

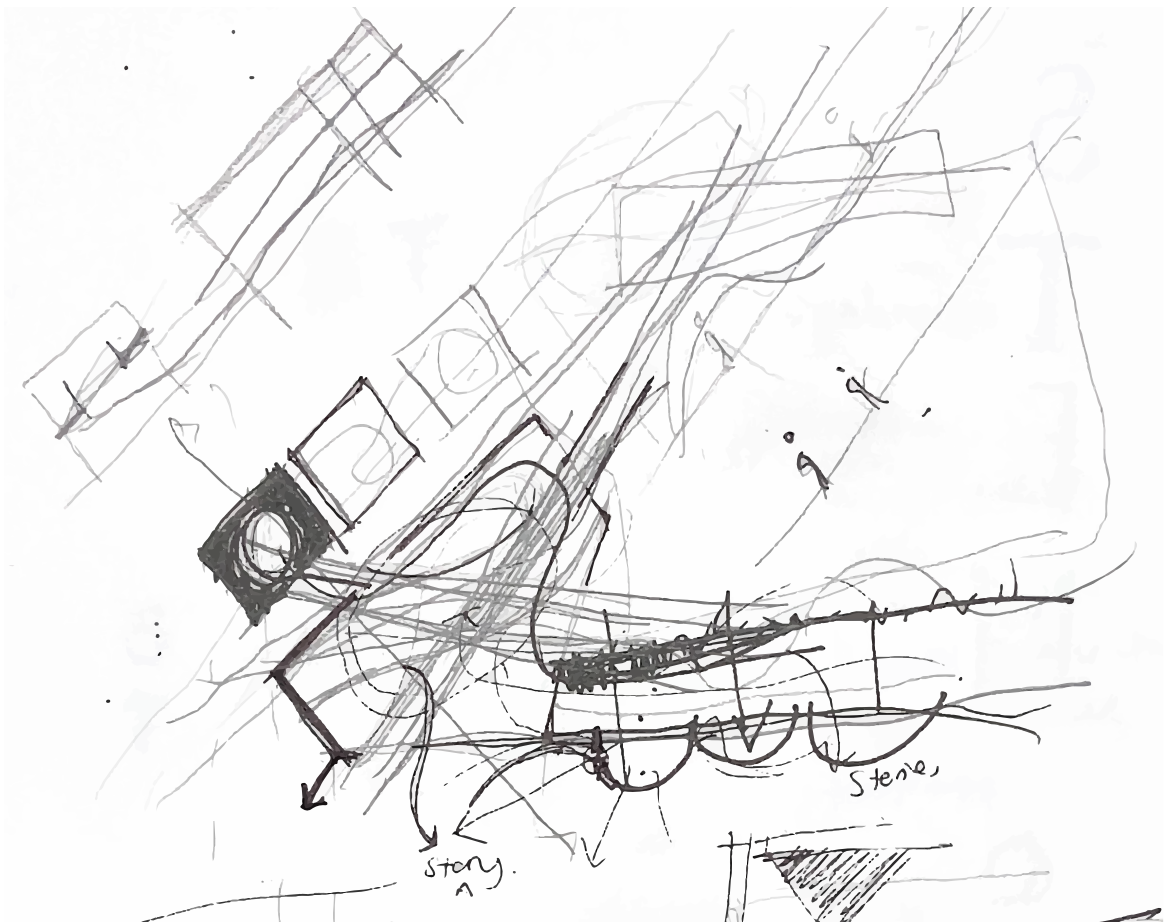
AN

ALTERNATIVE

ARCHIVE

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16005717



Abstract

There is an ever higher demand for improved performance standards and innovation in construction and architecture which can lead to a sense of homogeneity between different cultural or climatic regions around the world. With the influence of global ways of making, intellectual speculation will replace emotive sincerity and ultimately trade experiential quality for quantifiable factors (Pallasmaa 2012, Jekot 2007). A connection with the sensory, the experiential and traditional, however, should not be rooted in formal interventions or overt symbolism. It should come from the inherent logic of the space, where space responds to the original logic of the tradition - an understanding of why things are the way they are, instead of simply acknowledging them (Pallasmaa 2012). This inherent logic, better described as a type of implicit or indigenous knowledge, is embodied in crafted artefacts, made with a skilful combination of methods, materials, and tools. By association with this indigenous knowledge, the artefact gains sentimental value. Archives can be seen as unique gateways to academic authority – the repositories of primary sources - and often as portals to a world yet-undiscovered. Due to this unique status, the archive brings with it its own set of rules and material practices that directly impact the way in which visitors interact with artefacts. To propose a new way of using the archive, Schmidt (2016: 145-156) states that first the epistemological connection between the practices of the archive and the historian must be understood.

Thank you...

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And finally to my Creator, for giving me the strength, tenacity and the means to complete this degree.

Programming: Public interior, Research Center, Museum

Research Field: Memory, Legacy & Identity

Study Leader: Cobus Botha

DECLARATION

In accordance with Regulation 4(c) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree of Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma, or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

SIGNATURE



DATE: 2022/08/29

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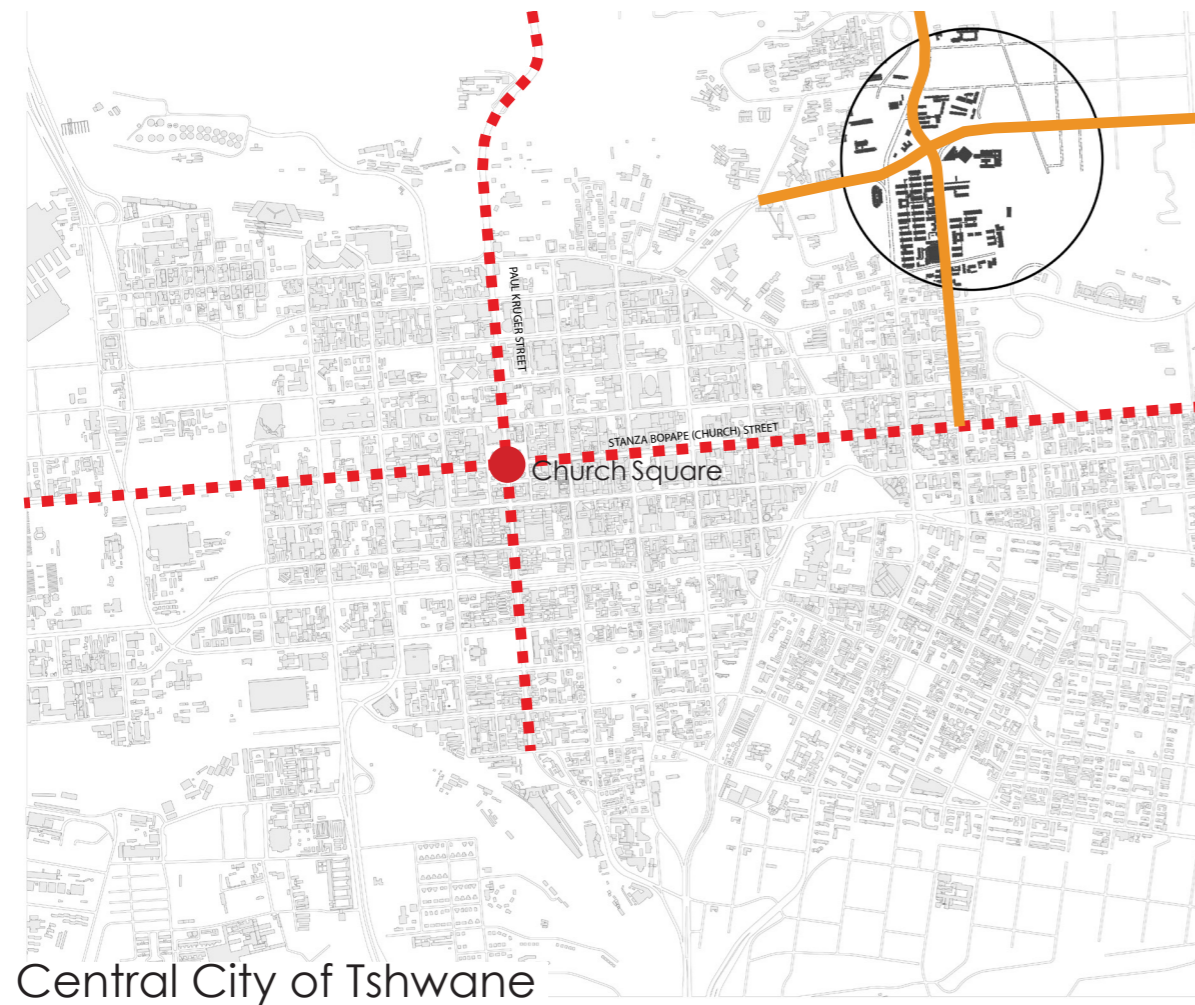
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01_Site Information

01.1 Site Characteristics

The site is located on the premises of the National Archive and Repository Service of South Africa, at the intersection of Soutpansberg and Hamilton road on the north eastern edge of the Pretoria city center.

Physical location: 24 Hamilton St, Pretoria 25°44'07''S 28°12'25'' E



01.2 Site introduction

The building that hosts the National Archive and Repository Service of South Africa (NARSSA) is located on a large property owned and managed by the Department of Public Works and shares the plot of land with other government office buildings. Both existing buildings are located close to the centre of the property with wide stretches of undeveloped land separating them from the street and the greater urban fabric. Notably, the NARSSA building is cut off from the rest of the premises by a disused boundary fence penetrated by a poorly conceived pedestrian gate where access control is loosely applied. This condition creates the impression that access to the NARSSA building was added as an afterthought without adequate planning – this despite NARSSA being the most public building on the property. This is a missed opportunity given the immense civic and educational potential that a National Archive can hold. The architectural language of the building (and its neighbour) is robust and simple, consisting mainly of off shutter concrete, face brick and corrugated metal roofing. Both buildings, although built in different eras, follow a brutalist language with the main volume of the Archive (storage space) being a closed concrete volume with minimal glazing and openings. According to Molefe and Schellnack-Kelly (2019), the NARSSA is plagued by a lack of adequate storage space as well as insufficient facilities for its public functions leading to a decline in visitors. As a whole, the building sits separate from its urban environment, with minimal attention paid to public access and exposure of its contents.

01.3 Urban conditions

The site of the National Archive and Repository Service of South Africa is located along the Soutpansberg road mobility corridor and sits at the centre of a future development node focused on improving education, transport and commercial facilities. Additionally, it is located near the meeting point of residential, commercial and education precincts that include the University of Pretoria's Prinslof campus as well as a number of government administrative offices. The surrounding context consists of a variety of densities, land uses and landmark buildings such as the Union Buildings (1910). Hamilton street, which runs along the western boundary of the site, is a highly active street with a variety of public, commercial and retail functions existing on the street edge in the southern segment of the street. This activity sharply declines approaching the site and only increases again after the intersection with Soutpansberg Road, which defines the northern edge of the site. In contrast to the western boundary, the northern boundary plays host to very limited activity despite the road being an important link between the CBD and the northern suburbs, the presence of a bus stop and a selection of community functions, including a church and multiple schools, in the vicinity. This lack of activity makes the northern edge an important area to address. Within the broader context of the city, the site plays a role as a gateway to the City Centre and has the potential to mediate the change in density and intensity of activity between the suburban neighbourhoods and the bustling city. This positions the site as a potential civic landmark and destination for cultural exchange.

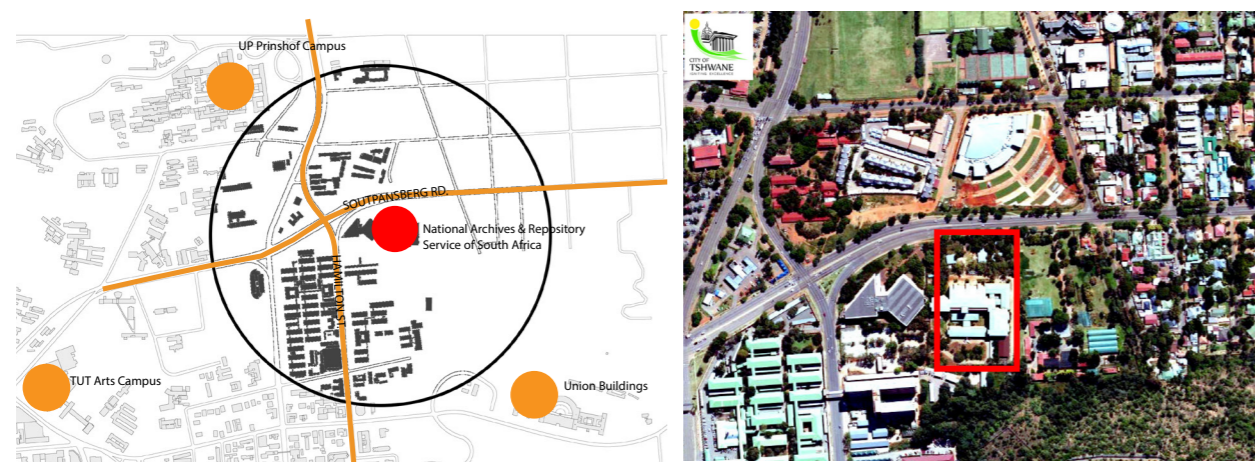


Figure 1.1: Location of NARSSA in relation to key sites nearby

Despite the fact that the National Archive is a public institution (Molefe and Schellnack-Kelly 2019) and the fact that it is located within a highly active urban setting, the site and the existing building has poor accessibility. Although it is possible for members of the public to enter the site, the entrance is poorly articulated and primarily focused on vehicular access. Furthermore, the entrance to the public section of the National Archive, the reading room, is hidden from view and poorly marked. The existing buildings on site are situated far away from the site edges, with the street edges largely undeveloped and undefined or utilized for parking. The result is that there is limited opportunity for pedestrians to engage meaningfully with the site. The lack of articulation of the urban edges can be seen as a symptom of a broader attitude to public space within the City of Tshwane where buildings become fenced in and access tightly controlled to ensure a sense of security (Clarke 2011). In order to address these issues, a more appropriate articulation of the public side of the National Archive needs to be investigated. This requires a reconsideration of the site's current configuration and explorations with how the site affects its surroundings.

01.4 Key takeaways from City of Tshwane MSDF

(City of Tshwane 2018)

The area surrounding the site is designated as a future high density residential development zone.

The intersection between Hamilton Street and Soutpansberg Road is designated as a future transport node for commuters travelling from the northern and eastern suburbs of the city to the CBD.

Site located at crossroads of transport spine, Soutpansberg road (East-West Axis), and activity street, Hamilton Street (North-South Axis).

Site sits at connection point between residential and commercial zoned properties.

Site borders biodiverse area against the northern face of Meintjieskop.

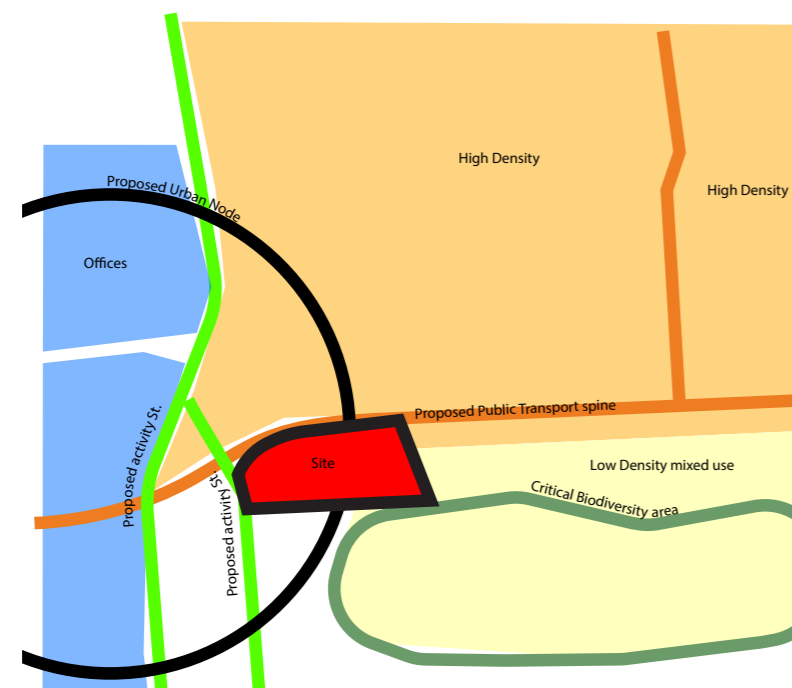


Figure 1.2: Visual representation of key points of CoT MSDF

02.1 Introduction (Architectural Issue)

Architecture can be seen as the material expression of culture. In the South African, and greater African context there exists a hybrid construction methodology that combines global contemporary techniques with local ways of making (Louw 2021). This reflects the pooling of knowledge and the mutual inspiration that has taken place in the formation of South Africa's architectural continuum (Jekot 2007). Alongside this process (and product) of shared informants, however, there is a dismissive attitude towards low tech or local solutions that are poorly articulated or thoughtlessly implemented. In a world that reduces the environment to a commodity, low tech and context specific technologies are often viewed as inefficient, overly nostalgic and incompatible to contemporary needs (Louw 2021: 1).

Louw (2021: 51) argues that there exist multiple binaries in architectural production between local and global ways of making, techno and techne and between the global South and the global North. He notes that the separate paradigms of local and global making are often criticized, the former for being too slow paced to meet demand and the latter for dehumanizing production and homogenization of form. Jekot (2007) and Pallasmaa (2012) argue in favor of a traditional approach, stating that social richness cannot be obtained without a connection to history. Specifically, within history, we derive meaning from the realm of tradition, our way of life is constructed from the experience of our predecessors. In this way, tradition can be seen as the essence of the human experience. Jekot (2007: 69) proposing a coexistence of traditional and global, states that tradition, in representing a cultural essence, can be seen as the objective structure in which to root architecture - it brings with it a sense of comfort and realness. She further argues that isolation of traditional architecture can lead to stagnation and that it is essential to accept outside influences (Jekot 2007: 72). The familiarity of tradition is a way to immerse oneself in one's culture (Bruchansky 2010: 3). The contribution of the local to the global and vice versa can be considered a form of progress to the local tradition. Reviewing this sense of familiarity through a lens of global technology and fabrication can bring about novel architectural interventions.

02_Position & Situation



Figure 2.1: Global and local tectonics are separated in conventional construction practice



02.2 The Global vs. The Local

There is an ever higher demand for improved performance standards and innovation in construction and architecture (Jekot 2007) which can lead to a sense of homogeneity between different cultural or climatic regions around the world. According to Pallasmaa (2012), this global push for a set of high-performance, standard solutions can cause a community or nation to lose touch with its architectural traditions and cultural identity. He argues that a local vernacular architecture stems from a collective identity that gets passed on from generation to generation. With the influence of global ways of making, intellectual speculation will replace emotive sincerity and ultimately trade experiential quality for quantifiable factors (Pallasmaa 2012, Jekot 2007). A connection with the sensory, the experiential and traditional, however, should not be rooted in formal interventions or overt symbolism. It should come from the inherent logic of the space, where space responds to the original logic of the tradition - an understanding of why things are the way they are, instead of simply acknowledging them (Pallasmaa 2012). This inherent logic, better described as a type of implicit or indigenous knowledge, is embodied in crafted artefacts, made with a skilful combination of methods, materials, and tools. By association with this indigenous knowledge, the artefact gains sentimental value (Loh, Burry and Wagenfeld 2016: 187-206).

02.2 Local Craft

The idea of craft and indigenous knowledge is well established by David Pye in his writings on his own practice (Loh, Burry and Wagenfeld 2016). He argues that the practice of craft requires an intimate relationship between the intent of the designer and the execution of the work that informs an evolving and non-conventional understanding of material and tools – their capabilities as well as their limitations. Louw (2021) states that the encounter between global and local tectonics is an awkward space, but that novel practices may emerge from it. From here, a hybrid of local and global tectonics may emerge. The points of convergence between the global and the local may provide an interesting point of articulation, with opportunities for the implementation of recent technologies or techniques. Jekot (2007: 76) echoes this notion, adding that the South African context may be the ideal place to investigate the points of convergence between the local and the global. She argues that South African spaces and places are a good resource to learn from about the potential of creative combinations of so-called developed and underdeveloped technology.



Figure 2.2: Hybrid tectonic examples (Louw 2021)

02.3 Problem statement

In everyday practice, research is typically focused on established, formally recognized, sources. There is, however, a wealth of alternative resources that are often overlooked by scholars. Within the archival environment, this dismissive practice has resulted in these resources being left out of conventional narratives and their only medium of survival being through informal exchanges such as oral narratives or family traditions (Botes 2022). Similarly, in the built environment, local or traditional architectural practices have often been denied their architectural merit and viewed as dormant, historical ways of making instead of being developed further (Fisher, Lange and Nkambule 2017:1-14). This removal from the architectural discourse has led to a dismissive attitude towards local and low tech building practices and an underutilization of these practices (Jekot 2007). There exists an opportunity to investigate and develop these architectural practices to create an architecture that expresses culture, identity and history in an archival research facility that allows for the inclusion of neglected narratives and artefacts.

02.4 General Issue

Archives can be seen as unique gateways to academic authority – the repositories of primary sources - and often as portals to a world yet-undiscovered. Due to this unique status, the archive brings with it its own set of rules and material practices that directly impact the way in which visitors interact with artefacts. To propose a new way of using the archive, Schmidt (2016: 145-156) states that first the epistemological connection between the practices of the archive and the historian must be understood. Furthermore, the way in which specific historical narratives might affect the construction of overarching historical narratives.

A specific archive's set of material practices is a useful indicator to understand the forces that emphasise or suppress dominant historical narratives. Platzer (2018: 6-10) writes that these practices are often not directly expressed, although it is clear that not all artefacts are considered equally significant. Mason (2006) writes that this is contrasted in Dana's vision for a new museum developed at the start of the twentieth century. He argued that everyday objects may have the same or even greater significance to a historical narrative as objects that are automatically deemed significant (Mason 2006). For example, a can of a popular soft drink may be as representative of a certain era or cultural moment as a ballot box from an important election. It is important to identify these types of biases that determine what is or is or is not worth preserving to avoid skewed narratives.

Common rules for visitors to archival research spaces that strictly control the way in which visitors use these spaces may also have an impact on the narratives and conclusions drawn from the contents of an archive. According to Schmidt (2016) some of these rules exist for the protection of the physical material itself, others for the protection of the contents thereof. He notes that bags and water bottles are commonly prohibited in spaces where visitors interact physically with archival material. Similarly, pens are also prohibited, with visitors only being allowed to use pencils to make notes. Visitors are also not commonly allowed to retrieve archival materials themselves – instead many archives opt for systems where visitors submit request forms for specific materials that are then retrieved from storage by staff members (Schmidt 2016). Copying items for later use is also not simple: reproductions are only made subject to



Figure 2.3: Disruption of the conventional archive

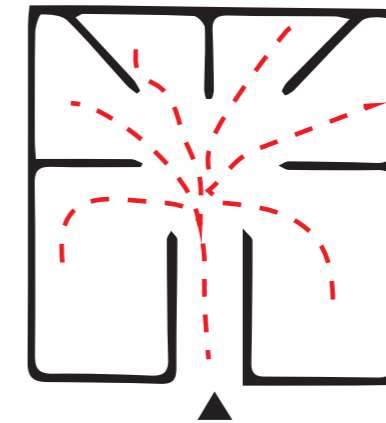


Figure 2.4: Traditional archives are compartmentalized and understanding relies on user knowledge

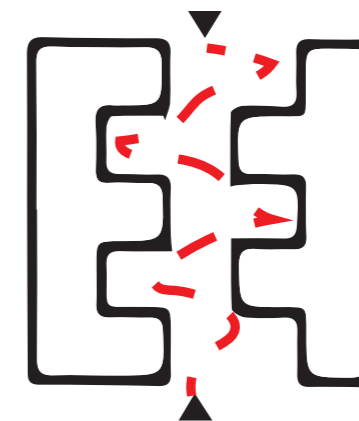


Figure 2.5: Proposed organisation of archive as a visual narrative

the approval of the archive – this protocol exists to ensure compliance with confidentiality regulations (Platzer 2018). Schmidt notes that an environment like this necessitates the ability to quickly make value judgements and draw conclusions based on the available material. McClellan (1999: 120) describes this ability as visual competence or, simply put, the possession of prior knowledge or enough peripheral knowledge to infer an accurate conclusion about an artefact or article. This implied requirement of visual competence, exacerbated by the stringent rules governing the archival space, can inhibit visitors' exploration of historical items and even deter them from visiting the facility at all.

Archives can be viewed as a gift between generations. According to the International Council of Archives, however, archives are being consulted less and less frequently in Southern Africa, including at the National Archives and Records Service of South Africa (Molefe and Schellnack-Kelly 2019). According to Molefe and Schellnack-Kelly (2019 3-15), visitors to the National Archives are often faced with issues such as the frequent recurrence of missing files. Further issues highlighted by users are long lead times for research requests, unindexed (and therefore untraceable) materials, and language barriers. A further notable characteristic mentioned by Molefe is that archival material gets sent off site for preservation and digitization procedures. This becomes a problem of accessibility to information and invaluable national heritage artefacts – the NARSSA, for instance, holds one of two copies of the Freedom Charter – borne out of inadequate facilities to store, process and preserve artefacts and to serve the public. Compared with its peers abroad, the National Archives and Records Service lags in terms of public engagement programs (Ngoepe and Ngulube 2011: 3-22). Facilities like the Dutch Nationaal Archief have an extensive online presence, hold frequent exhibitions of their holdings and offer educational programs on archival practice, and collaborate with their counterparts abroad to enrich their own collections (Ketelaar 1996).

02.5 Initial analysis of situation

National Archives and Records Service of South Africa (NARSSA)

The NARSSA building serves as the headquarters of the National Archival and Records Service. It is the primary research site for historical, genealogical, and statutory researchers in South Africa and as such is a key public facility of the national government. The NARSSA, alongside the National Film, Video and Sound Archives, is constitutionally mandated to take custody of all public records, index and preserve them for the use of the public (South-Africa 1996). The purpose of the archive is to not only contribute to the national heritage but also to help address economic, social and political matters (Koltun 2002). The vast collection of the NARSSA stretches from personal possessions of Jan van Riebeeck to oral histories recorded by the South African National Parks service (Molefe and Schellnack-Kelly 2019). As a state institution, the Archive provides free access to any records deemed to be of value to society (South-Africa 1996).

These institutional problems, alongside the Archive's physical isolation from its surroundings obstruct the NARSSA in its mission as the custodian of the national memory. This reduces its ability to be a powerful civic site that contributes positively to the urban context. The site serves as a clear example of public buildings retreating from the street, which makes it an ideal place to investigate the interface between the street and civic architecture.



Figure 2.6: View of NARSSA from Soutpansberg Rd. (Author, 2022)



Figure 2.7: Existing condition of the street edge of NARSSA (Author, 2022)

02.6 Identity and the alternative archive

Heritage is often contested as it is seen through various lenses. When one approaches an artefact from different contextual points of view, one sees the value of the artefact differently. Thus, as Platzer (2018) argues, an archival collection is the product of strategic selection based on certain biases and preconceptions stemming from the past. It could thus be argued that preservation activities are subordinate to the needs of the past – and that these needs override the needs of the present. Jorge Otero-Pailos (2016) proposes a similar argument – that all heritage is political, not cultural. He raises the question of how worthiness (of preservation) is determined and suggests that this is influenced by preconceived perceptions of value. As a result of this perception based selection, some artefacts may be omitted from the archive leading to entire pieces of history being lost or maligned (Botes 2022). Juxtaposing these alternative artefacts with conventional items could yield interesting results.

The archive itself also acts as a creator of history. Similar to the way in which preservation decisions may affect historical narratives, the physical act of preservation – restoration, storage, redacting, digitization – forms a new layer of history on an artefact. These marks can tell their own story in the archive. The exposure of these new layers can show an artefact in a new light, it can show how a particular period in history has been perceived. The prevailing cultural and political thinking of the day can influence the way in which an artefact is treated (Otero-Pailos 2016). This exposure of the entire archival process, from indexing to storage to display, may on its own become a valuable and intriguing form of archival narrative. In an alternative archive, the process may become a living artefact in and of itself.

In conventional archive facilities, artefacts are stripped of their context – decay is prevented, time is suspended and artefacts are stripped of their primary purpose in order to make research easier (Breakell 2008; Kalin 2018). This practice makes curated exhibitions a necessity if artefacts are ever to be viewed within any context at all. Archaeologist Sven Ouzman (2002) writes that artefacts are, essentially, the traces of people in the landscape. Studying these traces is a way to gain a glimpse into a different world. Adding the appropriate context to an artefact allows a researcher to see a scenario in the same way as the creator of the artefact. Context also sheds light on what may have been deemed important at the time of discovery/ preservation (Breakell 2008). This raises the question of how time might alter what is viewed as worth preserving and what is not – an idea that links into what scholars refer to as the *Alternative Archive*. Rachel Botes (2022) defines the *Alternative Archive* as a set of resources that have, throughout history, been neglected. The result being that these resources are invisible to scholars and only survive through social exchange. These alternative sources may provide valuable context to formally recognised sources found in the conventional archive. The Museum of Modern Art (MoMA) exhibition, *Frank Lloyd Wright at 150* serves as a precedent for this type of contextual approach. The curator of the exhibition, Barry Bergdoll (2017), invited a selection of architectural scholars, without a particular interest in the work of Frank Lloyd Wright, to build a section of the exhibition around a single artefact (Bergdoll 2017). The intention here was to get the curators to use other items from the Wright collection, based on their own expertise, to contextualize their main artefact. This method of curation can be applied to the Alternative Archive as well to help identify points where the alternative

intersects with the official, to expand existing narratives. Here may lie an opportunity to rethink the way in which artefacts are contextualised when being researched. Instead of solitary objects considered on their own, they may be shown among related materials to paint a more complete picture.

