Design Development

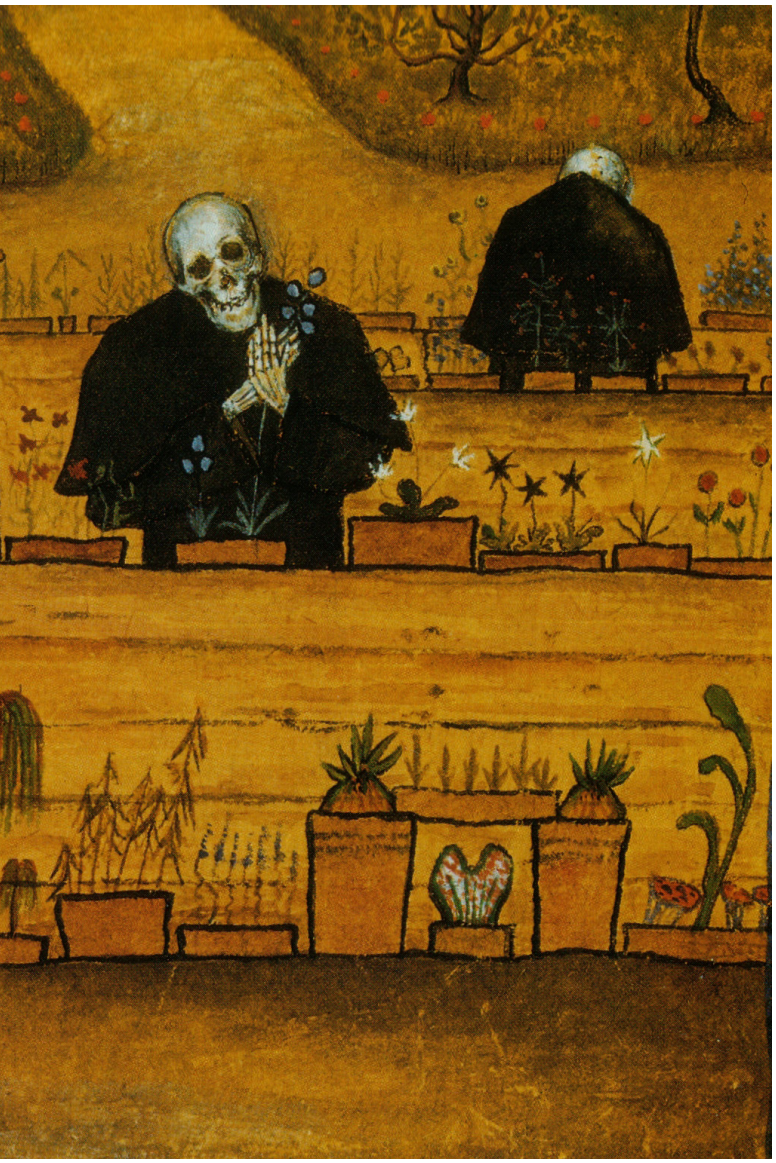
Design Development - *Structure*

The design was developed throughout the year, using various techniques such as sketching, model building and computer-aided 3D modelling. This process has allowed for various iterations to develop, enabling a more complete and relevant design response.

The following chapter consists of a condensed version of integral sketches, photographs and other media that best display the design iterations and processes as developed by the author. Throughout the chapter the author will discuss design generators, influences and the iteration processes.

Design Development Structure

- Funerary & Cremation Process
- Entrance Courtyard
- Bathhouse and Viewing
- Mortuary and Crematorium
- Chapel



Funerary & Cremation Process

The design of the cemetery integrates the funerary procession and cremation processes with the experiential park route within the landscape. This route slowly reveals elements of the Witwatersrand as a geological formation in an urban context, as well as Johannesburg as a developing African city.

The experiences on the park route are determined by the overlapping funerary processes that take place at separate locations along the route, as the mourner and park-goer progress through the site. It is through this overlapping of the park and cemetery typologies that life and death, man and nature, spirituality and calmness are made sensory.

fig 10.1. Painting illustrating a gloomy scene. The central figures, black clad grim reaper like figures (symbol of death) tending to gardens (symbol of birth and renewal). Simberg described the garden in the painting as the place where death goes before going to heaven. This dark portrayal of death with the tenderness of a garden allow the user to view mortality in a new light. Hugo Simberg 1896.

Funerary Ritual

The funerary ritual functions as 3 different rituals centred around the deceased, the mourners and the interaction between them, with each process having diverse spatial, lighting, volume, services and material needs.

The first process which traditionally focuses on the deceased is that of coffin collection, mortuary storage, washing and finally cremation or traditional burial. This process is accommodated in the crematorium structure which emerges from the geology of the ridge, slowly progressing from coffin collection to mortuary and then crematorium, similar to how the ridge starts to rise to its highest point. This allows for the body to slowly move into and within the geology of the ridge as it progresses through the funerary process as well as through the structure itself. Starting at coffin collection on the structural route and being completely exposed and free from the landscape, one moves to the mortuary where the structure is sunken into the ridge, partly covered by vegetation and surrounded by an exposed granite rock face on its northern and eastern facades.

One finally moves to the cremator room where the structure is completely surrounded by the landscape on all sides, and covered by the soil of the ridge flowing seamlessly over it. Thus the structure responds to the condition of the ridge geology, the programmatic processes, and the experiential movement of the body and user through the preparation and cremation process – from structural exposure to a sense of complete isolation and spiritual heightening.

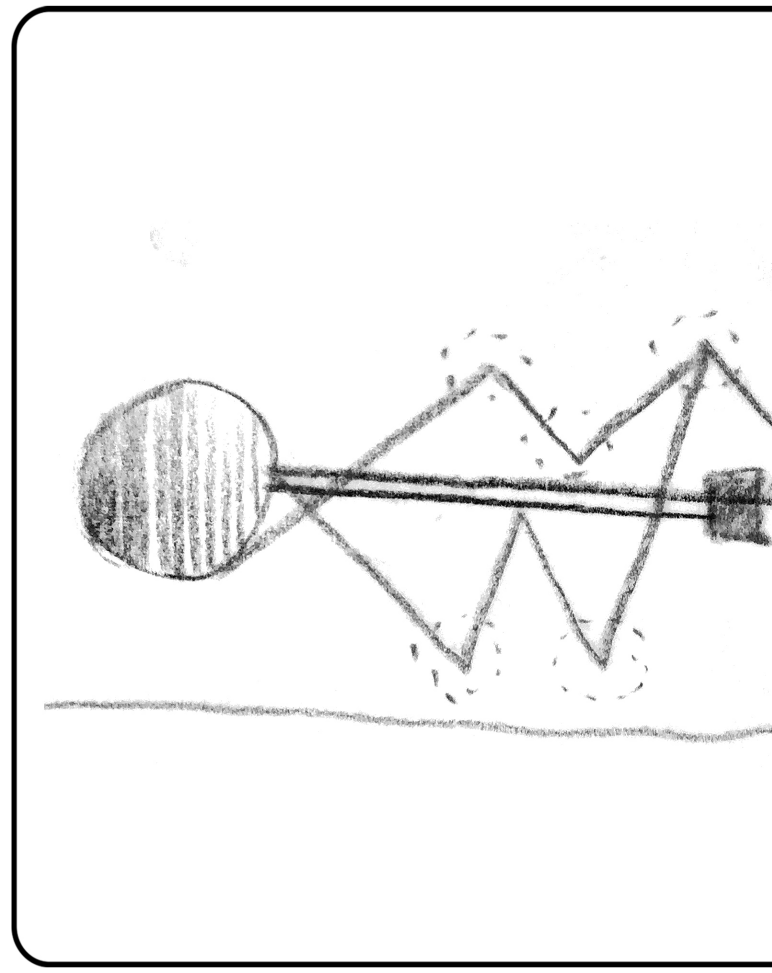
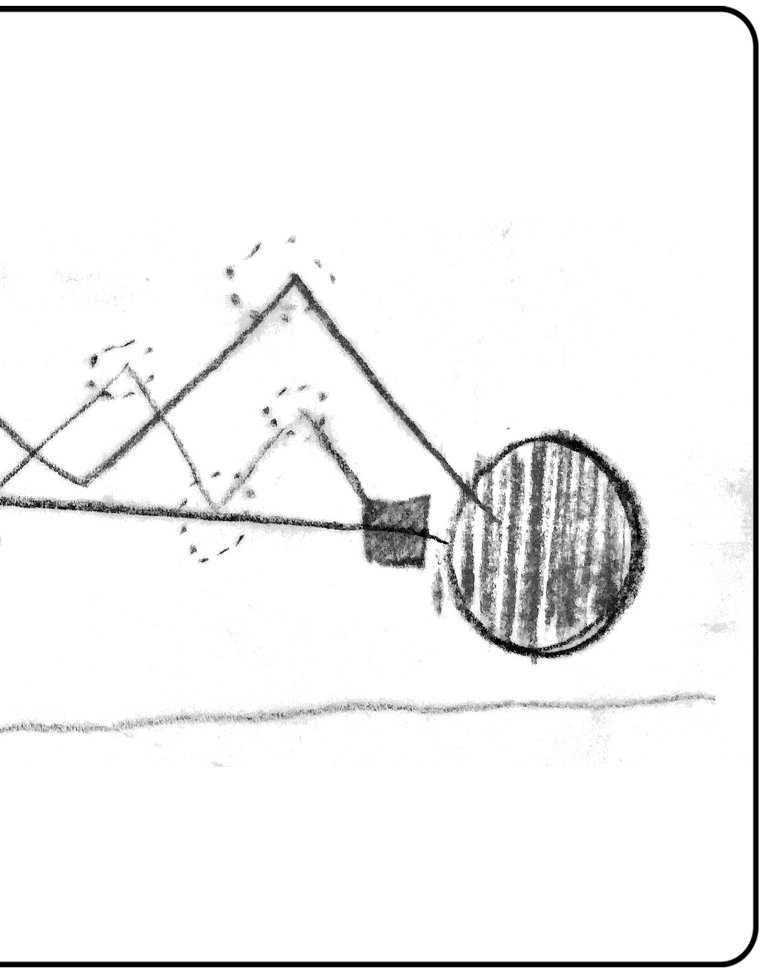


fig 10.2. Conceptual Diagram illustrating movement intersections between mourner and deceased. (by Author, 20



15)

The 2nd optional process that can be fulfilled by the family and mourners encompasses the viewing and ritual bathing or cleansing of the deceased. The two ritual bathhouses are identical in form and function and are situated on separate levels of the route. The location of these structures is more public, as the viewing and washing might incorporate not just family members but other loved ones in the process of viewing and cleansing. These two structures are partially submerged within the edge of the ridge so as to allow for intimate isolation and privacy from those moving through the park. The northern façade is cut into the ridge, while the southern façade is completely open to the skyline of the Johannesburg CBD. The planning allows for complete privacy and isolation, as the northern façade is sunken into the ridge and the extended overhang on the southern side prevents passers-by from viewing the process.

The 3rd process brings the deceased and the mourners into contact with one another. In the chapel structure mourners pay their final respects to the departed. The chapel structure, similar to the crematorium and mortuary bathhouses, cuts into the granite ridge, exposing a sheer rock face that acts as a northern façade wall bracing the large rib-like fins cutting into the rock, which in turn support the sloping roof structure. The chapel can be divided into three main spatial realms. Cutting deep into the ridge, the first realm houses the pulpit, catafalque and silent prayer area. These spaces, underneath a tower-like roof structure that allows natural light to shine down onto the sheer rock face and coffin, resemble the planning hierarchy of an apse and ambulatory. The second space is defined by deepening the structural beams which span from the northern rock face to the southern façade, allowing for a more defined spatial hierarchy between the nave and the aisles. The third space within the chapel acts as a post-service gathering space for the congregation before they exit the chapel into the landscape towards the burial tombs and park routes.

Conceptual Route Diagram

Figure ?.x illustrates the route travelled by the author during a site visit to Observatory Ridge. Down Joe Slovo Drive the route travels below natural ground level, cutting through the ridge and exposing natural rock in combination with man-made retaining walls. This is the first interaction between nature and man on the journey. Before descending through the ridge, a view of a ruined church on top of a flattened clearing on a lower part of the ridge is revealed. Travelling down alongside the Joe Slovo Bridge, the base of the bridge is encountered which is supported by natural rock formations of the ridge. Continuing on, one travels parallel to the base of the ridge before starting an ascent towards the highest point of the ridge and the proposed site. While ascending the ridge, exposed cut granite rock faces are on the left and man-made stone barriers on the right. This is the second interaction between man and nature on the journey towards the site. Before reaching the proposed site one passes between the largest water reservoirs in Johannesburg. The reservoirs are clad with rock excavated from the site in order to naturalise these large structures rising from the highest point on the ridge. This is the third encounter between man and nature. Reaching the site the condition shows various different examples of dry-packed rock walls and large boulders used as seats, altars or barriers. This is the fourth and final encounter with rock being used by man as a form of structure.

The diagram ultimately shows the relationship of the travelled route with being above and below ground while surrounded by natural and man-made walls at various instances, allowing the author to formulate an abstract logic in relation to the site (Ando 1996). The author develops a deeper understanding of the site as geological agent within the context of Johannesburg (Bremner 2014).

Though drawing its natural landscape the site can be read and understood, enabling one to understand its abstract logic and to start to prepare the ridge for an acceptance of the modernist line.

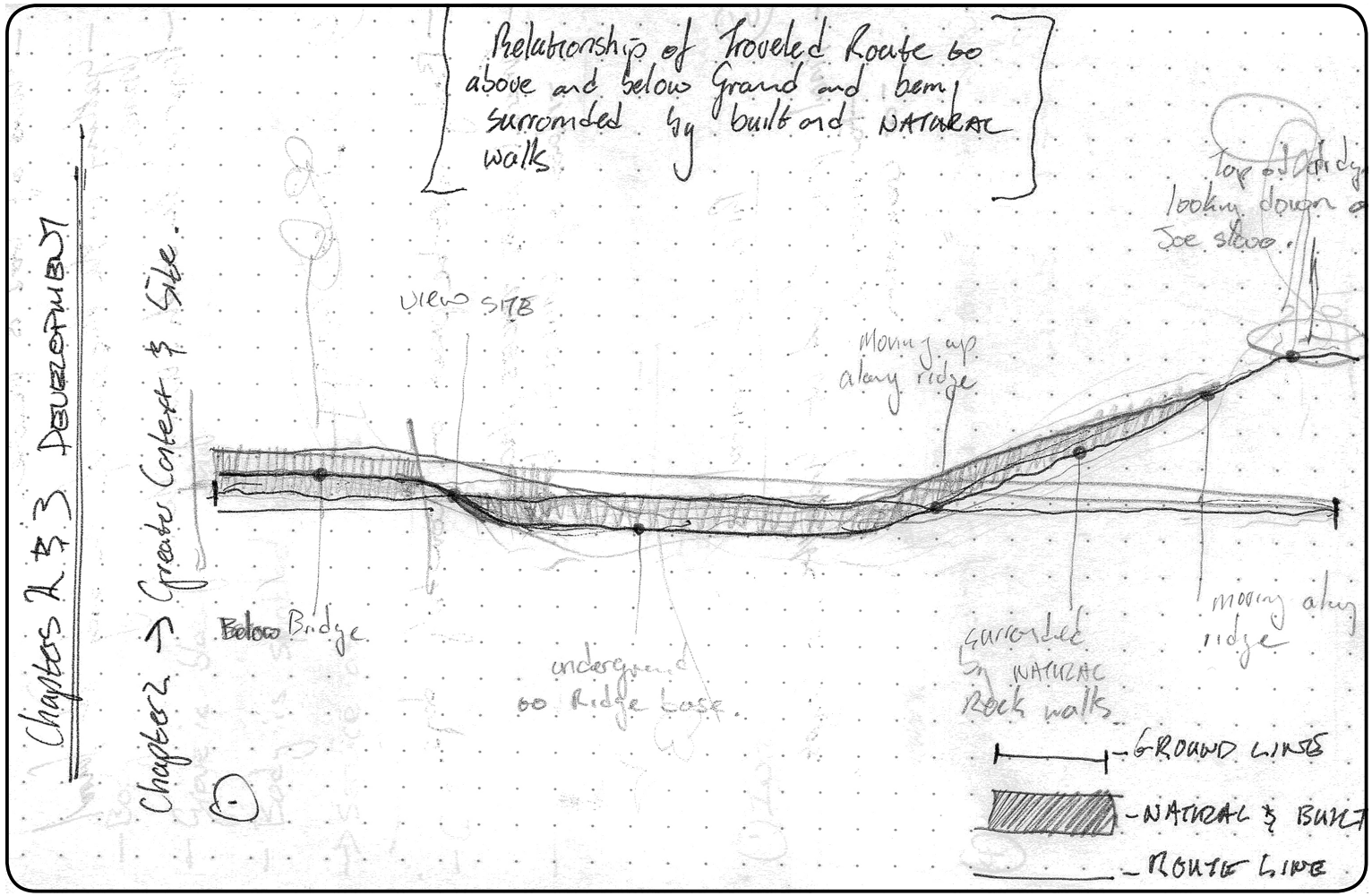


fig 10.3. Conceptual diagram illustrating the route taken by the author to reach the top of the site. In the images the author illustrates the relationship between being above and below ground while moving towards the peak of the ridge. The diagram also illustrates the relationship between being above and below ground with being surrounded by man-made walls and natural excavated granite walls. (by Author, 2015)

Landscape - Concept

The conceptual approach of the design was based on an understanding of the site and its isolated nature within the city. Being elevated well above the city, the site allows for breath-taking views towards Johannesburg – its past as well as its future. It was established that the slope on the site as well as the dense vegetation added to its sense of isolation, thus allowing those taking part in prayer to find solace at the top of the ridge. Together with the intense contours of the site, the design progressed towards using these natural elements to further heighten the isolated nature of the site, while at the same time allowing access onto a piece of uitvalgrond.

Throughout the various structures and the routes connecting them, along with the final route towards the burial tombs, the concept of exposing and using the granite rock of the ridge as a device for uniting man with nature is employed to enrich the spaces and allow for constant change in the interior and exterior spatial experiences. The combination of natural and man-made allows for a more integrated structure within the Witwatersrand landscape, that would through weathering and time become part of the ridge and its structure as geological agent.

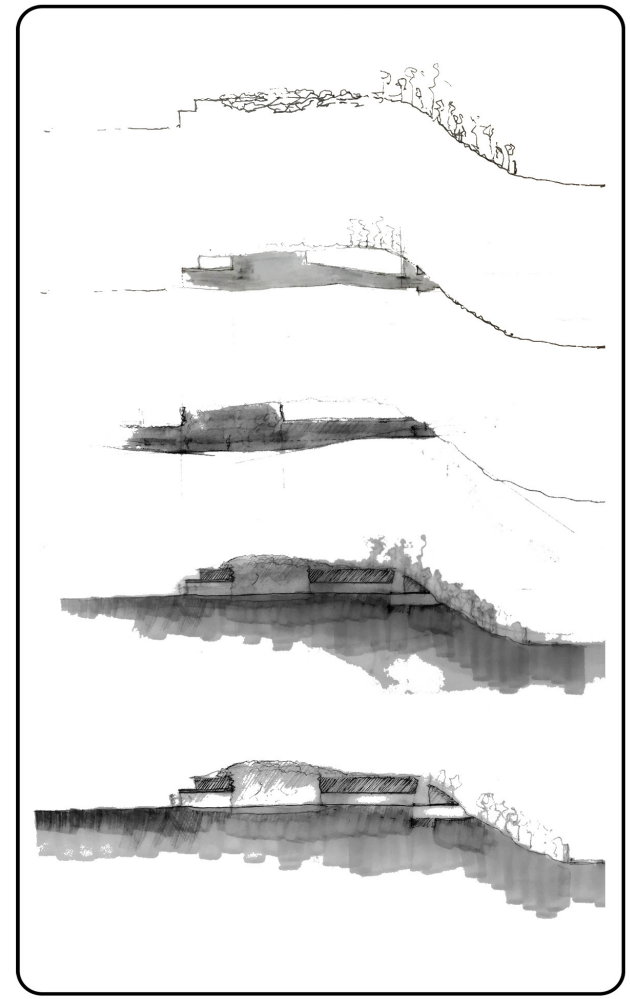


fig 10.4. Sectional diagram illustrating natural ridge condition with conceptual excavations below ground line as an exploration of a submerged architecture. (by Author, 2015)

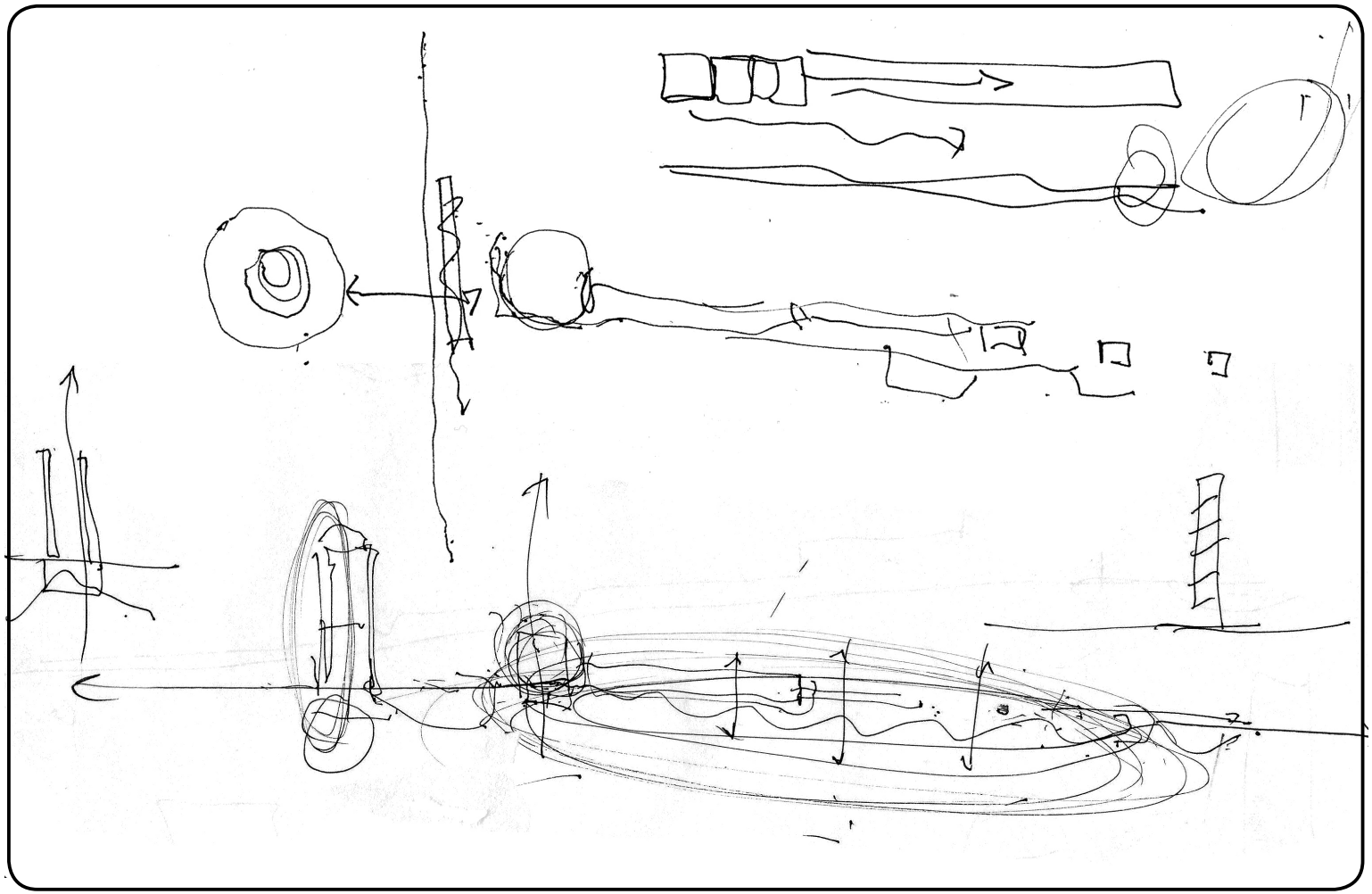


fig 10.5. Plan and section illustrating the author's exploration of the ridge, Joe Slovo drive and Ponte City. Smaller sketch shows a diagrammatic section through Ponte exploring its core as a spiritual opening to the heavens. (by Author, 2015)

Landscape - Site Analysis

This section deals with initial sketches made by the author on site in order to further develop an abstract logic of the site, not only as a piece of uitvalgrond but as a geological agent and spiritual space in Johannesburg. It further shows the development of the landscape in relation to the South African context, as the watershed between East and West, the barrier condition created by the ridge within the city and its relation to the natural environment as koppie. The ridge as gateway into the city, similar to the Voortrekker Monument and Freedom Park, is also explored. The site is also explored in relation to other built and natural elements found on the ridge as it extends through the city, elements such as the Johannesburg Observatory, Yeoville water tower, Ponte City, Hillbrow Tower, and the Braamfontein and Brixton Cemeteries. These elements were considered as geological agents that have become part of the make-up of the ridge as a natural formation.

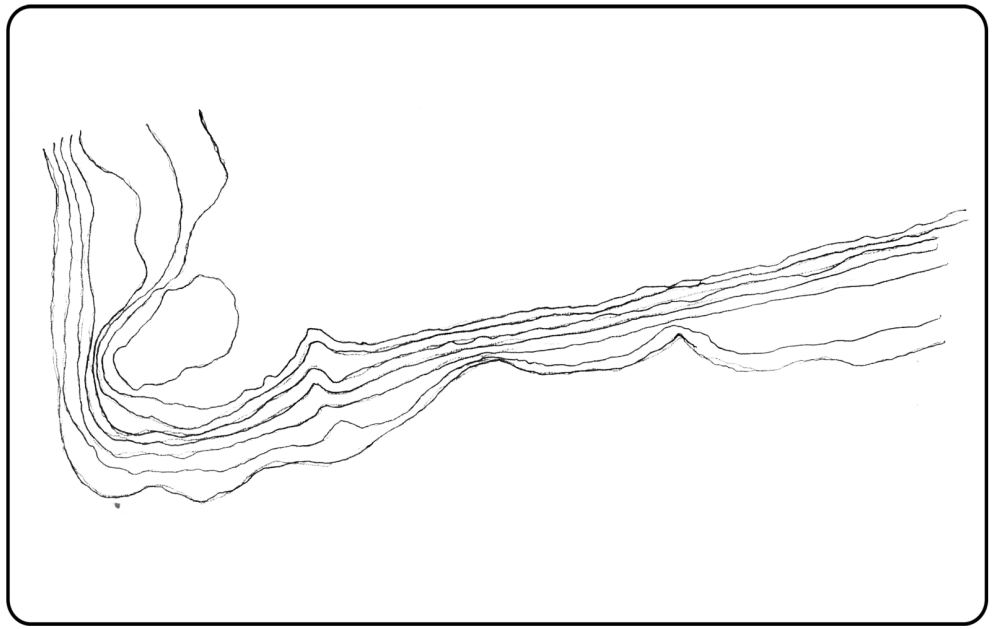


fig 10.6. Sketch of site topography illustrating geometric lines that start to immerge. (by Author, 2015)

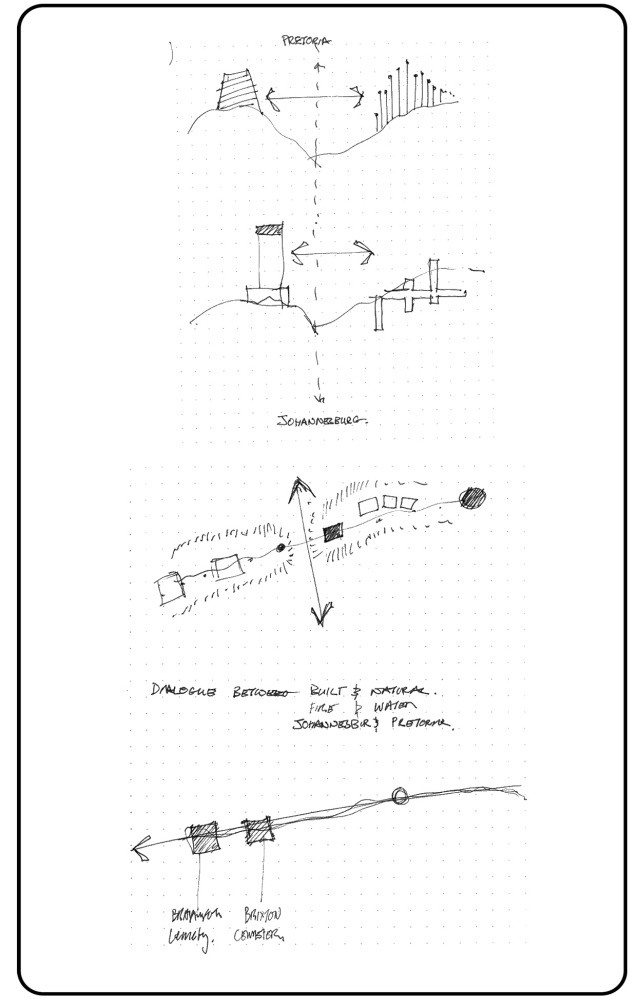


fig 10.7. Sketches illustrating the site as a form of gateway into Johannesburg CBD. It is also compared to the author's reference of the Voortrekker Monument and Freedom Park as gateway into Pretoria. Final sketch show the proposed site in relation to the first cemeteries in Johannesburg. (by Author, 2015)

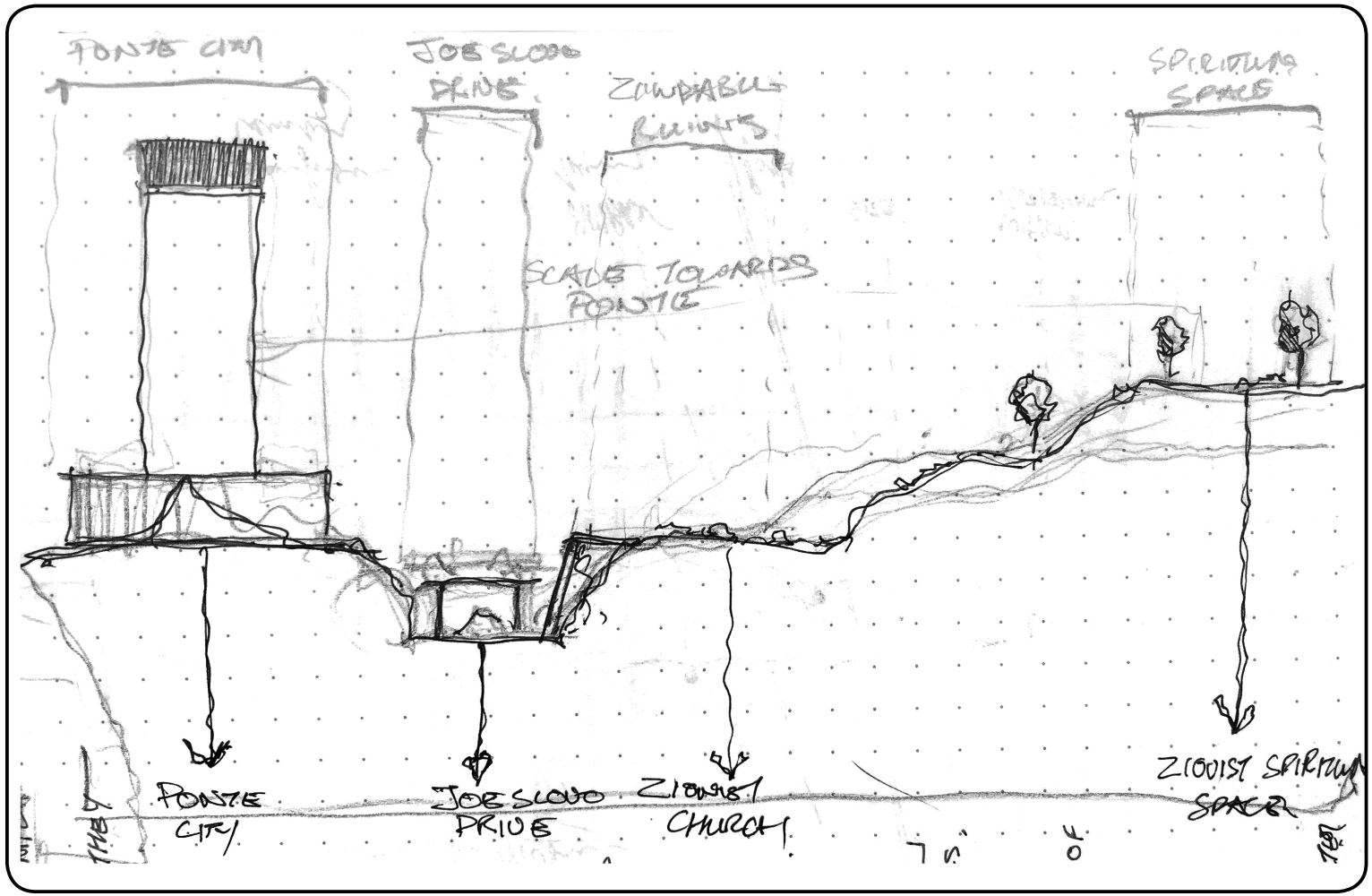


fig 10.8. Sectional exploration of ridge. Illustrating relationship between Ponte City, Joe Slovo drive, site and Pentecostal prayer space. (by Author, 2015)

Landscape - Landscape / Design

The following section deals with the diagrammatic integration between landscape and structure, developed from the conceptual stance taken by the author.

