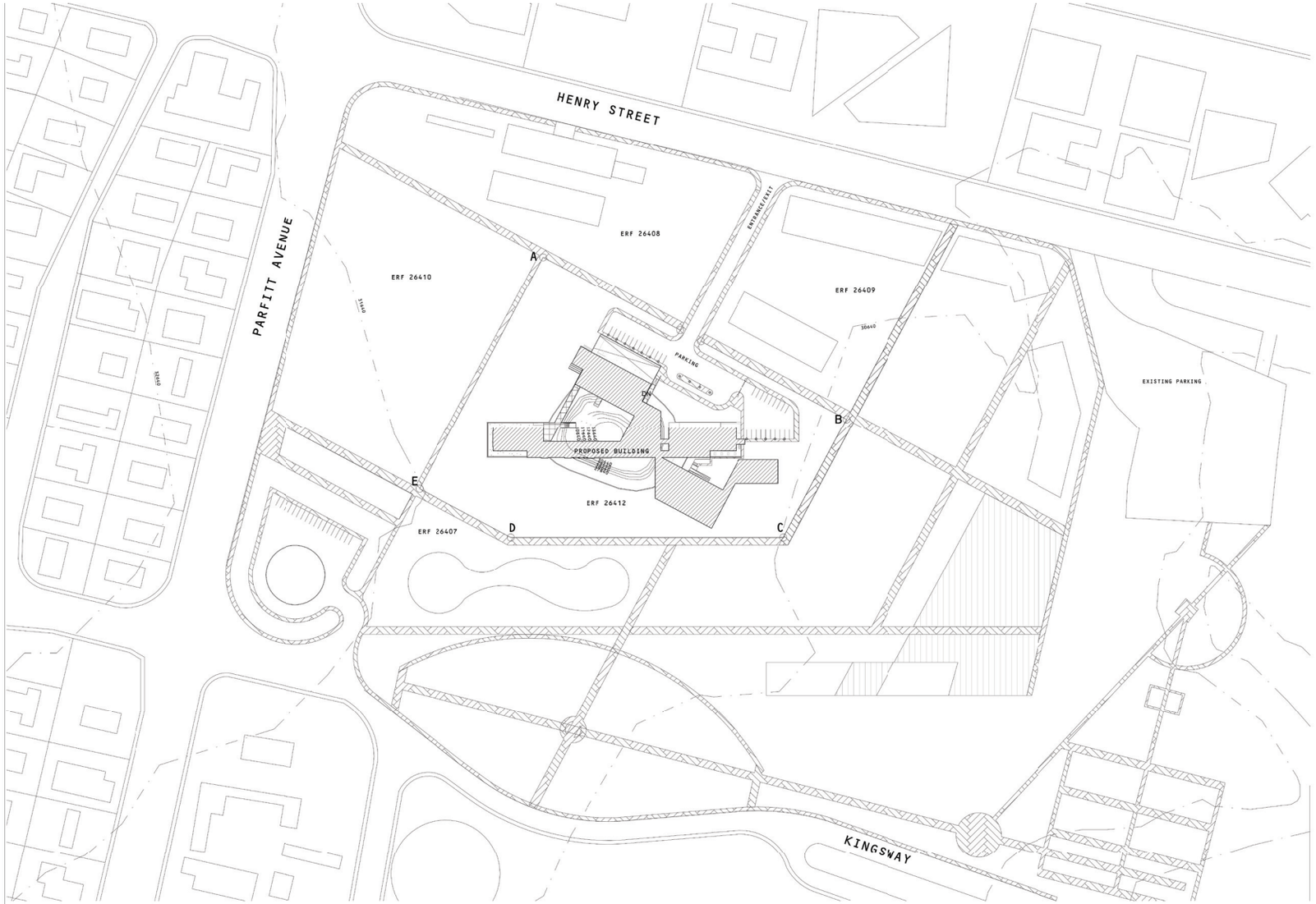



203 x 203
H - colum
Welding
plate
concrete
pile
300 x 900 x 300
foundation pad
concrete piles

