Between Earth and Wall:

Stratified Ground Activation at Ingermanland Bastion, Tallinn

Graduation Report

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Foreword

This graduation project began from my interest in time as an architectural condition. During my visit to Estonia, and especially through walking in Tallinn, I became increasingly aware that time is not only present in monuments, preserved façades or historical narratives. It is also embedded in less immediate visible conditions such as changes in ground level, traces of former infrastructures, reused structures, fragmented walls, buried passages, material junctions and everyday patterns of movement.

Rather than understanding time as a chronological sequence, this project approaches time as something spatial. Cities accumulate time through construction, erasure, adaptation, abandonment and reuse. These processes do not always produce clear historical readings. More often, they result in overlap, discontinuity, concealment and coexistence. A wall may remain visible while its former function disappears. A ground level may rise until a former entrance becomes a basement. A tunnel may persist below the surface while the city above develops another life. These spatial contradictions became central to the way I understand temporal layering in architecture.

Tallinn offers a particularly rich context for exploring these ideas. Its urban fabric contains medieval structures, defensive systems, adapted buildings, underground passages, contemporary urban surfaces and everyday civic uses that coexist both horizontally and vertically. However, many of these layers are not easily experienced as part of daily life. They are often hidden beneath the ground, isolated as heritage objects, or passed by without deeper spatial engagement.

This report documents the development of my graduation project, **Between Earth and Wall: Stratified Ground Activation at Ingermanland Bastion, Tallinn.** The project investigates how architecture can mediate temporal layers through section, movement, materiality and program. It develops through research-by-design: theoretical research, disciplinary analysis, contextual mapping, site selection, design testing and architectural elaboration. The final proposal is a **Heritage and Material Culture Center** embedded within and alongside **Ingermanland Bastion,** where the bastion wall, mound, moat and tunnels are reactivated as a spatial and civic interface.

The title Between Earth and Wall refers to the two conditions that guide the project. The earth represents accumulation, burial, topography and hidden depth. The wall represents construction, defence, memory and persistence. Between them lies a thick spatial zone where architecture can intervene, not by erasing the existing condition, but by revealing, inhabiting and reinterpreting it.

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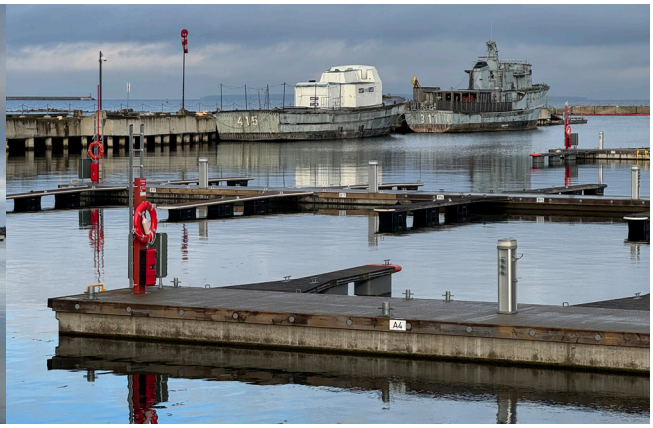
Kalamaja + Telliskivi | *Housings + Cafes + Creative Areas*

Seafront | *Housings + Port + Museums + Promenade*


Modern + Contemporary | *Offices + Govermental Buildings*


Soviet | *Monumental + Public Areas + Ruins*

Part 1: Introduction

What and Why?

1.1 Research Interest and Problem Statement

Architecture is inherently temporal. Buildings age, materials weather, uses change and contexts transform. Time is woven into every layer of a site, from historical traces in the ground to patterns of occupation and movement. This project approaches temporality not as a background condition to be preserved or represented, but as an active driver of design.

My interest lies in how time becomes spatial. I am not only interested in historical time as a sequence of dates, or in heritage as something protected as an image. Instead, I am interested in the way time can be experienced through architecture: through a descent into the ground, a change in material texture, a threshold between old and new, a route that slows the body, or a wall that reveals multiple phases of construction. This interest also comes from my own way of reading architecture. I am drawn to sites where the past is not immediately explained, but gradually discovered through movement and observation. These are places where architecture does not present a single image, but unfolds through fragments, traces and changes in atmosphere. In such places, moving through space becomes a way of reading time.

Through my architectural education and my site visit in Tallinn, I have become interested in how time operates spatially. Excavation, filling, layering and reuse continuously reshape a building or city itself that are often hard to observe purely through naked eyes. These actions create accumulations of history where different temporal moments coexist rather than replace one another.

The problem addressed by this graduation project is not the absence of history. Tallinn is already rich in historical material, monuments and preserved urban fragments. The problem is rather the limited way in which these temporal layers are often experienced spatially. Many historical layers remain concealed, disconnected, fragmented or reduced to information. They may be present physically, but they are not always integrated into everyday urban experience. In many heritage contexts, the past is treated as something to be observed from a distance. It is protected, displayed or explained, but not necessarily inhabited. This creates a separation between historical memory and contemporary life. The city's temporal depth becomes something one reads about rather than something one physically encounters. Architecture has the potential to challenge this separation by transforming temporal layers into spatial relationships that can be experienced through the body.

This project positions architecture as a mediator between these layers. Rather than preserving time as representation, it seeks to translate temporal differences into spatial relationships that can be physically experienced. This is critical not only to reveal the depth of a place, but to allow its identity to be understood as something lived, negotiated, and continuously reinterpreted, rather than fixed or static.

1.2 Relevance (Contribution to Profession and Society)

From a disciplinary perspective, this project contributes to architectural discourse on time, memory and ground. It aligns with debates on adaptive reuse, landscape-based architecture, and underground space, while maintaining a focus on architectural fundamentals such as section, movement and materiality.

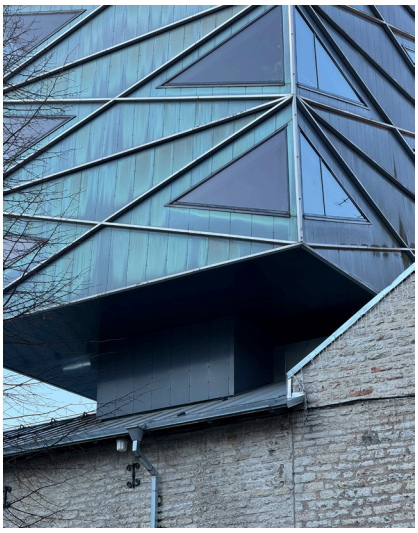
Instead of positioning architecture as an autonomous object, the project approaches architecture as a mediating intervention within a layered temporal condition. The site is understood as a constellation of historical, spatial and experiential layers that coexist yet remain disconnected. The proposal aims to reconcile these temporal dissonances, not by overwriting them, but by revealing, stitching and translating them into a coherent spatial experience that can also be physically navigated.

For society, the project addresses how collective memory can be integrated into everyday spatial experience. When history is isolated within museums or monuments, it becomes something observed rather than lived. By integrating temporal layers into movement, thresholds, and material presence, architecture enables individuals to encounter the past as part of daily life. This not only deepens spatial awareness, but allows identity to emerge through continuous interaction with these layers, rather than as a fixed or distant narrative.

The Heritage and Material Culture Center gives Ingermanland Bastion a renewed civic role. Instead of functioning mainly as a seasonal park or a historical backdrop, the site becomes a place for learning, making, gathering and reflection throughout the year. The program invites different types of users: visitors, local residents, researchers, students, craftspeople, performers and passers-by. This social mixture is important because it prevents heritage from becoming static. It allows the past to remain active through contemporary use.

The project also has environmental relevance. It works with existing structures and ground conditions rather than replacing them with a completely new object. Excavation, insertion and reuse are used carefully to create new spatial possibilities while maintaining the significance of the site. The material strategy further supports this by emphasizing local materials such as limestone and timber, and by considering the reuse of excavated material within new construction. Sustainability is therefore understood not only through performance, but also through continuity, reuse and reduced dependence on imported material language.

Ultimately, the project argues that heritage sites should not only be preserved as evidence of the past, but reactivated as meaningful parts of contemporary civic life.



Intersection Catalogue

1.3 Objective and Motivation

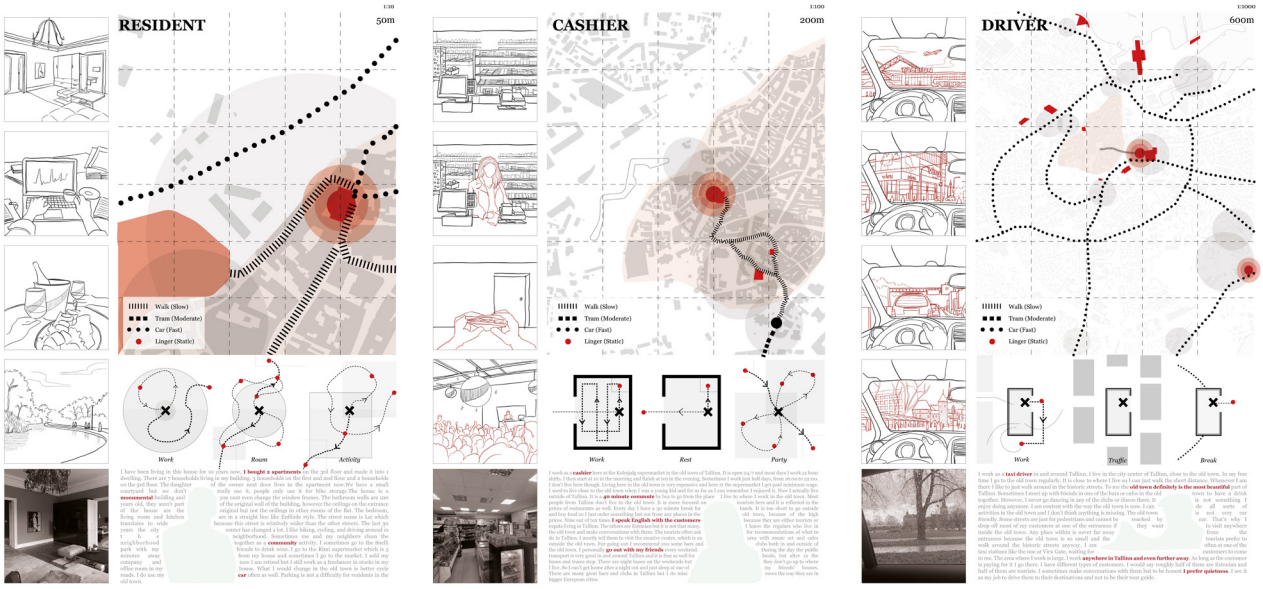
The objective of this graduation project is to explore how architecture can spatially mediate temporal layers embedded within Tallinn's urban ground. Mediation is understood here as the act of connecting, revealing and translating layers from different periods into spatial relationships that can be physically experienced.

The project does not aim to reconstruct a lost historical condition, nor to preserve the site as a static monument. Instead, it seeks to create an architectural framework in which past and present can coexist through movement, program, materiality and atmosphere.

My personal motivation based on this project comes from an interest in architecture that begins with the site rather than with imposed form. I am interested in how architecture can emerge from careful reading such as reading the ground, the existing structures, the historical traces and the atmosphere of a place. In this project, the site is not a neutral surface. It is already full of spatial and temporal information. The role of design is to interpret this information and give it new relationships.

This project also allowed me to question my own design process. In previous projects, I often began with plan organization or formal composition. Here, I deliberately began with section, ground and movement. This shifted the way I thought about architecture design. Instead of asking first what the building looks like, I asked how the body moves through the site, how the ground is entered, how the wall is approached and how hidden layers can become part of experience.

The project is therefore both an architectural proposal and a personal investigation into how I work as a designer. It has helped me understand architecture as a process of negotiation: between old and new, ground and structure, public and hidden, research and intuition.



Triptych: Users, Movement, Sensory
Teammates: Marieke, Neema, Tanyadhorn

1.4 Research Questions

This graduation project is guided by the central question of how architecture can engage with the layered temporal conditions of Tallinn in a spatial and experiential manner.

The main research question asks:

> *How can architecture mediate Tallinn's temporal layers spatially, enabling time to be experienced rather than just represented?*

To address this overarching inquiry, the research unfolds through a series of related subquestions that structure the analytical and design process.