02.7 Urban Issue

The threshold is arguably the primary architectural element. It demarcates inside from outside, private from public, welcome and unwelcome. It is the point where an institution meets the world outside. The way this joint is articulated can be a powerful method of social engineering - an intricate envelope ensures a larger area of contact with the public, a permeable one leads to a more fluid relationship with the public (Zaera-Polo 2008). Every building envelope, as far as it exists in the public space, is public space – it has a responsibility to respond thoughtfully to its context (Nieto 2012). Jan Gehl (2018) describes 12 Criteria for Urban quality under three main themes: protection, comfort and enjoyment. The site of the National Archives can be seen as representative of a certain attitude towards the urban environment in the City of Tshwane. The building sits within the urban fabric yet is completely isolated from it. Its envelope, instead of interacting with the public space of the street, completely ignores its context. It is a public building, described in its charter as the custodian of the national memory (Molefe and Schellnack-Kelly 2019), yet it has completely turned its back on the public. These conditions contribute to the issues of accessibility of the archives and are symptomatic of the recent tendency of public buildings to be more closed off and access controlled (Clarke 2011).



Figure 2.8: Isolation of NARSSA from urban context (Author, 2022)

02.8 Research Question:

Keywords: hybrid/tectonic/technology/research/display/archive/narrative

How can hybrid tectonics and technologies be used to create enhanced research and display spaces that will reframe existing historical narratives at the National Archival and Records Service of South Africa?

RESEARCH METHODOLOGY INTENTIONS

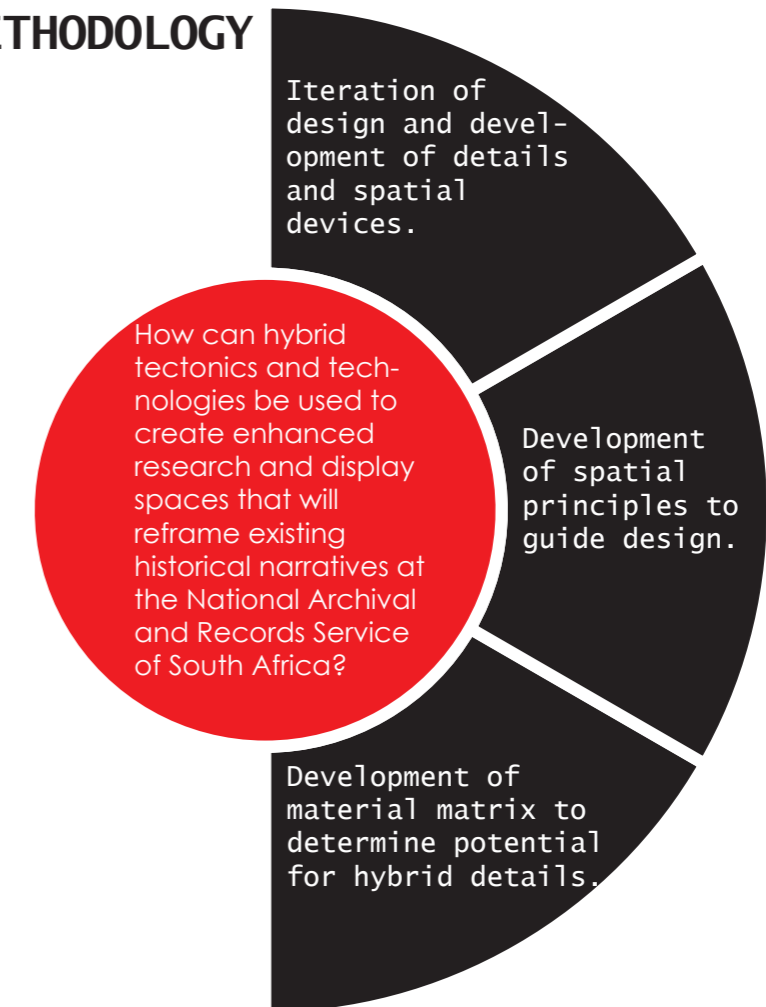


Figure 2.9: Research Methodology intentions (Author, 2022)

02.9 Theoretical framework

02.9.1 Research Methodology

The primary focus of this dissertation is the development of a contextually appropriate architecture and a hybrid tectonic architectural language that will lead to the development of an enhanced public interface for the National Archive of South Africa. The expected outcome of this dissertation is a fully developed and articulated archival research facility that will feature a new method of exhibition and study of archival material that includes and integrates alternative historical narratives. To this end, the study will employ a mixed method strategy that will make use of a variety of sources and physical spatial investigations.

02.9.2 First literature review

The research initially began with a broad reading of theories on digital craft, local craft and technology and global tectonics in order to develop an understanding of these concepts for the design phase of the dissertation. Initial readings consisted of an in depth reading of Louw's dissertation, *The search for hybrid tectonics in contemporary African architecture: encounters between the global and the local* (2021), Jekot's paper, *The coexistence of the 'third' and 'first' world in South African architecture: the inclusion of the underdeveloped undeveloped technologies in the age of globalisation* (2007: 66-78) and writings on David Pye's theories of craft – primarily Loh, Burry and Wagenfeld's work (2016: 187-206) *Reconsidering Pye's theory of making through digital craft practice: A theoretical framework towards continuous designing*. These readings, alongside Sven Ouzman's lecture *Radiant Landscapes and Ancient Mindscapes: Archaeology and Architecture in harmonious counterpoint* (2002) brought about the idea that materiality and space can together form powerful narrative elements that can, on their own, become a type of artefact.

02.9.3 Second literature review

A second literature review focused on archival and museum theory in order to develop a set of criteria against which museum and archive design could be measured. The literature review consisted of an investigation into museology, starting with Museum of Modern Art (New York) curator Barry Bergdoll's article *Frank Lloyd Wright at 150: Unpacking the Archive* (2017: 11). The article informed the rest of the investigation, with further reading of *A Companion to Museum Studies* (2013) and Andrew McLellan's *Inventing the Louvre: Art, politics, and the origins of the modern museum in eighteenth-century Paris* (1999). These readings helped define a set of spatial and theoretical principles for museum design.

Further reading on the nature of common archival practice and its impacts on historical narratives included an unpublished article by Rachel Botes, *Food History: Recipes as Alternative Archives* (2022) which provided the initial basis for the concept of developing an archival facility which celebrated the *alternative archive* and *The Archival Workspace: An Accidental Ethnography*, by Sebastian Schmidt (2016). Additionally, readings on the architecture of archives were consulted, with *The architecture of archives: Whose form, what functions?* (Koltun 2002: 239-261) providing a technical background.

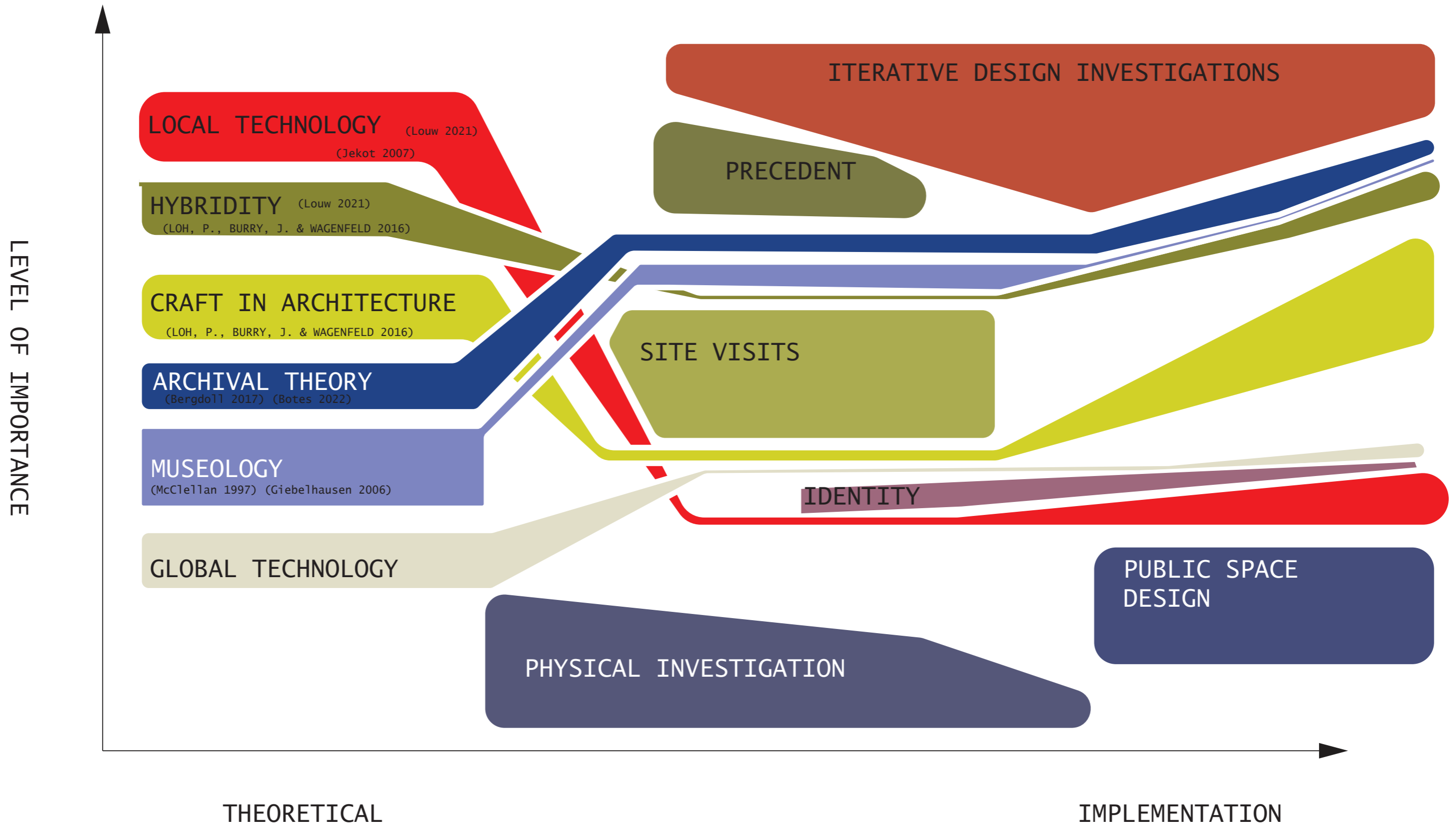


Figure 2.10: Hierarchy of informants throughout study period (Author 2022). Adapted from Louw (2021)

02.9.4 Primary sources

The dissertation will focus mainly on desktop studies and analysis of secondary data via an interpretivist approach. Site visits and analysis of contemporary mapping of the site as well as current urban planning directives will inform the site analysis and mapping of the site. Information obtained from the NARSSA will augment the understanding of the site.

At the heart of this dissertation is the implementation and critique of existing frameworks that identify and analyse hybrid tectonics and regulate archival practice and the analysis of relevant precedents to better define architectural principles. Principles defined through the precedent study will be critically considered against the context, adjusted, and applied to develop a suitable typology.

02.9.5 Development of Principles

Relevant precedent studies focusing on the spatial organisation of museum spaces and the subversion of conventional narratives will become key sources for the development of principles that can be applied to the design. These principles will be investigated, explored and developed through diagrams, maquettes and sketches. These explorations will form the basis of the architectural investigation. The design process will conclude with a formal design proposal that incorporates the results of the theoretical and the technical investigations.

All research materials consulted will be in compliance with the Ethics guidelines set out by the University of Pretoria (2012).

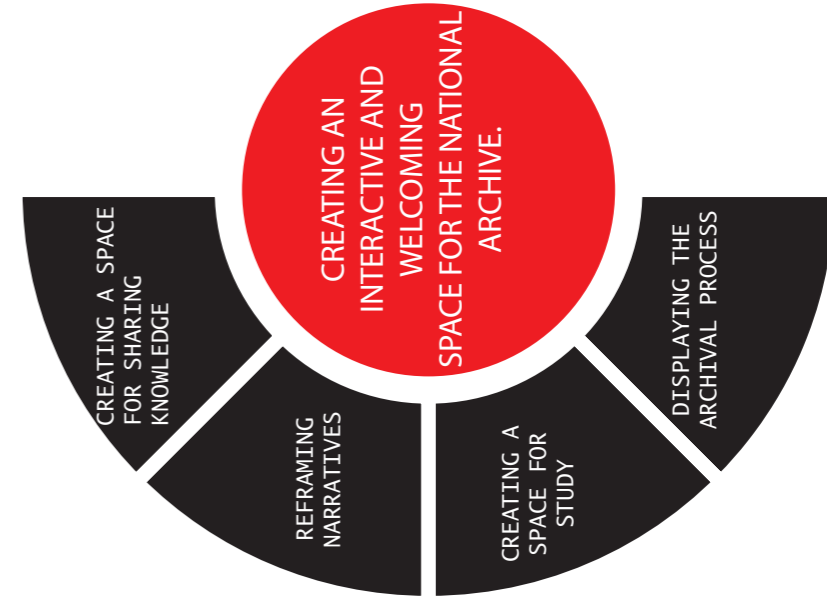
Design Strategy

WHAT



Creating a space where archival artefacts can be displayed and interpreted according to a diversity of viewpoints.

HOW



WHY
CONCEPTUAL
APPROACH



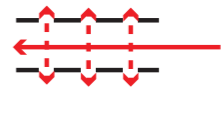
Rigidly ordered narrative

Expressing the apocryphal nature of alternative archives through local and global hybrid technologies.

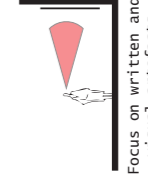


Reorganised narrative

CRITIQUE OF EXISTING
TYPOLOGY



Linear, predetermined narrative



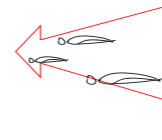
Focus on written and visual artefacts



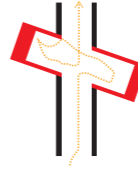
Inaccessible spaces

DESIGN
STRATEGY

WAYFINDING



BUILDING AS
NARRATIVE



OPENING UP THE
ARCHIVE



ALTERED
PERSPECTIVES



FACILITATE ALTERNATE
HISTORY



Figure 2.11 Design Strategy

02.10 Postulation of program

The National Archive is situated at a crossroads of two main thoroughfares leading to the northern and eastern suburbs of the city with planned public transportation routes forming a strategic civic node in the city (Tshwane 2018). Additionally, within walking distance of the site are important government institutions, the Medical Campus of the University of Pretoria, and several public sites. The site sits at the edge of a key administrative and educational precinct which morphs into the historic heart of the city. The site's proximity to such places as the Union Buildings, the University of Pretoria and the Tshwane University of Technology gives it the potential to become a centre of knowledge transfer and remembrance. The intention to create a public interface with a distinct sense of place at the National Archive will require the development of a robust tectonic hybrid of local and global technologies as well as the exploration of what an archive can be. Therefore, the intervention must reflect and respond to a critical analysis of existing built work, especially civic structures, in the city and reflect the current needs of the National Archive while augmenting them with innovative public engagement interventions. The study further aims to investigate how conventional construction can be reimagined to create a dialogue between the various forms of archival material and to create enhanced interaction and storytelling spaces within an archival research facility.

02.11 Conclusion

The the desire of the National Archive to expand their user base provides a prime opportunity to reimagine the public interface of the space. It is vital, though, that any reimagined interface be responsive to the complexities of historical archival and recordkeeping decision-making to create a space for a multitude of identities and viewpoints, as well as the practical requirements of an archival/museum space – requirements that have not been adequately addressed by the current situation. This makes a reevaluation of contemporary civic architecture and the functioning of the Archive imperative. An investigation of the museum typology, the alternative archive and global/local tectonic hybrids will be conducted to explore the potential of the Archive to engage meaningfully with the urban context.

03.1 Introduction

Rethinking the public aspect of archival spaces to create a space for interaction and inclusive expressions of memory necessitates an understanding and critique of traditional archival, museum and library typologies and the synthesis of these into a new hybrid typology. This will require the accommodation of knowledge sharing and archival processes, study and artefact examination spaces and public exhibitions in the creation of a public building. Emphasising the role of narrative in developing a space of interaction and exhibition may allow the archival typology to become a more accessible and user-friendly space.

To focus the design investigation, it is necessary to understand the nature of existing (national) archival practices and spaces and the physical context of the site within a broad spectrum of design thinking. To achieve this understanding, a study of the existing condition of the archive, the context and relevant precedents will be completed. First, an analysis of the existing condition of the National Archive including current services, facilities, content, and public engagement will determine the key opportunities and shortcomings to be addressed. This will aid in generating the scheme's program. After this, the site and the broader context will be examined to determine guidelines for an appropriate spatial response. Then, relevant precedent studies of public buildings and display spaces will be conducted to determine a set of architectural, material, and spatial criteria against which design development will be measured. Informants and principles identified in these investigations will be used to devise a refined concept for further development.

03_Design Investigation

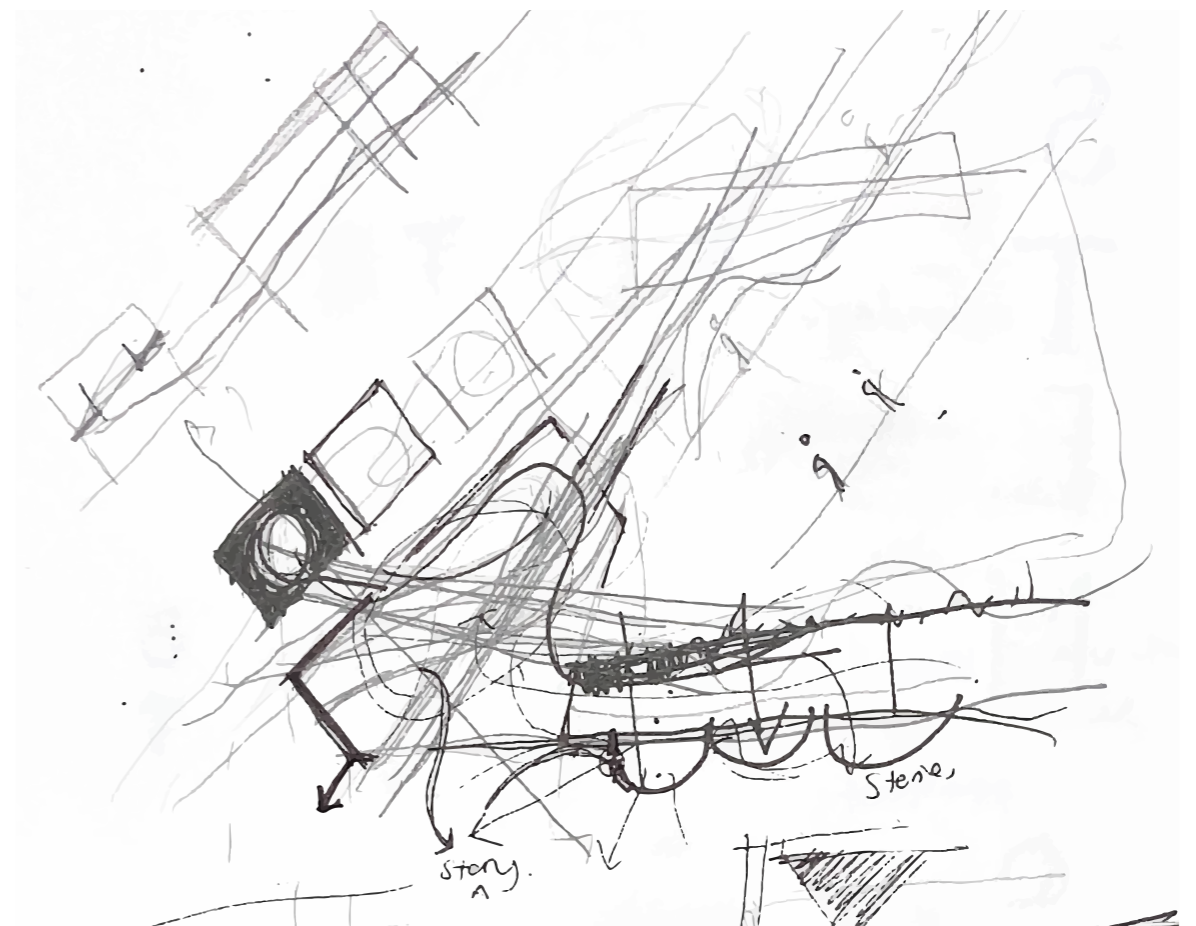


Figure 3.1: Concept sketch (Author, 2022)

03.3 Spatial organisation of program

In order to best respond to the context, Three user types have been defined: Casual Visitors, Researchers and Passersby. To accomodat these users, three user routes are developed to ensure participation in the site.

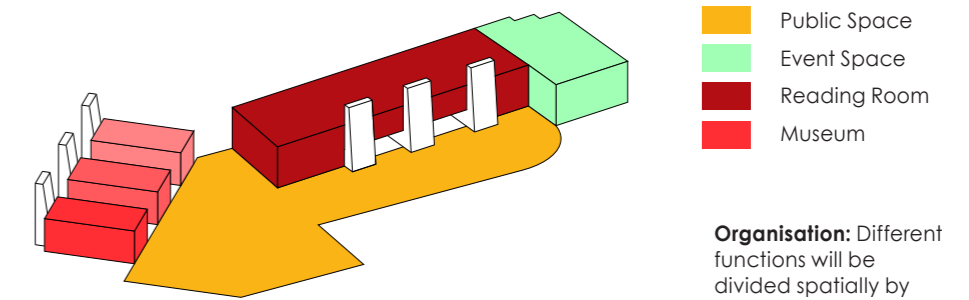
03.2 Program

A selection of contextual attributes will act as informants to devise an appropriate new program that will activate the site and celebrate the contents of the NARSSA. The central program deals with the integration of the NARSSA into the urban fabric and its expansion from a static and daunting government service building into a fully realised public space that celebrates and showcases the national memory – an ideal set in the National Archives and Record Service Act 43 of 1996.

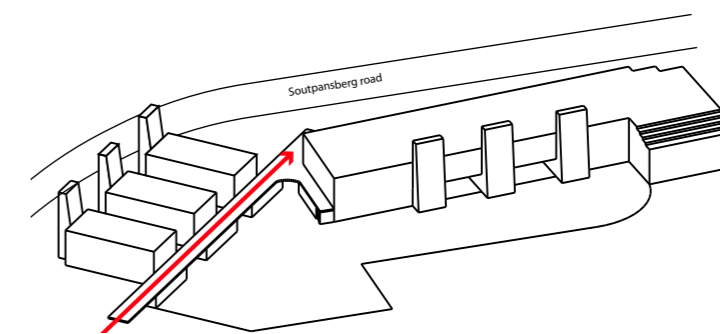
The primary programmatic attribute of the intervention will aim to address the daunting nature of the archival research space through the exhibition of archival material in a way that eliminates the overt need for visual competence to even access the material. Thus, the primary programmatic function will be a space for the exhibition, study and reproduction of archival material by members of the public. There exists an opportunity to develop a hybrid exhibition/research centre/civic centre on the site that will allow the archive to continue to exist in a sustainable way.

Alongside the exhibition program, the intervention will expand the existing facilities of the NARSSA. These include an expanded research space that allows for a flexible use of the space, a series of spaces that allow for alternative material examination such as audio or visual materials, physical artefact exam rooms, artefact preservation facilities and facilities to accommodate alternative archival events, namely storytelling and culinary activities. These spaces will link with the main exhibition space to create a cohesive historical narrative experience that encourages visitors to view items from different perspectives and foster cultural exchange. Finally, the intervention will be linked with the urban fabric through an extended continuous urban surface connecting the activities in southern Hamilton Street with those of eastern Soutpansberg Road and the community facilities to the north of Soutpansberg road.

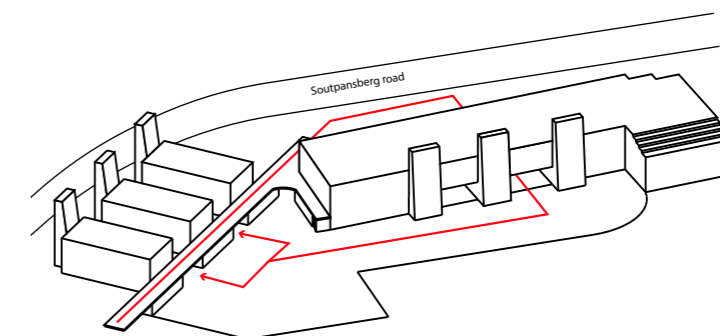
Local tectonics and ways of making, as an expression of culture in a material form (Jekot 2007), will serve as the basis for the development of the intervention. The tactile nature of local material articulations can serve as a tangible expression of a collective heritage, providing opportunities for the development of technological hybrids and physically expressing a dialogue between local and global ways of thinking and making.



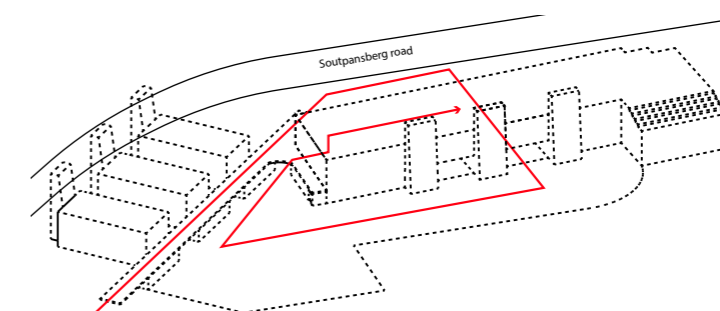
Organisation: Different functions will be divided spatially by level changes and floor layouts.



Passersby: Pedestrians using the site as a shortcut pass between the main building and exhibition halls, seeing the activity of the building through openings in the envelopes.



Casual visitors: Visitors without formal research needs can pass through exhibition spaces as and the main reading room to experience the space in its entirety.



Researchers: Persons requiring extended research sessions can access the main reading room directly.

Figure 3.2: Program layouts (Author, 2022)

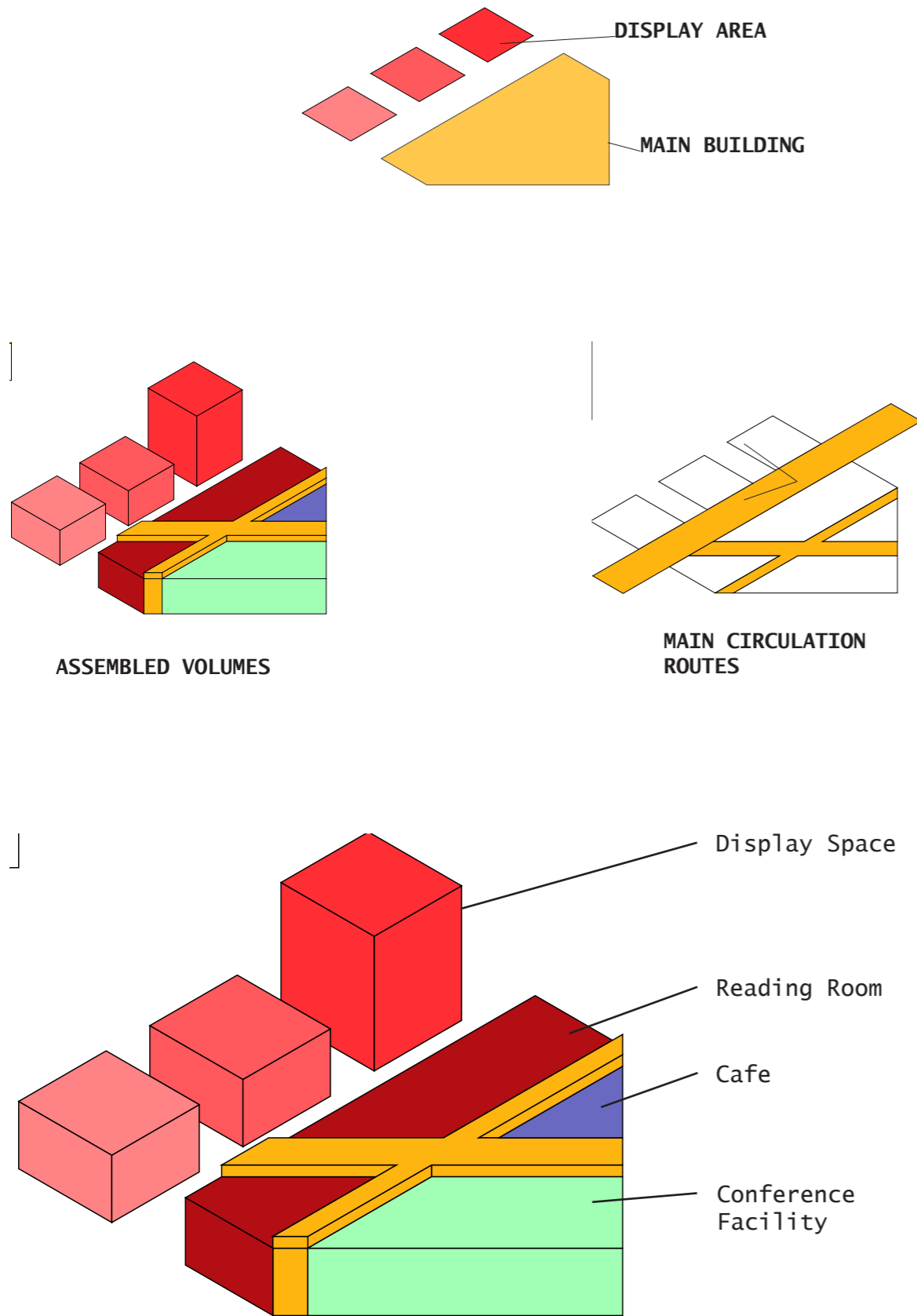
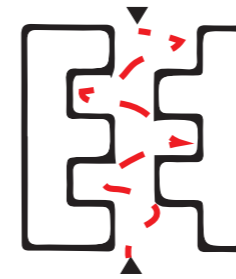
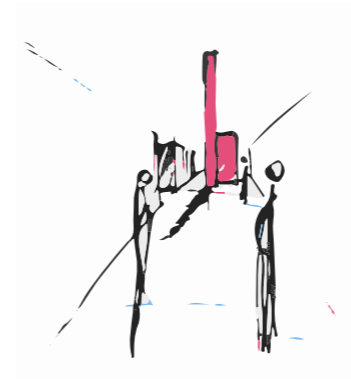


Figure 3.3: Program layouts continued (Author, 2022)

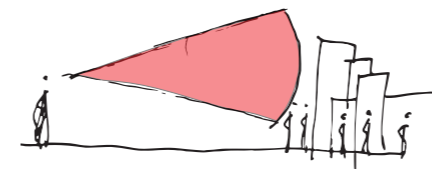
Museum articulation
oscillates between mere
visual and informative



Precious objects were housed
at holy places in Antiquity.