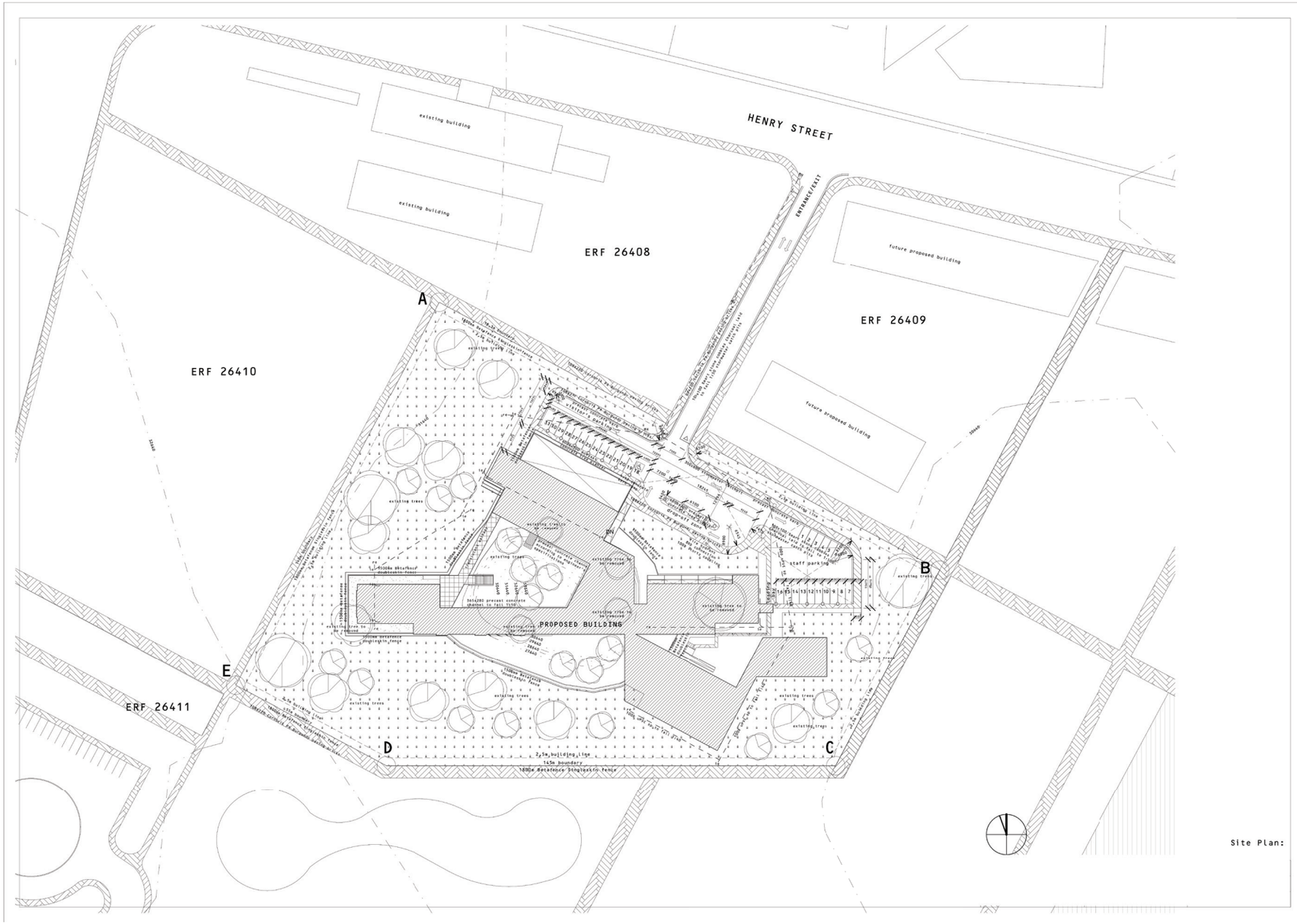

dry wall bond @
600mm centres
insulation /fire stop
joint
63mm wire tape
skim over
12.5 mm gypsum
board fixed to
drywall studs using
drywall screws.
3mm skim finish.
skirting fixed to
drywall using skwing
screws.
dry wall track .

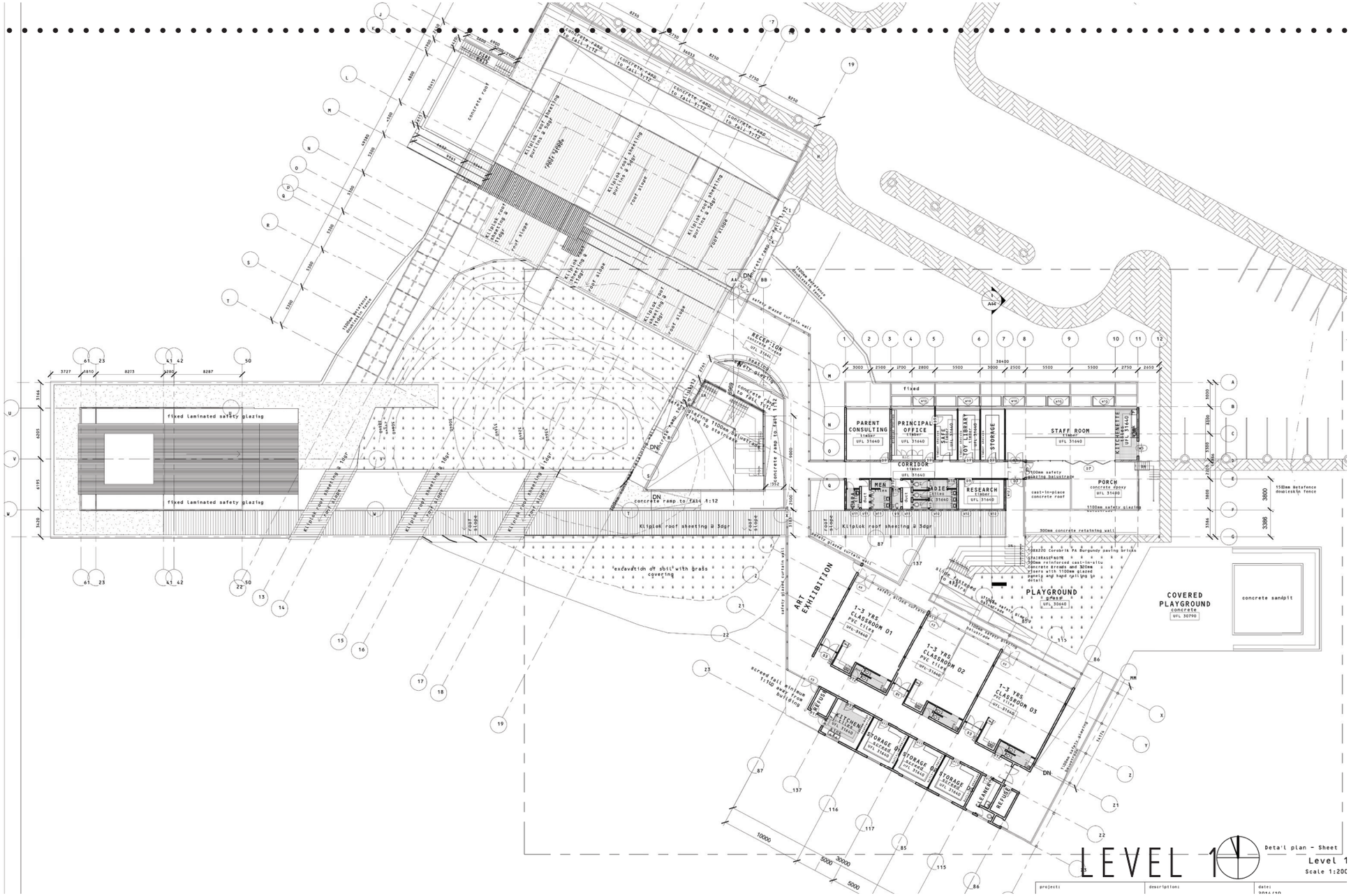

150x50x20x2.0 cold formed
lipped zed channel
200x100 Macsteel IPE beam
175x65x20x2.0 cold formed
lipped channel
203x203 Macsteel H-beam
counter flashing
0.6mm Zincalume Klip-lok
406 roof sheeting
150mm Britz ISOTHERM
Polyester insulation cut
to fit in between purlins
plywood ceiling fastened
to steel structure
200x100 Macsteel IPE beam