First, how do **temporal layers** manifest in Tallinn through ground, movement, material traces and changing use? This question focuses on analysis. It investigates temporal layers not only as historical information, but as spatial conditions that appear through levels, routes, buildings, materials and fragments.

Second, how can **section** and circulation reveal hidden or disconnected layers within Ingermanland Bastion? This question focuses on design method. It explores how movement across different heights, thresholds and degrees of enclosure can make temporal depth perceptible.

Third, how can architectural intervention transform the bastion from a passive historical mound into an **active civic and cultural interface**? This question connects research to program. It asks how a heritage site can become part of contemporary public life without losing its historical significance.

Fourth, how can material and structural decisions express the relationship between **old and new**, earth and wall, permanence and adaptation? This question focuses on tectonics. It examines how material contrast, retaining structures, timber systems and reused ground material can communicate temporal relationships.

Altogether, these questions frame a methodology that prioritizes observation, spatial mediation and site-specific design. Essentially, I aim to utilize a humanistic approach on the treatment of architecture, creating a human-scaled experiences.

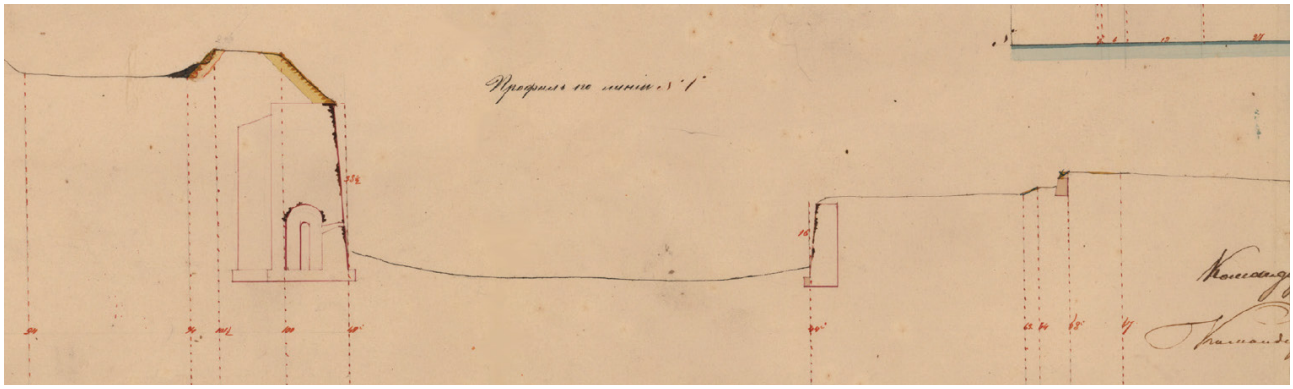
1.5 Scope

The scope of the project includes theoretical research, disciplinary analysis, contextual analysis, site selection, program formulation and architectural design development. The theoretical research focuses on concepts of temporal layering, palimpsest, ground, tectonics, phenomenology and architectural intervention. The disciplinary analysis examines how architecture can carry and transform temporal layers through use, morphology and material continuity. The contextual analysis reads Tallinn through multiple scales, from urban connections to architectural fragments, human movement and material details.

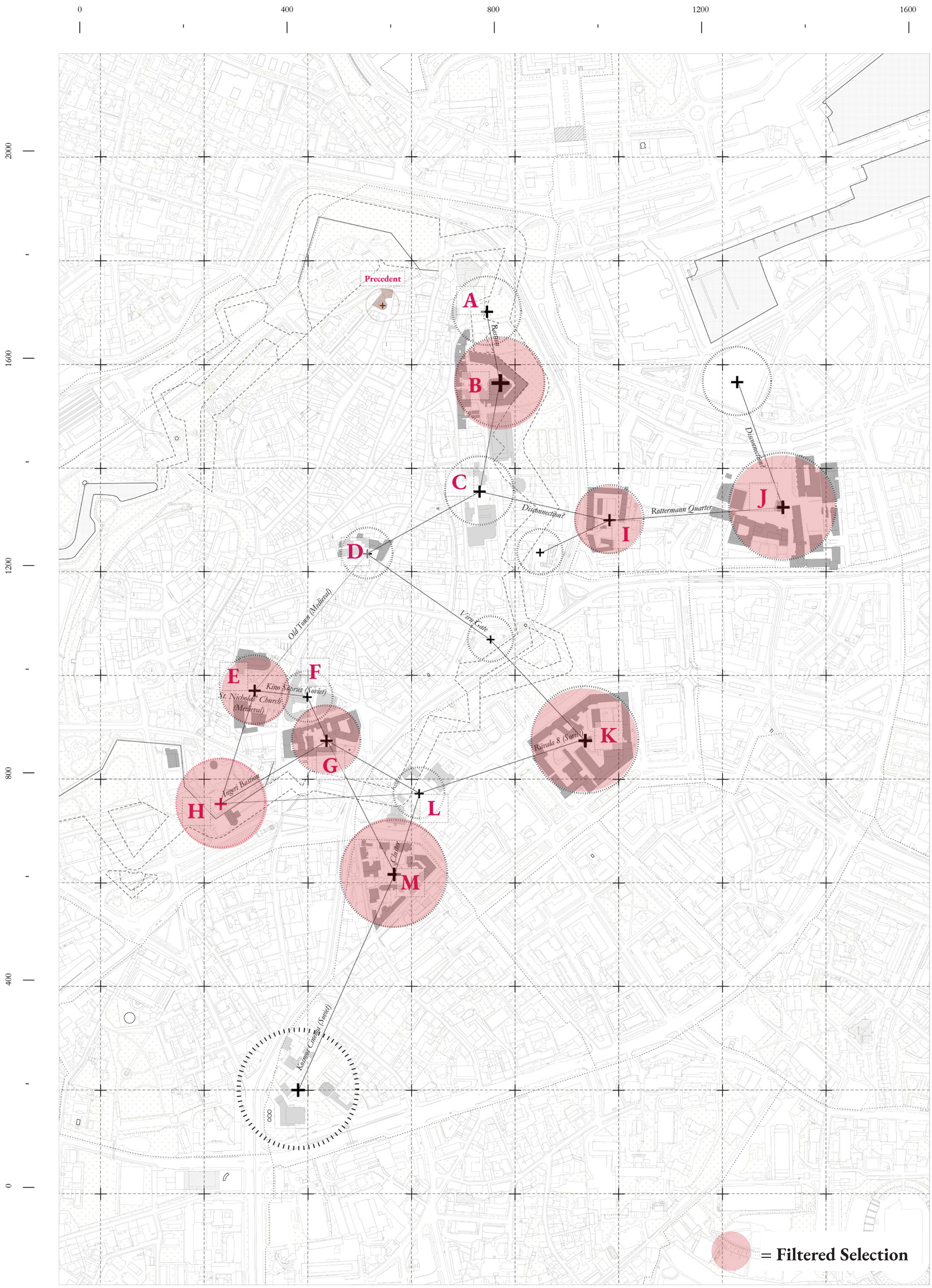
The design scope focuses on **INGERMANLAND BASTION** and its immediate surroundings. The project works with the bastion wall, mound, moat, existing tunnels, surrounding buildings and public routes. It proposes a **HERITAGE AND MATERIAL CULTURE CENTER** distributed across different spatial conditions like civic volumes, institutional spaces, reusing existing structures and subterranean areas.

The project does not attempt to produce a complete full archaeological report, conservation management plan or full engineering calculation for the bastion. These aspects would require specialized expertise beyond the scope of my graduation project. Instead, my graduation project mainly focuses on architectural and concept mediation: *how design can reveal, connect and activate temporal layers through spatial, programmatic, material and structural strategies.*

The technical development addresses structure, materiality, climate considerations and construction logic at a level appropriate for an architectural graduation project. Structural and material decisions are developed to support the conceptual and spatial argument, especially the contrast between retaining and spanning, heavy and light, embedded and exposed.



Ingermanland Bastion sectional and plan profile
Design Scope mainly provided and processed through the archival documents and images provided online databases or on-site archive.



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Precedent
A
Bastion
B
C
Disconnection?
D
I
Rottermann Quarter
J
Disconnection?
Old Town (Medieval)
Viru Gate
E
F
Kino Sõprus (Soviet)
St. Nicholas' Church (Medieval)
G
K
Rävala 8 (Soviet)
H
Ingeri Bastion
L
M
Kosmos Cinema (Soviet)
= Filtered Selection

Part 2: Approach

How?

2.1 Methodology

This project utilizes a research-by-design methodology. Research and design are not treated as separate phases, but as a cyclical process constant dialogue, where analysis informs and assists design, and design testing produces new questions for analysis. This approach is appropriate for the project because temporal layers cannot be understood only through written history or mapping. They must also be tested spatially through section, movement, material and atmosphere.

The methodology begins with a literature review that examines how time, memory, and architecture have been theorized, particularly in relation to spatial experience and material transformation. Rather than serving as a general background, this review establishes a critical position from which the project approaches temporality, not as representation, but as something that can be constructed and experienced through space.

Besides, disciplinary analysis, exemplified by Hobuveski (Tallinn Horse Mill), provides as a very relevant case study on how architecture mediates temporal layers through changes in use and morphology, as well as its relationship with the ground and external contexts. In parallel, contextual analysis of Tallinn was carried out through mapping, site observation, photography and multi-scalar interpretation. Eight temporal scenarios were studied across multiple scales, highlighting patterns of accumulation, adaptation and coexistence. This allowed temporal layers to be read not only as historical periods, but as spatial conditions that affect movement, perception and use. These analyses were then translated into design strategies through a process of extraction and interpretation, which to be served as main guidances for concept and design development.

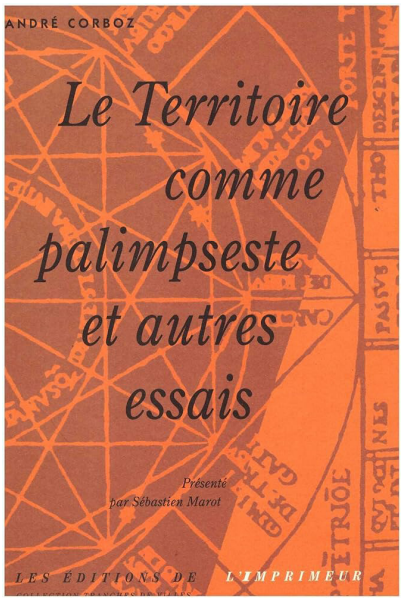
The design process developed through iterative sketches, physical models, sectional studies, plan iterations, program testing and zoning as well as material and structural studies. Rather than moving from concept to final form in a linear way, the project developed through repeated testing and iterations in many forms. Sectional drawings revealed possibilities for varied circulation and excavation. Physical models helped test mass, slope and ground relationships. Plans clarified program and circulation. Technical studies refined the relationship between retaining structures, timber volumes and material expression.

Overall, this methodology allowed my project to remain connected to the site and concept while gradually becoming more architecturally precise.

2.2 Theoretical Framework

2.2.1 The City as Palimpsest (Analysis)

The notion of the city as a palimpsest forms a foundational reference for this thesis. The metaphor of the palimpsest has become central in architectural discourse concerned with history and transformation. Originally referring to manuscripts that were scraped and rewritten, the term has been extended to cities and landscapes that bear visible and invisible traces of successive occupations. André Corboz's "Le territoire comme palimpseste" describes territory as "the result of successive inscriptions," where traces of different periods coexist through processes of erasure, overwriting and reinterpretation. Crucially, the palimpsest does not imply clarity or completeness, rather it acknowledges fragmentation, overlap and ambiguity as inherent conditions of the built environment.

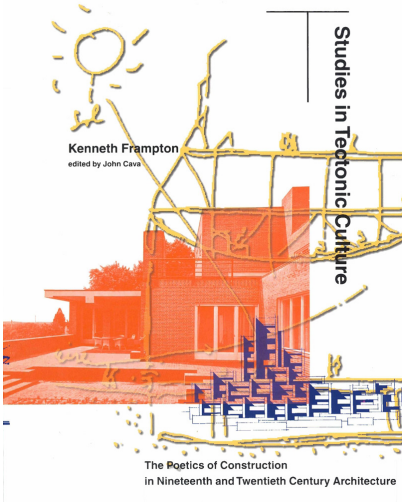


André Corboz, Le territoire comme palimpseste, 1999

This is the concept that is particularly relevant to the context of Tallinn, where historical layers are unevenly visible within the urban fabric rather than formally represented. I aim to adopt this concept as a reading tool for my project. It allows me to approach sites not in terms of periods, but in terms of accumulated layers that coexist, conflict or remain latent. Design, in this sense, becomes an act of positioning new spatial layers within an already layered condition, making temporal complexity legible through architecture.