Museums are places of
civic seeing and collective
engagement.



Museums divide people according
to their competencies.

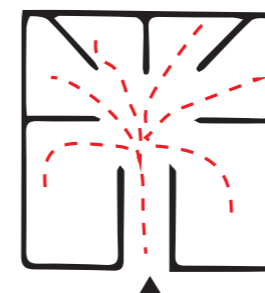


Figure 3.4: Museum Criteria (Author, 2022)

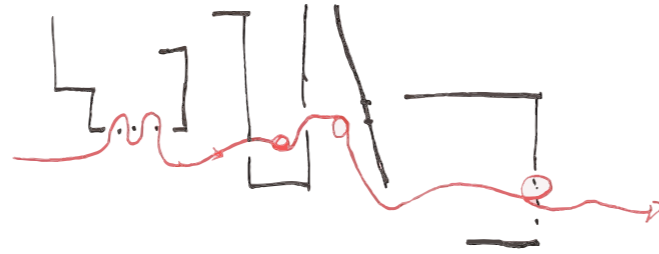
03.4 Precedent

The study of museums provides a departure point in the development of a suitable public space for NARSSA. A notable critique by John Cotton Dana of the traditional museum typology, as it has existed since the inception of the museum, is that museums have a tendency to become places of the visual where objects are simply installed to be looked at but not engaged with or experienced (Bennet 2006: 263). Dana argued that these types of institutions automatically begin to separate people based on degrees visual competence – that is, the ability to interpret displayed items without additional information – which in turn relates to levels of education and ultimately social status (McClellan, 1999). A further analysis of this and other critiques provides a valuable set of principles according to which a lively, engaging and effective exhibition space may be developed. A series of museums and libraries that adhere to these principles were studied to better understand possible executions.

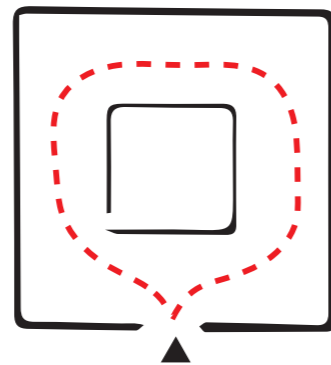
03.4.1 //hapo Museum, Tshwane
Year: 2007

Architect: GAPP Architects, Mashabane Rose & Associates

The investigation begins with the //hapo Museum at Freedom Park. The building takes on the form of its surrounding context, with organic boulder like shapes making up the main volumes of the building. The museum is laid out as a path helping the user navigate his way through these volumes. The building shapes the narrative, guiding visitors through the various narration spaces - spatially, the user is taken on a path of illumination, with the spaces becoming gradually brighter and taller as one progresses (Mdlalose 2012). Content is also organised from simple to complex, starting with geological and natural history and ending with political and social history. In this organisation, the museum narrative reframes history and prepares the user to experience the whole through a different perspective. The intervention challenges the conventional historical narrative with alternative accounts and testimonies providing a new perspective.



Defined narrative leading from simple to complex



Circular route altering perspective

Figure 3.5: //hapo Museum, City of Tshwane (Author, 2022)

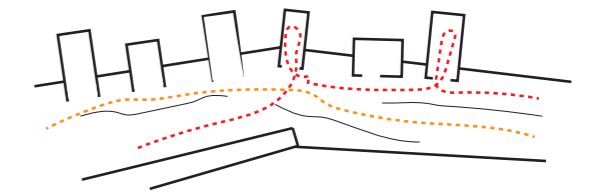
03.4.2 Quai Branly Museum, Paris
Year: 2006

Architect: Jean Nouvell

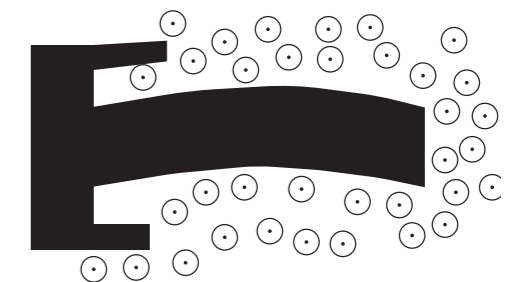
Jean Nouvell's Musée du Quai Branly, Paris houses France's collection non-Western art and is hailed as a post-colonial place of reconciliation and sharing (Ruiz-Gómez 2006). The museum is designed to recall a primitive shelter surrounded by a wood and reveals a set of binaries in museology, namely the self vs. other and culture vs. nature. Nouvell avoids building a monument here, with the structure itself intended to dematerialize into the landscape and to be discovered as though it were a folly in a formal garden. Care was taken to avoid aestheticising the objects on display as originating in a crystallised 'other' as previous ethnographic museums have done (Shelton 2009). A key part of Nouvell's approach to the design was to encourage the interaction between the object and the visitor to make for a more intense experience. Nouvell's stated aim was to celebrate each individual object instead of simply showcasing a collection of curiosities accumulated over the years.



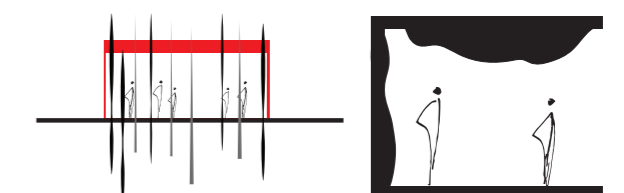
Spatial interjections into determined narrative



Multiple routes through space



Building ensconced by landscape



Nature as facade

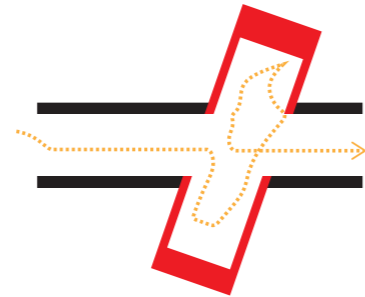
Architectural carving

Figure 3.6: Quai Branly Museum, Paris (Author, 2022)

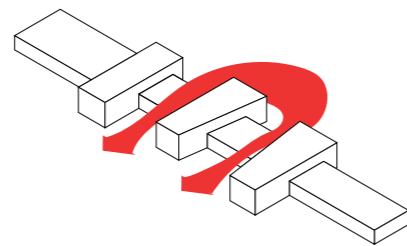
03.4.3 Nelson Atkins Museum
Year: 2005

Architect: Steven Holl

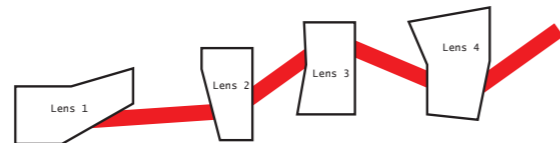
Stephen Holl's extension to the Nelson-Atkins Museum of Art consists of a linear, highly experiential expansion of the museum's existing floor space. Holl followed a phenomenological approach to the design, placing great importance of the play of light in both the interior and the exterior. The space was conceived from inside outwards, creating a series of experiences interconnected by a series of galleries (Jung and Arar 2021). The result is a set of five interconnected structures, or lenses, that create new viewing angles through the use of winding ramps and level changes. These lenses further act as navigational devices inside the building by allowing natural light to pour into the subterranean galleries. In the landscape, the lenses rise up from the ground, allowing visitors to experience the intervention from both the inside and the outside. The result of this articulation is that the entire site is transformed into a cohesive spatial experience.



Route through space gets disrupted



Landscape spills over building



Spatial interjections divide space into different lenses

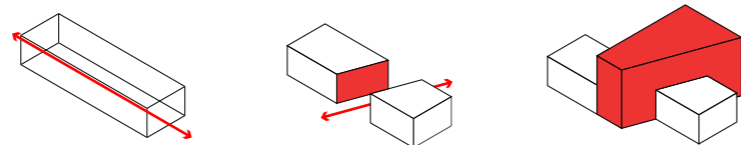


Figure 3.7: Nelson Atkins museum (Author, 2022)

04_Concept

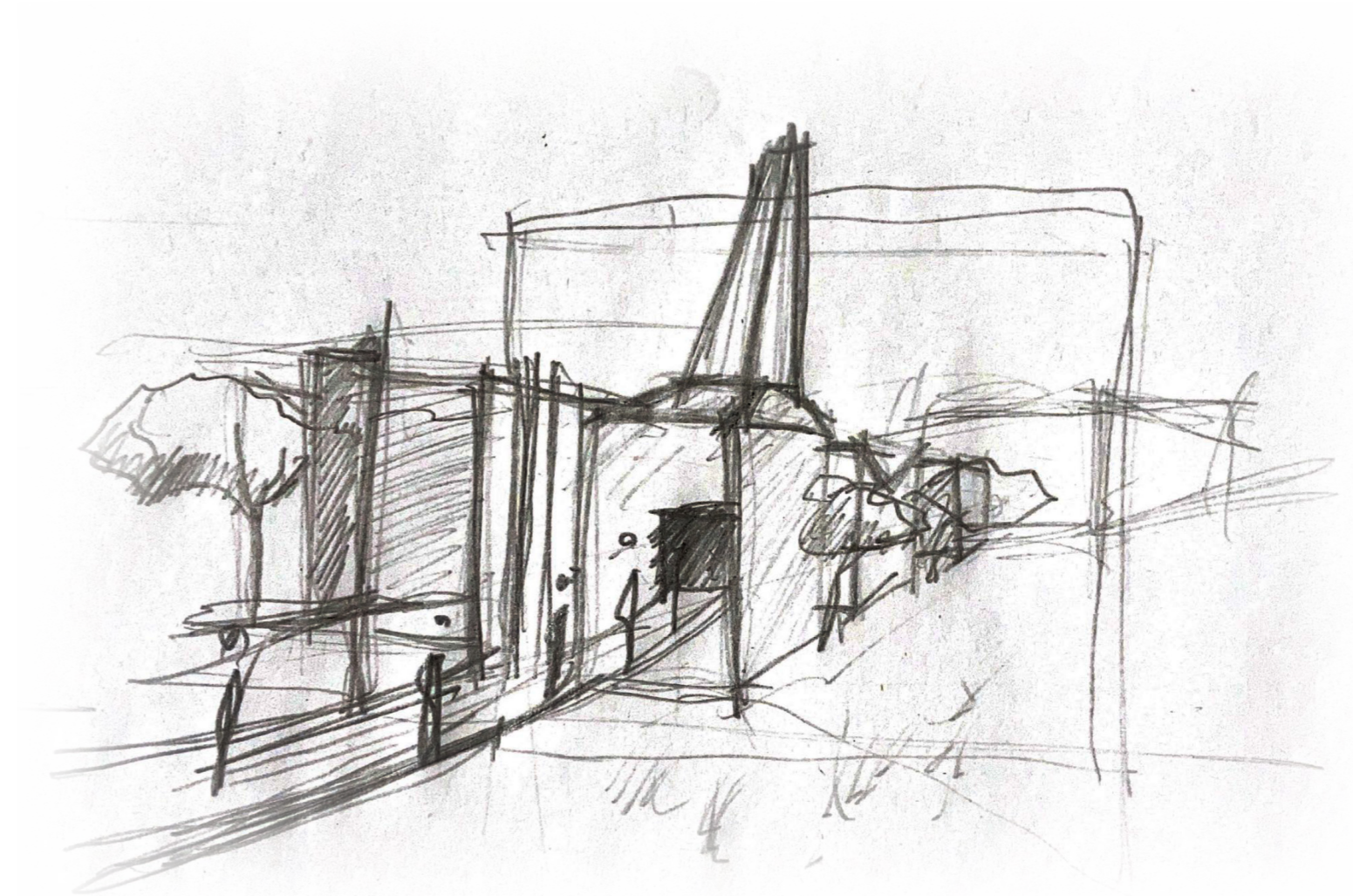


Figure 4.1: Vignette of first iteration (Author, 2022)

04.1 Hybrid tectonics

Architecture, craft and construction can all be seen as material expressions of culture. When viewed in this light, the historic or narrative quality of a material or method can become significant. Especially in the context of an archival space. Edward Bottoms (2012), archivist of the Architectural Association in London, describes buildings as living archives that showcase historic knowledge in a practical, physical way – acting as a type of snapshot of history. Continuing this thought, it could be argued that construction methods and other ways of making could also be viewed as a type of alternative archive – a way of displaying heritage in action. From this then, it becomes important to define how construction technology may best be utilized in this way.

Henri Comrie describes the characteristics of a well crafted building as being designed with real spatial understanding through investigations and iterations, the creative use of immediately available materials and the careful consideration of their articulation, the use of complementary materials and the development of context specific details. (Steyn and Nkambule 2017) This attitude is similar to the work of Louw (2021), who also argues for the use of complementary materials. Louw writes that there exists the possibility of distinct tectonic hybrids incorporating both local and global materials. He argues that hybridisation begins where the construction process is firmly rooted in place and culture. A hybrid technology might not be described as a synthesis of two materials, but rather the layering thereof. To achieve this layering, it is necessary to identify differences in materials that may complement one another, seek connected characteristics and from this look for characteristics that can produce new hybrids. It is thus possible to develop a framework through which materials suitable for hybridisation can be selected (fig. 4.2). This is achieved through creating matrix of materials and their characteristics. It then becomes easy to identify materials that have complementary or opposing material characteristics. These material hybrids will then act as drivers for spatial and technical development during the design explorations.

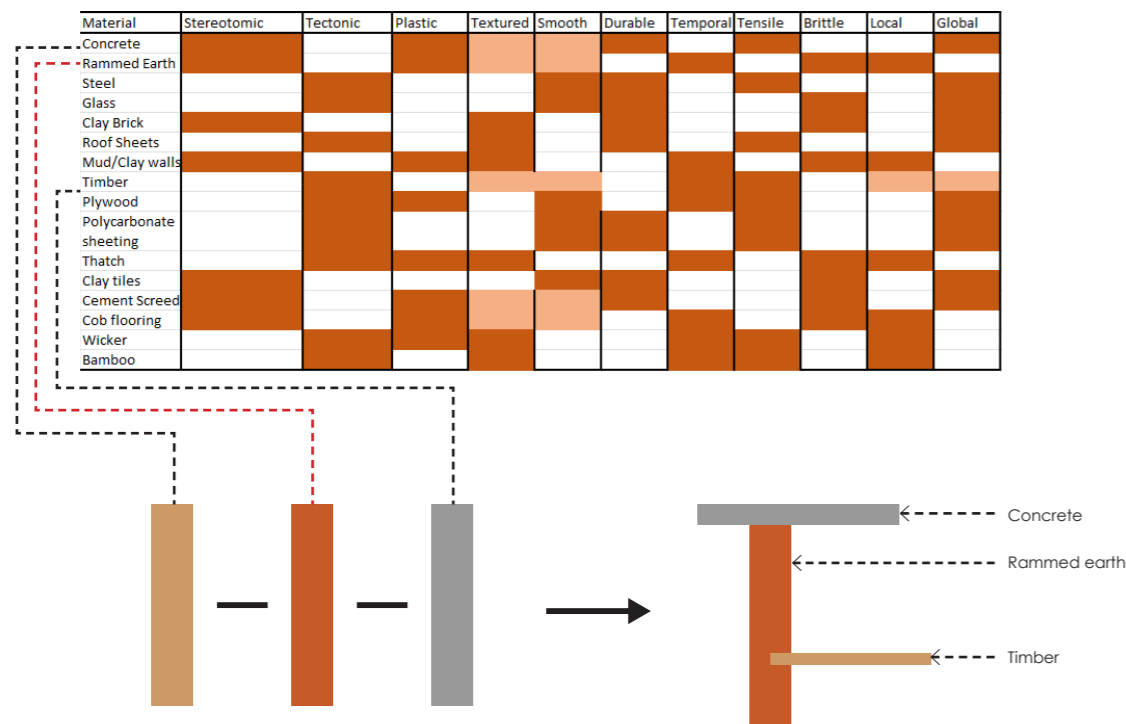


Figure 4.2: Materiality matrix (Author, 2022)

04.2 Public space

In addition to the fixed, defined program of NARSSA, the lack of pedestrian activity on and around the site must be addressed. The findings of Dewar and Watson (1981) serves as a basis from which to develop a set of criteria for the development of a vibrant, commercially active public space. In order to develop an effective public space, the key characteristics of existing successful spaces must be understood and unpacked. This will aid in identifying informants to determine the most appropriate program for the space surrounding the intervention. This added layer of activity will provide alternative opportunities for public engagement with the site.

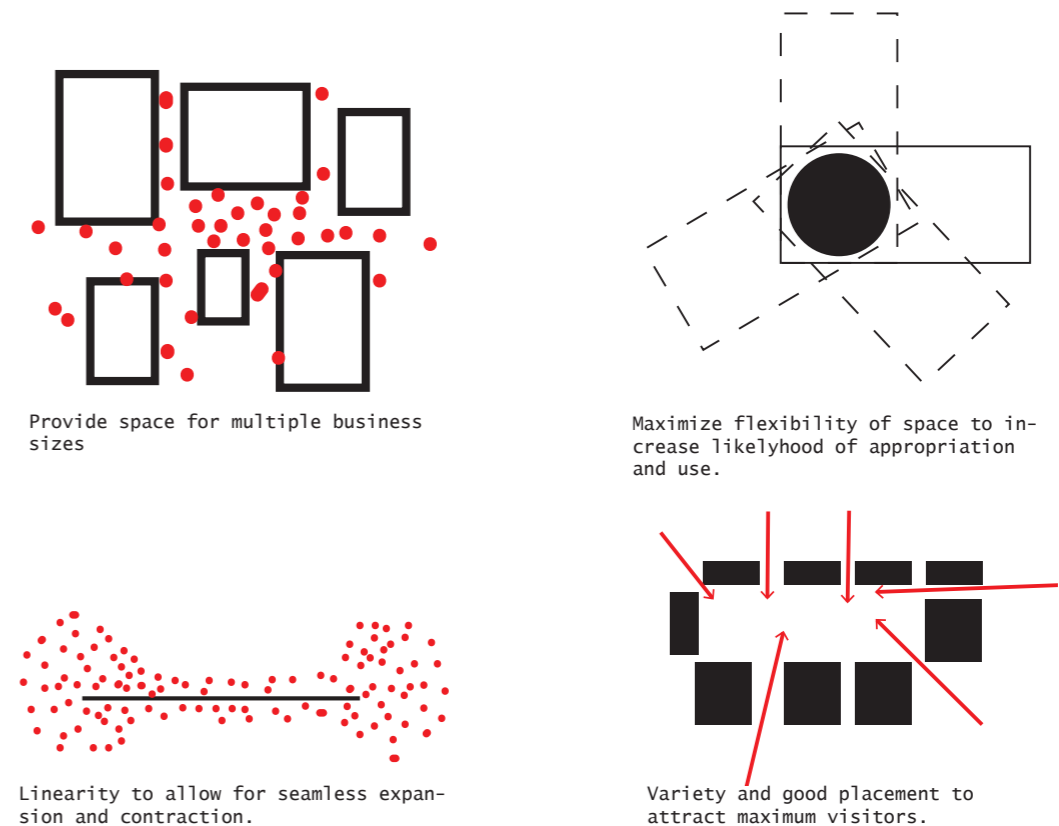


Figure 4.3: Public space criteria (Author, 2022)

04.3 Initial concept

After identifying what the most relevant requirements within the context are, early spatial explorations were made to help finalise the programming. Informants identified from the theoretical investigation into hybrid tectonics (fig 4.2) were also incorporated in the exploration. The primary hybrid tectonic language identified consisted of rammed earth, concrete and brick. Initial explorations were conducted in context, with the physical condition – namely the monumental scale of existing buildings – of the site being the main driver (fig 4.5). Characteristics of these early explorations were the attempts to respond appropriately to the height of the existing buildings and the use of structure to organise both interior and exterior spaces. The resulting maquettes and diagrams show investigations of the massing, conditions of all edges – mainly the condition between the existing and the new buildings, and the threshold to the street. These explorations resulted in an initial conceptual maquette. The concept explores the activation of the northern edge of the NARSSA building and the inhabitation of the open space between the building and the street through multiple layers (fig. 4.4). Primarily, the concept investigates the way in which the building can be used as a type of display case, showcasing the activities of the archive – ranging from research to conservation work done on artefacts – to the public. Despite its potential to visually activate and soften the static façade of the existing building, the concept doesn't engage fully with neighbouring sites and fails to address the disconnect between Soutpansberg Road and Hamilton street. Furthermore, it doesn't respond appropriately to the existing architectural language and exists in isolation from the other buildings on site (fig. 4.7)

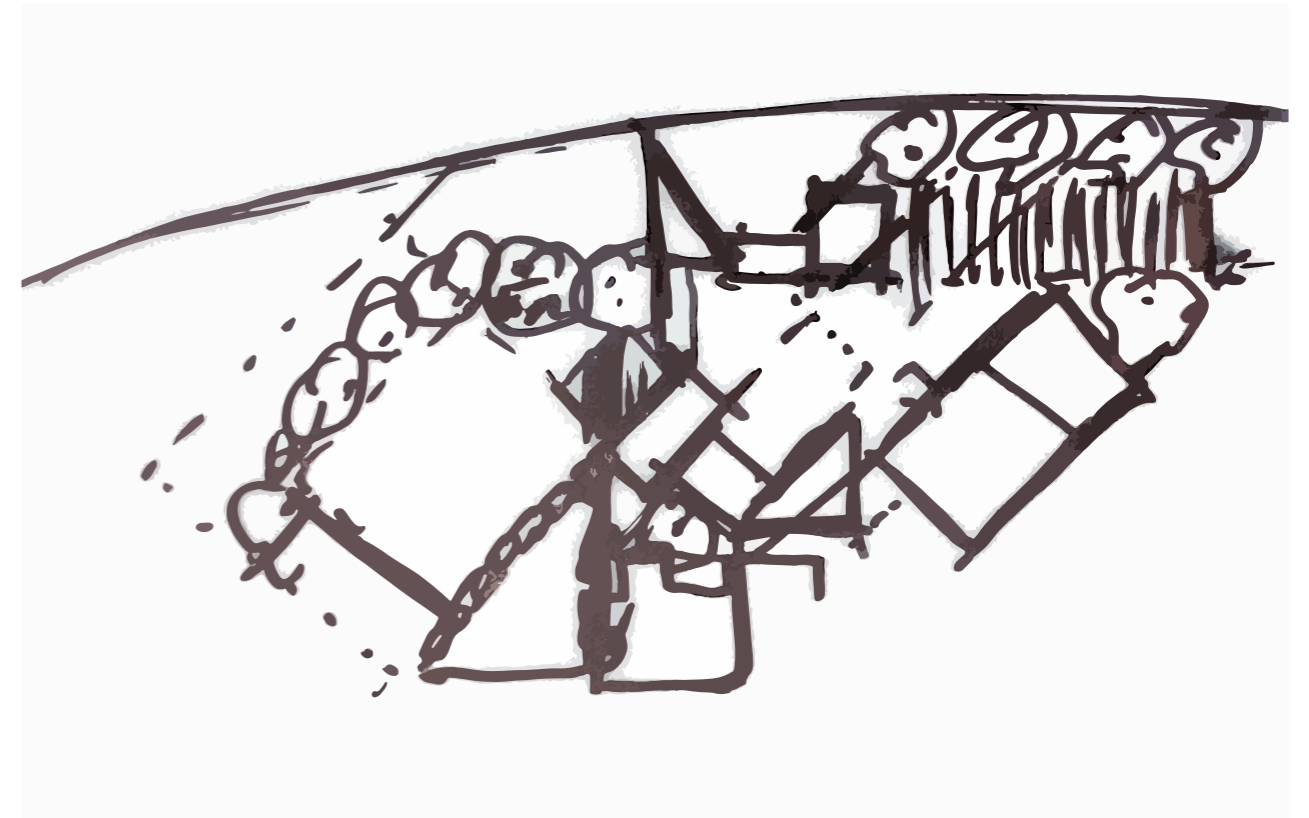


Figure 4.4: Late stage exploration of initial concept showing massing and public space making efforts on the site.

Schematic drawing of existing context and site before intervention



Figure 4.5: Site Map showing immediate context, existing buildings and site location.

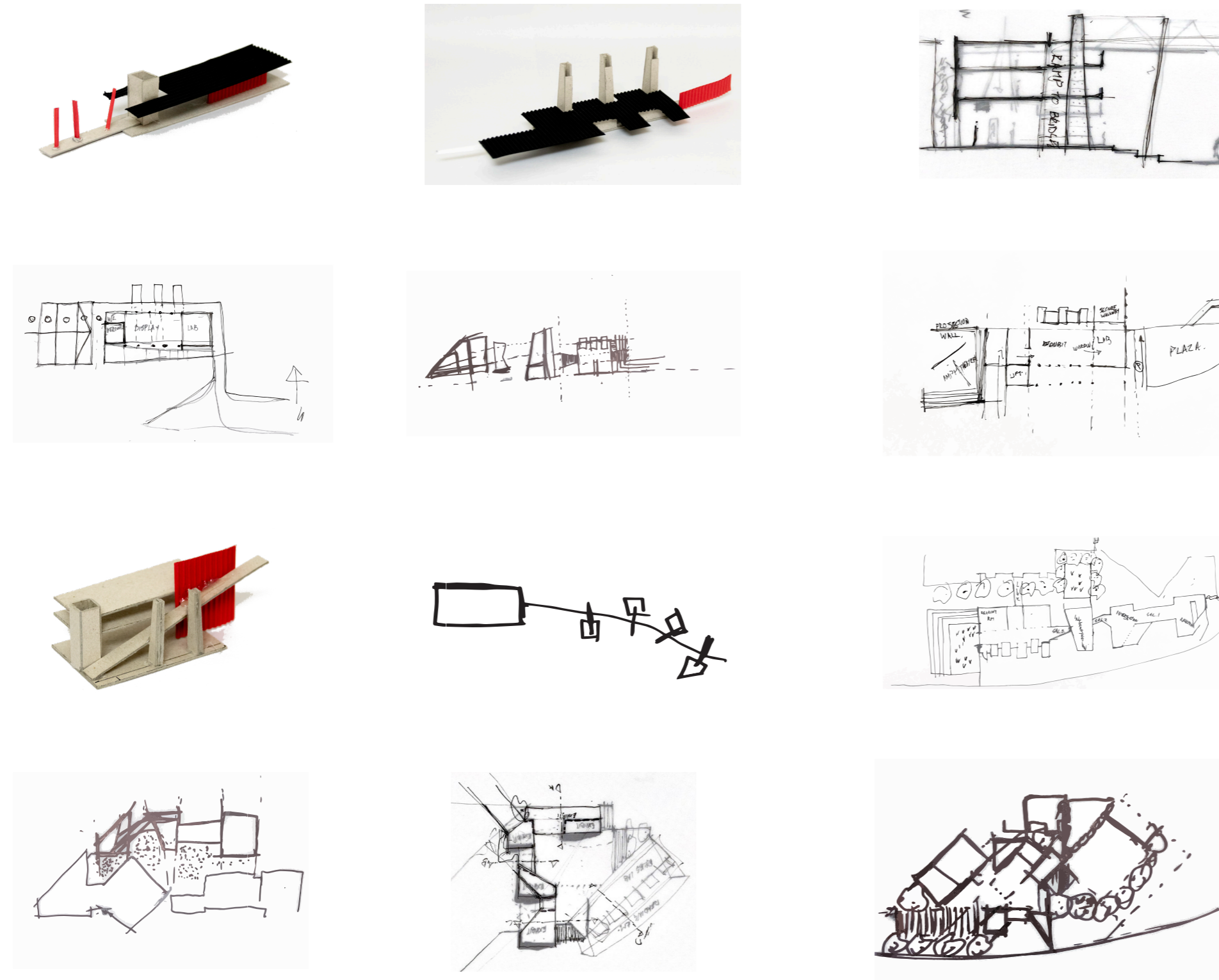
- Key:
- 1 Existing building
 - 1 Site
 - 2 NARSSA
 - 3 Unspecified government building (formerly offices of Dept. of Labour)

In order to improve the existing condition and address the urban issue, an intervention on an urban scale is also proposed. The intervention would entail developing the northern edge of Soutpansberg road into large urban park to mediate space between the harsh road condition and the residential area directly to the north. Furthermore, a transport hub is introduced at the intersection between Soutpansberg Road and Hamilton Street. On the Narssa premises, it is proposed to extend the storage space into the adjacent site to the east and to the south of the existing building, creating an expansive archival campus on the site. The proposal also suggests creating a direct pedestrian link cutting through the NARSSA premises and linking Hamilton and Soutpansberg Roads.