In the initial development stages of Yeoville Ridge, the proposed intervention was established as an isolated route structure within the landscape that retains its isolated and spiritual character. This character, which relates back to the initial approach of the framework and the overall concept of integration between nature and man, was constantly kept in mind by the author in order to inform the overall approach and iterative decisions.
The sketches to follow show a more synthesised understanding of site, programme and concept. The diagrams aim to develop from a conceptual approach to the programme and an abstract understanding of the site into a more structural plan from which more in-depth planning on a detailed level can be done.

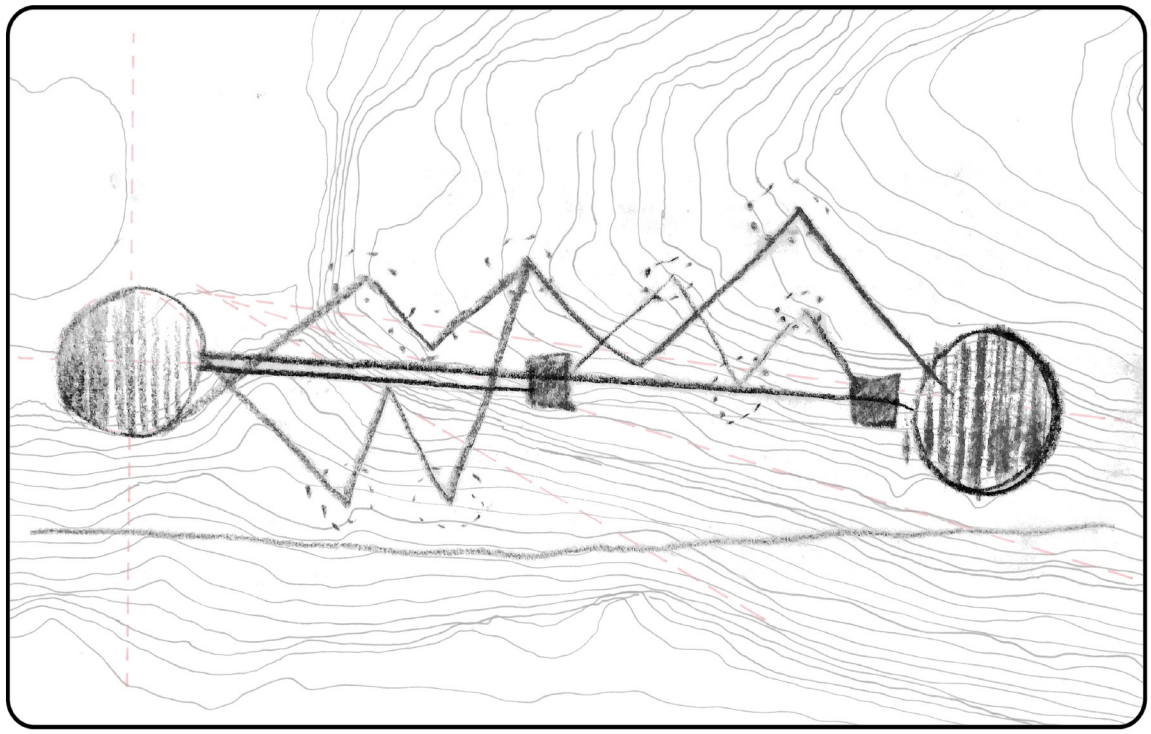


fig 10.9. Sketch illustrating conceptual points of gathering on the site along with lines intersecting at various point to show stages of interaction between mourner and deceased. (by Author, 2015)

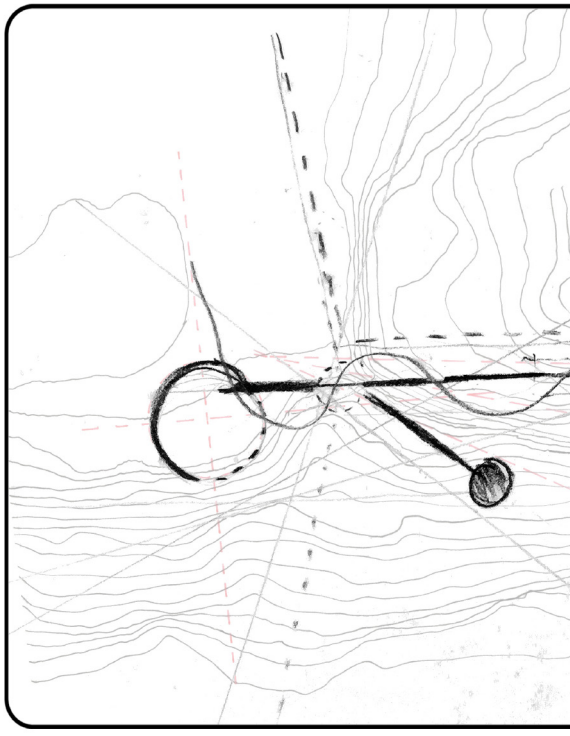
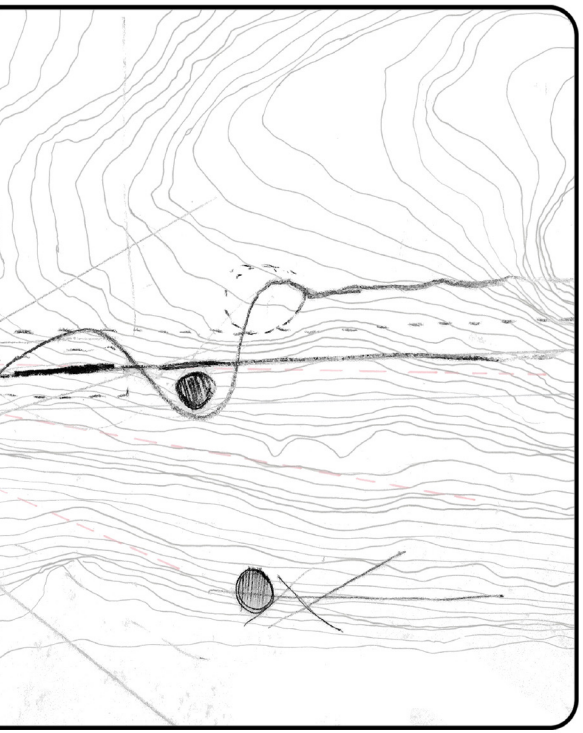


fig 10.10. Sketch illustrating conceptual relationship between lines of programmati



c interaction, site topography and potential structures. (by Author, 2015)

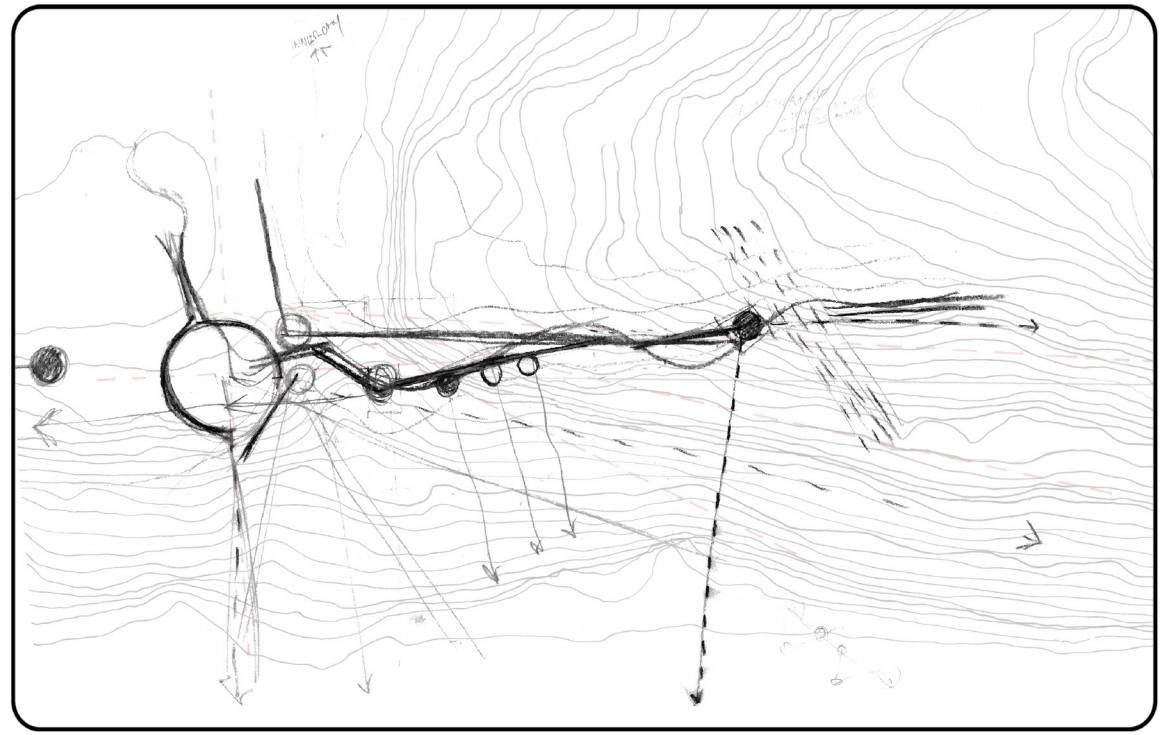


fig 10.11. Iterated sketch illustrating conceptual relationship between lines of programmatic interaction, site topography and potential structures. (by Author, 2015)

Design Finding

The design findings deal with the design processes, after the landscape has been understood and a thorough concept from which to depart has been developed. This section deals more specifically with the following:

- Plan development from landscape site analysis and concept through to various iterations as a landscape route building.
- Development and iteration of the route within the landscape.
- Development and iteration of the entrance into the landscape and the routes connecting programme-related buildings.
- Development and iteration of the mortuary bathhouses and viewing structure.
- Development and iteration of the chapel structure.
- Development and iteration of the mortuary and crematorium structures.

These pre-mentioned sections will be discussed in stages of iteration including plan development, sectional development, 3D model and elevation iterations, in order to gain more clarity from initial conception to final resolution of the various iteration stages.

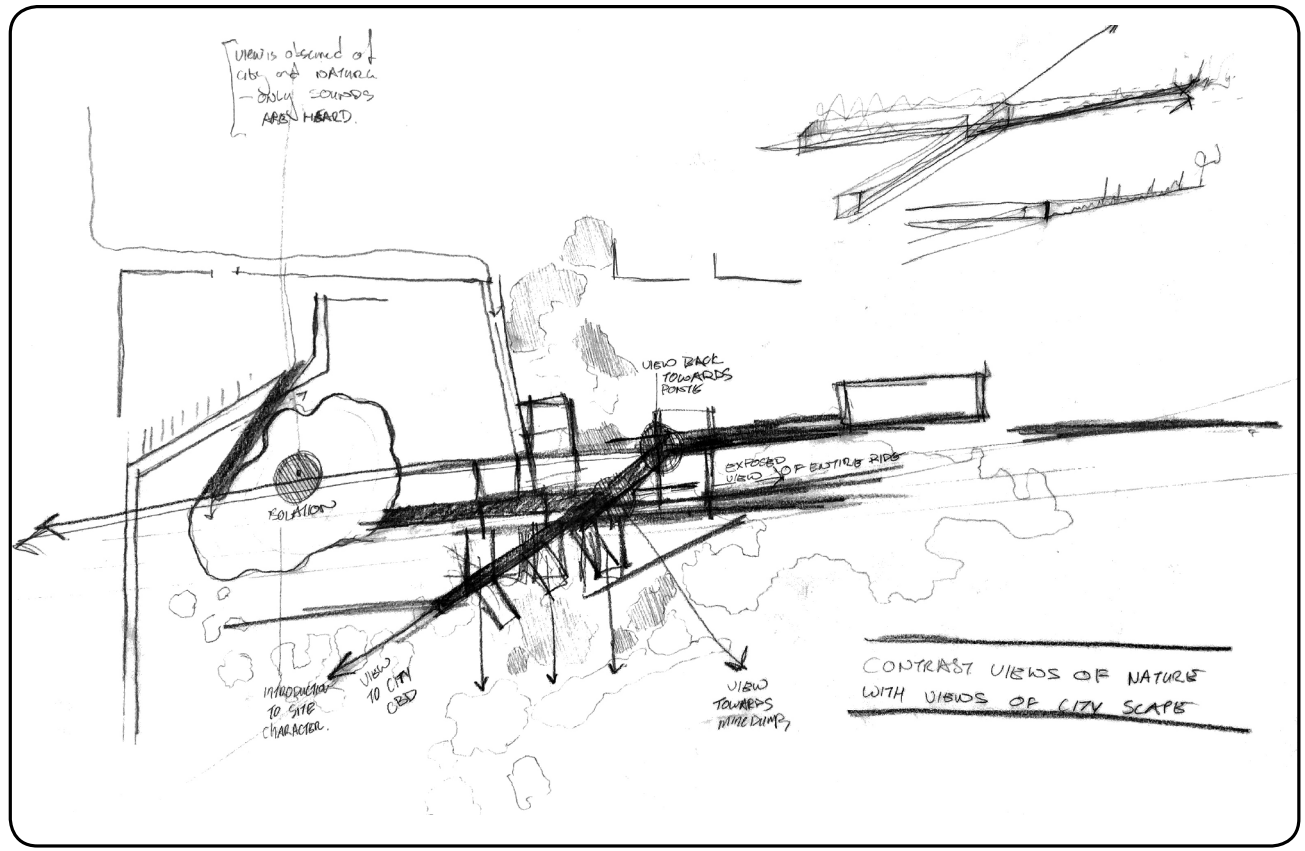


fig 10.12. Sketch illustrating an understanding of the conceptual approach in order to allow views, vegetation, programme and site to relate to one another. Allowing for a contrast to be made between views of nature and views of man-made elements. (by Author, 2015)

Design Finding - Plan

The plan developed from various iterations which emerged from a combined understanding of conceptual aspects and an analysis of the site, in combination with a programmatic understanding of funerary processes. The diagrams to follow illustrate changes made by the author and will be discussed briefly with each image. The overall plan development then shifted to individual iterations of each structure on site, keeping in mind the conceptual premise in order to create a seamless transition between structure and route, route and structure.

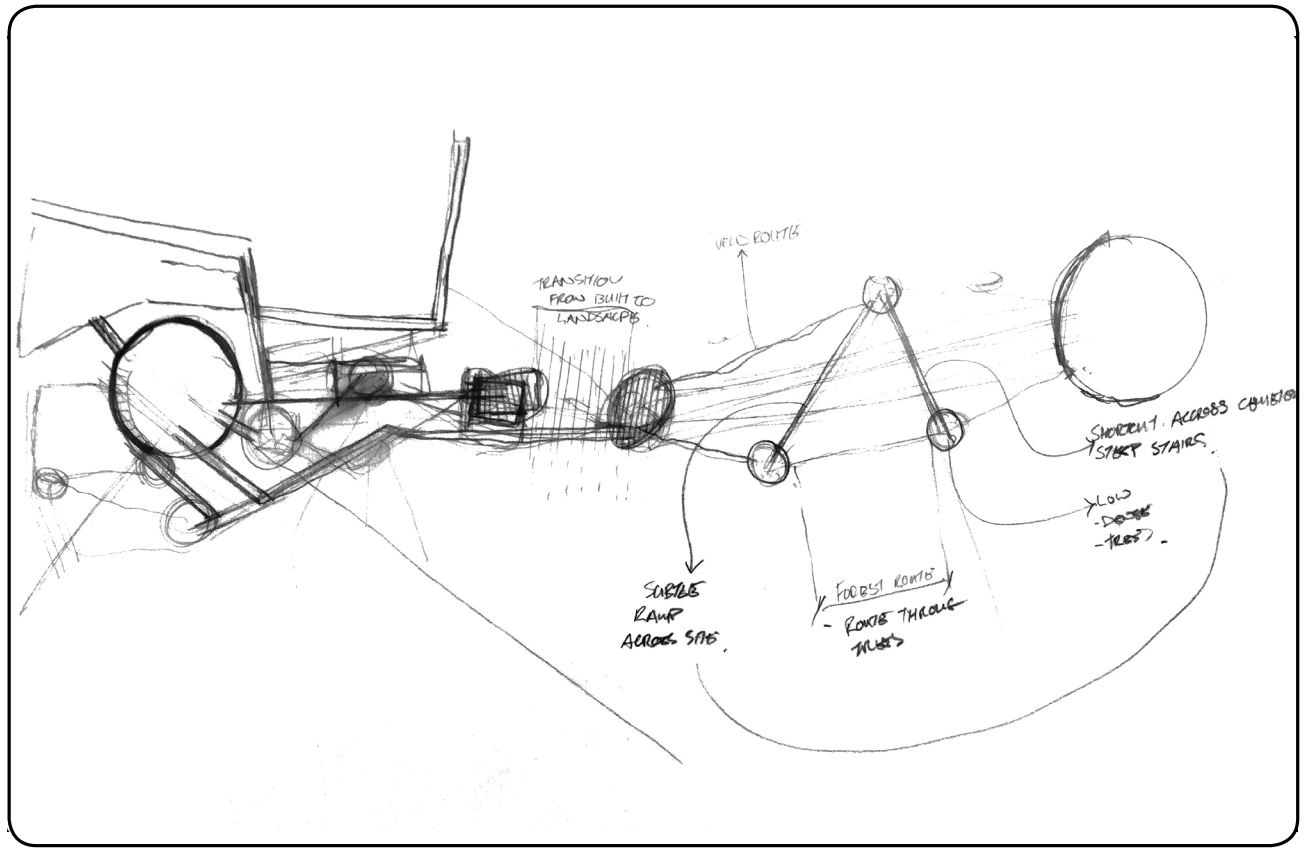


fig 10.13. Iteration sketch of the previous conceptual site diagrams in combination with conceptual understanding diagram of site, view, nature and man-made. Structure becomes more route orientated and combined with the landscape. (by Author, 2015)

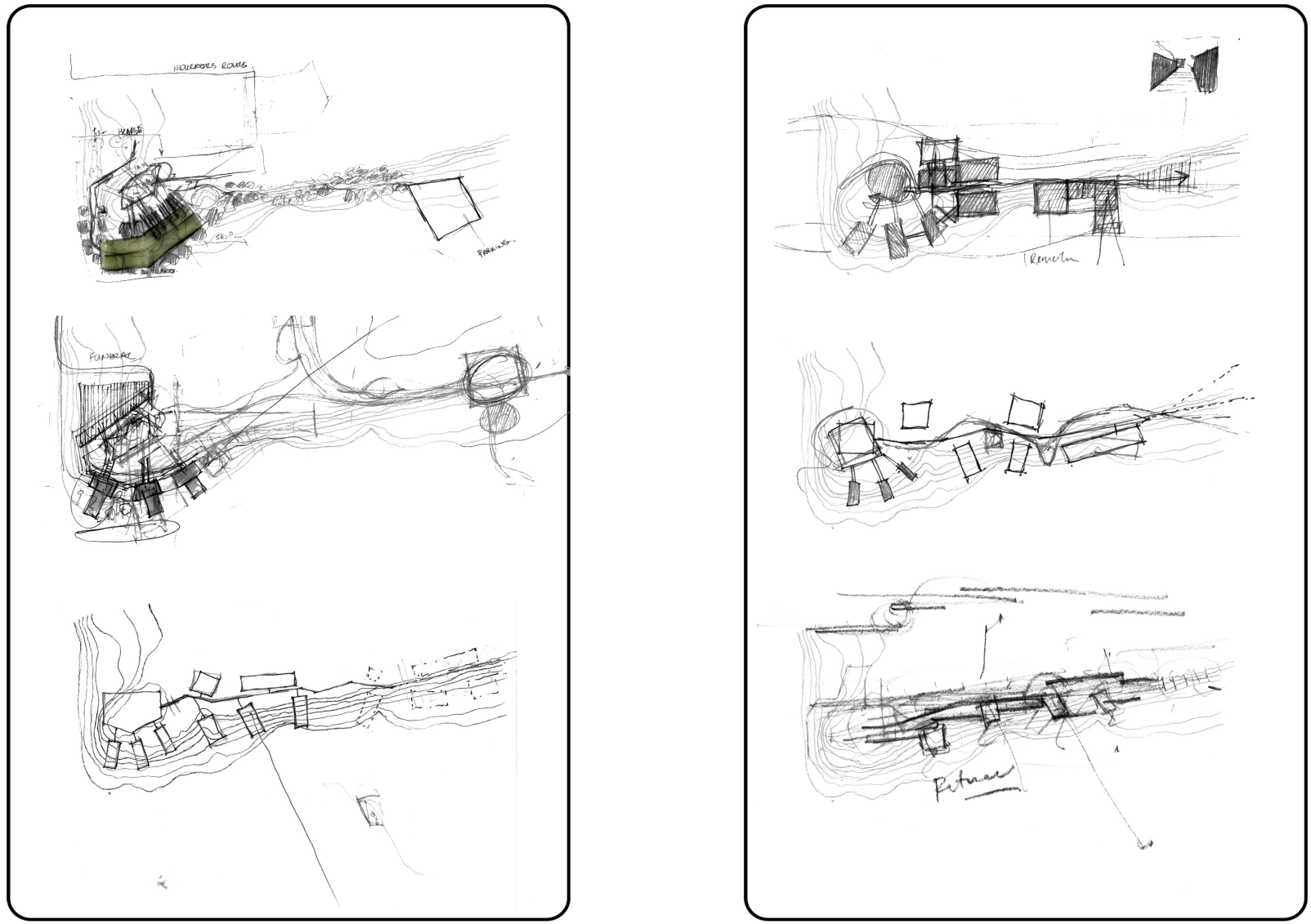


fig 10.14. This series of sketches illustrate planning iterations of the entire structure in response to site analysis mapping discussed in the previous chapter. The plan develops from a series of smaller interventions to a more centralised iteration which still maintains the idea of structure as route. (by Author, 2015)

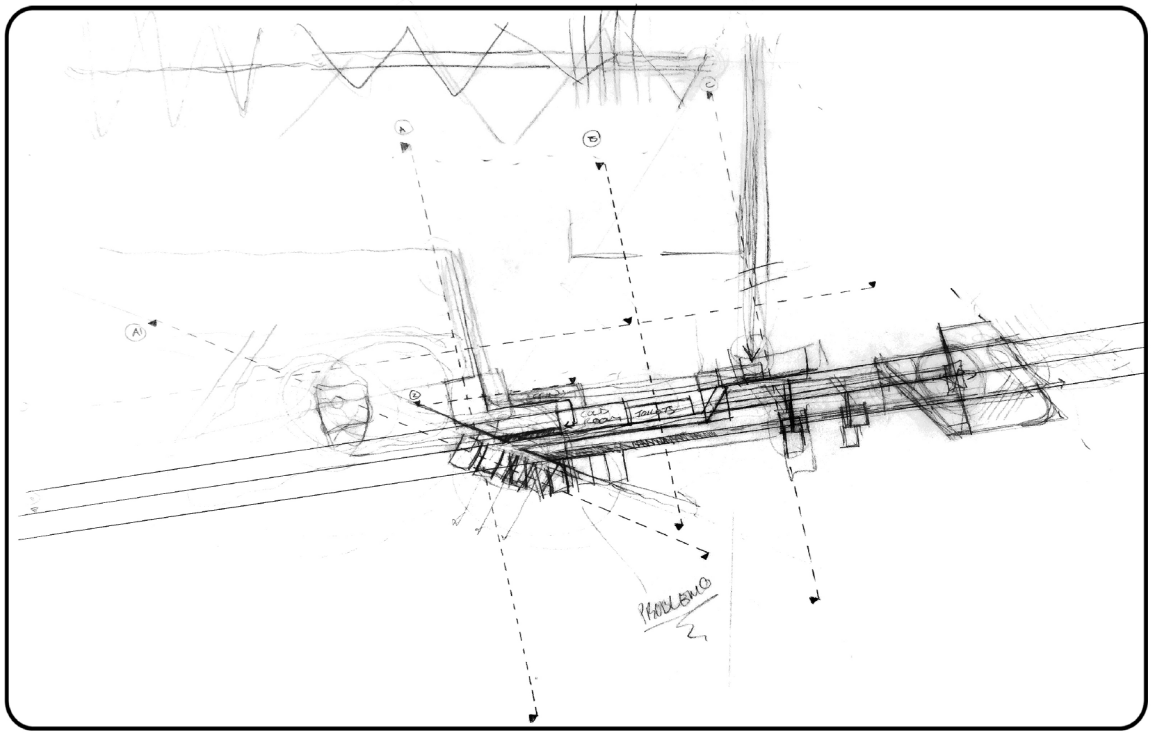


fig 10.15. Sketch 1 - Illustrates a linear approach to structure and the site as a result of the linear funerary processes explored. (by Author, 2015)