2.2.2 Stratified Ground and Section as Temporal Device (Tectonic and Site)

Kenneth Frampton's "Studies in tectonic culture" emphasizes that architecture gains meaning from its engagement with ground, construction and material expression. The ground is not merely a support but a volume containing traces of human activity, structural histories and accumulated material deposits. This further compliment the ideas of temporal layers not just in the sense of planar expansion but also vertical stratification, which is also the concept behind of the site selection.



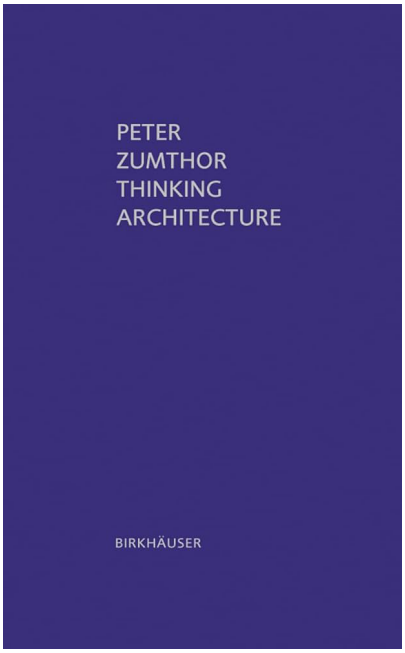
Kenneth Frampton, Studies in Tectonic Culture, 1995

I intend to apply this by potentially using excavation as one of the techniques and section as primary design strategies. For example, carving into the terrain or mounds can expose buried layers or create spatial connections between past and present levels. Section becomes a tool to make time legible, where changes in level, slope or enclosure communicate the accumulation of histories.

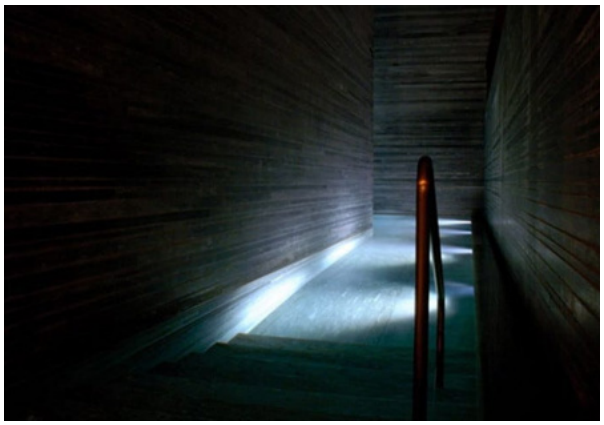
2.2.3 Phenomenology, Memory and Spatial Experience (Design)

Phenomenology emphasizes the bodily and sensory experience of architecture, where perception, movement and atmosphere shape understanding and memory. Tadao Ando's work demonstrates how light, material and sequence can structure awareness of time within a building. Peter Zumthor complements this by emphasizing material tactility and atmosphere as a means of connecting users to layered histories without direct representation.

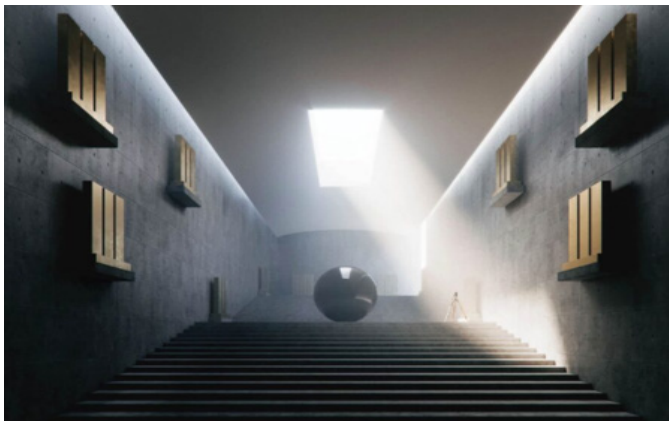
These ideas form a key part of the theoretical framework for my project in terms of design concept. They inform my design approach that prioritizes experiencing temporal layers through occupation, using possible spatial devices such as ramps, thresholds, sunken or raised levels and filtered light to make time perceptible. Material choices, tactility and atmosphere are also essential to be deployed to evoke memory and reinforce temporal narratives embedded in the site.



Peter Zumthor, Thinking Architecture, 2006 - Theory through the lens of analyzing, tectonic and design, forming a complimentary interconnected relationship

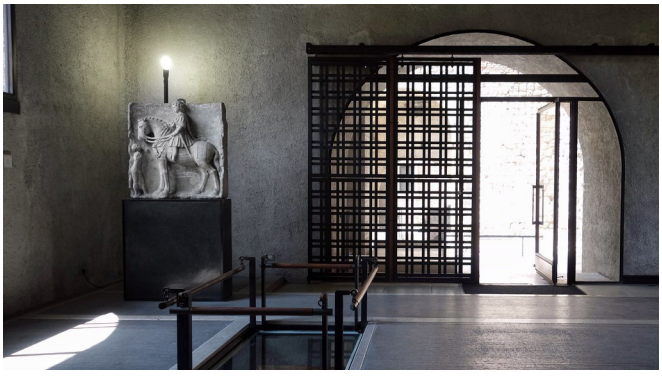


Therme Vals by Peter Zumthor



Chichu Art Museum by Tadao Ando

Teshima Art Museum by SANAA



Castelvecchio by Carlo Scarpa

2.2.4 Editing and Reframing Existing Conditions (Actions)

RAAAF demonstrates that architectural intervention can act as a form of editorial practice, revealing hidden potentials through subtraction, cutting and reframing. In their article, “Hardcore Heritage”, it proposes a new way of thinking about monuments and cultural heritage with deliberate destruction or contradictory actions, which in turn can produces a new field of tension that arises between present, past as well as future.Their work often involves existing structures to reinterpret spatial and temporal layers. One great example is the “Deltawerk” transforms a decommissioned water defense structure by selectively opening and reframing its volumes, exposing the layered history of the site while creating new spatial sequences. Similarly, “Bunker 599”, on a smaller scale, radically cutting through and highlights the latent qualities of a former industrial bunker, using subtraction to reveal hidden voids and material traces, transforming inert or hidden conditions into potentials through spatial and experiential opportunities.

I intend to apply similar strategies in my site by selectively exposing and reframing the temporal layers. Existing walls, voids or traces could be opened, highlighted or connected to new paths or volumes, allowing architecture to reveal history materially and spatially, while providing new functional and experiential readings. Albeit towards the radical spectrum, this approach can reinterpret and unleash hidden potentials of temporal layers.

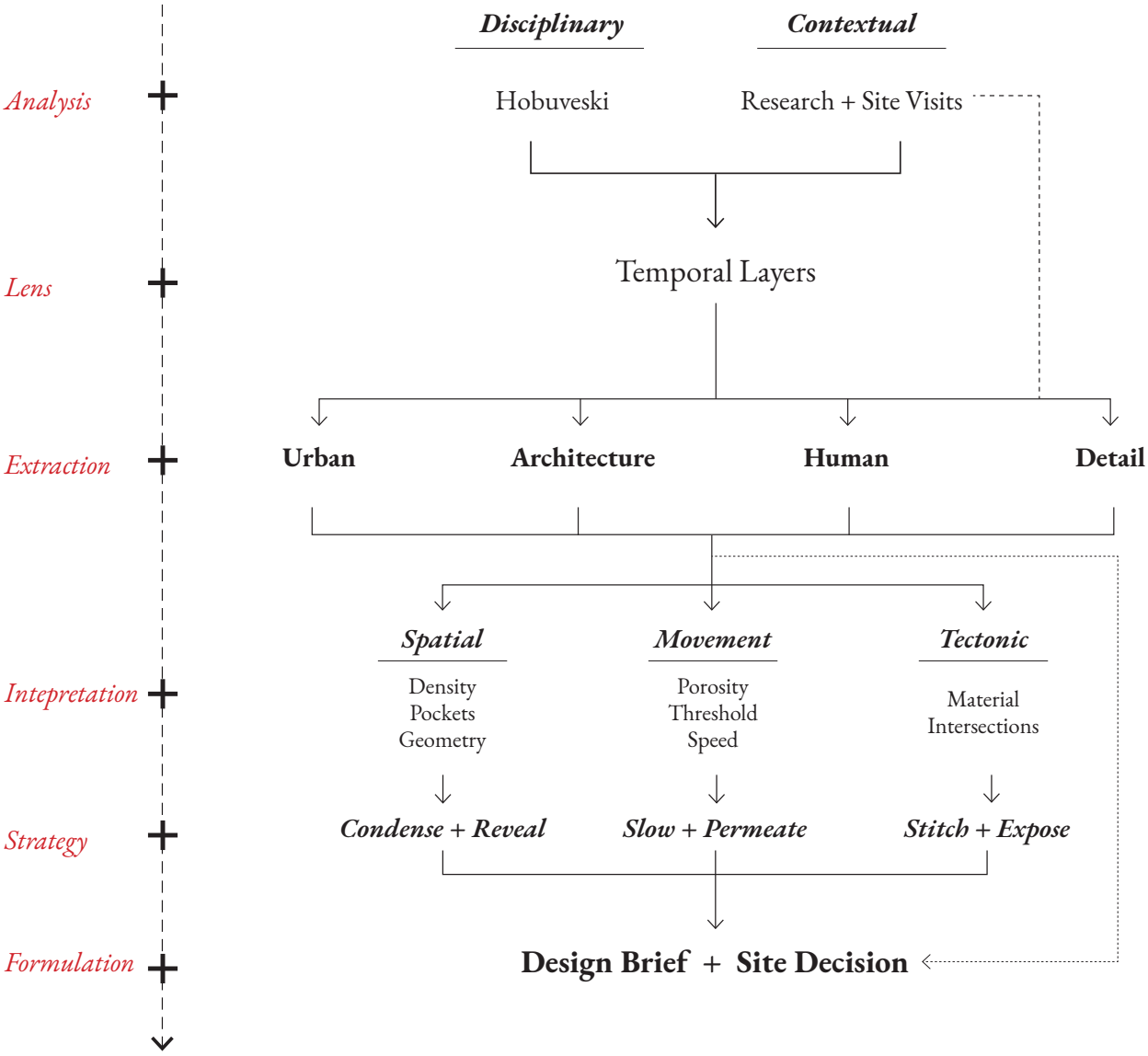
Deltawerk and Bunker 599 by RAAAF

2.3 Analytical Framework

Referring to 2.2.1, temporal layers function as my central analytical lens of the project. Together with a disciplinary analysis, my project follows a multi-stage framework: analysis, lens, extraction, interpretation, strategy and eventually formulation of a design concept as shown in the diagram next page.

The analytical framework translates the theoretical lenses into a working method. Temporal layers are investigated through three readings: spatial, movement and tectonic. From these readings the design strategies are then analysed and extracted.

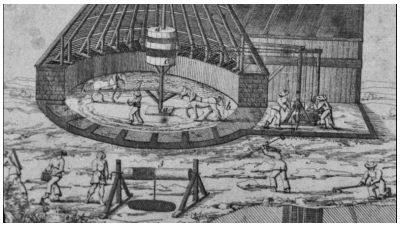
These strategies guide the site selection and later design development. They allow the project to move from analysis toward architectural action. Aligning with the brief of the studio, the interplay across scale within the analysis together with a logical framework from analysis to formulation provide immesnse assistance in the upcoming exercises.