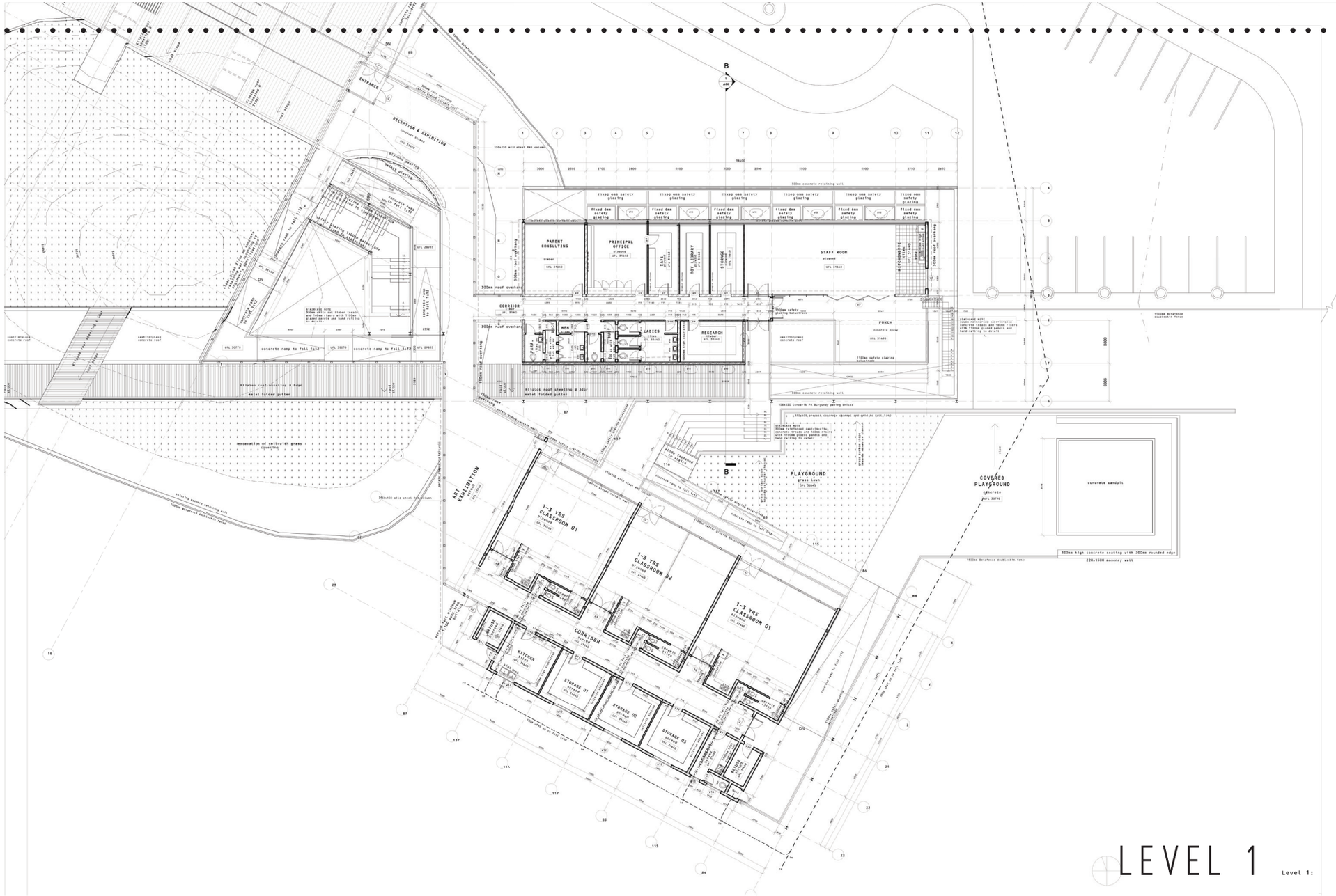
DOCUMENTATION:



Locality Plan:

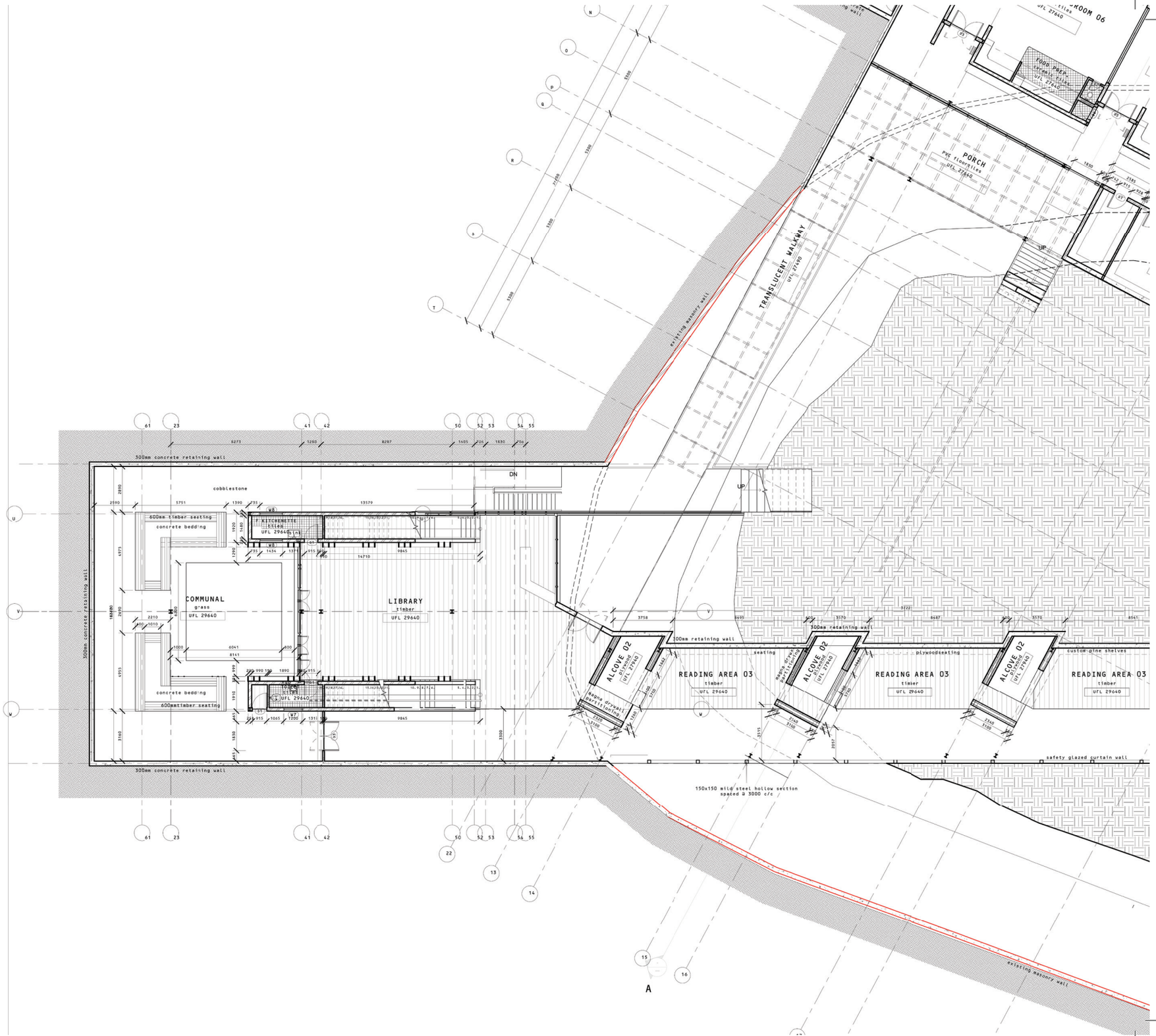

HENRY STREET
ENTRANCE/EXIT
existing building
existing building
ERF 26408
ERF 26409
ERF 26410
ERF 26411
future proposed building
future proposed building
A
B
C
D
E
PROPOSED BUILDING
staff parking
existing trees
existing tree to be removed
existing tree to be removed
existing tree to be removed
existing tree to be removed
existing trees
existing trees
existing trees

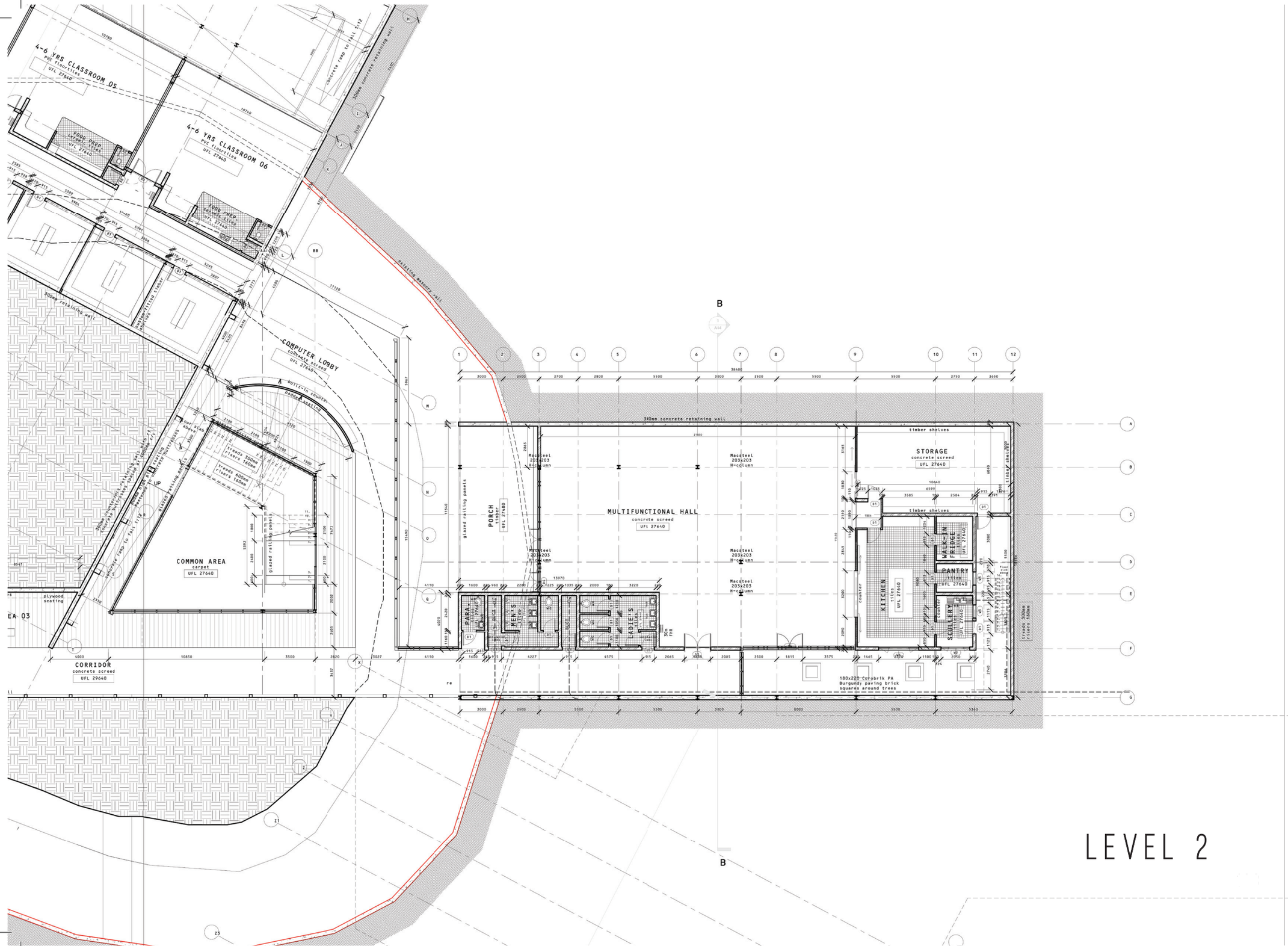

fixed laminated safety glazing
fixed laminated safety glazing
RECEPTION
PARENT CONSULTING
PRINCIPAL OFFICE
SAFE
TOY LIBRARY
STORAGE
STAFF ROOM
KITCHENETTE
CORRIDOR
MEN
LADIES
RESEARCH
PORCH
ART EXHIBITION
1-3 YRS CLASSROOM 01
1-3 YRS CLASSROOM 02
1-3 YRS CLASSROOM 03
KITCHEN
STORAGE
CLEANER
REFUSE
PLAYGROUND
COVERED PLAYGROUND
concrete sandpit
concrete ramp to fall 1:12
excavation of obtl with grass covering
Kliplok roof sheeting @ 3deg
LEVEL 1
Detail plan - Sheet
Level 1
Scale 1:200



