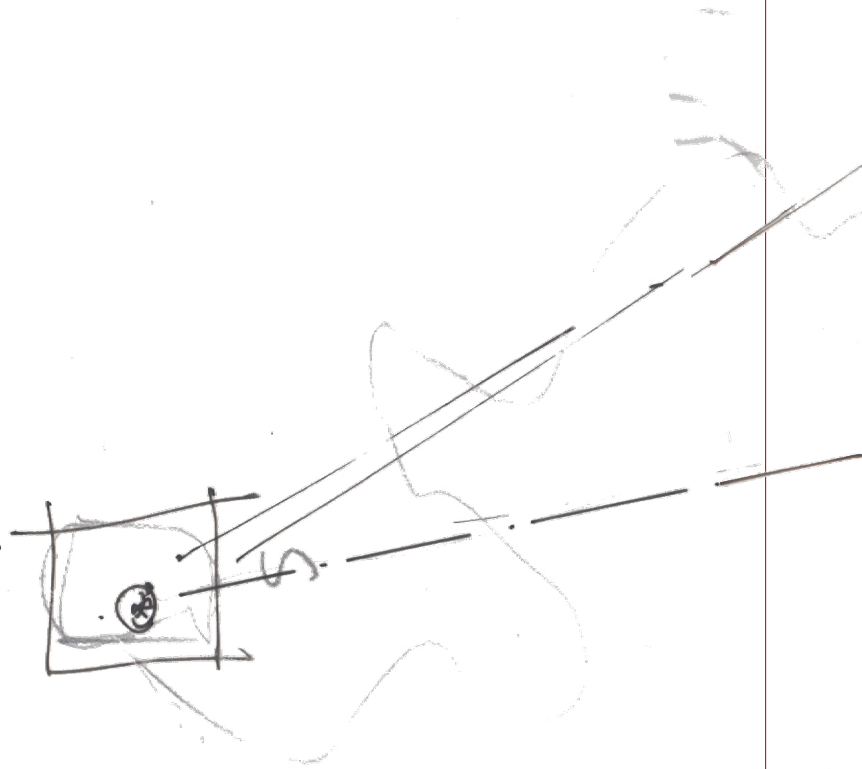




[ 5 ]

D e v e l o p m e n t





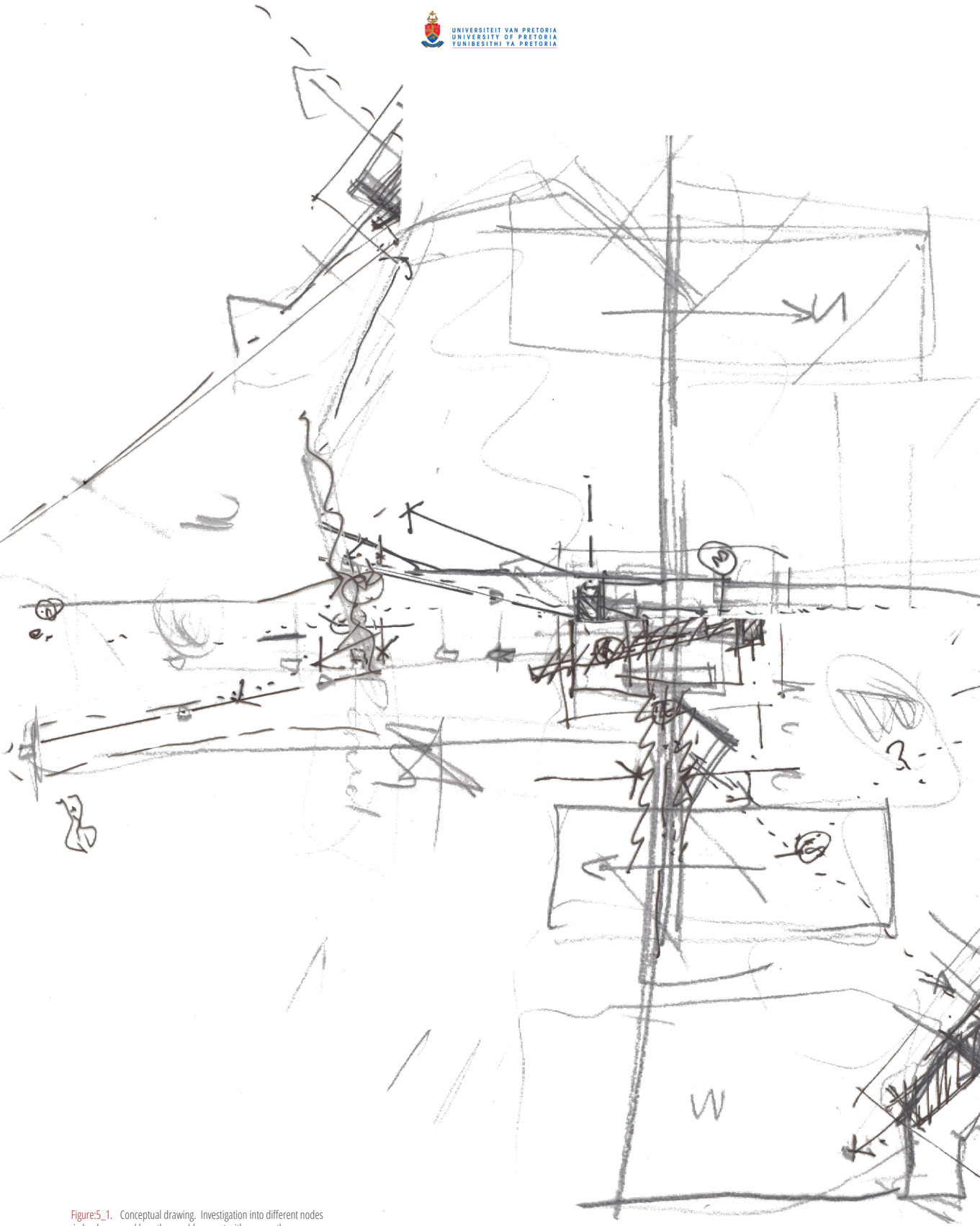


Figure 5.1. Conceptual drawing. Investigation into different nodes in landscape and how they could connect with one another.

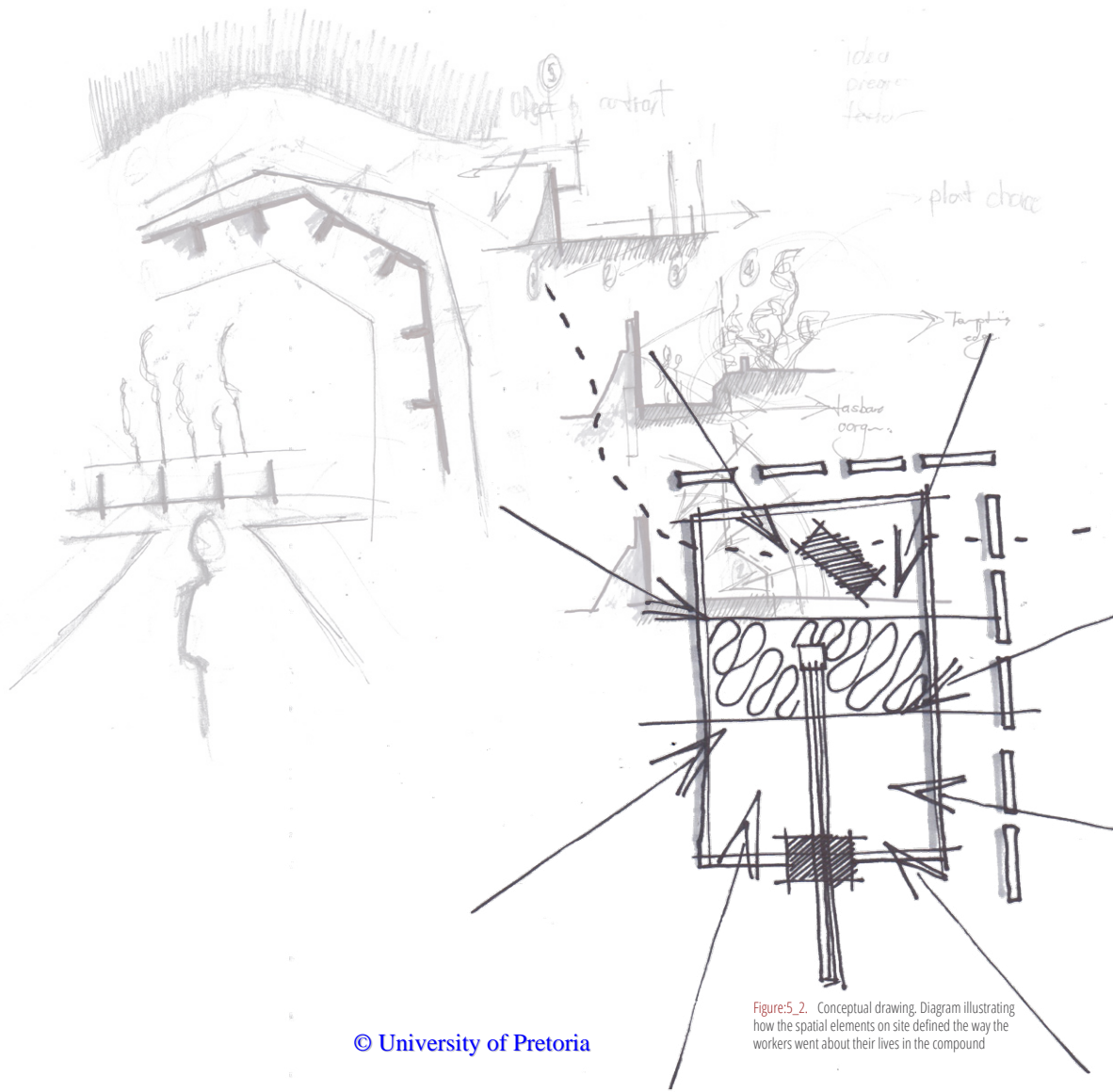


Figure 5.2. Conceptual drawing. Diagram illustrating how the spatial elements on site defined the way the workers went about their lives in the compound

# Conceptual Development

## 5.1

In Chapter 2 the author discusses the ways in which landscapes can be imbued with significance. In Figure 1\_1 on page 11, the approach to do so is hypothesised. The leading minds on landscape significance and meaning, Treib (2008), Olin (2008) and Herrington (2008), contest that only through personal interpretation and the direct interaction of the user, will a design achieve significance. It is then Potteiger (1998) who says it is through landscape narrative that this is achieved.

Thus, if landscape narrative is the point of departure, the author is met with a crucial question - what narrative?

During the process of design manifestation, the author had to firstly identify the story that needs to be told, and then decide how to go about communicating that story through landscape narrative. Only then can an appropriate design approach be formulated to communicate the narrative.

Secondly, when the story is identified, appropriate methods of translating that narrative spatially, through an open narrative landscape intervention, need to be formulated. This is done by firstly identifying key elements of the narrative, and then using associative semiotic devices to communicate them.

This all needs to happen whilst heeding the warnings of Herrington (2008) that if semiotic devices are not guided through context, the user is left dazed and confused to what the designer intended to communicate. Thus, the approach discussed in Figure 2\_3 on page 37 is followed to ensure the narrative is communicated through the design intervention. This will deliver a design that works with a combination of semiotic design devices and text to ground the narrative.

The story the site tells us about the workers is told through spatial differentiation of the site. Each space in the compound has a unique genus locus. The lives of the workers are defined by the way in which they were allowed to move through and from the compound. Specific areas on-site had specific ways in which those areas were controlled and monitored.

Control, separation, isolation, fear, anticipation and community are the main themes. These elements convey the essence of the story of the workers in the compound. Many of these themes are still present in the decaying site.

The question arises: how can I instil these emotive responses in the user through design? And the subsequent question: how can I convey the story of the site to the user? The narrative of the workers is only one layer of a greater whole. The essence of the site, as well as the intention of the author and the experience of the user, forms the basis from which this dissertation operates. The emotive response and interpretation of the user must also be considered.



Figure5\_3. Compound workers. REF

The areas identified in Figure 5\_4 are the areas where the narrative is communicated. Each area focuses on the specific part of the narrative it communicates, together with the accompanied semiotic approach.



# 5.2

## Areas of design intervention

### Design Intension

- A** Main Axis, orientation points and connections to it
- B** Sunken walkway
- C** Historic Entrance and lookout
- D** Historic bath and surroundings

### Narrative attempted (Semiotics)

- A** Control and surveillance
- B** Trapped and isolated
- C** Longing and anticipation
- D** Reflection and contemplation

Figure:5\_4. Areas identified in the compound that has the best potential to communicate chosen narrative.



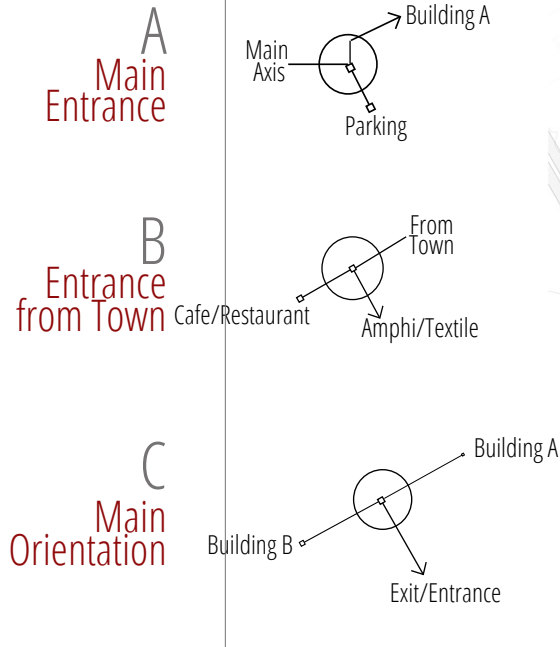


Figure:5\_5. Main decision trees on site. Where the visitors want to go, and how to get there.

# 5.3

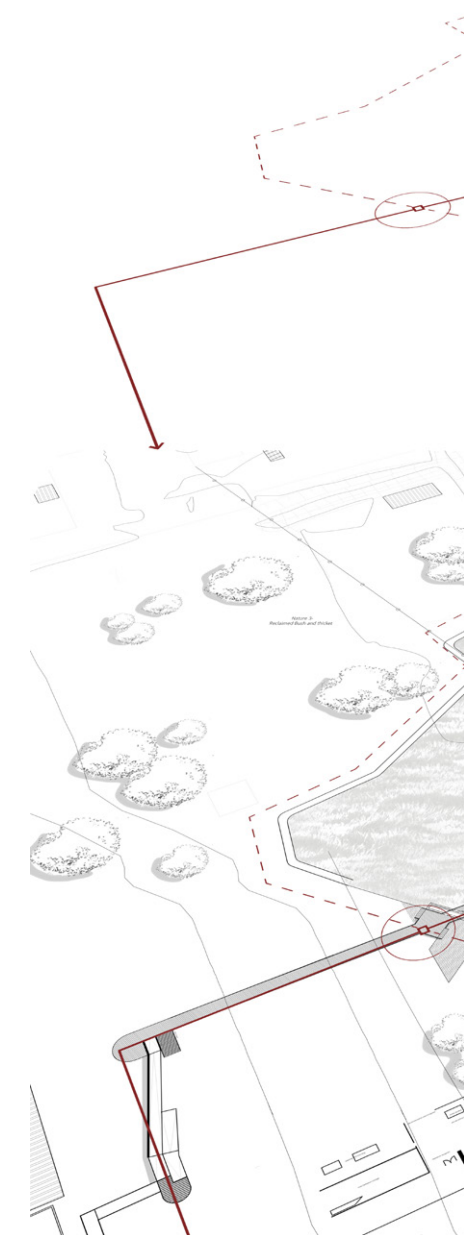
## Access, movement and hierarchy

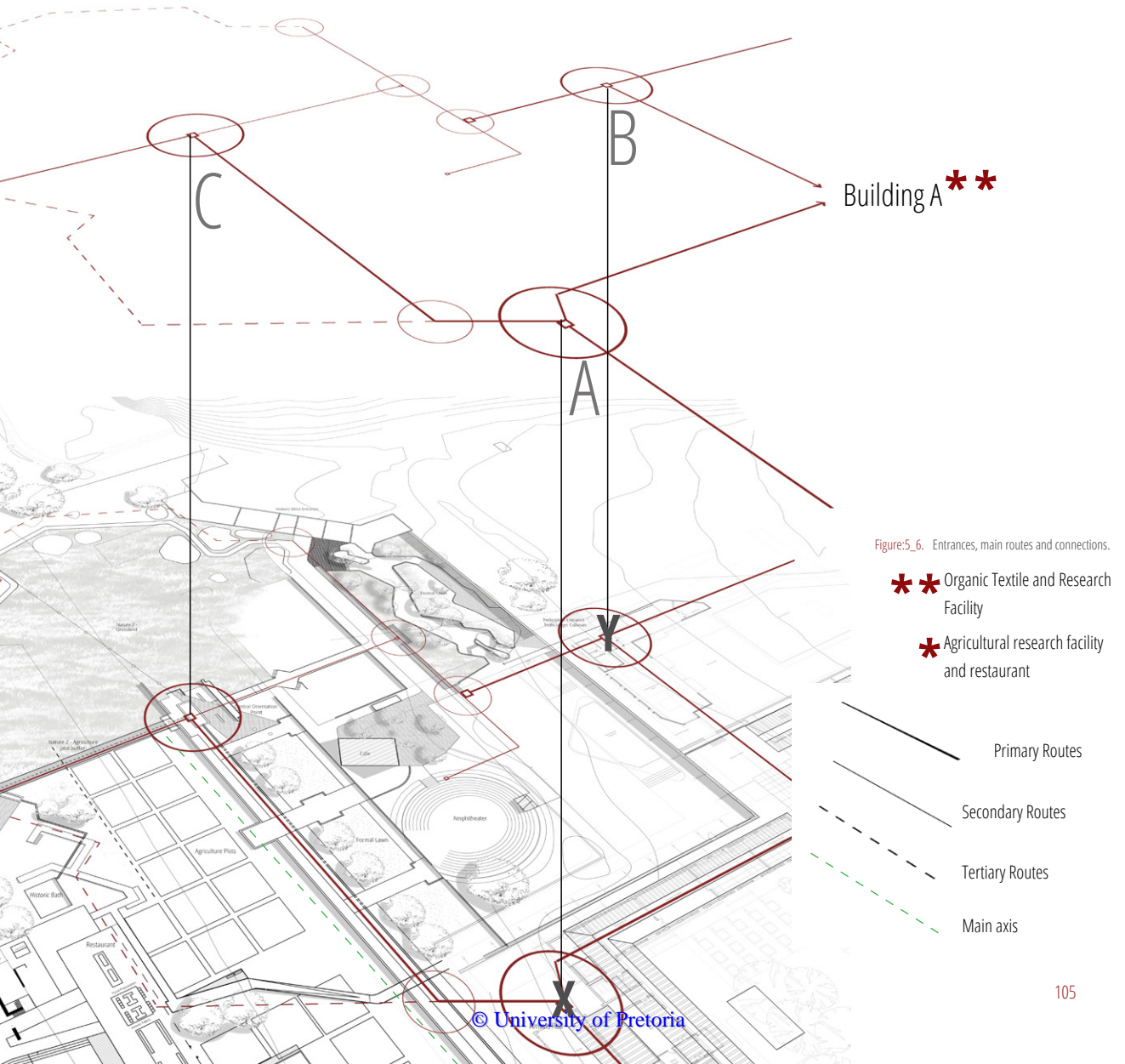
It is proposed that the main entrance be located at the southern entrance of the site, marked X on Figure 5\_5. This is also where the information centre main parking and drop-off points are situated.

A secondary entrance, marked Y on Figure 5\_5, is located at the eastern side of the compound. This entrance is a new proposed entrance that is created by breaking through the buttressed wall on the east. This entrance is linked to the pedestrian and cycle route that connects to the larger Cullinan complex.

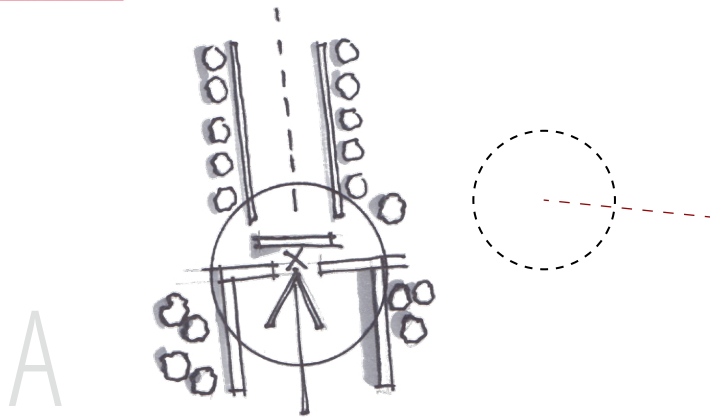
The site consists of various routes, each with a different hierarchy. The primary, secondary and tertiary routes are indicated on the map to the right. Each route has various decision trees; these are areas where visitors make decisions as to where they want to go. The main decision trees of the site are illustrated in Figure 5\_5 on this page.

The main axis is the main spine of movement through the site. This pathway is a pedestrian walkway, but allows vehicular movement to provide service access to the cafe and amphitheatre.

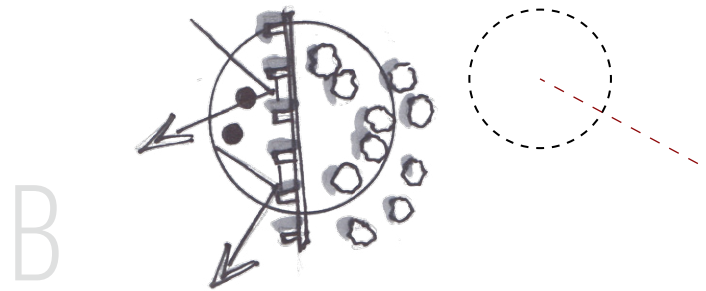




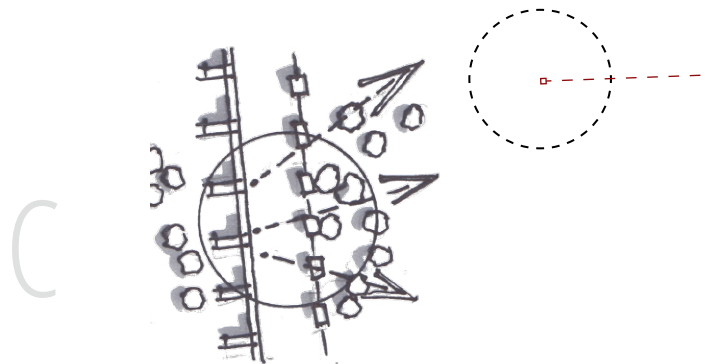




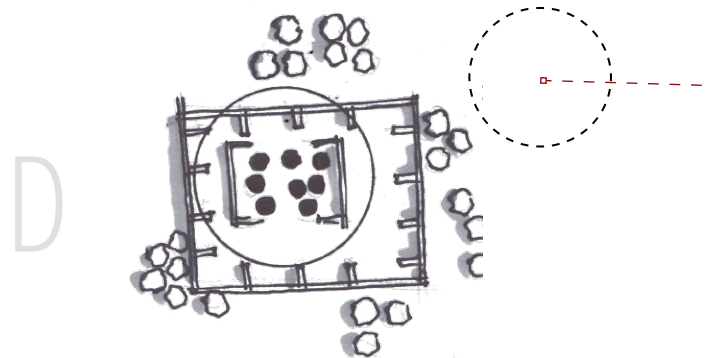
Control and predictability



Isolation



Longing and yearning



Reflection and contemplation

Figure:5.7. Areas on site that will communicate the narrative of the workers through the use of semiotic device. Each one is responding the emotive response associated with it.

# 5.4

## Semiotic landscape division

These areas were identified, Figure:5\_8, where semiotic devices can be deployed. These devices will be used to guide the narrative, however, they do not function independently. The narrative will only be effectively communicated if these semiotic devices are guided by context, as discussed in Figure 2\_3 on page 39. Each semiotic device is understood in the context of the history and heritage of the workers of the site – how they lived, moved and interacted within the boundaries of the compound.

Using universal principles of emotive spatial interpretation, the semiotics are used to lay down the base of the narrative. These different rhetorics are placed throughout the landscape and form part of a greater whole. Linear progression and exposure to these devices are not necessary for the narrative to be understood. It is up to the user and circumstance to construct and complete the narrative.

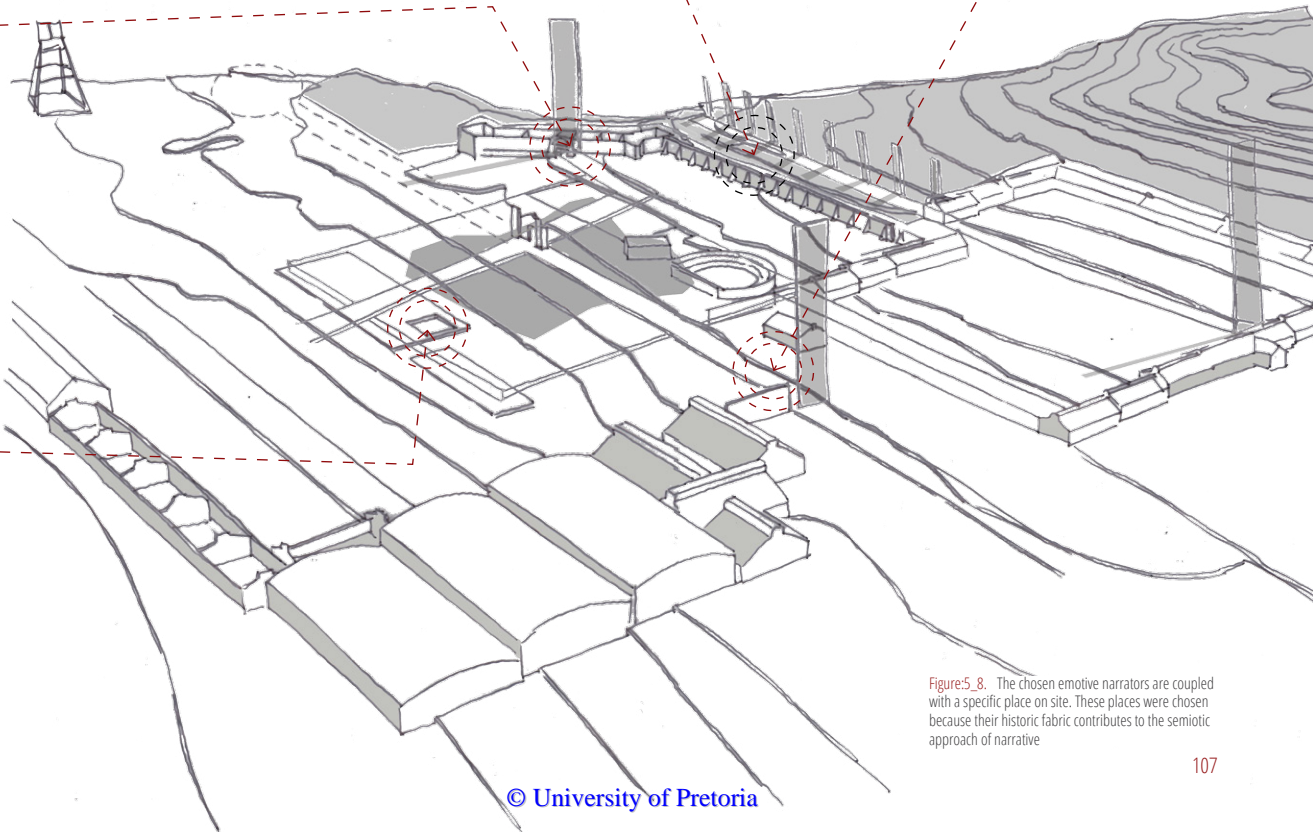


Figure:5\_8. The chosen emotive narrators are coupled with a specific place on site. These places were chosen because their historic fabric contributes to the semiotic approach of narrative

# 5.5 Semiotic Approach

Each one of these identified spaces, Figure:5\_4 on page 103, represent a specific part of the history of the lives of the workers who lived in the compound. These areas are chosen because the historic fabric which occupy them can contribute to the communication of the narrative.