Methodology Diagram for analysis phase to design formulation (A0)
Teammate: Tanyadhorn

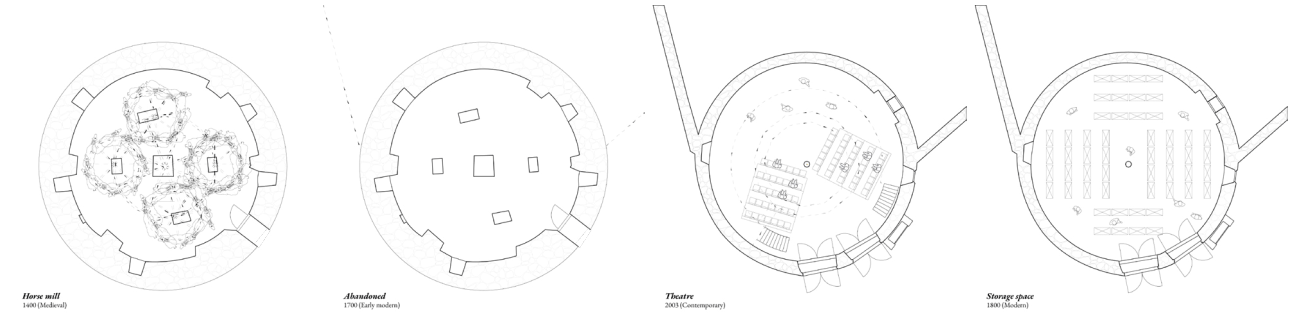
2.3.1 Disciplinary Analysis - Hobuveski

The disciplinary analysis focuses on Hobuveski as a case study through which temporal layers are understood as spatial and experiential conditions embedded within architecture. Hobuveski is selected because it reveals how time accumulates through changes in use, political context, ground condition and material junctions.



Originally constructed as a medieval horse mill, Hobuveski functioned as a utilitarian structure shaped by human and animal interaction, where movement and rotation defined the spatial logic. The building's form was directly related to a specific mode of production. As political and economic conditions shifted, it became storage, reducing bodily engagement and rendering the architecture experientially passive. Subsequent abandonment intensified this condition, allowing the building

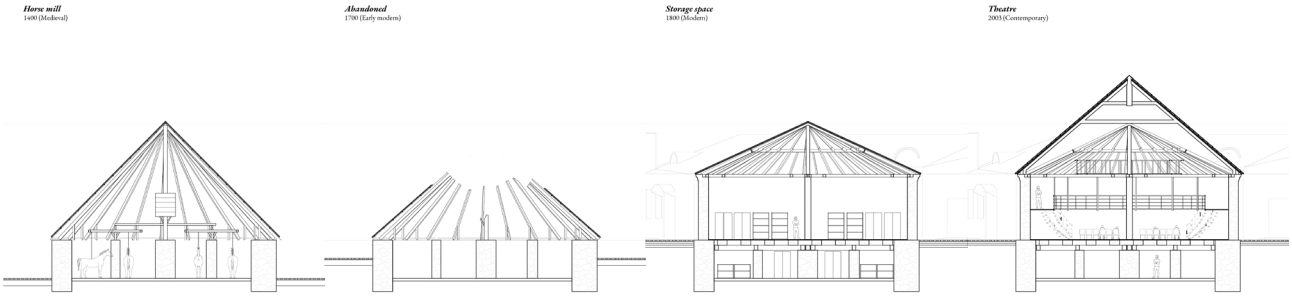
to exist as a dormant urban fragment. Its later adaptation into a theatre reactivated the structure, reintroducing movement and occupation through a new cultural program.



Plan and users changes through time, creating new layers

This sequence shows that architecture can accumulate different temporal identities without losing its physical continuity. The same structure can support different programs, atmospheres and forms of occupation. The building's meaning changes not only through physical alteration, but through use.

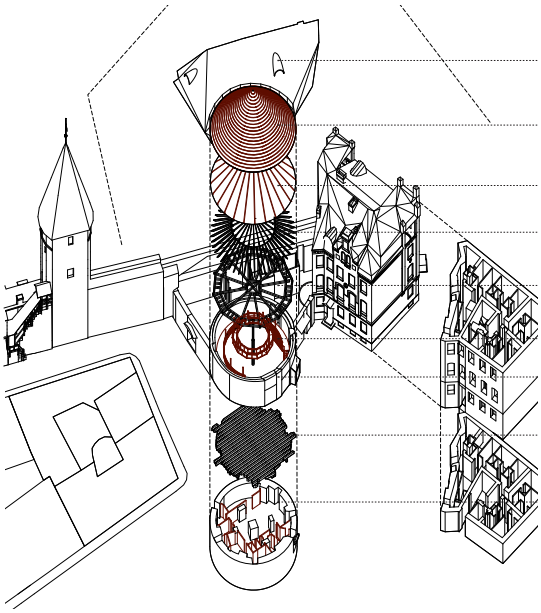
One of the most important findings from Hobuveski is the role of ground level change. The gradual rise of the surrounding ground transformed the original ground floor into what is now perceived as a basement. This demonstrates that time operates vertically. A building can be temporally transformed not only by new additions, but by the changing relationship between ground and interior.



Section evolutions, apart of the building, the site itself undergoes change due to natural and human causes combined

Hobuveski also reveals how new structures can attach to older ones and create temporal junctions. The relationship between the horse mill, adjacent hotel and medieval city wall shows how different periods can coexist through material contact. These junctions do not erase difference; they make difference visible.

From this case study, I learned that temporal layers can be understood through four architectural conditions: use, morphology, ground and material junction. These became important for the later design of Ingermanland Bastion, where the project similarly works with changing program, sectional displacement, existing walls and new material interfaces.



Tectonic + Context

2.3.1 Contextual Analysis: Temporal Scenarios

Together with the disciplinary analysis, the research expands to read Tallinn as a layered temporal landscape. Eight temporal scenarios were investigated during the site visit and filtered for further study. These scenarios were analyzed across four interrelated scales: **urban, architectural, human and detail**.

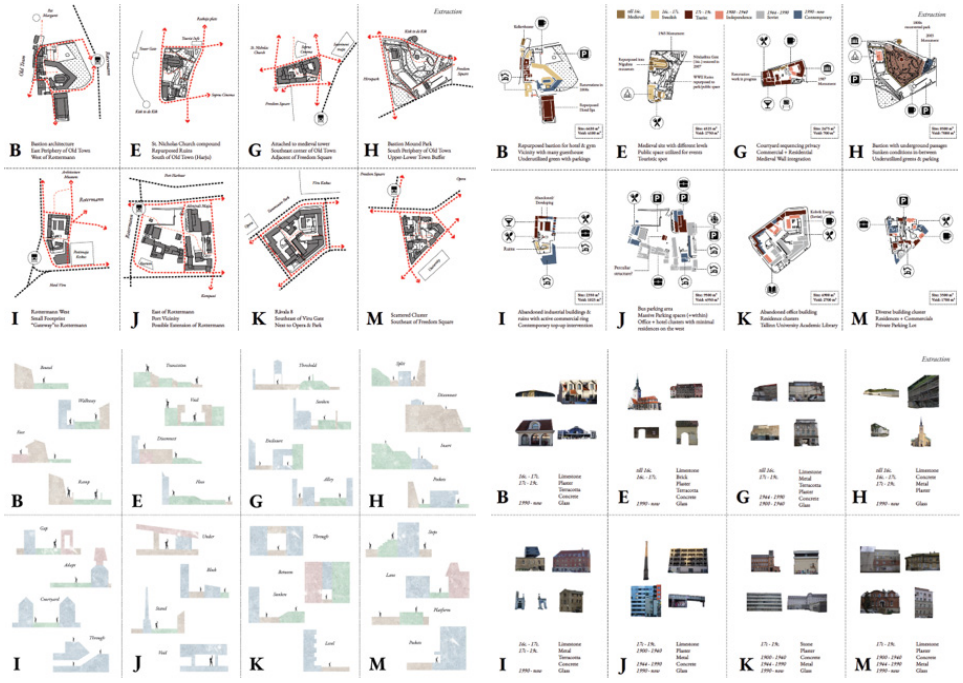
At the **URBAN** scale, temporal layers appear through infrastructure, boundaries and connections. The old town walls, bastion belt, major routes and shifts in urban development reveal how different historical periods have shaped movement and access. These layers do not form a smooth continuity. They create interruptions, edges and thresholds.

At the **ARCHITECTURAL** scale, temporal layers appear through reused buildings and altered structures. Many buildings in Tallinn retain their physical form while changing function. This produces layered conditions where past and present coexist within the same envelope.

At the **HUMAN** scale, temporal layers are experienced through movement. Stairs, slopes, tunnels, gates, sunken spaces and narrow passages shape the body's relationship to the city. These conditions create changes in speed and awareness. A person does not simply move through history visually; they move through it physically.

At the **DETAIL** scale, temporal layers appear through material traces. Changes in stone, brick, plaster, timber, repair, erosion and junction reveal how different moments of construction and adaptation meet. These details are small, but they make time tangible.

The main finding from the Tallinn analysis is that temporal layers are most powerful when they are read across scales. A material joint may relate to an architectural adaptation. A stair may connect different urban levels. A wall may be both a detail, a structure and an urban boundary. This multi-scalar reading became essential for the design, because Ingermanland Bastion also operates across scales: urban connector, landscape mound, defensive wall, underground tunnel and material surface.



2.3.3 Intepretation

From the analysis, the four scales are interpreted through three complementary readings: **spatial, movement and tectonic.**

The **SPATIAL** reading reveals that temporal layers often produce pockets, compressed spaces and irregular geometries. These conditions are not accidental leftovers; they are the spatial consequences of historical accumulation. In the design, this led to an interest in courtyards, compressed passages and excavated spaces as ways to intensify temporal depth.

Density *Pocket Spaces* *Geometry*

The **MOVEMENT** reading reveals that temporal experience is strongly connected to speed. Spaces that are passed too quickly remain unnoticed. Thresholds, turns, level changes and changes in enclosure can slow the body and create awareness. In the design, this led to the development of the boulevard and transversal crossings as spatial sequences rather than simple circulation routes.

Porosity *Speed* *Threshold*

The **TECTONIC** reading reveals that time becomes legible where materials meet. Old and new do not need to be blended into a single image. Their difference can be expressed through joints, surfaces and structural logic. In the design, this led to the contrast between heavy retaining elements and lighter timber volumes, as well as the treatment of the bastion wall as an active interface.

Materials *Intersection*

These readings form the basis for the three strategies: condense and reveal, slow and permeate, stitch and expose. They provide a clear bridge between research and design.

2.3.4 Strategy

The interpretative readings directly inform three architectural strategies that respond to temporal layering as an active design condition rather than a static context.

CONDENSE + REVEAL emerges from the spatial reading. It proposes that compression, excavation and intensified spatial relationships can expose hidden layers and make depth more legible. In the design, this strategy appears through the treatment of the mound, the creation of courtyards and the compression of thresholds along the bastion wall.

SLOW + PERMEATE emerges from the movement reading. It proposes spatial sequences that modulate speed and encourage gradual engagement. Instead of allowing the site to function only as a pass-by route, the design introduces moments of pause, branching and transition. The boulevard and transversal crossings become key instruments for this strategy.

STITCH + EXPOSE emerges from the tectonic reading. It addresses how new architectural interventions can connect disjointed temporal conditions through material articulation. The project does not hide the meeting between old and new. Instead, it uses junctions, edges and structural contrast to make temporal relationships visible.

Together, these strategies define how the design should act. They are not decorative concepts, but operational tools. They guide the movement, program, structure and material decisions of the project.

2.4 Site Selection

The site is chosen based on criteria that emerge from the analytical framework. The project required a location where temporal layers were not only historically present, but spatially active. The criteria include the presence of multiple historical layers, vertical stratification of ground, existing spatial discontinuities, potential for public engagement, relationship between visible and hidden structures, and possibility of architectural intervention through section, movement and materiality.

Through the analysis of Tallinn's temporal scenarios, Ingermanland Bastion emerged as the most relevant site. It contains a strong relationship between wall, mound, moat and tunnel. It is located at an important urban threshold between the old town, Toompea, Freedom Square and the southern city. It also contains clear spatial problems: fragmented edges, seasonal use, disconnected routes and underused heritage potential.

The site is therefore not selected only because it is historically important. It is selected because it offers a spatial condition where the research question can be tested architecturally. It allows the project to explore how temporal layers can be revealed, connected and inhabited through design.