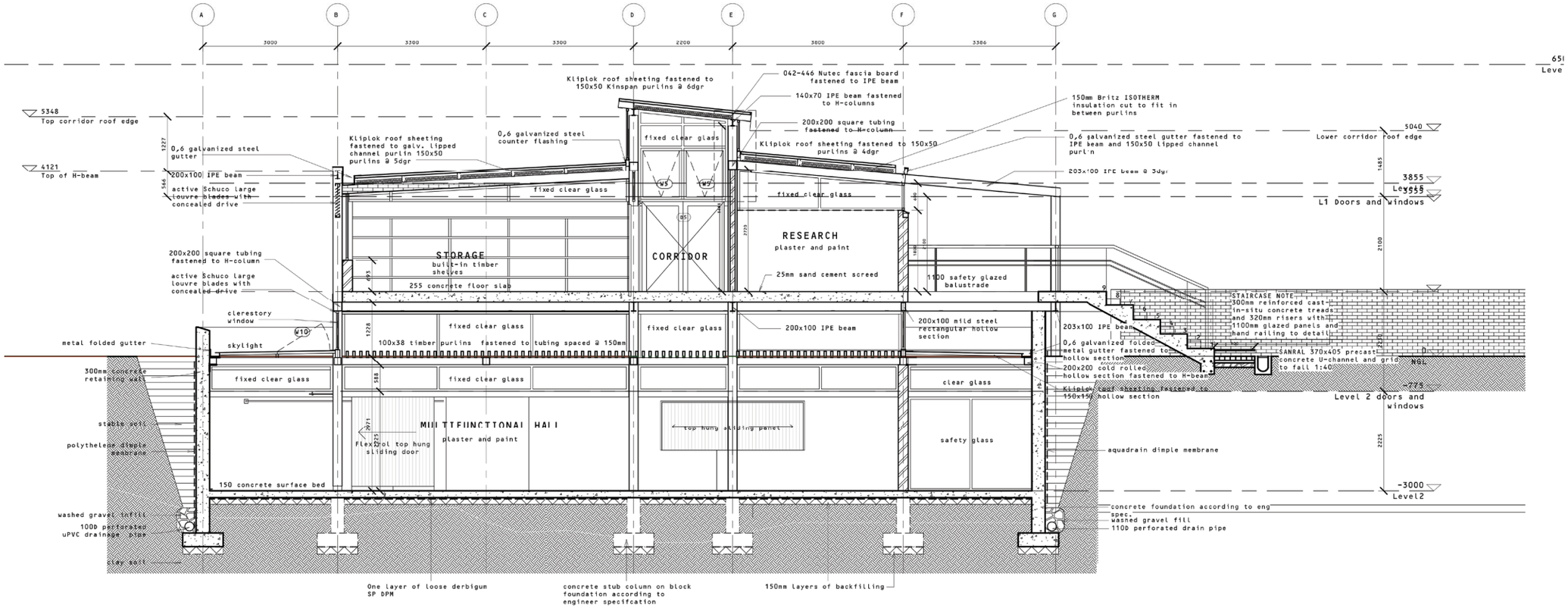
LEVEL 1

Level 1:


300mm concrete retaining wall
cobblestone
600mm timber seating
concrete bedding
KITCHENETTE
tiles
UFL 29640
COMMUNAL
grass
UFL 29640
LIBRARY
timber
UFL 29640
DN
UP
TRANSLUCENT WALKWAY
UFL 27640
existing masonry wall
PORCH
PVC floortiles
UFL 27640
FOOD PREP
ceramic tiles
UFL 27640
ROOM 06
tiles
UFL 27640
ALCOVE 02
Plywood
UFL 29640
READING AREA 03
timber
UFL 29640
300mm retaining wall
seating
plywood seating
custom-pine shelves
safety glazed curtain wall
150x150 mild steel hollow section
spaced @ 3000 c/c
A