The emotive connections identified with each of these chosen spaces are derived from the historic records writings of the compound.

This was the main axis of movement in and out of the compound. When the workers entered and exited the site, they were subject to strenuous checks and searches.

**Design response:** The design aims towards repeating the repetitiveness and predictability of movement, using various threshold and symmetry to imitate the way the workers moved through this space. The historic archway, will be the point of destination of the central axis Figure:5\_9.

The heavy buttressed wall, Figure:5\_10, was the constant reminder of their 'imprisonment'. The untamed nature just outside of it is representative of their freedom, overhanging the wall and luring them to it, yet it is out of reach.

**Design response:** Using level differences, the inverse of the wall and nature is created. The user is submerged and enclosed on the ground, like the worker was enclosed in the compound.

The historic access to the no. ii shaft, Figure:5\_11, is the only building orientated in a different direction to all the other elements in the landscape. This emphasises its importance. Workers moved through this arch each day before they descended down the shaft. But before they did so, they were confronted with the vastness of the 'big hole' and the horizon stretching across the outer edge of the hole. It evokes, even today, an emotion of hope and promise.

**Design response:** This functions as the main lookout point of the compound. The visitors move through the historic building like the workers did, and are also confronted with the vastness of the open hole. The design aims at portraying the historic building to the public. A sensitive intervention approach is necessary to preserve this important building.

The historic bath, Figure:5\_12, was the place where the workers washed themselves after a long day in the mine. This was a place of quiet and reflection after a long day's work.

**Design response:** Echoing the historic purpose of the bath, this space is a place of contemplation and memory. After the user has experienced the narrative of the site, here is where the narrative will be internalised and interpreted. It also forms part of a larger water feature.





Figure:5\_9. Historic archway. Last remaining remnant of the compound no. 5. It is the end point of the main axis running through the site from the entrance. (Author 2014)



Figure:5\_10. The heavy buttressed wall that runs along the western boundary of the compound. Notice the overhanging vegetation. (Author 2014)



Figure:5\_11. This is the archway that was the primary access point to the no.ii shaft. Workers moved through here when they went to and from work (Author 2014)



Figure:5\_12. The communal bath where workers washed and relaxed after the days work. (Author 2014)

A

## Grounding the narrative

The narrative is contextualized and guided by the telling of the story of the compound. Text derived from historic writings of the compound is used to formulate it.

This user is exposed to the text, after or during the space is experienced. The users read the narration associated with each specific site as they move through it. Because the narrative is based on an open narrative interpretation, the order in which the site is experienced and the text is read is not important. Either the text is read and rhetorics experienced or visa versa. This narrative is communicated in a subtle manner i.e. not placed on a notice board or found in a brochure.

B

The text is communicated in a way that contributes to the idea of search and discovery - engraved on the floor or written on a recessed wall. The user thus experiences the rhetoric devices, an emotive response is evoked in the user and that emotive response is contextualized by the text found in these spaces.

C

D



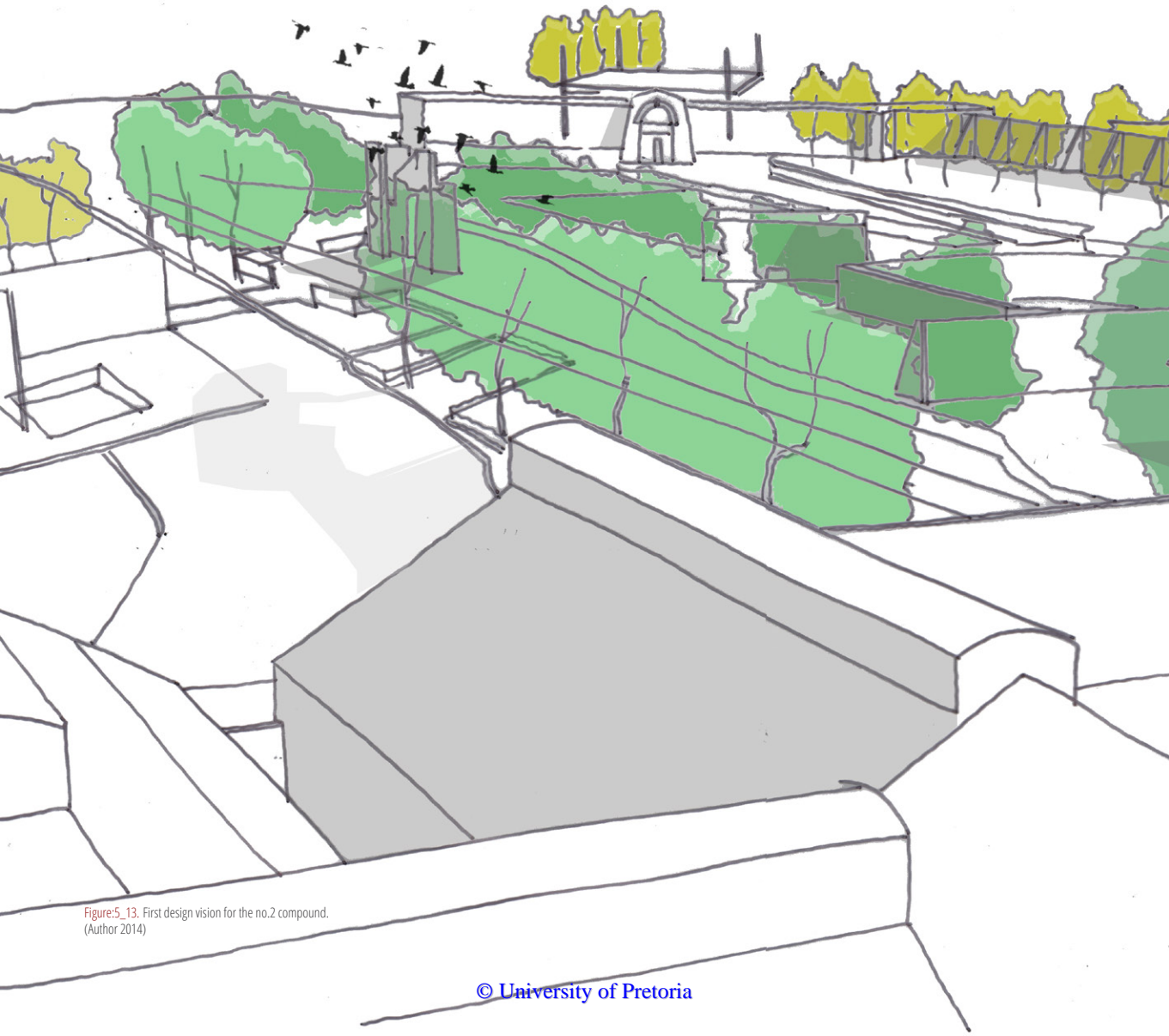
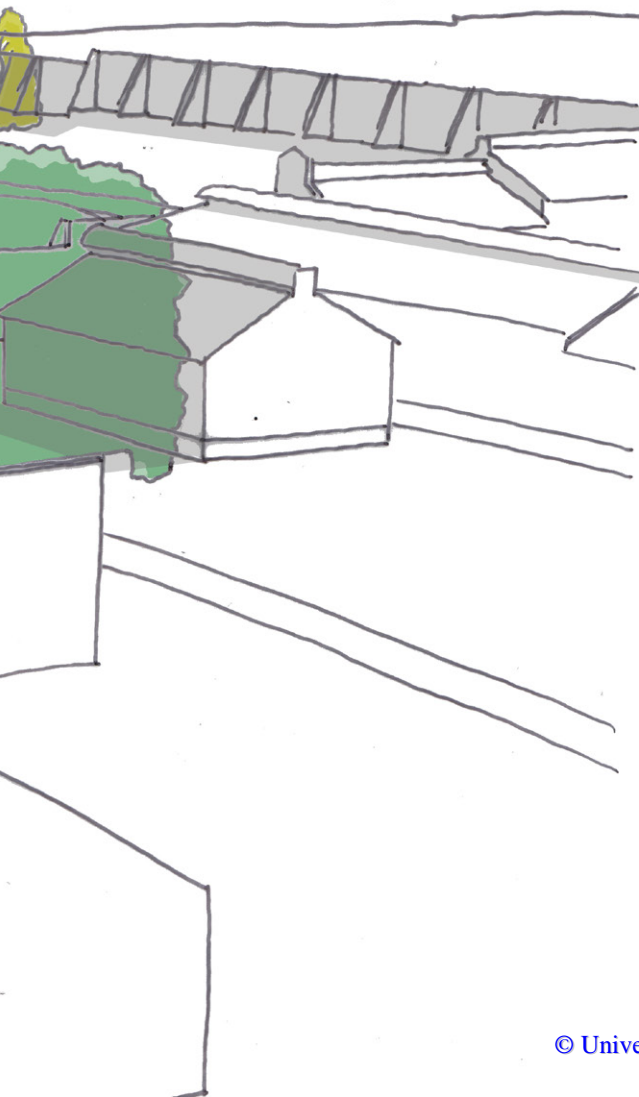


Figure:5\_13. First design vision for the no.2 compound.  
(Author 2014)

D e s i g n

D e v e l o p m e n t

5.6





Main connection route to building

Historic Foundation

Raised Walkway

Raised Walkway

Historic Bath

Food\_preb

Towards Shaft Lookout

Link and connection with architecture  
Natasha Laurent

Figure 5\_14. First master plan proposal, it focused on site A, D; the main entrance and historic bath and how they interacted with the surrounding architecture. (Author 2014)





## Critique

This design development focused on the creation of places that could best communicate the narrative through the use of semiotics as mentioned in Figure:5\_7 on page 106. This design however, lacked it that the areas marked X on Figure:5\_14, did not function as a efficient point of arrival as the design set out it to be. The area, marked Y, was initially intended to allow the users to move off the raised walkways onto the historic fabric, but this would only further degrade the sensitive fabric.

Further more, it did not properly address the connections with the architecture on site not the way the area B and C will be developed.





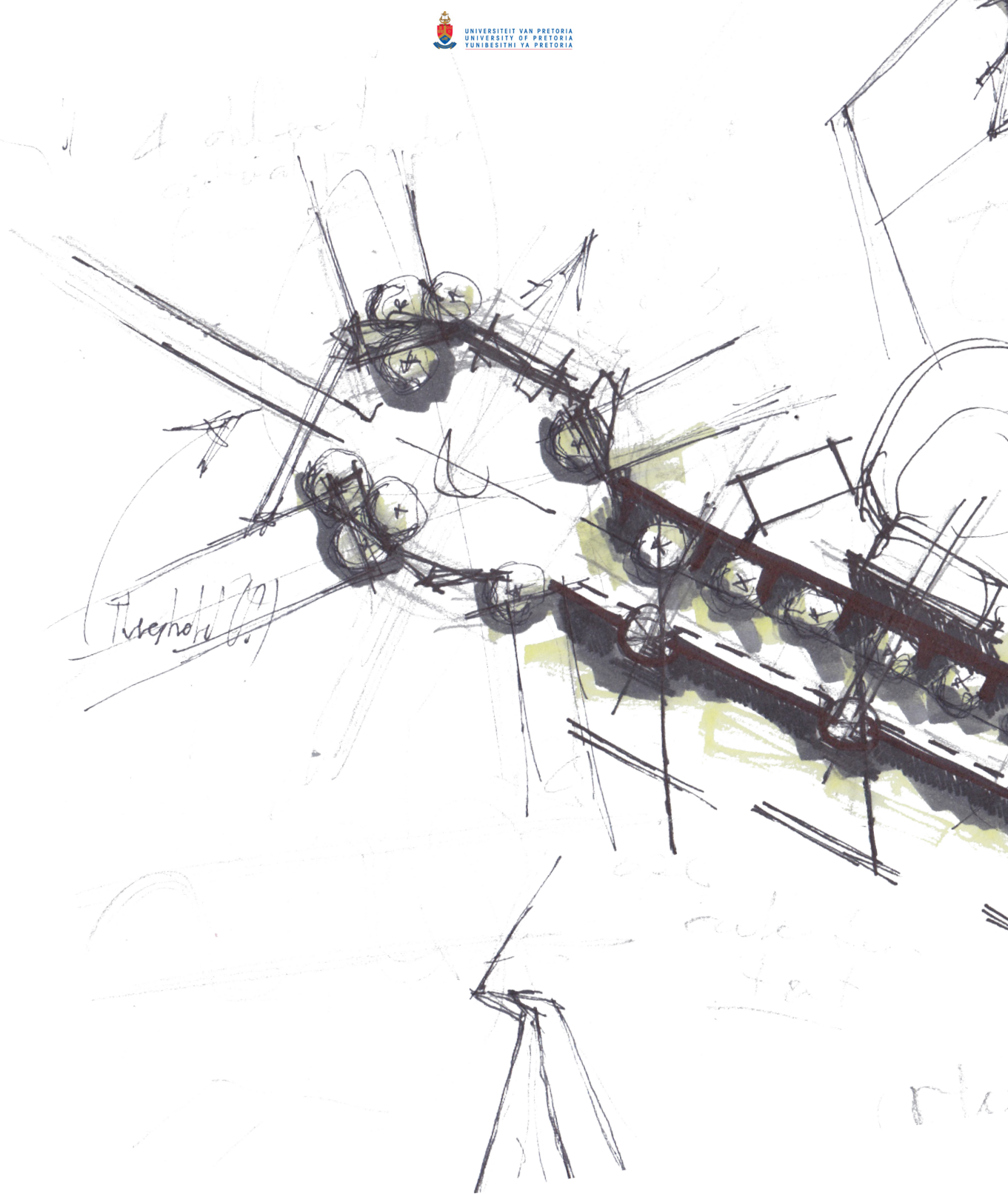
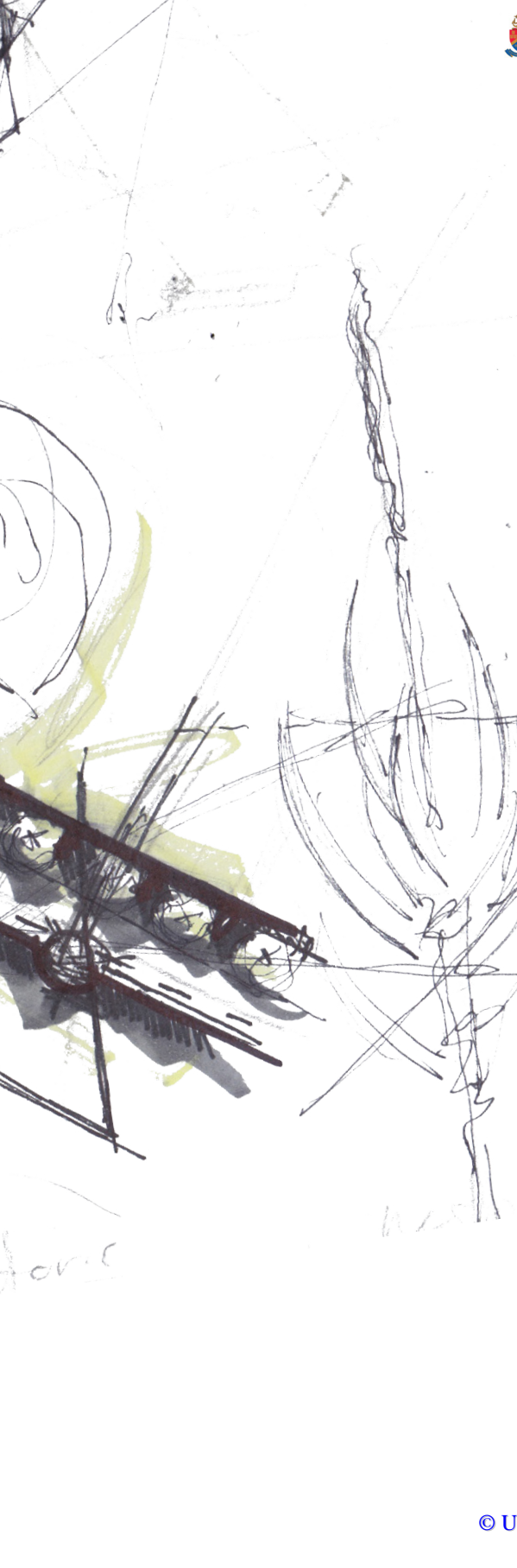
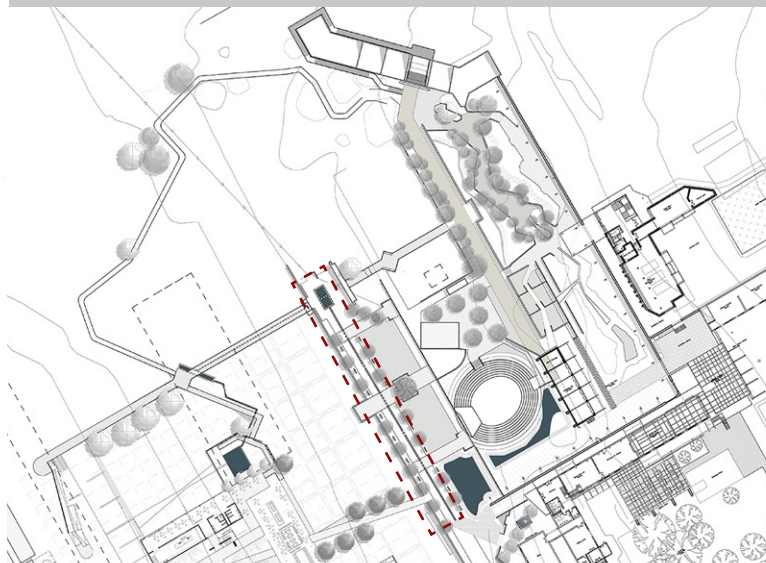


Figure:5\_15. Conceptual drawing. Spatial intention of central axis and historic archway (Author 2014)



A

Central Axis  
and entrance



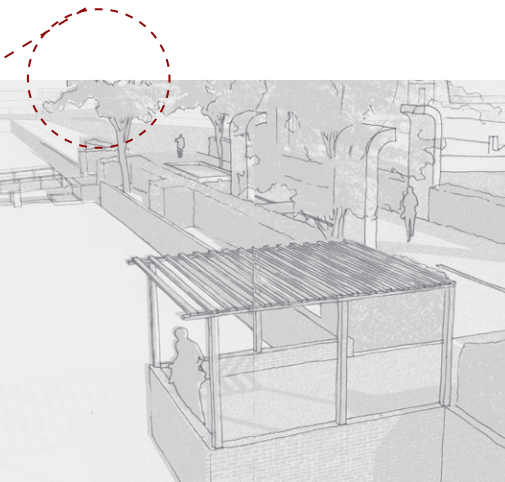


Figure 5\_16. This arch was once the entrance to compound no. V. This is the only thing that remains of that compound building. It now serves as a central orientation point on site. The archway is used as a point of reference in the design. From this point users can move through the arch, west bound, or down away from the arch, westbound (Author 2014).





**Figure5\_17.** This arch was once the entrance to compound No. V. This is the only object that remains of that compound building. It now serves as a central orientation point on-site. The archway is used as a point of reference in the design. From this point, users can move through the arch, westbound, or away from the arch, eastbound (Author 2014).



**Figure5\_18.** The lookout is over the agricultural plots that the food production and research facility uses. This lookout point thus serves as a didactic element within the landscape, providing an opportunity for the users of the site to learn about the working of the site (Author 2014).



**Figure5\_19.** The pathway consists of lines with surrounding concrete structures that imitate the guards looking over the workers of the compound. (Author 2014).

## Main axis and entrance

The main axis on-site is the route that leads from the main entrance and parking to the first major point of orientation on-site, as seen in Figure:5\_6 on page 105.

## Initial design response:

The design aims towards repeating the repetitiveness and predictability of movement. This was the main entrance to the compound when workers entered from outside. They had to go through vigorous check points and searches upon entering and leaving the compound. The design attempts at using semiotic devices to communicate this narrative of control and routine to the user. Thresholds and symmetry are used to imitate the way the workers moved through this space. The predictability of the movement and routine is emphasised through the use of symmetry and repetition. A water channel that runs down the middle of the pathway further enforces the idea of predictability, as the water's flow is also predictable. Other semiotic devices include the use of imposing concrete structures that are positioned on either side of the pathway. The stark simplicity of these structures symbolises the guards of the compound, looking over the workers as they enter and exit. Their shadows cast across the pathway contribute to the intention of these structures.

## Critique

As mentioned in Figure 5\_11 on page 112, the initial design does not provide a sufficient point of arrival that the user can use as a point of orientation and a point that will draw the user through this long axis. The archway, Figure:5\_17, is orientated parallel to the pathway, thus it does not function as a sufficient end point of the axis. Furthermore, the original lookout point pergola, Figure:5\_18, is too similar to the industrial fabric found on-site. Thus, it is not clearly distinguishable from the old. The concrete structures as illustrated in Figure:5\_19, do not efficiently communicate the desired semiotic of the guard overlooking the workers. The size and positioning of these structures need to make a more elaborate statement to effectively communicate the narrative of control and routine.

### Juxtaposition

The water channel runs along the pathway where it eventually collects in this reflective pond. From here the water runs down-site to another pond, as will be discussed later. The archway is reflected, even if only partially, in the smooth, reflective surface of the pond. The materials used are in stark contrast to that of the historical material.

### Framing the shaft

As a point of arrival, the user is met with a wall with a slit inserted into it with a metal U-shaped fork. This fork protrudes high above the wall so that it is visible from the entrance. The slit, when viewed from a specific angle, frames the shaft in the distance. To lead the user to this specific point, the paving pattern is constructed in such a manner that leads the user to the 'golden spot'.

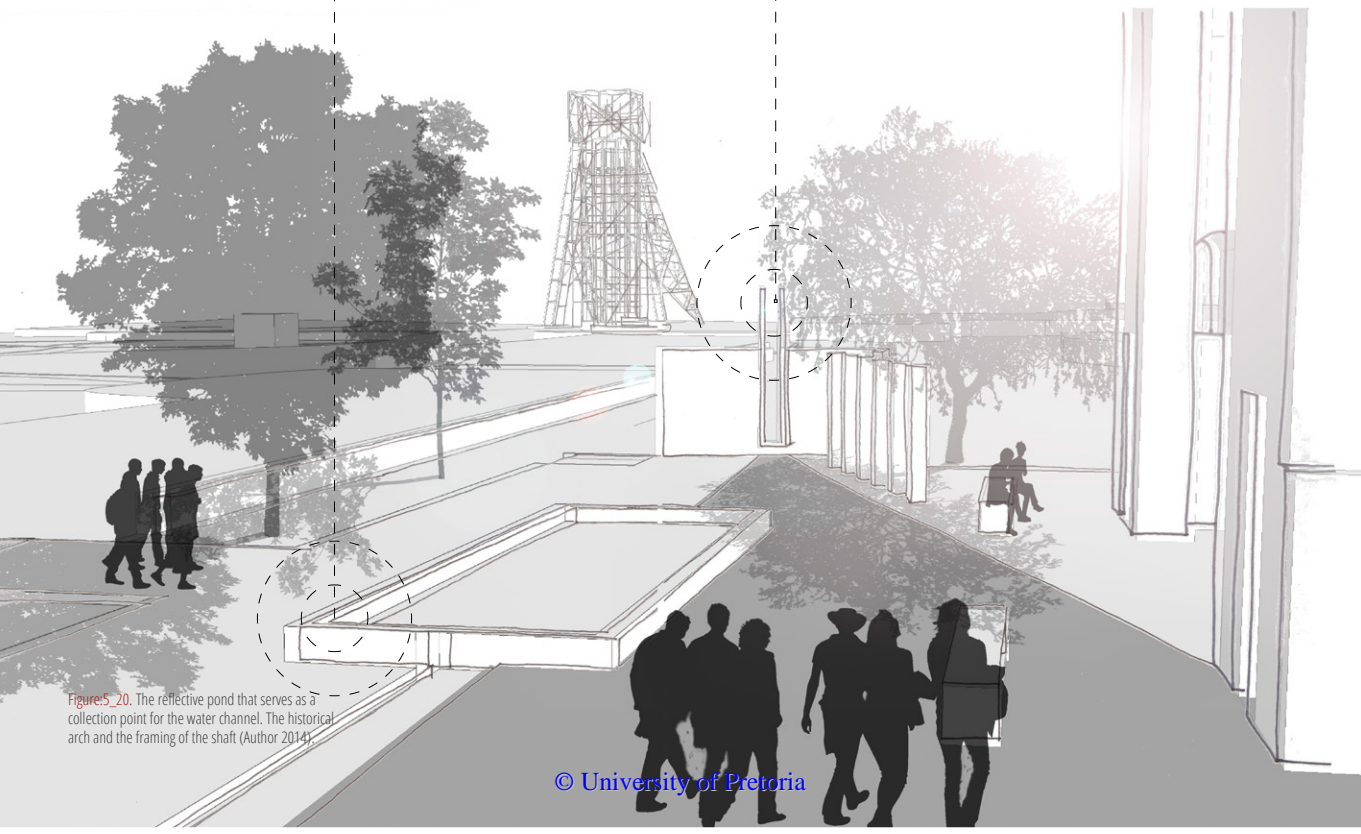


Figure 5\_20. The reflective pond that serves as a collection point for the water channel. The historical arch and the framing of the shaft (Author 2014).



Concrete structures are positioned on either side of the road. This is the use of the semiotic of the guards looking over the workers as they entered and left the compound. They are placed symmetrically alongside the path. The planting also follows a symmetrical layout plan. This contributes to the idea of control, rigidity and predictability of movement.

Water channel

In the middle of the walkway is a water channel that runs from the entrance to a reflection pond in front of the archway. The water channel is sunken into the ground, and crossings are incorporated every 3000m mm. The water feature forms part of a larger water scheme which will be discussed accordingly in Chapter 6.