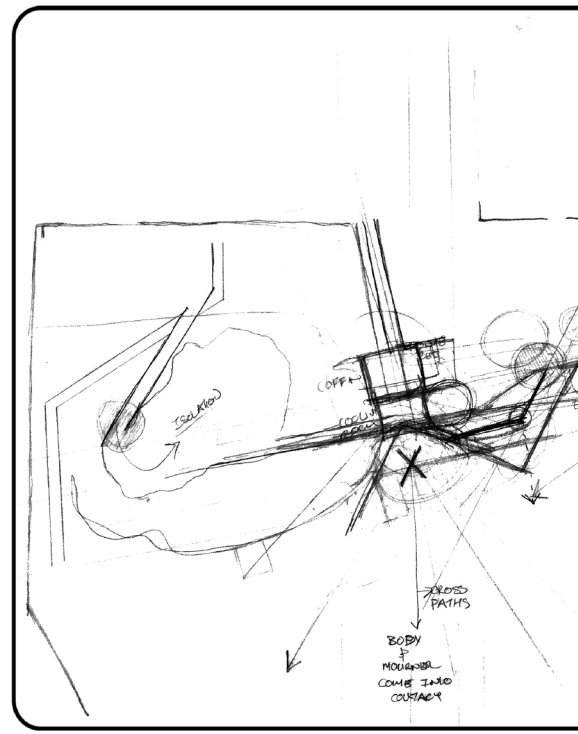
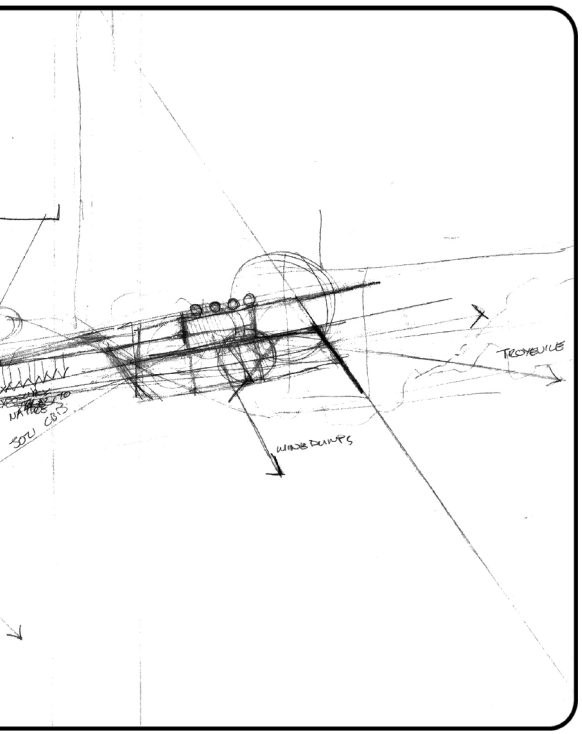


fig 10.16. Sketch 2 - Illustrates a linear approach to structure but with greater resp as natural water runoff from ridge. (by Author, 2015)



onse to the natural topography of site. This allows for views to be harnessed as well

fig 10.17. Sketch 3 - Illustrates a more finalised plan with response to landscape and views, with the addition of spatial layout of internal spaces. (by Author, 2015)

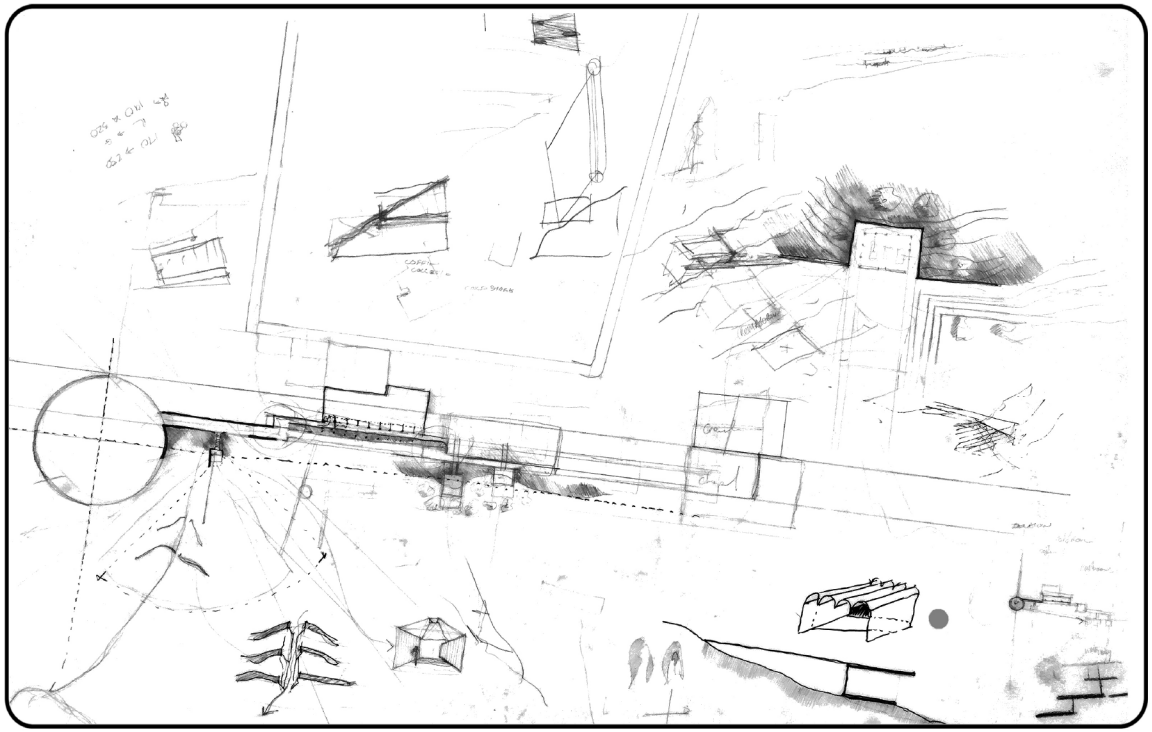


fig 10.18. Sketch 4 - Illustrates a more detailed spatial planning layout referring back to a completely linear plan. (by Author, 2015)

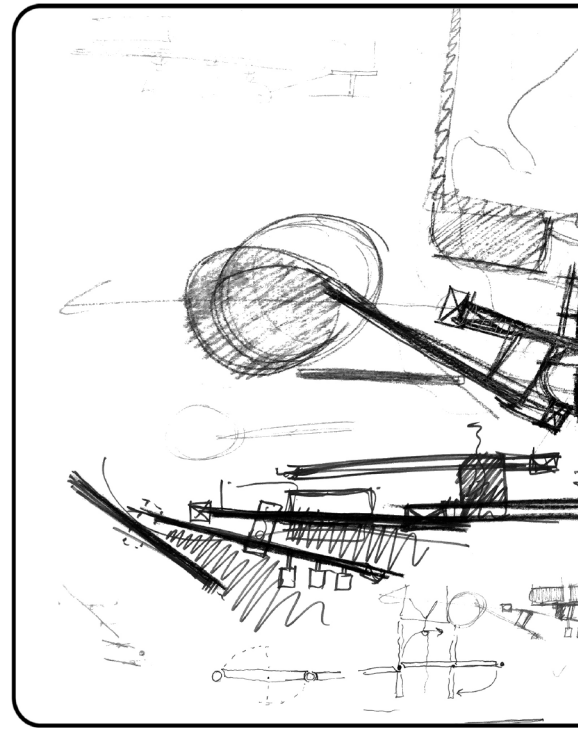
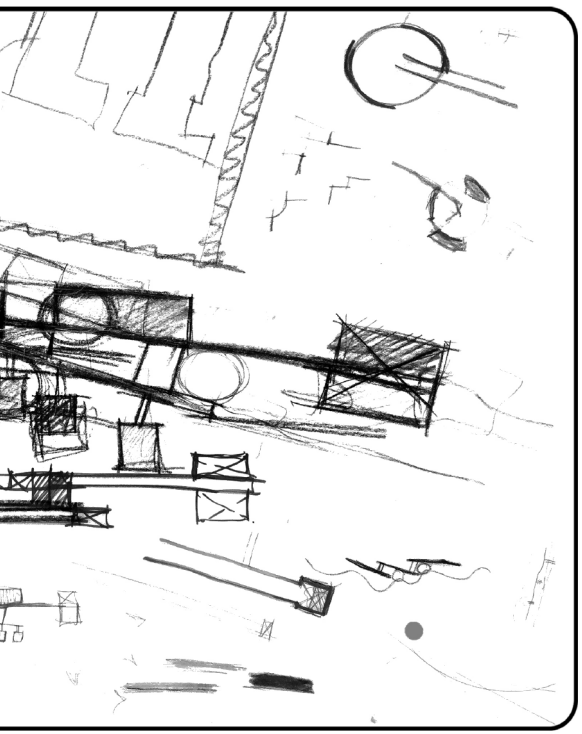


fig 10.19. Sketch 5 – Illustrates the route being broken into three main levels which c



correspond to site topography as well as programmatic categories. (by Author, 2015)

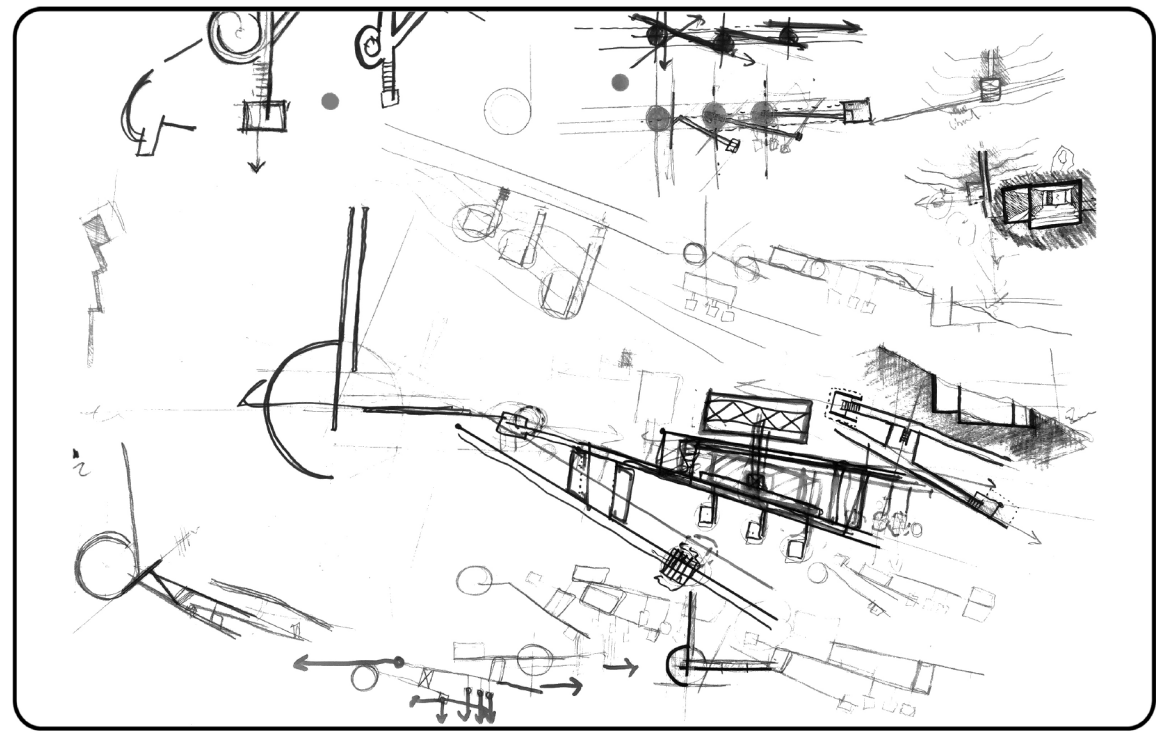


fig 10.20. Sketch 6 – Illustrates similar to sketch 5 but the planning design starts to refine around ease of movement and accessibility. (by Author, 2015)

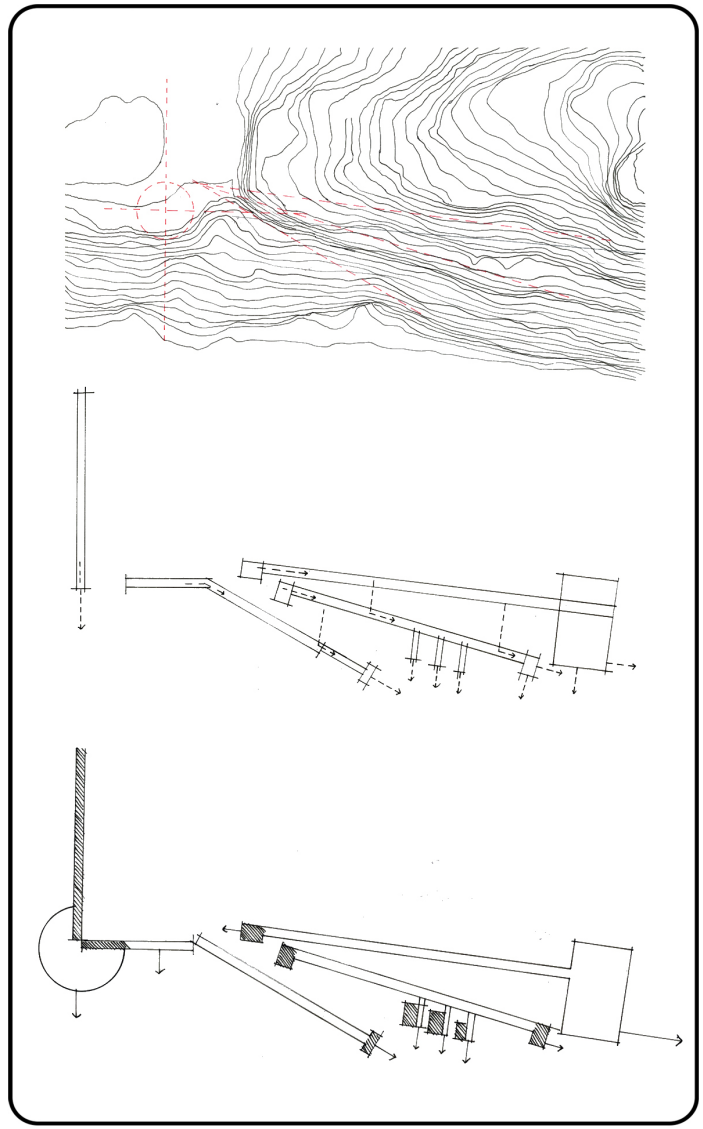


fig 10.21. Diagram 1 – illustrates the geometric composition between site topography and route.
Diagram 2 – Illustrates potential water discharge points throughout route structure.
Diagram 3 – Illustrates points of isolation and relief throughout journey. (by Author, 2015)

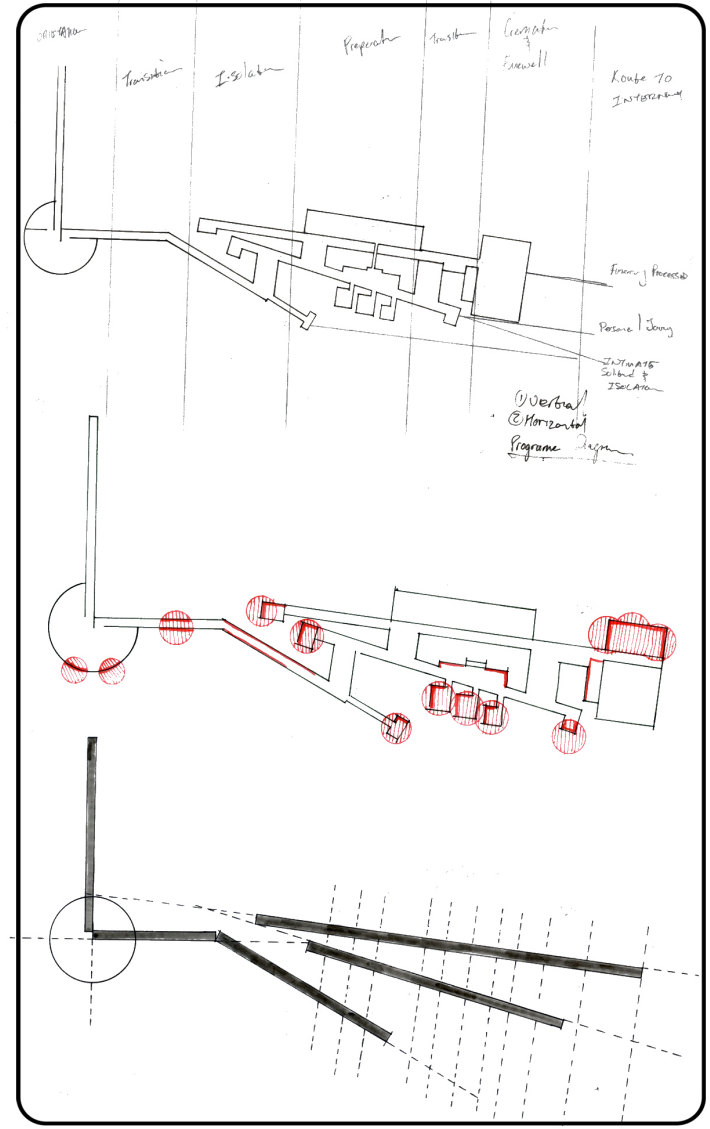


fig 10.22. Diagram 1 – Illustrates programmatic ordering of the route both horizontally and vertically.
Diagram 2 – Illustrates areas of tension between nature and man-made elements.
Diagram 3 – Illustrates geometries of proposed route structure. (by Author, 2015)

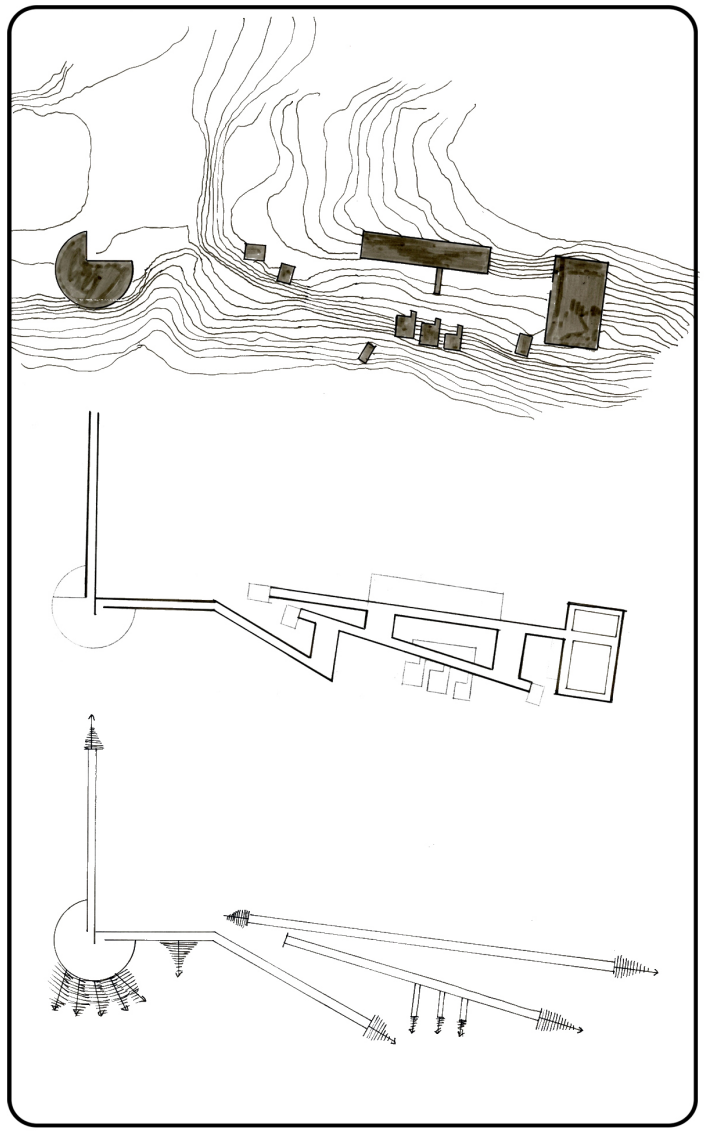


fig 10.23. Diagram 1 – illustrates the building footprints that cut into the ridge.
Diagram 2 – Illustrates circulation routes cut into ridge.
Diagram 3 – Illustrates point of access directly into landscape, where mourners and park users can walk into densely vegetated forests of open veld areas. (by Author, 2015)

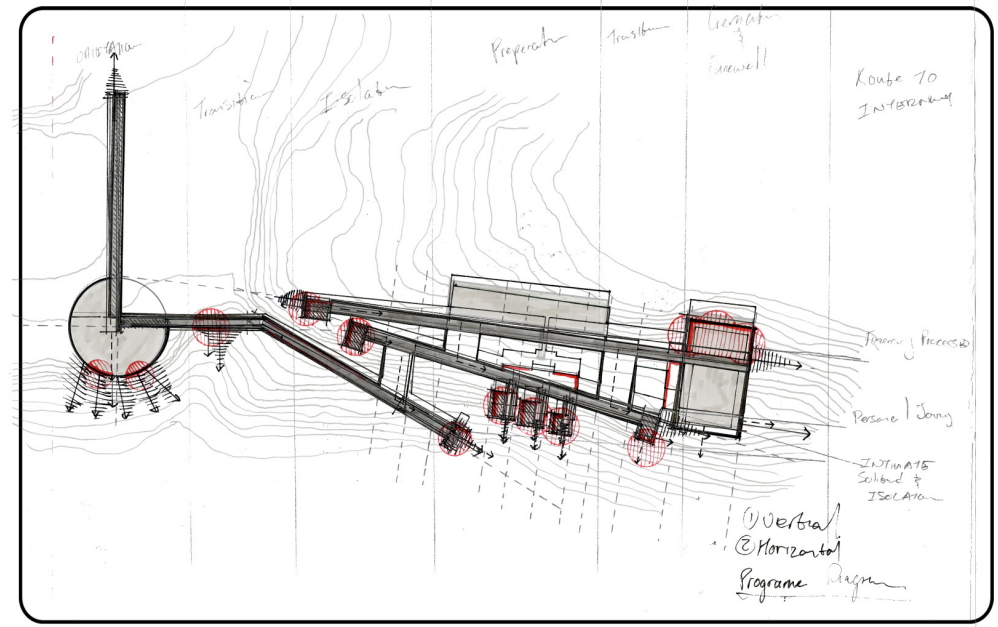


fig 10.24. This sketch illustrates the combination of all the previous diagrams overlaid ingot one diagram to show a coherent whole. (by Author, 2015)

Design Finding - Route

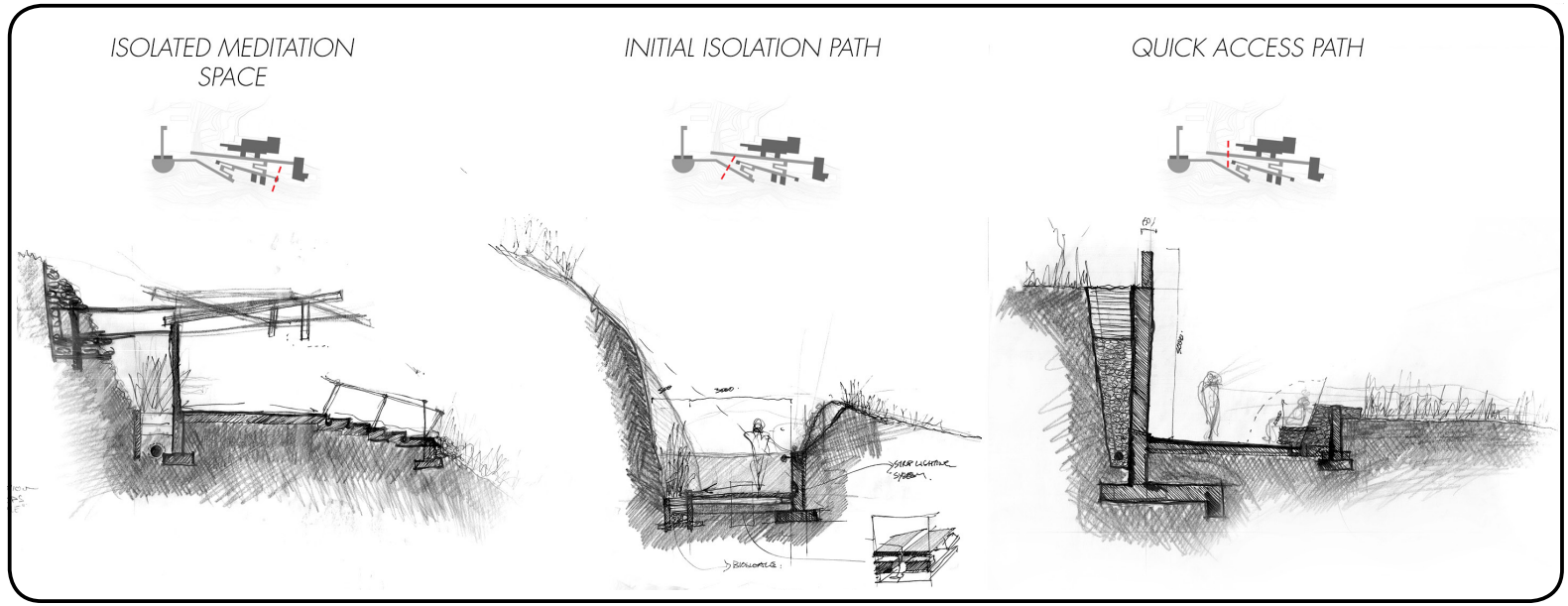
Each one of the three routes was developed in order to establish a specific experiential connection between journey, site and user. The three main routes can be categorized more specifically by the structure they support. The 1st route is that between the entrance courtyard and the viewing platform. The essence of this route is to inform the user of the geology of the ridge. It takes the user through a deep incision in the ridge which reveals and conceals views outwards at specific points, thus allowing the user to become orientated in relation to the ridge itself, the layering of the granite rock visible in the incisions, and the views made visible at specific points.

The 2nd route takes the user to the mortuary bathhouses and viewing structure. It introduces a softening of the harsh edges created by exposed rock through the use of linear bioswales which run along the length of the rock wall. This route leads to a secluded meditation space surrounded by rock, as well as a small pavilion at the edge where the user is once again able to meander into the landscape. This route becomes more constant in its edge conditions.

The 3rd route directs the user towards the chapel. Along all three routes the "spire" or roof tower is visible from various angles. This implies its importance as a monumental structure within the landscape. This 3rd and final route opens up to the landscape by allowing the user to have panoramic views of the city while moving towards the chapel. The route becomes narrow as it reaches points of interest in order to slow movement and create moments of pause. The path leading into the chapel moves across a large body of water which is bordered by a rock face to the north and veld grass to the south.

All three routes expose different types of intimacy and isolation within the landscape. They respond to each structure in a manner which prepares the user for the programmatic implications of these structures.

fig 10.25. Sections illustrating change in spatial experience as the park user or mourner pass through the routes to get to structures or to access th park. (by Author, 2015)



Design Finding - Entrance

The entrance passage leads from the parking space and slowly descends into the landscape, revealing the geology of the site and at the same time concealing the surrounding urban context. The ramped path guides the user's perspective to view the mine dumps and koppies in the distance, which can be argued to be constructed nature or alternate geological agents as a result of urbanisation. Reaching the base of the ramp the user is completely surrounded by excavated granite rock which forms a circular gathering space from which the journey to the landscape building starts. By concealing and revealing certain elements, the user is enabled to experience the character of isolation intrinsic to the ridge. In the circular entrance courtyard administrative offices and restrooms are submerged beneath the natural ground line, concealed from above. The geometries evident in the design approach of the semi-circular entrance courtyard were informed by various rituals and built structures on site, as well as the geological formation of the ridge itself at the specific point. The higher parts of the ridge, also known as God's Land, play host to ritual Pentecostal gatherings which find the congregation seated or dancing in a circle. Another geometric informant is derived from the base of Ponte City and the shape of the ridge topography. The boundary of the circular space cuts into the landscape on the one side and reveals the views of distant koppies and mine dumps.

The iteration process developed from the excavation of the footprint of the existing ruined church into a semi-circular courtyard which is situated on the edge of the ridge in order to preserve important views of the city and its historical development. The courtyard is also partitioned in such a way so that members of the Pentecostal community can take part in outdoor ritual activities while mourners taking part in a funeral can bypass them by using a pivot wall which acts as screening device. From the submerged courtyard users are also able to directly access the grassy landscape.