Ingermanland Bastion (also known as Ingeri Bastion)

2..4.1 Ingermanland Bastion as the Temporal Interface

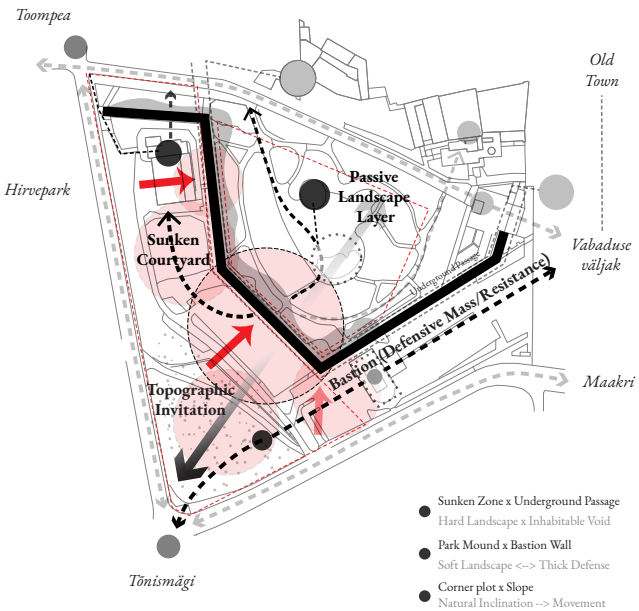
Ingermanland Bastion forms part of Tallinn's historic fortification system, yet its present condition is neither that of a complete ruin nor a singularly preserved monument. Instead, it exists as a fragmented and evolving landscape shaped by successive phases of construction, demilitarisation, adaptation and everyday reuse. This condition makes the bastion particularly relevant for an architectural investigation into time as a spatial and material condition.

The former defensive earthwork has transformed into a public park mound. Part of the moat has become a sunken urban space, partly occupied by parking and inactive edges. The bastion wall remains partially exposed, while underground passages persist as concealed infrastructural remnants. Together, these elements form a network of discontinuities, thresholds and spatial pockets that reveal the site's accumulated temporal depth.

In addition to the groundscape itself, the site contains buildings that embody different moments of reuse and occupation. Existing structures around the moat and mound reflect shifting social, cultural and economic functions over time. These insertions do not resolve the site's fragmentation but instead intensify it, reinforcing the bastion site as a temporal interface where past and present remain in constant negotiation.

Although Ingermanland Bastion and the park create a picturesque green space, the mound remains highly seasonal and passive. It is more active in warm weather, but less present during colder periods. Its base is marked by fragmented edges, parking and isolated amenities. Vertical links across the site function primarily as transitory routes rather than places to linger, limiting opportunities for social interaction, engagement with the layered topography and meaningful encounters with the bastion's history.

This condition creates the main architectural opportunity of the project. The bastion is already rich in spatial and temporal depth, but it requires an intervention that can connect its layers, activate its edges and transform movement through the site into an experience of temporal depth.



The complexity of the bastion site and its force diagram

2.5 Design Concept

The design concept responds directly to the site's stratified temporal layers. The project mediates, interprets and makes tangible the history embedded within Ingermanland Bastion by transforming the defensive mound, wall, moat and existing fragments into a dynamic architectural environment. Aligning with the theoretical framework, the proposal operates through a calibrated combination of e**xcavation, insertion and spatial stitching.**

Excavation opens the ground and reveals the bastion as a volumetric condition. It allows hidden layers to become spatially accessible. Insertion introduces new programs into the site without detaching them from the existing structure. New volumes are placed along the wall, within the ground and around courtyards. Stitching connects fragmented routes, levels and programs. It creates continuity between upper and lower ground, between civic and institutional spaces, and between existing and new layers.

Movement through the project is conceived as a curated journey that reflects my own way of engaging with the site: through gradual discovery rather than immediate comprehension. I was drawn to Ingermanland Bastion not as a singular object, but as a sequence of moments unfolding across different levels, conditions and degrees of exposure. The design therefore allows for multiple journeys for different users: visitors, researchers, students, makers and local residents.

Formally, this idea is translated into a **continuous spatial gradient**. The architecture rises from and aligns with the existing landscape, allowing new construction to emerge from the site rather than sit on top of it. Above-ground elements gradually transition into more enclosed subterranean spaces carved into the park. Moving from light, openness and distant views toward darker and compressed spaces becomes an intentional experiential shift, with each atmosphere supporting specific programmatic functions

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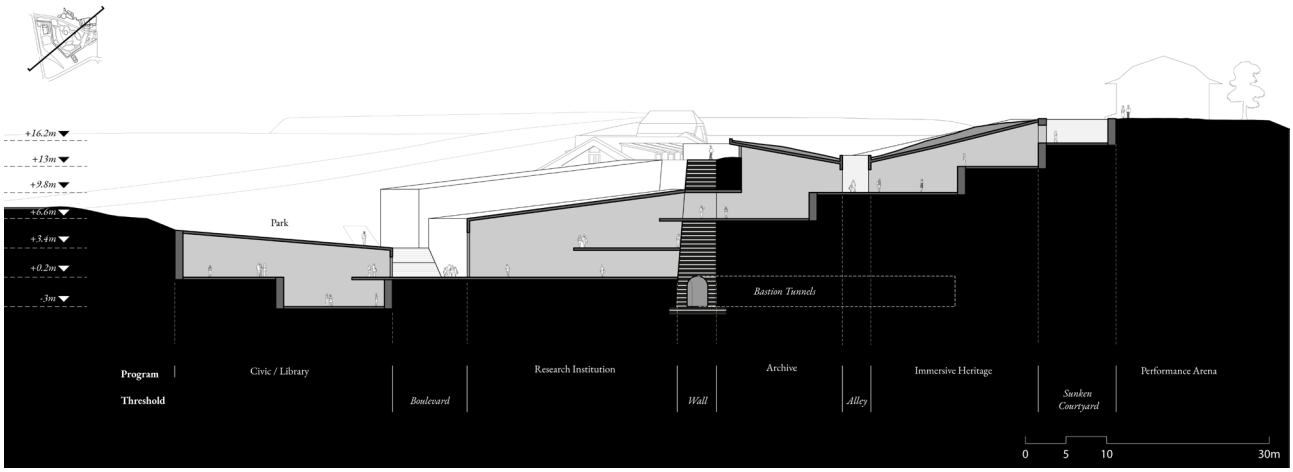
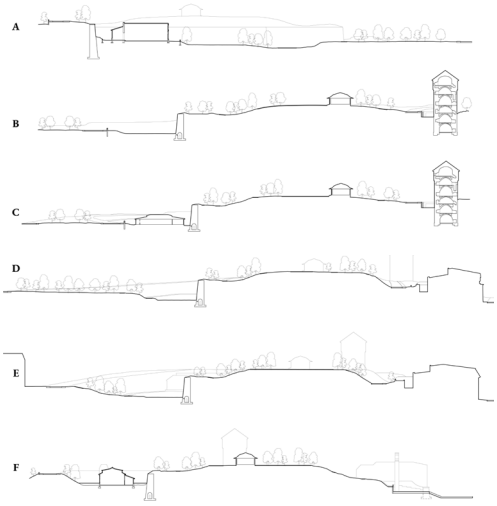
The concept of this design therefore operates at several levels. Spatially, it describes the project's position between mound and bastion. Experientially, it describes the movement between openness and depth. Tectonically, it describes the contrast between retaining mass and lighter inserted structures. Temporally, it describes the negotiation between inherited history and contemporary use.



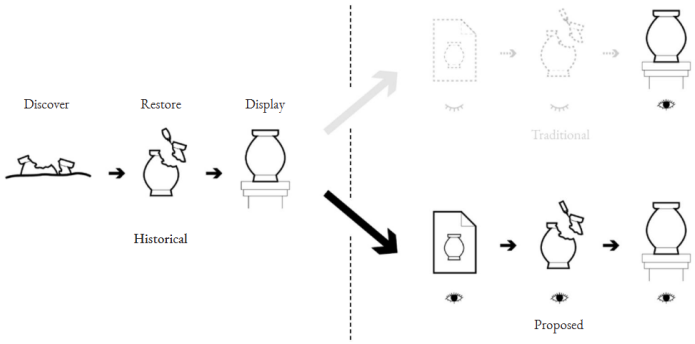
The first ever section concept, generated through iterative sketches, on how different datum levels can be experienced through the interconnection of thresholds and interplay of solid void relationships.

2.5.1 Program - Heritage and Material Culture Center

The program focuses on establishing Tallinn's first Heritage and Material Culture Center. Rather than concentrating all functions into a single building, the program is distributed across the site in response to its layered topography and historical fragments. Each programmatic element is positioned to mediate between the site boundary, the bastion wall and the varying ground levels, reinforcing the idea of architecture as a connector between temporal and spatial layers. The heritage center is not any generic heritage center where artifacts or information are enclosed and purely displayed, but an interactive engaging experience that closely resonate with the spatial qualities of the stratified terrain and temporal layers.



Process becomes the display, engaging closely with the stratified site through movement

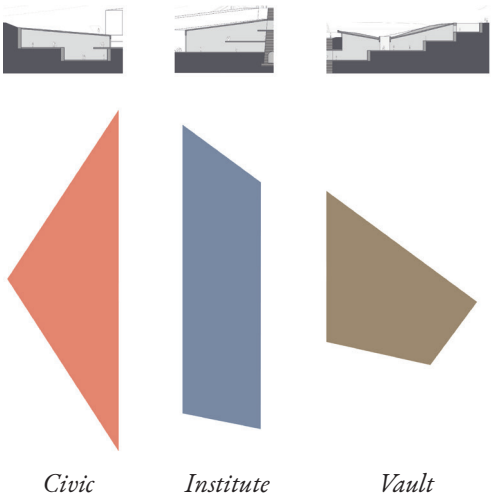


The **CIVIC** volume is positioned toward the more public edge of the site, engaging with the road, entrances and urban movement. It contains outward-facing programs such as gathering, public exhibition, library, café or event spaces.

The **INSTITUTIONAL** volume is placed along the bastion wall, where research, education and material culture programs can engage directly with the wall as an active spatial presence. This zone forms the main body of the Heritage Center.

The **VAULT** volume is embedded within the mound and connected to the existing tunnel logic. It contains more introspective programs such as archives, immersive exhibitions, black box spaces and contemplative rooms. These functions benefit from the atmosphere of depth, enclosure and reduced daylight.

Existing buildings are incorporated where appropriate, especially for programs related to making, workshops or community use. This allows the project to extend the life of existing structures rather than replacing them.