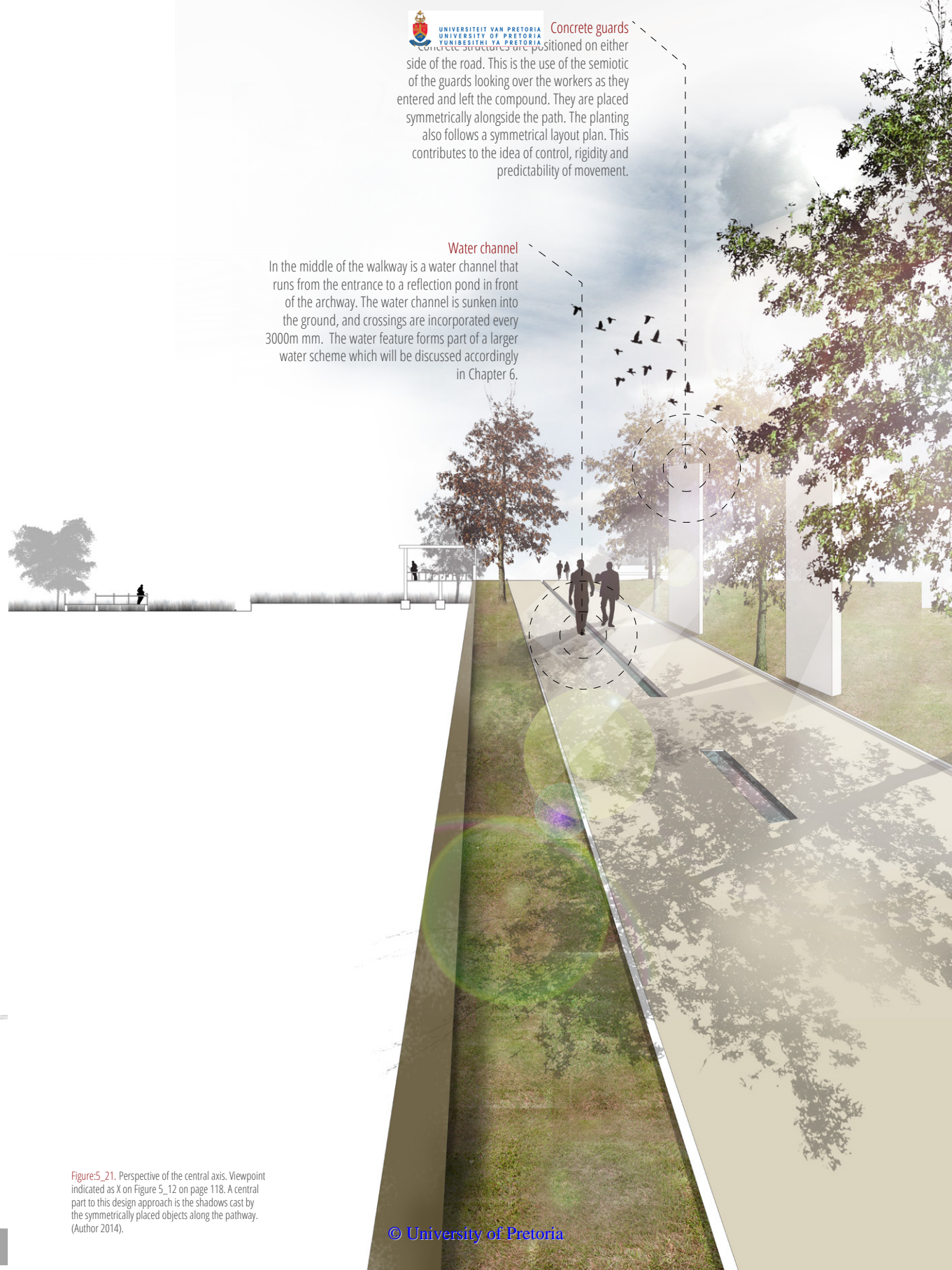
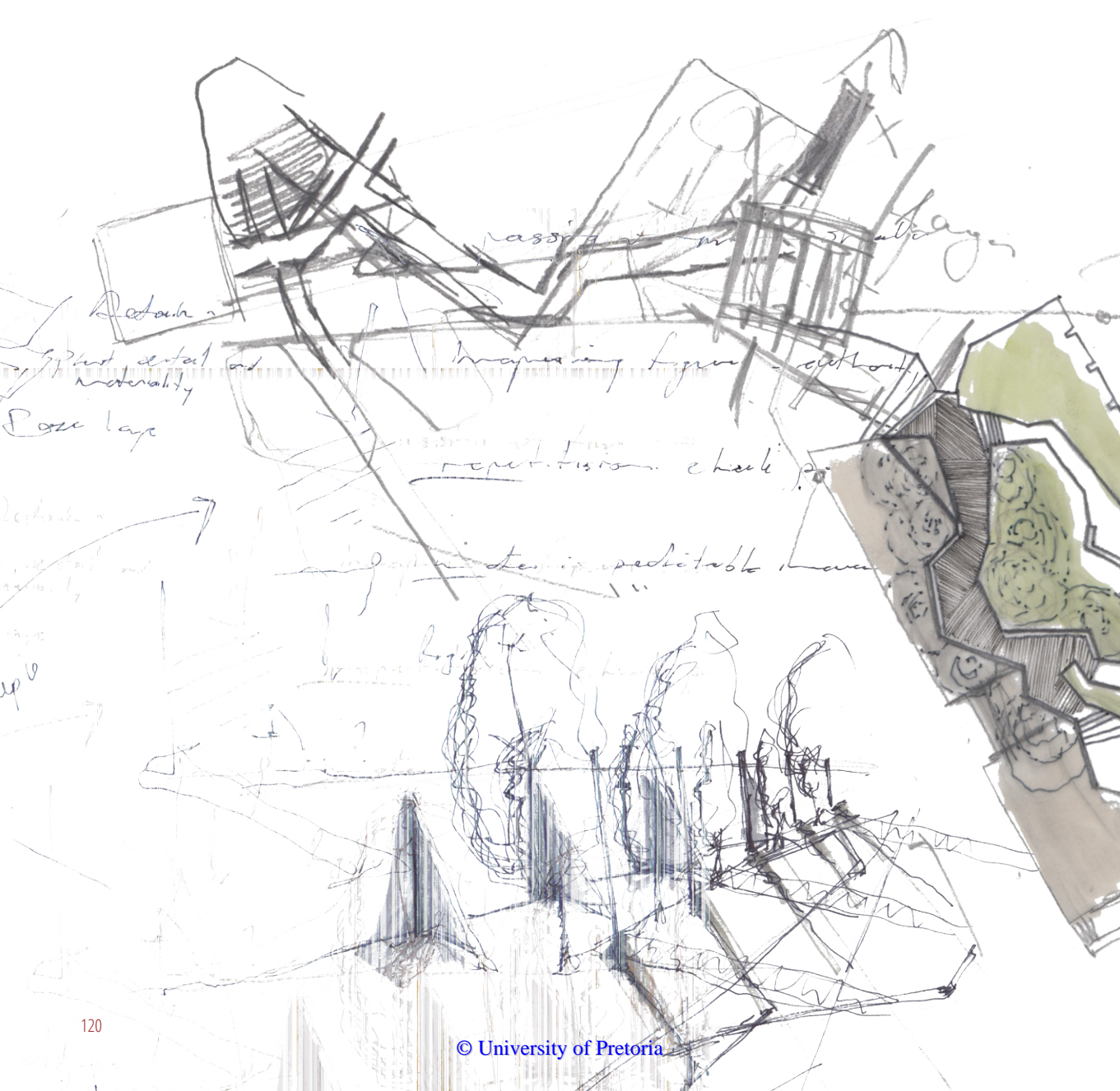


Figure 5\_21. Perspective of the central axis. Viewpoint indicated as X on Figure 5\_12 on page 118. A central part to this design approach is the shadows cast by the symmetrically placed objects along the pathway. (Author 2014).







[ B ]

Sunken walkway

Figure:5.22. Conceptual development sketches of area B. These first sketches investigated the threshold between the new and the old, and how level differences could be used to reinforce the narrative. (Author 2014)





Figure:5\_23. Dapilla del Retiro, Los Andes Valley, Chile Cristián Undurraga. The chapel rises as a confirmation of the extraordinary geography that surrounds it, while respecting the axes established by the series of pre-existing buildings. Concrete is the main material of the building's structure. The walkways cut into the landscape, echoing the typography of its surroundings. The user is submerged into the landscape when moving along these walkways (ArchDaily 2014).

### Next to the buttressed wall

The heavy buttressed wall was the constant reminder of the workers' 'imprisonment' in the compound. The untamed nature just outside of it was representative of their freedom – overhanging the wall and luring them to it, yet out of reach.

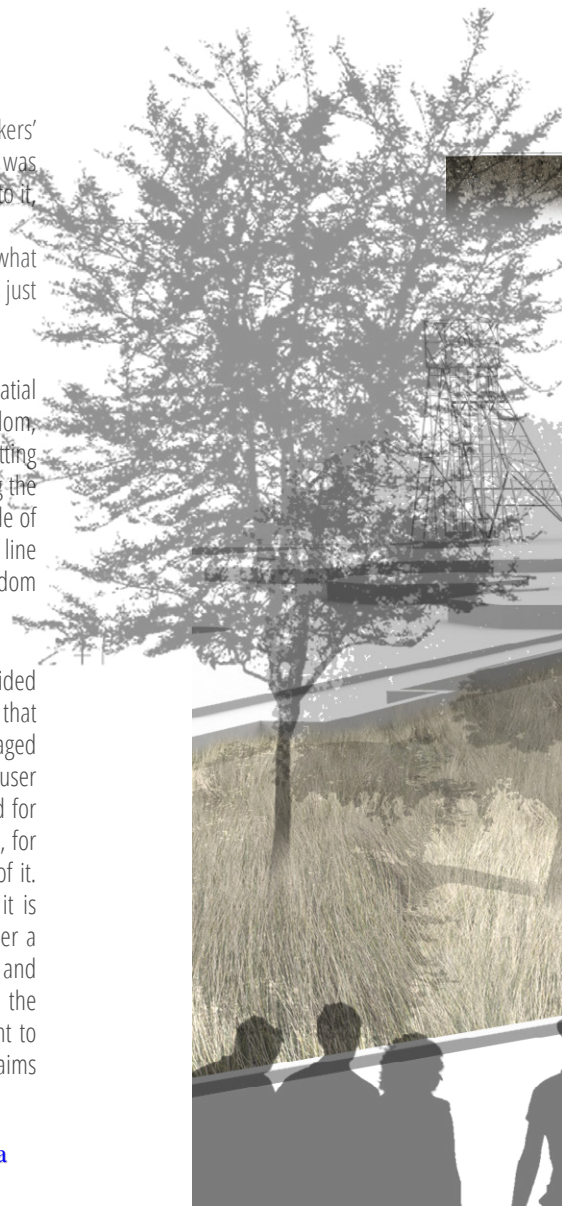
Nature is representative of the miners' freedom. While they were living in what can be described as captivity inside the compound, boundless nature was just outside the heavy buttressed wall that encloses the compound.

### Initial Design response:

The initial design approach was thus to portray, through the use of spatial differentiation, the contrast between captivity and freedom and how freedom, although visible, was out of reach. The inverse of the wall is created by cutting into the landscape, drawing the user to the earth. The walls surrounding the user, made from natural stone, imitate the buttressed wall. On either side of the walls, the planting is allowed to grow over the edges, blurring the line between the wall and nature. Just like the buttressed wall, nature – or freedom from confinement – is within in reach, but still unreachable.

### Critique

The first problem with this approach is that originally this space provided seating along the pathway. This, however, was a problem due to the fact that the area is much too small to allow users to linger. Instead, flow is encouraged through the space by using horizontal indentation in the wall to pull the user through the space, Figure:5\_27 on page 125. The original material used for the new walls, natural stone, will not be an appropriate material choice, for it will compete with the existing stone buttressed wall just to the side of it. Furthermore, regarding the buttressed wall, the pathway adjacent to it is pulled up right next to it, Figure:5\_26 on page 124. This allows the user a direct interface with the historical fabric, allowing them to feel it, touch it and smell it. The previously separated pathway from the wall did not have the opportunity of direct interaction with this artefact, which is so important to the history of the compound and the workers; the new design approach aims to address this.





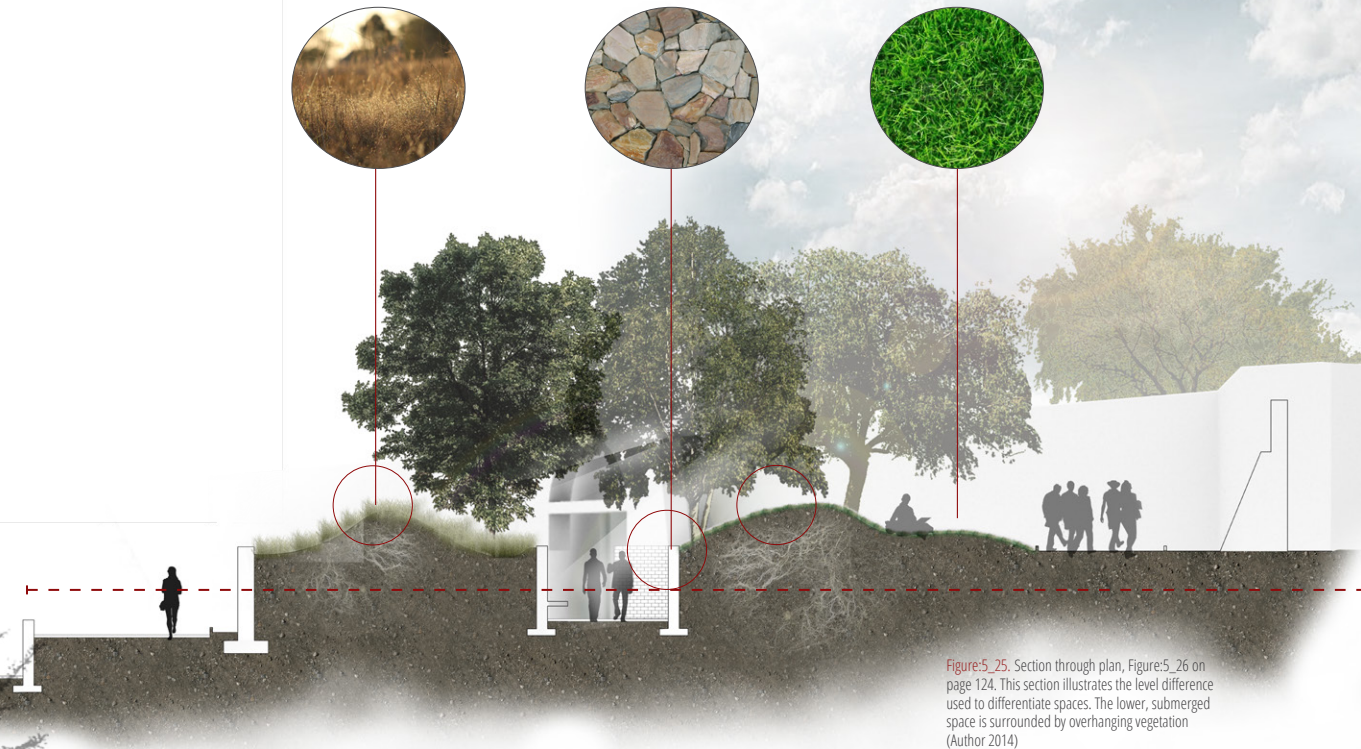


Figure:5\_25. Section through plan, Figure:5\_26 on page 124. This section illustrates the level difference used to differentiate spaces. The lower, submerged space is surrounded by overhanging vegetation (Author 2014)



Figure:5\_24. Dapilla del Retiro, Los Andes Valley, Chile  
Cristián Undurraga. The chapel rises as a confirmation of the extraordinary geography that surrounds it, while respecting the axes established by the series of preexisting buildings. Concrete is the main material of the building's structure. The walkways cut into the landscape, echoing the typography of its surroundings. The users is submerged into the landscape as you move along these walkways. (Author 2014)

# Iteration

Aim: The aim of the iteration of this space was to:

- better facilitate movement through the space;
- find appropriate material usage;
- establish the way the contextualisation, 'text', will be communicated in the space; and
- define edges between new and old, natural and constructed.

The initial material used for the new wall, natural stone, is replaced with concrete cast walls. This is due to two reasons: Firstly, the concrete will create the juxtaposition between the existing stone wall and that of the new intervention. Secondly, the fact that the wall will now be cast allows for the opportunity of lettering and signage to be cast into the wall, which frees up space in an already confined area. This was also done by removing seating from the walkway, as mentioned before.

The entrance into the space consists of both stairs and ramps to allow for universal access.

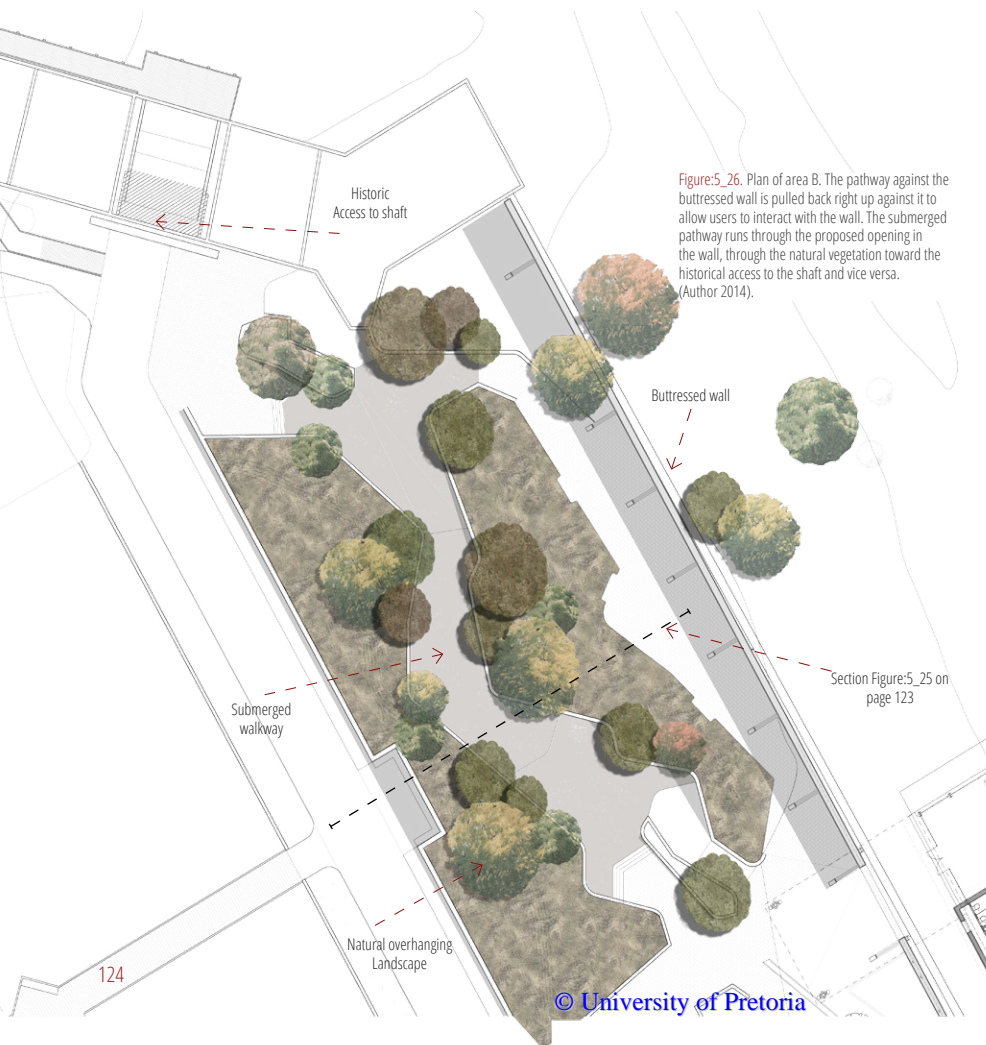


Figure:5\_26. Plan of area B. The pathway against the butressed wall is pulled back right up against it to allow users to interact with the wall. The submerged pathway runs through the proposed opening in the wall, through the natural vegetation toward the historical access to the shaft and vice versa. (Author 2014).





### Over hanging planting

The planting is of such a nature that it overhangs the edges. This links with the narrative of the workers and their freedom represented by the natural landscape that overhangs the walls of the compound.

### Wall indentations

Cast into the wall are indentations that lead the users through the space. These indentations are also used to house the signage. The top rim of the indentation also has an LED lighting strip. Where the indentation meets the ground, the line is continued with the paving pattern.

### Paving

The indentations in the cast wall are continued in the paving pattern on ground level. Different paving is used from the surrounding paving to distinguish it clearly.



Figure:5.27. Area B uses level differences to communicate the narrative of enclosure and isolation the workers felt living in the compound. The narrative is communicated through the signage inserted into indentations cast into the walls. (Author 2014)





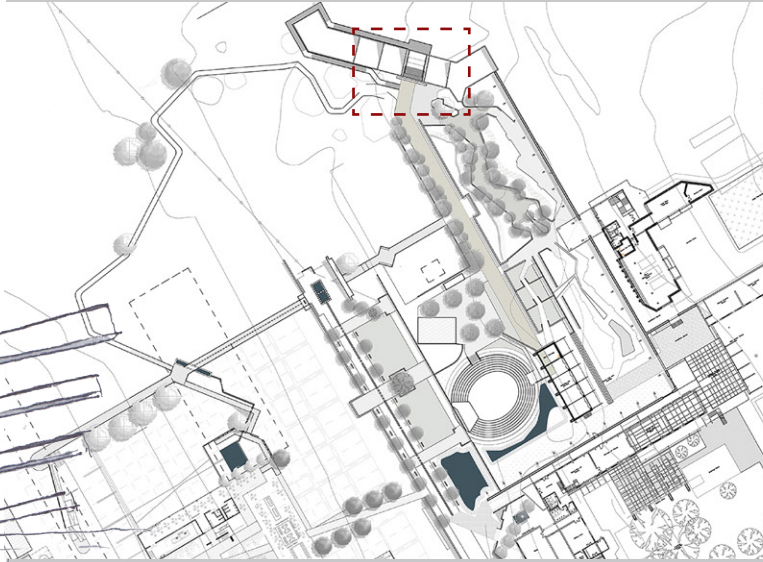
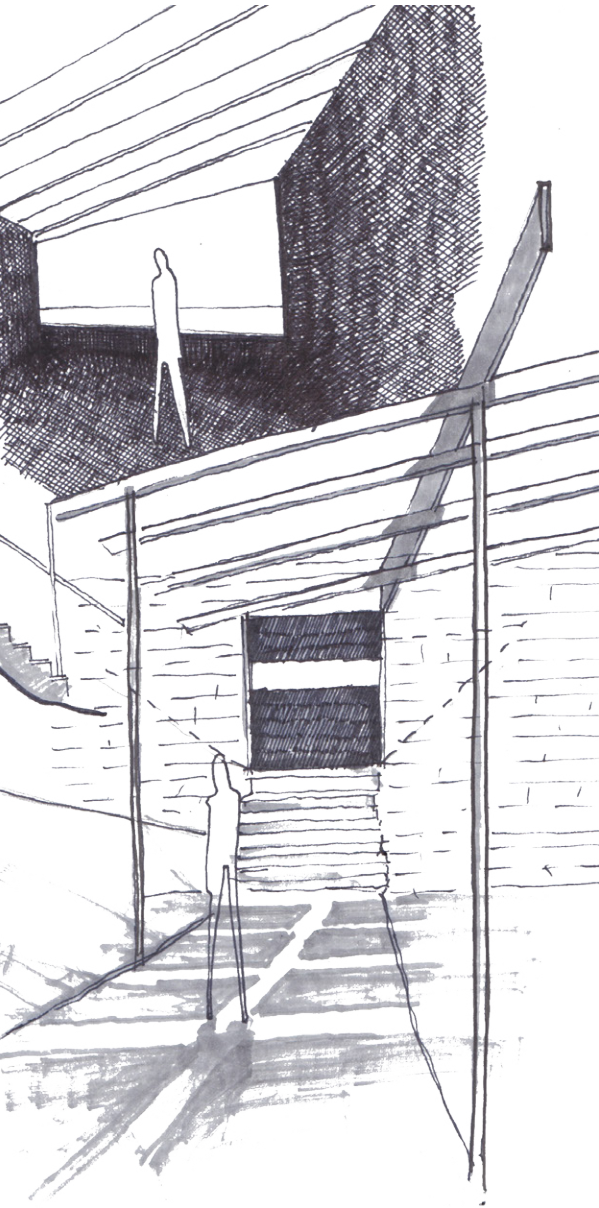
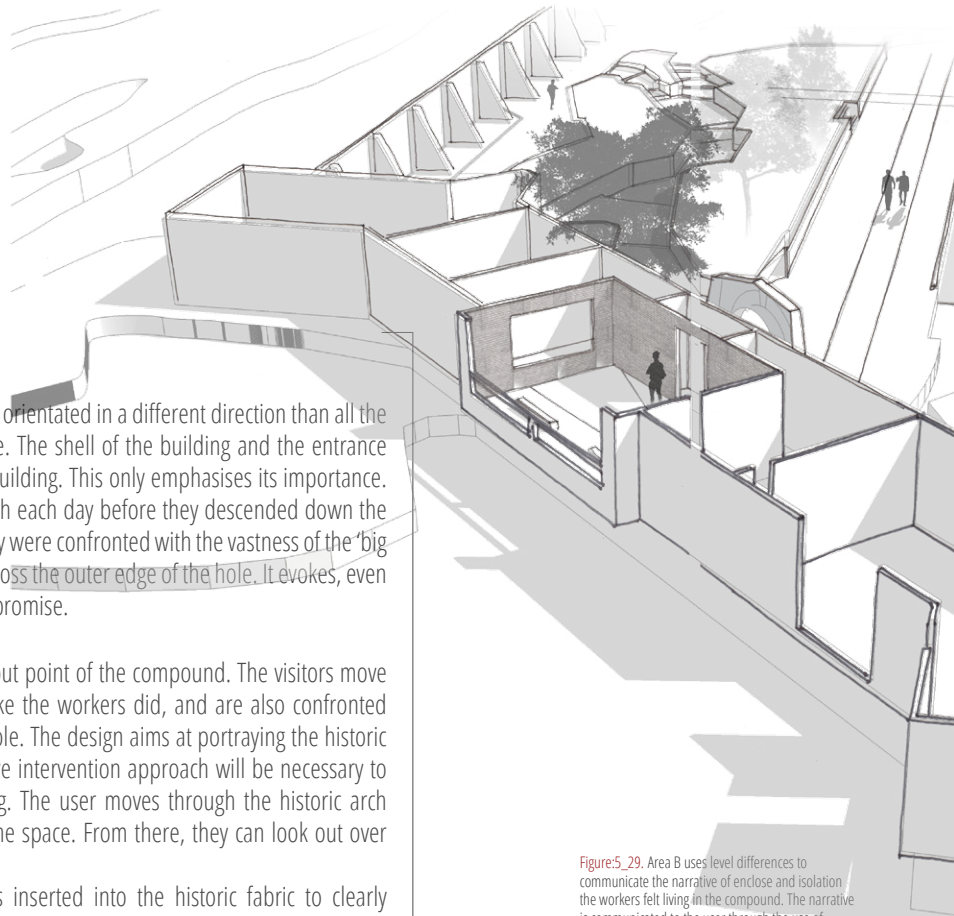


Figure 5.28. Area B uses level differences to communicate the narrative of enclosure and isolation the workers felt living in the compound. The narrative is communicated to the user through the use of signage inserted into indentations cast into the walls. (Author 2014)



Access to shaft



### The historic entrance

The entrance is the only building orientated in a different direction than all the other elements in the landscape. The shell of the building and the entrance arch are all that remain of the building. This only emphasises its importance. Workers moved through this arch each day before they descended down the shaft. But before they did so, they were confronted with the vastness of the 'big hole' – the horizon stretching across the outer edge of the hole. It evokes, even today, an emotion of hope and promise.

### Initial Design response:

This functions as the main lookout point of the compound. The visitors move through the historic building, like the workers did, and are also confronted with the vastness of the open hole. The design aims at portraying the historic building to the public. A sensitive intervention approach will be necessary to preserve this important building. The user moves through the historic arch way, through a threshold into the space. From there, they can look out over the big hole.

A new contemporary layer was inserted into the historic fabric to clearly differentiate the new from the old. The western wall has a slit cut into the new fabric. This cut is repeated throughout the historic fabric so that when viewed from a specific angle, the mine shaft is framed.