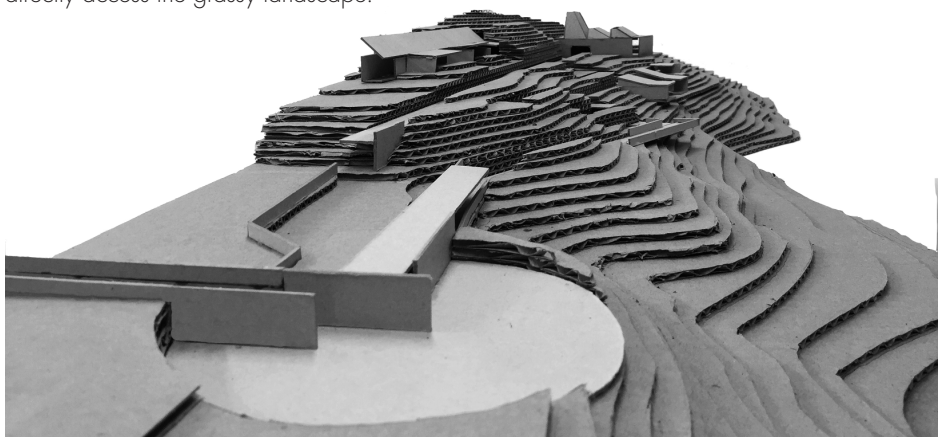


fig 10.26. Image of model showing the Entrance courtyard that opens up onto the landscape and overlooks the city. (by Author, 2015)

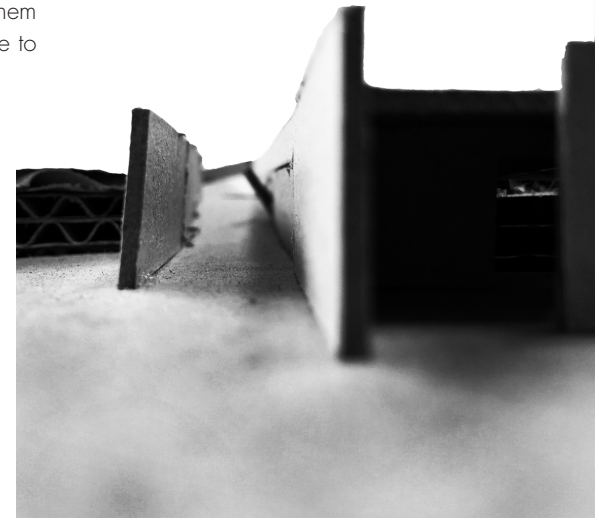


fig 10.27. Image of model showing the ramped walkway leading to the Entrance courtyard. (by Author, 2015)

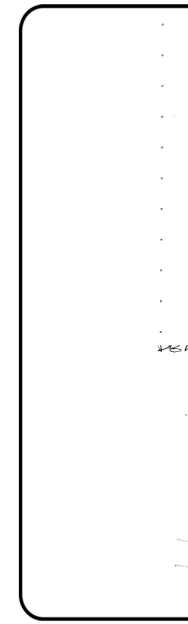
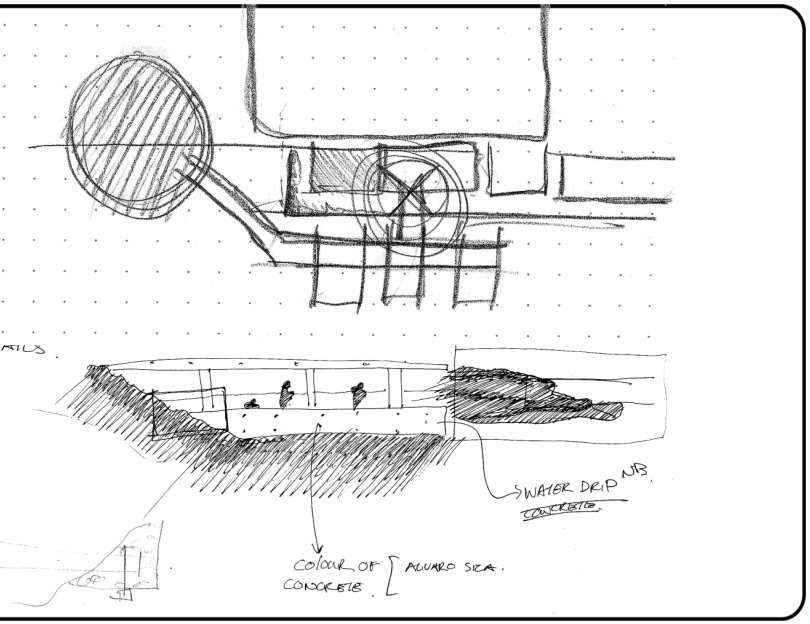


fig 10.28. Sketches illus

Iteration – Plan and Model

- Key ideas

Sketches illustrating how the entrance from the parking area was developed in order to respond to the topography, surrounding structures and spiritual needs of those in the surrounding areas. An exploration was undertaken to develop a geometrically sound entrance courtyard which seamlessly connects with the routes leading to the structures. The courtyard opens up onto the ridge, allowing for users to wander down into the natural veld grass below.



trating geometric exploration of entrance courtyard and elevation view of route from courtyard. (by Author, 2015)

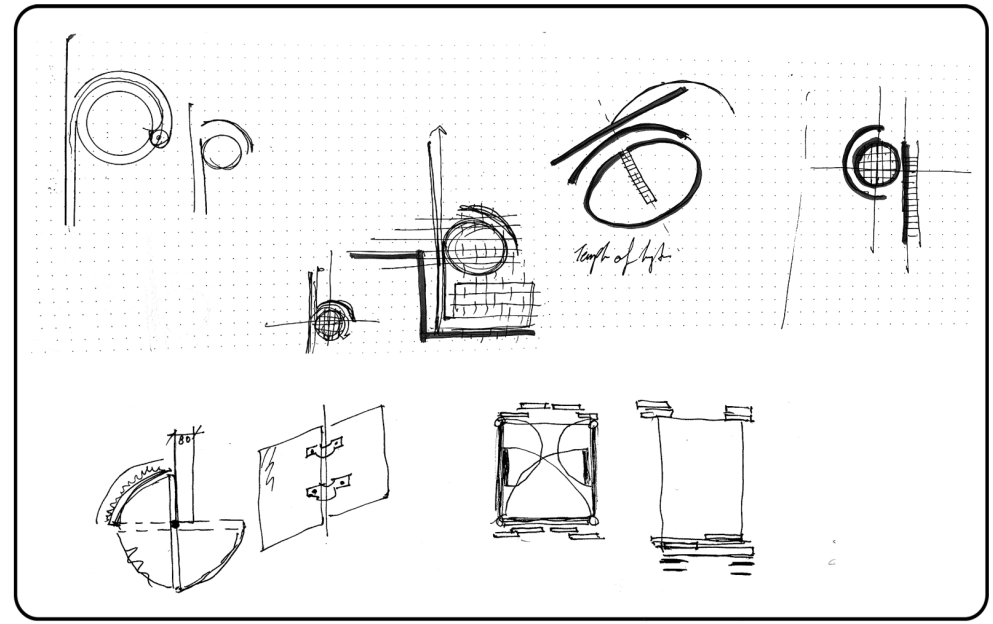


fig 10.29. Sketches illustrating geometric exploration of entrance courtyard and pivot wall that allows the courtyard to be used as group prayer platform. (by Author, 2015)

Design Finding - Mortuary Bathhouse and Viewing

While moving along the path, the user becomes surrounded my exposed granite rock walls that form a path towards a lookout point and place of rest. The place of rest slightly extends out of the landscape in order to reveal a view towards Troyeville Koppie which is opposite Observatory Hill. A seat constructed out of granite stone has been excavated from the site. At this transition point in the route the user is able to move up stairs cut out of rock in order to ascend towards the mortuary bathhouse and viewing structure on a higher level, or has the option of descending down into the natural landscape where paths intersect one another in the ridge landscape. These landscape paths are of a more subtle nature as they become overgrown with veld grass and covered by large indigenous trees. Upon arriving at the second level of the funerary route, the user can move left onto a narrower path which leads to an isolated reflection space completely surrounded by exposed granite rock, with a small pond in the centre in which rainwater which runs down the rock gathers and then drains out into the landscape. To the right of the landing the user can move towards the viewing structure and mortuary bathhouses. Along the path towards these two structures are bio-swales which gather surface runoff and through a filtration process allow water to be stored for the ritual cleansing of the body of the deceased.

The viewing structure and mortuary bathhouses are nestled slightly lower into the rock along the edge of the path, allowing for privacy for those passing through. These basic structures facilitate the ritual cleansing of the body of the deceased by the family or close relatives, should they choose to take part in this intimate yet essential ritual. The entrances of these structures allow the users to once again have a glimpse of the horizon. The catafalque is set back against the cut granite rock and seems to extrude out of the rock. While the body is placed on the catafalque it is illuminated by natural light which shines down a narrow slit in the northern façade in order to create an alternate lighting condition that enhances the intimate experience of the process. The southern façade of the structure opens up onto the landscape with a concrete fin structure with an infill of fixed glazing. Due to the height of the structure and the dense vegetation of indigenous trees isolation is sustained, allowing for privacy from park-users using the landscape route below.

From the bathhouse structure the body is moved back to the mortuary or chapel by means of a platform lift which is accessed before ascending up another staircase to the final circulation level.

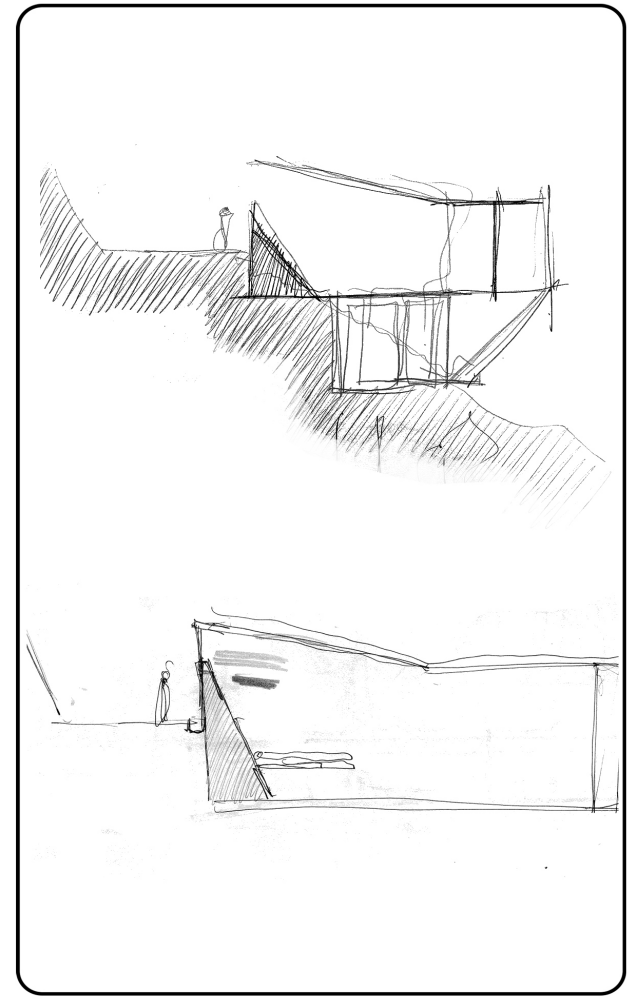


fig 10.30. Sketch sections through mortuary bathhouse illustrating separation from walkway and use of granite rock as internal wall. (by Author, 2015)

Iteration – Plan and Model

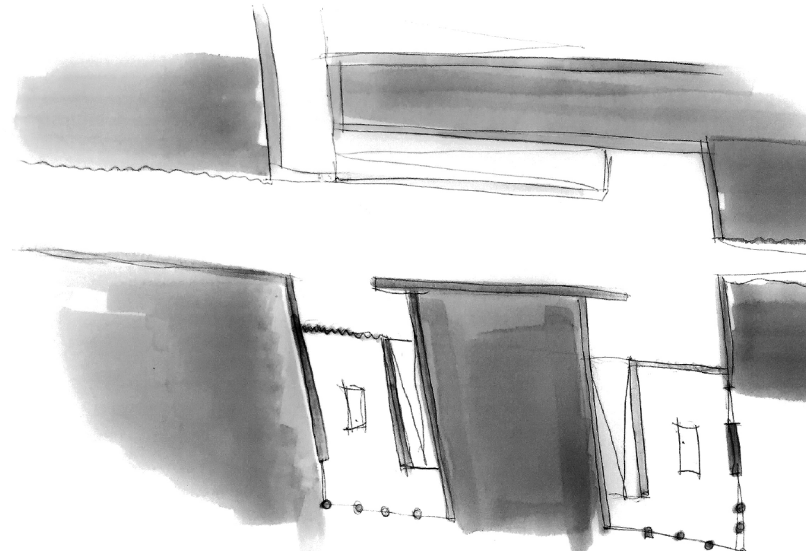
- Key ideas

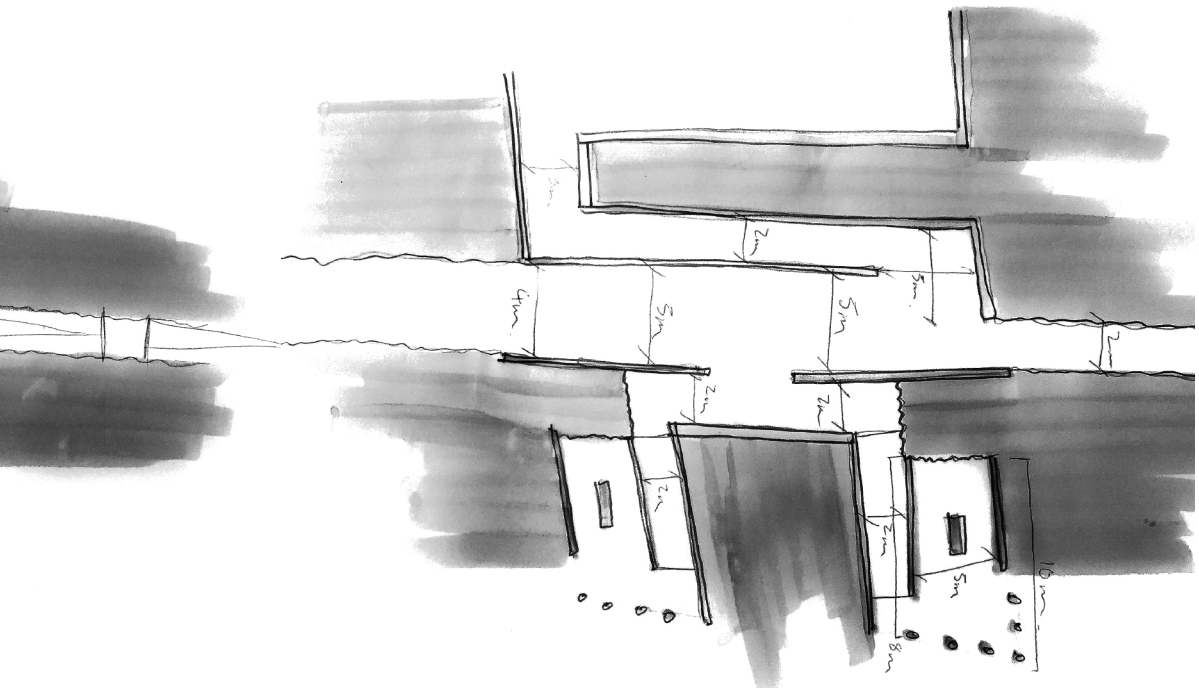
Sketches illustrating how the entrance to the mortuary bathhouses was developed in order to use the ridge as structure, but more importantly, create intimacy and privacy for the viewing and cleansing processes. These sketches explore points of access and level differences in order to use exposed rock as structure.

- Main Iterations

Structures were lowered deeper into ground in order to create more privacy from users passing by. This also allows for more rock to be exposed. The entrance was also moved to the front of the structure in order to isolate it from the main path. These iterations aided in the creation of privacy and isolation.

fig 10.31. Plan development of Mortuary bathhouse. (by Author, 2015)





Design Finding - Chapel

The chapel is approached from the final circulation route which extends from a lift structure for use of the disabled and elderly on the most western point. Upon approaching the chapel, the user moves across a narrow walkway surrounded by exposed granite rock on the left and a large water body on the right. The water body extends out into the landscape into the veld grass, exposing a view of the city in the distance. The highest point of the chapel roof structure is visible from different glimpses and angles which place emphasis on the importance of the structure. The exterior of the chapel is constructed from off-shutter concrete which blends into the exposed granite incisions. The entrance to the chapel space is emphasised by a narrow flat-roofed structure which extends from the main structural beam supporting both the northern and southern roofs. The view into the chapel from the entrance places emphasis on the body which can be seen on the catafalque from a distance. Mourners do not enter directly in line with the coffin but at an offset so as to allow them to pass between the catafalque and the pews.

Once inside the chapel, mourners pass a dry-packed granite catafalque on which the coffin rests. It is positioned in such a manner that exposed rock is visible in the background to the north and east of the chapel, while the south is open to the view and the west wall is of cast off-shutter concrete. The roof structure allows for a hierarchy and intense definition of realms within the chapel. Above the catafalque, pulpit and prayer space is a large concrete roof which slopes along the lines of the ridge in order to maintain the integrity of the ridge. This allows for bright northern light to filter through veld grass onto the catafalque and coffin and, as the angle of light changes, it illuminates the exposed northern rock wall which supports the structural roof fins. This grand space contains a volume that connects the body with the heavens – a space which allows for a cave-like experience of echoes and isolation, a spiritual space in which the deceased can be respected and bid a final farewell.

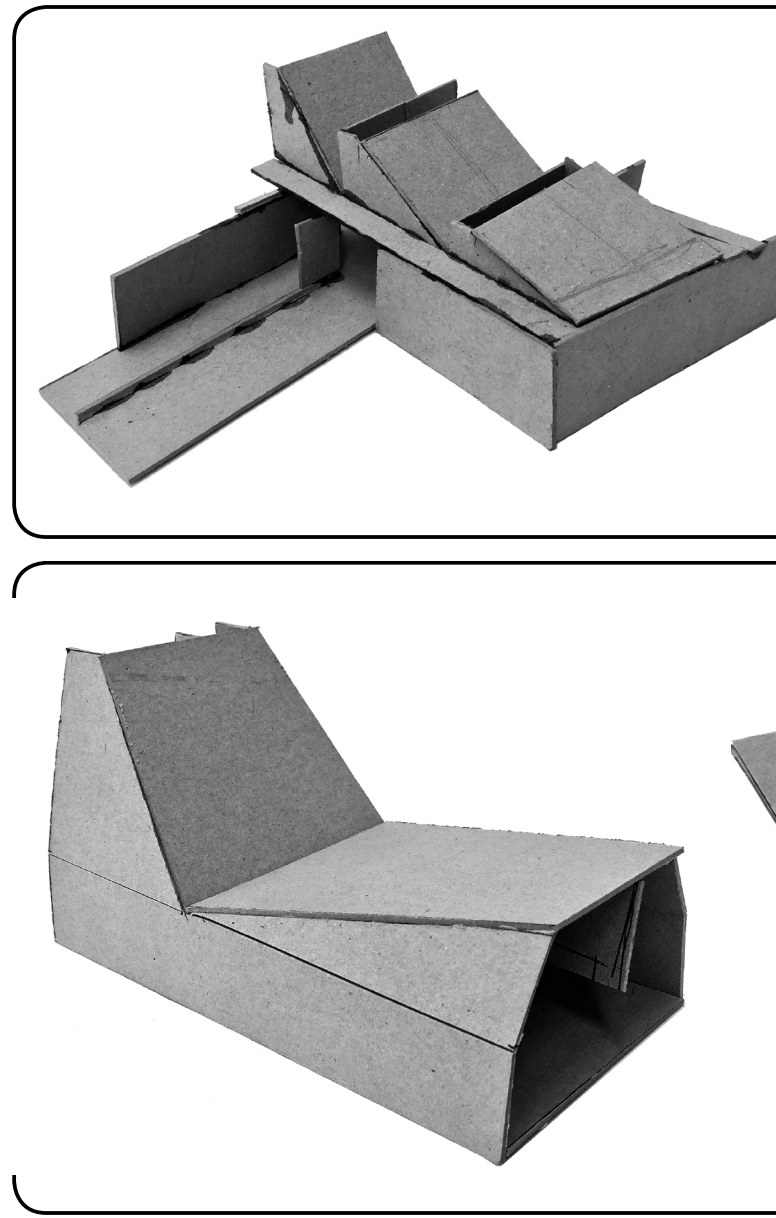
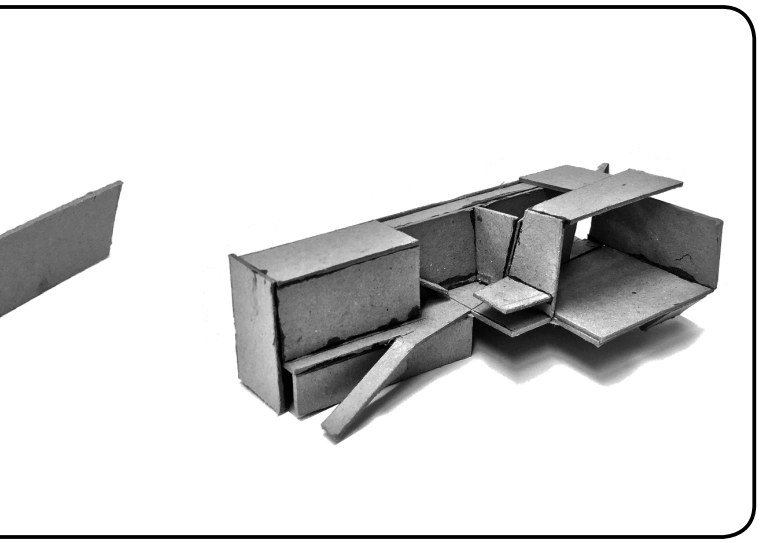
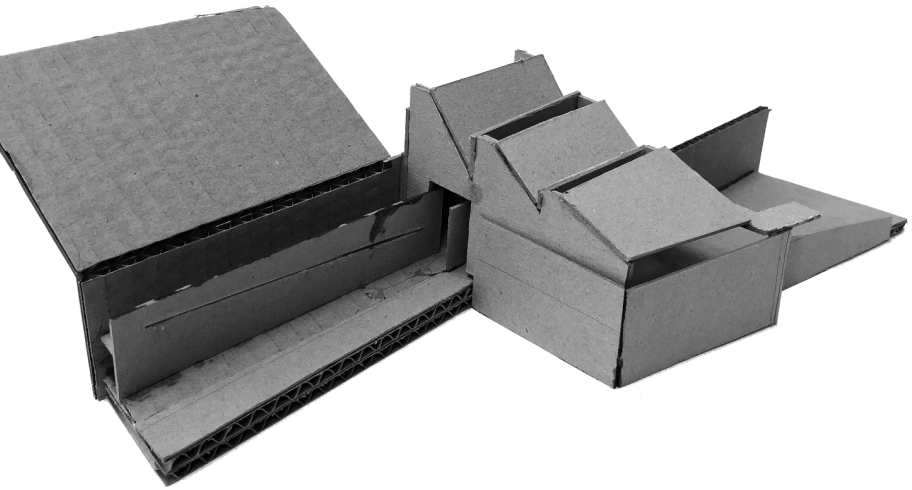


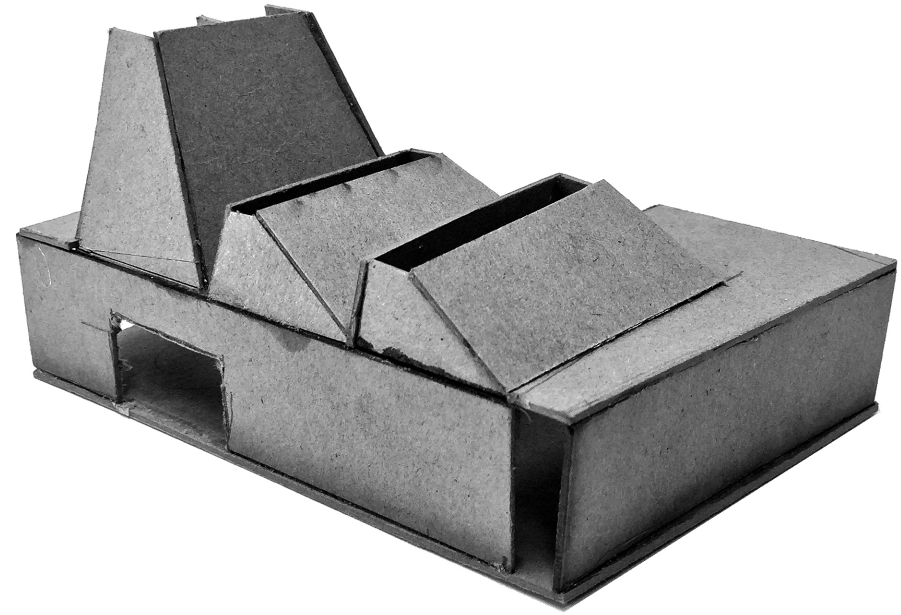
fig 10.32. Iterative process illustrating development of models. (by Author, 2015)



As time passes, water will seep through the rock, staining the granite. This form of weathering of a natural element reminds us of the living and the dead and informs our mortality. Carved into the rock face are shelves which house candles that can be lit at any time in commemoration of those passed. To the southern side of the chapel are the pews, which face the catafalque, pulpit and exposed rock in the background. The seating space is defined by structural beams which extend from within the rock face to concrete fins at the southern end.

The depth of the beams extend lower so as to emphasise the realm in which the mourners are seated, which is clearly distinguishable from the circulation around the seating. The roof structure above the circulation and seating areas opens up towards the south. This allows a constant penetration of light between the fins. Apart from the prayer space at the base of the rock wall, there is a more intimate space concealed by two walls extending into the landscape. This space frames a view along the length of the ridge towards the routes leading to the burial tombs. As at the entrance of the chapel, the mourner is led out by a flat roof which extends into the landscape. Once again a smaller water body is presented as an edge between building and natural vegetation. The courtyard space upon exiting the chapel houses bathrooms for use before entering the landscape. This space allows the user to seamlessly transcend into the natural landscape.





Iteration – Plan and Model

- Key ideas

Sketches illustrating how the plan development of the chapel from a linear structure placed along the length of the ridge, to spatial planning used to define spaces between mourner, body, priest and prayer space. Initially the crematorium was part of the chapel for ease of programmatic functionality.

- Main Iterations

These main iterations show the development of the plan which ended up not incorporating the crematorium as part of the chapel, the reason being that the exposed rock would not be visible during the service but only to those who choose to view the cremation process. Thus the crematorium was moved closer to the coffin collection room and mortuary, allowing for both chapel and crematorium to use the exposed rock as structure. Circulation was also explored within the chapel, and various realms were created to emphasise a hierarchy of spaces.

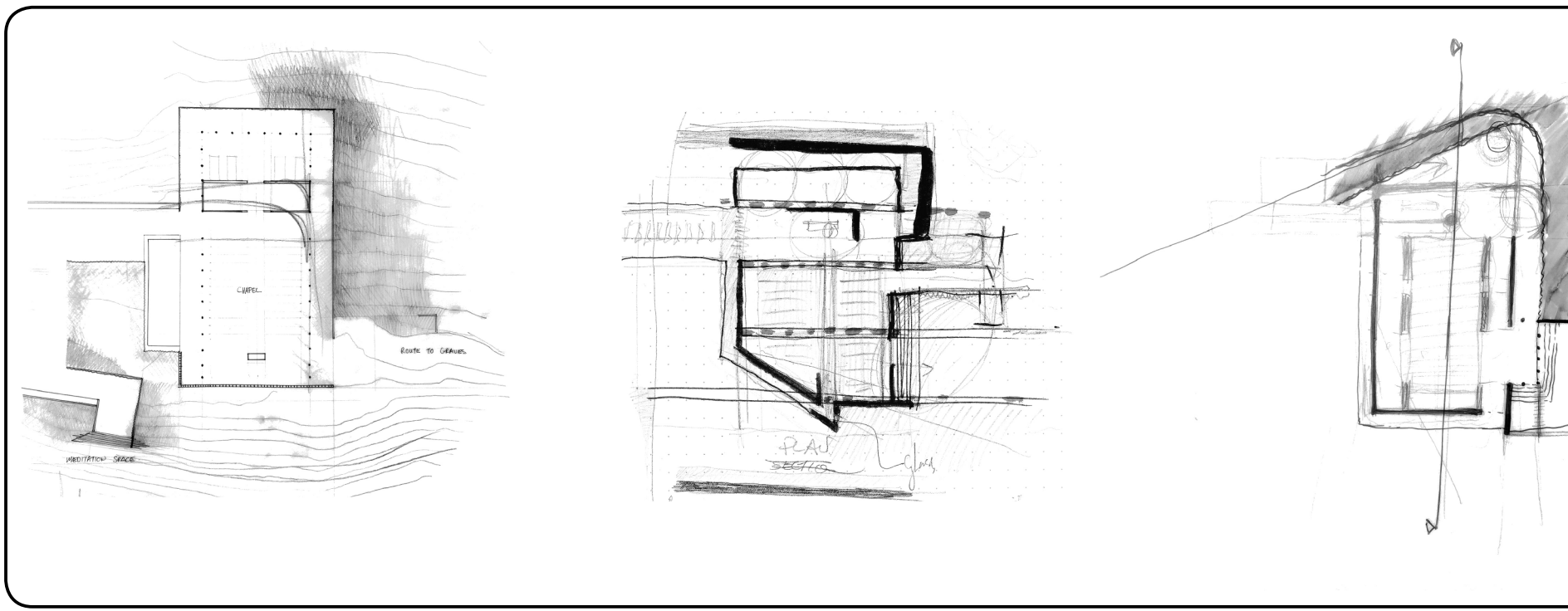
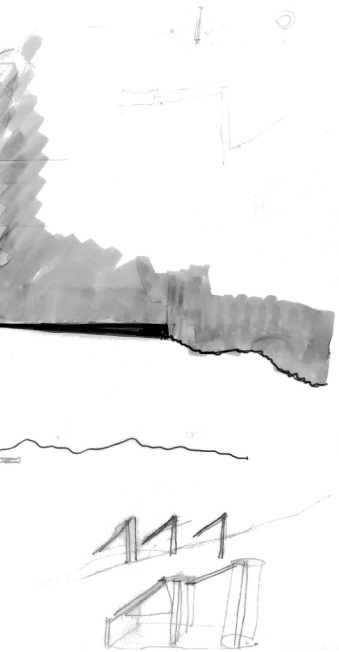
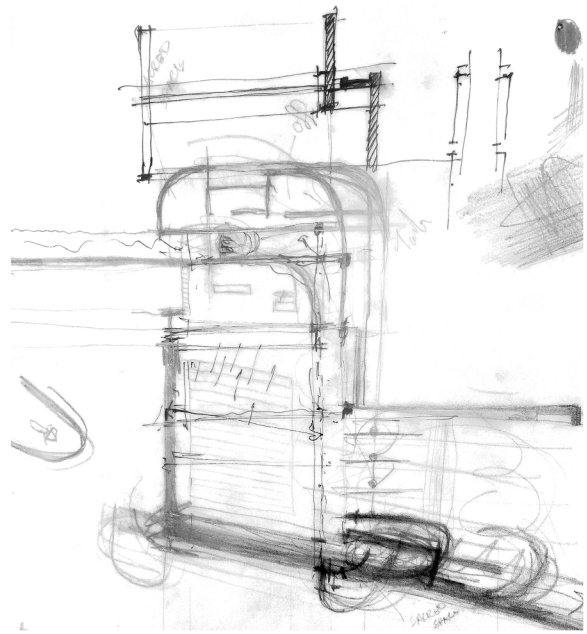
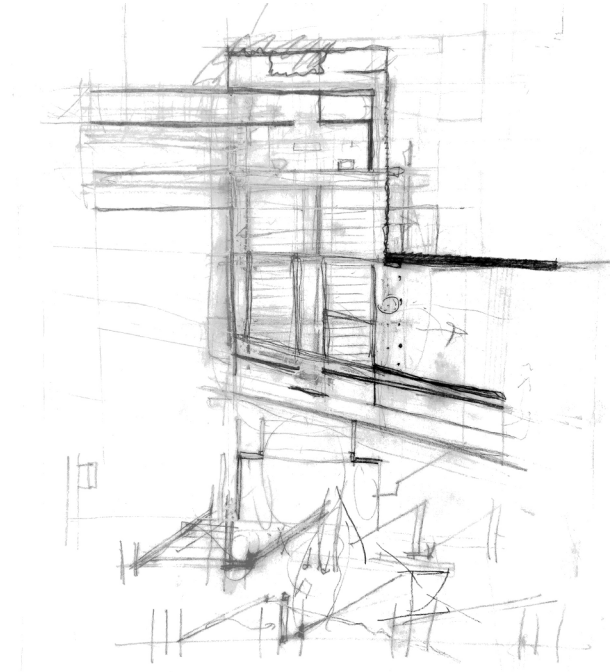


fig 10.33. Sketches illustrating the iterative process of chapel plan development. (by Author, 2015)







Iteration – Roof Structure and Section

- Key ideas

Sketches illustrating how the development of the chapel roof structure. The roof of the chapel was designed to fit into the natural slope of the ridge at a specific point. The roofs of the bathhouses and crematorium are also designed to fit into the shape of the ridge but have different pitches. This places emphasis on the chapel as the main structure, with the crematorium second and the bathhouses third.