- Key:
- Existing building
 - New building
 - 1 NARSSA
 - 2 Archival Campus
 - 3 New Urban Park
 - 4 Transport Hub

These explorations showcase the development of the intervention from initial conceptual response to detailed massing sketches. The combined use of maquettes and sketches helped define the spatial intentions of the scheme.



Iteration 1

Intuitive exploration responding to physical characteristics of context, including response to three articulated stairwells on the existing storage facility.

Iteration 2

Exploration of zoning on site, with investigations of linking public spaces and defining the site boundaries

Iteration 3

Investigation of circulation through site and the linking together of interior spaces.

Iteration 4

Massing exploration investigating the possibilities of using the landscape as a spatial datum.

Figure 4.6: Design iterations (Author, 2022)

The spatial exploration of the initial concept resulted in a multistorey structure flowing into a large landscaped outdoor space. The intention was to propose a series of space dividers made of rammed earth in the landscape alongside a tectonic steel structured main building.

Ground Floor plan



Figure 4.7: Ground Floor(Author, 2022)

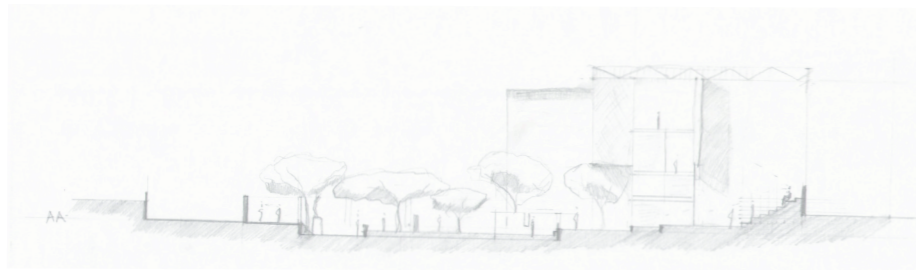


Figure 4.8: Sectional drawing(Author, 2022)

First Floor plan

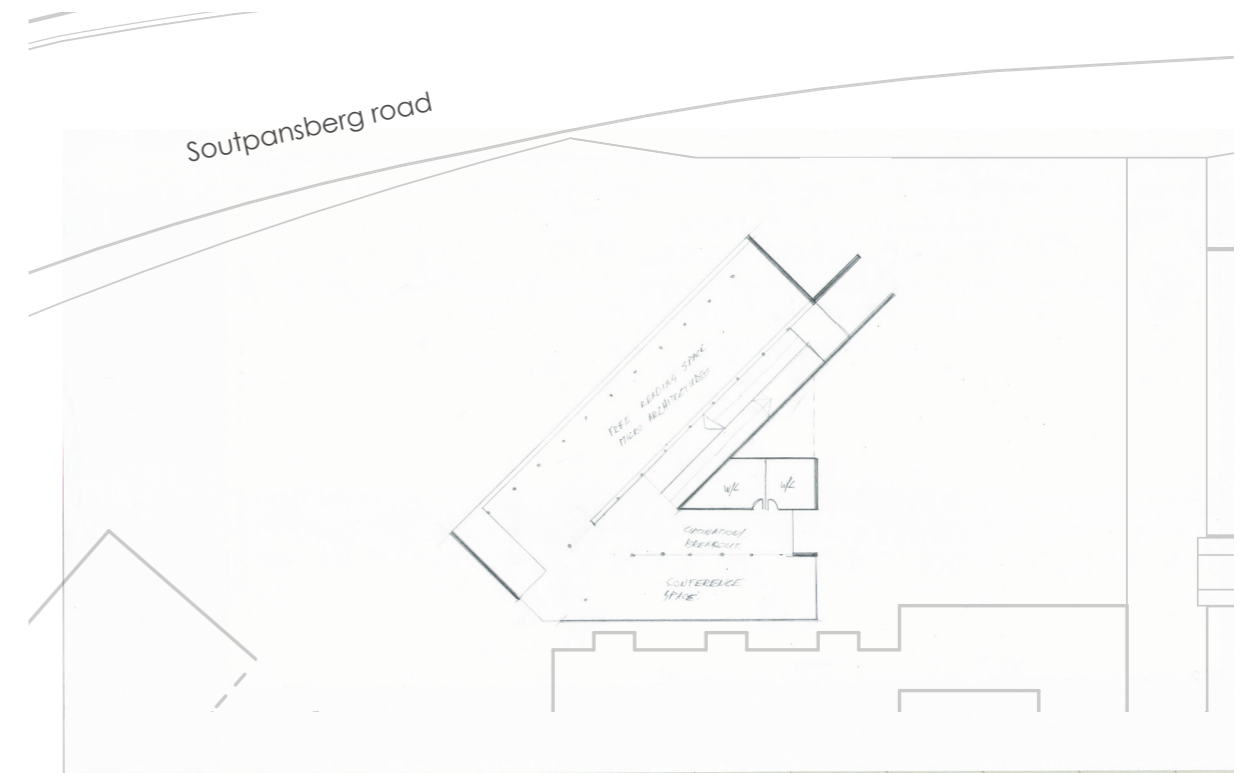


Figure 4.9: 1st floor (Author, 2022)

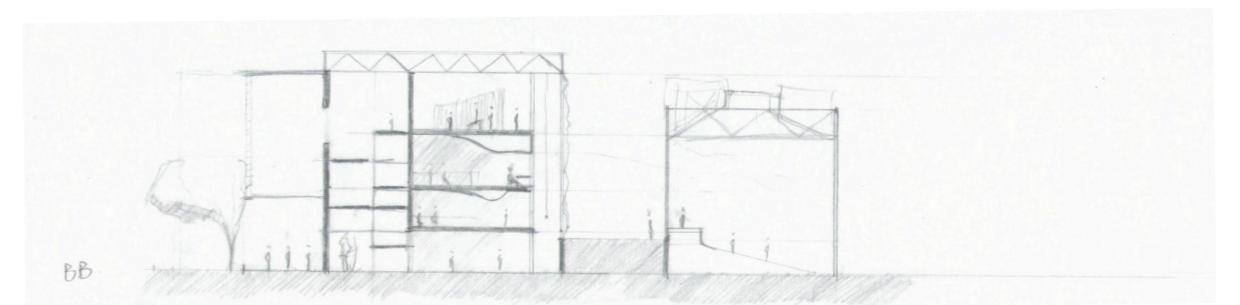


Figure 4.10: Section (Author, 2022)

Second Floor plan

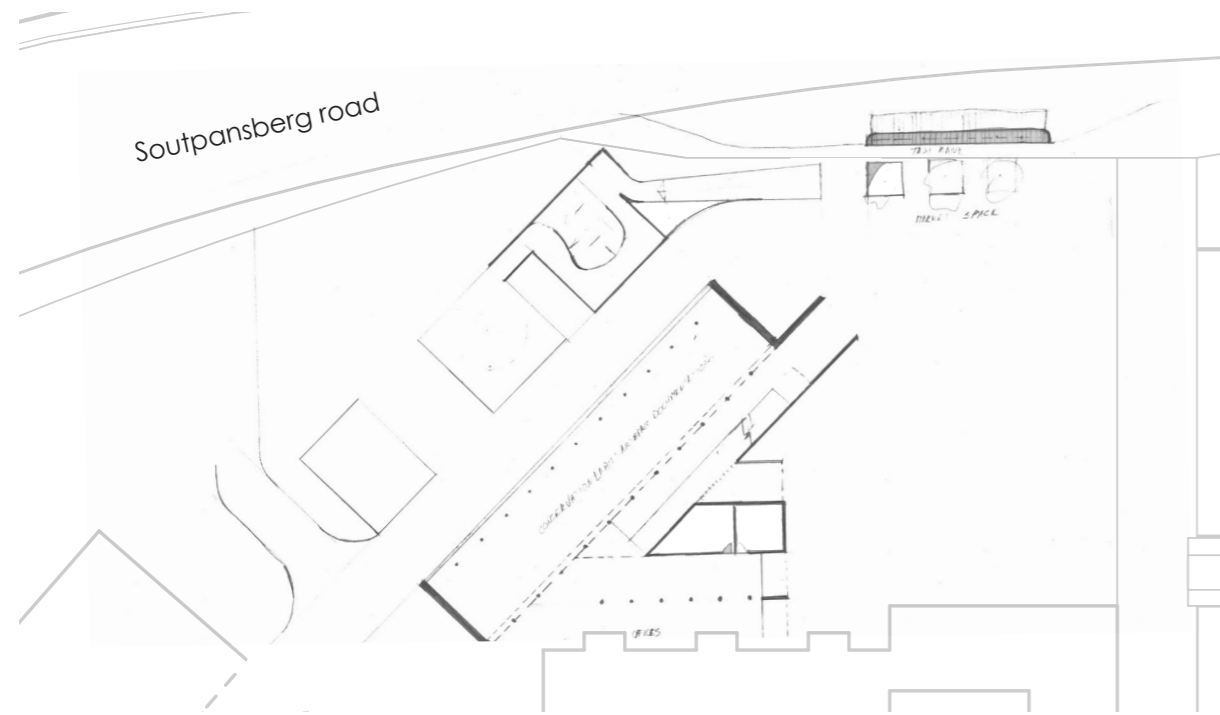


Figure 4.11: 2nd Floor(Author, 2022)

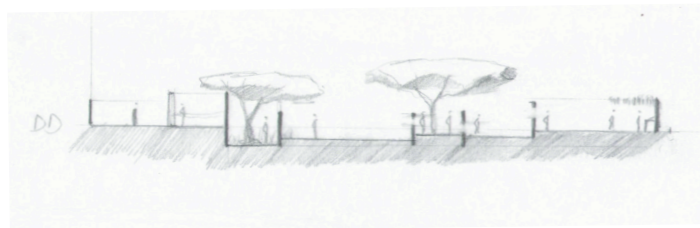


Figure 4.12: Sectional drawing(Author, 2022)

Third Floor plan

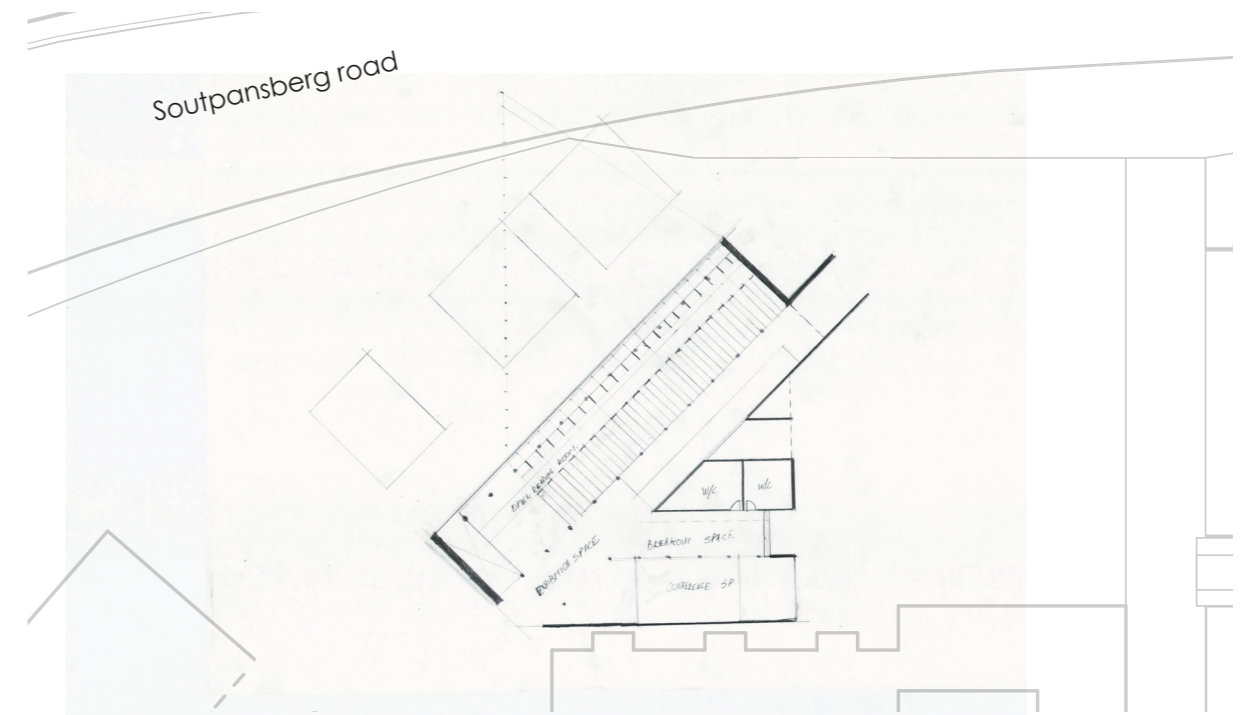
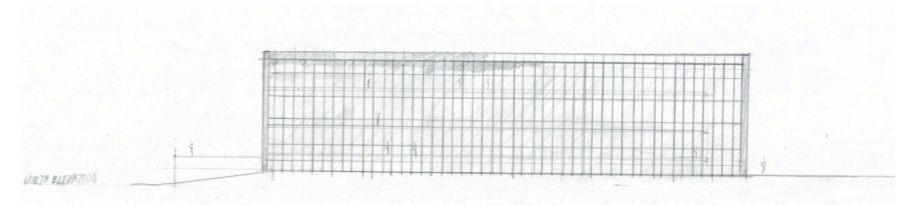
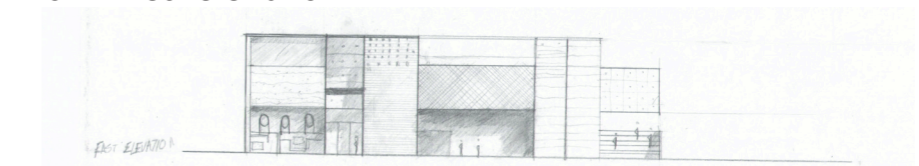


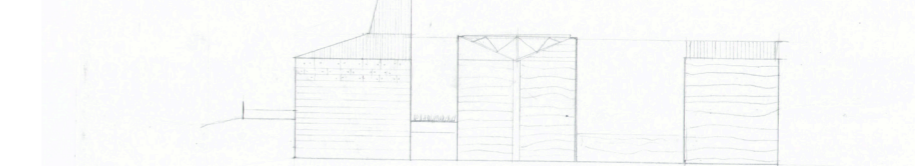
Figure 4.13: 3rd Floor(Author, 2022)



North West elevation



East elevation



North elevation

Figure 4.14: Elevation drawings (Author, 2022)

04.4 Revised Concept

After the investigations of museum and public space theory, alongside prevalent archival theory, a set of principles were developed that have the opportunity to generate a more suitable, well integrated intervention. Following an analysis of the strengths and shortcomings of the first iteration, the initial concept needs to be reconsidered. Considering the need for activation of the site's street edge, a more linear intervention extending across the site is more appropriate (fig. 4.15.D). This will allow the intervention to better integrate with the City's proposed development node and provide opportunities to draw pedestrian activity from Hamilton Street more directly (fig. 4.17). A linear approach will furthermore allow the architecture to respond more accurately to a human scale and allow the intervention to integrate better into the landscape. This in turn will increase the value of the public space on site and visible activity will foster appropriation. The reconsideration of the architectural form opens up opportunities for a more engaging and dynamic exhibition space that will tie display spaces into the urban fabric, instead of a static exhibition hall. The resulting diagrams and maquettes show explorations of a series of spaces linked together by galleries with the intention to develop a narrative focused display space. The iterations further explore how the topography can be manipulated to create powerful interior and outdoor spaces. The development of the spatial language was guided by principles gleaned from precedent analyses and lead to the development of a revised concept that uses material and topographic manipulation, a linear narrative device and a less monolithic structure.

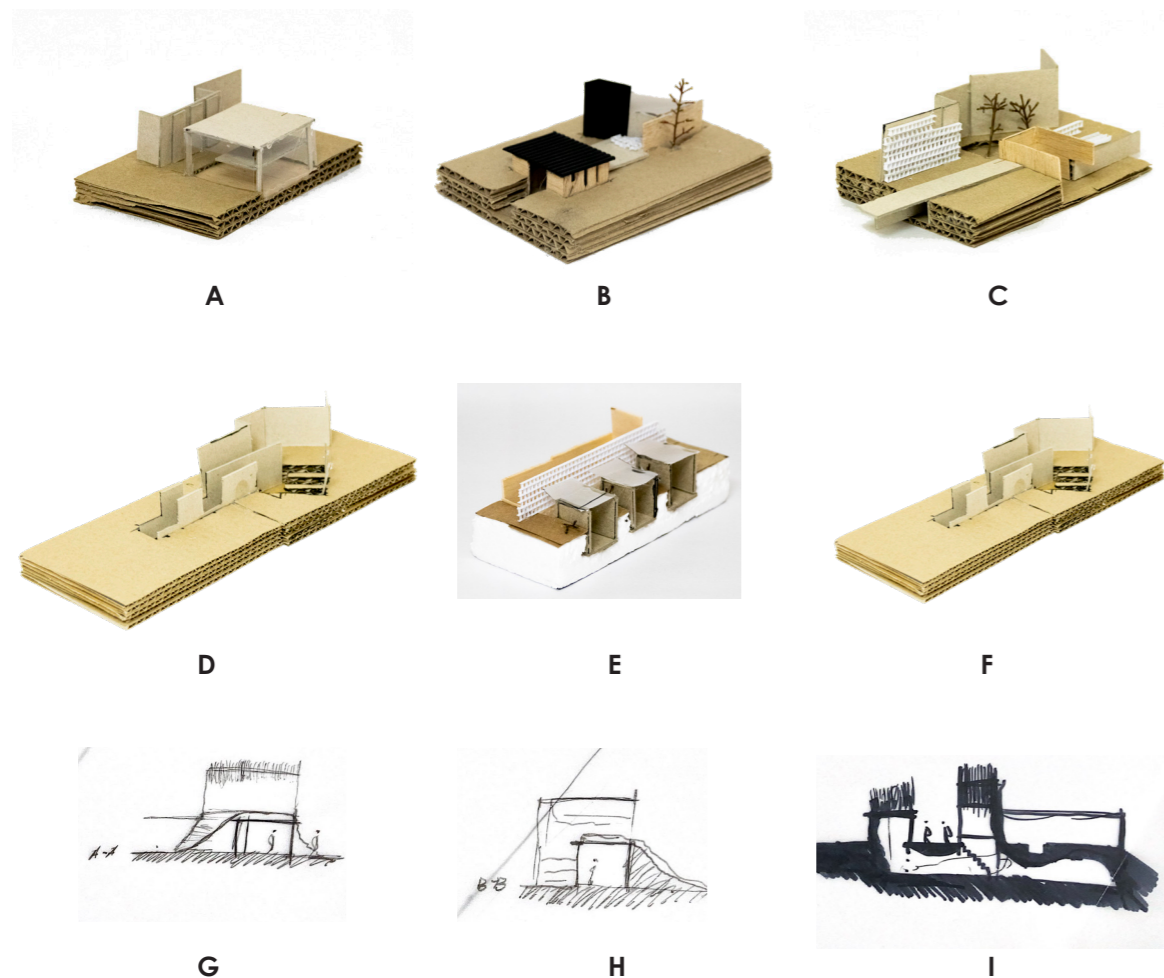


Figure 4.15: Design iterations (Author, 2022)

The result of the exploration was an elongated main volume sunken into the earth and surrounded by the landscape (as explored in fig. 4.15 G, H & I). The site is organised around a central landscaped plaza that connects the different buildings together. This plaza effectively makes the interior of the site a part of the public realm - an aim set out in the urban issue (Section 02.7). The revised concept also aimed to explore solutions for the general issue (Section 02.4) in making NARSSA's activities visible to the public.

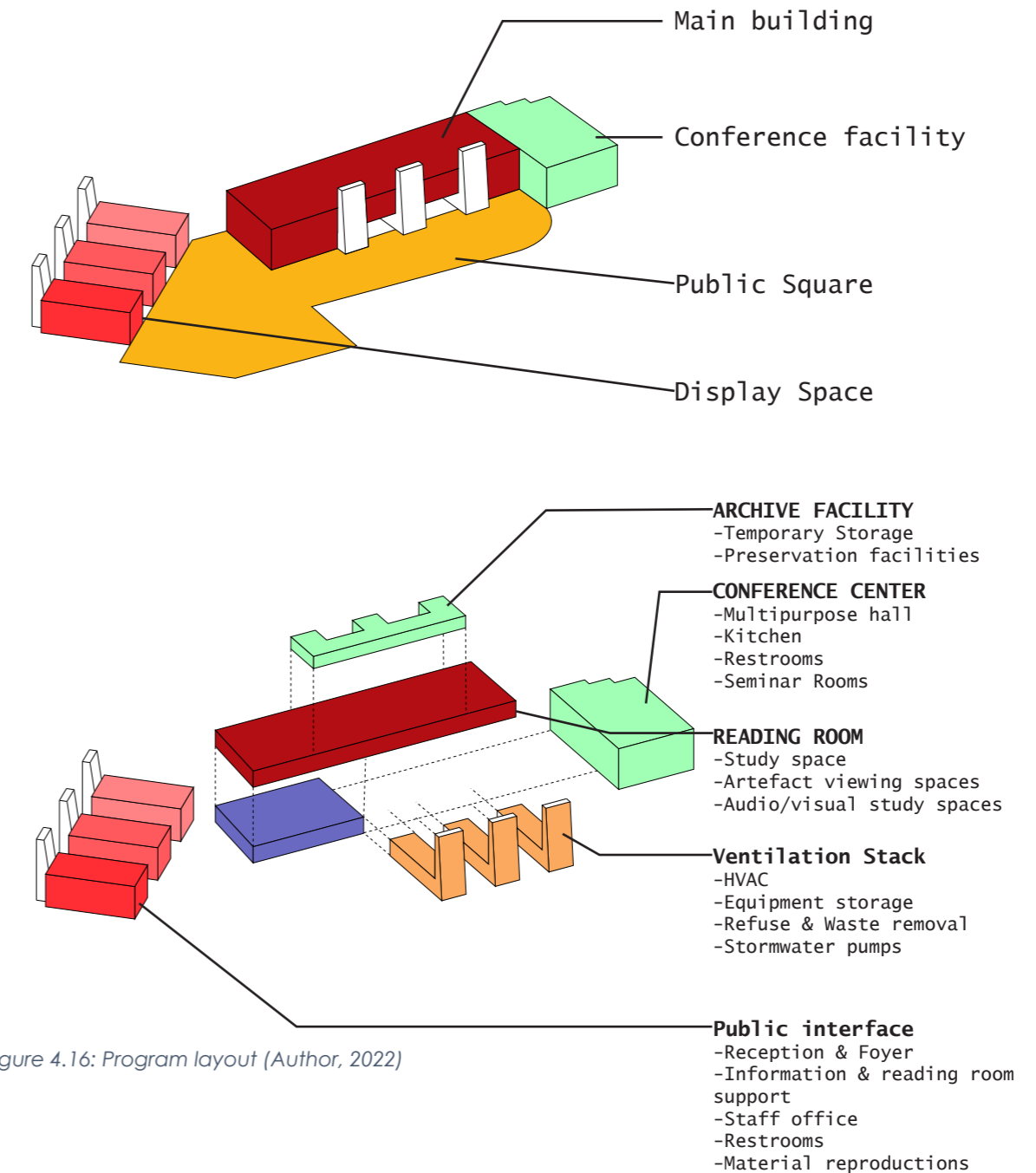


Figure 4.16: Program layout (Author, 2022)

This plan, showing larger context, depicts the way in which the Revised Concept slots into the context and changes the character of the space to the north of the existing NARSSA facility.

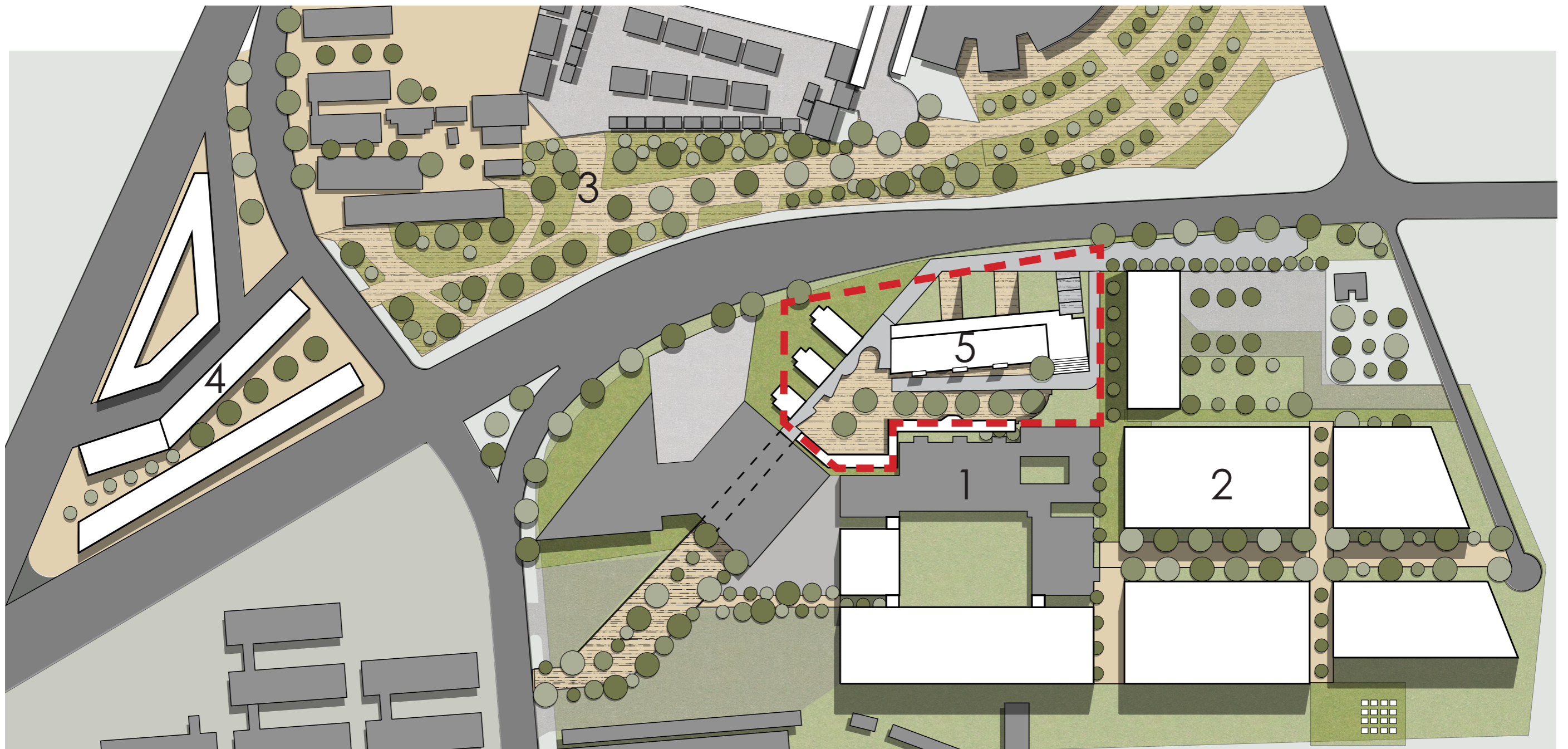


Figure 4.17: Site Plan and context (Author, 2022)

- | | | | |
|------|--------------------------|-------------------------|-------------------------------|
| Key: | Existing building | New building | |
| | 1 NARSSA | 3 New Urban Park | 5 New Visitor's Center |
| | 2 Archival Campus | 4 Transport Hub | |

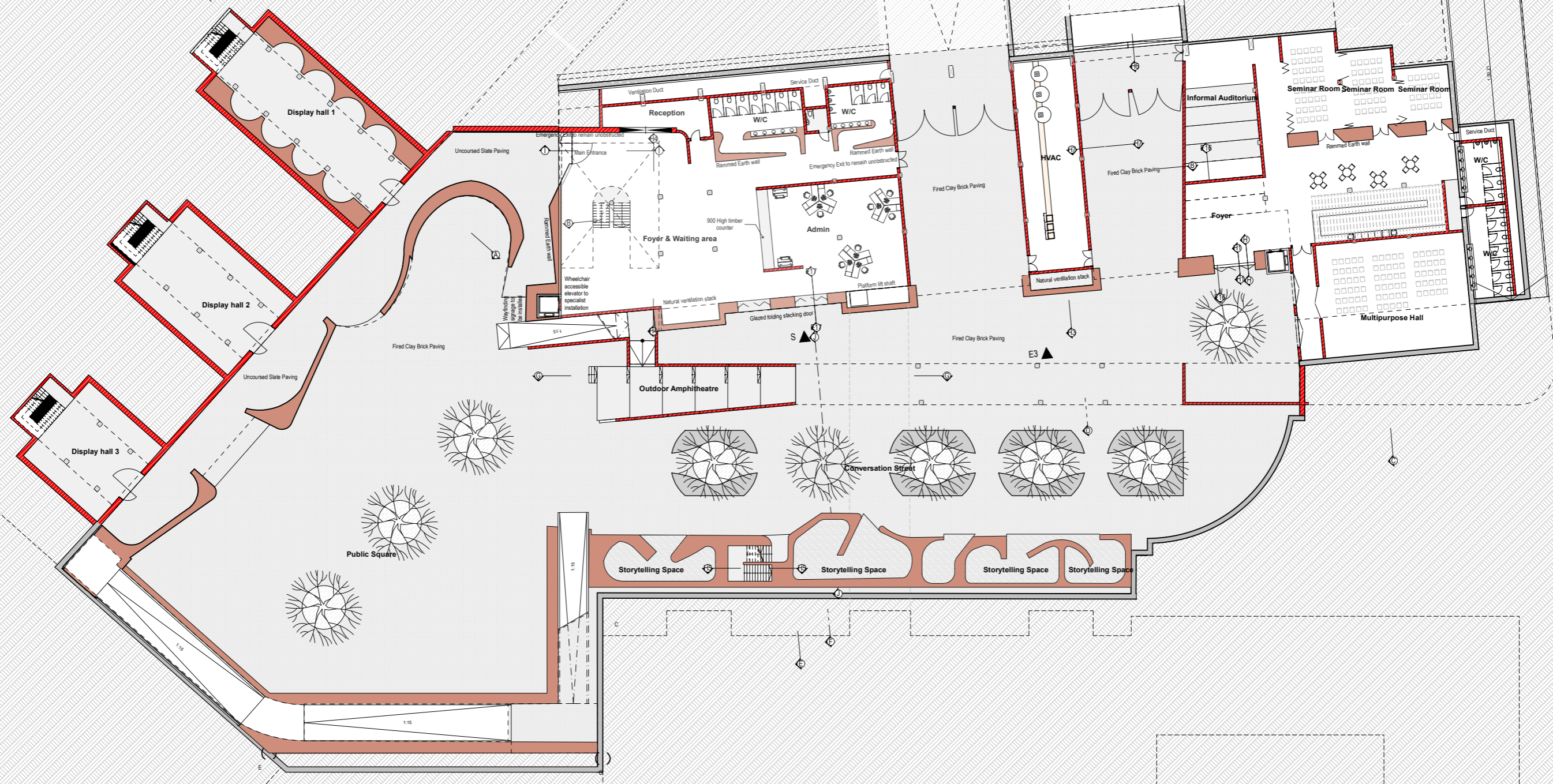


Figure 4.18: Ground floor plan (Author, 2022)