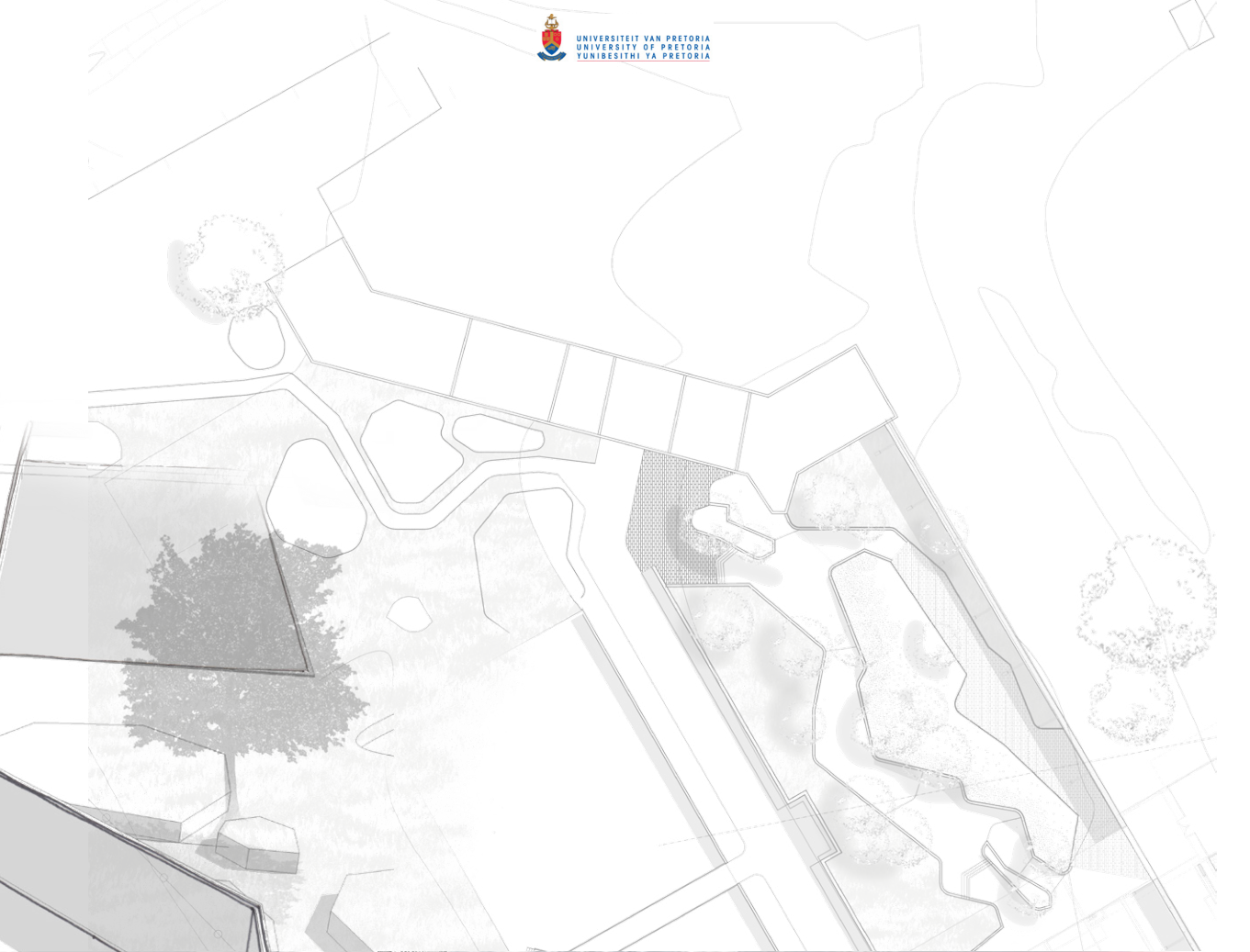
### Critique

The introduction of the new contemporary 'box' into the historic building, as seen in the illustration to the right, isolates the user from the historic fabric. Even with the openings on both sides, the user does not experience the full sense of the buildings. Thus, it is proposed that an alternative should be found to emerge the user into the old, but in such a manner that it does not isolate them from it. The design should attempt to expose the user to more of this building of importance, rather than isolate them in one room.

Figure 5\_29. Area B uses level differences to communicate the narrative of enclosure and isolation the workers felt living in the compound. The narrative is communicated to the user through the use of signage inserted into indentations cast into the walls. (Author 2014)









# Iteration

**Aim:** The aim of this space is to communicate not only the story of the workers who moved through it, but also the story of this unique building itself. The design attempts at portraying the historic significance of the building, parallel to the story of the workers.

The purpose of the iteration was to better define the entire historic space. Previously, the user was isolated in a 'box', and separated from the historic fabric. The iteration attempted at opening up the space and exposing the user to more than just a singular room. The slit cut into the wall to allow a view port to the shaft, as illustrated in Figure:5\_31, can now be accessed by the user as they move around the building. The opening is low enough to allow visual access, but high enough to disallow physical access.

The design now allows the user to move around the entire building - Figure:5\_30. The raised walkway is pulled back slightly from the historic fabric so that there is still a direct interface with it and the user, but pulled back far enough to clearly distinguish the new from the old.

The transition into the space was also addressed to imitate the derelict roof that is still visible in a few places, a pergola is constructed to imitate the way the light filters through to cast shadows on the ground, as seen in Figure:5\_31. Lastly, the whole structure is sunken lower than the ground level of the building. This is aimed at clearly distinguishing between the new and historic ground level. As the user walks through the arch, he is confronted with various thresholds that eventually open up to the viewing deck and the vastness of the 'big hole'. This movement through space is a semiotic representation of what the workers experienced, how they moved through the space and what they experienced.



Figure:5\_30. Plan of proposed design of historic access to shaft. The walkway system wraps around the entire building. It also allows users to move through it. (Author 2014)

#### Imitating the derelict roof

The transition into the space was also addressed to imitate the derelict roof that is still visible in a few places; a pergola is constructed to imitate the way the light filters through to cast shadows on the ground.

#### Framing the shaft

Here, too, the shaft is framed with the use of specifically-orientated slits cut into the historical fabric. When the viewer looks through these slits, the shaft is framed. The cuts also serve as viewports into the historical rooms, allowing users to glance inside.

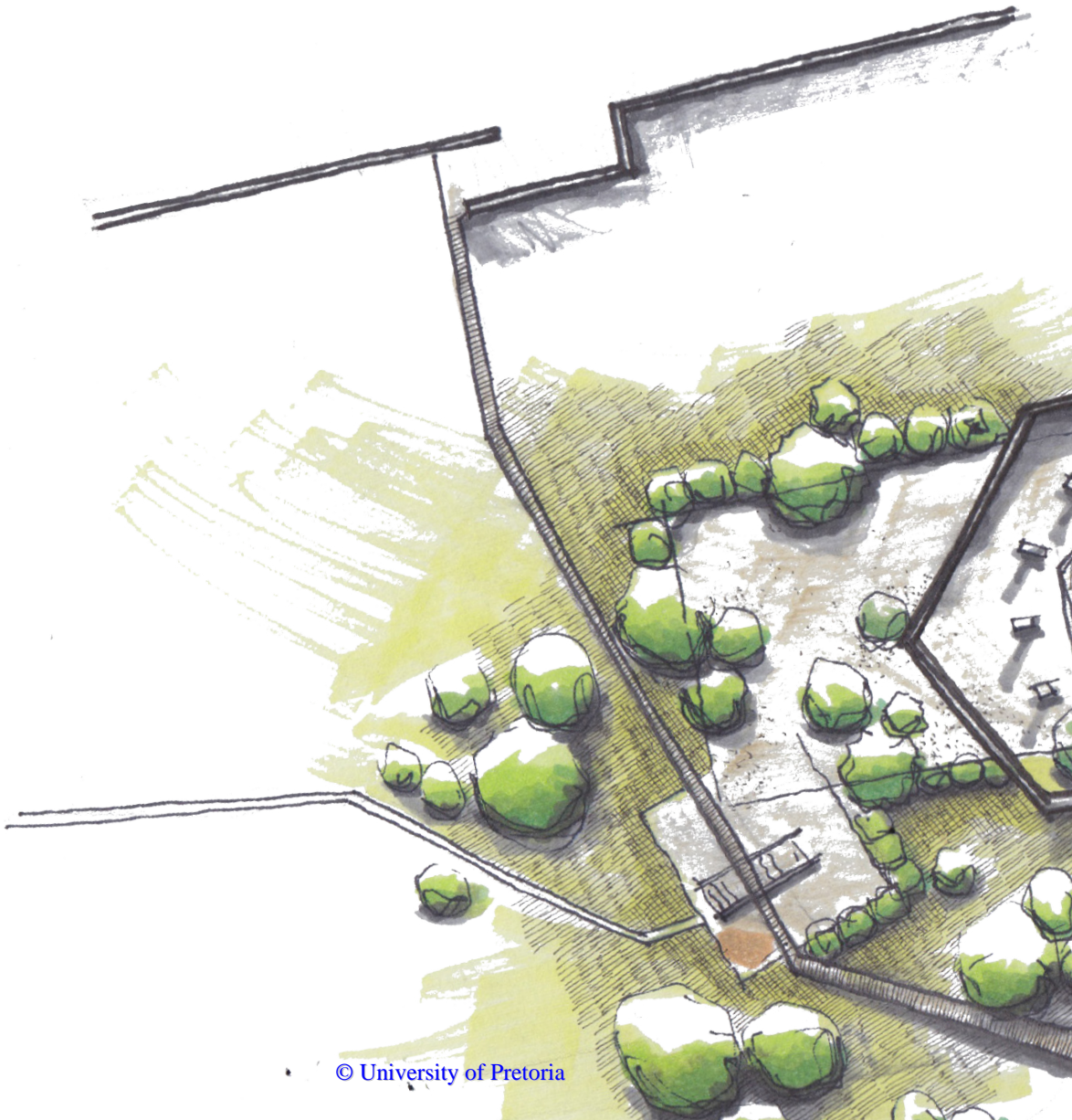
#### Raised walkway and look out

The raised walkways are pulled back from the historical fabric to impact it as little as possible. The walkway wraps around the building to allow users to experience the space from all angles.



Figure:5\_31. The historical access building to the shaft has been retro-fitted with a walkway system to allow users to move through and around the building. Viewports allow users to view the inside of the rooms. (Author 2014)







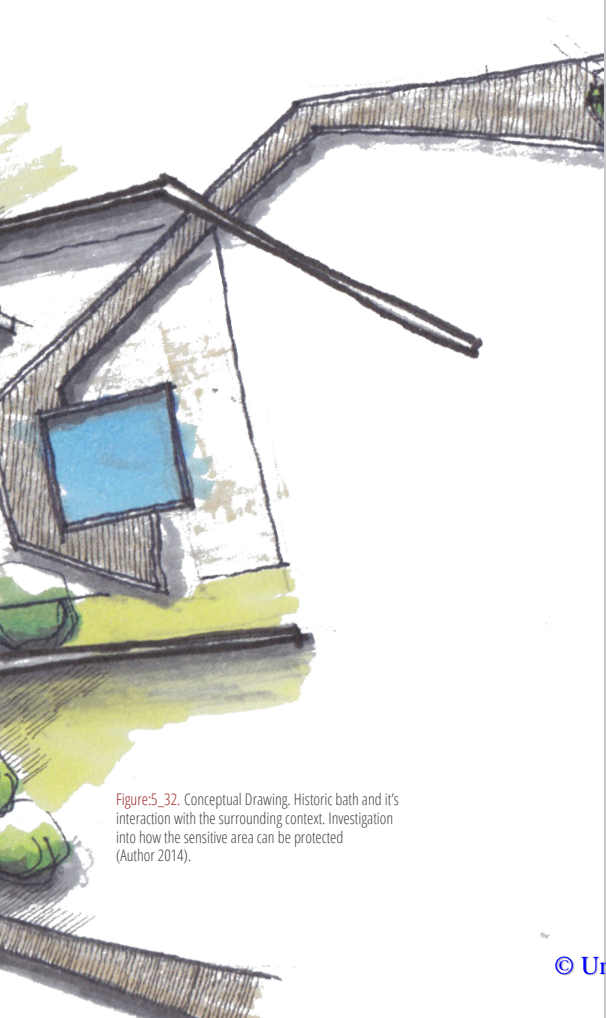
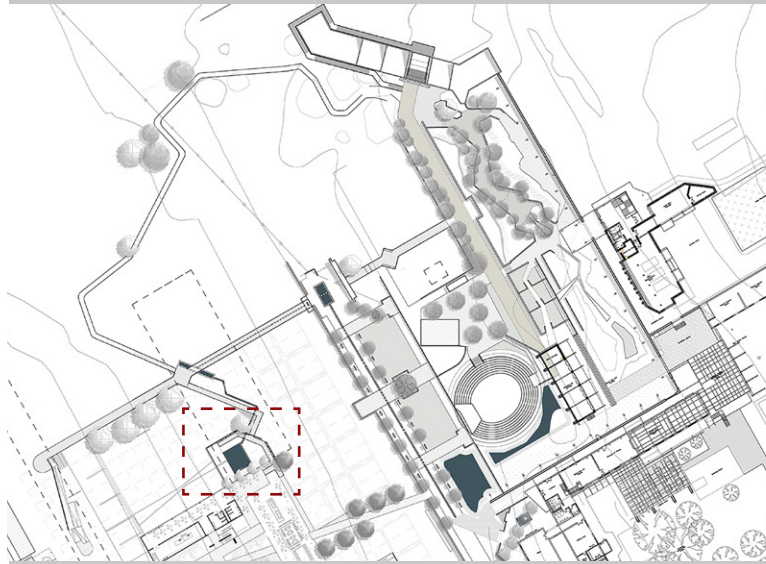


Figure5\_32. Conceptual Drawing. Historic bath and it's interaction with the surrounding context. Investigation into how the sensitive area can be protected (Author 2014).

[ D ]

H i s t o r i c B a t h



Figure 5\_33. Plan of proposed design of historic access to shaft. The walkway system wraps around the entire building. It also allows users to move through it. (Author 2014)

### Historic bath

The historical bath was the place where the workers washed themselves after a long day in the mine. This was a place of quiet and reflection after a long day's work. The bath still retains its historical fabric around it. The tile work (Figure 5\_35) is of exceptional beauty and in moderately good condition. Thus it is imperative that this is not disturbed or damaged any more.

### Initial Design response:

The bath forms part of a great water feature system on-site. The water channel, as discussed in Figure:5\_21 on page 119, will eventually run into and collect in this bath. The bath is thus converted into a water feature. To ensure the preservation of the historical fabric around the bath, the walkways are elevated. This area will function as the final chapter of the narrative experience of the landscape. As it was to the workers, this space will serve as a place of contemplation and reflection. Due to that fact that the area is adjacent to the agriculture and restaurant on-site, the space is converted into a walled space. This will make the space more intimate and isolated to allow the user quiet reflection and contemplation (Figure 5\_34).

### Critique

The initial design only focused on the bath itself. Greater attention needed to be given to the connections, thresholds and links. The space also needs to accommodate seating, seeing that this is a place where users will linger. The narrative needs to be communicated to the users via text as well, so that they can understand the symbolic and semiotic devices employed in this space.



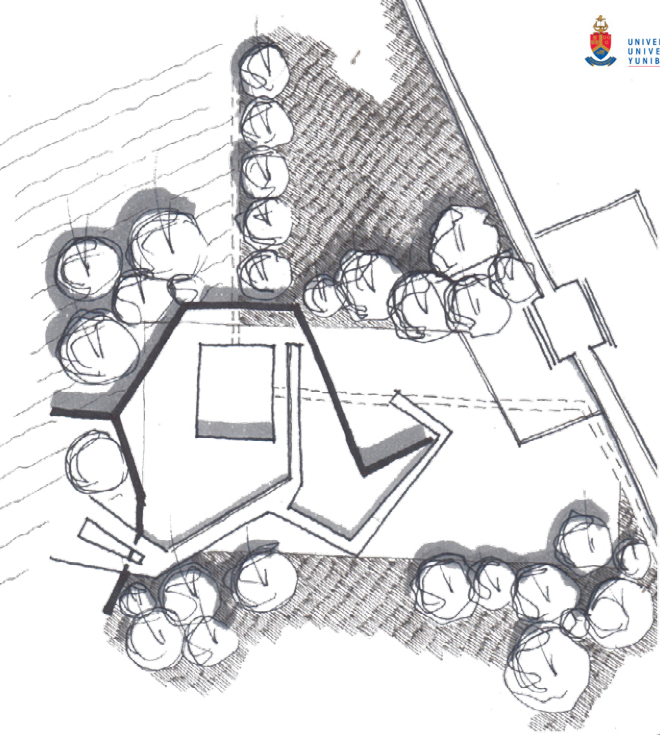


Figure:5\_34. Conceptual drawing. The area is walled so that it becomes a quiet space of peace, reflection and contemplation. The walkways are raised as to not further damage the historic fabric (Author 2014)

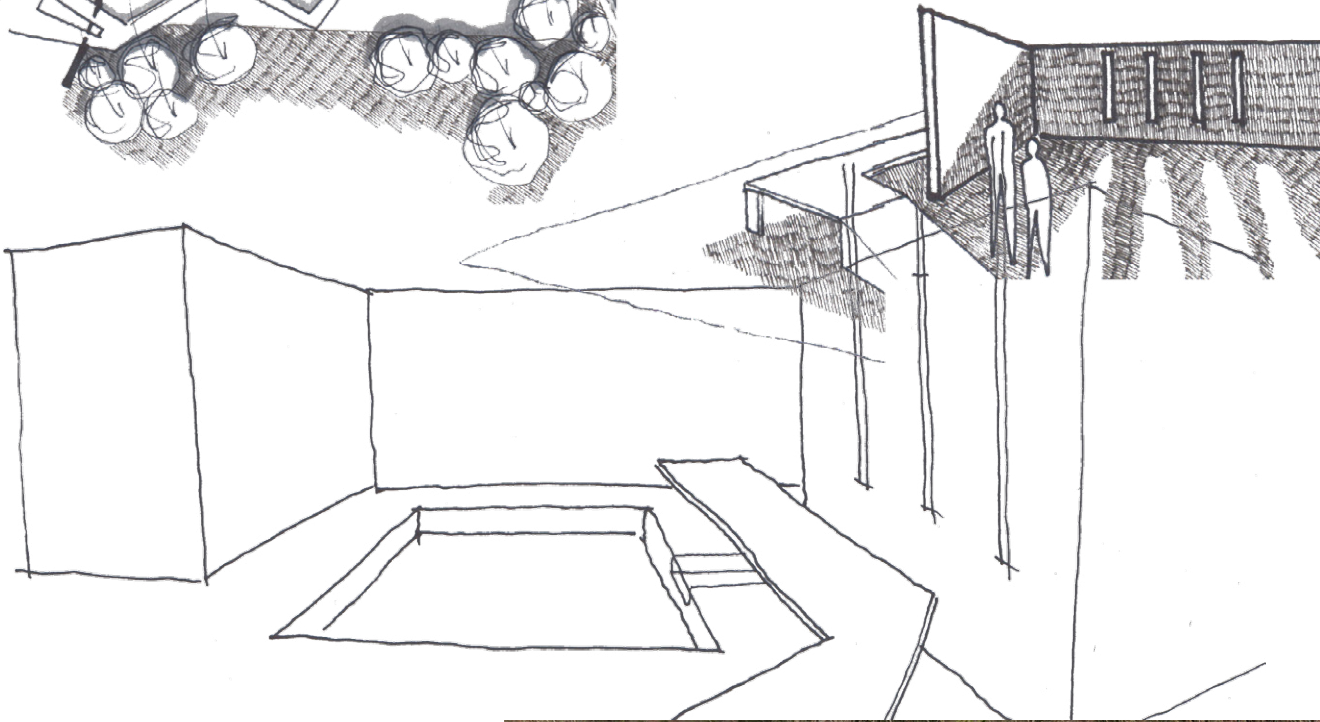


Figure:5\_35. Plan of proposed design of historic access to shaft. The walkway system wraps around the entire building. It also allows users to move through it. (Author 2014)



# Iteration

Aim: The aim of this space is to allow user to, after moving through the site, contemplate and reflect on what they have experienced on site. To contextualise this space, the narrative is communicated to the user via text on the walls.

Only fragments of the narrative is communicated as to allow the user to construct and complete the narrative themselves.

This area is walled and the user enter it from the south and from the north via a raised walkway Figure:5\_36. The walls are made of in situ-cast concrete units that facilitate seating on them. They are slightly pulled from one another as to allow light to filter through especially from the west. The water enters the bath, now converted into a water feature, from the larger water feature system on site. From here it flows out again towards the food production and research facility Figure:5\_37.

The planting in this area is planting retained that was present on site. The grass growing through the historic fabric reinforces the romanticism of the site and the emotion it unlocks in the user of historic nistolga (jinne lene ek het geen idee hoe om die woord te spel nie. Nostalgie)

The opportunity is provided for a user to move into the space, sit down, read the inscriptions, linger ,contemplate and then move on.

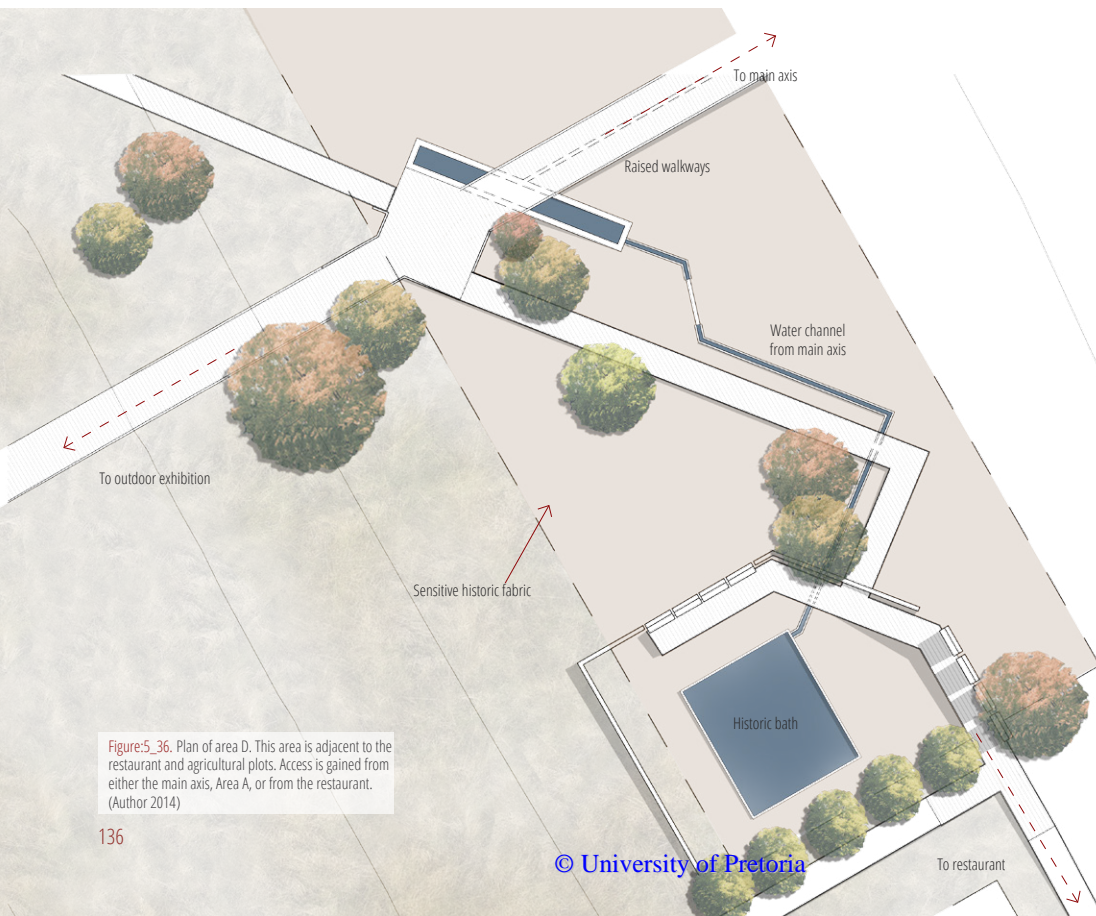


Figure:5\_36. Plan of area D. This area is adjacent to the restaurant and agricultural plots. Access is gained from either the main axis, Area A, or from the restaurant. (Author 2014)





### Seating

The concrete barrier next to the pool, is cast so that a seating platform is attached to it.

### Raised Walkways

The raised walkway is next to the pool so that the historic fabric is not disturbed

### See through decking

See through gaps in the decking allow the user to see the historic fabric underneath their feet

Figure:5.37. 3D of area D - historic bath. This rendering shows how the space is converted into a space of reflection, the space is enclosed to promote this. The raised walkway runs over sensitive historic fabric (Author 2014)







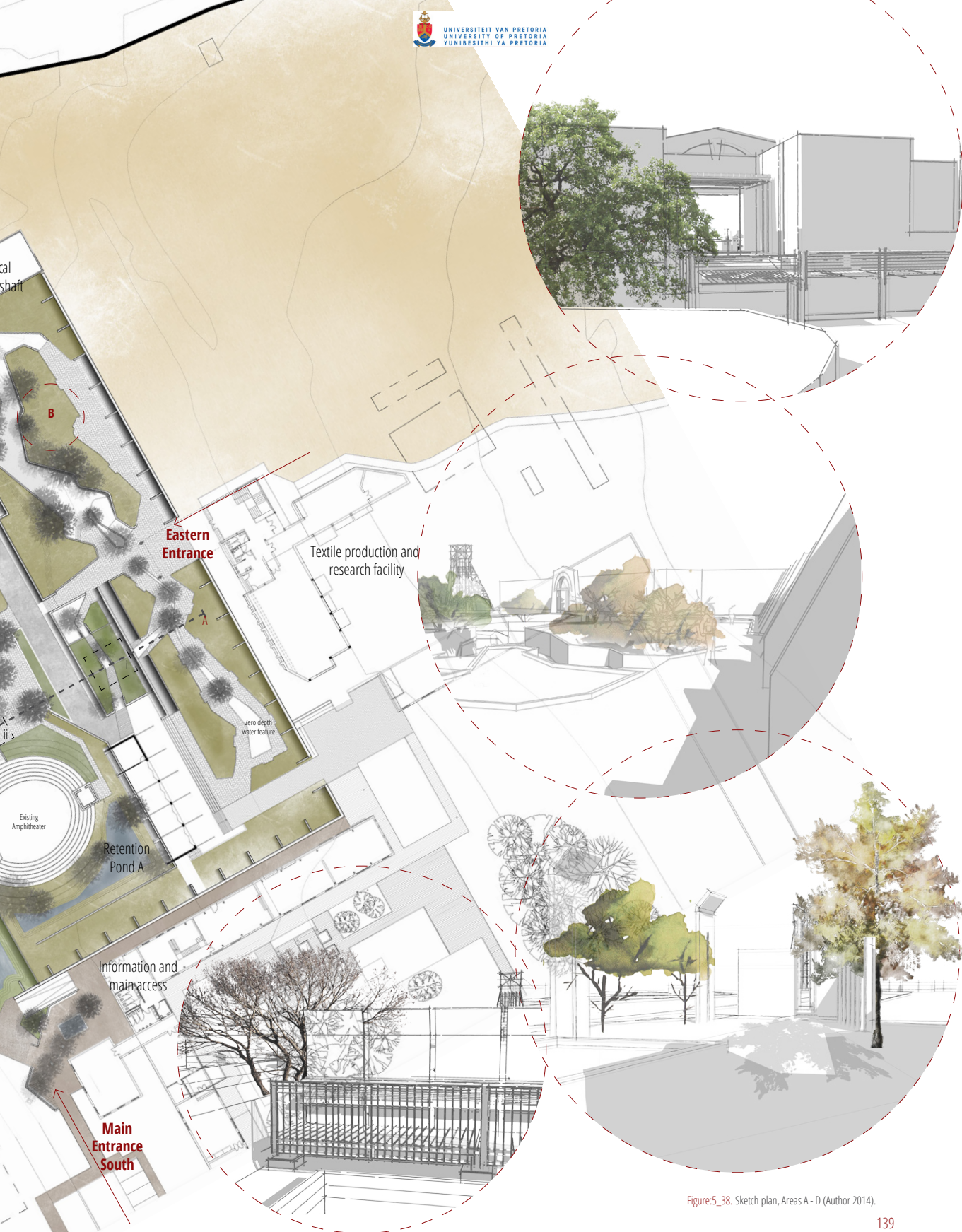


Figure:5\_38. Sketch plan, Areas A - D (Author 2014).

i  
Terraced landscape  
with recreational  
green space.