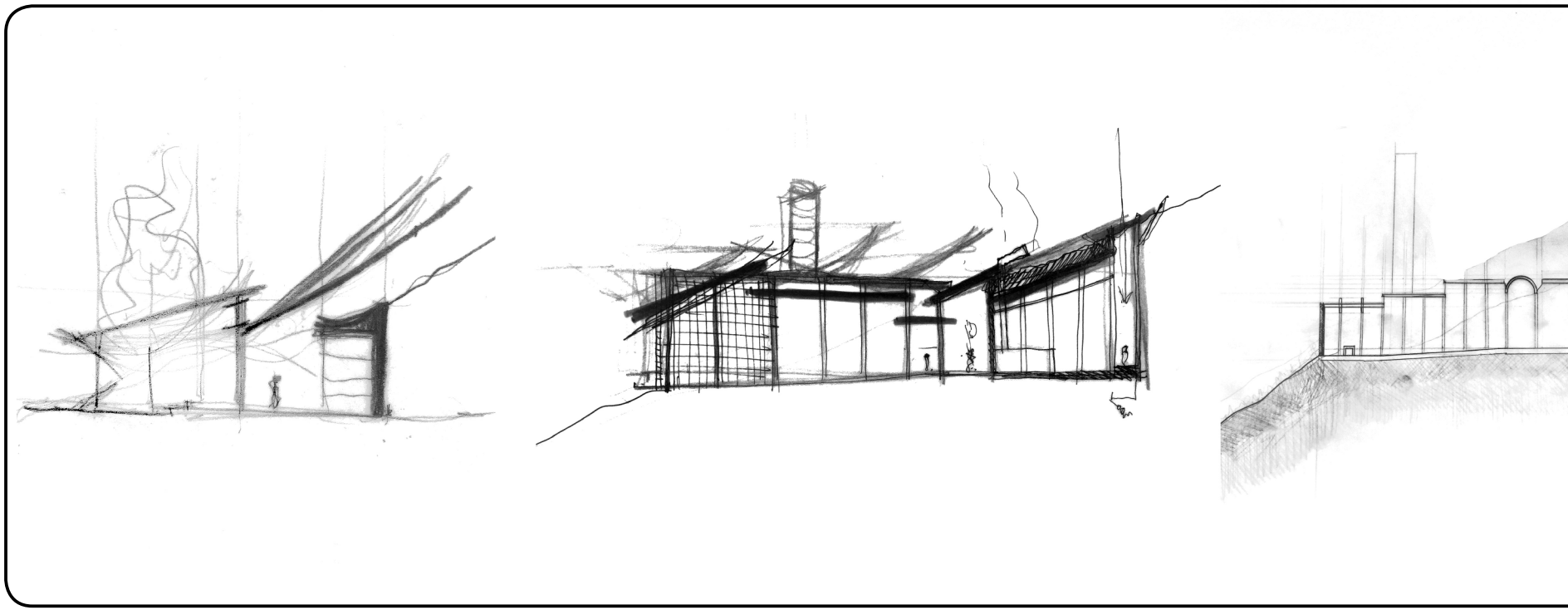
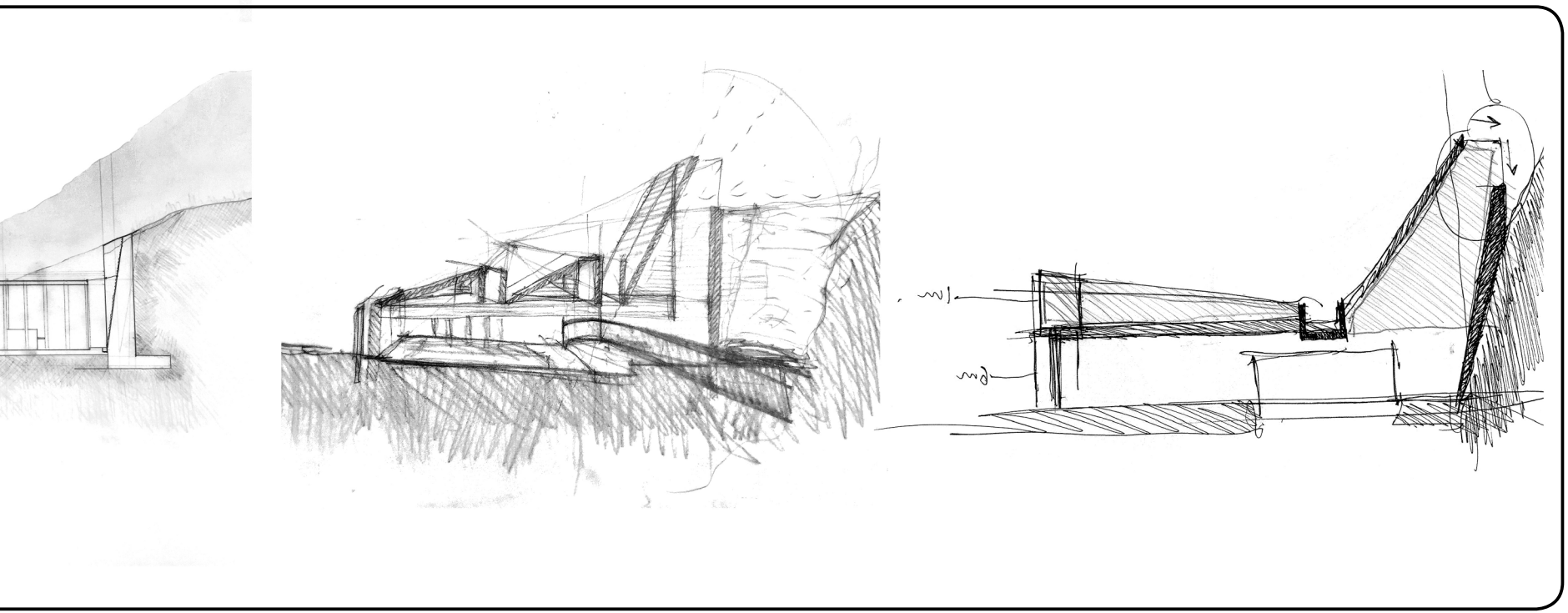


fig 10.34. Sketches illustrating the iterative process of chapel section development. (by Author, 2015)

- Main Iterations

The iterations evolved from a flat-roofed structure that extended out of the landscape to pitched roofs which slope with the landscape. The number of pitched roofs were reduced in order to place emphasis on the main tower. The slope of the roof above the congregation was inverted to face south in order to allow light to penetrate. Due to the sheer pitch of the main chapel roof tower, smaller northern roofs above the congregation would not have allowed sufficient light to enter.

Precast concrete panels covering the waterproofing of the chapel roofs were replaced with packed granite rocks and a roof garden in order to hide exposed waterproofing from views from above. The chapel tower which cuts into the ridge is packed with rock, while the roof above the congregation is a green roof of indigenous veld grass.



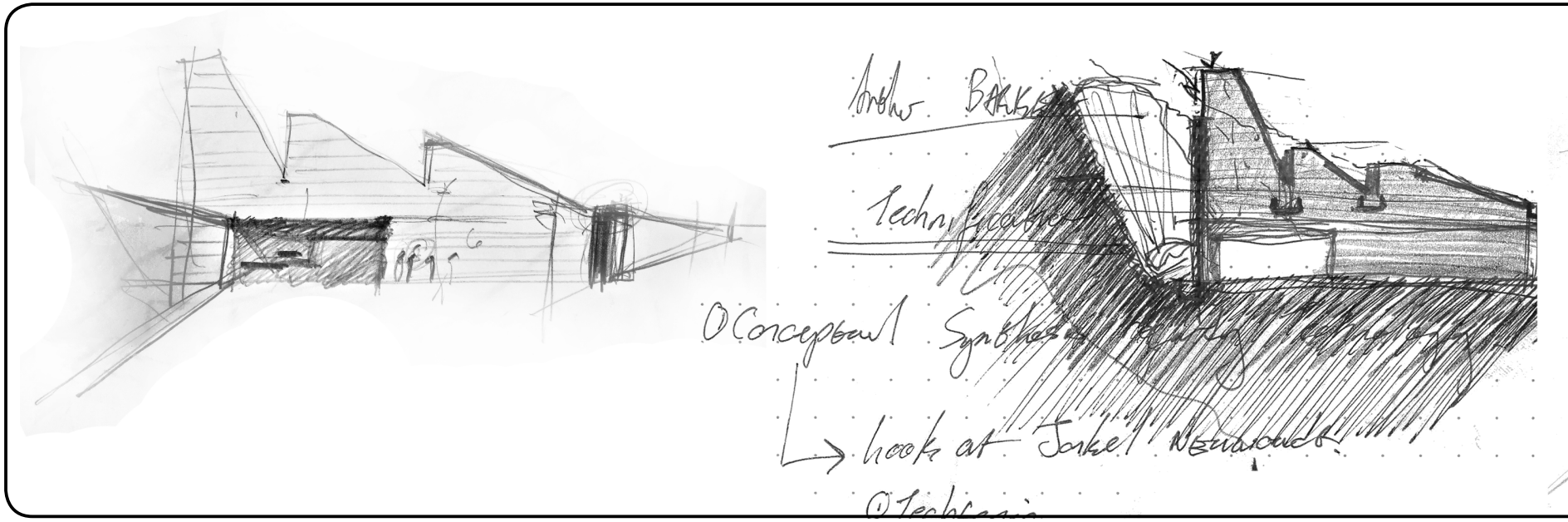
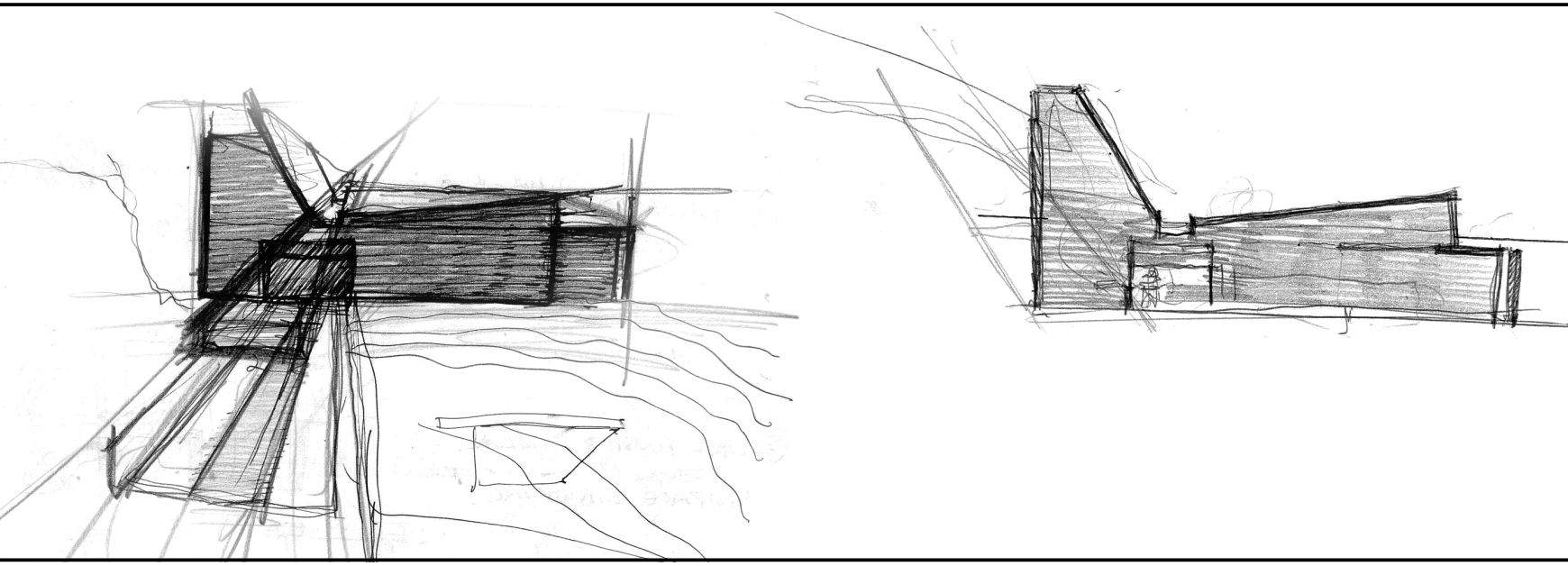


fig 10.35. Sketches illustrating the iterative process of chapel elevation development. (by Author, 2015)



Design Finding - Mortuary

The mortuary and crematorium structure forms an integral part of the design. The mortuary structure transitions from being an exposed structure into a completely submerged cave-like structure within the ridge geology. The mortuary and crematorium building was conceived as an experiential structure through which the body of the deceased is moved. The family of the departed is also given the opportunity to accompany the deceased as it is moved through various waiting and preparation stages within the structure. The body enters the structure through a large doorway into the coffin collection store room. Here the body is paired with a coffin or urn of choice. The body then moves through to the mortuary where it is cold stored and awaits burial or cremation. The entrance to the coffin collection room is exposed to the landscape on both sides, but while moving through it, it becomes evident that the structure is cutting into the ridge. The coffin collection and mortuary rooms become more submerged within the ridge as the body and family progress through the structure and the preparation process.

The roof structure of the coffin collection room and mortuary consists of planed roof gardens which cover the top of the structure, as it is visible from Ponte City, Joe Slovo Drive and the top of the ridge. These roof structures rise out of the ridge landscape at small intervals to allow northern light to enter the coffin collection and mortuary areas. The body moves from the mortuary to the crematorium, which is completely submerged in the ridge as a cave-like structure ventilated by light shafts which extend out of the coffered roof structure. The light shafts are situated above 3 catafalques and allow light to shine down onto the body before it enters the bio cremators. Above ground the light shafts rise to a height of 3 metres. Each light shaft is constructed from concrete and then packed with stone excavated from the ridge, to allow for a natural integration with the planted roof garden which is filled with top soil removed from the excavation. Inside the crematorium space, mourners are allowed to view the cremation process from behind a glass box which is fitted in-between structural columns.

Mortuary and administrative staff enter the structure along a stone wall which extends out of the ridge. A circulation passage passes between the mortuary, coffin collection room, staff bathrooms and administrative offices. The passage allows staff to circulate between the mortuary, coffin collection room and offices. The offices are separated by smaller courtyards which look out onto the city and the circulation routes travelled by mourners as they progress from the entrance all the way through to the chapel structure. The offices are sunken into the ridge to allow for the natural ground line to extend from sill height so that the offices become concealed elements.

A small platform lift connects the lower route with the crematorium. This lift allows for the body and mourners to move between the route and the structure. Because of the slope of the site, lifts are implemented to lessen the distance travelled by the body as well as aid in the circulation of the disabled and the elderly.

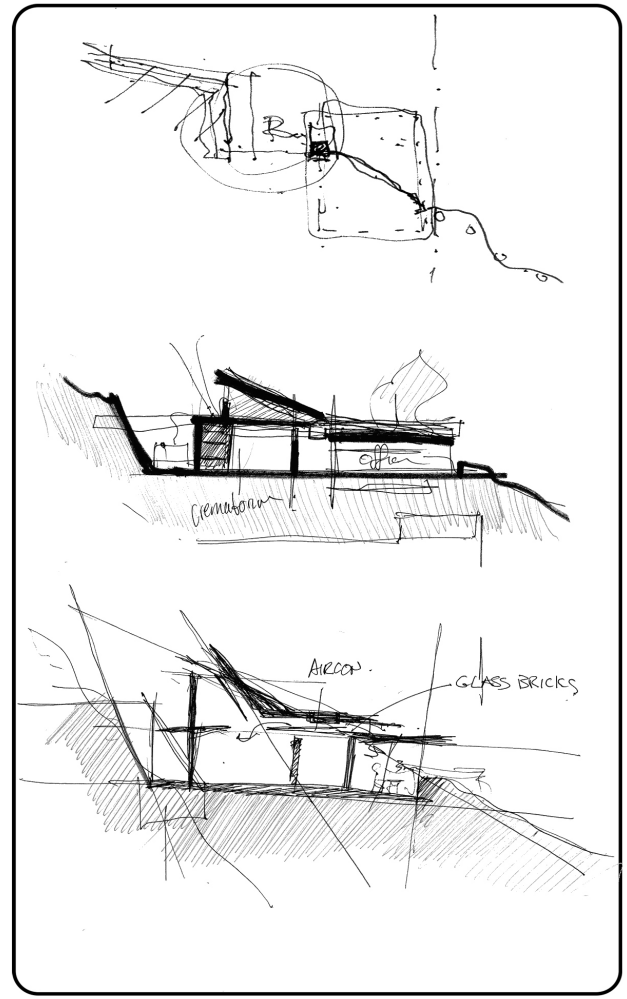


fig 10.36. Sketches illustrating the iterative process of mortuary from conceptual diagram showing submerged route to structure partially submerged allowing for views of the city. (by Author, 2015)

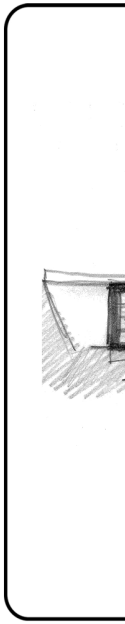


fig 10.38. Sketch

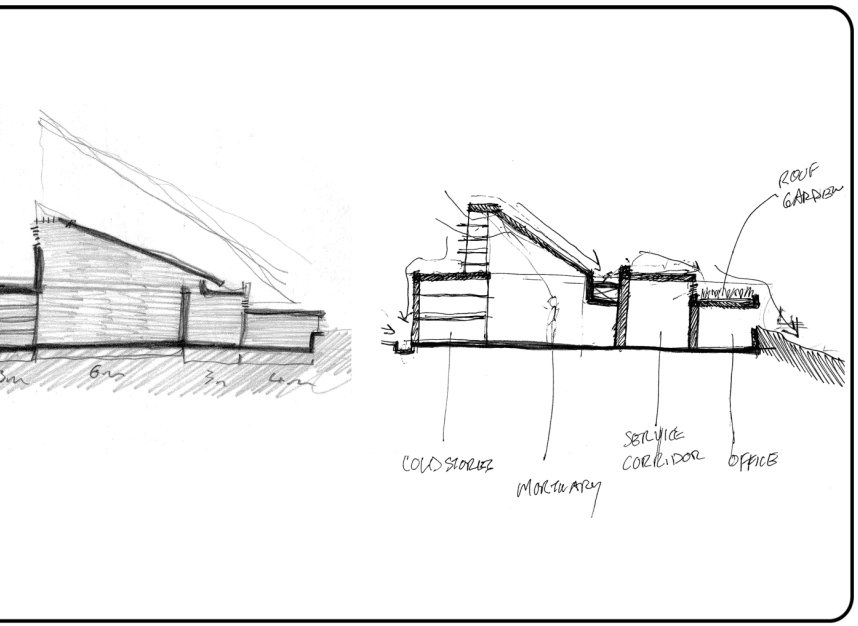
Iteration – Roof structure and Section

- Key ideas

Sketches illustrating how the iterations of the roof and section of the crematorium. Changes were made to allow for a service corridor behind the mortuary all the way to the crematorium where stairs lead down to a basement level. Potassium hydroxide for the bio cremation process is stored in the basement. It is not flammable but may become gaseous when temperatures rise, thus the chemical solution must be stored at a constant temperature which in this design iteration is found below ground.

- Main Iterations

The roof structure changed from a flat roof to pitched openings allowing light into the mortuary. By allowing the roof to be planted, waterproofing can be hidden. The planted roof also allows the structure to merge with the landscape in a manner similar to how it delves into the ridge on plan and section.



hes illustrating the iterative process of mortuary roof gutter and northern roof exposure. (by Author, 2015)

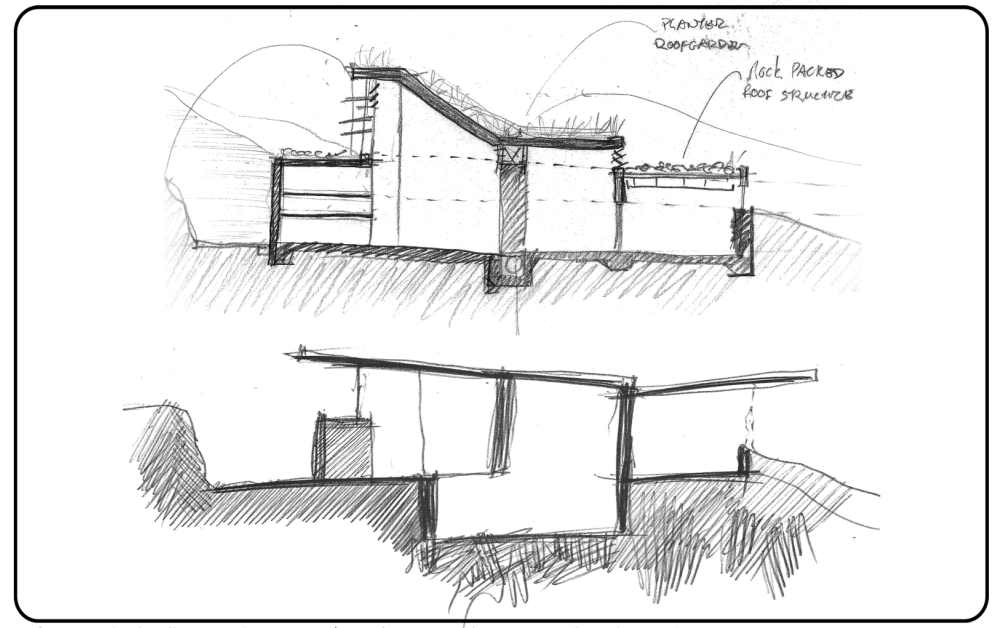


fig 10.37. Sketches illustrating the iterative process of mortuary and crematorium. (by Author, 2015)

Iteration – Plan and Model

- Key ideas

Sketches illustrating how the development of the crematorium plan, from having the mortuary separate from the crematorium, to reorganising the planning to address programmatic implications, which led to moving the crematorium into the ridge on the same level as the mortuary. This allows for an easier transition of the body from preparation to cremation. The submerged crematorium informs the isolation of the site within the geology of the ridge. The light shafts rising out of the ground create a spiritual connection with the heavens, similar to that of the chapel roof tower shining light onto the catafalque.

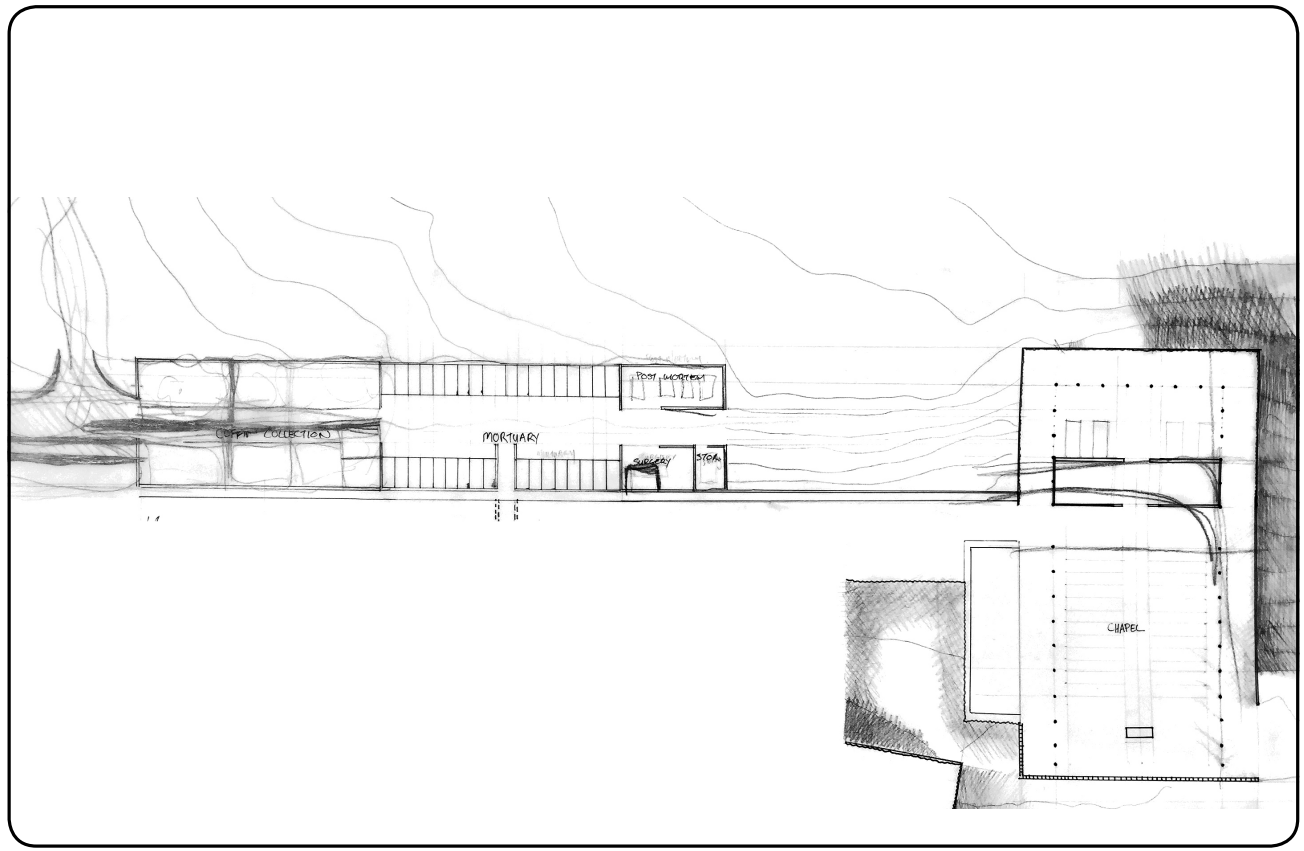


fig 10.39. The natural terraces formed by the Yeoville and Highlands Koppie form an integral punctum point for the gateway created between Ponte City and Gordon Terrace. This area, like Ponte City, is submerged in mysterious tales of ruination and decay, prosperity.

- Main Iterations

The crematorium is submerged into the landscape, and light shafts which allow natural light to illuminate the body of the deceased are created. The beams of the waffle slabs extend into the exposed rock face, using the structural integrity of the granite rock as support.

Additions include a submerged water reservoir as well as a double-volume service space which houses effluence tanks and chemical storage.

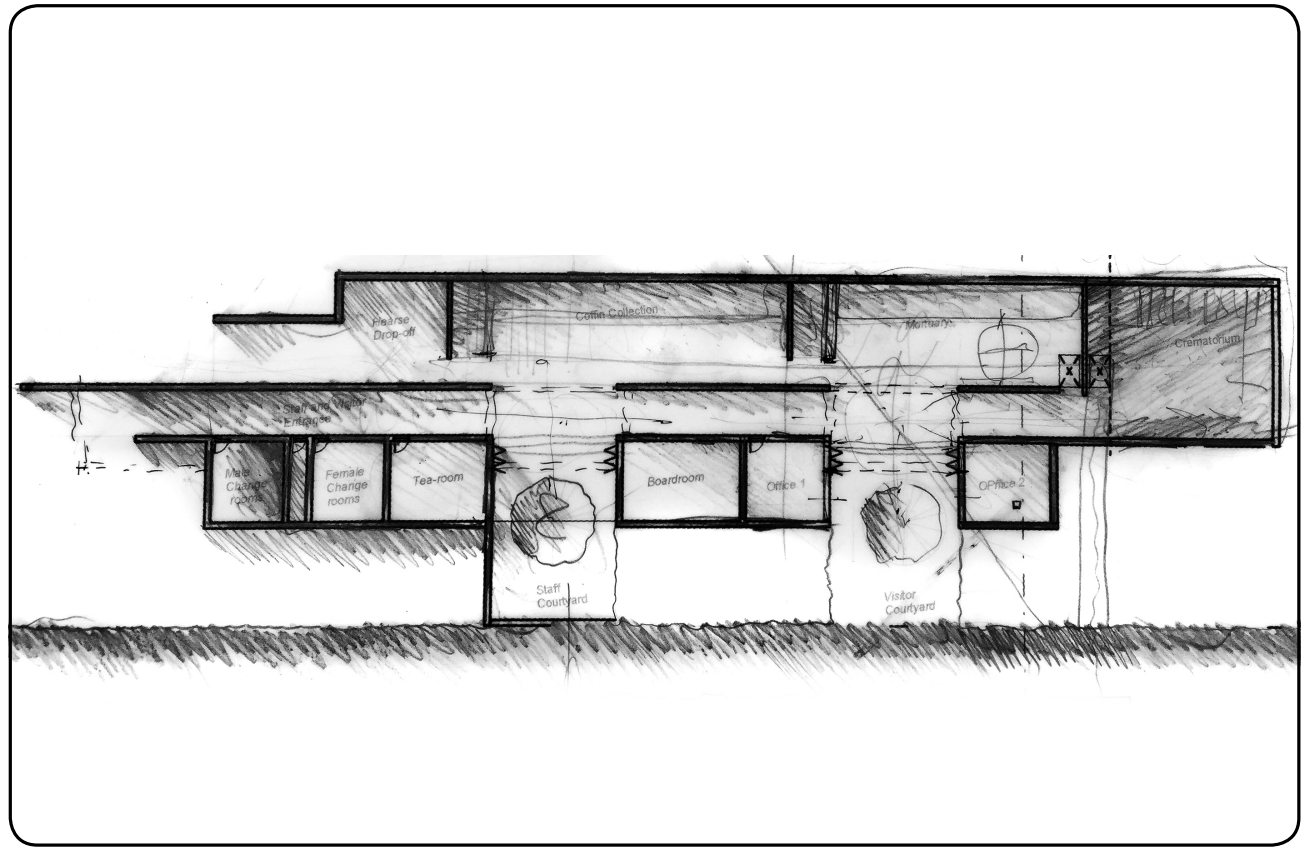


fig 10.40. The natural terraces formed by the Yeoville and Highlands Koppie form an integral punctum point for the gateway created between Ponte City and Gordon Terrace. This area, like Ponte City, is submerged in mysterious tales of ruination and decay, prosperity.