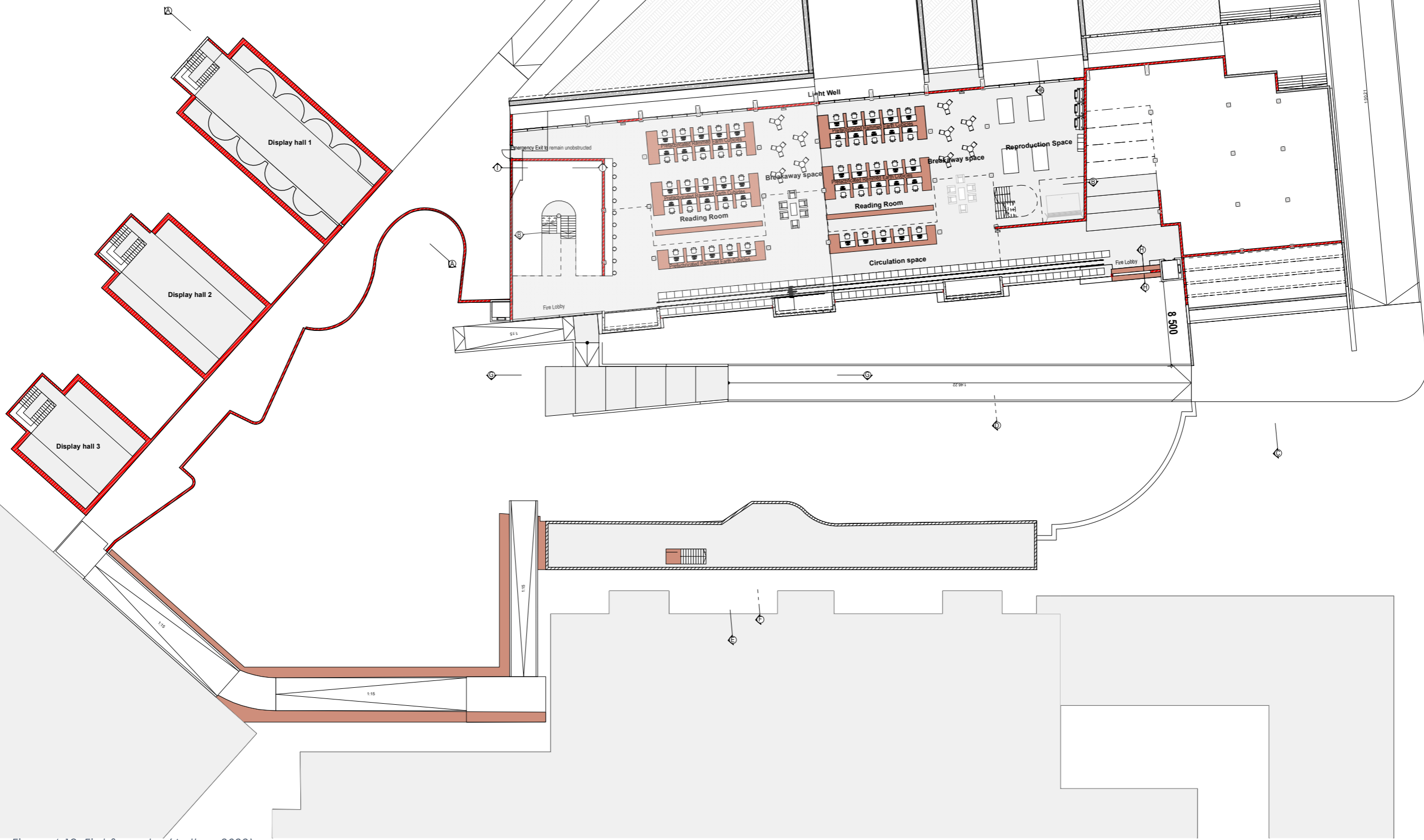


Figure 4.19: First floor plan (Author, 2022)

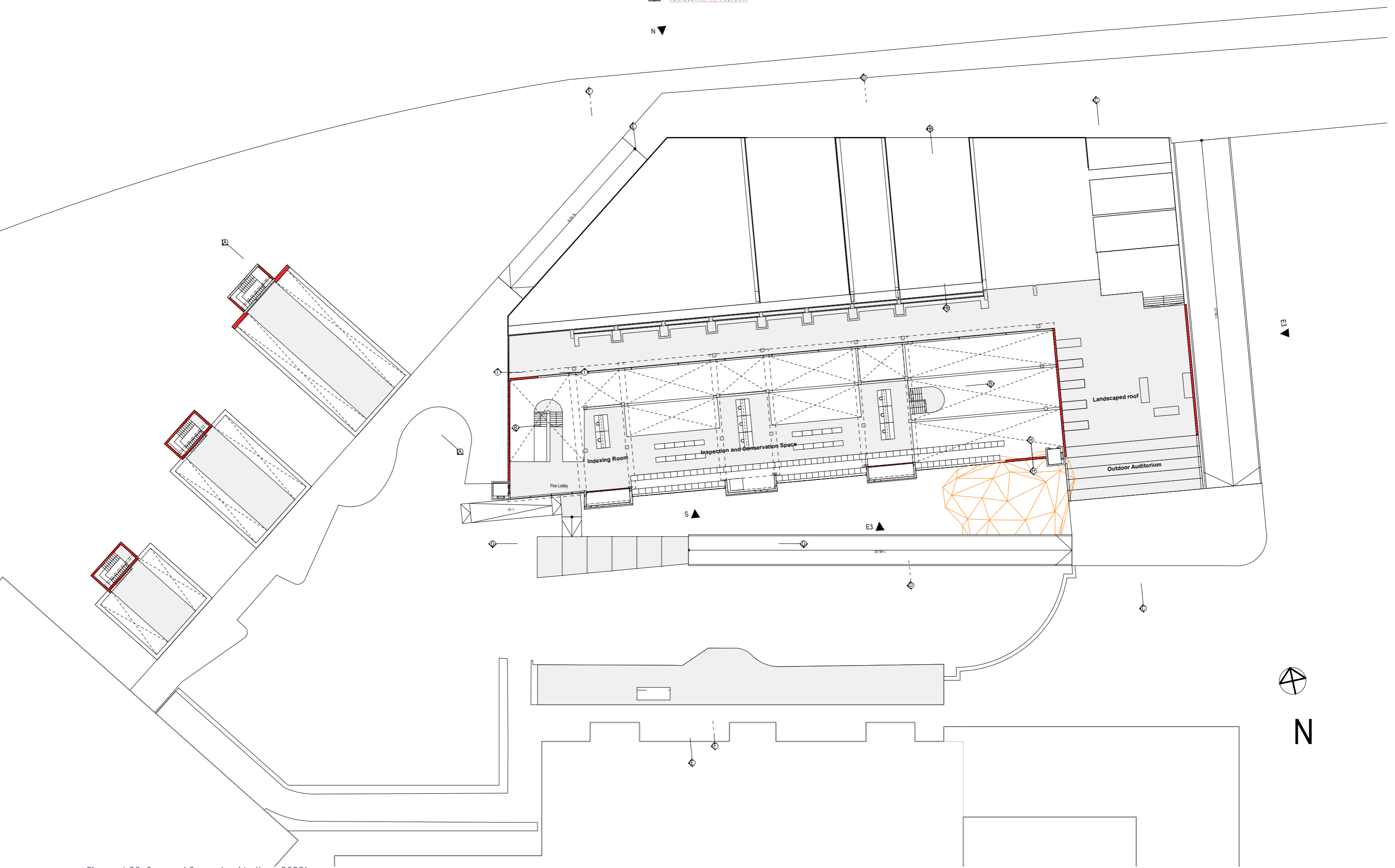


Figure 4.20: Second floor plan(Author, 2022)

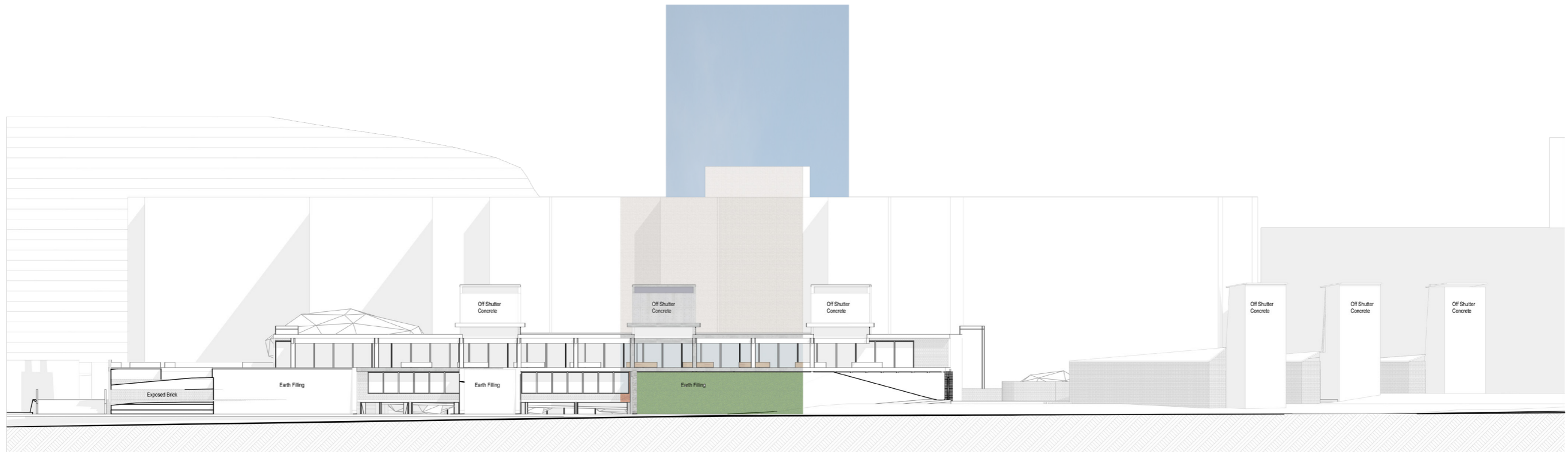


Figure 4.21: North Elevation (Author, 2022)



Figure 4.22: South Elevation (Author, 2022)

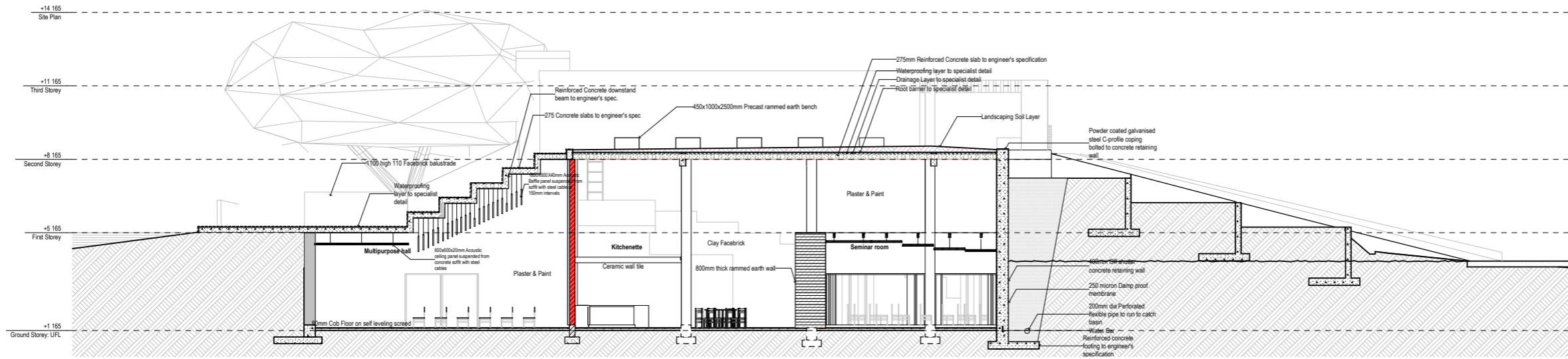


Figure 4.23: Section through conference facility (Author, 2022)

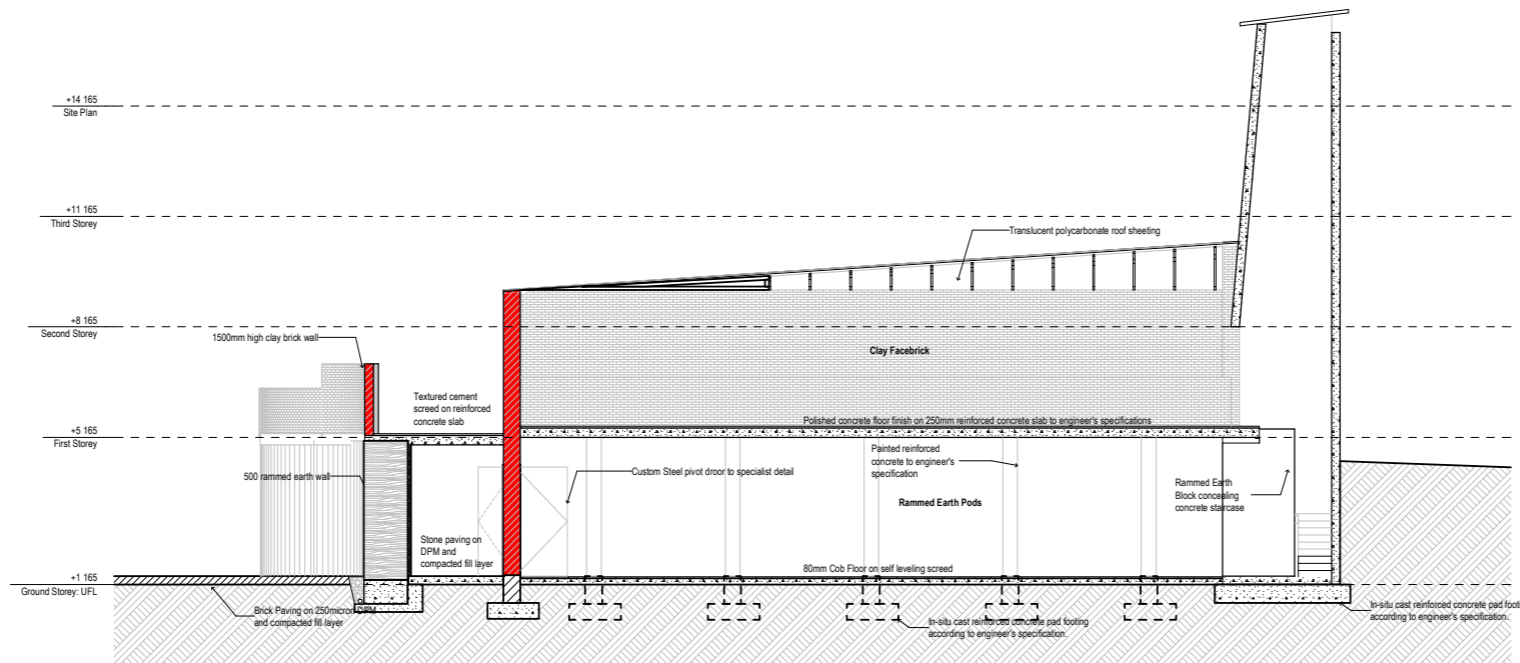


Figure 4.24: Section through Museum (Author, 2022)

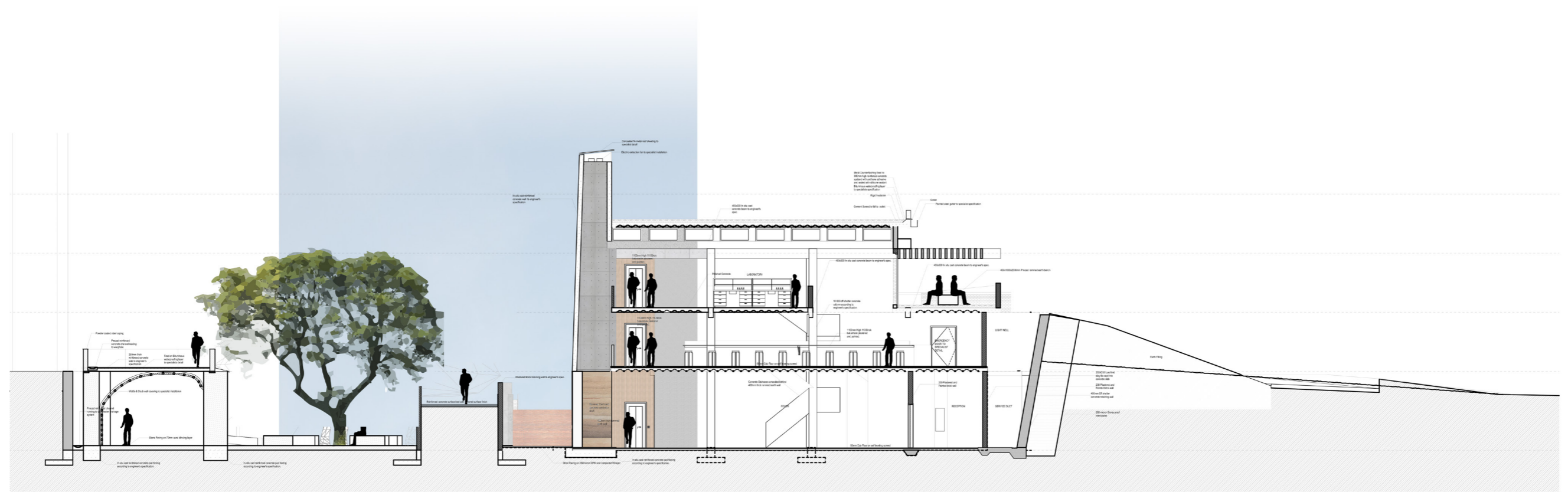


Figure 4.25: Section through site (Author, 2022)

05_Synthesis

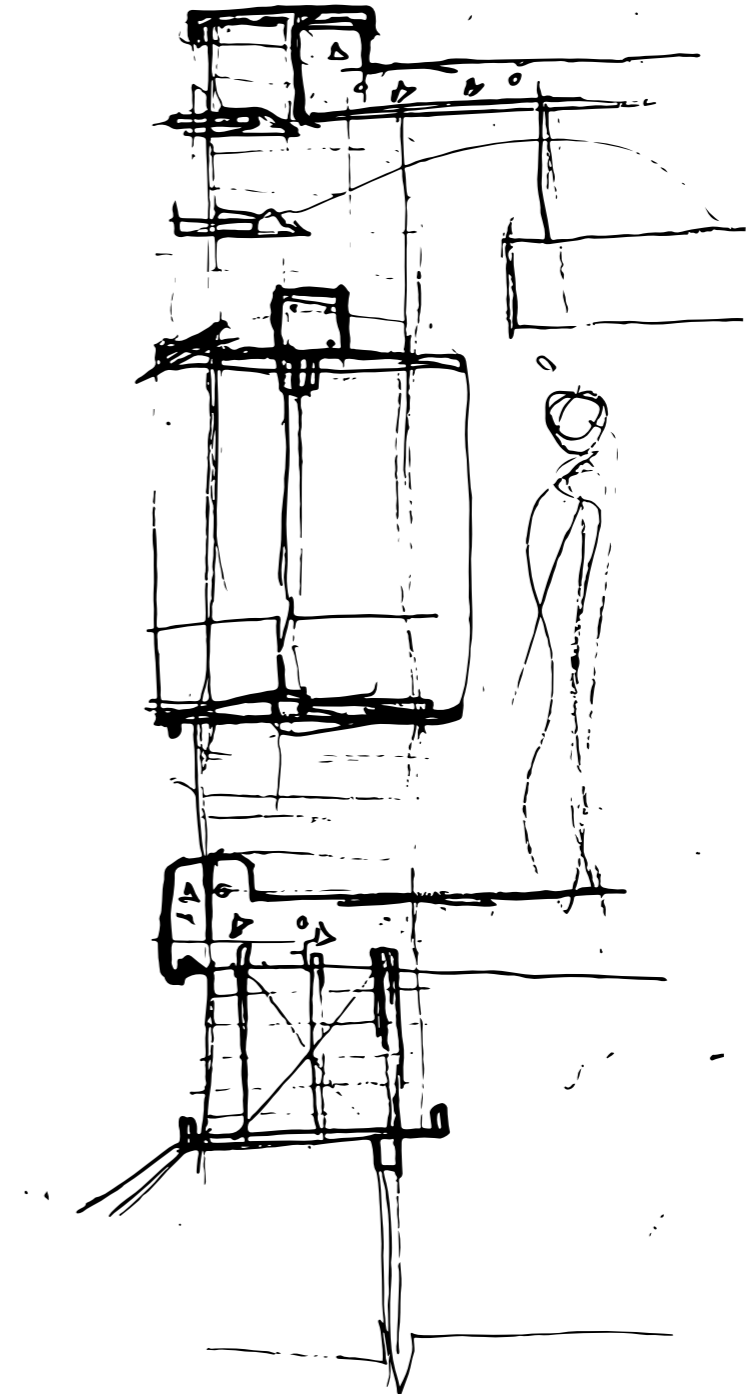


Figure 5.1: Design Sketch (Author, 2022)

05.1 Introduction

In this section, the technological intentions and rationale are explained. The application of the hybridity matrix is explained, a material pallet is selected and the proposed structure is explained. The technical resolution of key details relevant to the design intentions are explored. A technological precedent is discussed and technological decisions are explained.

In the introductory chapter of this dissertation, the concept of hybrid tectonics is introduced as a means of giving material form to culture and identity in architecture (Louw 2021). Further reference is made to the need for locally relevant detailing and local material use to create a building that is of its place and time. To this end, Jekot (2007) and Pallasmaa (2012) argue in favor of a traditional approach, stating that social richness cannot be obtained without a connection to history. Specifically, within history, we derive meaning from the realm of tradition, our way of life is constructed from the experience of our predecessors. In this way, tradition can be seen as the essence of the human experience. Familiarity is what transforms a space into place – cultural familiarity, material familiarity (Pallasmaa 2012: 14-21). The development of a familiar, contextually relevant detailing in new and innovative ways can occur through the investigation of combinations of local and global ways of making. The point of convergence between these two ways of making then becomes a key theme to the technical investigation of this dissertation. It can become a generator of architectural form and spatial organisation. A connection between heritage, sensory experience and craft will lend a sense of authenticity and place to the intervention through the application of implicit or indigenous knowledge. Through this adept application of methods, materials and tools, an object or building may gain sentimental value.

Noting that the materiality can affect the structural decisions and the use of the space and therefore the experiential quality, it is crucial that the materiality be carefully considered and selected. It therefore becomes important to develop a set of principles and a material matrix in order help in the development process.

05.2 Technological intentions

The first part of the research question asks how hybrid tectonics can be used to create enhanced archival research and display spaces that reframe existing historical narratives. Relating to this the architectural issue of accessibility and usability of the NARRSA facilities, it becomes clear that the intervention cannot simply be a formal gesture but rather a combination of experiential and utilitarian design. In order to achieve this, a set of principles were developed along which a matrix was compiled that compared material qualities to find the most suitable hybrids.

One of the key considerations in the determination of materiality of the intervention is based on a response to the nature of Archives and the changing quality of archival materials. According to Otero-Pailos (2016: 1-12), when an artefact is taken up in an archive or museum for preservation, it undergoes multiple changes over time as preservationists and researchers attempt analyse it and slow the passing of time. Breakell (2008) notes that preservation markings, modifications for storage or display and preservatives all leave a new layer of history on the artefact itself. Similarly, the built environment may also change over time as it is used. A building may change over time through structural and natural characteristics such as settling, sun damage, weathering and friction. As mentioned earlier, construction methods and other ways of making can be seen as a type of alternative archive – a way of displaying heritage in action through the layering of multiple ways of making. Applying materials with the intention to deliberately deteriorate in a controlled way may yield interesting results. A building envelope that changes over time can then physically record a layer of history. It therefore becomes important to select materials that are durable enough to remain functional while still allowing a measure of deterioration. As mentioned earlier, construction methods and other ways of making can be seen as a type of alternative archive – a way of displaying heritage in action through the layering of multiple ways of making.

05.3 Materiality concept + spatial concept + tectonic hybrids

Discussion of technological language

As discussed earlier, the characteristics of a well crafted building, as described by Comrie (Steyn and Nkambule 2017: 174-189) consists the carefully articulated combinations of immediately available materials. Considering this alongside the intention of creating structures that can change with use over time, it can be concluded that earth construction is a suitable material choice within the parameters of the concept and the intentions.

The language earth construction, by its very nature, is heavy and stereotomic (Kapfinger and Sauer 2015). It can take on a variety forms and has a high compression strength. According to Louw (2021), a technological hybrid is achieved through the layering of multiple materials that are complementary and have interchangeable qualities. Within this framework, concrete best complements the various forms of earth construction.

The structural scheme was developed, within these principles to respond, to the urban issue of activating the street edge of the NARSSA. The building acts as an extension of the landscape on the northern edge of the site while the southern edge of the building acts to define public space within the site. For this reason the structural elements of the northern elevation differ vastly from those at the southern edge of the building. To articulate the intention to display artefacts in an alternative way, the southern façade of the main structure consists of an large display structure that forms the main boundary between the interior and the exterior. Through this façade, visitors can view the artefacts requested by researchers through the façade. This ultimately becomes a user defined, constantly changing exhibition that can be used as an active learning tool.



Figure 5.2: Site perspective (Author, 2022)

05.4 Enclosure

Public spaces in the intervention are enclosed by the new and existing buildings situated on the site, creating a vibrant urban environment that can be used for multiple purposes such as events and as an open public space. The enclosed plaza acts as a datum that links together the various buildings of the scheme. The structural articulation of these spaces references the changing nature of artefacts while acknowledging the context through the use of immediately available materials. An effort is made to maintain visual access between spaces while separating the interior from the exterior. The main building is sunken into the site in order to extend the landscape over the roof and into the public plaza. Rammed earth structures are used to define all building thresholds, creating the impression of intimate, spaces that are carved out of the landscape and enveloped by it. These spaces introduce the user to the structural and spatial language of the new intervention. This language is translated into the interior spaces through the use of clay ceiling finishes and cob flooring that is intended to capture use patterns (worn down through repeated use, then repaired with new fillings).



Figure 5.3: Site perspective (Author, 2022)

05.5 Function

A primary concern of the existing facilities of the NARSSA is the functioning and services of the reading room. The existing spatial language comprises a poorly articulated entrance leading to an expansive hall that serves multiple functions as reading room, copy room and office space for archive staff. There is no visual access between the street edge and the facility. There is no logical space between the main storage facility and the reading room for artefacts to be kept after being used by researchers. Interactive spaces like display areas are also limited, static and dated and barely noticed as one moves from reception to reading room. In the new proposal, the reading room and temporary storage facilities are displayed to passers-by as an active exhibition. Larger research facilities are proposed with a variety of spaces ranging in size, privacy and flexibility. These spaces are separated from the façade by an open walkway, creating a visual link with the outdoor spaces. A series of exhibition facilities are proposed as spaces for the display of archival artefacts and the development of historical narratives. These spaces are articulated as simple brick structures with mezzanine levels. Display areas within these structures are defined with rammed earth niches and plinths that are intended to direct exhibition layouts and the visitor's gaze towards the formation of alternative archival narratives. These spaces are lit naturally during the daytime through the use of translucent polycarbonate sheeting.



Figure 5.4: Site perspective (Author, 2022)

05.6 Access

A key part of the intervention is the set of new circulation routes linking the site with the surrounding context and connecting two vibrant streets with each other. The circulation scheme thus involves three types of visitors:

- Passers-by: Pedestrians using the site as shortcut from Soutpansberg Rd. to Hamilton St.
- Casual visitors: Visitors to the proposed exhibition spaces and public plaza
- Researchers: Persons visiting the archival reading room

The intention is to ensure participation in the intervention by all three visitor types. By creating an elevated walkway linking the two streets together, passers-by can catch a glimpse of the action within the public plaza and, through strategically placed glazing, view the activities taking place inside the research facility.