ii  
Refurbished historical  
building into cafe and  
outdoor seating

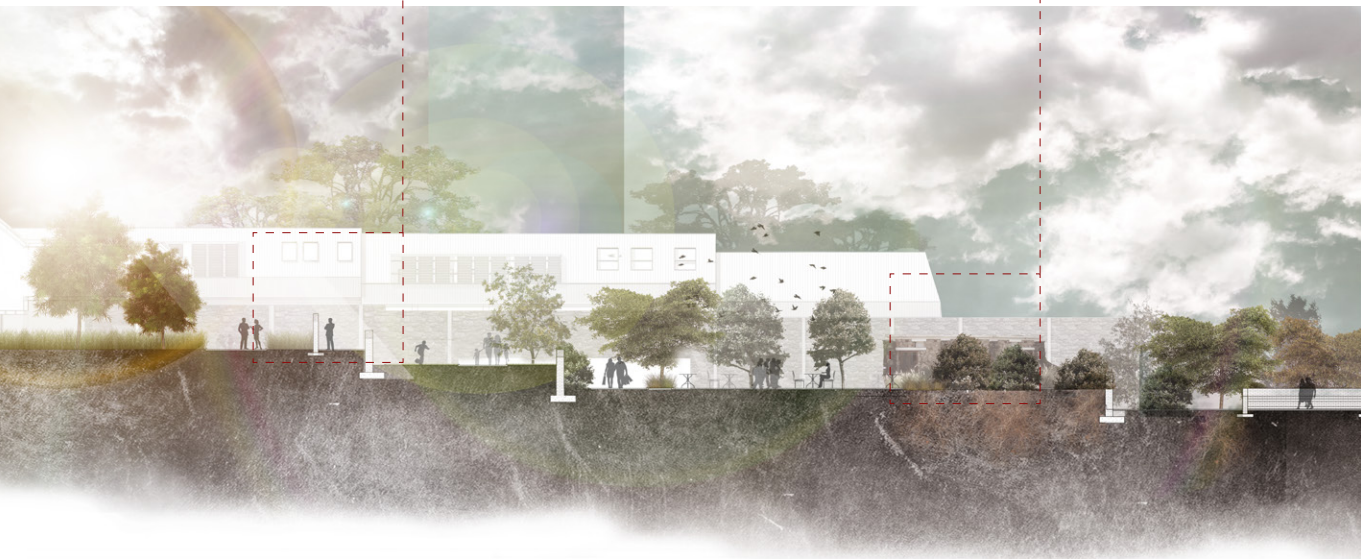


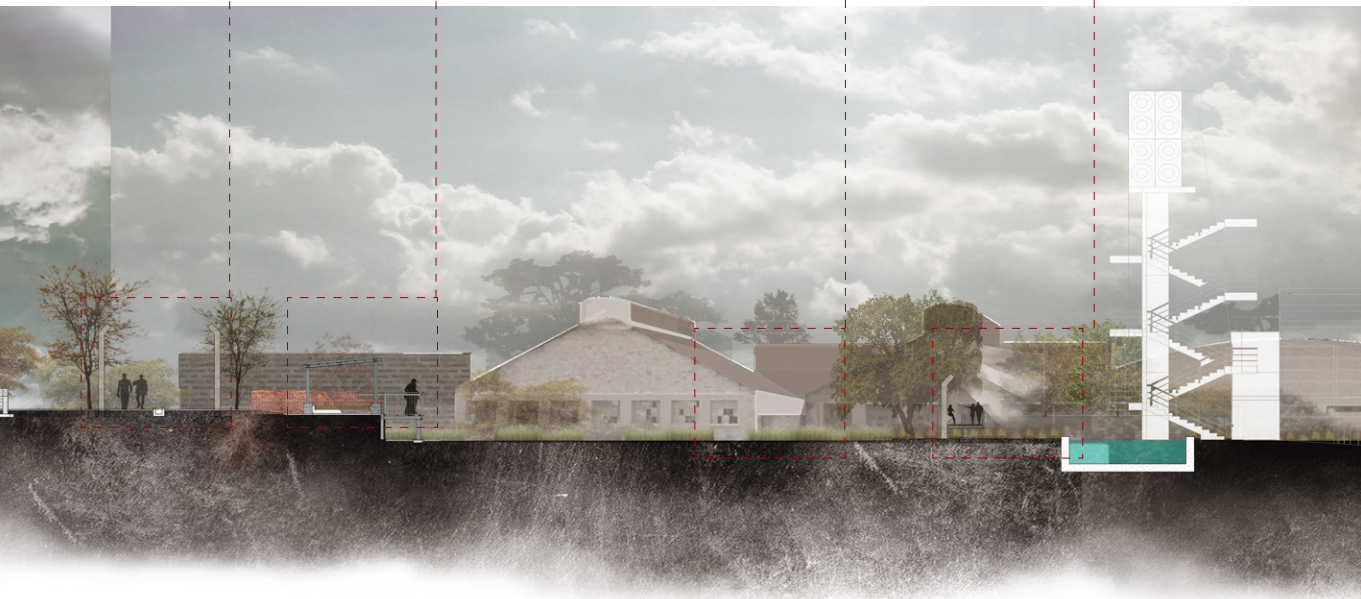
Figure 5\_39. Section A-A'. Refer to "Sketch plan, Areas A - D (Author 2014)." on page 139(Author 2014).

iii  
Area A  
Main access with  
concrete guards

Lookout over  
agriculture

Agriculture and  
restaurant

iv  
Area 4, historical bath  
with reflection pond







# 6

## T e c h n i c a l I n v e s t i g a t i o n

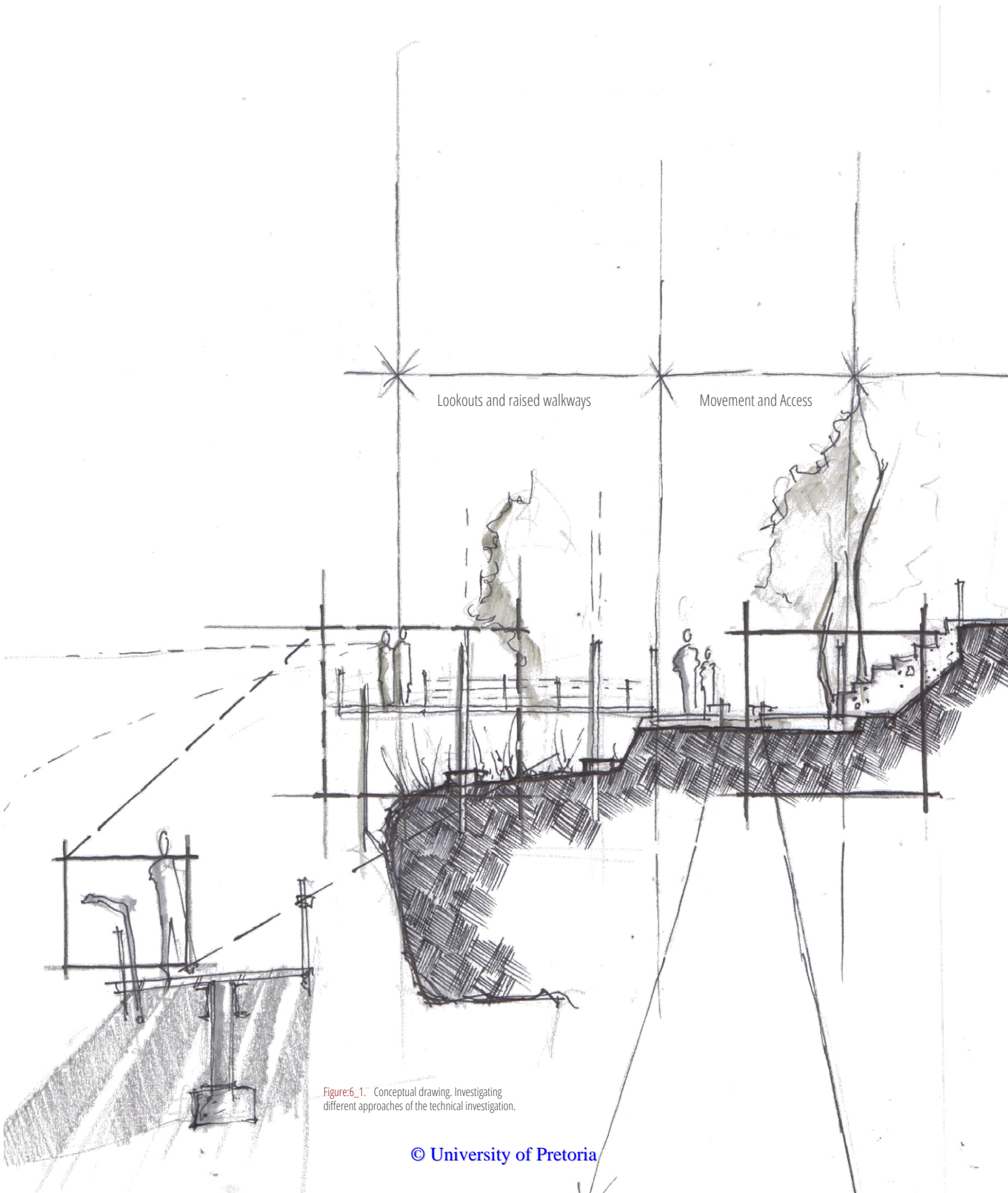


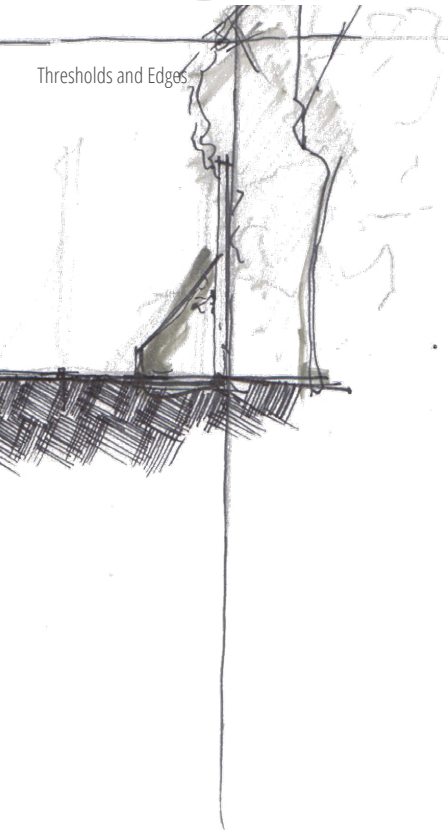
Figure:6\_1. Conceptual drawing. Investigating different approaches of the technical investigation.



# Technical Approach

## 6.1

Thresholds and Edges



### The cautious approach

The historical sensitivity of the site implies that the design needs to act as mediator between the user and the fabric. The design, therefore, must contribute to the historical significance and not dilute it. Conservation of the historical fabric and associated meanings require a cautionary approach. On the one hand as much as necessary must be changed but on the other hand as little as possible must be changed to ensure that the inherent value of the site is maintained (ICOMOS 1999). The approach of the design decision and choice of material are based on the view that the new must clearly be distinguishable from the old.

### Raised walkways and elevated platforms

Due to the sensitivity of the historical fabric, the untainted natural landscape and the site's positioning to the hole, raised platforms are used to separate, distance and expose the user to the heritage of the site and its surroundings.

### Movement and access

The design aims at providing access and ease of movement to all the visitors of the site. The Compound, in its current condition, consists of a stepped topography. Different levels or terraces are clearly visible. The focus of this technical investigation is to facilitate movement and access to and from all the levels present on site. A main consideration is the use of stairs and ramps. The design itself with the access guidelines provided by SANS 10400-S:2011 Edition 3, indicates the maximum slope of 1:12. The maximum vertical rise does not exceed 500mm between landings. Steps are used throughout the design as a method of connecting different levels with each another. All steps are compliant to SANS 10400; no step riser exceeds 200mm, and no tread is less than 250mm.

### Edges and thresholds

The palimpsest of history is still visible on site. The interactions of different layers are of utmost importance. It is the intent of this technical investigation to best utilise it. The crossing between new and old and natural and man made is at the heart of the matter.

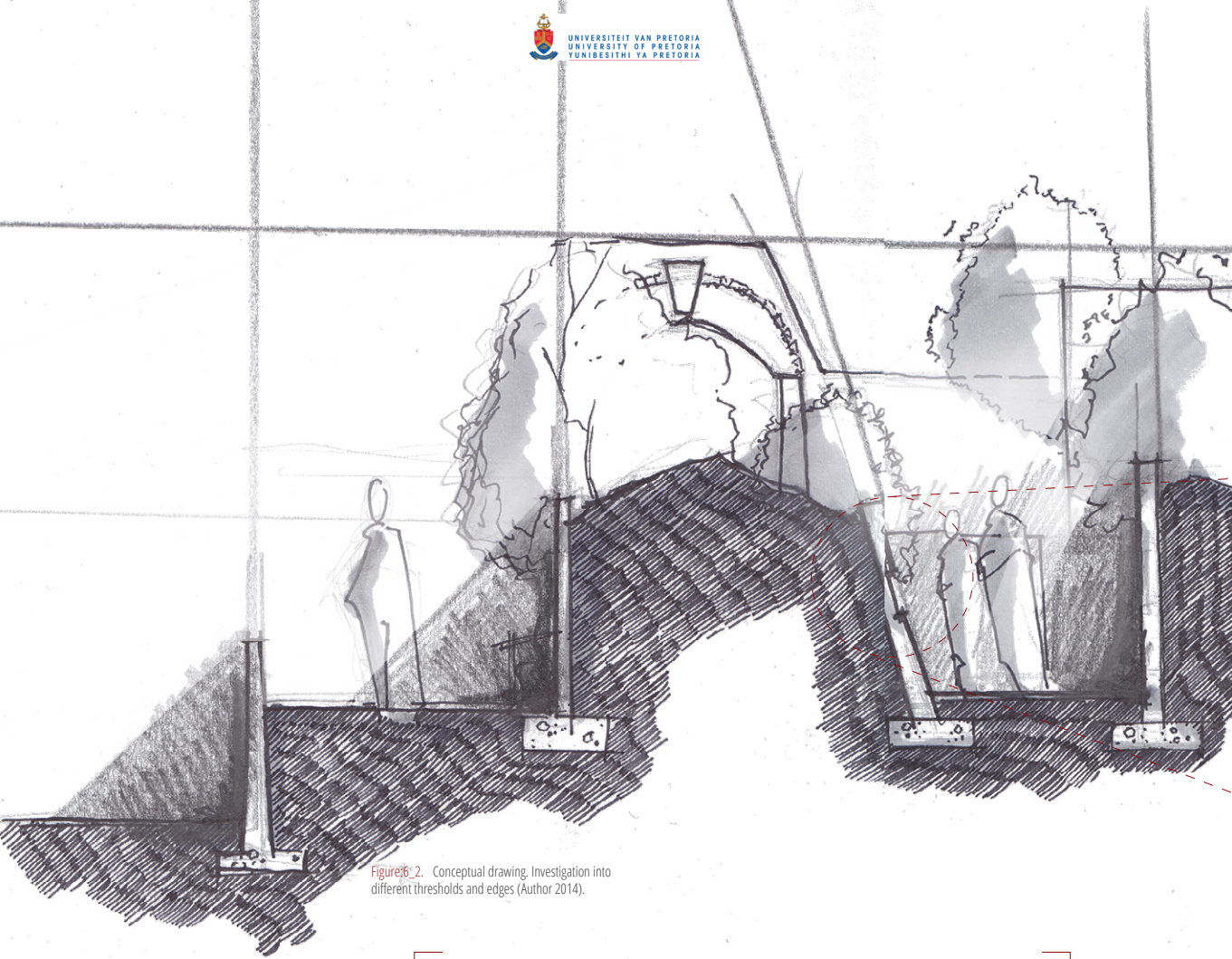


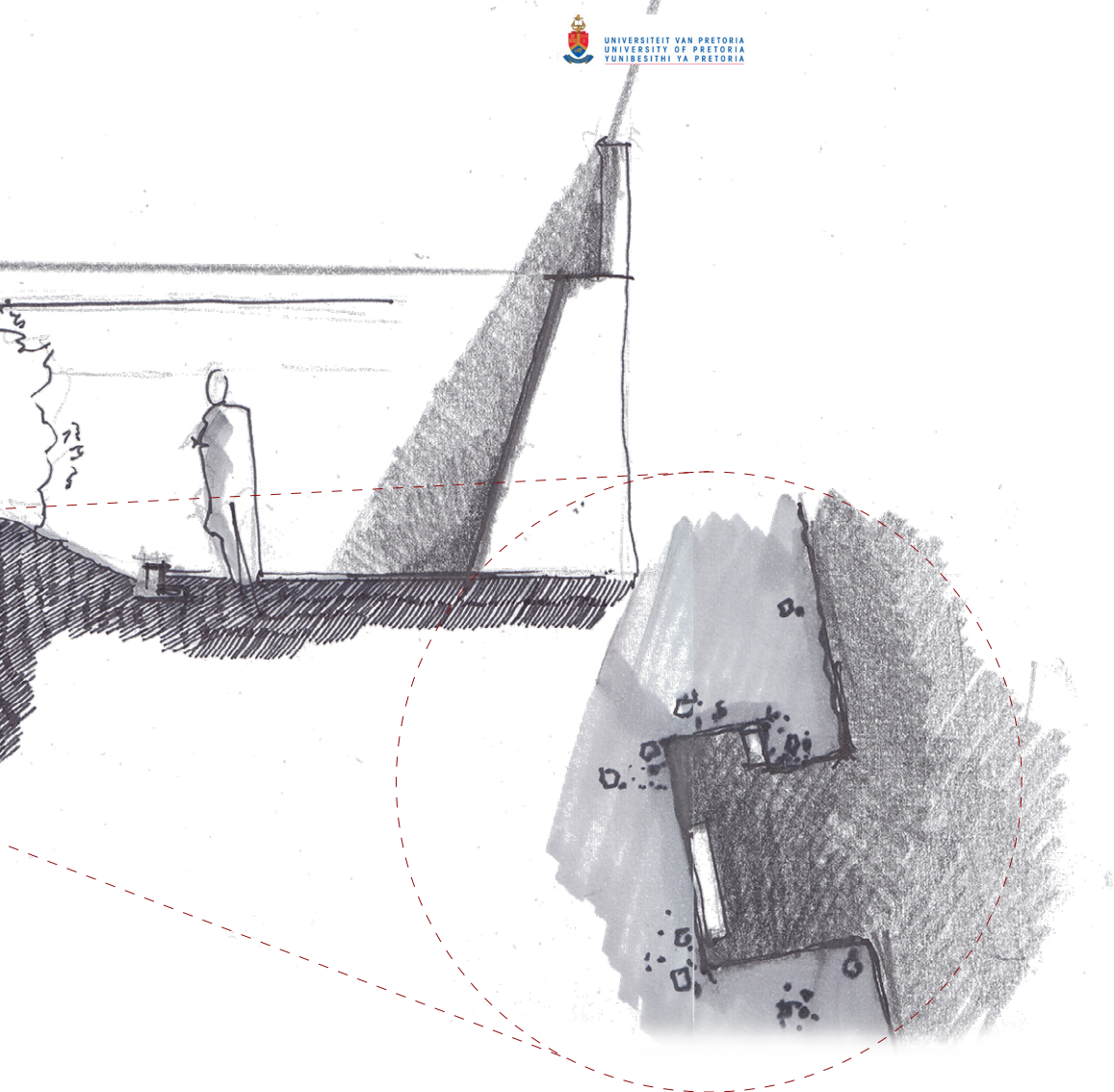
Figure:6.2. Conceptual drawing. Investigation into different thresholds and edges (Author 2014).

### Route

The route is set out to lead the user through the entire no. II shaft compound. Because of the non-linear nature of the landscape narrative, the route does not need to lead the user in a specific sequence of events. Thus the directionality and progression of the landscape is up to the discretion of the users.

### Signage

Central to the theoretical discourse of the dissertations, is the use of the signage to contextualize the semiotics in the landscape. Through the use of text, the narrative is grounded and the user understands what they landscape is communicating, though through personal interpretations. The approach to the design of the signage is divided into two categories: Firstly, is signage that will communicate directionality and logistic information i.e. access routes, amenities, facilities etc. Secondly, signage will be used to communicate narrative to the user. This is done in areas marked A - D as discussed in Figure:5\_4 on page 103.





# 6.2 Material Palette

The material pallet selection intends to keep the variety material to a minimum. This enhances coherence, legibility and unity in design.

A central theme to the technical approach of the dissertations is identification through contrast. It ensures that the new elements are clearly distinguishable from the old. The user is made aware of the contrast of old versus new. To maintain and preserve the historical nature of the materials on site, new materials are treated and conditioned in a manner that will ensure that they are not confused with the old.

The historical fabric on site consists mainly of natural rock, concrete and brick. Only remnants of the steel structure remains. Most of it is weathered away.

Smooth Concrete

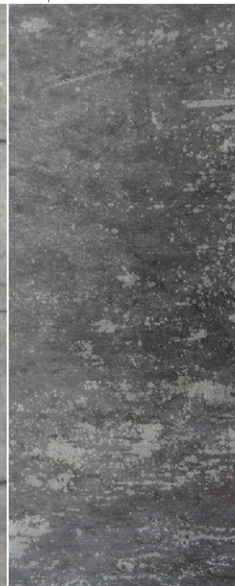
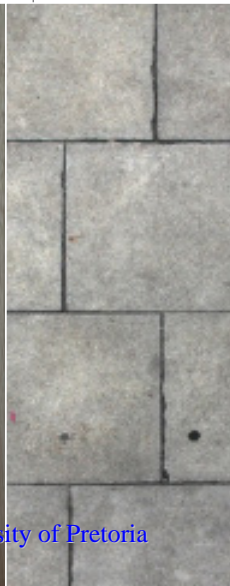
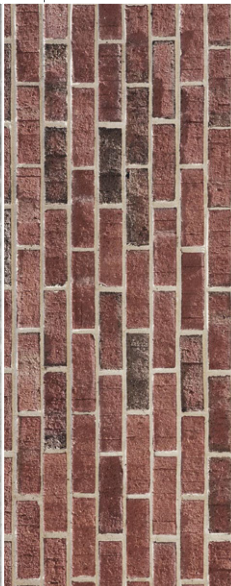
Red Face-brick

Saligna Timbre

Concrete Pavers

Galvanized Steel

Composite Decking



The water management strategy for the dissertation is based on the guidelines and performance benchmarks as set out by The Sustainable Sites Initiative, section 3.

The dissertation's approach to the water management scheme is divided into four main categories:


- Water pumped from the hole,
- water collected from site run-off in on site retention ponds,
- a water feature system that runs through the site,
- two reservoir systems that consists of two off-site reservoirs and two water towers on site.

In an attempt to achieve a sustainable design, all of the above mentioned systems aim toward minimising water wastage.

This study assumes that the water pumped from the hole is of sufficient quantity and quality to adhere to the requirements of the compound. The water pumped from the hole is however only suitable for aesthetic- and irrigation use.

# Water Strategy

## 6.3

The primary source of water is  at the hole. Areas 2 and 3, Figure:6\_3, are the two main regulatory water systems on site. These two off site reservoirs are the primary source of water for the compound. They are in turn regulated via a float valve to pump water from the hole. The two water towers on site, 4 and 4a, are filled up from reservoir number 2. Water is pumped during the night into these towers and used for irrigation of the landscape during the day.

The retention ponds 1 and 2 in Figure:6\_3, serve as a collection point for run-off from the western part of the site. The ponds also serve an aesthetic purpose.

The water feature system on site is a closed looped system. The water flows down through various channels and collection ponds and finally runs into a pond, marked 5 on Figure:6\_3. From here the water is pumped back into collection point Y. This system is regulated with a float valve. Should the water level drop, it is filled up with water from the retention ponds.

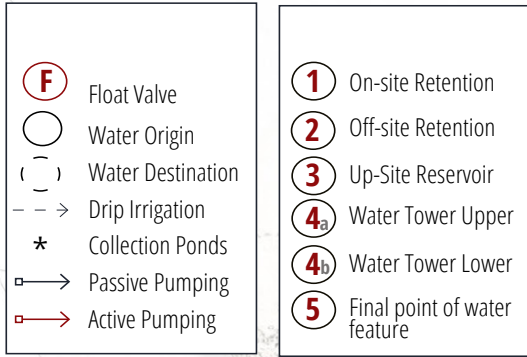
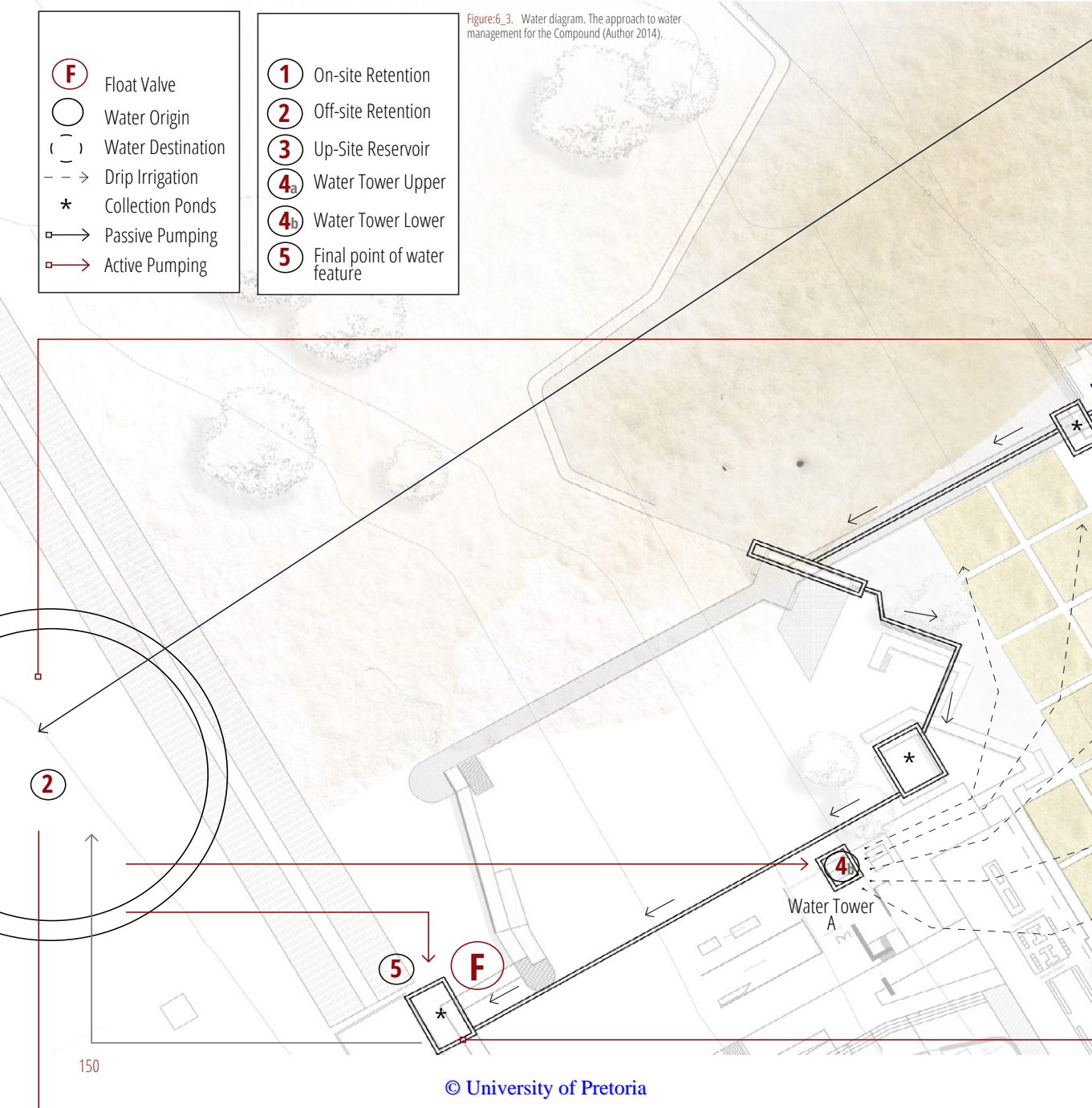
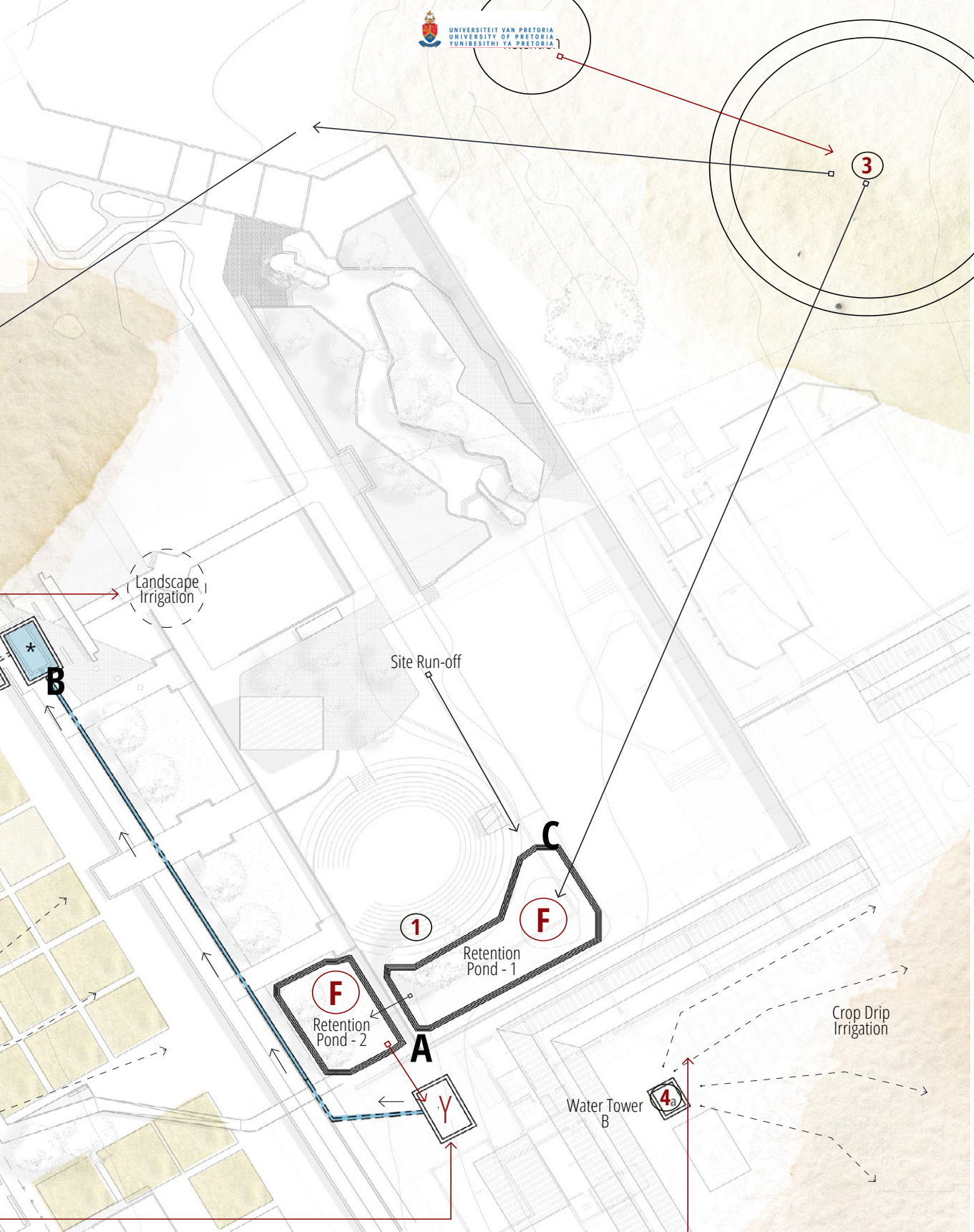


Figure:6.3. Water diagram. The approach to water management for the Compound (Author 2014).