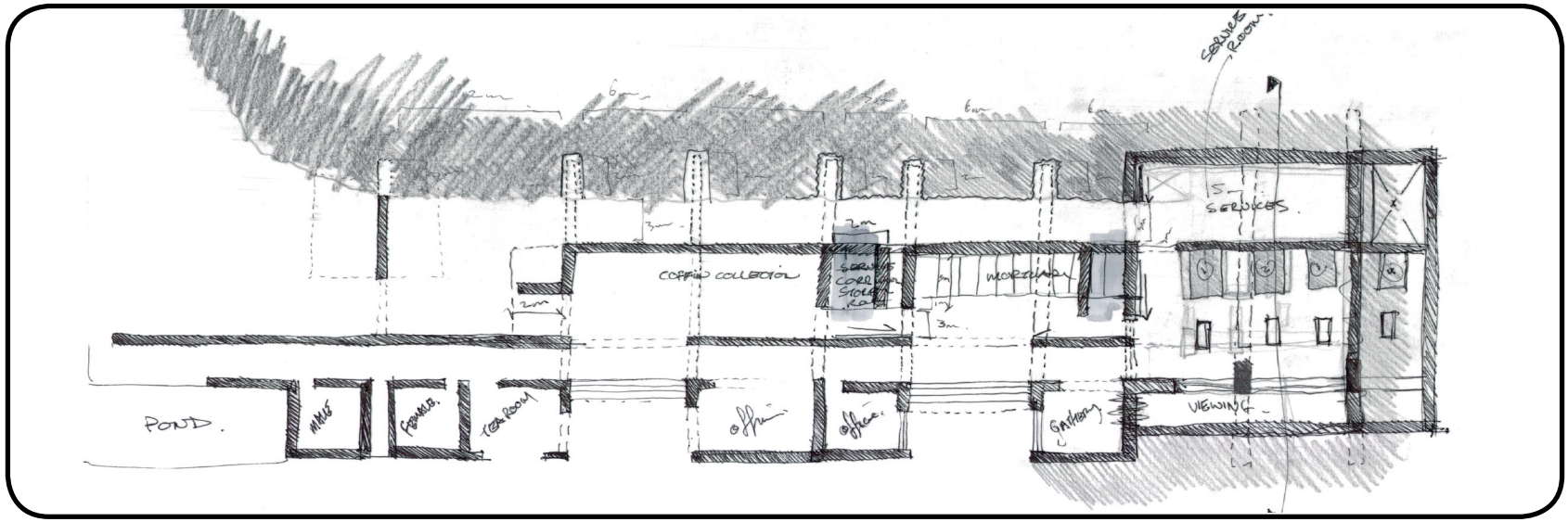


fig 10.42. Sketch illustrating coffin collection, mortuary and crematorium plan layout. Illustrating how the structure becomes submerged in the ridge the programmatic processes proceed. (by Author, 2015)

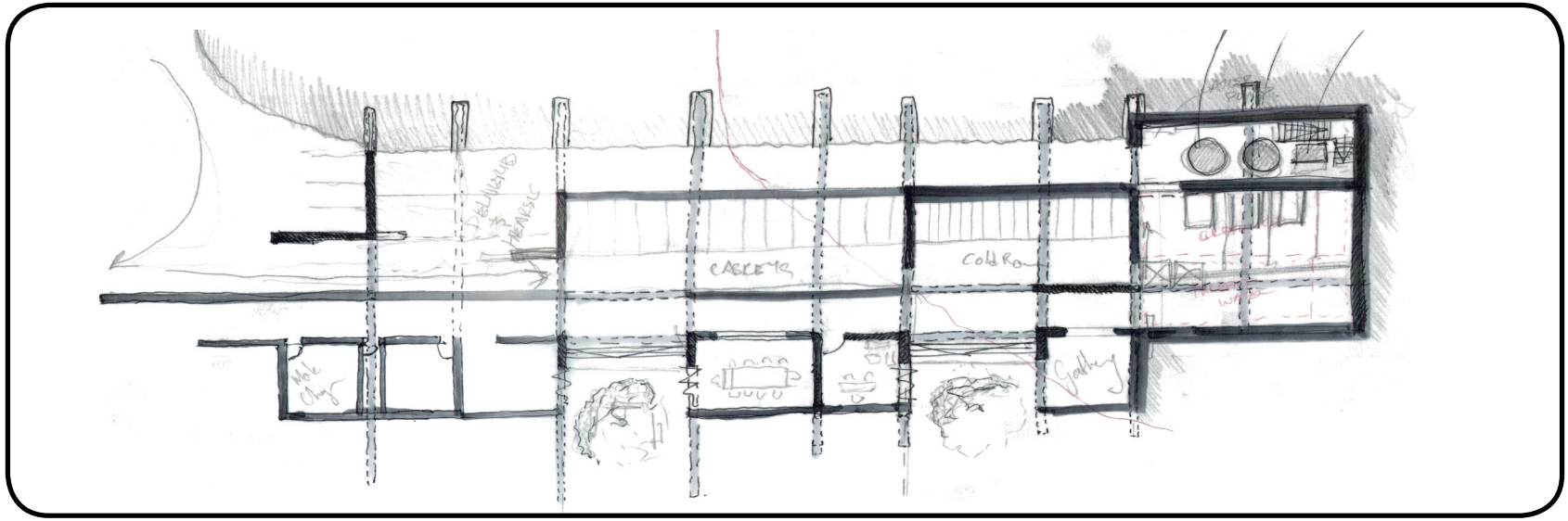


fig 10.41. Sketch illustrating structural beam layout and basement level. (by Author, 2015)

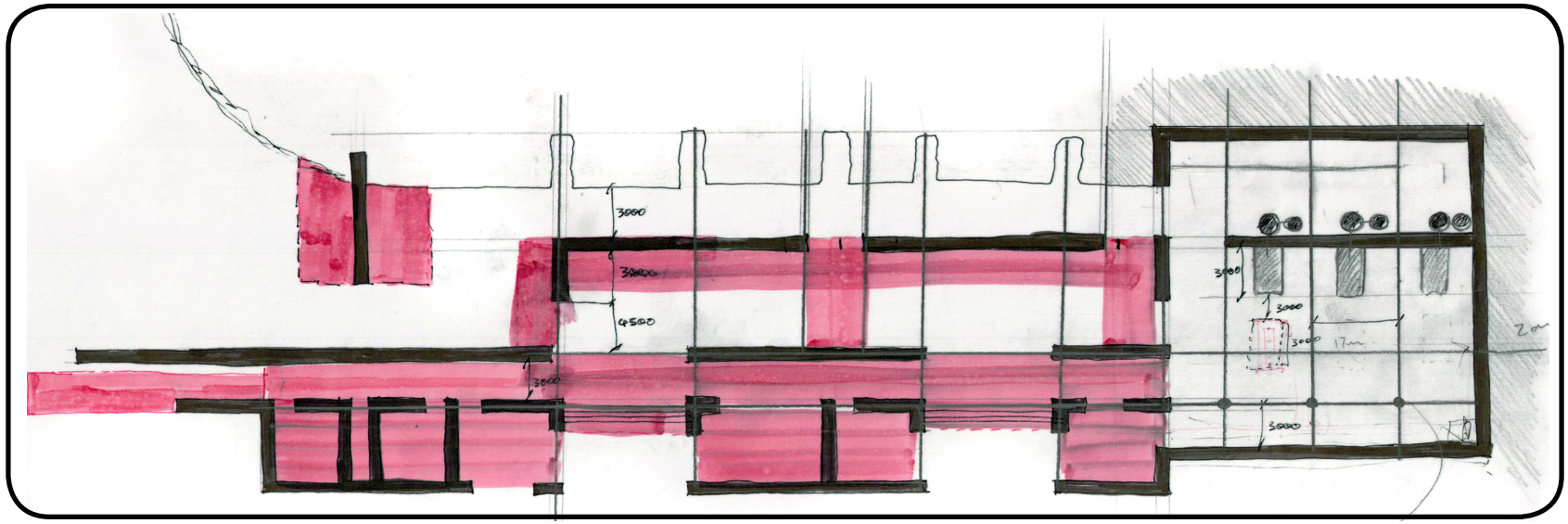


fig 10.44. Sketch illustrating roof structure and overhangs. (by Author, 2015)

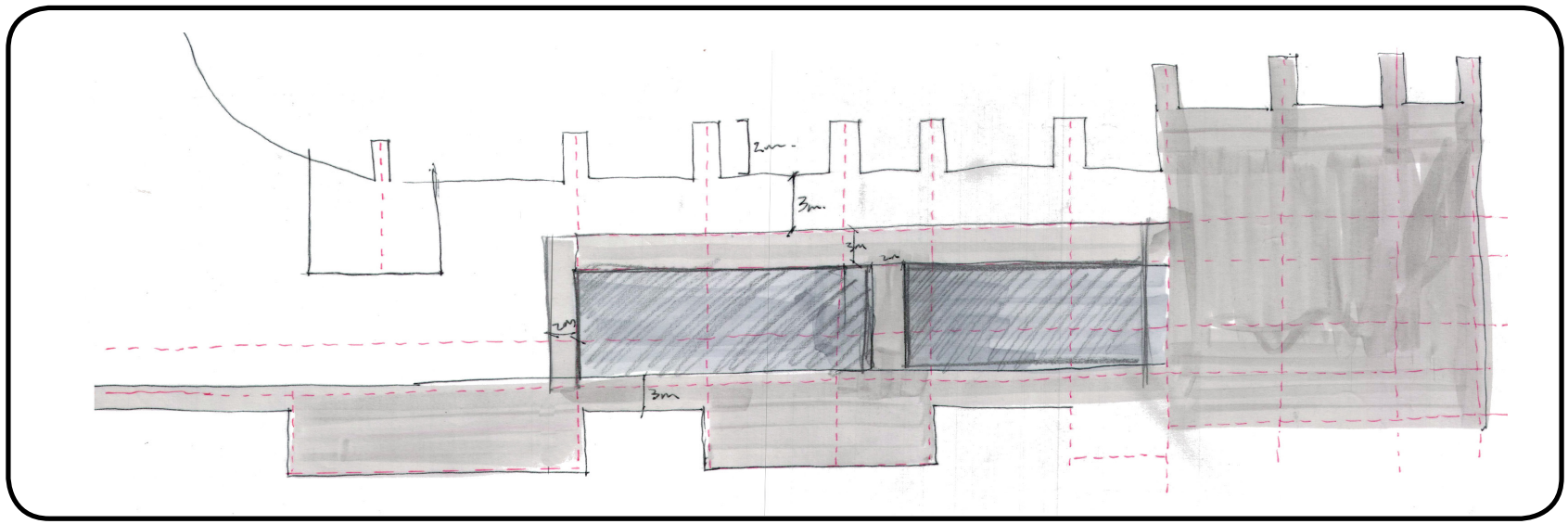
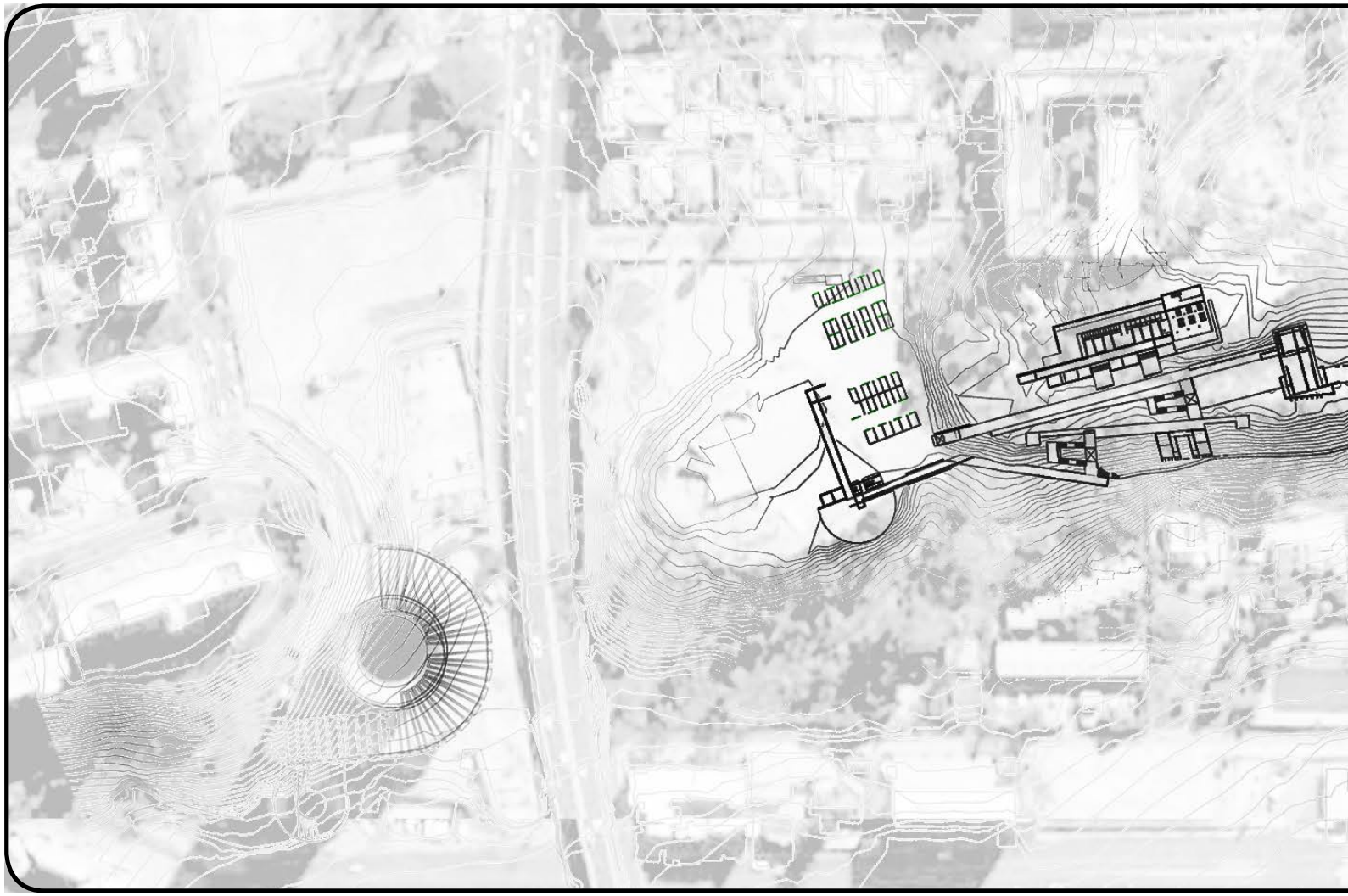
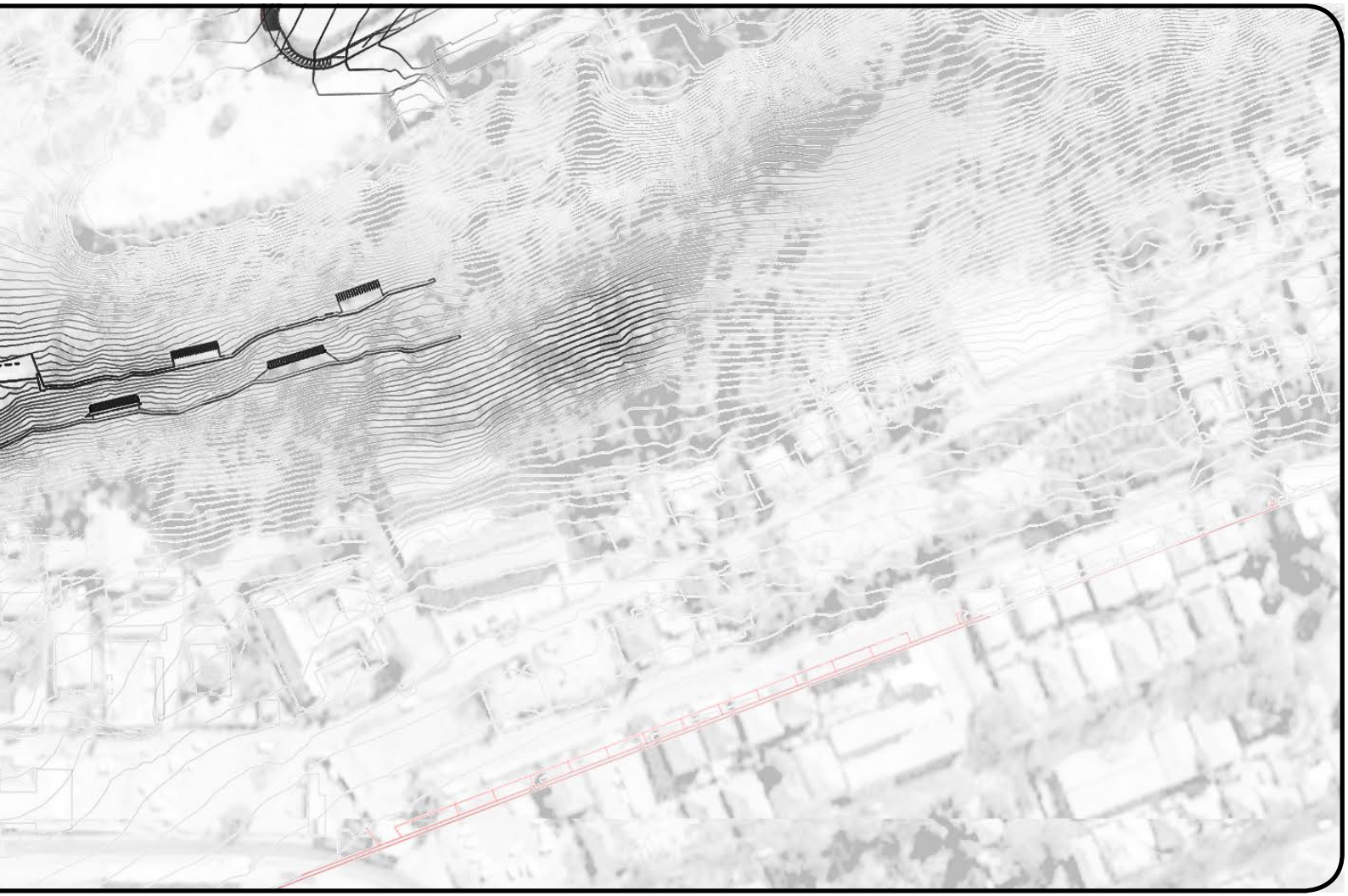


fig 10.43. Sketch illustrating roof structure and overhangs. (by Author, 2015)

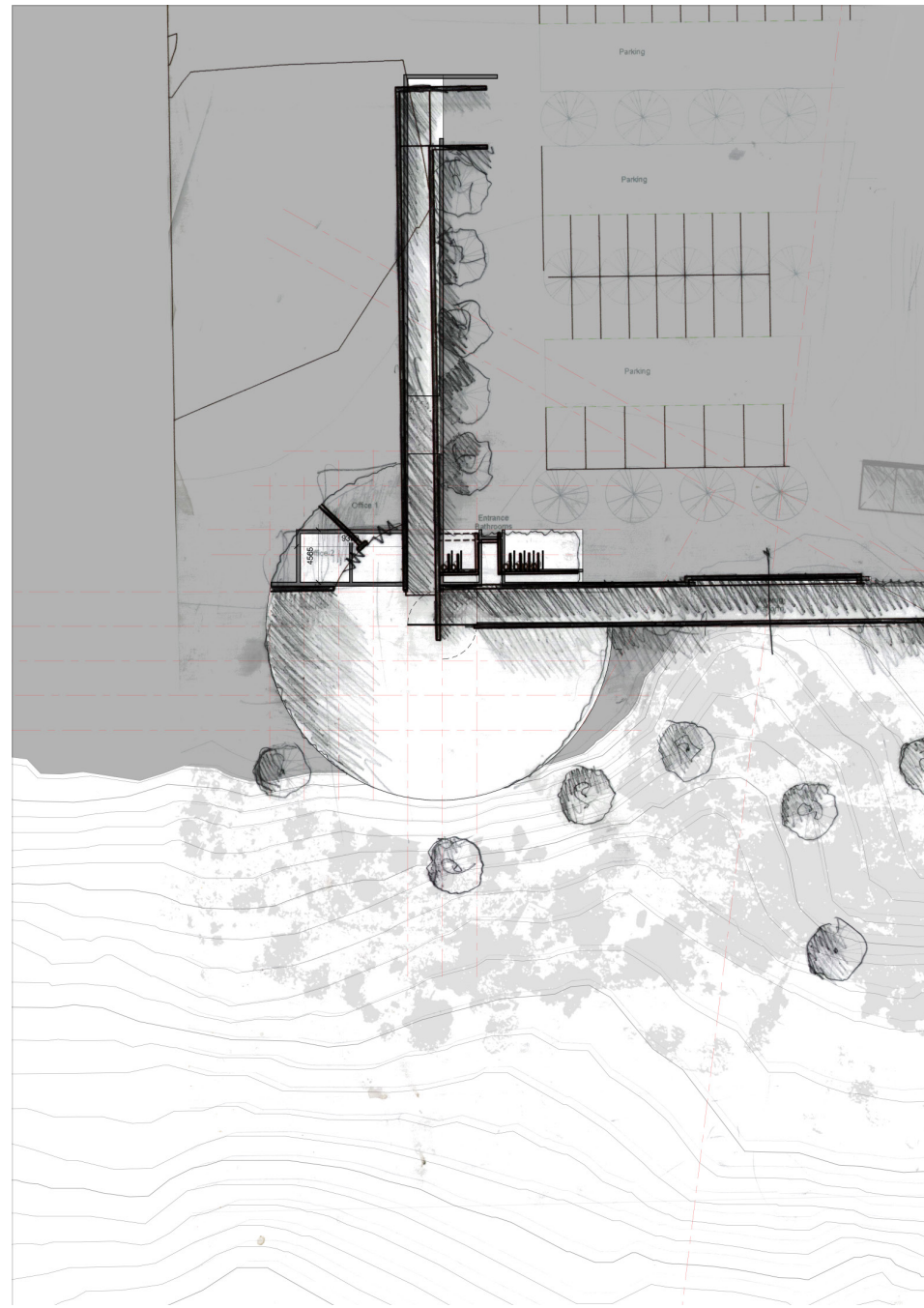
Design Resolution - Site Plan

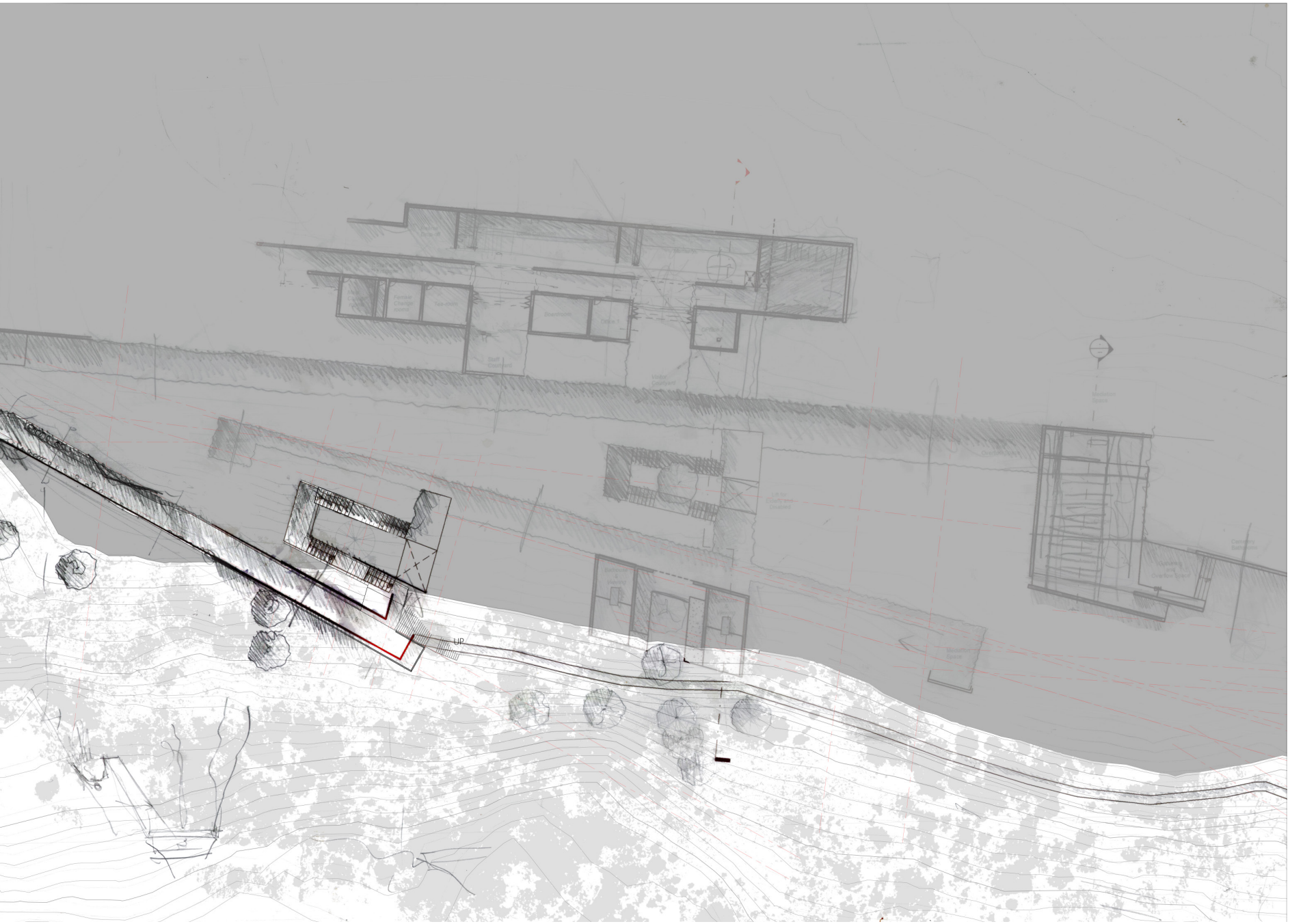
The diagrams to follow show a more finalised iteration of plan and section as well as 3D build model.