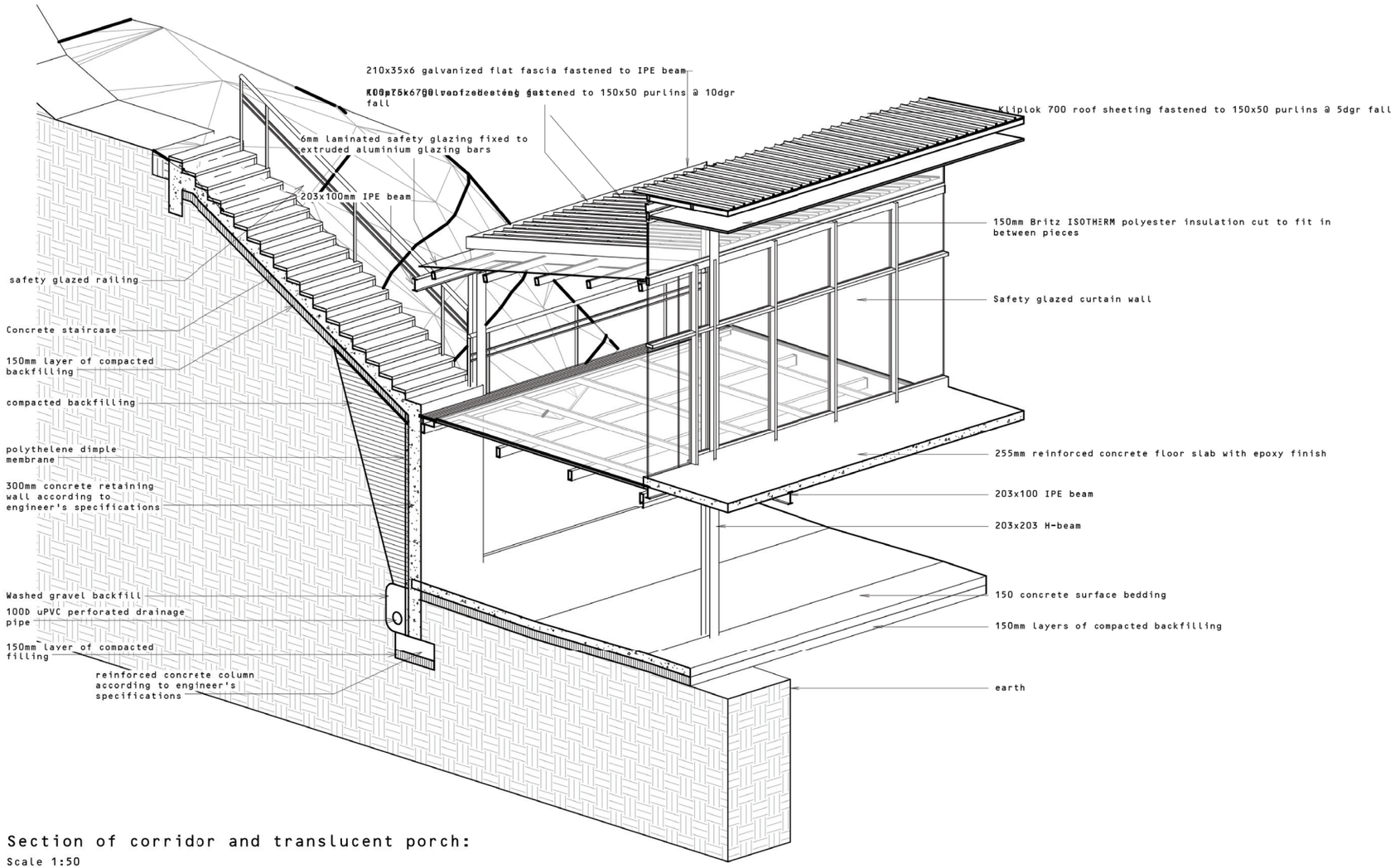

4-6 YRS CLASSROOM 05
PVC floortiles
UFL 27640
4-6 YRS CLASSROOM 06
PVC floortiles
UFL 27640
FOOD PREP.
ceramic tiles
UFL 27640
COMPUTER LOBBY
concrete screed
UFL 27640
built-in counter
padded seating
COMMON AREA
carpet
UFL 27640
CORRIDOR
concrete screed
UFL 29640
plywood seating
EA 03
300mm retaining wall
existing masonry wall
concrete ramp to fall 1:12
300mm concrete retaining wall
310mm concrete retaining wall
PORCH
timber
UFL 27480
glazed railing panels
MULTIFUNCTIONAL HALL
concrete screed
UFL 27640
Macsteel
203x203
H-column
PARA.
MEN'S
LADIE'S
STORAGE
concrete screed
UFL 27640
timber shelves
KITCHEN
tiles
UFL 27640
WALK-IN FRIDGE
PANTRY
SCULLERY
counter
180x220 Corobrik PA
Burgundy paving brick
squares around trees
B
B

LEVEL 2



A
B
C
D
E
F
G
3000
3300
3300
2200
3800
3386
5348
Top corridor roof edge
4121
Top of H-beam
0,6 galvanized steel gutter
200x100 IPE beam
active Schuco large louvre blades with concealed drive
200x200 square tubing fastened to H-column
active Schuco large louvre blades with concealed drive
clerestory window
metal folded gutter
skylight
300mm concrete retaining wall
stable soil
polythelene dimple membrane
washed gravel infill
100D perforated uPVC drainage pipe
clay soil
Kliplok roof sheeting fastened to 150x50 Kinspan purlins @ 6dgr
Kliplok roof sheeting fastened to galv. lipped channel purlin 150x50 purlins @ 5dgr
0,6 galvanized steel counter flashing
fixed clear glass
STORAGE
built-in timber shelves
255 concrete floor slab
fixed clear glass
100x38 timber purlins fastened to tubing spaced @ 150mm
fixed clear glass
MULTIFUNCTIONAL HALL
plaster and paint
Flexirol top hung sliding door
150 concrete surface bed
One layer of loose derbigum SP DPM
concrete stub column on block foundation according to engineer specifcation
042-446 Nutec fascia board fastened to IPE beam
140x70 IPE beam fastened to H-columns
200x200 square tubing fastened to H-column
Kliplok roof sheeting fastened to 150x50 purlins @ 4dgr
fixed clear glass
CORRIDOR
RESEARCH
plaster and paint
25mm sand cement screed
fixed clear glass
200x100 IPE beam
top hung sliding panel
150mm layers of backfilling
150mm Britz ISOTHERM insulation cut to fit in between purlins
0,6 galvanized steel gutter fastened to IPE beam and 150x50 lipped channel purlin
203x100 IPE beam @ 3dgr
1100 safety glazed balustrade
200x100 mild steel rectangular hollow section
clear glass
safety glass
203x100 IPE beam
0,6 galvanized folded metal gutter fastened to hollow section
200x200 cold rolled hollow section fastened to H-beam
Kliplok roof sheeting fastened to 150x150 hollow section
aquadrain dimple membrane
concrete foundation according to eng spec.
washed gravel fill
110D perforated drain pipe
STAIRCASE NOTE
300mm reinforced cast-in-situ concrete treads and 320mm risers with 1100mm glazed panels and hand railing to detail
SANRAL 370x405 precast concrete U-channel and grid to fall 1:40
Level 2 doors and windows
5040
Lower corridor roof edge
3855
L1 Doors and windows
-775
-3000
Level2