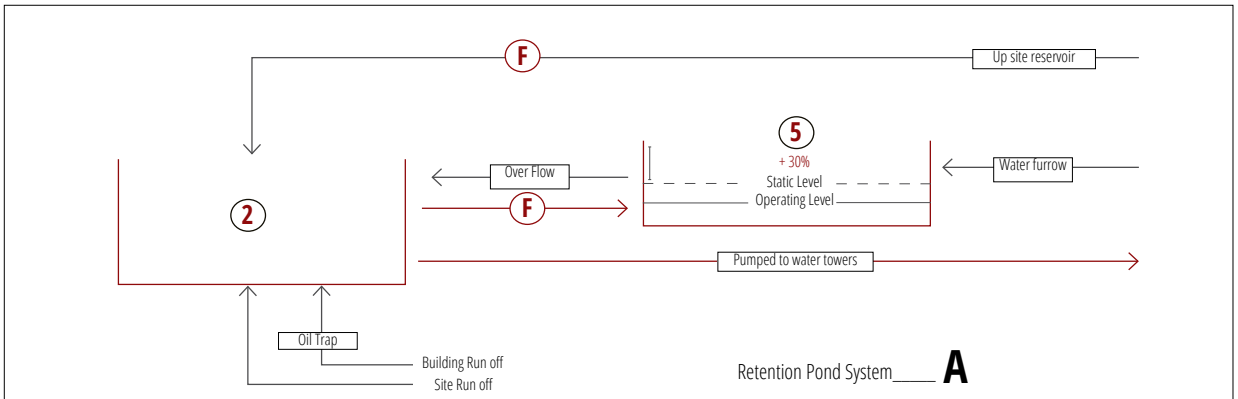


Figure:6\_4. Water diagram. Explaining the water exchange of system 2 and system three as discussed in Figure:6\_3 on page 150 (Author 2014).

# 6.4 Planting Strategy

The plant fabric on site is as representative of the layers of history as the built fabric on site. Just like the historical built fabric on site, the plant fabric has a story to tell.

The main purpose of the planting strategy is to maintain, enhance and protect the qualitative characteristics the plants on site possess. The compound is part of the Marikana Bushveld Biome, Figure:6\_5. The planting strategy aims towards enhancing the ecological value of the site through the introduction of endemic plant species to this biome.

The approach is divided into four sub-categories. Each category serves a specific function. These functions range from ecological restoration, communication of narrative and the creation of an aesthetically pleasing landscape. The sub-categories are as follows: (Figure:6\_6):

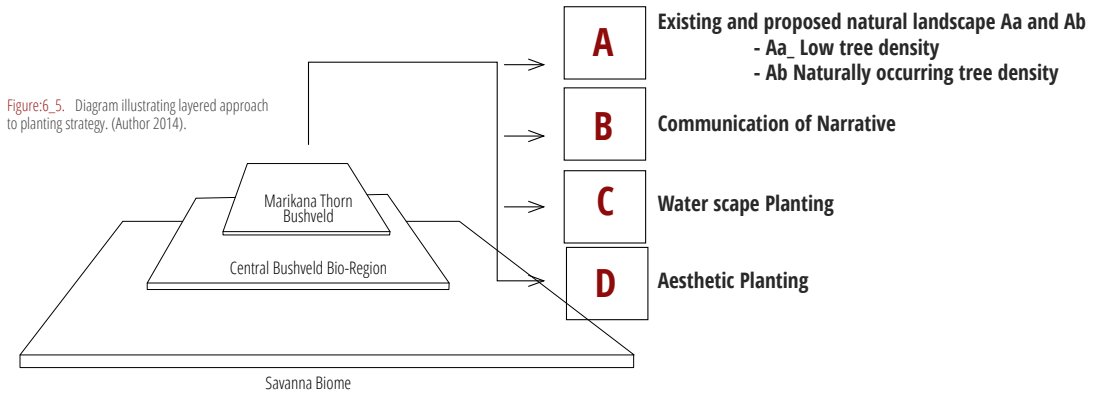


Figure:6\_5. Diagram illustrating layered approach to planting strategy. (Author 2014).

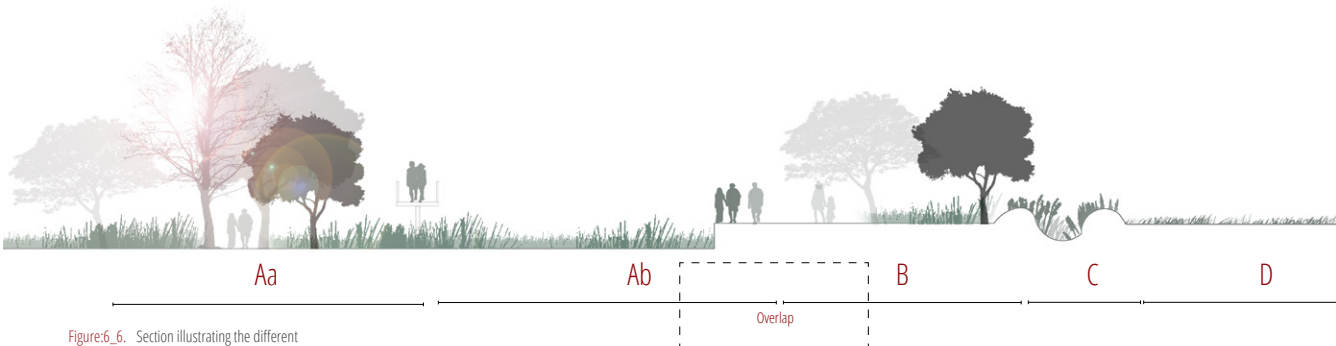


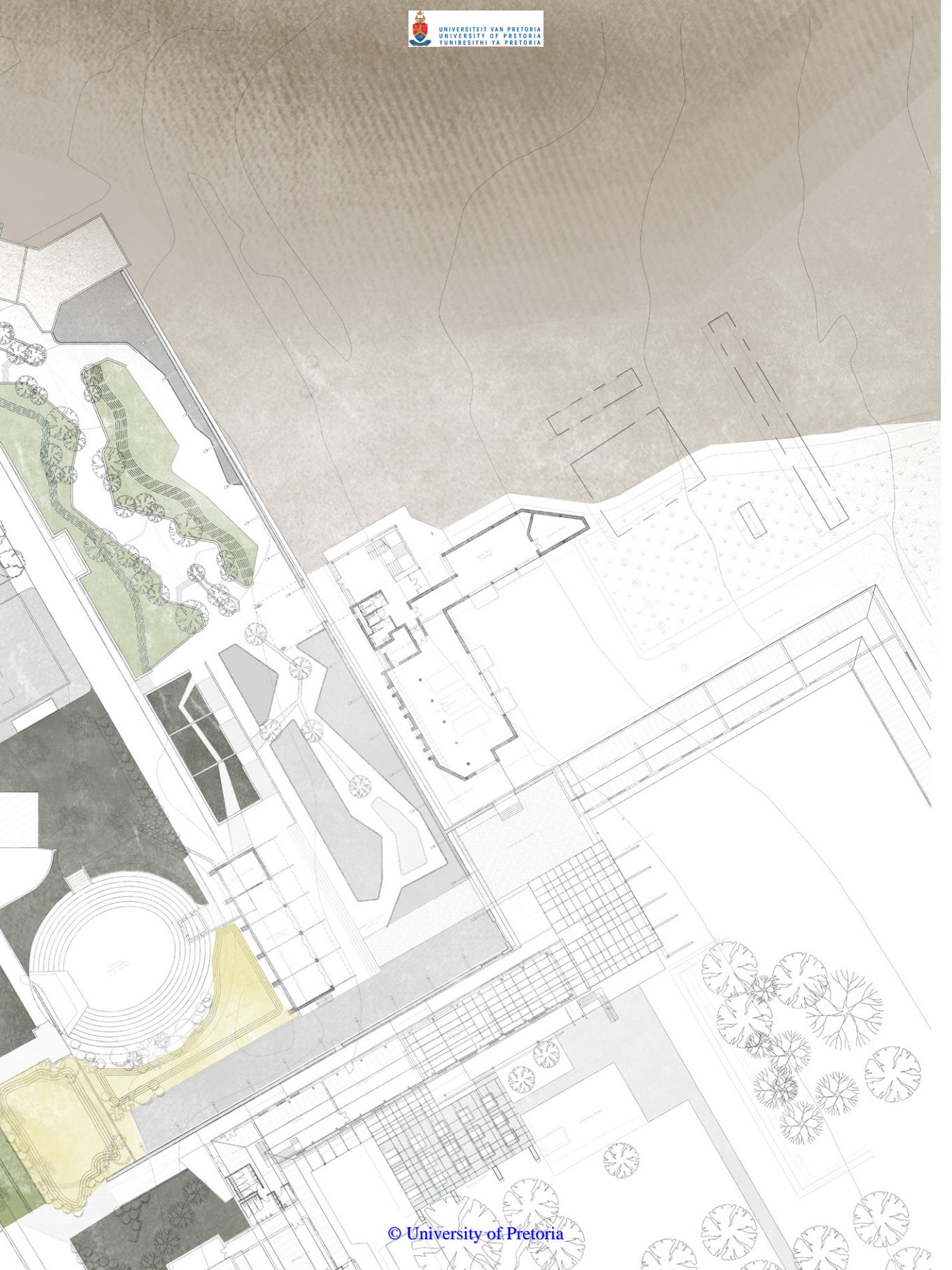
Figure:6\_6. Section illustrating the different approaches to the planting strategy (Author 2014).





Figure 6.7. Master plan showing planting communities and approach (Author 2014).







## Existing and proposed natural landscape Aa and Ab

**Purpose:** Large parts of the site are reclaimed by nature. Large segments of the landscape are fortunately in a process of rehabilitation.

**Approach:** The design aims at rehabilitation - to protect and promote the landscape where nature has already started the process. The planting of this section represents two layers of history:

- the most recent chapter of history, represented by a low density tree landscape and veld grass (the current state of the site),
- the new chapter, represented by reclaiming the natural Marikane thornveld.

### Medium and large trees



*Acacia burkei*   *Acacia caffra*   *Acacia karroo*   *Acacia sebriana*   *Combretum molle*



*Cussonia paniculata*   *Dombeya rotundifolia*   *Euclea crispa*   *Acacia burkei*   *Protea caffra*



*Rhus leptodicya*   *Rhus lancea*   *Ziziphus mucronata*   *Combretum erythrophyllum*   *Celtis africana*

### Annual and perennial shrubs



*Aloe pretoriensis*   *Aloe dayana*   *Anthospermum hispidulum*   *Beclium obovatum*   *Berkheya eminevia*



*Boophane disticha*   *Cheilanthes hirta*   *Cleome maculata*   *Crabbea angustifolia*   *Helichrysum rugulosum*



*Asparagus cooperi*   *Rhynchosia nitens*   *Indigofera zeyheri*

### Grasses



*Aristida transvaalensis*   *Cymbopogon validus*   *Digitaria eriantha*   *Diheteropogon amplexans*   *Eragrostis chloromelas*



*Eragrostis curvula*   *Eragrostis ehmanniana*   *Eragrostis racemosa*   *Harpochloa falk*   *Heteropogon contortus*



*Hyparrhenia hirta*   *Loudentia simplex*   *Trachypogon spicatus*   *Tristachya leucothrix*   *Imperata cylindrical*





**B**

**Communication of narrative**

**Purpose:** The plants need to contribute to the story that the landscape aims to tell. Its form, shape, colour and sound convey the specific rhetoric that the space embodies.

**Approach:** Each chosen has a specific characteristic that contributes to the narrative. Its physical characteristic determines whether it is a suitable choice. This method is applied in 4 areas and needs to contribute to the narrative of:

- i- Control and predictability
- ii- Longing and the yearning for freedom  
(Nature as freedom)
- iii- Contemplation and reflection.

**i**



*Aloe ferox*

*Carissa macrocarpa*

*Olea europaea subsp. africana*

*Combretum erythrophyllum*

*Bulbine frutescens*

The plants are chosen for its slow growth and evergreen foliage. This represents the predictable manner in which the miners conducted there lives. Routine and control formed a n important part of their daily routine.

**ii**



*Rhus leptodictya*

*Celtis africana*

*Eragrostis curvula*

*Watsonia pilansii*

*Cymbopogon vallois*

Nature represent s the freedom the workers longed for but could not access. Although it was visible to them, it was always just out of reach. The plant selection falls into category X. The overhanging foliage and slender lines of the plants are in stark contrast to the rigidity of compound life. The freedom of nature stands in direct contrast to their imprisonment.

**Shaded Planting**



*Jasminum multipartitum*

*Plecranthus ecklonii Benth.*

*Senecio mandraliscae*

*Senecio tamoides*

*Asparagus sp.*

**iii**



*Erythrina caffra*

*Carissa macrocarpa*

*Crocosmia masoniorum*

Throughout the compound the contrast between new and old is apparent. These contrasts lure the user to the realization of 'the other' and ultimately to contemplation. Although indigenous, the plants appear foreign to the site which aids th e process. Vibrant colour choices draw the attention of the users.



C

### Water Plants

**Purpose:** The water system on site consists of various soft edged retention dams. The plants aids in the purification process as well as adding an aesthetic layers to the water scape.

**Approach:** The edges of the retention dam are exposed to the users of the site. Therefore the plants need to soften the edges whilst being functional as well.



*Agrostis eriantha*

*Berula erecta*

*Cyperus marginatus*

*Falkia oblongata*

*Lippia javanica*



*Hesperantha coccinea*

*Phragmites australis*

*Limosella major*

*Gunnera perpensa*



D

### Aesthetic Planting

**Purpose:** This planting is intended for high traffic areas at the entrance, the restaurant and the cafe. These plants are easily maintained and water wise.

**Approach:** Although these plants are not endemic, they are indigenous.



*Freylinia tropics*

*Agapanthus preox*

*Aloe peri-peri*

*Aptenia cordifolia*

*Plumbago auriculata*



*Tulbaghia violacea*

*Bulbine frutescens*

*Combretum erythrophyllum*

*Mackaya bella*

*Orthosiphon labiatus*

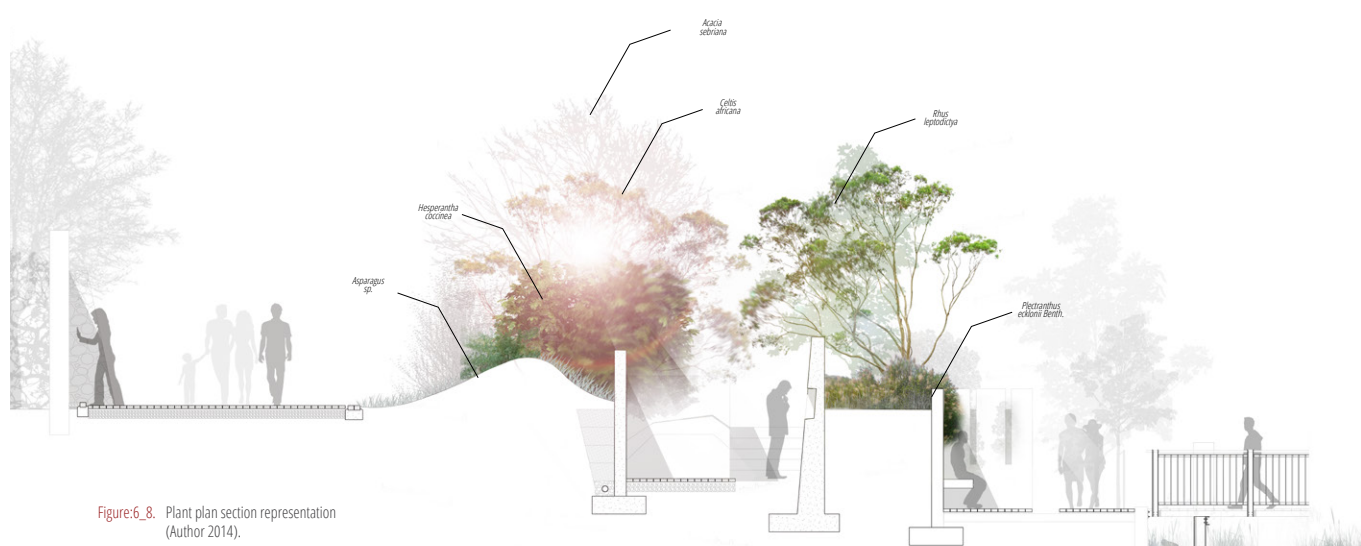


Figure 6.8. Plant plan section representation (Author 2014).



**L** Level heights with direct influence on design

**R1** Raised walkways with balustrade (higher than 500mm above ground)

**R2** Raised walkways without balustrade (lower than 500mm above ground)

**X** Primary entrance point into site

**P** Parking

**PP** Personal Parking

**WC** Restroom facilities

— 100 year hole brake-back line

Existing trees on site

- Ga *Celtis africana*
- Ce *Combretum erythrophyllum*
- Ag *Acacia galeana*
- Sl *Scaevola lancea*
- Em *Eucalyptus marginata*

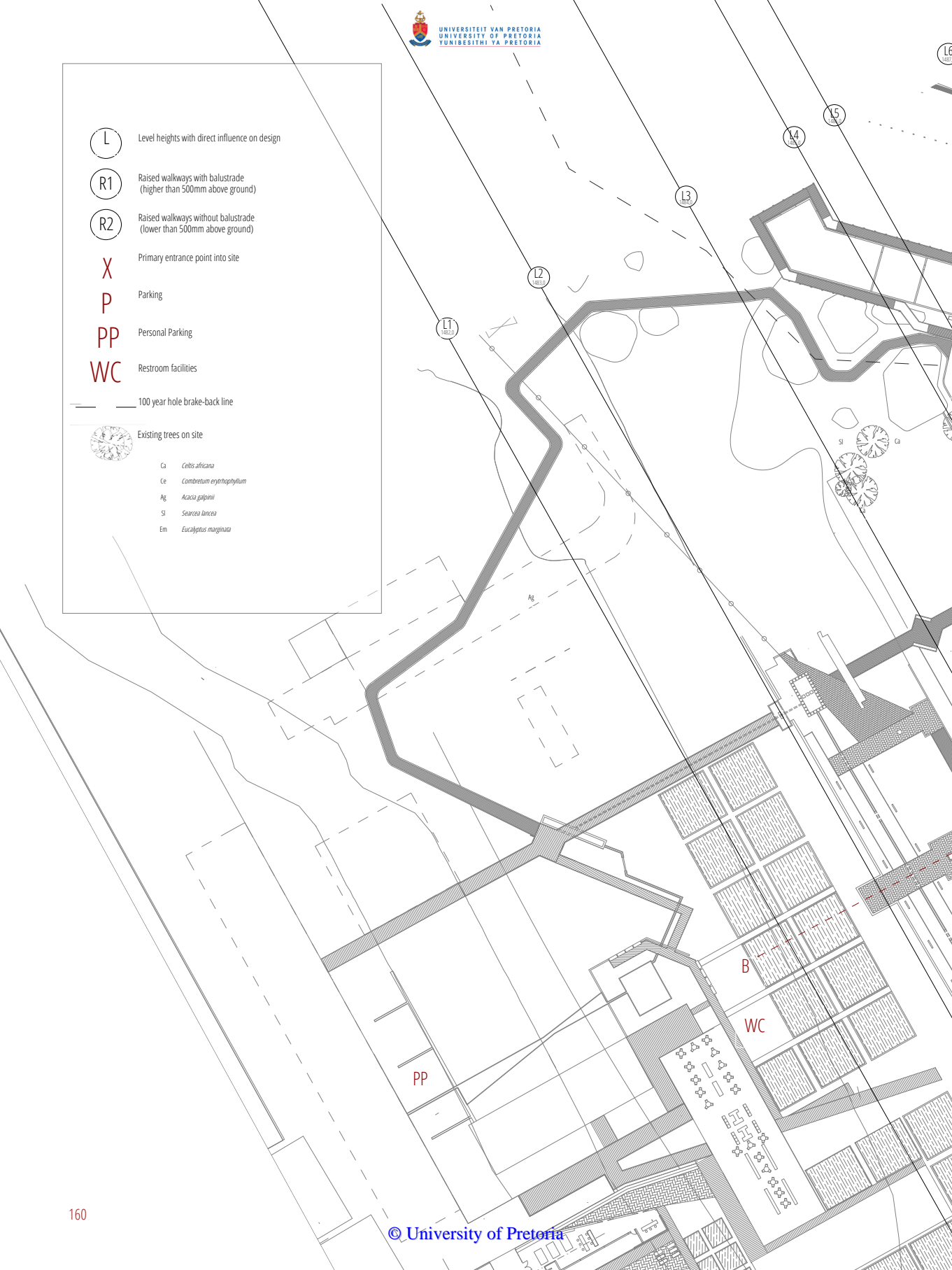




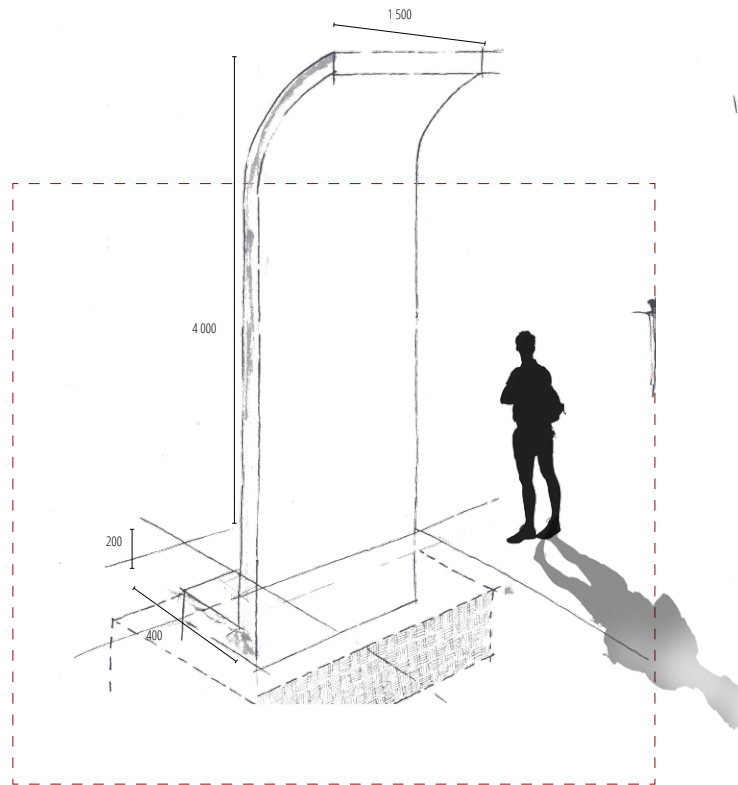
Figure:6\_9. Technical reference plan  
(Author 2014).

# 6.5 Landscape elements

The landscape elements play a central role in the way the narrative is experienced by the user. Landscape elements aid in this process not only in a functional manner, but also in a theoretical manner. The landscape elements aim at being a facilitator in the communication of the narrative on site. The landscape elements, so to speak, play the role of middleman between the user and the story.

It is the intent of the dissertation to investigate the way this can happen. The first approach is to clearly distinguish the new landscape elements from the old. Care is taken to not confuse the user and to ease the narrative transmission.

Each element contributes to the overall success of the project. Some lead. Some show. Some tell the story. Each one with its own distinct voice.





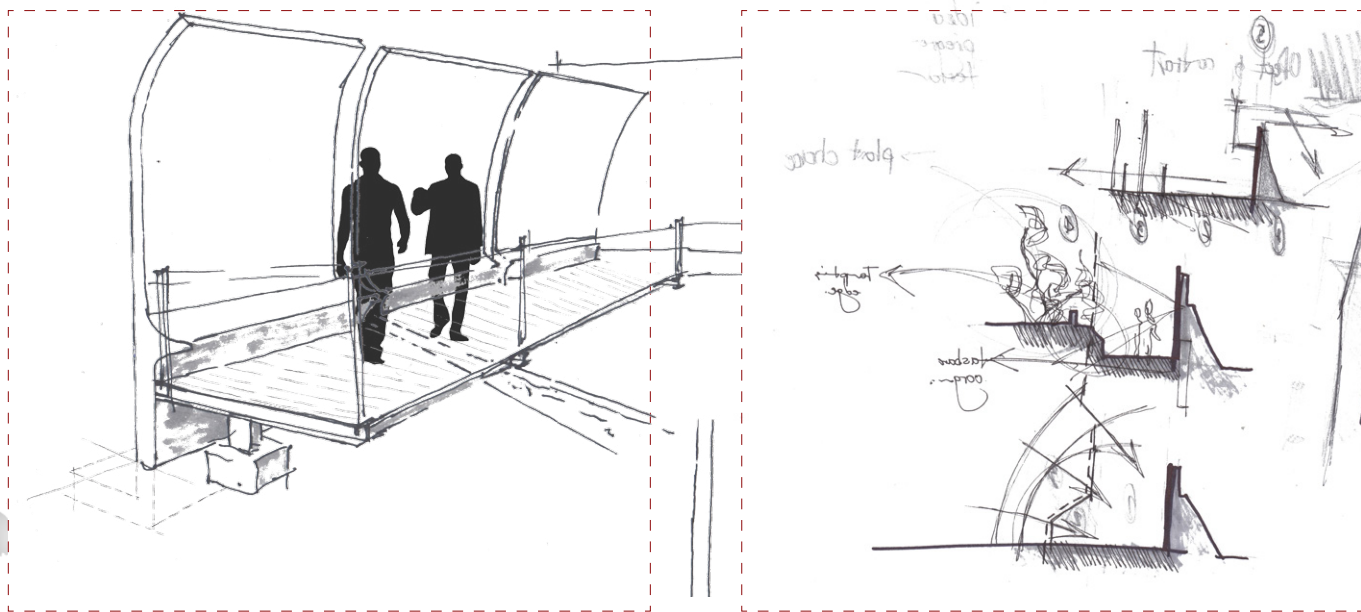


Figure:6\_10. Conceptual drawings. Investigating how different landscape elements can contribute to a landscape narrative (Author 2014).