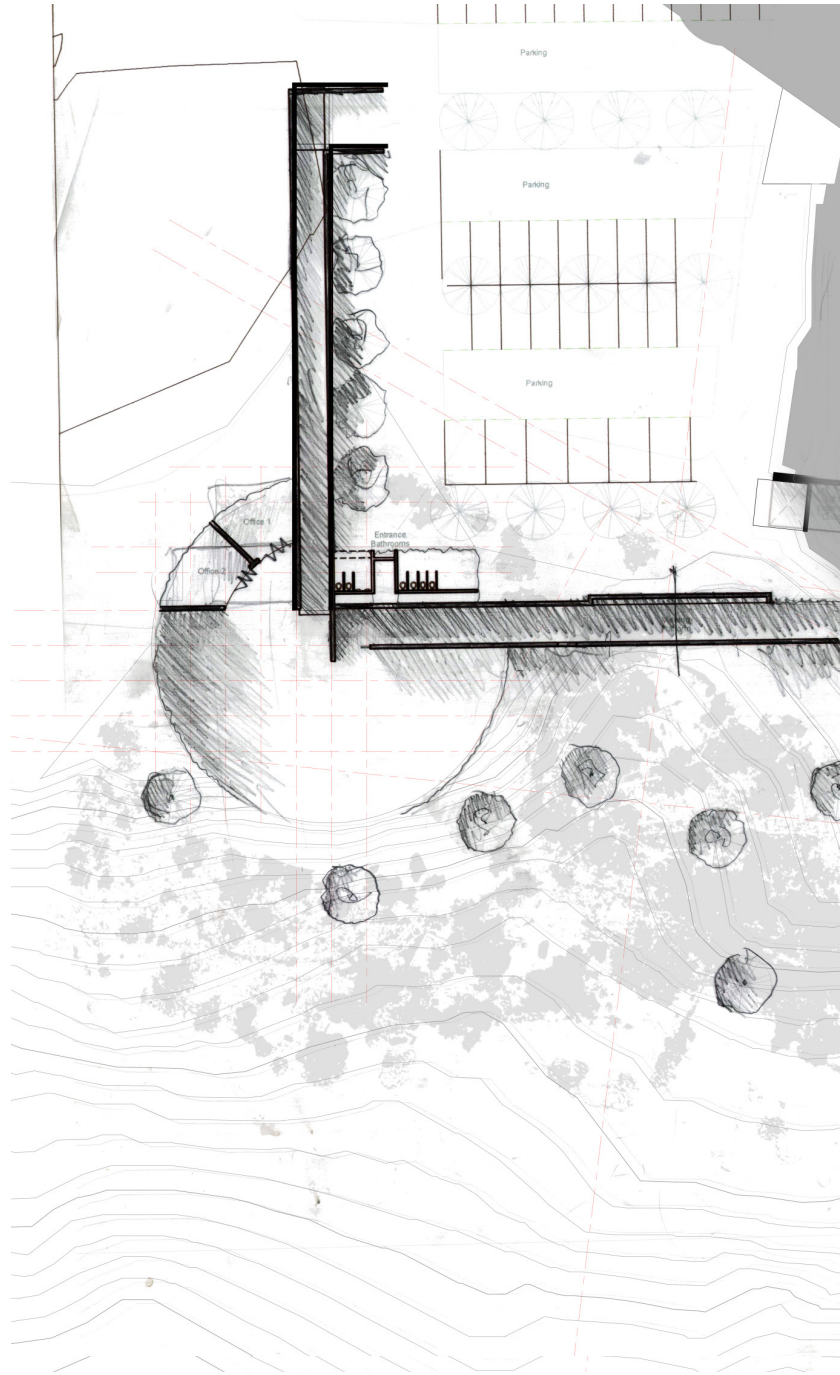


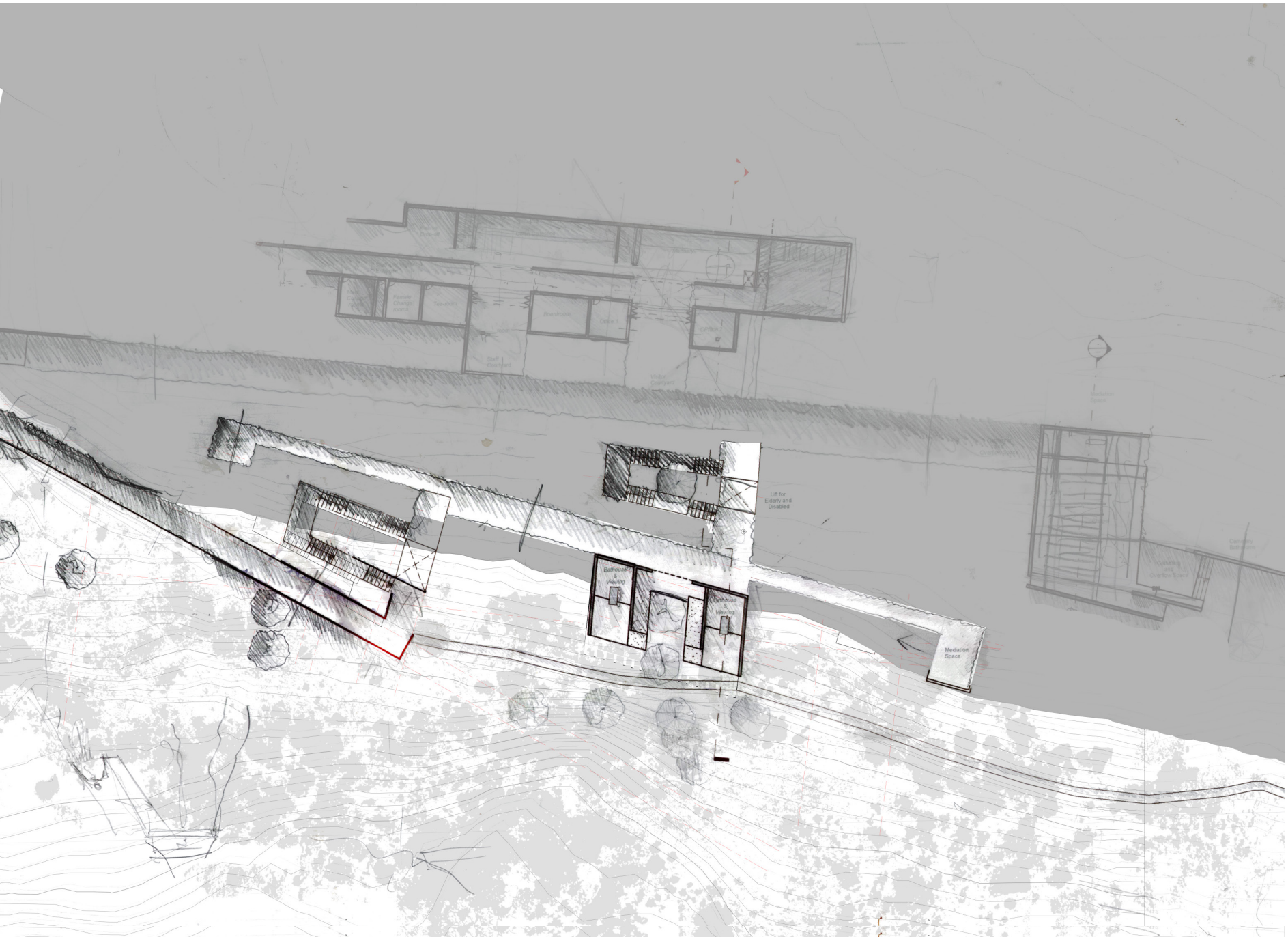
Entrance and Viewing Platform- 1st Floor



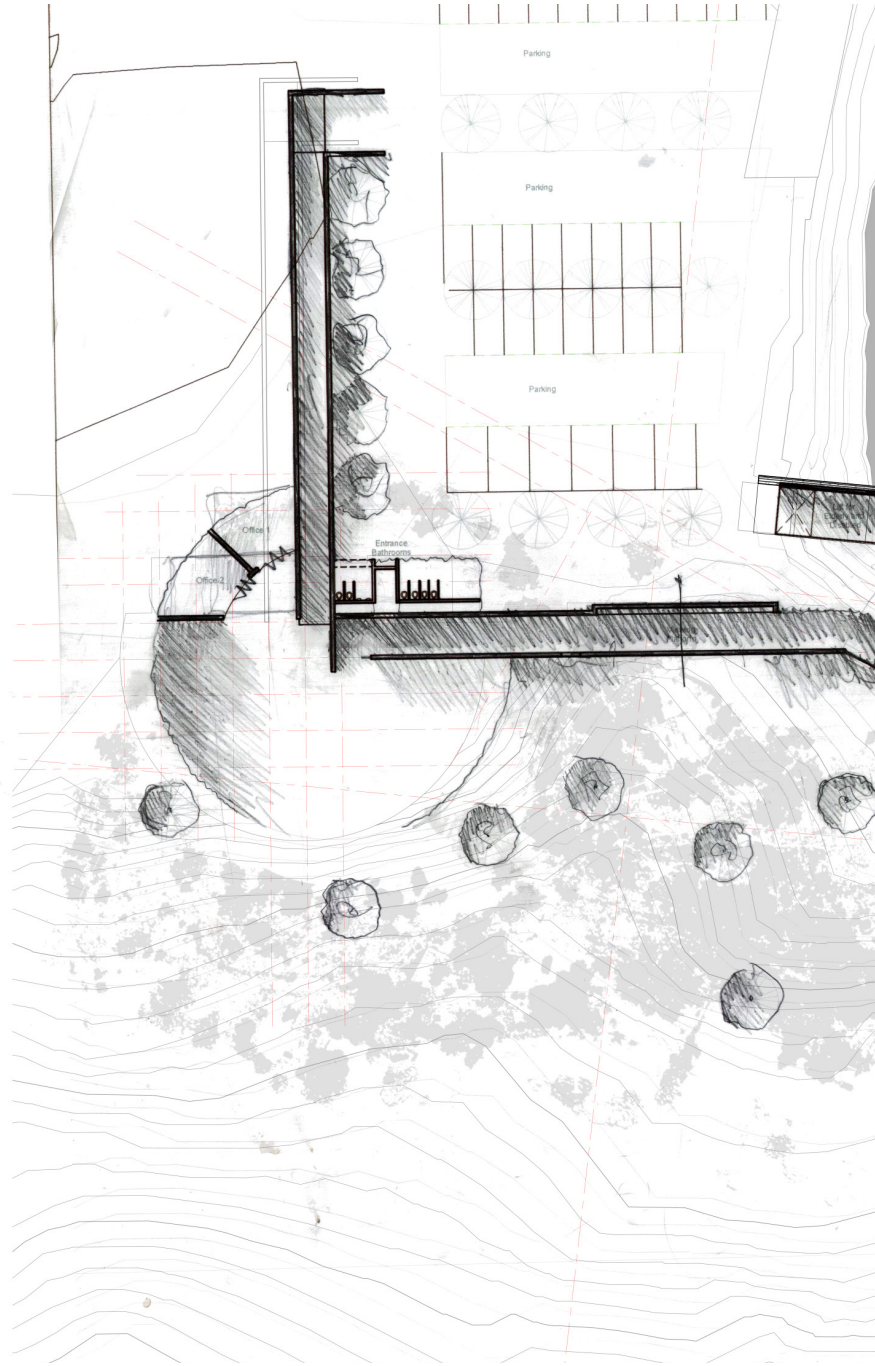


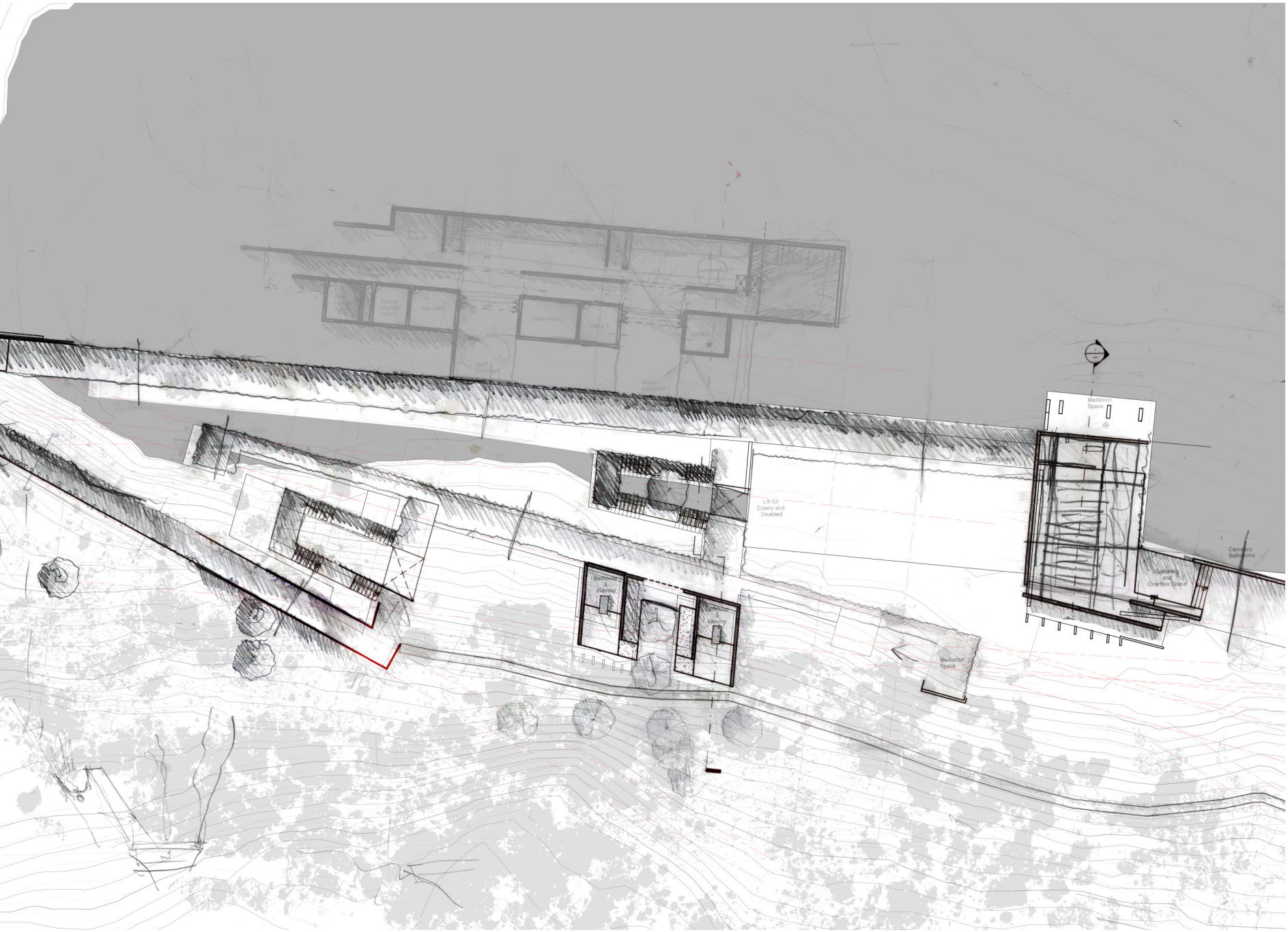
Mortuary Bathhouse - 2nd Floor



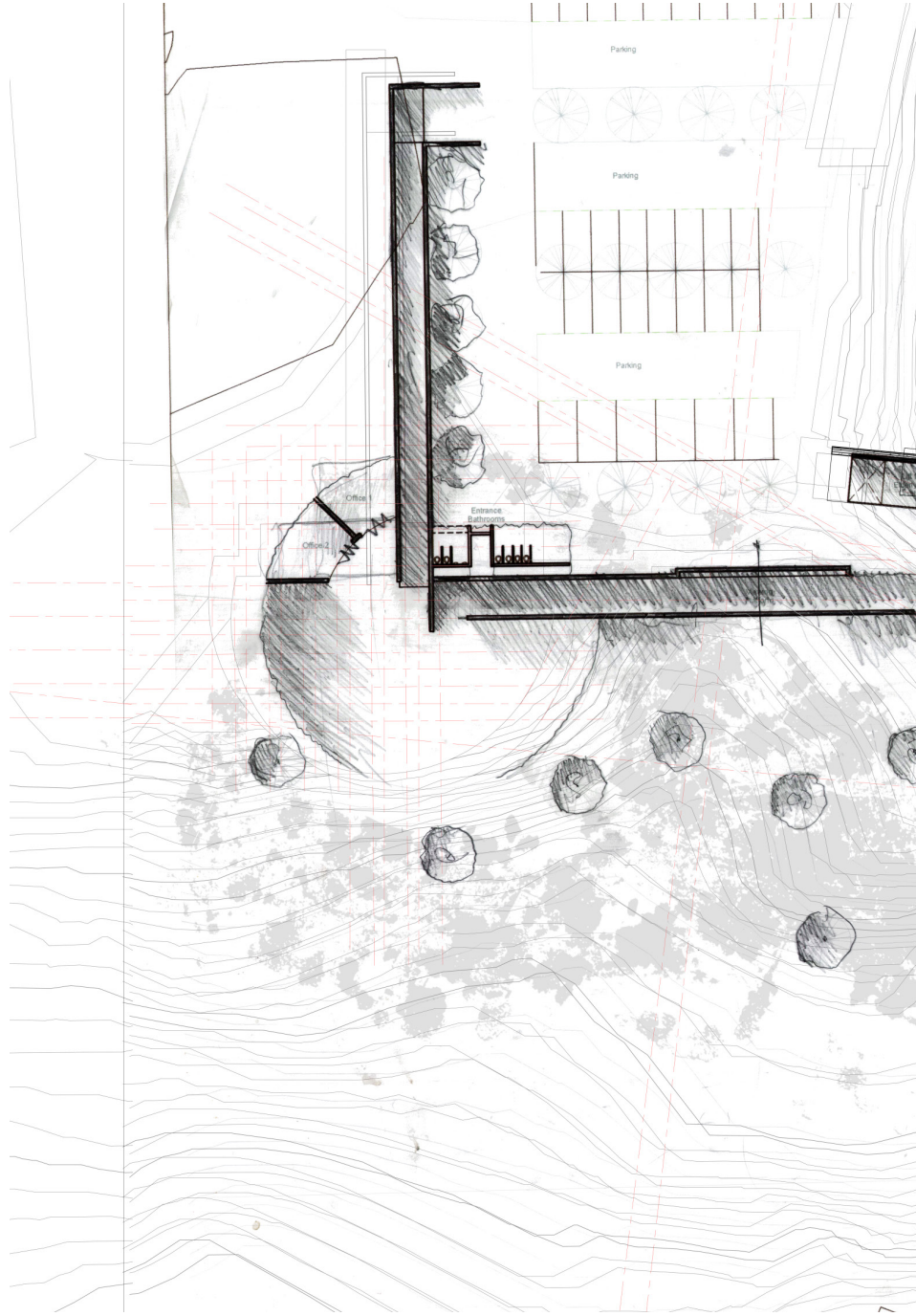


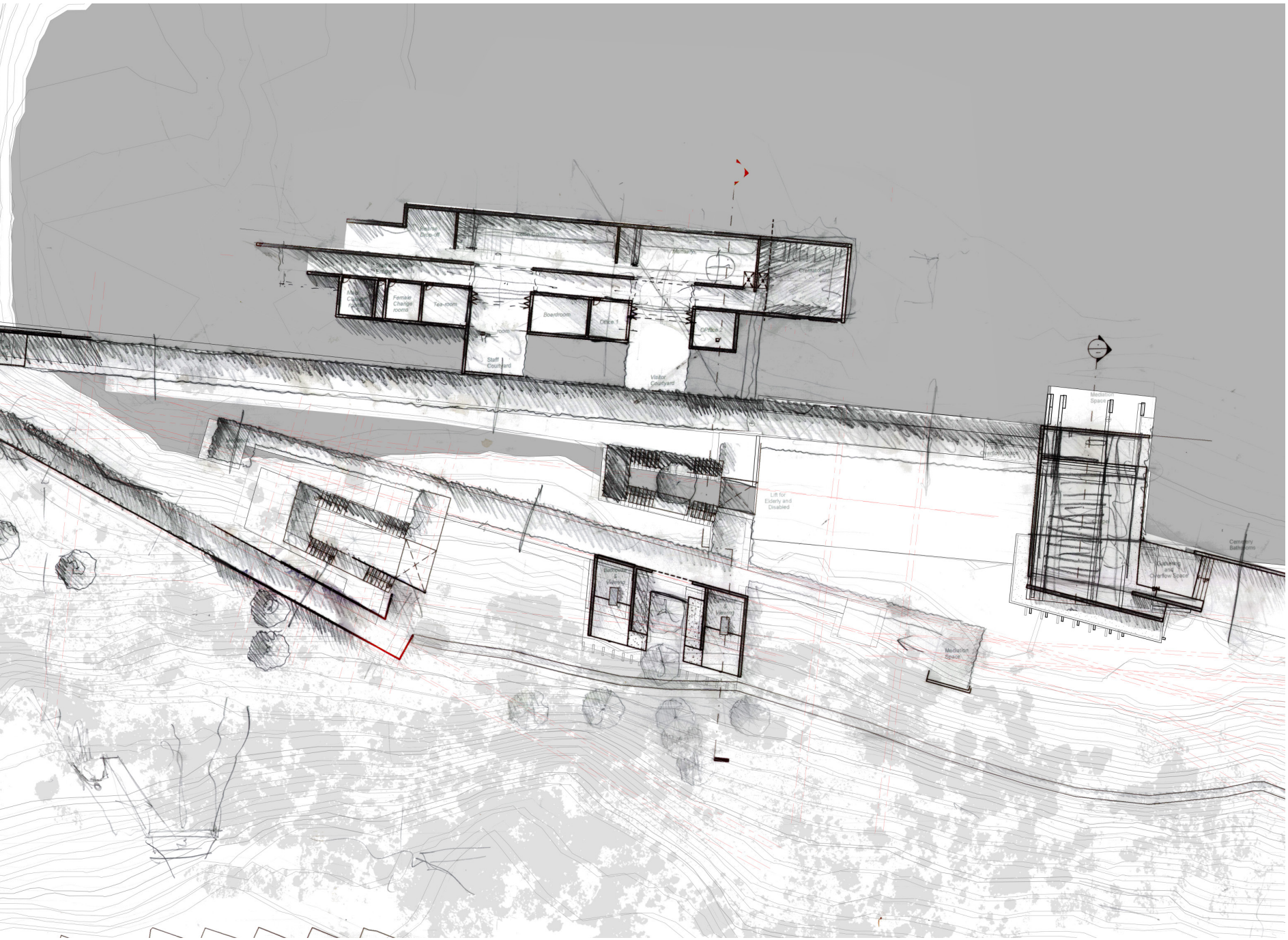
Chapel - 3rd Floor





Crematorium - 4th Floor





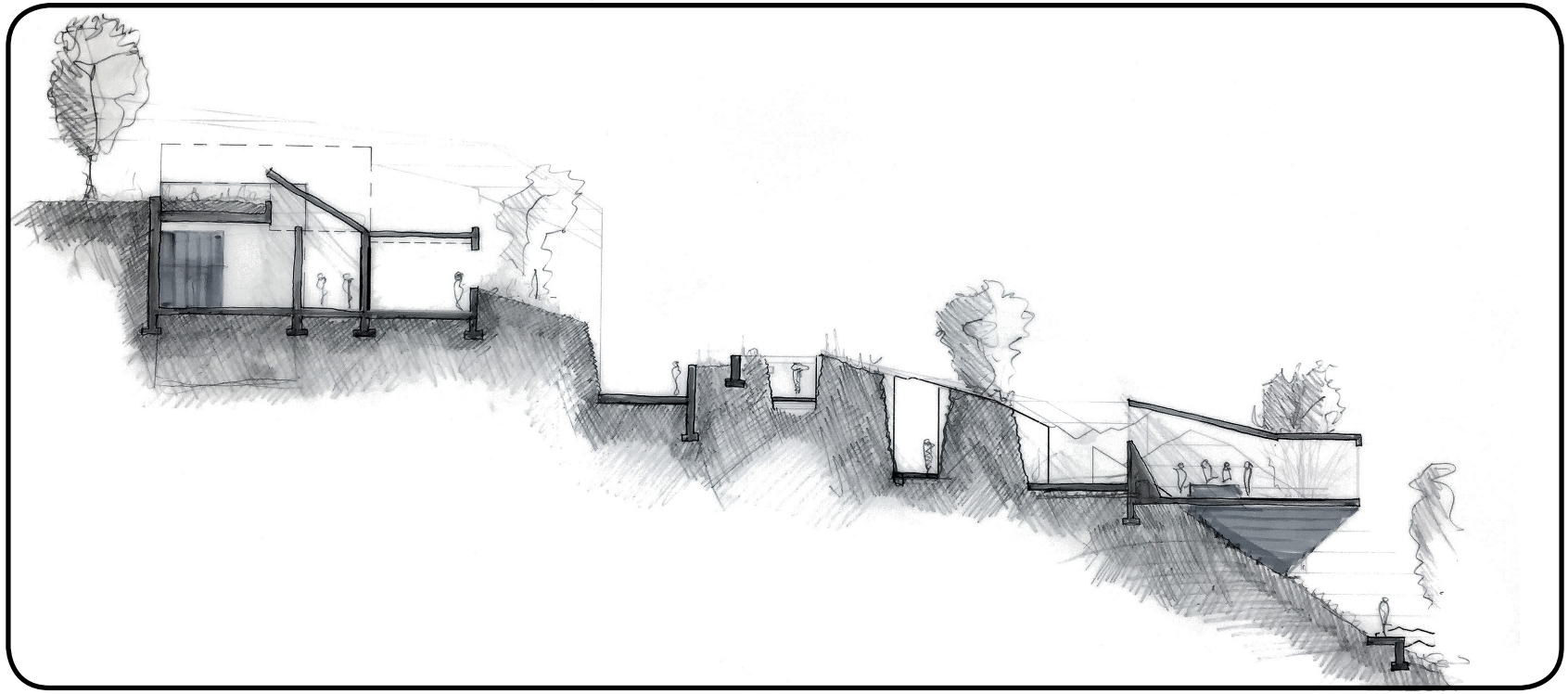


fig 10.46. Iterative section through mortuary, paths and mortuary bathhouse. (by Author, 2015)

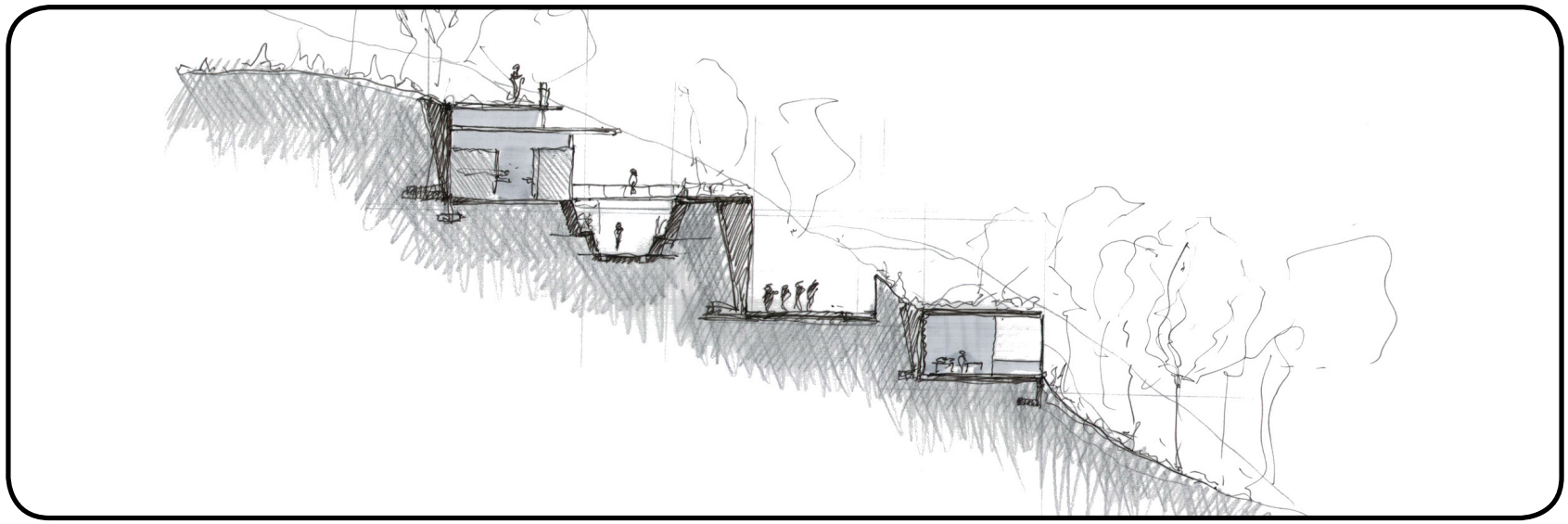


fig 10.48. Iterative section through mortuary and paths leading up the ridge. (by Author, 2015)

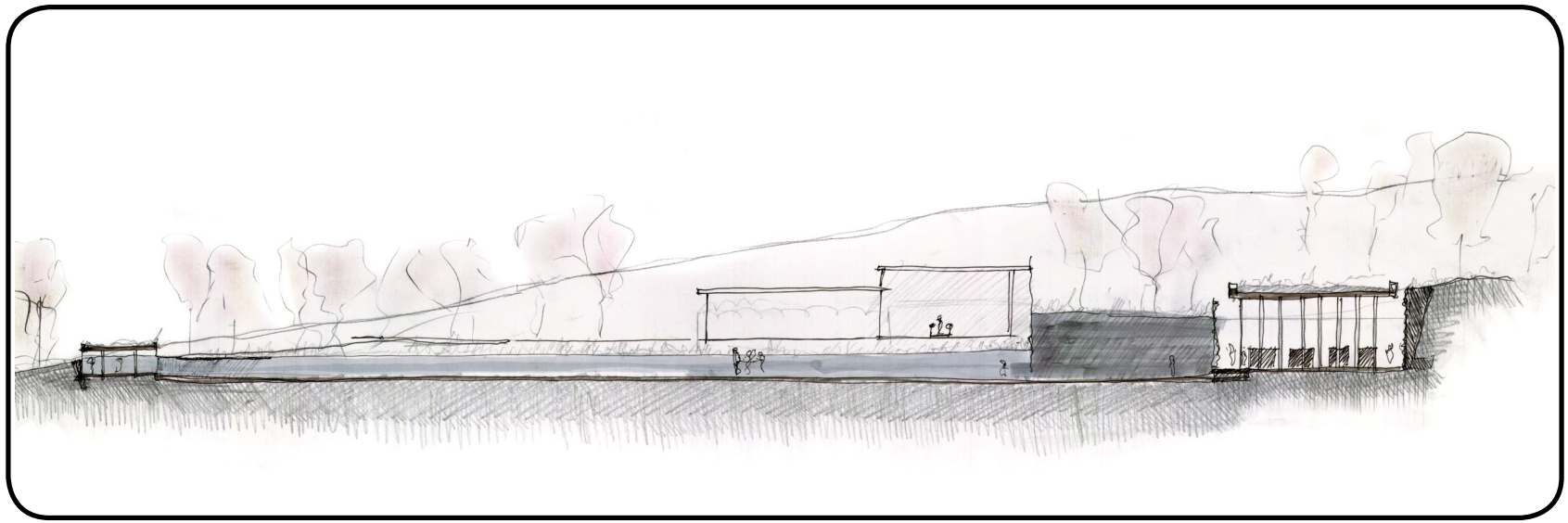


fig 10.47. Iterative section through mortuary when it was still situated behind the chapel. (by Author, 2015)