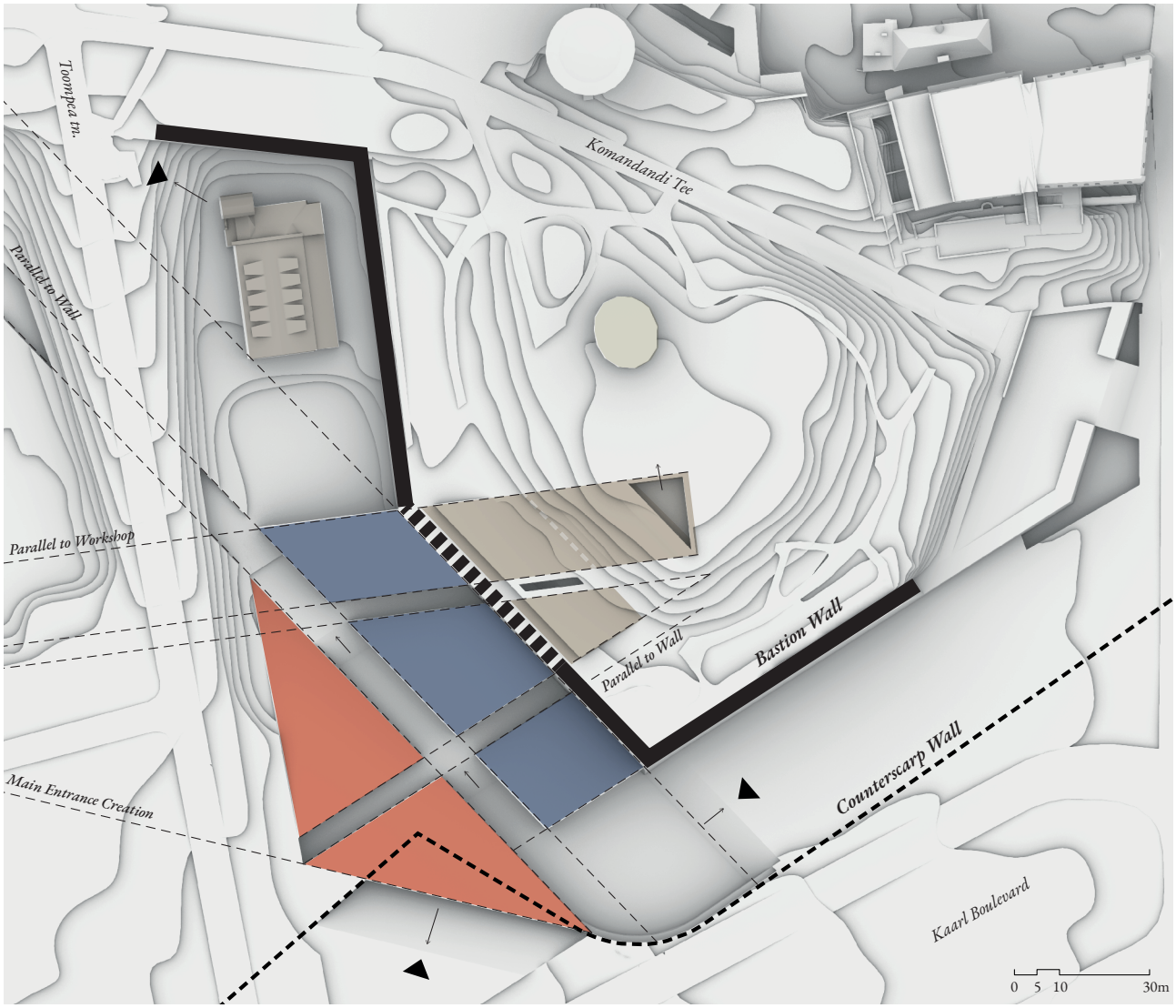


The project stages heritage from the present civic realm, through mediated institutional layers, into the subterranean ground of perception stimulative experience.

Through this distribution, the program becomes a spatial gradient: from civic openness to institutional learning to subterranean reflection. This gradient supports the project's central idea that moving through the center is also moving through different temporal and atmospheric layers.

2.5.2 A1 Conclusion

This project explores architecture as a medium for experiencing time, using the Ingermanland Bastion and its layered landscape as both the site and design framework. Through research into temporal layers and the site, I have developed a design approach that mediates between past and present rather than imposing a singular narrative. The Heritage and Material Culture Center, integrated across terraces, subterranean spaces, and existing buildings, translates this investigation into an experiential architecture that invites multiple journeys, perspectives and modes of engagement. At this stage, the work demonstrates how careful attention to site, history, and spatial sequences can transform a fragmented urban heritage site into a cohesive environment where time, memory, and materiality are made tangible, and where visitors can inhabit history rather than simply observe it.



The draft masterplan geometry is generated from existing spatial and historical structures rather than imposed form. Primary axes align with the bastion wall and the existing structure, while also orientations respond to civic layers for entrance. Together, these axes reinforce the site's inital identity as a layered and evolving urban landscape. (by A1)


Gartenbauverein
Kindergarten
Kaserne
Holzmarkt
Promenade
Võidu väljak
Pärnu mnt

Part 3: Results

What has been achieved?

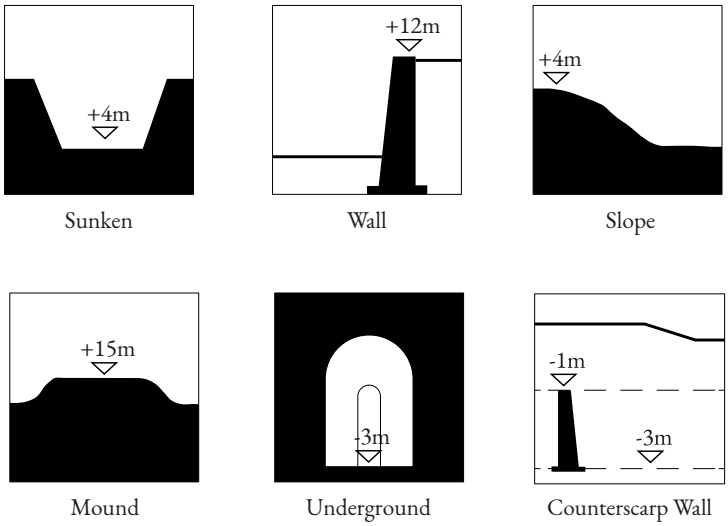
3.0 Design Development

Continuing from the initial research and concept phase, the project developed from a broad idea of temporal mediation into a more precise exploration of spatial, programmatic and tectonic strategies. Instead of a linear progression, the design process unfolded through iterative explorations across different media: sketches, sectional drawings, physical models, plans, axonometrics and material studies.

My focus shifted toward understanding how architecture could organize movement, mediate between layers and reveal temporal relationships through spatial experience. The challenge was to transform the concept of temporal layering from an abstract theme into concrete architectural decisions.

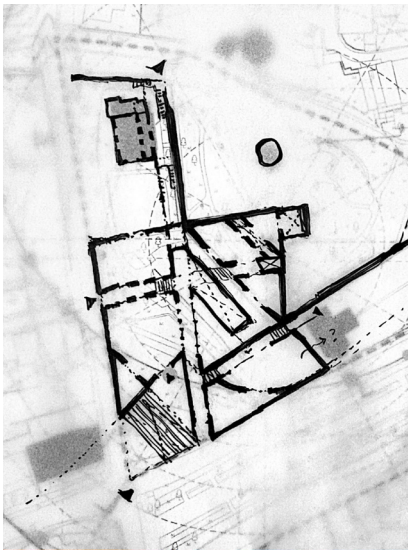
Several questions guided across the design development. How could the wall become an inhabited condition rather than only a boundary? How could movement across the site become slower and more meaningful? How could the project work with the earth without appearing as an imposed object? How could the program be distributed across a difficult sectional site? How could structure and material express the difference between embedded and exposed conditions?

The design result developed through a constant negotiation between concept and site. The more the project was tested, the more it became clear that the strongest architectural potential lay in the zone between earth and wall: **along the bastion edge, within the mound, across the moat and through the transitions between them.**



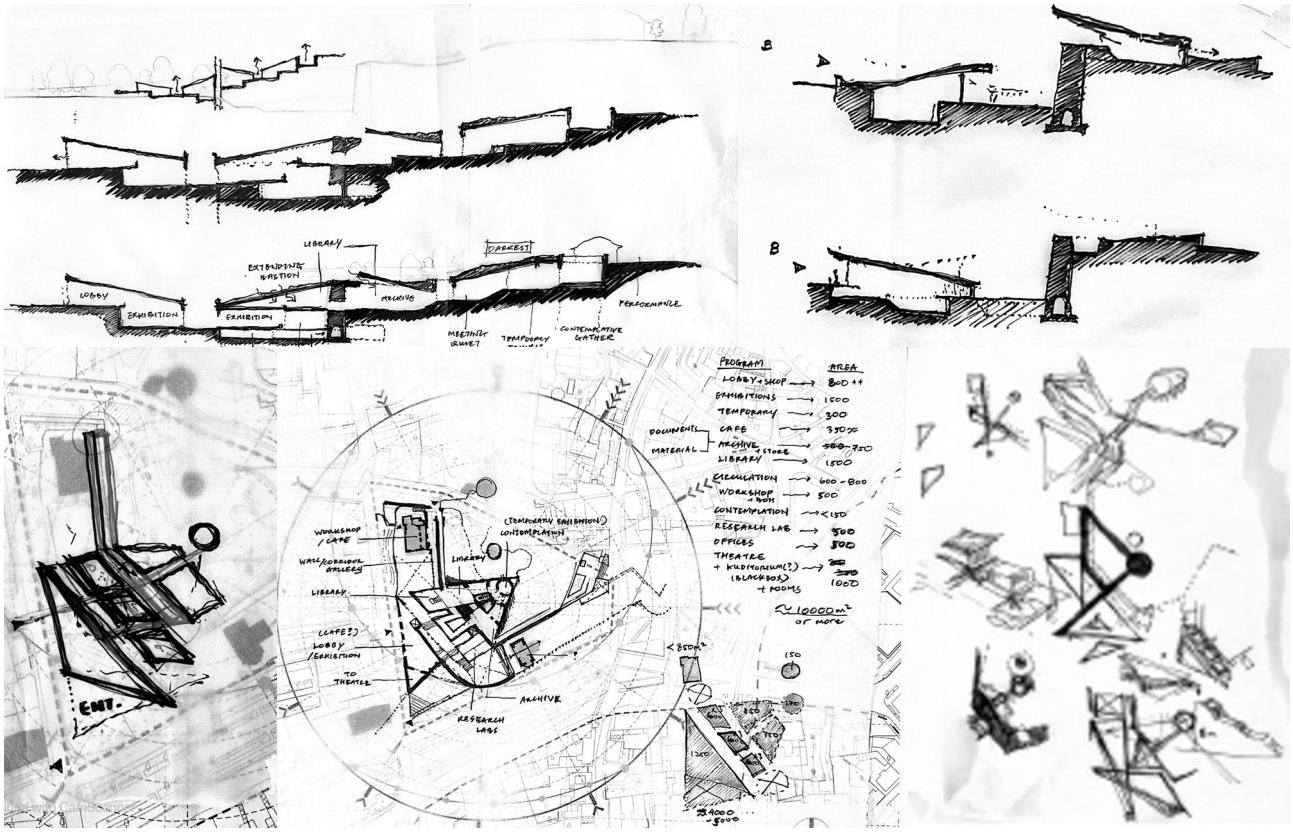
The inherent temporal layers spreading across the site with different datum levels, each with its own unique spatial qualities, fragmented yet an opportunity awaiting.

3.1 Iteration and References



The initial phase of design development was driven by sketches, physical models and analytical drawings. These iterations explored how spatial sequences could be structured through section, and how movement, program and atmosphere could be shaped by the relationship between wall and ground.

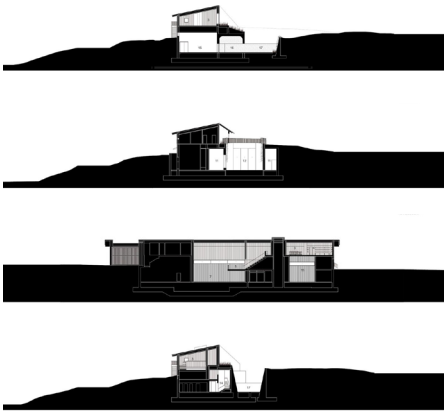
The early sections were particularly important. They tested how different datum levels could be connected, how the mound could be entered, how the wall could be approached, and how hidden layers could be revealed. These drawings helped me understand the project not as a single building, but as a sequence of spaces that move through the site. Some of these iterations also explore how spatial sequeces can be structured through section as well as an initial ideas with plans.



Selected sketches of sections and plans to further interplay the form and how it shapes movements, programs and atmosphere.

Alongside these explorations, I studied precedents dealing with subterranean volumes, excavation, stratification and landscape-architecture relationships. These precedents did not serve as direct templates. Instead, they helped clarify attitudes toward depth, atmosphere, materiality and the integration of architecture with ground.

One important reference was Herzog & de Meuron's Calder Gardens in Philadelphia. I was drawn to its sectional approach and the way a sequence of cuts, rooms and landscapes can produce a cohesive spatial narrative without relying on one singular architectural object. This helped me think about how each sec-



tion in my project could tell a different part of the story while still belonging to one overall spatial framework.

Through these iterations and references, I began to identify three main architectural directions: the **boulevard spine** as a linear mediator, **ascent and descent** as sectional experiences, and the **bastion edge** as an inhabited thickness.