# Concrete Guards

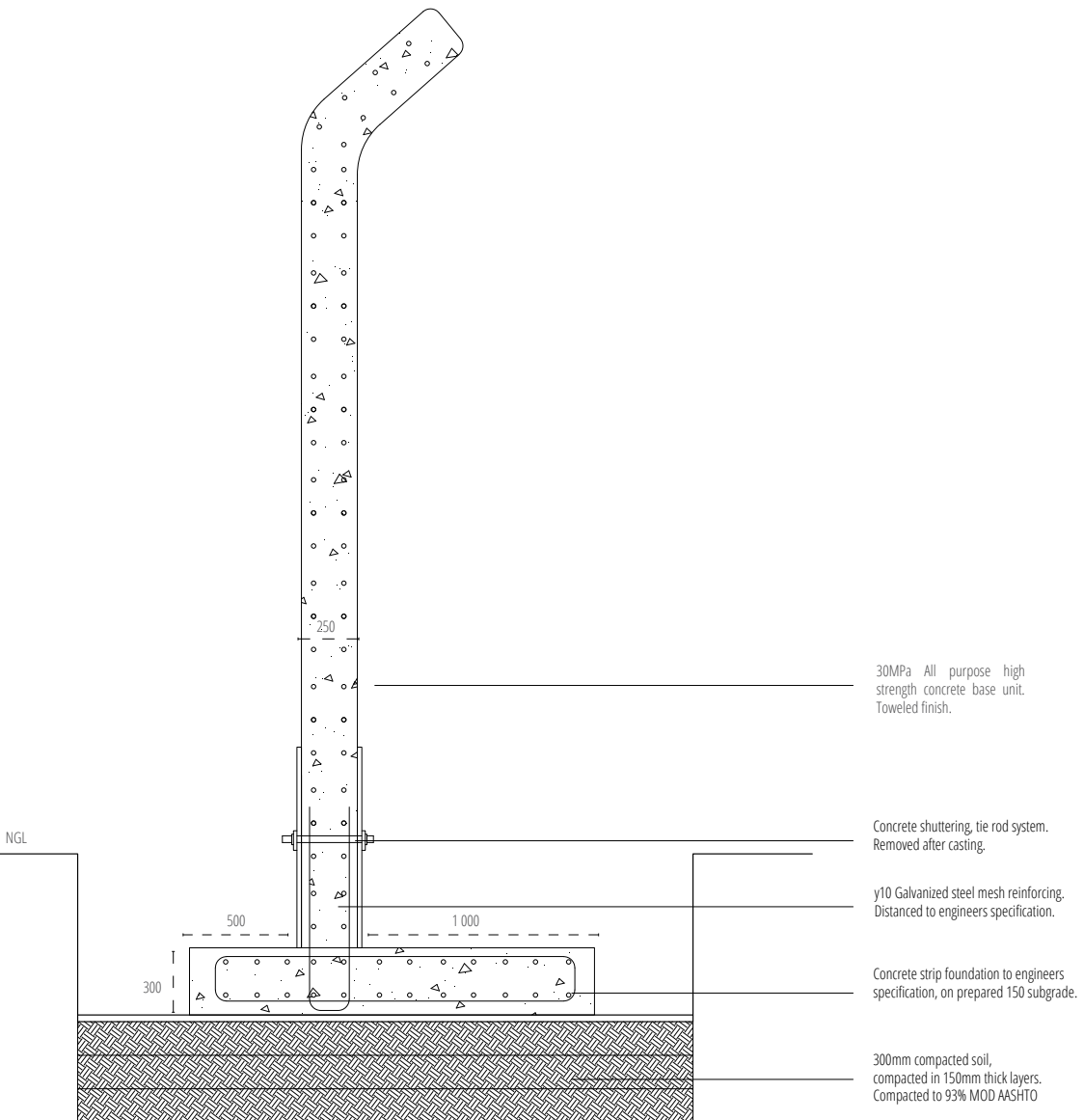


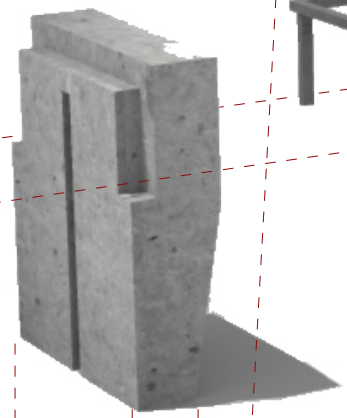
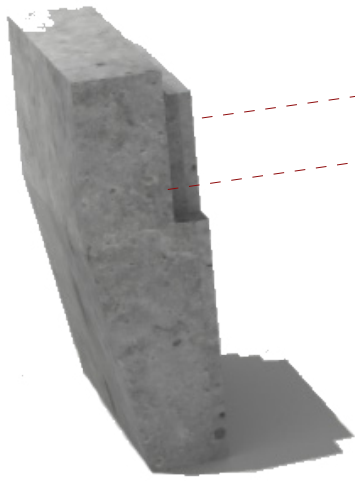
Figure 6.11. Section detail of 'concrete guards'  
(Author 2014).



Figure 6\_12. 3D rendering of concrete guards  
(Author 2014).



# Seating Unit



200 X 150  
Sub-surface footing

Saligna timber beams treated with Woodoc 35 Exterior polywax sealant

30 X 30 mm galvanised mild stell tubes. Welded to one another and bolted to concrete footing.

Tapered edge

30MPa All purpose high strength concrete base unit. Toweled finish.

Strip recess cast into concrete footing for LED Striplight, 12V, 5050 Waterproof, Ultra Bright.



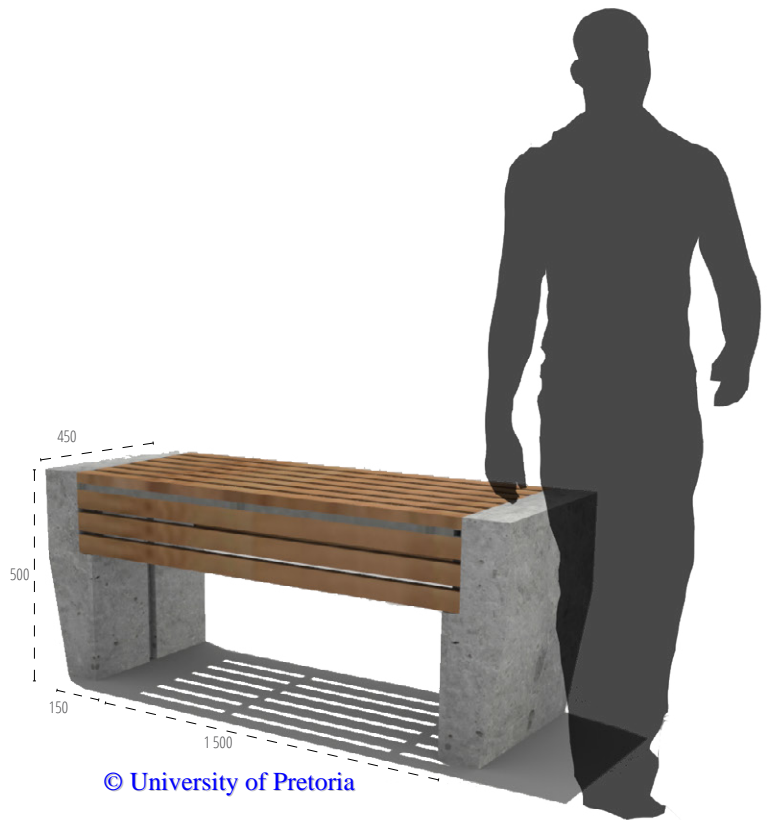
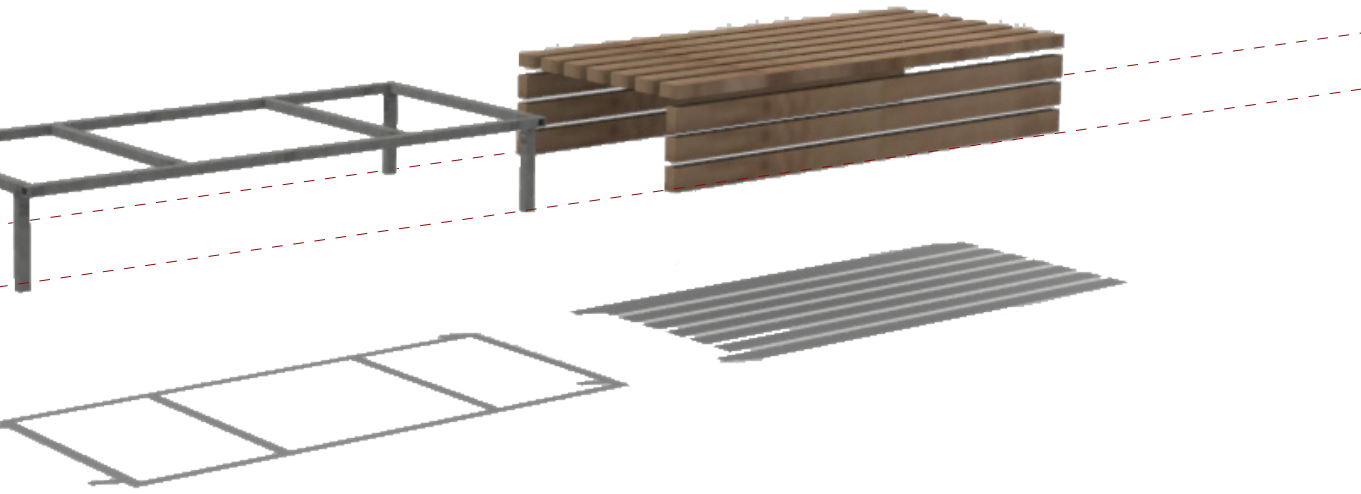


Figure:6\_13. 3D rendering of seating unit  
(Author 2014).

# Raised Walkway

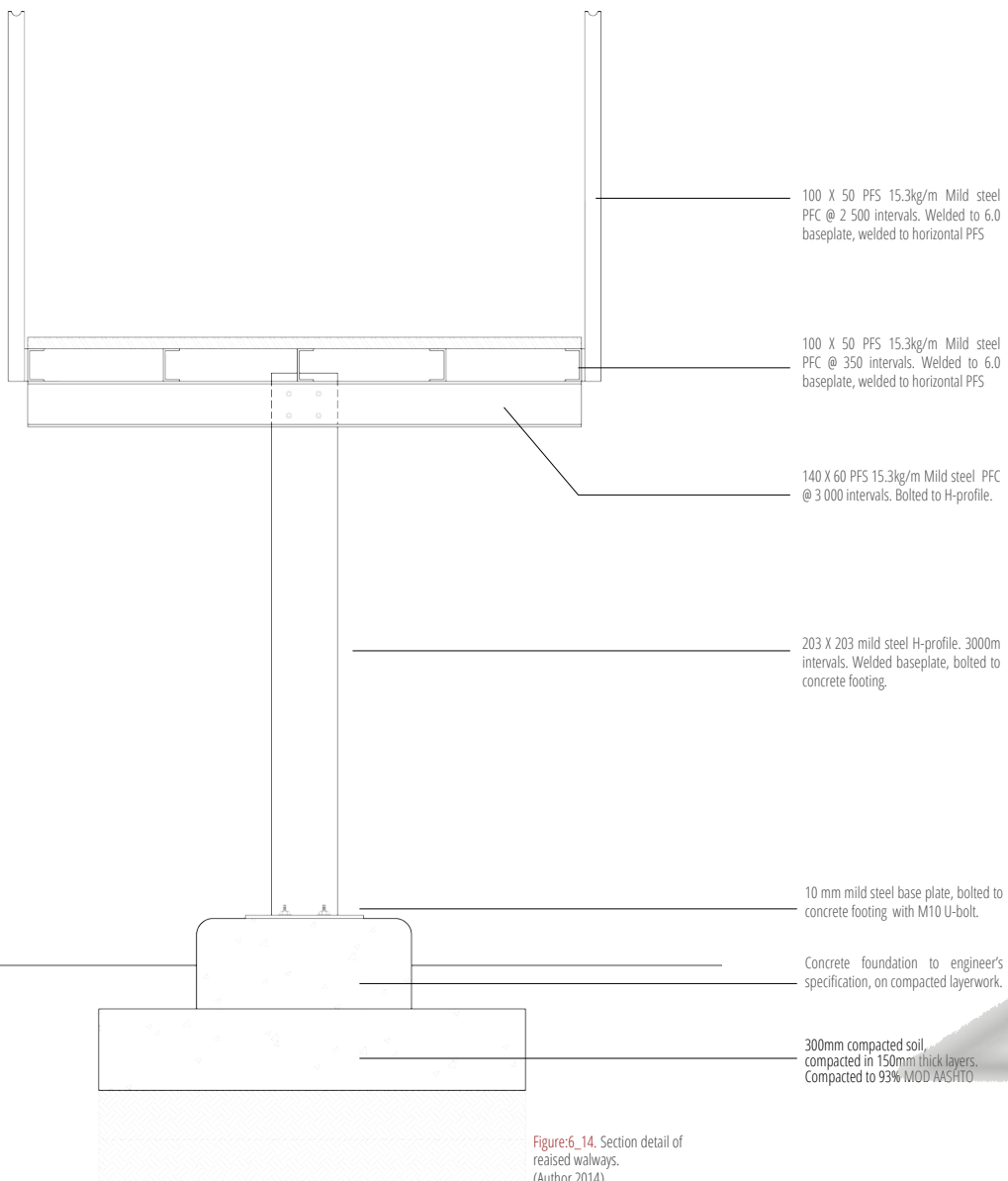
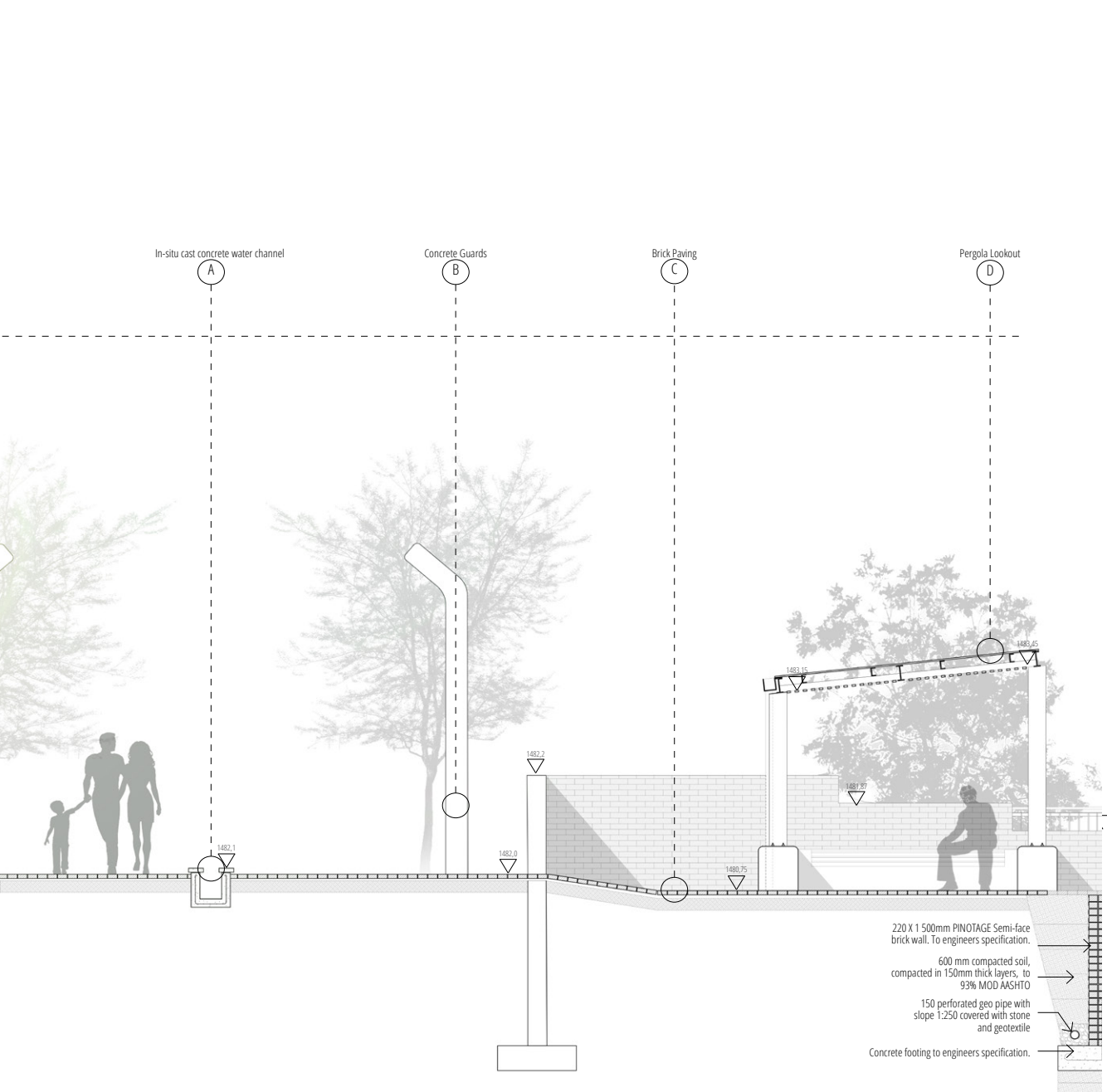






Figure:6\_15. 3d rendering of raised walkways (Author 2014).



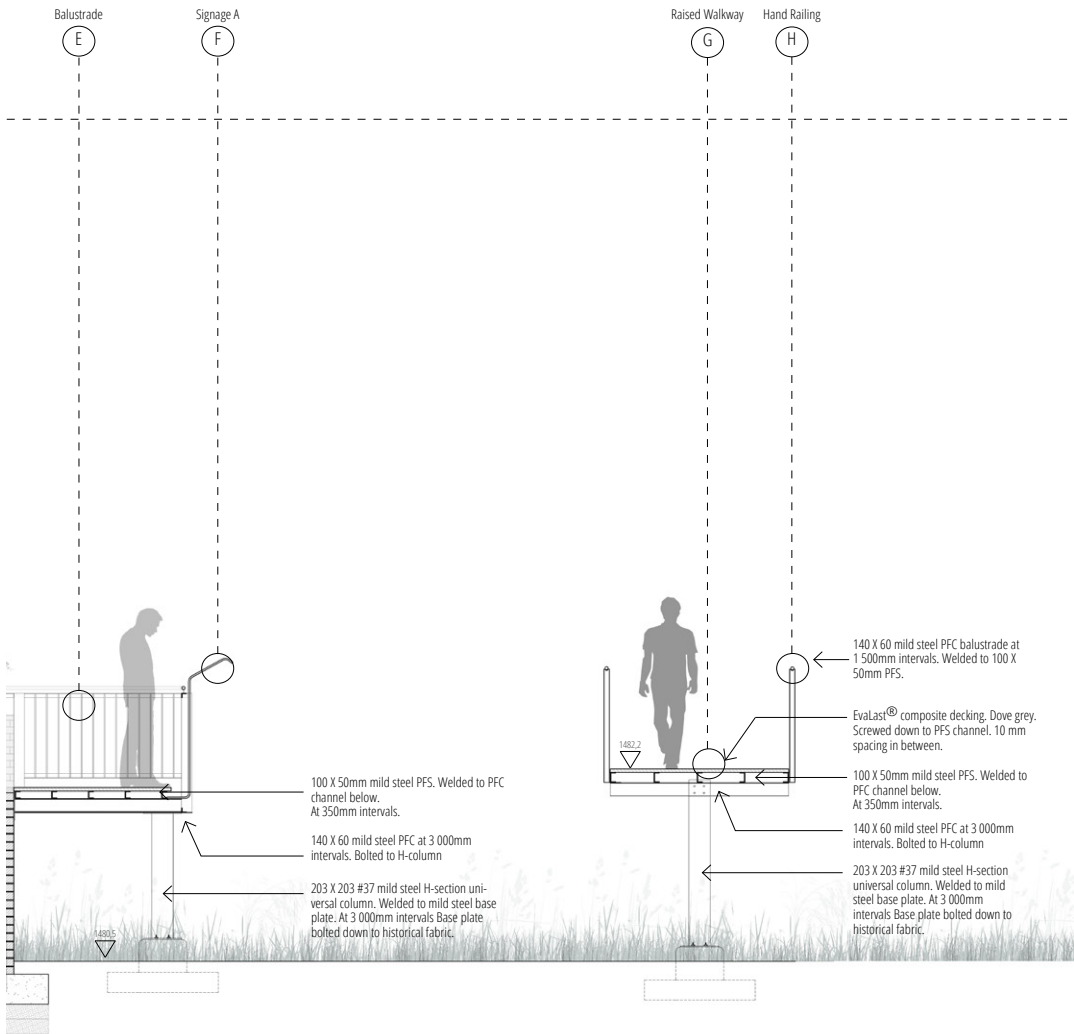
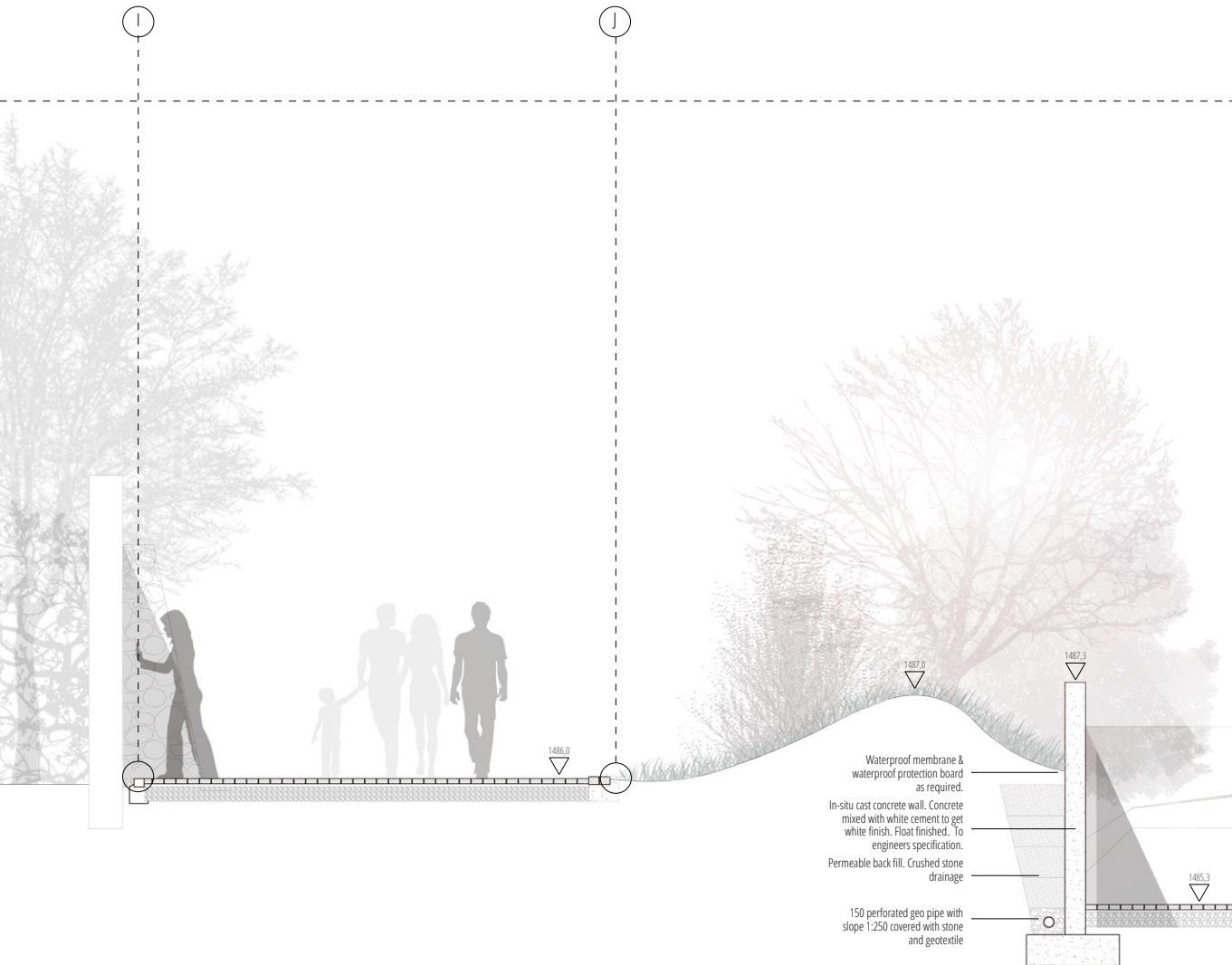


Figure:6\_16. Section B-B'.  
Refer to Figure:6\_9  
(Author 2014).





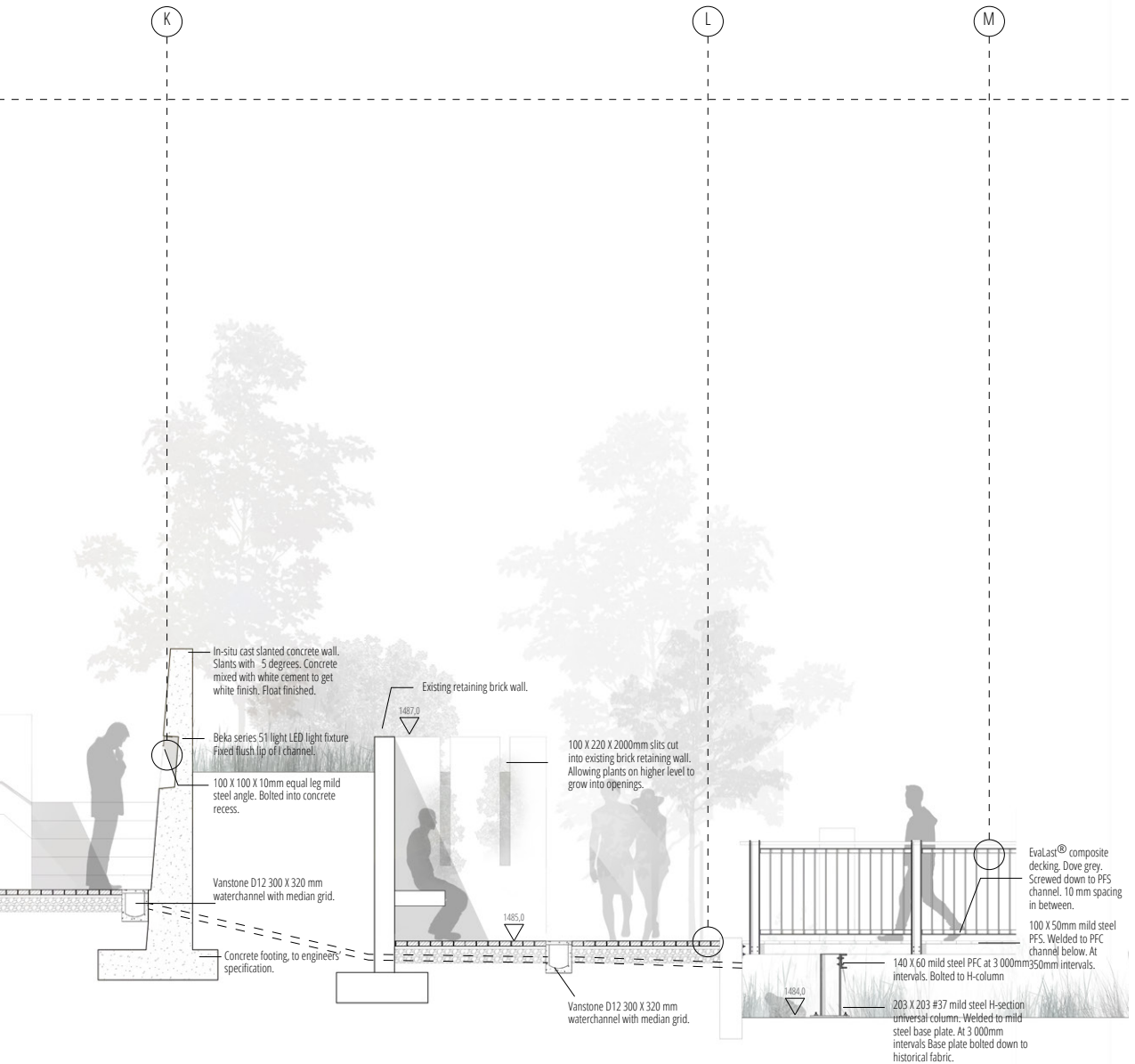
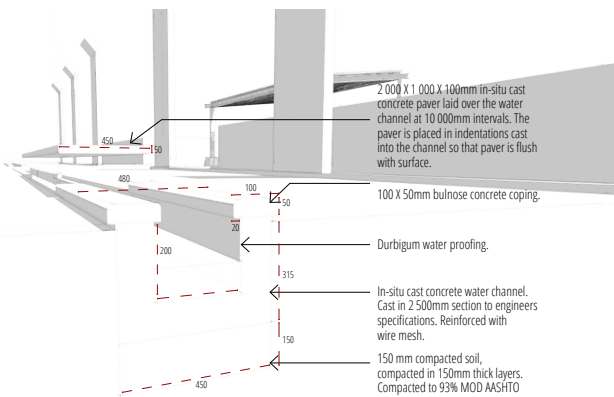
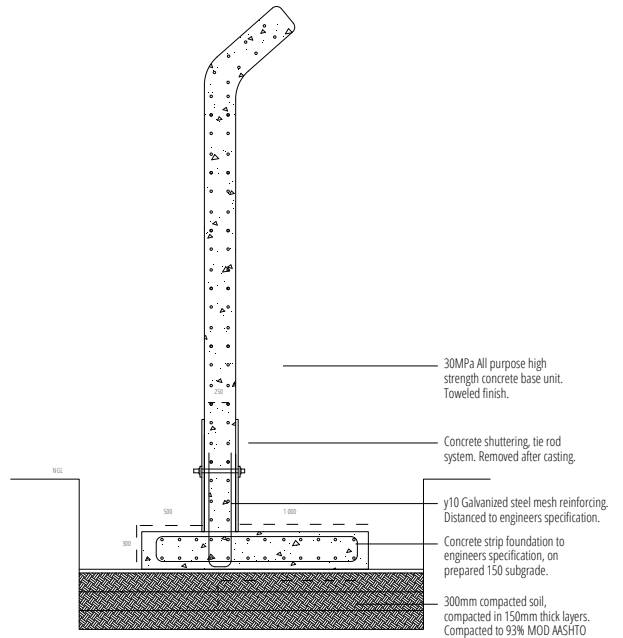


Figure:6\_17. Section C-C.  
Refer to Figure:6\_9  
(Author 2014).