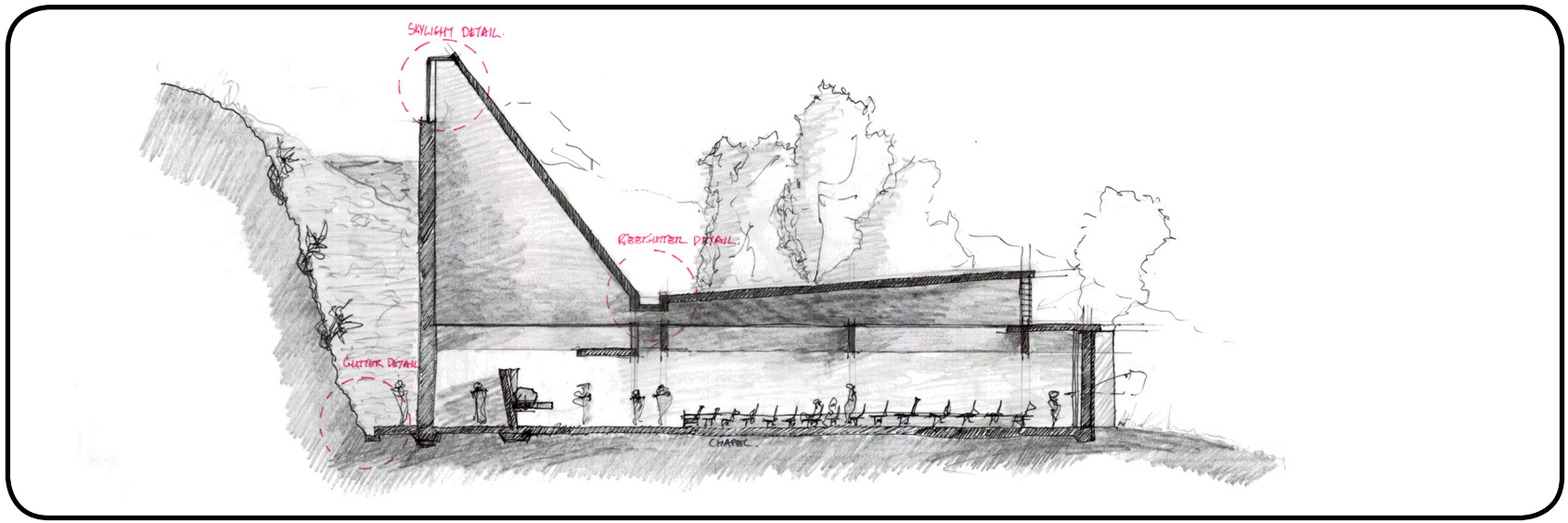


fig 10.50. Iterative section through Chapel. (by Author, 2015)

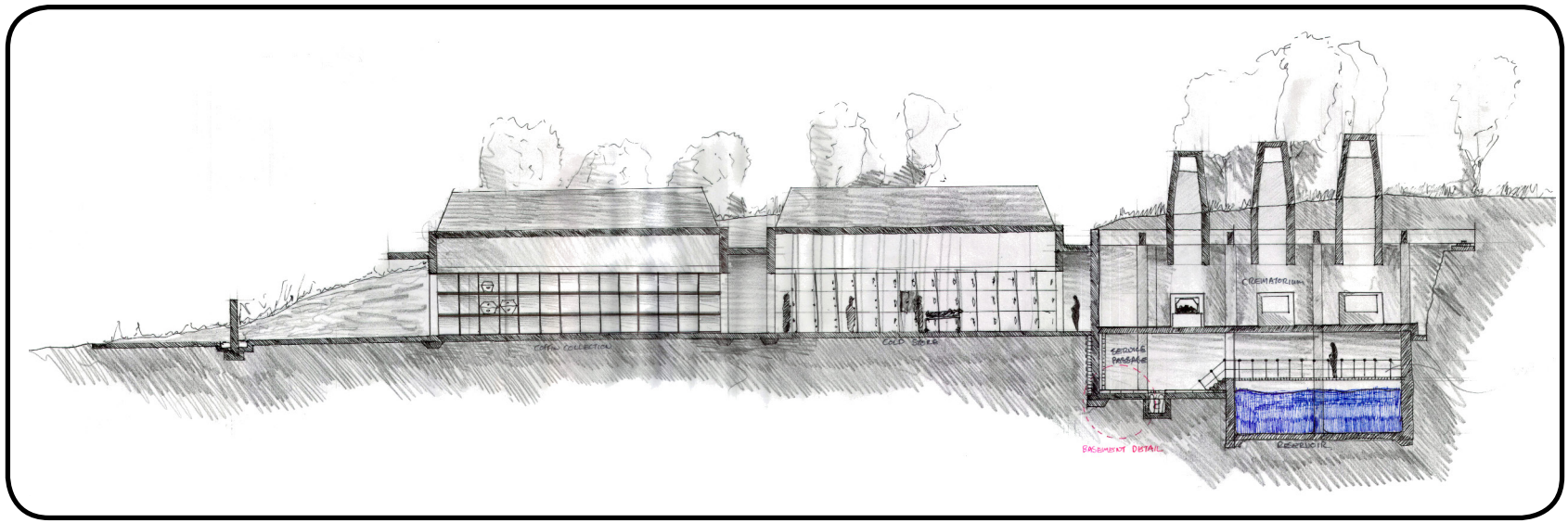


fig 10.49. Longitudinal Iterative section through Crematorium. (2015, by Author)

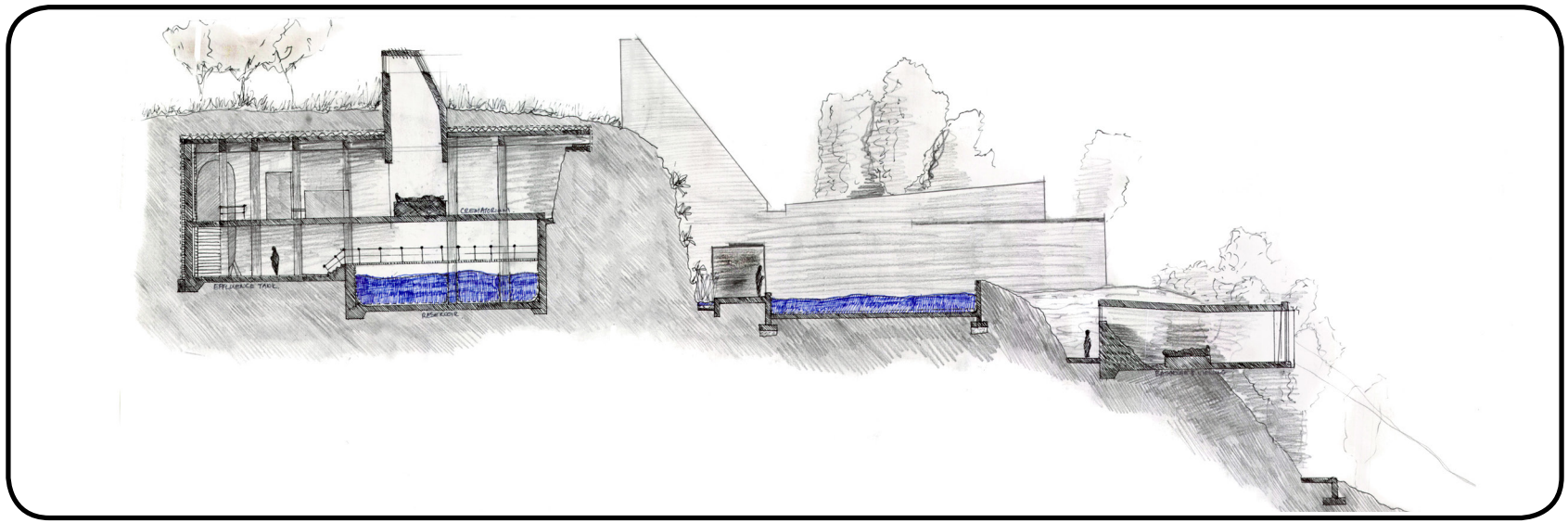


fig 10.52. Iterative section through Mortuary. (by Author, 2015)

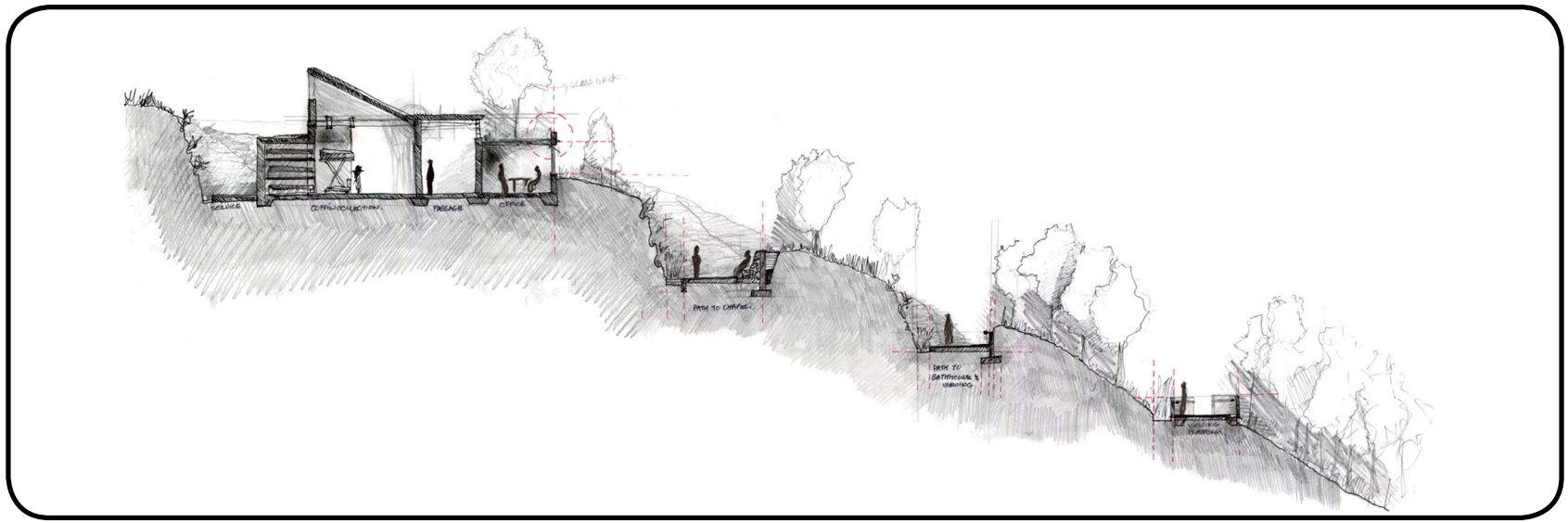


fig 10.51. Iterative section through Mortuary. (by Author, 2015)

fig 10.53. View down route towards viewing platform and Troyville ridge. (by Author, 2015)

fig 10.54. View down route to mortuary bathhouses and meditation folly. (by Author, 2015)

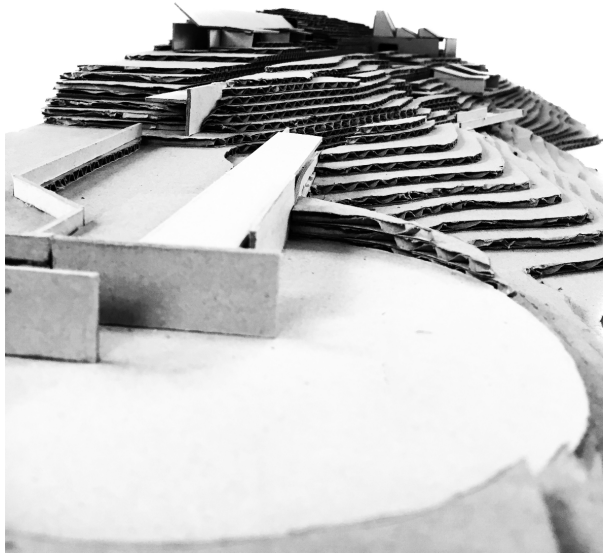


fig 10.56. Model picture overlooking entrance courtyard with chapel in the background. (by author, 2015)

fig 10.55. Model picture overlooking mortuary bathhouse with chapel in the background. (by author, 2015)

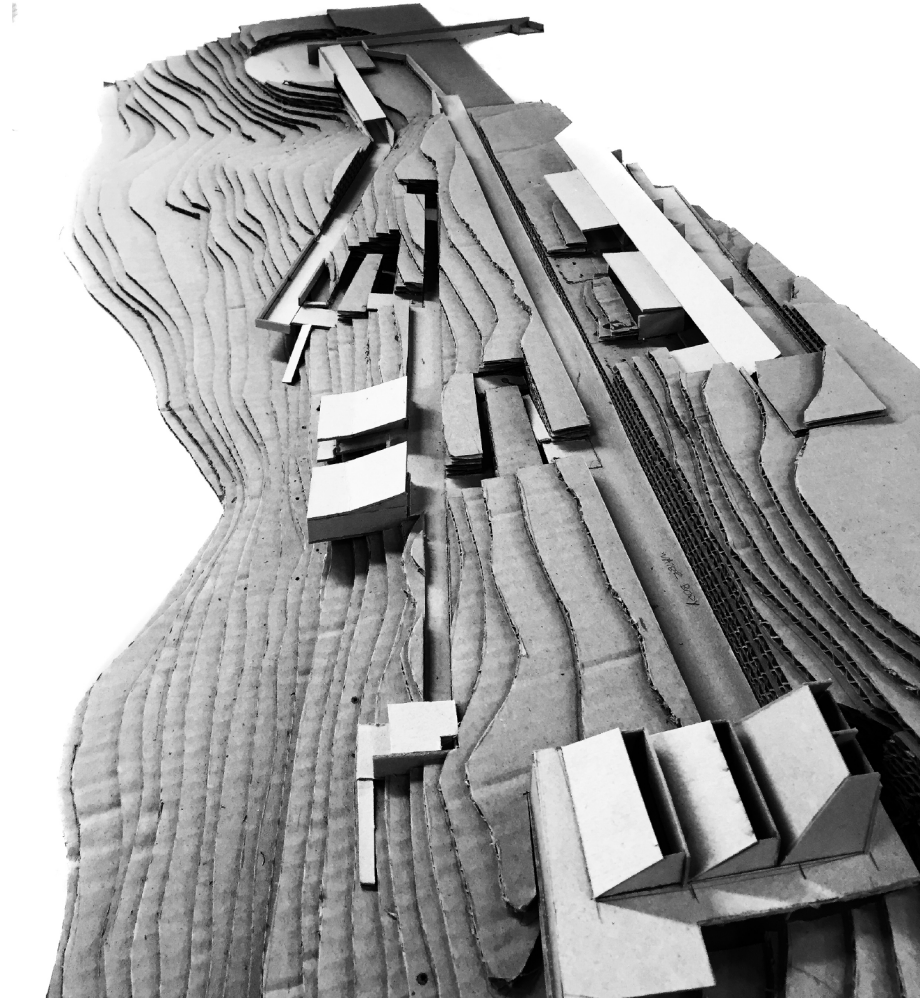


fig 10.57. View over entire site from apartment block on Yeoville Ridge. (by author, 2015)

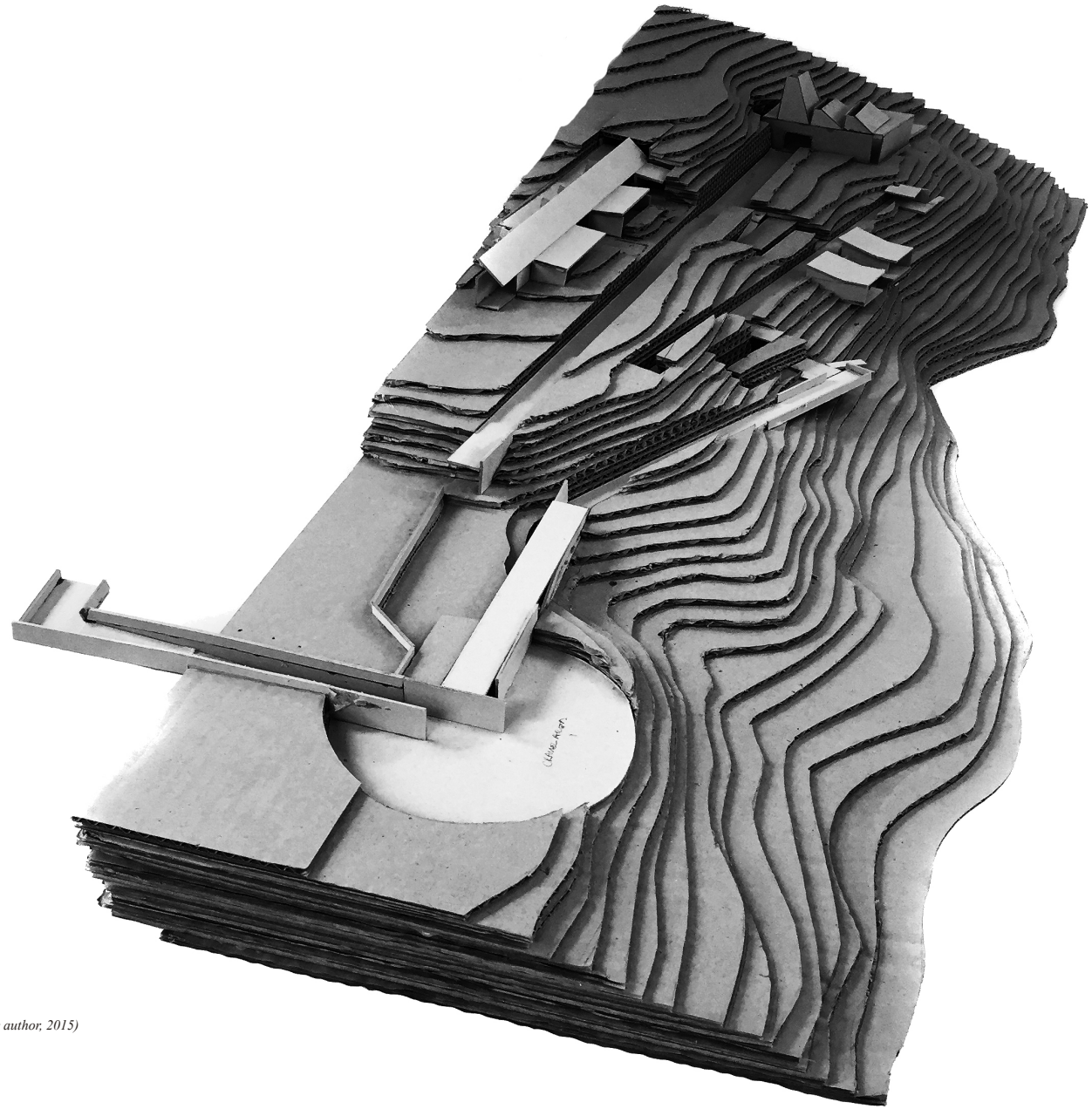


fig 10.58. Overview of Model. (by author, 2015)

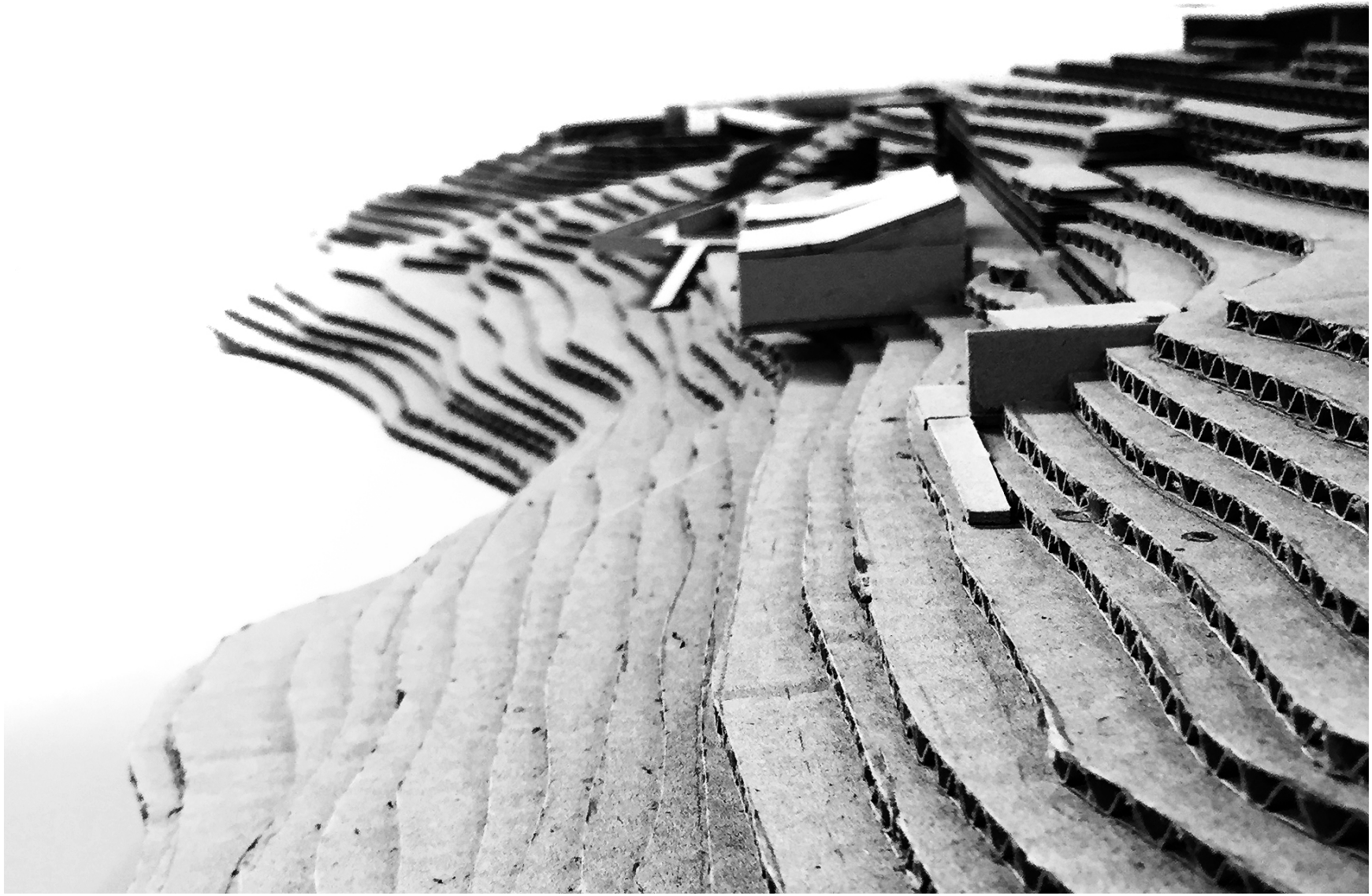


fig 10.59. View from route back towards mortuary bathhouses. (by author, 2015)

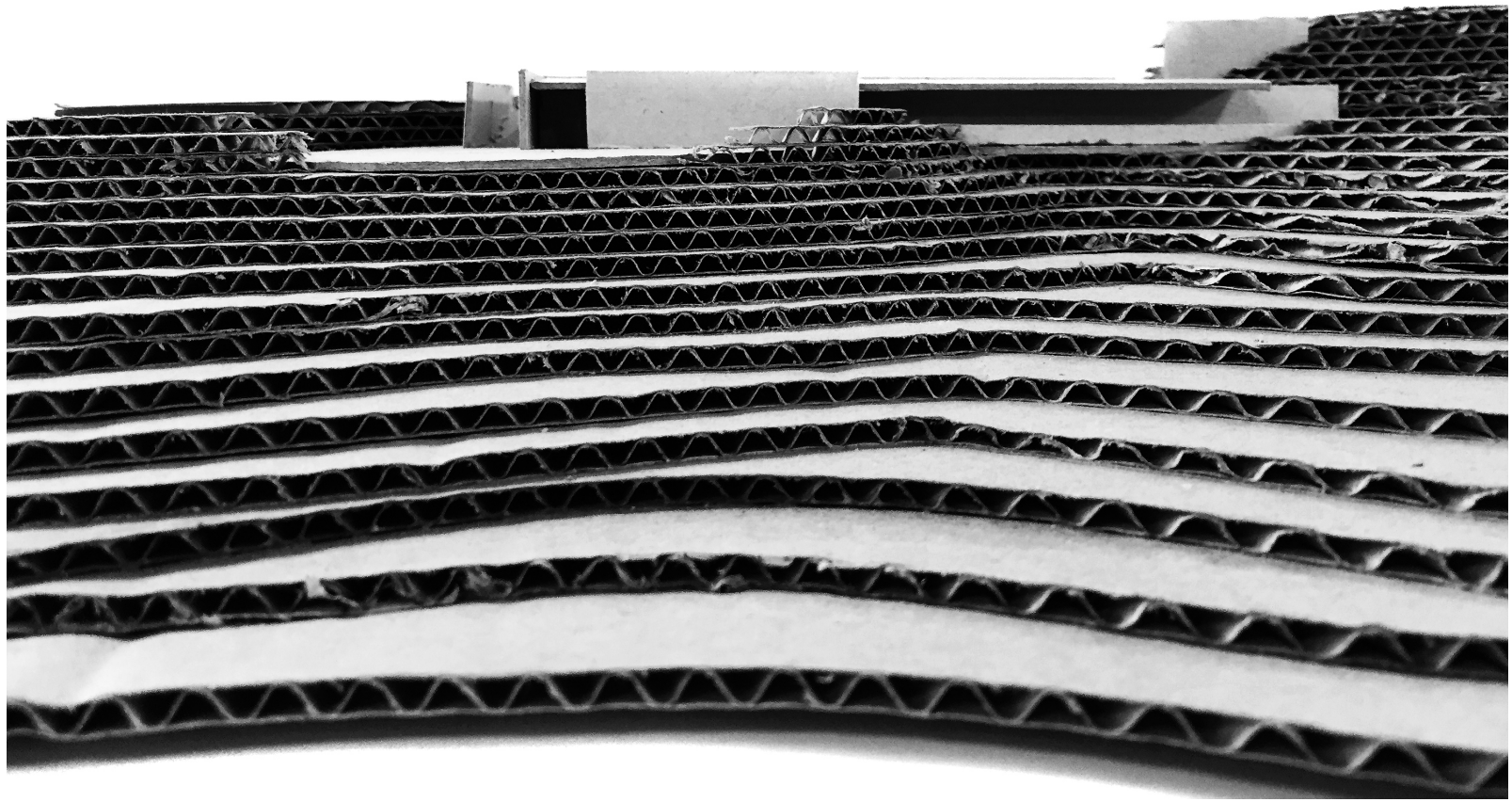


fig 10.60. View up towards entrance courtyard and enclosed walkway from overflow water reservoir at base of site. (by author, 2015)

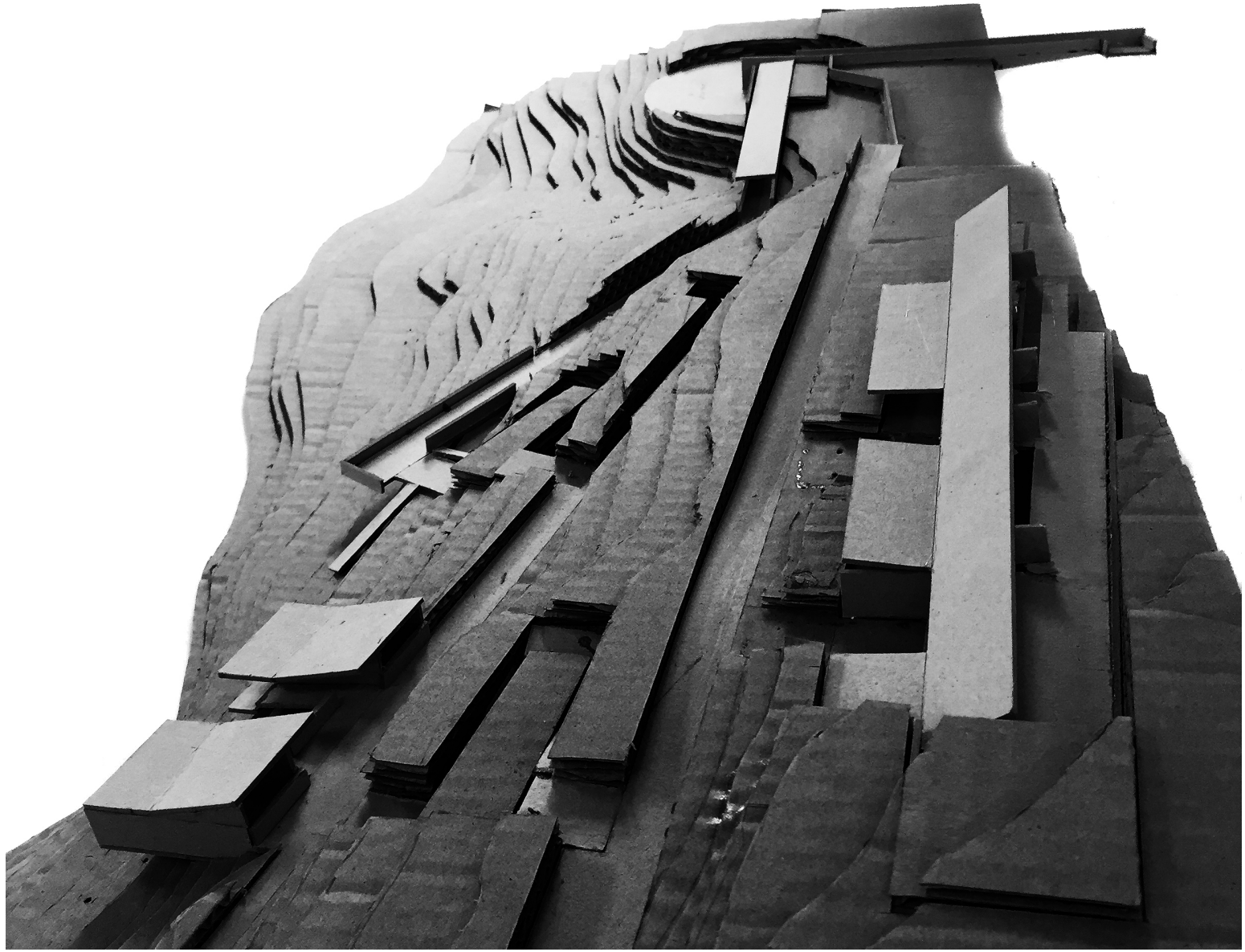


fig 10.61. View of entire building from chapel roof. (by author, 2015)