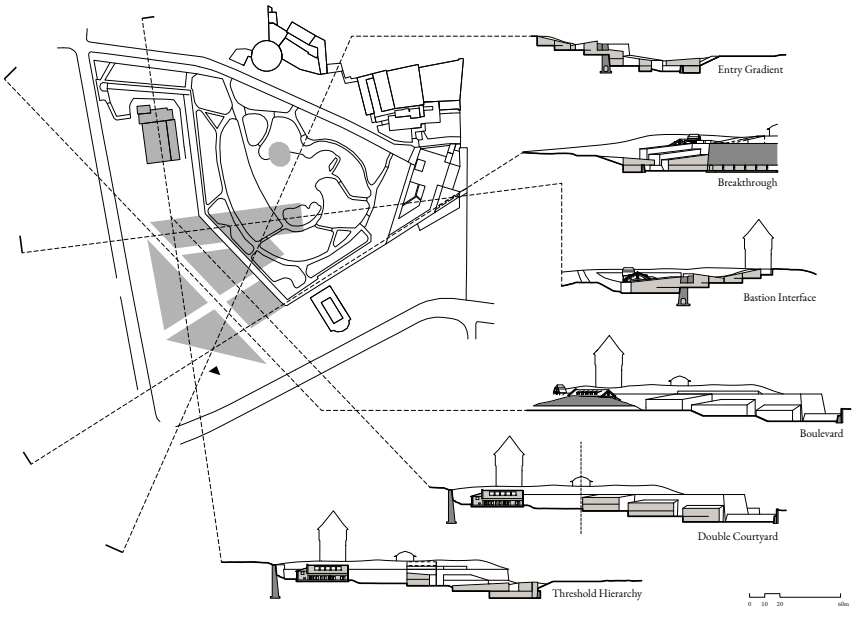
I am particularly fond of Herzog and de Meuron's Calder Gardens in Philadelphia, where the unconventional approach and series of sections that each tells its own stories but together as a cohesive narrative..

3.2 Carving - Main Sectional Strategies

Section is the main driver of the project. It structures how movement, program and spatial experience are organized. This is because the site's main qualities are sectional: the difference between upper and lower ground, the depth of the mound, the position of the wall and the concealed tunnels and the counterscarp wall. It would be a challenge to begin design purely on plan itself, as much as it helps with programming, the difference in terrain proves to be an illogical methods to drive the design.

Rather than designing a freestanding building and placing it on the site, the project emerges from the manipulation of ground and wall. The architecture is shaped through excavation, retaining, spanning, cutting and reconnecting. In this way, the project becomes part of the bastion condition rather than an object beside it. Through interplaying with forms with sections, there are many unique spatial properties created throughout the site, which gives a depth and identity closely relate to the site's temporal layers.

The main sectional strategies are the boulevard spine, ascent and descent, and the inhabited bastion edge. Together, they organize the project as a spatial sequence between civic openness, institutional occupation and subterranean depth.



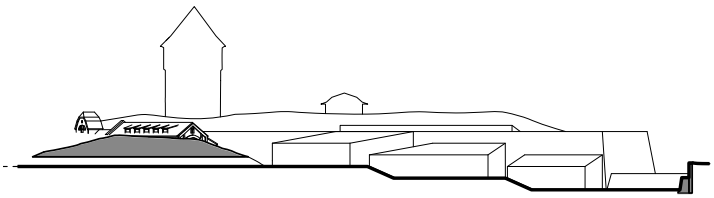
The section series, each with its own unique moments and stories that stich together the stratified terrain.

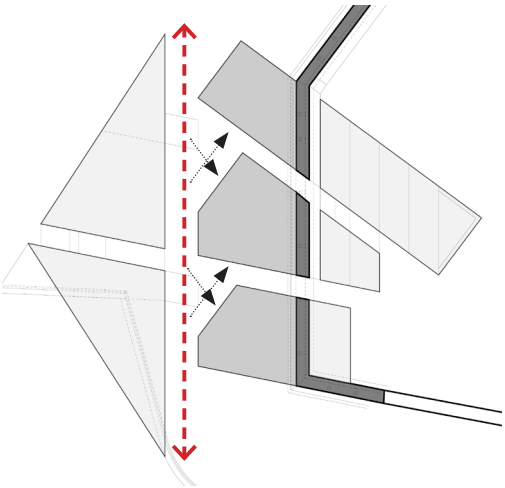
3.2.1 The Boulevard Spine

Below and parallel to the bastion, the design is developed around a continuous spine that operates as the primary circulation and organizational framework. This boulevard links the main entrance to the other access points, while connecting the moat volumes, which are the civic and institution volumes.

However, the boulevard spine is not only a corridor. It is a spatial mediator. It creates a continuous public route through the site while allowing moments of pause, branching, view and transition through creation of pocket spaces, facade treatment and landscaping. As one moves along it, the experience of the bastion unfolds gradually through changes in distance, light, enclosure and proximity to the wall.

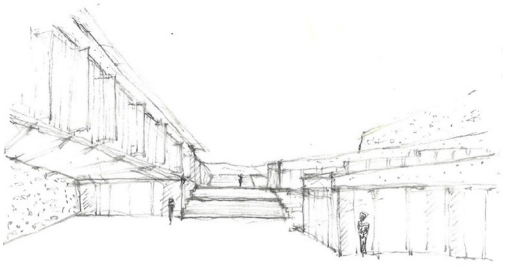
The boulevard also helps structure the program. On one side, it relates to more public civic functions facing the road and site boundary. On the other side, it connects to institutional and heritage programs along the bastion wall. It therefore becomes both a circulation device and a civic interior street.





In relation to the research, the boulevard spine answers the strategy of **Slow + Permeate.** It transforms movement along the wall from a fast pass-by route into a slower spatial sequence. The visitor does not simply cross the site, but gradually reads it.

The boulevard spine also establishes orientation. Because the site contains several levels, cuts and fragments, a clear linear spine that is generated parallel to the bastion wall is necessary to give the project coherence while framing the bastion wall throughout the spine. From this spine, visitors can branch into courtyards, workshops, research spaces, exhibition areas or subterranean rooms. In this way, the boulevard acts as both an organizer and an experiential thread.

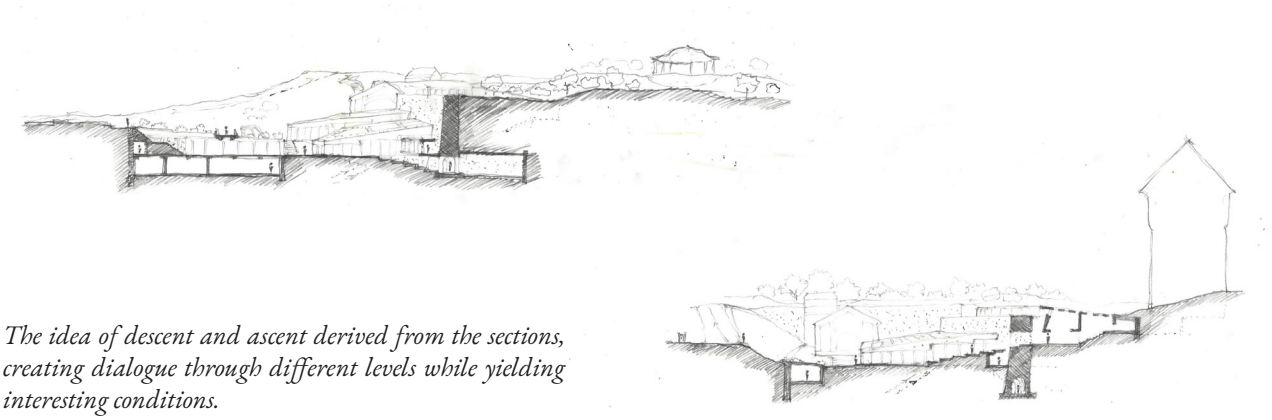


From the civic yard, the spine extend along the bastion, flanked by civic and institute volumes.

3.2.2 Ascent and Descent

Apart from the spine as the primary connector, the project introduces transversal crossings that cut across the bastion condition. These crossings establish relationships between different sides of the site, different programmatic zones and different datum levels.

The act of ascend and descend is central to the project. Moving downward into the tunnels creates a sense of compression, weight and depth. Moving upward toward the park creates release, light and reconnection with the city. These allow visitors to experience the site as a layered volume rather than a flat surface.



The idea of descent and ascent derived from the sections, creating dialogue through different levels while yielding interesting conditions.

The crossings are more than circulation. They are deliberate spatial events. They fragment the institutional volume, making it more human-scaled and porous. They also reveal the thickness of the ground and the relationship between existing and new layers, as well as framing the bastion as its main condenser.

Two different cuts through the bastion are treated as distinct spatial moments. One relates to the existing tunnel condition, engaging with the inherited defensive infrastructure. The other connects to new subterranean spaces created through excavation. Because these openings lead to different destinations and temporal conditions, they are not treated as one continuous tunnel, but as separate encounters with the bastion.

In this way, ascent and descent make time experiential. The visitor experiences different temporal conditions through vertical movement: the existing tunnel, the new excavation, the park surface, the institutional edge and the moat level. Each level becomes part of the spatial narrative.

3.2.3 Along and With the Bastion: Edge Conditions

The bastion wall is one of the most important elements of the project. Instead of treating it only as a preserved historical edge, the design transforms it into an inhabited thickness.

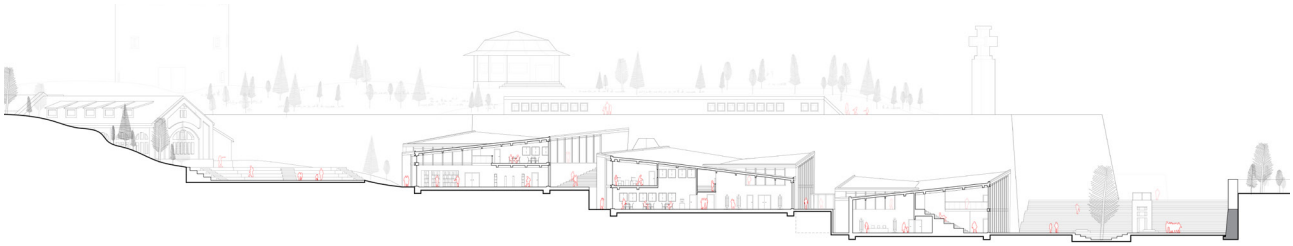
The condition along the bastion creates a relationship between two contrasting spatial atmospheres. On one side, the institutional volume contains research, education and material culture programs. On the other side, the subterranean volume addresses darker, heavier and more introspective spaces within the ground. The wall becomes the interface between these conditions.

Programmatic elements such as research labs, material ateliers, lecture rooms, seminar rooms and material libraries are placed along or near the bastion edge. These spaces allow activities to take place in parallel with movement. Circulation expands into occupation. The wall is no longer only something to pass by; it becomes something to work beside, learn from and inhabit.

The Wall Parallels - a bastion corridor

This reinforces the idea of thickness as a spatial condition. The bastion is no longer perceived as a singular wall or object, but as a layered depth that accommodates multiple activities and temporal readings simultaneously.

The bastion edge together with ascent and descent, also supports the strategy of **Stitch + Expose**. New construction meets the old wall without hiding the difference between them. The project should allow the relationship between existing stone, new retaining structures, timber elements and glazing to remain legible. These junctions become moments where time is expressed materially.



Inhabiting on one side of the bastion, the material, research and education ateliers.

3.3 Between Earth and Wall

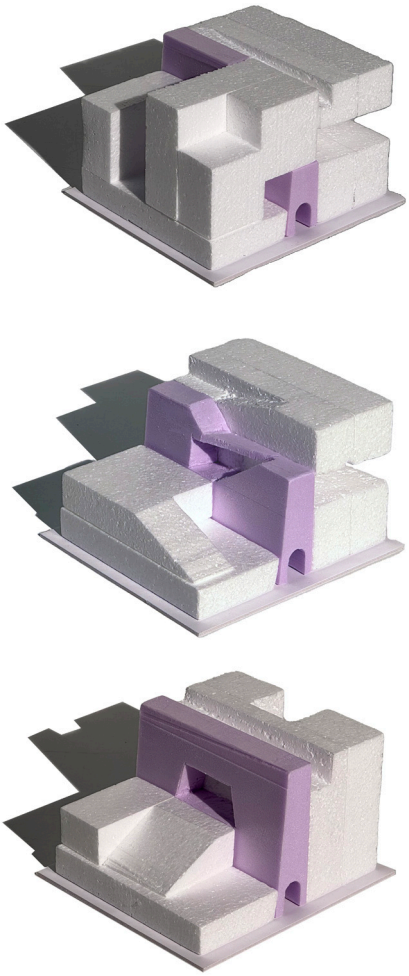
While the wall is one of the main guiding elements of the project, the earth is equally important. Because parts of the project are excavated and embedded, the earth is not treated as a neutral base, but as an active and layered condition.