**A**  
Concrete water channel.

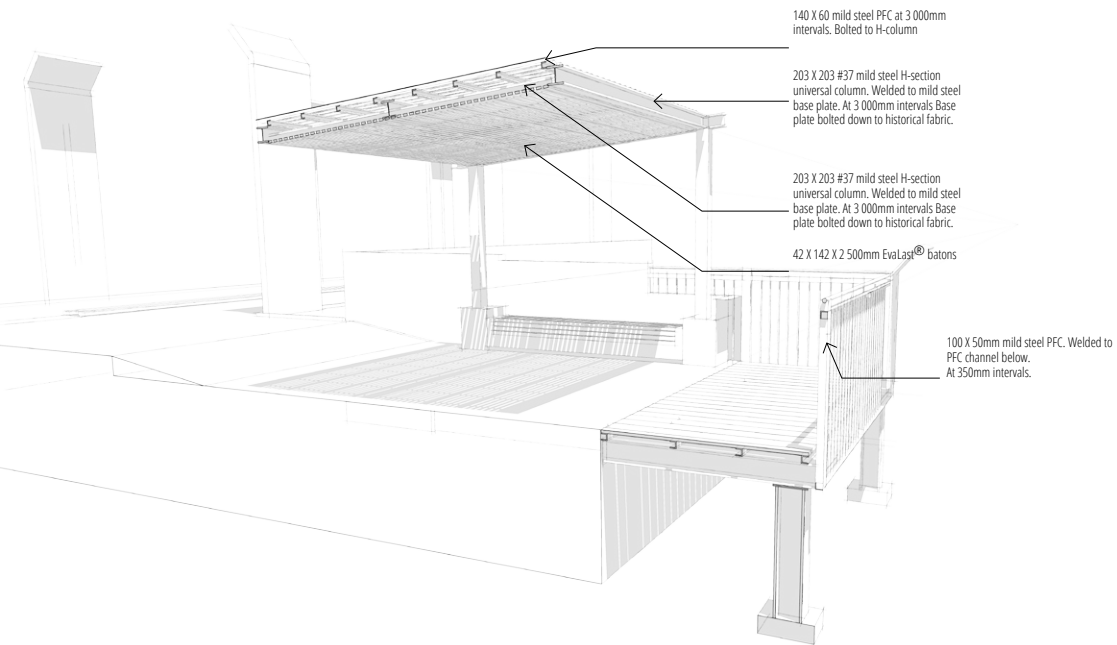


**B**  
Concrete guards

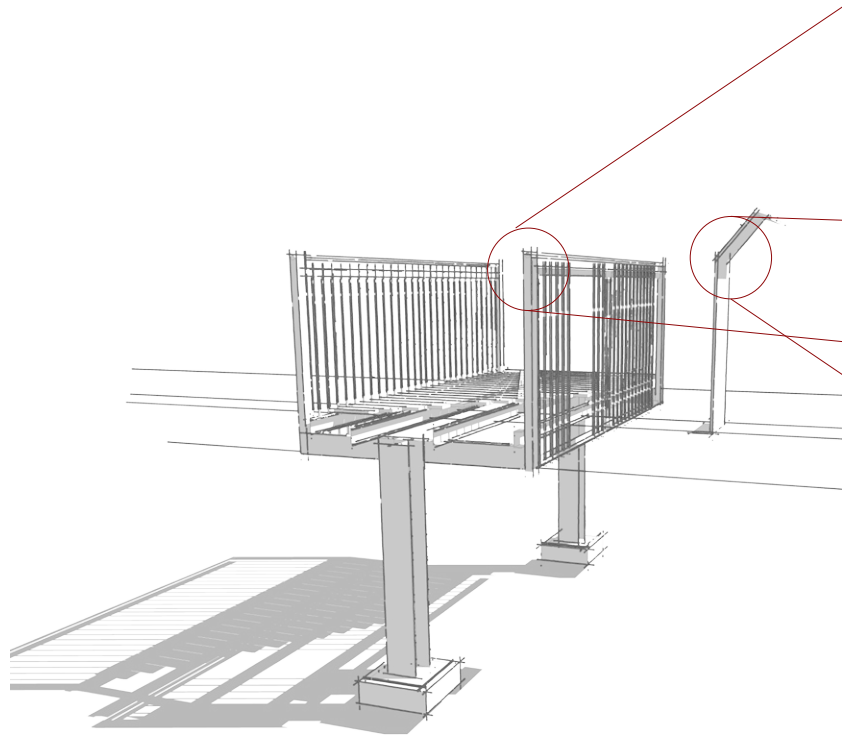




(D)  
Pergola lookout



(E) (G) (H)  
Raised walkway,  
balustrade and hand  
railing.



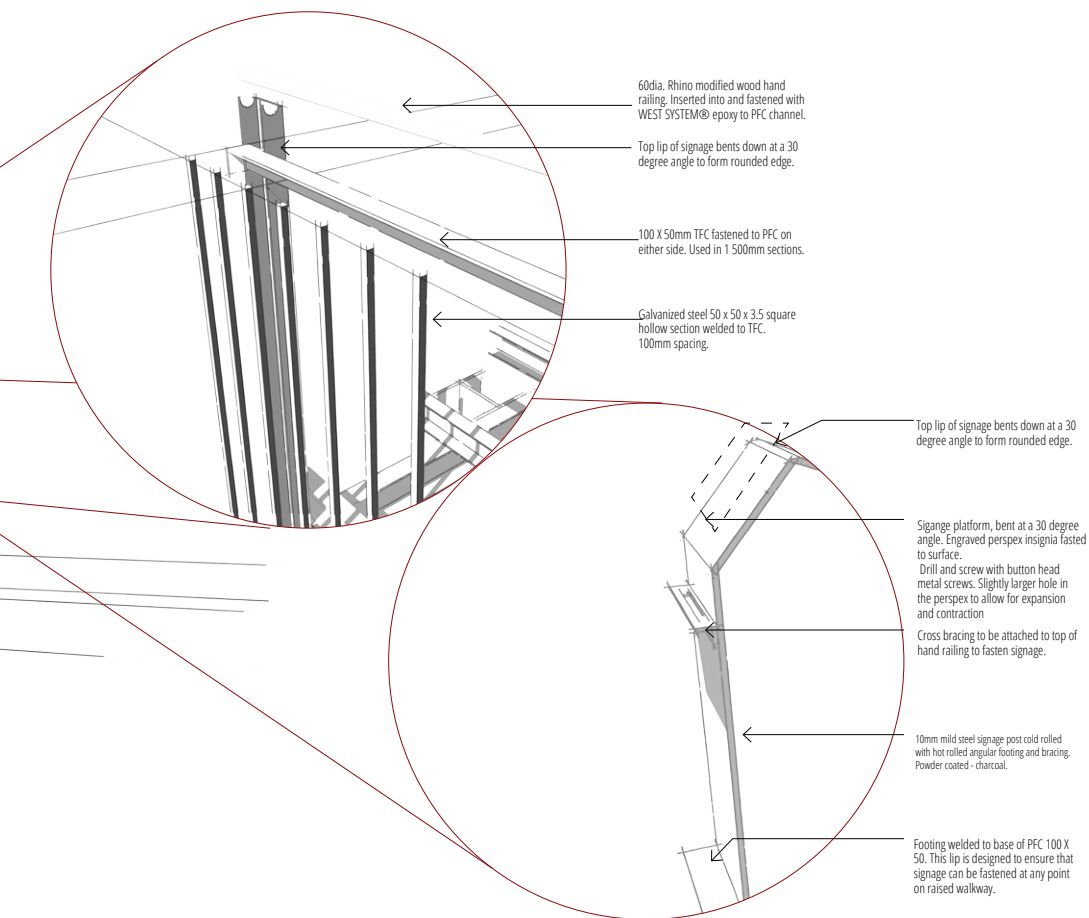
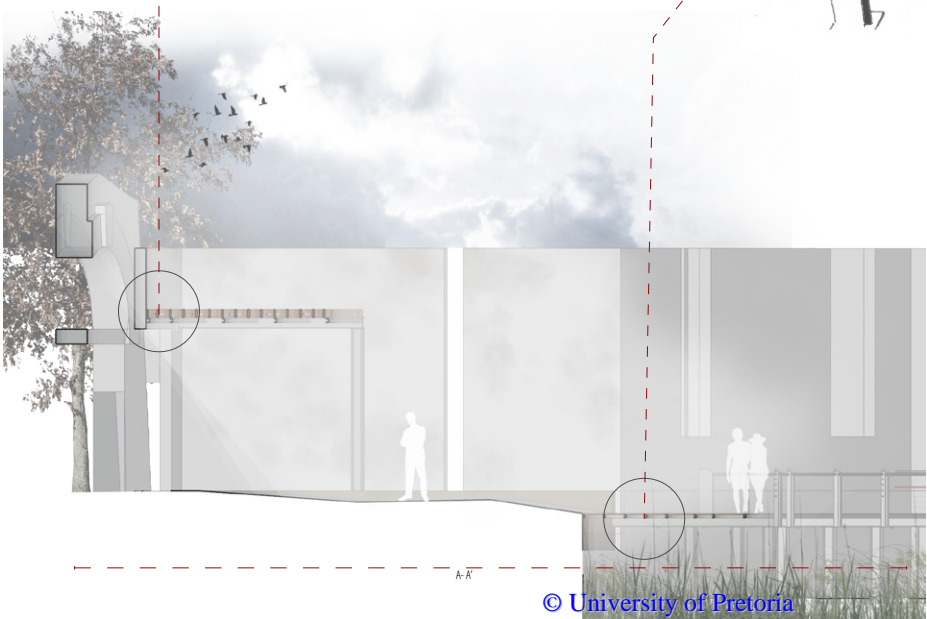
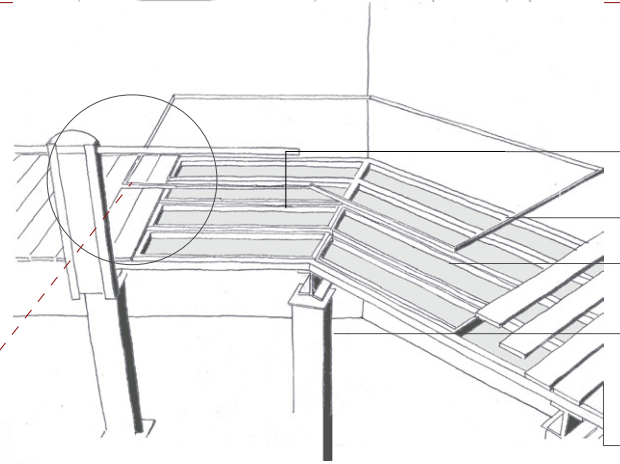
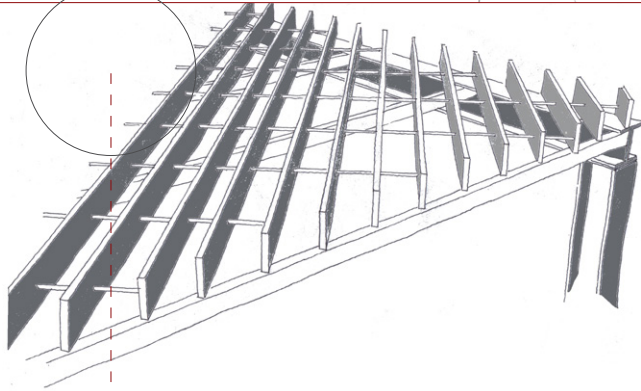
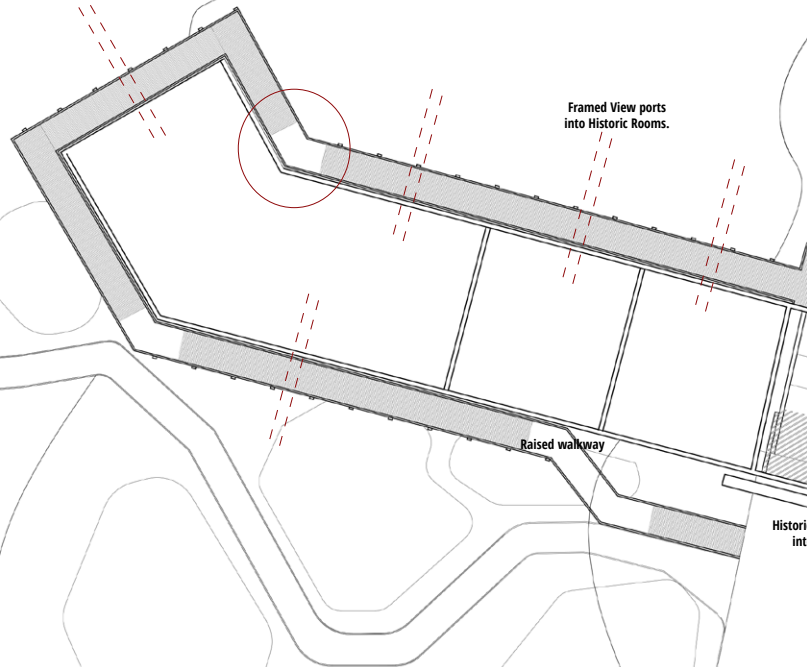
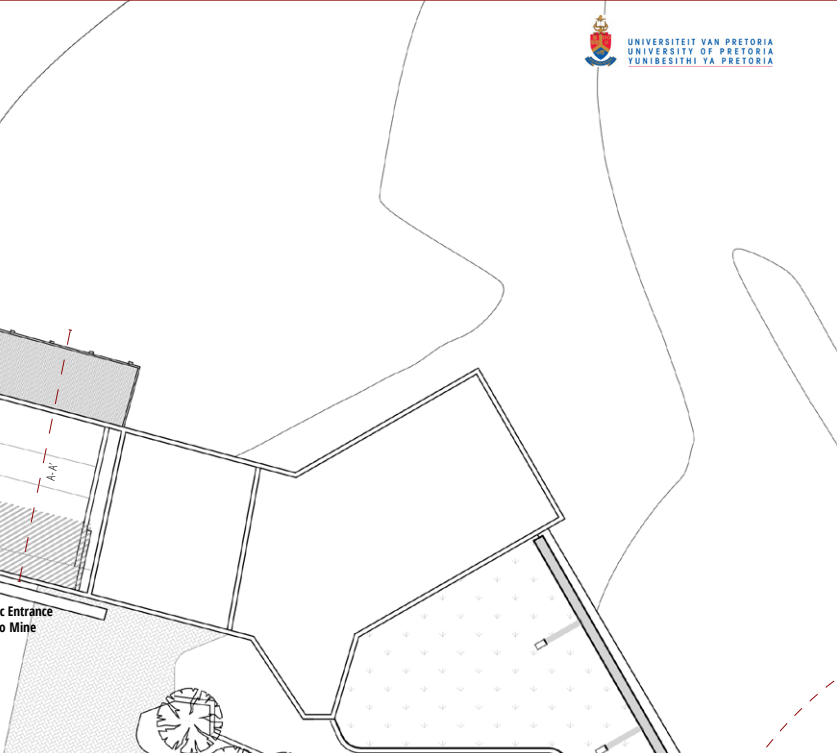




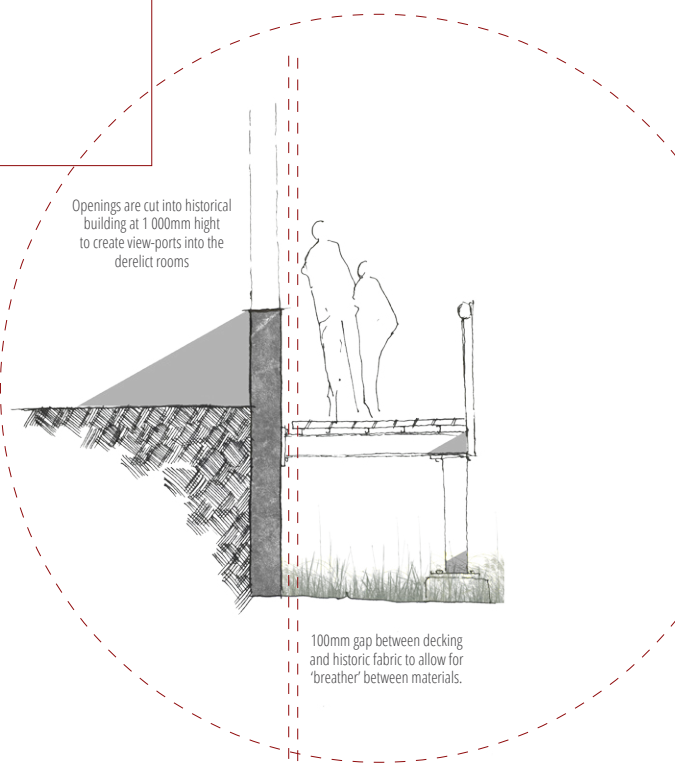
Figure:6\_18. Technical investigation into the retro-fitting of historical access to shaft - Area C (Author 2014).





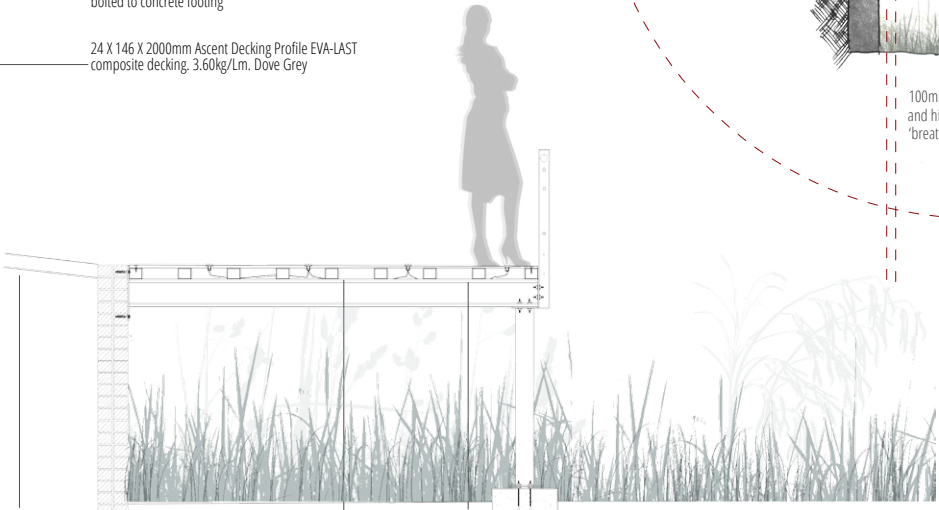
Entrance to Mine

- 24 X 146 X 2000mm Ascent Decking Profile  
EVA-LAST composite decking. 3.60kg/Lm.  
Dove Grey
- 30 X 10mm steel retainer welded to perlin
- 300mm x 2800mm x 60 X 6,0mm permanent steel  
concrete shuttering @ 300mm intervals galvanised  
finish to ENGINEER'S specification
- 103 X 133 X30, 15.3kg/m Mild steel PFC I-section  
parallel flange  
@ 2000 intervals. Welded to 5mm MTS baseplate,  
bolted to concrete footing
- 24 X 146 X 2000mm Ascent Decking Profile EVA-LAST  
composite decking. 3.60kg/Lm. Dove Grey



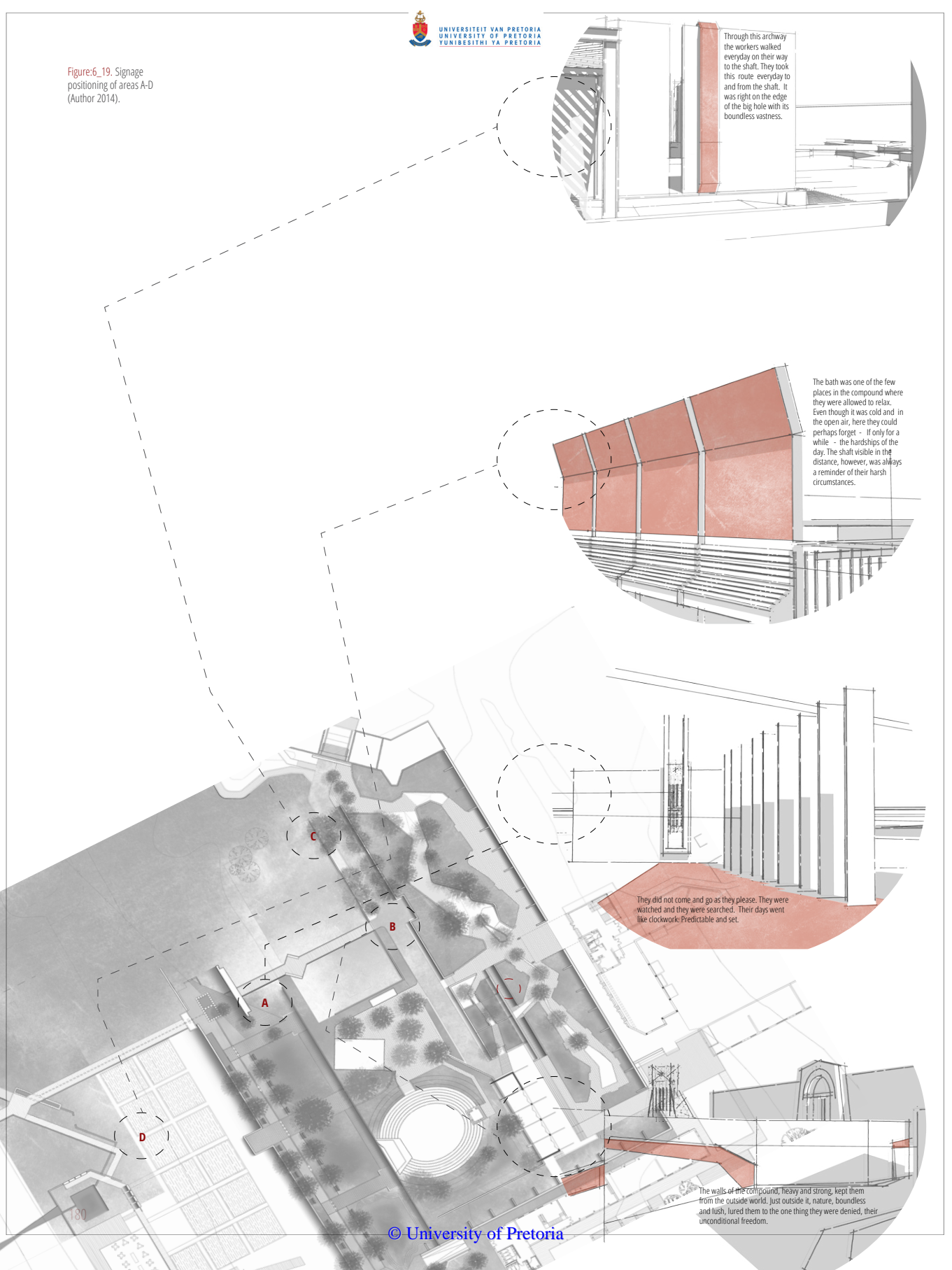
Openings are cut into historical building at 1 000mm high to create view-ports into the derelict rooms

100mm gap between decking and historic fabric to allow for 'breather' between materials.



- 103 X 133 X30, 15.3kg/m Mild steel PFC I-section parallel flange @ 2000 intervals. Welded to 5mm MTS baseplate, bolted to existing brick wall of historic building with M8 expansion bolt.
- 300 X 60 X 10mm square mild steel hollow section. Welded to I profile spaced 350mm apart
- EKST4144K Stainless Steel Round LED Deck Light Kit set into composite decking. Spaced 700mm apart.
- M10 U-Bolt cast into concrete footing. 500mm thick concrete footing. With 150 X 200mm footing. Cast-in-situ 300mm compacted soil, compacted in 150mm thick layers. Compacted to 93% MOD AASHTO

Figure:6\_19. Signage positioning of areas A-D (Author 2014).



Through this archway the workers walked everyday on their way to the shaft. They took this route everyday to and from the shaft. It was right on the edge of the big hole with its boundless vastness.

The bath was one of the few places in the compound where they were allowed to relax. Even though it was cold and in the open air, here they could perhaps forget - If only for a while - the hardships of the day. The shaft visible in the distance, however, was always a reminder of their harsh circumstances.

They did not come and go as they please. They were watched and they were searched. Their days went like clockwork: Predictable and set.

The walls of the compound, heavy and strong, kept them from the outside world. Just outside it, nature, boundless and lush, lured them to the one thing they were denied, their unconditional freedom.



# 6.6 Sustainability Strategy

The sustainable sites initiative (SSI) tool was used to determine a sustainable rating for the Cullinan compound intervention. The sustainable sites initiative is a partner of the American Society of Landscape Architects. The tool is used to encourage and establish sustainable development in landscape design, construction, operation and management (The Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009). This system of evaluation was developed to address three key issues regarding site sustainability – social, environment and economic.

The guideline principles used during this assessment were the following:  
do no harm;  
precautionary principles;  
design with nature and culture;  
decision-making hierarchy of preservation, conservation and regeneration;  
support living process;  
use a system thinking approach;  
maintain integrity in leadership and research; and  
foster environmental stewardship.

The evaluation is divided into nine criteria according to which a development is rated (The Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009). The Cullinan compound development scored the following in each category:

Site selection: 9/13  
Pre-design assessment and planning: 3/3  
Site design – water: 20/23  
Site design – soil and vegetation: 23/40  
Site design – Material selection: 33/41  
Site design – Human health and well-being: 25/30  
Construction: 13/17  
Operations and maintenance: 10/22  
Monitoring and innovation: 6/9

The project achieved an overall sustainable rating of 147 out of a possible score of 200, which means that it achieved a platinum-level sustainability.

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