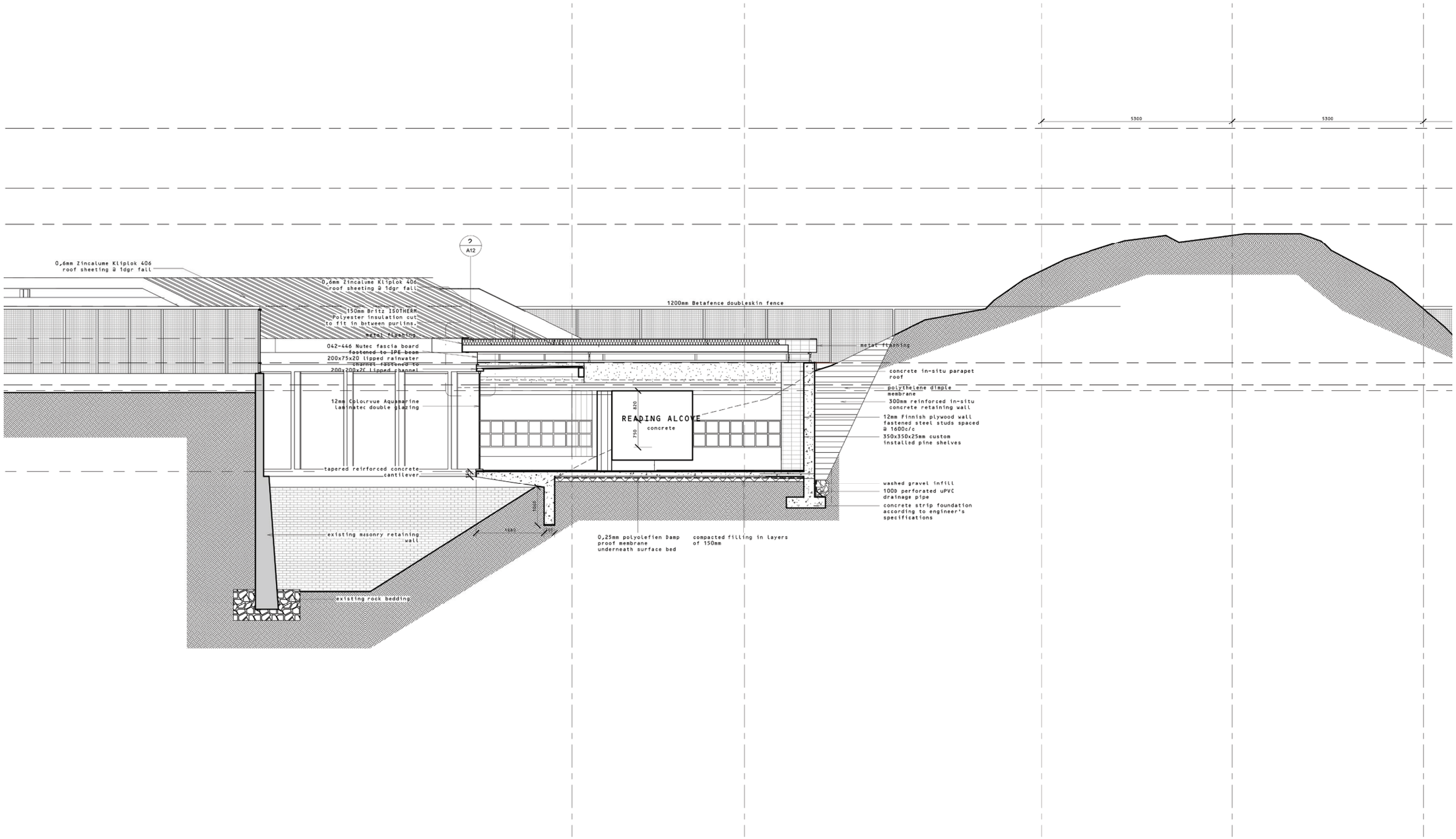
SECTION B-B

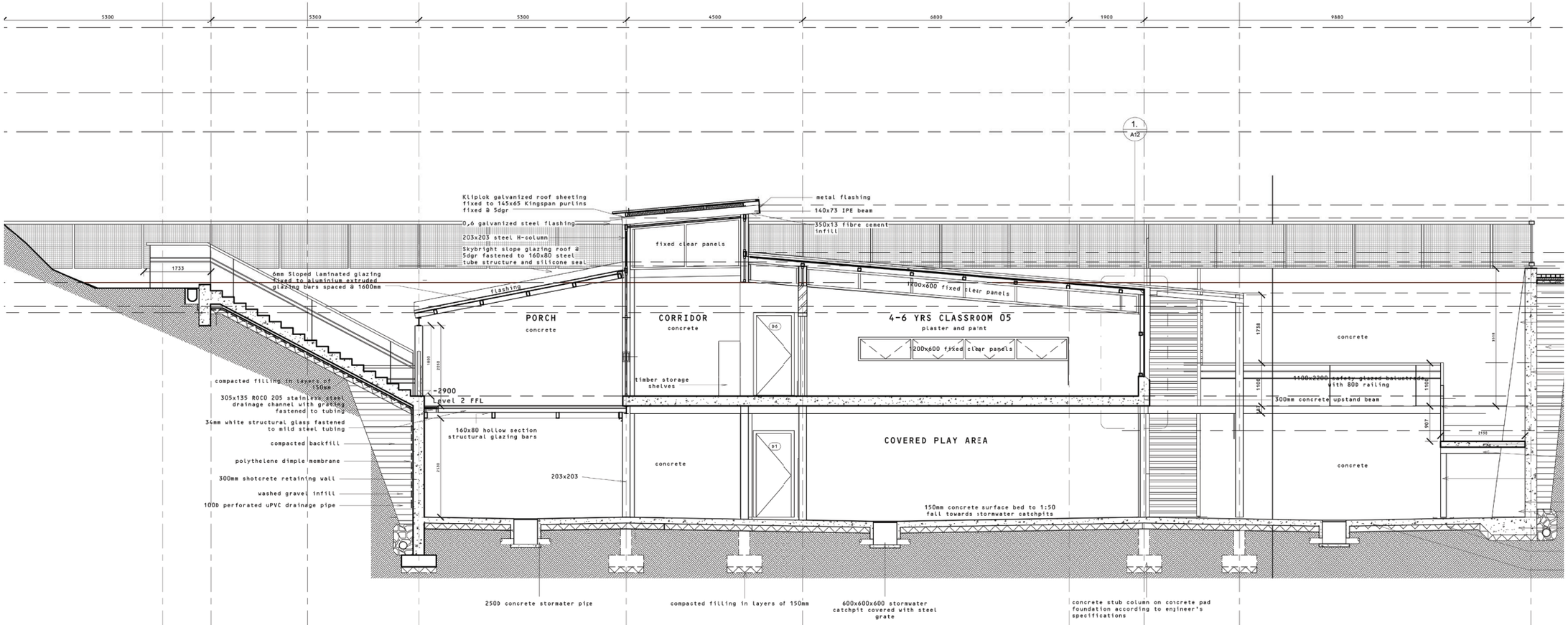


Section of corridor and translucent porch:

Scale 1:50

3D SECTION


5300
5300
2
A12
0,6mm Zincalume Kliplok 406
roof sheeting @ 1dgr fall
0,6mm Zincalume Kliplok 406
roof sheeting @ 1dgr fall
150mm Britz ISOTHERM
Polyester insulation cut
to fit in between purlins.
metal flashing
042-446 Nutec fascia board
fastened to IPE beam
200x75x20 lipped rainwater
channel fastened to
200x200x20 lipped channel
12mm Colourvue Aquamarine
laminated double glazing
tapered reinforced concrete
cantilever
existing masonry retaining
wall
existing rock bedding
1200mm Betafence doubleskin fence
metal flashing
concrete in-situ parapet
roof
polythelene dimple
membrane
300mm reinforced in-situ
concrete retaining wall
12mm Finnish plywood wall
fastened steel studs spaced
@ 1600c/c
350x350x25mm custom
installed pine shelves
washed gravel infill
100D perforated uPVC
drainage pipe
concrete strip foundation
according to engineer's
specifications
READING ALCOVE
concrete
820
750
1060
1600
0,25mm polyolefien Damp
proof membrane
underneath surface bed
compacted filling in layers
of 150mm


5300
5300
5300
4500
6800
1900
9880
1.
A12
Kliplok galvanized roof sheeting fixed to 145x65 Kingspan purlins fixed @ 5dgr
0,6 galvanized steel flashing
203x203 steel H-column
Skybright slope glazing roof @ 5dgr fastened to 160x80 steel tube structure and silicone seal
6mm Sloped laminated glazing fixed to aluminium extruded glazing bars spaced @ 1600mm
flashing
metal flashing
140x73 IPE beam
350x13 fibre cement infill
fixed clear panels
1200x600 fixed clear panels
PORCH
concrete
CORRIDOR
concrete
4-6 YRS CLASSROOM 05
plaster and paint
200x600 fixed clear panels
timber storage shelves
-2900
Level 2 FFL
160x80 hollow section structural glazing bars
COVERED PLAY AREA
concrete
203x203
concrete
concrete
1100x2200 safety glazed balustrade with 80b railing
300mm concrete upstand beam
compacted filling in layers of 150mm
305x135 ROCO 205 stainless steel drainage channel with grating fastened to tubing
34mm white structural glass fastened to mild steel tubing
compacted backfill
polythelene dimple membrane
300mm shotcrete retaining wall
washed gravel infill
100b perforated uPVC drainage pipe
150mm concrete surface bed to 1:50 fall towards stormwater catchpits
250b concrete stormater pipe
compacted filling in layers of 150mm
600x600x600 stormwater catchpit covered with steel grate
concrete stub column on concrete pad foundation according to enjineer's specifications

SECTION A-A

CONCLUSION





CONCLUSION:

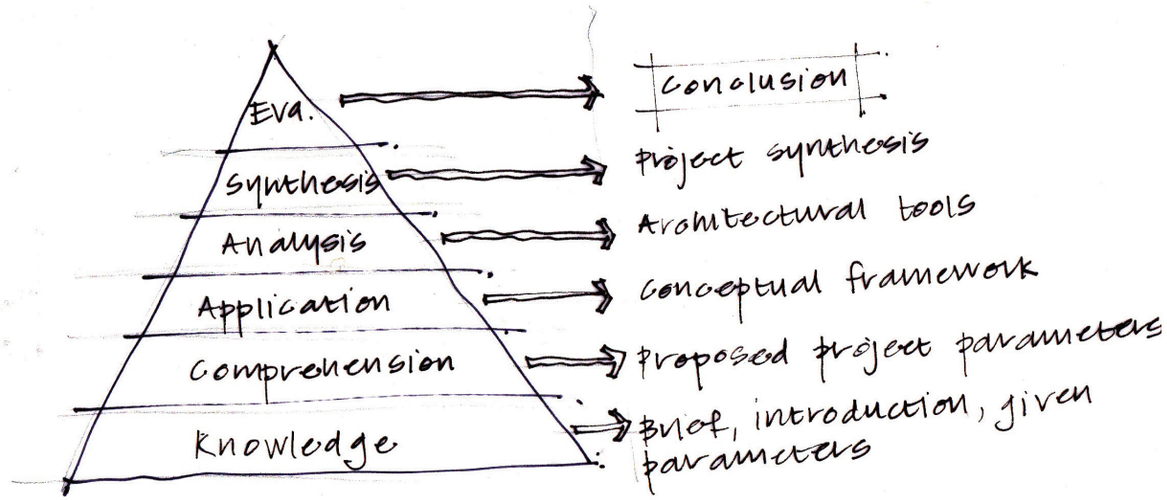
Architectural research and applications form the basis for forming a conclusion and evaluating the information gathered during the design process.

Challenge 1:
Kingspark Zoo's natural conditions should be preserved for the benefit of the surrounding community. Architectural intervention of the site should serve as acupuncture for the surrounding high-paced environment.

Children are a crucial part of the community and should be considered as priority in all urban interventions. The thesis aimed to provide space for children with the larger benefit of the community. Designing spaces that are child-friendly not only benefits children, but renders the community as a safe and healthy organism.

Challenge 2:
The Montessori Method has specific design challenges requires a holistic outlook on the design rationale.

The independence of children forms one the main principles of the designing a Montessori school. It is therefore important to design spaces that are educationally



stimulating and where children can move independently. The conventional approach of designing a limiting classroom where children are forced into specific activities should be disrupted and approached differently during the design process. Transforming the school as an architectural object that children are confident to interact and deal with should form the basis of designing such a school.

Challenge 3:
Designing spaces for children requires an in-depth understanding of their unique nature, vividness of their imaginations and hunger for adventure. Play is a crucial part of children's framework and encourages and nurtures their ability to communicate and engage with their surroundings (Carlson, 2013: 342). The "landscape of play" describes a landscape where children spontaneously interact with their environment (Carlson, 2013: 343) which testifies of a child's confidence, comfort and fascination with the designed space. Architectural intervention for children should be based on designing spaces with these outcomes in mind.

CHAPTER 11

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