To accommodate casual visitors, a landscaped pedestrian avenue is created by the massing of the new and the old buildings. Alongside this avenue story telling spaces are carved the edge between the existing and the new. These spaces are formed by a series of voids built into a rammed earth wall, shaped and articulated internally by a wattle and daub wall cladding. By using earth structures at key pedestrian interfaces, activity within the space can be recorded into the physical skin of the building. The rammed earth walls are strengthened with hardening admixtures at strategic points to ensure limited, yet pronounced, wear patterns without sacrificing the structural integrity of the wall.

Access to the research facility and exhibition spaces is defined by similar rammed earth structures that provide suitable threshold spaces while protecting the entrances to the spaces from the elements. The rammed earth threshold and storytelling spaces act to define the plaza and avenue spaces as a continuous visual and tactile element.

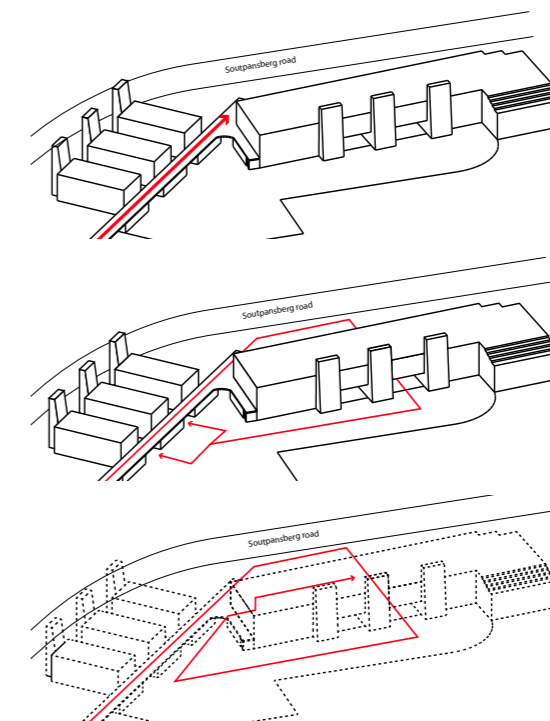


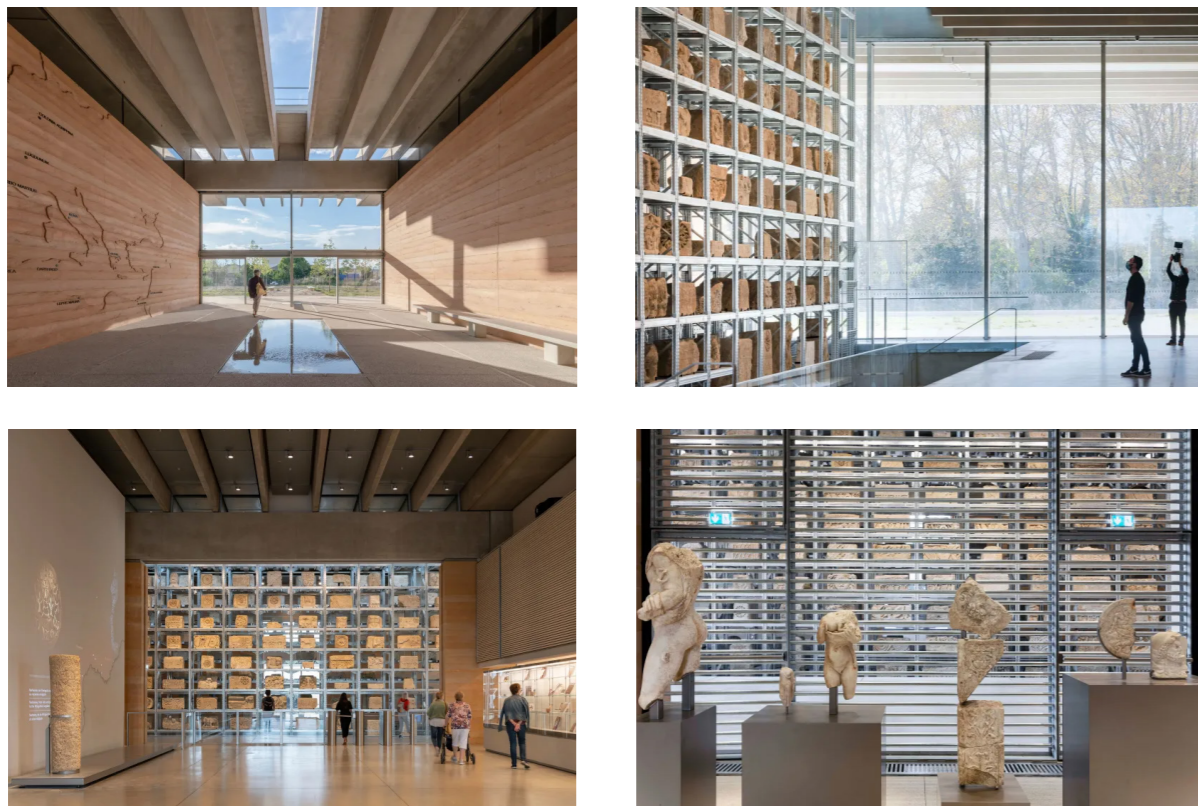
Figure 5.5: Site user layout (Author, 2022)

05.7 Precedents

The use of rammed earth in the intervention alongside the display of sensitive artefacts posed various technical challenges. The desire to create a structure that becomes a part of the landscape further posed challenges regarding the durability of the chosen materials. Suitable precedents were sought out to inform the articulation of these intentions, particularly regarding structure, durability of the structure and ventilation of the spaces.

Narbo Via, Narbonne, France – Foster + Partners

With the use of rammed earth as a construction material to the extent that it is in this intervention raised questions of suitability for a building that will house sensitive artefacts and accommodate large numbers of visitors. The Narbo via Museum in France by Foster + Partners is an ideal precedent for the desired outcomes. Foster makes ample use of rammed dry mix concrete compressive structures that support a concrete canopy that unifies the spaces underneath. The structural language is one of simplicity and clarity of structure. The museum also serves as an example of a suitable ventilation strategy, with cool air being mechanically pushed into the building at a low level to minimise the need for air conditioning. Furthermore, the sheer volume of the spaces creates a thermal flywheel effect that draws warming air towards the ceiling where it is exhausted.



05.8 Technical detailing



Figure 5.6: Detail Axonometric drawing (Author, 2022)

Roof detail

With the use of rammed earth as a partially structural element (augmented by a reinforced column and beam structure elsewhere in the building) it becomes crucial to protect the walls from water penetration. In this intervention, it is achieved by adding a small overhang to prevent water from directly flowing down the wall surface. The roof also slopes away from the edges supported by rammed earth to avoid the need for stormwater reticulation in and around this part of the structure. A further challenge is connecting the concrete roofslab to the top of the wall. According to (Kapfinger and Sauer 2015), the best way to achieve this is by casting into slots carved or rammed into the top of the wall, as shown in fig. 5.7.

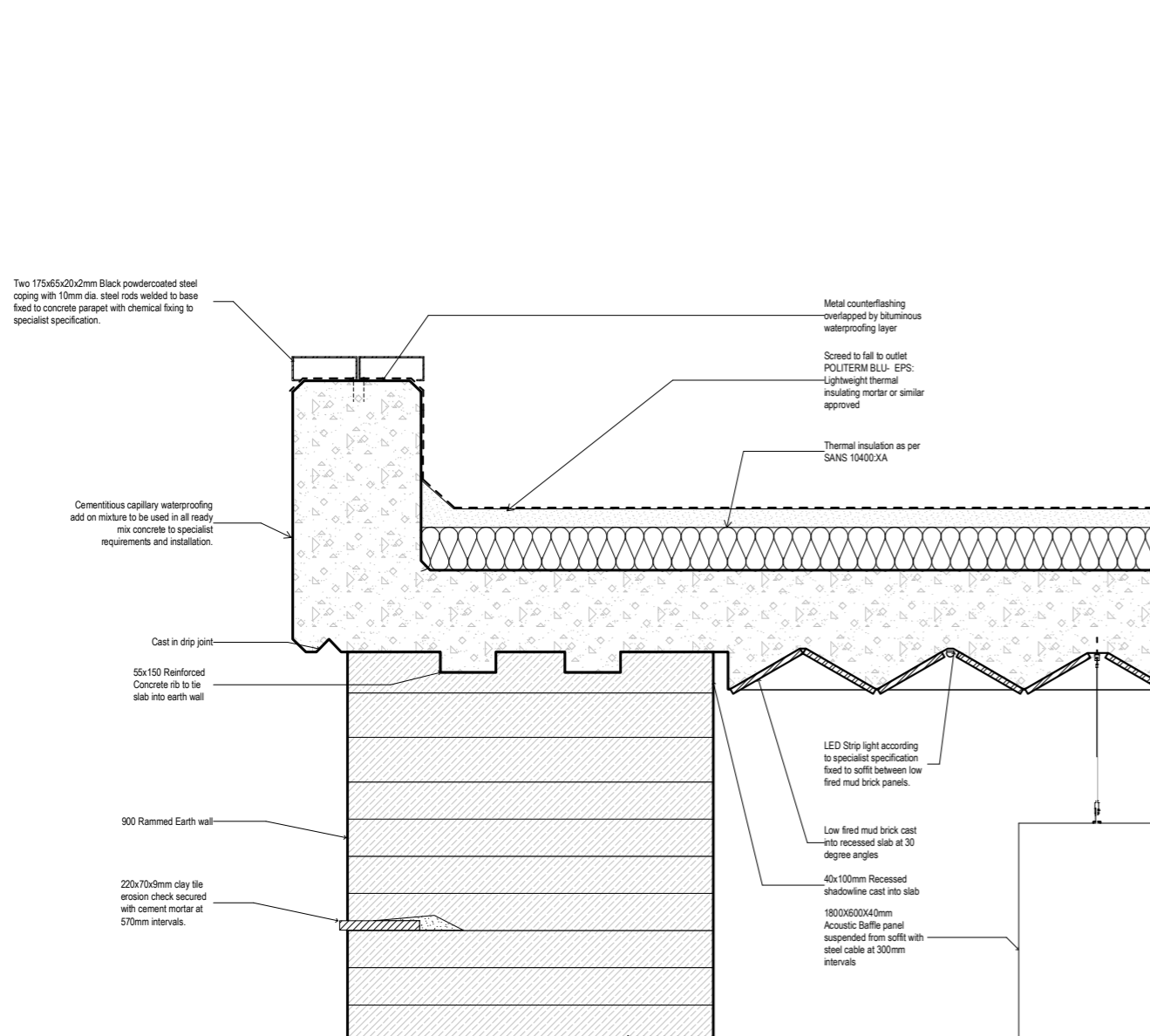


Figure 5.7: Roof Detail and axonometric drawing (Author, 2022)

Intermediate detail

The intermediate level explores how a rammed earth structure may be articulated to define an interior space. With the wall thickness required of a rammed earth wall, openings may be articulated to serve multiple purposes. In the case of this detail, the inner window sill is extended to act as a seat or a pedestal. The detail further explores how an opening in such a wall may be made structural without altering the material qualities. A suspended steel lintel as discussed by Kapfinger and Sauer (2015) is cast into the concrete floorslab above to act as tensile support for the brittle earth. The exterior of the wall is further protected from water runoff by the floorslab which juts out to form a drip to interrupt the flow of rainwater.

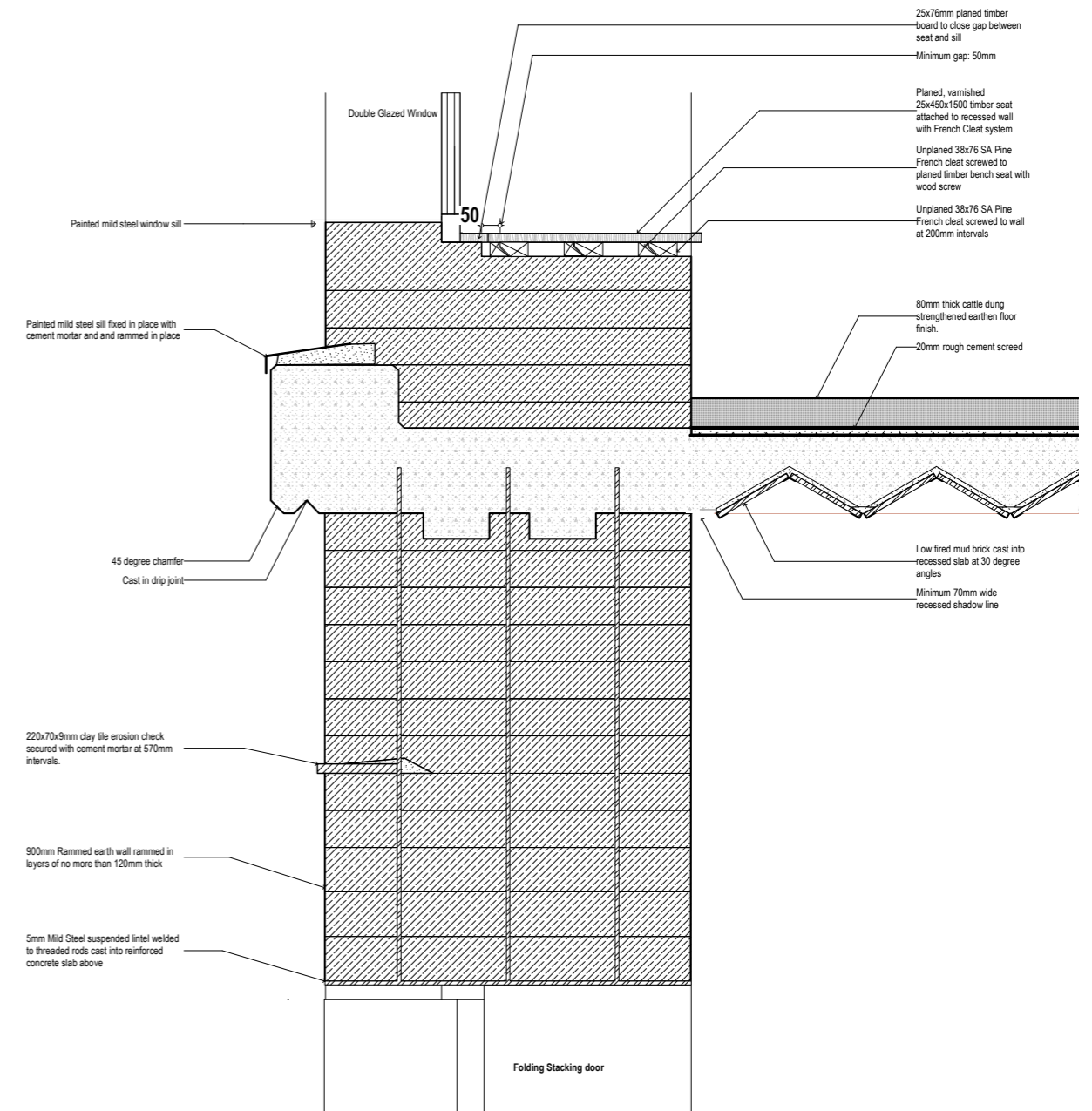


Figure 5.8: Midlevel Detail and axonometric drawing (Author, 2022)

Ground connection detail

The point of connection between rammed earth structures and the natural ground level requires an atypical foundation detail. As rammed earth can only be used above the ground level, a wide structural foundation is needed and must support the full width of the wall. In this detail, the main foundation, as well as the concrete support for the adjoining floorslab is shown. In order to facilitate step free access to the building, a recessed gutter solution is used to protect the interior from stormwater. In an effort to place the tectonics of the building on display, the concrete foundation is left exposed and defines the transition from interior to exterior. An earthen floor finish inside connects the interior with its urban context.

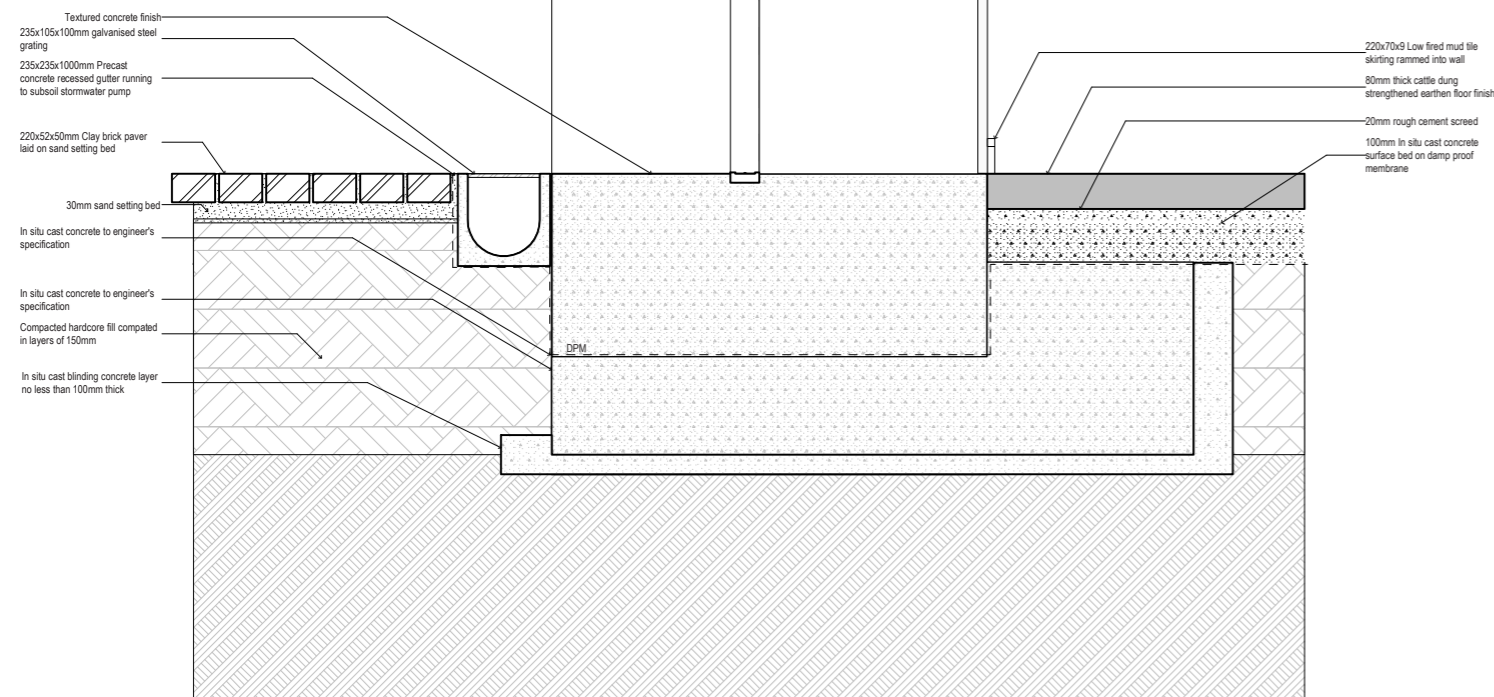


Figure 5.9: Ground connection detail and axonometric drawing (Author, 2022)

05.9 Lighting

As a large part of the building is located behind a berm, the lighting requirements for a reading room and office space poses a challenge. Ideally, natural light will make up the majority of the light sources. This challenge, however, also provides an opportunity to explore new ways of articulating the interior spaces, facades and the way the building meets the earth. The main reading room is used for the daylighting case study as it requires the most consistent lighting quality of all the spaces. The main goal is to achieve a consistent diffused lighting condition to avoid straining users' eyes while also avoiding harsh light. Considering the fragile nature of the artefacts that will be studied in the space, direct sunlight should also be avoided. With this in mind, multiple iterations of the building's openings were tested using Sefaira, a daylighting and energy analysis software, to analyse a simplified model of the building. The general lighting quality was assessed to determine overlit, underlit and well-lit spaces. The process of testing and iteration led to a successful strategy with lighting targets met during the majority of occupied hours. The final iteration led to the inclusion of a lightwell at the northern edge of the building and extensive Southern glazing.

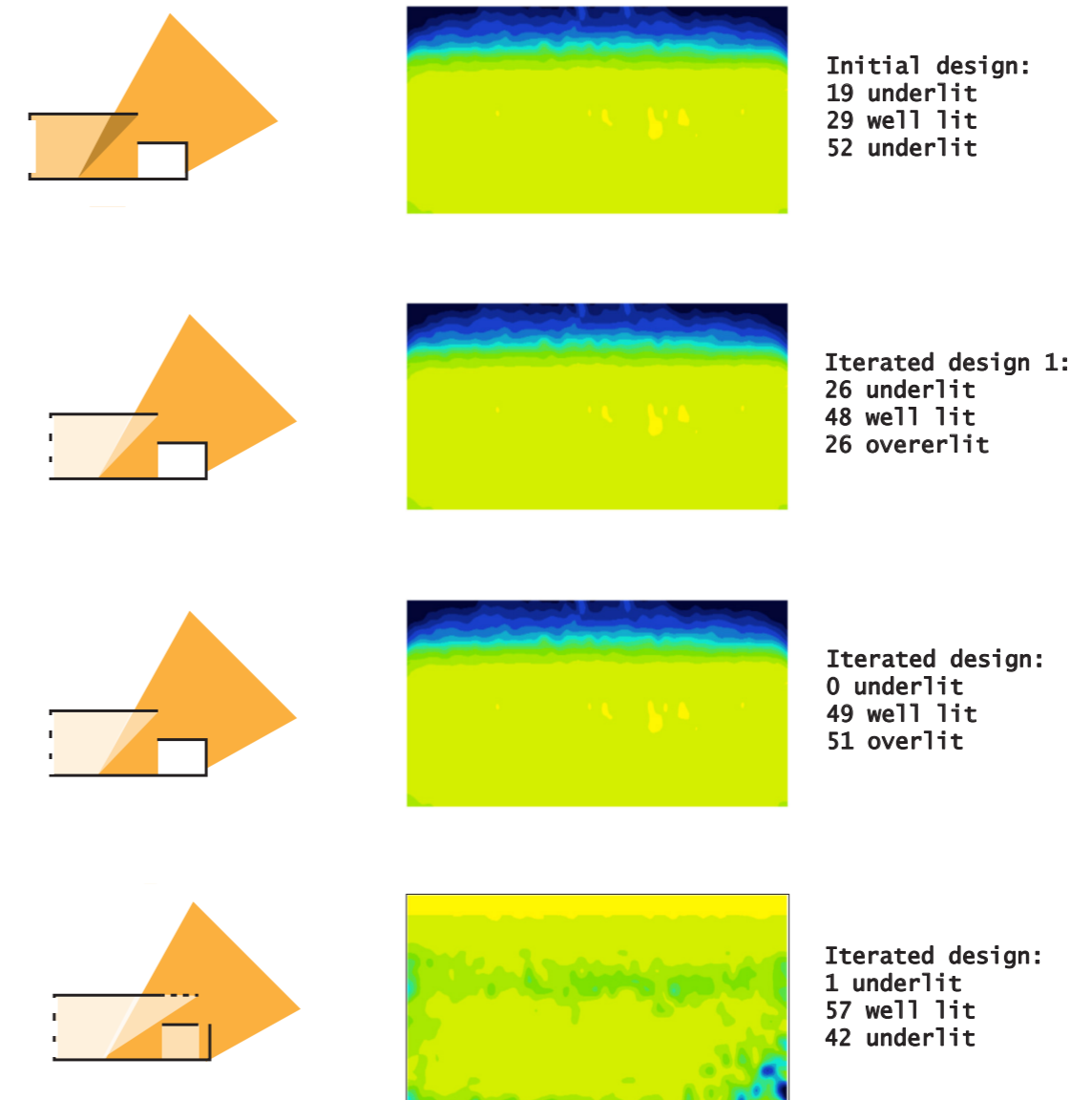


Figure 5.10: Light study findings (Author, 2022)

05.10.2 Calculations

	Rainfall	Roof area	Yield (m ³)
Jan	154	1040	48,048
Feb	75	1040	23,4
Mrt	82	1040	25,584
Apr	51	1040	15,912
Mei	13	1040	4,056
Junie	7	1040	2,184
Julie	3	1040	0,936
Augustus	6	1040	1,872
Sept	22	1040	6,864
Okt	71	1040	22,152
Nov	98	1040	30,576
Des.	150	1040	46,8
Total	732	12480	228,384

	Yield (m ³)
Jan	48,048
Feb	23,4
Mrt	25,584
Apr	15,912
Mei	4,056
Junie	2,184
Julie	0,936
Augustus	1,872
Sept	6,864
Okt	22,152
Nov	30,576
Des.	46,8
Total	228,384
Avg.	35,136

Building demand			
Month	Occupancy	Demand individual (l)	Total demand
Jan	150	65	9,75
Feb	150	65	9,75
Mrt	150	65	9,75
Apr	150	65	9,75
Mei	150	65	9,75
Junie	150	65	9,75
Julie	150	65	9,75
Augustus	150	65	9,75
Sept	150	65	9,75
Okt	150	65	9,75
Nov	150	65	9,75
Des.	150	65	9,75
Total			117

Water Budget			
Month	Yield (m ³)	Demand (m ³)	Monthly balance
Jan	48,048	13,5	34,548
Feb	23,4	13,5	9,9
Mrt	25,584	13,5	12,084
Apr	15,912	13,5	2,412
Mei	4,056	13,5	-9,444
Junie	2,184	13,5	-11,316
Julie	0,936	13,5	-12,564
Augustus	1,872	13,5	-11,628
Sept	6,864	13,5	-6,636
Okt	22,152	13,5	8,652
Nov	30,576	13,5	17,076
Des.	46,8	13,5	33,3

Municipal dependency			
Month	Monthly Balance	Shortage	Volume Accumulated
Jan	34,548	0	34,548
Feb	9,9	0	44,448
Mrt	12,084	0	56,532
Apr	2,412	0	58,944
Mei	-9,444	9,444	49,5
Junie	-11,316	11,316	38,184
Julie	-12,564	12,564	25,62
Augustus	-11,628	11,628	13,992
Sept	-6,636	6,636	7,356
Okt	8,652	0	16,008
Nov	17,076	0	33,084
Des.	33,3	0	66,384

According to calculations, the proposed water harvesting system will deliver excess water during the summer months. If excess water is accumulated over the summer months, it may be possible to propose an entirely self sufficient water system. Excess water may, however, be used for irrigation and landscaping purposes.

05.10 Sustainability

According to an initial SBAT assessment, the intervention achieved a rating of 4,0 of 5,0. This is due in large part to the facilities provided by the intervention and the context. The rating could be improved through the addition renewable energy measures and rainwater harvesting.

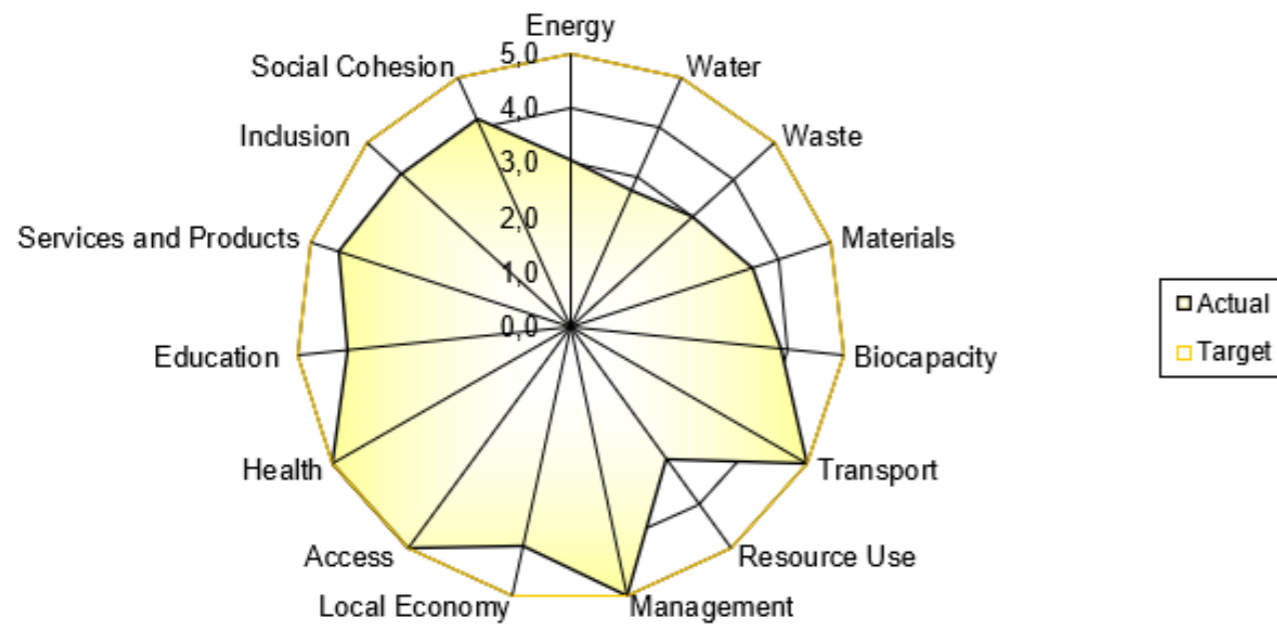


Figure 5.11: SBAT rating (Adapted from SBAT questionnaire)

05.10.1 Rainwater Harvesting

In order to improve the SBAT rating of the intervention (fig. 5.11), rainwater collection systems can be installed to improve sustainability. To ensure simplicity of the system - thereby improving and easing installation and maintenance - only the roof structures of the main building will be included in this system. This requires the creation of a water budget and a calculation of the amount of water that can be retained.

05.11 System discussion: Fire

Considering the public program and the sensitivity of the material handled in the intervention, it is crucial that systems are in place to extinguish or prevent a fire from spreading from one space to the other. The building does not require a sprinkler system as per SANS 10400 T, Section 4.36. SANS 10400 T does, however, dictate that a firehose reel for every 500m² of floor area with a minimum reach of 30 meters. In locations where this is not sufficient to cover the entire area, additional hoses or fire extinguishers may be required. The locations of the hoses are shown on the plan. One fire hydrant must be provided per every 1000m² with at least one per storey.

In the interest of public safety in case of fire, accessible escape routes and emergency exits must be provided in accordance with SANS 10400 T, section 4.16. As a multistorey building, there must be at least two escape routes that include one emergency route. The total distance from a room to an escape/emergency route may not exceed 15m, however since most spaces in the building are not separated by walls, these regulations do not apply. An escape route may not exceed a distance of 45m between an exit door and the origin of the route. Uncovered open space, such as the public plaza, allows occupants to safely leave the site once they have exited the building.

Soutpansberg Road

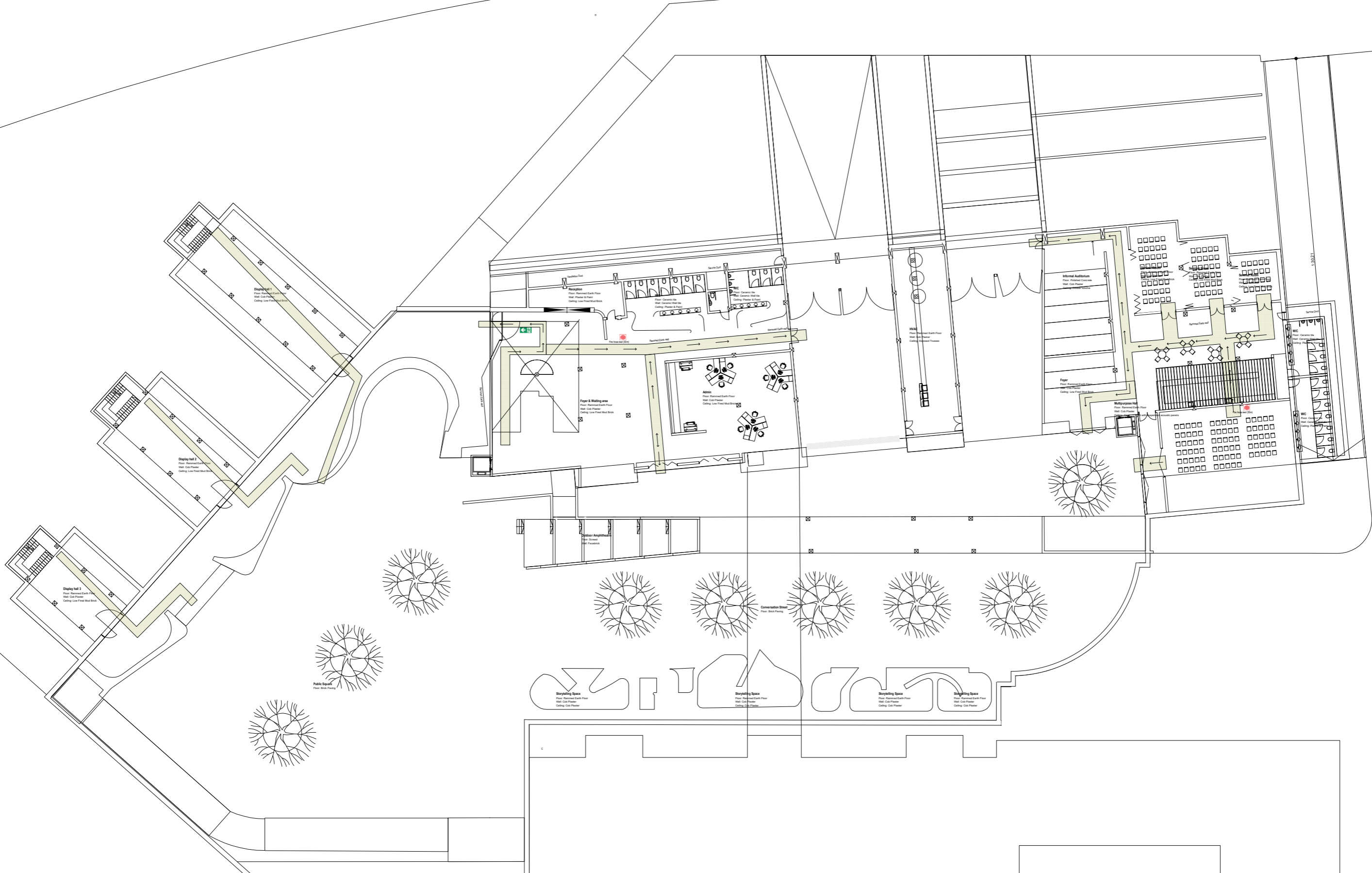


Figure 5.12: Ground floor Fire plan (Author, 2022)

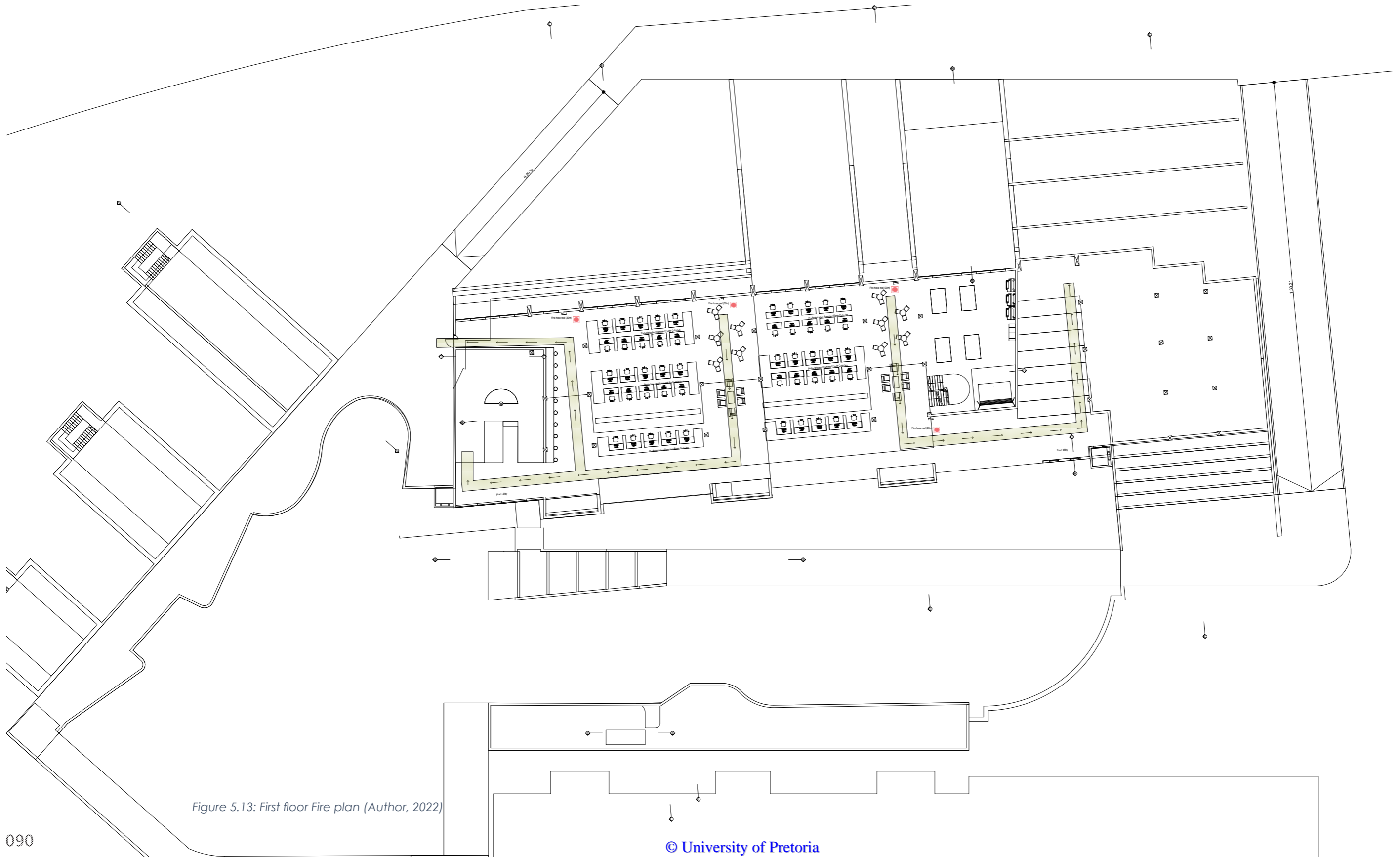


Figure 5.13: First floor Fire plan (Author, 2022)

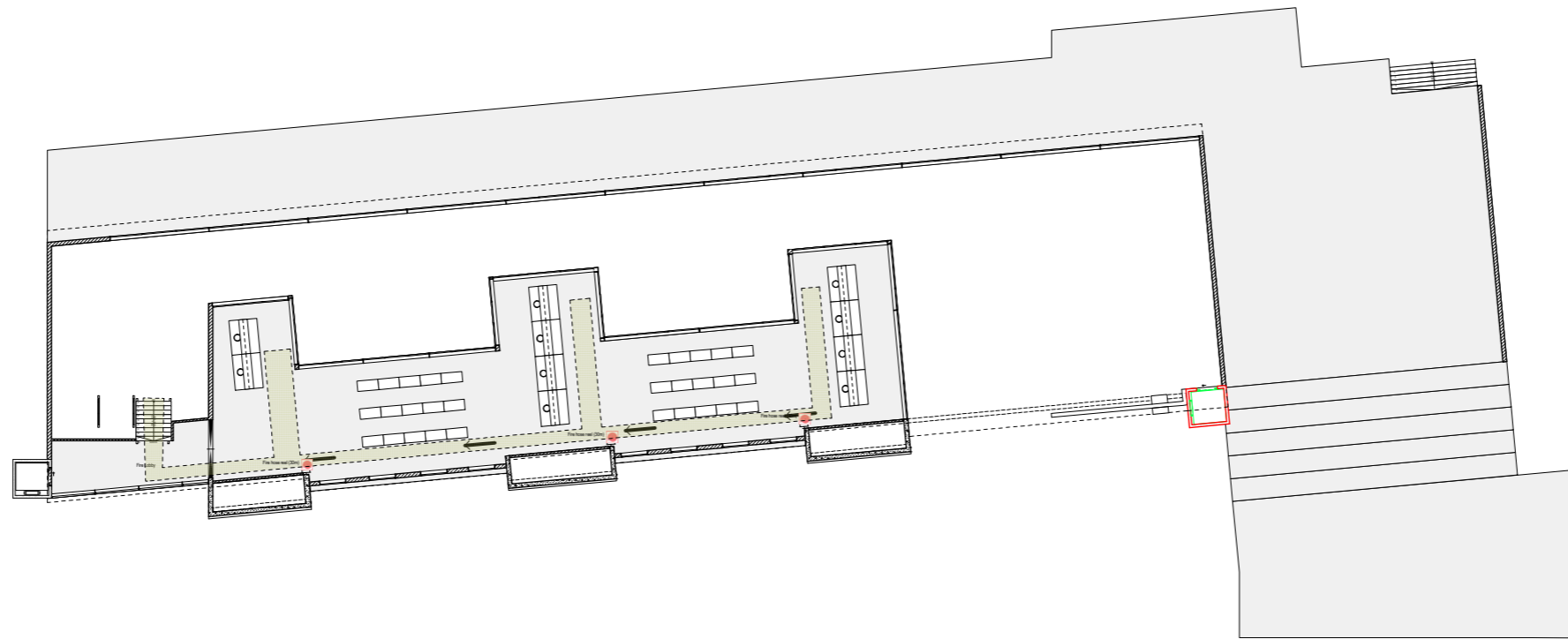


Figure 5.14: Second floor Fire plan (Author, 2022)

05.12 System discussion: Ventilation

Maintaining indoor conditions at levels appropriate for an archive is an important aspect of the intervention's performance. Overly humid as well as overly dry spaces can be detrimental to the preservation of artefacts, especially paper based items (Koltun 2002: 239-261). Alongside this, thermal comfort is another important aspect to consider in the intervention, especially with sustainability in mind.

As mentioned earlier, due to the physically sensitive nature of archival material to elements such as sunlight, the orientation and the form of the intervention is specifically designed not to allow a large amount of solar heat gain as northern glazing is limited and shaded to allow a negligible amount of direct light into the main volume of the intervention.

With the intention being to develop a sustainable ventilation strategy that suits the specific needs of an archival space, minimal mechanical ventilation must be employed alongside passive strategies. In the proposed system, air will be mechanically conditioned to the desired temperature and moisture content, then pushed into these inhabited spaces at a low level. From here, the air becomes heated by inhabitants in the spaces and rises towards the large, high volume of the cooling towers where it will be exhausted. The outside volume of the cooling towers create a thermal flywheel effect continuously drawing warm air out of the building an upwards towards an extraction system.

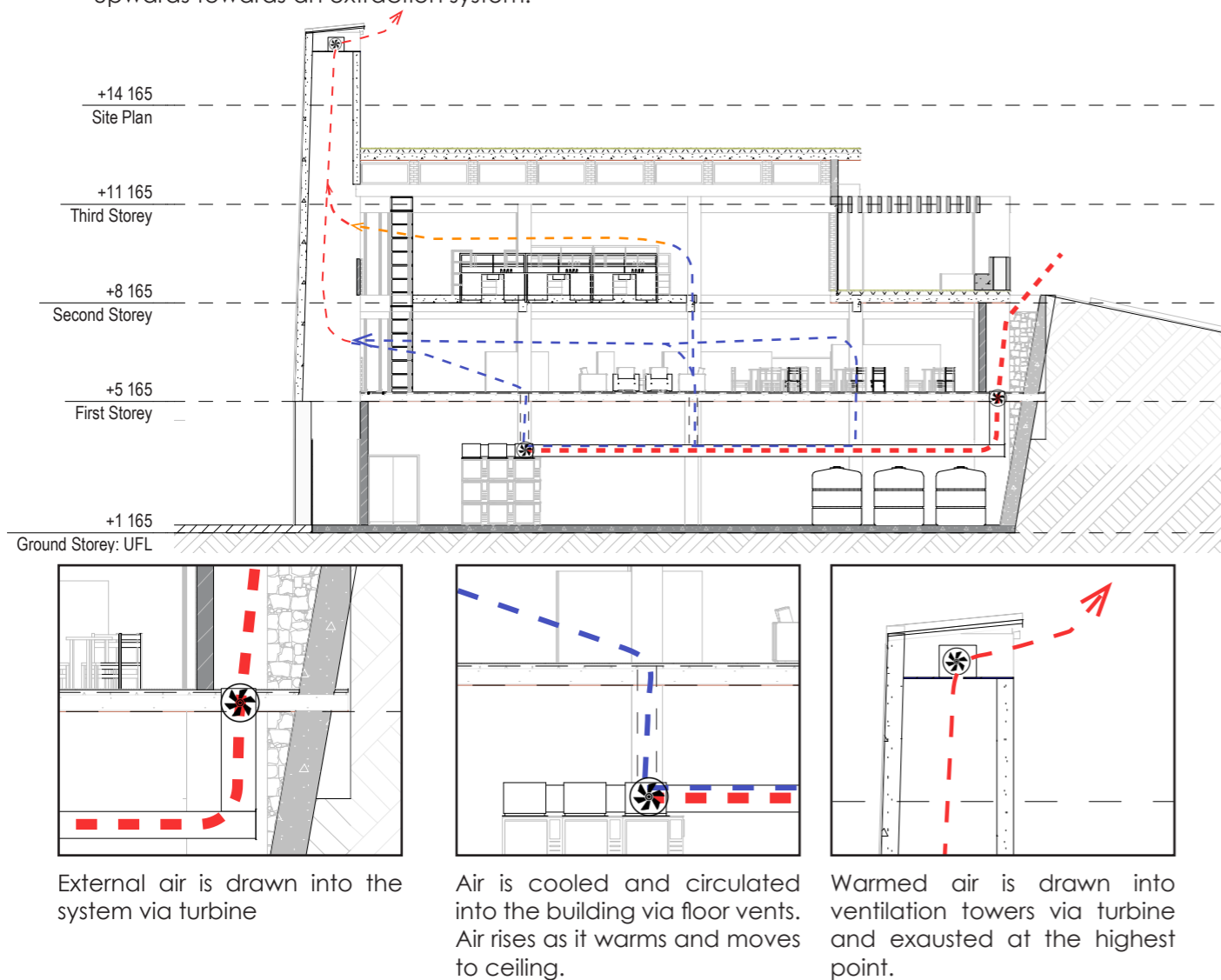


Figure 5.15: Ventilation system (Author, 2022)

05.13 Conclusion

The technical resolution in this design investigation becomes crucially important to the effective articulation of the final product. The experiential quality as well as the performance of the design can only truly be made real through the clear and careful detailing of key components of the building. Further, if the concept of an alternative archive is to be realised, the detailing and broader technical resolution of the design cannot remain generic. Unique or innovative tectonic hybrids lend a certain richness of changing spatial experiences to the intervention. These details allow the Alternative Archive to remain relevant and functional for a multitude of users.

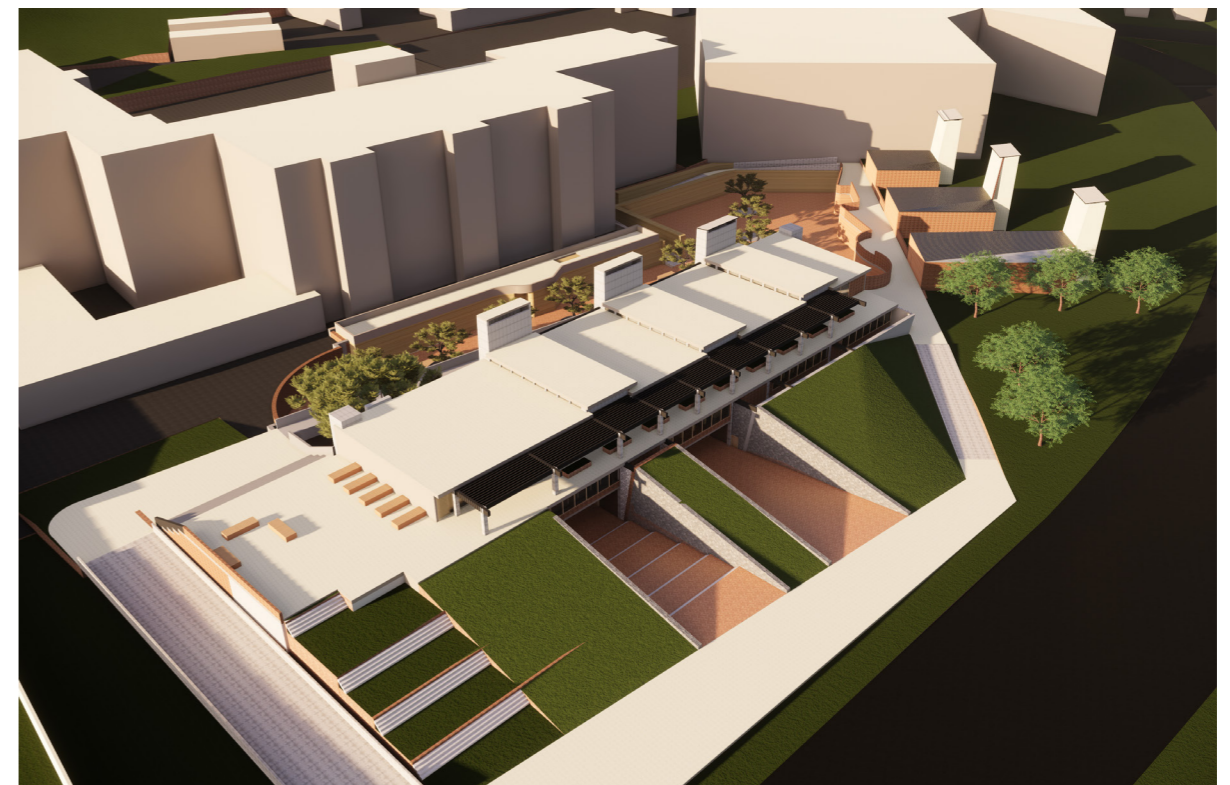


Figure 5.16: Site Perspective (Author, 2022)

06_Reflection



Figure 6.1: Conceptual vignette (Author, 2022)

06.1 Initiation

The archive, as a typology for a public institution, has a clearly defined and rigidly defined framework as determined by various regulations, laws and standard preservation practices. The way in which a specific institution functions within this framework, though, are largely generic and articulated in a way that restricts public visibility and access. With the focus being on this, for whatever reason, little attention is paid to the valuable contribution the contents of an archive, especially a national archive, can make to civic life. In the case of NARSSA, little attention is paid to the way the public perceives the Archive and attracting people to the Archive. The architectural intention for the mini dissertation was to develop an appropriate and engaging public function that enhances current researcher-centred functions while expanding the functions of the public interface to include more accessible exhibitions and event spaces.

06.2 Dissertation Outcomes

The primary focus of the mini-dissertation was the development of the public interface of NARSSA (fig. 6.1), while the secondary focus was to investigate the way in which hybrid tectonics - as defined by Louw (2021) - can be used to enrich the spatial intentions and help physically manifest the concept (fig 7.1). In the architectural exploration, the northern edge of the NARSSA premises is transformed into an expansive public facility with multiple programs that activate monumental public spaces, intimate protected spaces and various experiences that enhance the use of the space. Situated on the intersection of two highly energetic urban arteries, the site has tapped into the vibrance by finally linking NARSSA with the city. This has been achieved by creating a public space between the new and the existing structures that will draw people into the site.

On the site, spaces alternate between narrow and wide, exposed and protected as visitors move through the facility. Each spatial articulation addresses a certain spatial intention or serves a specific function and defines the purpose of the space for the user. The intentions for each space are reinforced by the technical detailing and articulation of the materials in a hybrid of global and local technologies that create a site specific spatial experience (fig. 4.2).



Figure 6.1: Street view of site (Author, 2022)

06.3 Reflection

In the research and design proposal of this mini-dissertation, it was suggested that in order to create a well-crafted intervention, the technical articulation of the building must consist of a carefully considered set of details and intentions that make creative use of immediately available materials. In developing the intervention, the use of conventional approaches was avoided in order to shift the focus to creating well crafted spatial experiences that are relevant to the concept of an archive. This meant developing an intervention that would, in similar fashion to an artefact in an archive, change over time through use. Creating a contextually appropriate intervention is an important aspect of my normative stance on design. To achieve this, it became important to incorporate local technology into the intervention. With the spatial intention of creating a sunken plaza on the site, it also became important to consider how the excavated earth would be repurposed in order to ensure that it didn't become a frivolous spatial gesture. Ultimately, these considerations became key drivers for the development of the intervention. Being cognisant of the risks of making superficial design decisions, an iterative process was followed to ensure that the best possible material use and articulation was found. The process made use of both 2D and 3D explorations, both in the abstract and realistic realms. To better understand the rammed earth construction process, a rammed earth sample was made by the author. Having gained confidence in this process and in order to prove the concept, the author experimented with rammed earth, producing an additive reinforced sample and an additive free sample. The physical interaction with this material helped greatly in the decision making process during the detail design phase.

Looking beyond the controlled environment of an academic setting, the concept of hybrid tectonics may be explored further, specifically as a deliberate design decision. In the source text by Louw (2021), the research focus is on existing buildings where hybrid tectonics were present. In this mini-dissertation, the author attempted to reverse-engineer the criteria in order to develop a system where tectonic hybrids could be developed as a conscious design decision. This process can be taken further with the creation of physical prototypes, longer term studies of materials in real life scenarios and the development of hybrids through co-design strategies.

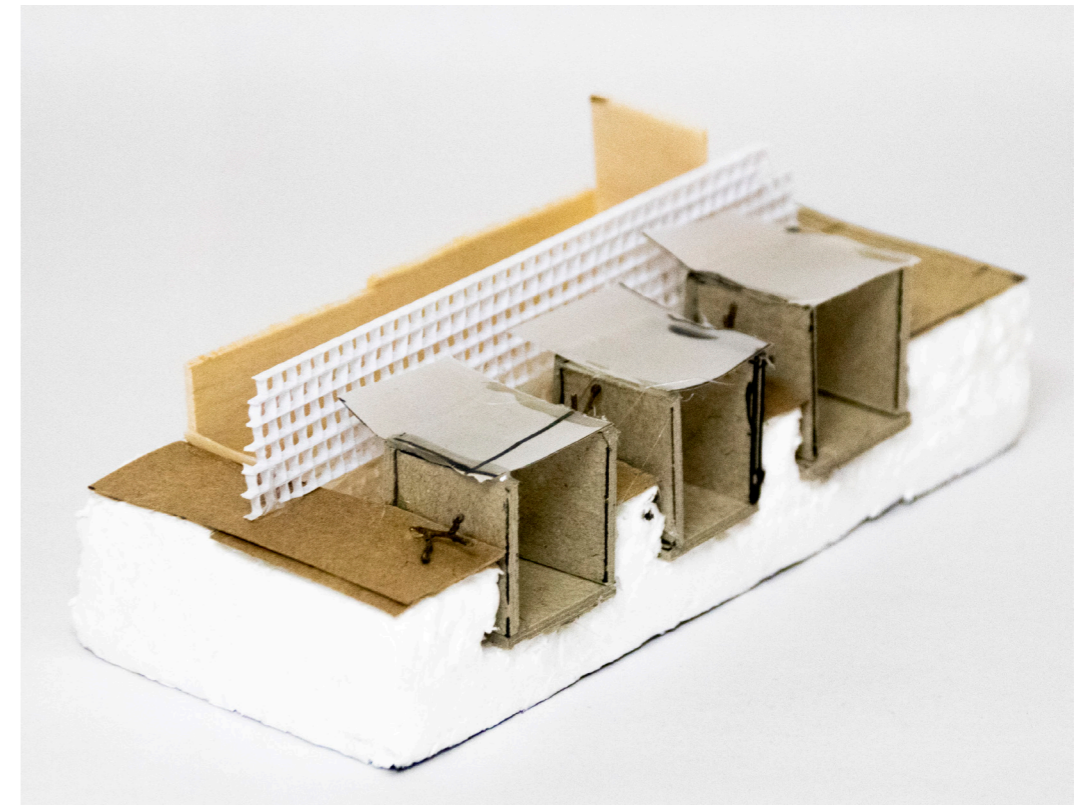


Figure 6.2: Conceptual Maquette (Author, 2022)

06.4 Projection to the future

One of the key, if unmentioned, outcomes of the mini-dissertation was the acquisition of new design, presentation and iteration skills throughout the year. Furthermore, the experience – both theoretical and practical – gained in rammed earth construction is invaluable and should serve as a handy intellectual arrow in the designer's quiver. Furthermore, the research into tectonic hybrids will equip the designer to better understand, develop and design contextually appropriate architecture that will be sustainable in the future. The findings can be applied far wider than merely in archival buildings or even civic buildings. The knowledge obtained during the course of the past year will set a solid foundation for an understanding of material, program, place and person including designing and specifically detailing spaces that are well crafted. The past year has helped this author develop a deeper curiosity and growing confidence in iterating design ideas through a variety of media. Furthermore, the pace and the standard of the Master's program has helped the author become more confident in making fast decisions and building believable arguments. All in all, the strategies explored in this mini-dissertation are applicable in a broad spectrum of disciplines and scales to create well crafted buildings that are innovative and true to their concept – a much treasured outcome of the process.

06.5 Conclusion

The outcomes of the mini-dissertation can be seen as an attempt to create an architecture that has moved beyond the generic and into the rich combination of global and local ways of making. The mini-dissertation could help refocus the architectural discourse on the act of making. The dissertation is not intended to be focused exclusively on archival architecture, nor on rammed earth but it is intended to serve as a starting point for the development of a technique for the creation of context specific architecture – in any context.



Figure 6.3: Site Perspective (Author, 2022)

AL-HADDAD, T., GENTRY, R., CAVIERES, A., CARPO, M., CHO, J., WAGNER, L. & ZAITSEV, A. *Representation+ Fabrication: Connecting descriptions and artifacts in the digital age*. 1st International Conference on Structures and Architecture (ICSA), University of Minho, Guimarães, Portugal, 2010.

BARKER, A. 2015. *Memory in South African Architecture*. <https://www.researchgate.net/publication/299343987>.

BARKER, A. A. J. 2019. *21st Century makers: the influencers and design philosophy of earthworld architects and interiors (2000–2018)*'.

BENNET, T. 2006. Civic Seeing: Museums and the Organization of Vision. *A companion to museum studies*, 263-281.

BERGDOLL, B. 2017. Frank Lloyd Wright at 150: Unpacking the Archive. *ICAM 07, 01*, 11.

BONWETSCH, T., WILLMANN, J., GRAMAZIO, F. & KOHLER, M. 2016. Robotic Brickwork: Towards a New Paradigm of the Automatic. *Bricks/Systems*, 51.

BOTES, R. C. 2022. *Food History: Recipes as Alternative Archives*. Pretoria: University of Pretoria.

BRUCHANSKY, C. 2010. The Appropriation of Space. *Plural Think Tank*.

CHEN-YU, C., GOAD, P. & MYERS, P. 2015. The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House. *arq: Architectural Research Quarterly*, 19, 381-396.

CLARKE, N. J. 2011. Regenerating Pretoria's historical core: Heritage as an asset for innercity development. *ICOMOS 2011*. Paris: ICOMOS.

CLEGHORNE, W. 1929. Construction of silos in stone and brick. *Farming in South Africa*, 3, 1258-1262.

DEMISSIE, F. 1997. Representing Architecture in South Africa. JSTOR.

DEWAR, D. & WATSON, V. 1981. Market Places as a Strategy for the Stimulation of Small Businesses: Some Guidelines for Their Design and Administration; *Project Report*.

EDGERTON, D. 2011. The shock of the old: Technology and global history since 1900, *Profile books*.

EMERY, V. L. 2011. Mud-brick architecture. *UCLA Encyclopedia of Egyptology*, 1.

FISHER, R. C. 2008. The native heart: The architecture of the University of Pretoria campus.

FISHER, R. C., LANGE, M. E. & NKAMBULE, M. E. N. 2017. Cultural hybridity in the teaching of architecture within a decolonised society. 1-14.

FRESCHI, F. From Volksargitektuur to Pretoria Regionalism: Afrikaner Nationalism, Architecture, and the Imaginary of High Culture, 1948–76. *Colloquium Proceedings*, 2011. 94.

GEHL, J. 1987. *Life between buildings*, New York: Van Nostrand Reinhold.

GEHL, J. 2018. *Twelve Quality Criteria*. Gehl Institute.

07_References & Bibliography

GIEBELHAUSEN, M. 2006. Museum architecture: A brief history. *A companion to museum studies*, 223-244.

JACKSON, S. M. 2005. Cape colonial architecture, town planning, and the crafting of modern space in South Africa. *Africa Today*, 33-54.

JEKOT, B. P. 2007. The coexistence of the 'third' and 'first' world in South African architecture: the inclusion of the 'underdeveloped' in 'developed' technologies in the age of globalisation. *South African Journal of Art History*, 22, 66-78.

JUNG, C. & ARAR, M. 2021. An Analysis of Steven Holl's Phenomenological Design Approach in Nelson-Atkins Museum of Art. *International Journal of Advanced Research in Technology and Innovation*, 3, 5-18.

KAPFINGER, O. & SAUER, M. 2015. Martin Rauch, refined earth : construction & design with rammed earth. *Munich: Detail - Institut für internationale Architektur-Dokumentation GmbH & Co. KG*.

KARA, C. E. Evolution of Brick Architecture Through Digital Tools and Technologies. *Gazi University Journal of Science Part B: Art Humanities Design and Planning*, 9, 329-344.

KETELAAR, E. 1996. Archival theory and the Dutch manual. *Archivaria*.

KOLTUN, L. 2002. The architecture of archives: Whose form, what functions? *Archival Science*, 2, 239-261.

LOH, P., BURRY, J. & WAGENFELD, M. 2016. Reconsidering Pye's theory of making through digital craft practice: A theoretical framework towards continuous designing. *Craft Research*, 7, 187-206.

LOUW, M. P. 2021. *The search for hybrid tectonics in contemporary African architecture: encounters between the global and the local*.

MAHACHI, J., KHANYE, L. & GOLIGER, A. M. 2007. *Calibration of brick masonry partial safety factors for the South African Code*.

MARTIN, C. 2010. Identity-Orientation-Interface. The adaptive re-use of the NZASM Building in Pretoria, South Africa. Working towards an architecture which aids the orientation of the user and serves to further define the identity of the city. University of Pretoria.

MASON, R. 2006. Cultural Theory and Museum Studies. *A companion to museum studies*, 17-32.

MCCLELLAN, A. 1999. *Inventing the Louvre: Art, politics, and the origins of the modern museum in eighteenth-century Paris*, Univ of California Press.

MDLALOSE, N. 2012. Storytelling at Freedom Park://hapo Interactive Space. *South African Museums Association Bulletin*, 35, 13-16.

MOLEFE, N. & SCHELLNACK-KELLY, I. 2019. Users' perceptions of services at the National Archives and Records Service of South Africa (NARSSA). *Innovation: journal of appropriate librarianship and information work in Southern Africa*, 2019, 3-15.

MULRYAN, M. J. 2001. *John Cotton Dana, John Dewey, and the creators of the Newark Museum: A collaborative success in the art of progressive, visual instruction*.

NGOEPE, M. & NGULUBE, P. 2011. Assessing the extent to which the National Archives and Records Service of South Africa has fulfilled its mandate of taking the archives to the people. *Innovation: journal of appropriate librarianship and information work in Southern Africa*, 2011, 3-22.

NIETO, F. 2012. Nieto Sobejano Arquitectos. *A+ U-ARCHITECTURE AND URBANISM*, 48-49.

OTERO-PAILOS, J. 2016. Experimental Preservation. *Places Journal*, 1-12.

OUZMAN, S. Radiant Landscapes and Ancient Minds: Archaeology and Architecture in harmonious counterpoint. *Nine Landscapes: Essays on landscape in South Africa*, 2002 Pretoria. University of Pretoria.

Overall, S., Rysavy, J. P., Miller, C., Sharples, W., Sharples, C., Kumar, S., Vittadini, A. & Saby, V. *Direct-To-Drawing Automation In Extruded Terracotta Fabrication*.

OVERALL, S., RYSAVY, J. P., MILLER, C., SHARPLES, W., SHARPLES, C., KUMAR, S., VITTADINI, A. & SABY, V. 2018. Made-to-measure: automated drawing and material craft. *Technology | Architecture+ Design*, 2, 172-185.

PALLASMAA, J. 2012. Newness, tradition and identity: existential content and meaning in architecture. *Architectural Design*, 82, 14-21.

PAPANICOLAOU, S. S. 2017. Walking and mapping as craft in architecture. *South African Journal of Art History*, 32, 132-145.

PIENAAR, M. 2013. *The Norman Eaton legacy: a critical architectural appraisal of the documentation of his domestic oeuvre*. M(Arch), University of Pretoria.

PLATZER, M. 2018. A Pictorial Prelude. *ICAM 07*, 1, 6.

PORTER, C. 2019. *The [Art] isan of Architecture*. University of Pretoria.

PRETORIA, U. O. 2012. *Code of ethics for scholarly activities S 4755/12*. Pretoria: University of Pretoria.

RAB, S. & BARTON, C. Carlo Scarpa's Re-design of Castelvecchio in Verona, Italy. *86th ACSA Annual Meeting and Technology Conference Paper*, 1998. 443-451.

RAEL, R. & SAN FRATELLO, V. 2018. *Printing architecture : innovative recipes for 3D printing*, Hudson, New York, Princeton Architectural Press.

RUIZ-GÓMEZ, N. 2006. *The (Jean) Nouvel Other: Primitivism and the Musée du Quai Branly*. *Modern & Contemporary France*, 14, 417-432.

SCHMIDT, S. 2016. The Archival Workspace: An Accidental Ethnography. *Thresholds*, 145-156.

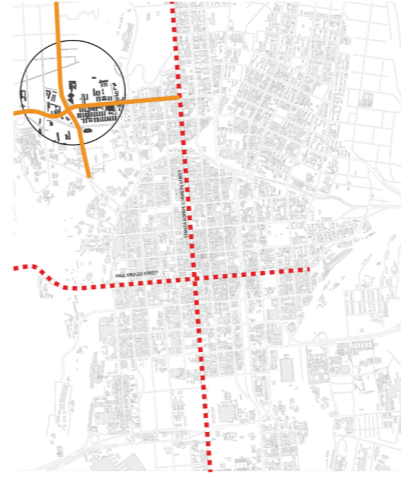
SHALES, E. 2010. *Made in Newark : Cultivating Industrial Arts and Civic Identity in the Progressive Era*. Piscataway: Rutgers University Press.

- SHELTON, A. A. 2009. The public sphere as wilderness: Le Musée du quai Branly. *Museum Anthropology*, 32, 1-16.
- SIREFMAN, S. 1999. Formed and forming: Contemporary museum architecture. *Daedalus*, 128, 297-320.
- SKOTNES, P. & PAYNE, M. 1995. The art of the curator: Exhibiting art in contemporary South Africa. *Social Dynamics*, 21, 83-95.
- SOUTH-AFRICA 1996. *National Archives and Record Service of South Africa Act 43 of 1996*. 376 ed.: Republic of South Africa Government Gazette.
- STEYN, G. & NKAMBULE, E. 2017. An assessment of Henri Comrie's aspiration to achieve well-crafted architecture. *South African Journal of Art History*, 32, 174-189.
- TSWHANE, C. O. 2018. Tshwane Metropolitan Spatial Development Framework, 2030. In: *PLANNING, D. O. T.* (ed.). Pretoria.
- WONG, L. 2017. *Adaptive reuse : extending the lives of buildings*. Basel, Switzerland: Birkhäuser.
- ZAERA-POLO, A. 2008. The politics of the envelope. *Log*, 193-207.

08_Addendum

Final Crit Presentation Posters

THE SITE



GENERAL ISSUE

- Conventional archival and historical practices tend to prefer primary sources as generators for historical narratives. This means that traditional and non-primary sources are often neglected or dismissed from archives and other repositories.

URBAN FRAMEWORKS



KEY POINTS

- Area earmarked for densification.
- Future Transport Hub to be established in area.
- Site located at crossroads of transport and activity spines.
- Site sits at connection point between residential and commercial.
- Site borders biodiverse area.



ARCHITECTURAL ISSUE

In the South African context there exists a hybrid construction methodology that combines the global contemporary techniques with local ways of making (Louw, 2021). This methodology has taken place in the formation of South Africa's architectural continuum (Jekot, 2007).



URBAN ISSUE

The site of the National Archives can be seen as representative of a certain attitude towards the urban environment in the City of Pretoria. The building site within the urban fabric yet is completely isolated from it. Its envelope, completely ignores its context.



KEY PROPOSAL

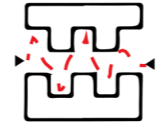
- New transport hub with commercial and residential use.
- New public park alongside Southpansberg road.
- Expansion of archival storage facility with horticultural avenues.
- Public Archive interface with marketplace and taxi stop.
- New walkway linking Hamilton Street with residential area.

KEY THEORY

MUSEOLOGY

- Everyday objects can be as significant as important items.
- We inhabit culture in the sense that we share knowledge about our world with others - CULTURAL MAPS.
- Museums materialise meaning and value.

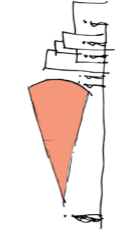
MUSEUM ARCHITECTURE



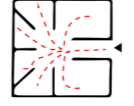
Museum articulation oscillates between formal and formative.



Precious objects were housed at holy places in Antiquity.

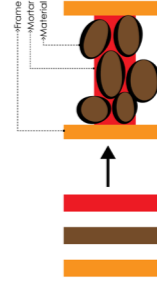


Museums are places of civic seeing - collective engagement.

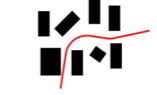


Museums divide people according to their competencies.

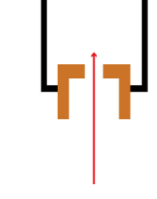
CHARACTERISTICS OF WELL CRAFTED BUILDINGS.



Creative use of IMMEDIATELY AVAILABLE materials.



Real SPATIAL UNDERSTANDING through investigation.



DEVELOPMENT of context-specific details.



USE OF COMPLEMENTING materials to create heightened sensory experiences.



Careful considerations of ARTICULATION.

PUBLIC SPACE CRITERIA



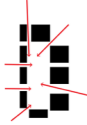
Provide space for multiple business sizes



Maximize flexibility of space to increase likelihood of appropriation and use.



Linearity to allow for seamless expansion and contraction.

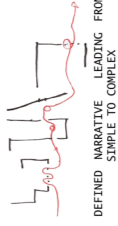


Variety and good placement to attract maximum visitors.



Monumental Structure

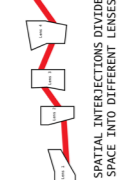
PRECEDENTS



DEFINED NARRATIVE LEADING FROM SIMPLE TO COMPLEX
CIRCULAR ROUTE ALTERING PERSPECTIVE



SPATIAL INTERSECTIONS INTO DETERMINED NARRATIVE
BUILDING DISCONCEIVED BY LANDSCAPE



SPATIAL INTERSECTIONS DIVIDE SPACE INTO DIFFERENT LENSES
ROUTE THROUGH SPACE GETS DISRUPTED



BUILDING DIVIDED INTO FUNCTION AND STRUCTURE
FLOOR LEVELS DEFINE FUNCTION

MUSEUM CRITERIA



Changing perspectives



Looking in



Interrupting narrative



_Pause



Interrupting narrative

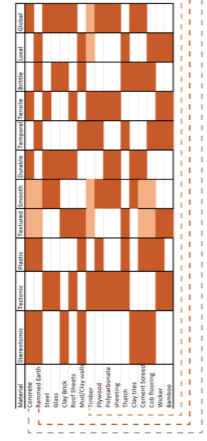


Interrupting narrative



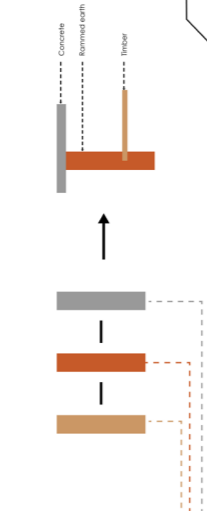
Interrupting narrative

HYBRID TECTONIC CREATION



Public Space
Event Space
Reading Room
Museum

Organisation: Different functions divided spatially by level changes and floor layouts.



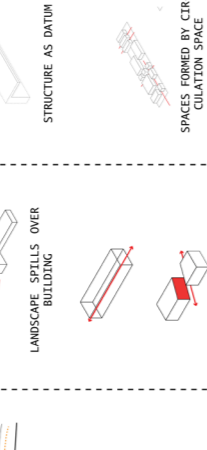
Public Space
Event Space
Reading Room
Museum

Organisation: Different functions divided spatially by level changes and floor layouts.



Public Space
Event Space
Reading Room
Museum

Organisation: Different functions divided spatially by level changes and floor layouts.



Public Space
Event Space
Reading Room
Museum

Organisation: Different functions divided spatially by level changes and floor layouts.

AN ALTERNATIVE ARCHIVE

o.a. Research Question:

Keywords: Hybrid Tectonic Technology / Research / Display / Narrative
How can hybrid tectonics and technologies be used to create enhanced research and display spaces that will reframe existing historical narratives at the National Archival and Records Service of South Africa?

RESEARCH METHODOLOGY INTENTIONS



WHAT



Creating a space where a space is created by a display and a diversity of 'view' points.

HOW



WHY APPROACH

Highly ordered narrative

Organised narrative

Linear, contextualised narrative

Fragmented narrative

Non-linear, contextualised narrative

Fragmented narrative

Non-linear, contextualised narrative

Fragmented narrative

Non-linear, contextualised narrative

Fragmented narrative

Non-linear, contextualised narrative

DESIGN STRATEGY

INTERSECTIONS

BUILDING AS NARRATIVE

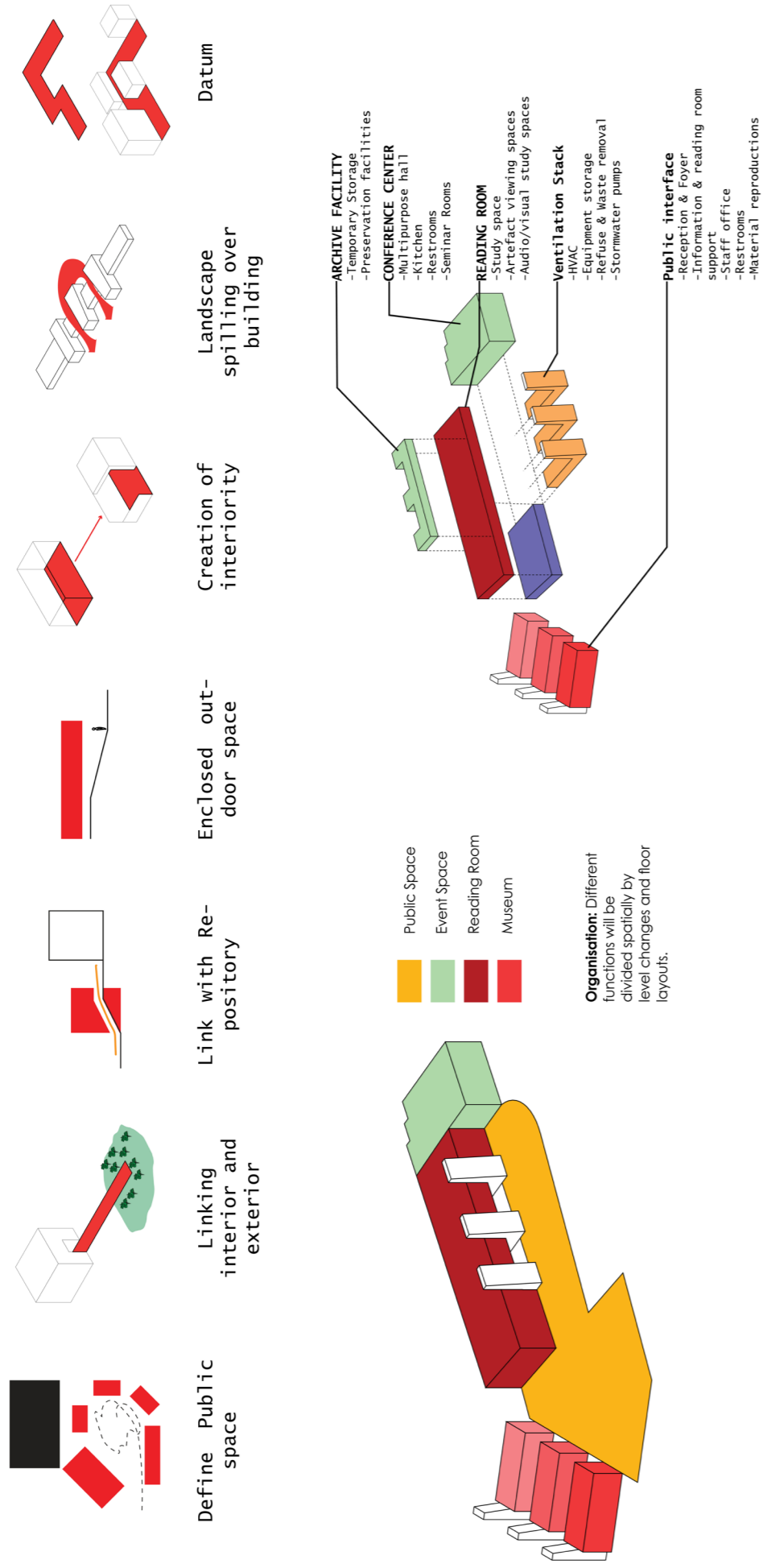
OPENING UP THE ARCHIVE

ALTERED PERSPECTIVES

INCLUDE ARCHIVAL HISTORY

AN ALTERNATIVE ARCHIVE

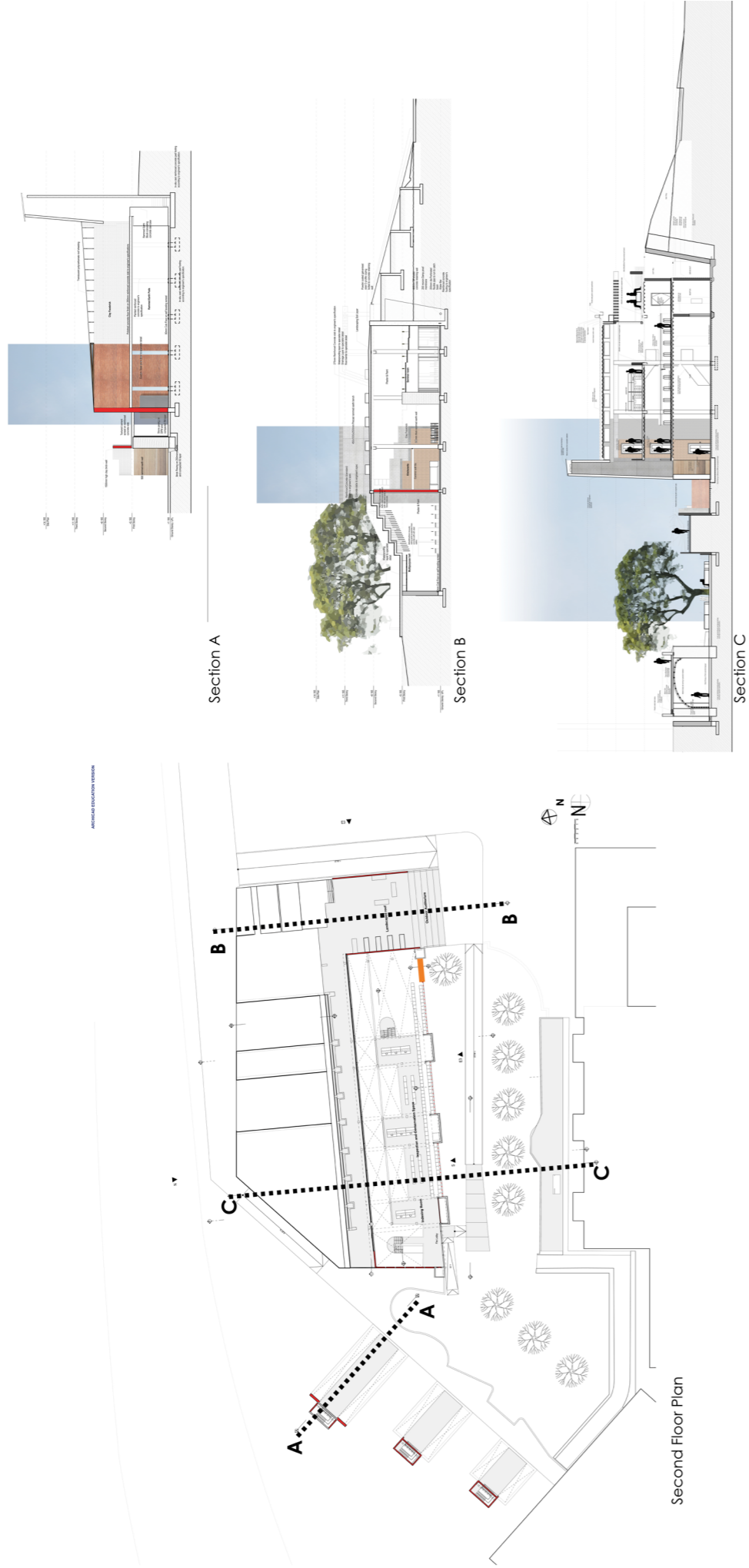
GENERAL DESIGN PRINCIPLES



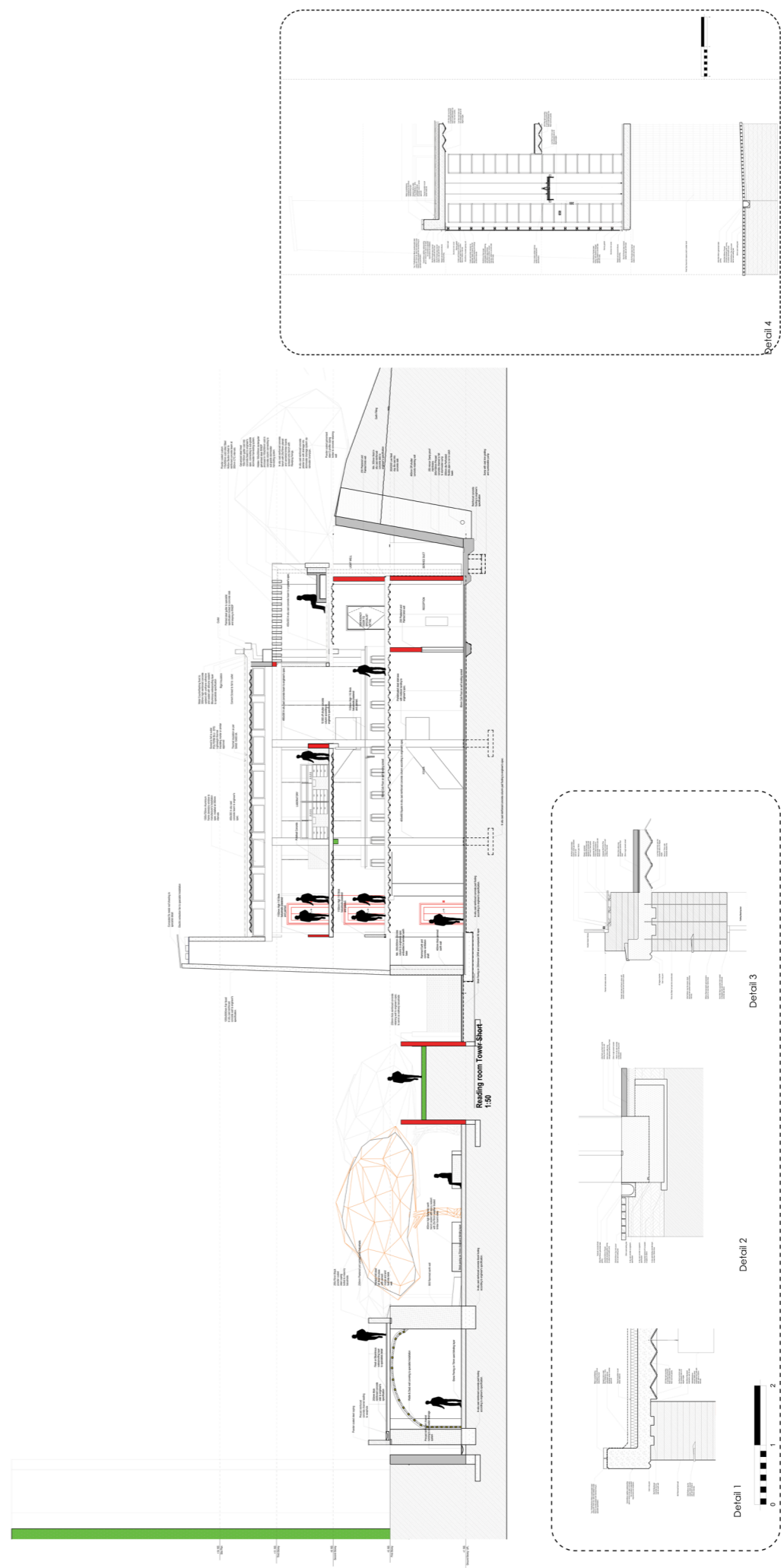
AN ALTERNATIVE ARCHIVE



AN ALTERNATIVE ARCHIVE



AN ALTERNATIVE ARCHIVE

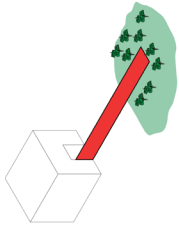


AN ALTERNATIVE ARCHIVE

GENERAL DESIGN PRINCIPLES



Define Public space



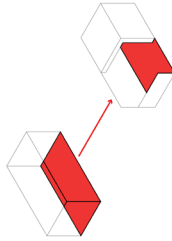
Linking interior and exterior



Link with Repository



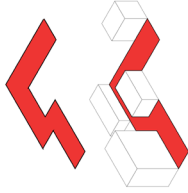
Enclosed outdoor space



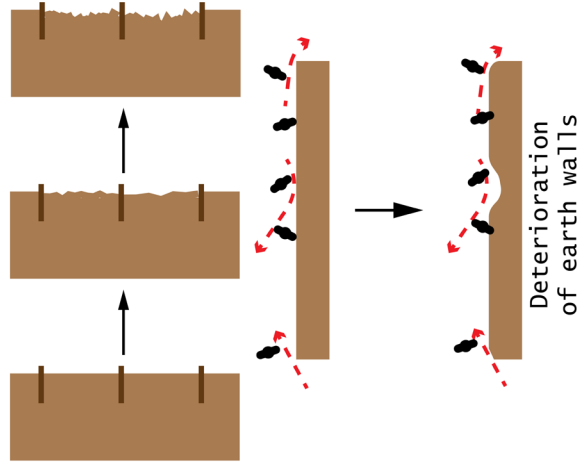
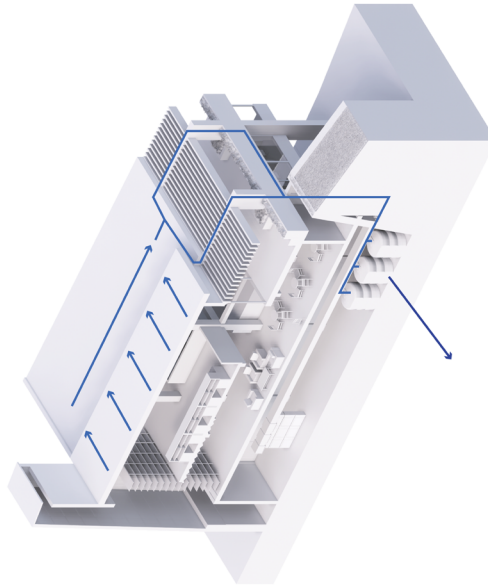
Creation of interiority



Landscape spilling over building



Datum



Deterioration of earth walls

Water Budget			
Month	Yield (m ³)	Demand (m ³)	Monthly balance
Jan	48,048	13,5	34,548
Feb	23,4	13,5	9,9
Mrt	25,584	13,5	12,084
Apr	15,912	13,5	2,412
Mei	4,056	13,5	-9,444
Junie	2,184	13,5	-11,316
Julie	0,936	13,5	-12,564
Augustus	1,872	13,5	-11,628
Sept	6,864	13,5	-6,636
Okt	22,152	13,5	8,652
Nov	30,576	13,5	17,076
Des.	46,8	13,5	33,3

Building demand			
Month	Occupancy	Demand Individual (l)	Total demand
Jan	150	65	9,75
Feb	150	65	9,75
Mrt	150	65	9,75
Apr	150	65	9,75
Mei	150	65	9,75
Junie	150	65	9,75
Julie	150	65	9,75
Augustus	150	65	9,75
Sept	150	65	9,75
Okt	150	65	9,75
Nov	150	65	9,75
Des.	150	65	9,75
Total		1170	117