The actions of excavation, insertion and ground manipulation are primary design tools. By cutting into and rising from the terrain, the architecture becomes part of the landscape rather than sitting on top of it. The project is shaped by the ground's existing slope, the mound's thickness and the difference between the moat and park levels.

This relationship creates a spectrum of spatial conditions. Some spaces sit at the moat level and remain open to the city. Others are partially embedded, creating a sense of enclosure. The deepest spaces are fully subterranean and depend on controlled light, material texture and spatial compression.

The roofscape also continues the ground condition. Some parts of the project are walkable and connect back to the public park, while other roofs are treated as green or minimal maintenance surfaces. This allows the architecture to merge with the landscape without pretending to disappear.

Working with earth also creates technical responsibilities. Excavation requires retaining structures, waterproofing, drainage and



1:150 Wall and Earth Relation Test Model

careful treatment of existing conditions. These technical questions are not separate from the concept. They are part of what it means to build between earth and wall.

In this sense, the earth becomes both material and narrative. It holds the project structurally, shapes the atmosphere of the interior spaces and carries the memory of the site.

3.4 Inhabiting - Plans and Programs

Although the project began from section, the plan became essential for organizing program, circulation and spatial clarity. The challenge was to translate sectional ideas into a coherent plan without losing the richness of the site.

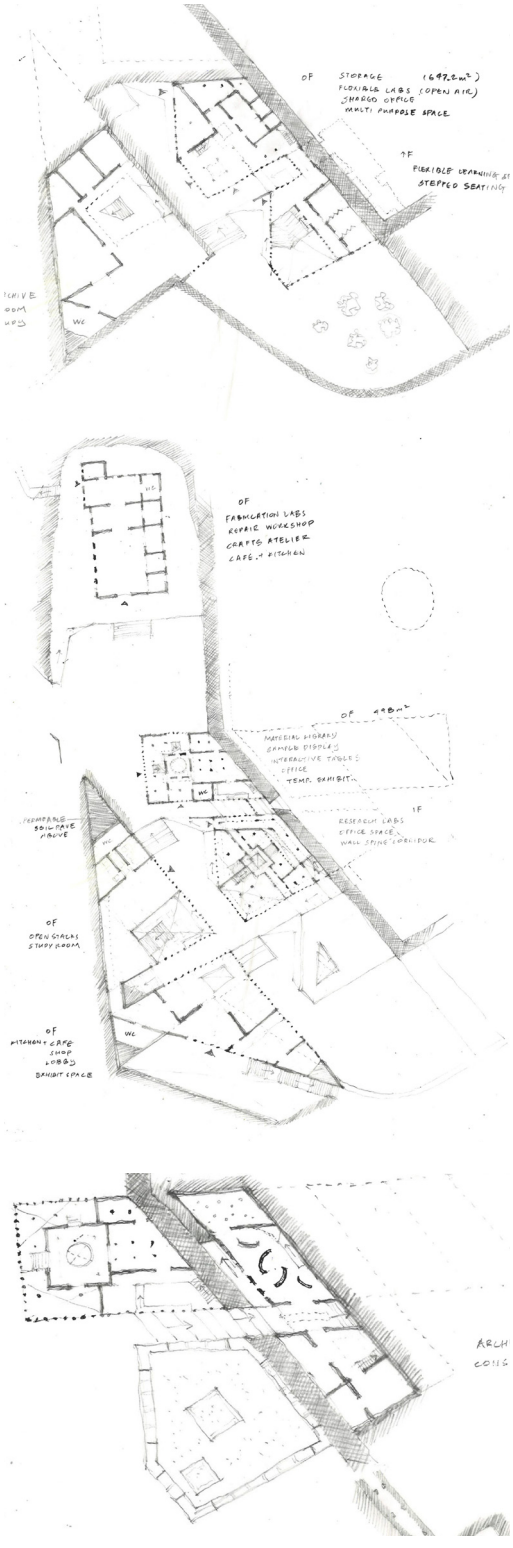
A 3 by 3 metre grid was used as an organizing system. This grid helped coordinate structure, rooms and circulation while still allowing the design to respond to the irregular site boundary and the geometry of the bastion. The grid does not dominate the site, but provides a framework through which the complex conditions can become manageable.

The program is distributed across three main conditions: civic, institutional and subterranean. The civic volume addresses the public edge and contains more open collective functions. The institutional volume runs along the bastion and contains research, education and material culture programs. The subterranean volume contains more immersive, archival and contemplative functions.

This creates a programmatic gradient. From the road and public edge, the visitor moves through civic spaces, then into institutional and educational spaces, and eventually toward more enclosed subterranean areas. This gradient corresponds to the spatial transition from openness to depth, from public activity to reflection.

Two courtyards help break down the scale of the project. The Craftyard supports making, workshops and material culture activities. It provides a more intimate and productive outdoor space connected to hands-on programs. The Civic Yard creates a more public gathering space shaped by the existing site geometry and counterscarp condition. It allows the project to open toward the city and accommodate collective events.

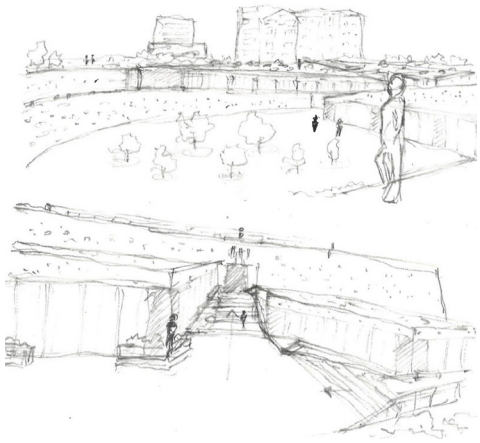
The courtyards also support the project's temporal argument. They are voids carved between layers, allowing people



Plan and Program Brainstorms

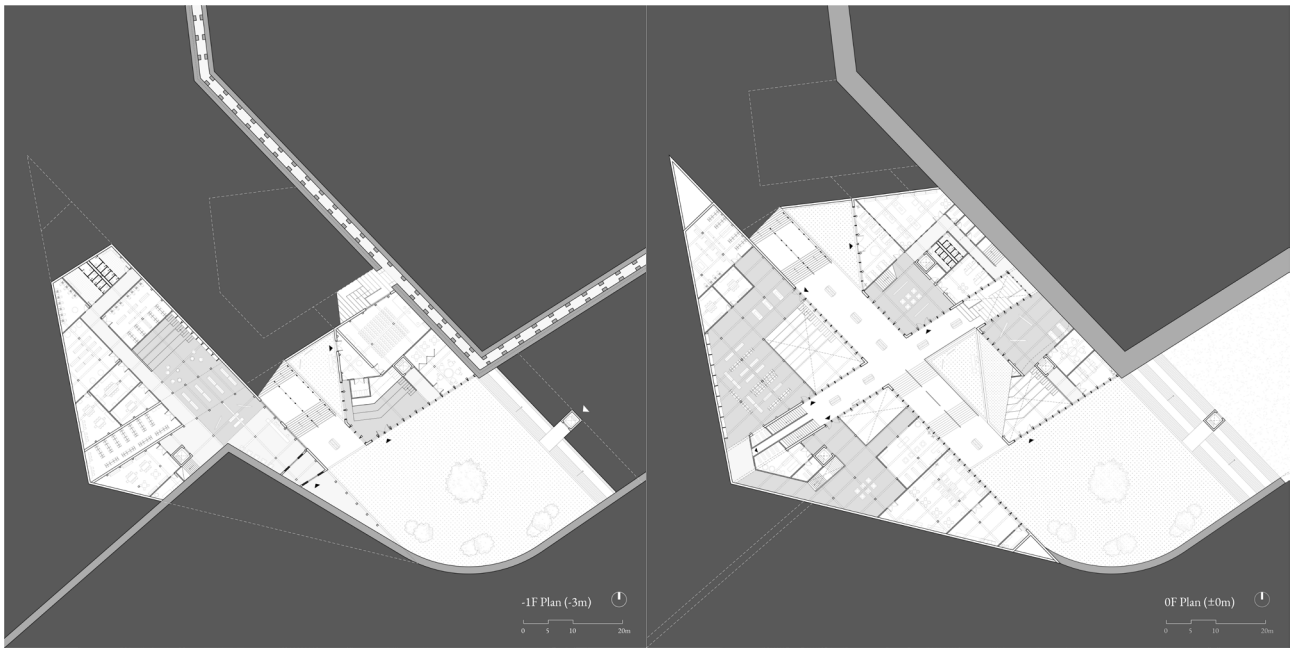
to pause between different spatial conditions. They create moments where the site can be read not only through movement, but also through occupation.

With this hierarchy formed, transitional spaces such as thresholds, corridors and pocket spaces become important moments where different programs and experiences overlap. Together, these strategies demonstrate how the project evolves from conceptual ideas into a spatial proposal that engages with movement, materiality and the layered condition of the site.



Courtyard and Movements form a layered design

0 and 1F Plans



3.5 Building - Materials and Structures

This chapter translates the spatial and conceptual intentions of the project into material and structural decisions. Structure and material are not treated as separate technical layers, but as integral components that reinforce the project's engagement with ground, depth and temporal layering.

The approach focuses on how construction can express relationships between old and new, solid and void, surface and depth. The structural and material logic follows the project's main conceptual contrast: heavy and light, embedded and exposed, retaining and spanning, mineral and timber.

The project therefore uses two structural attitudes. Within the mound and subterranean areas, the structure is heavy and retaining. At the moat level and in the civic/institutional volumes, the structure becomes lighter and more open. This contrast is not only functional, but also experiential. It helps the visitor understand where they are within the layered site.

3.5.1 Structural Strategy

The structural strategy of the project is developed directly from the sectional and topographic conditions of the site. It operates between two contrasting conditions: the embedded structures within the bastion mound and the lighter architectural volumes situated at the moat level.

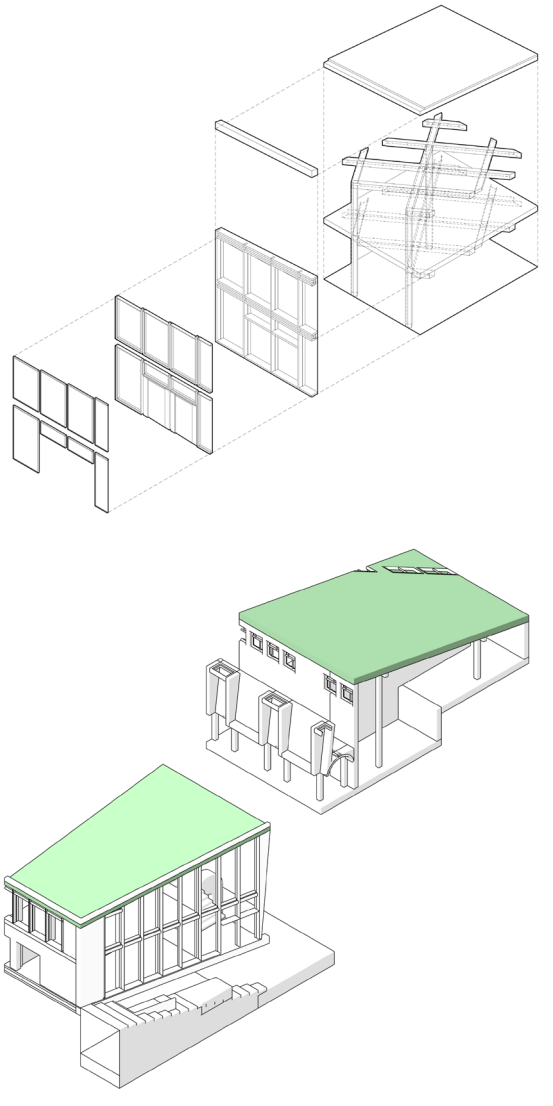
Within the bastion mound, the primary structural role is retention. Excavated spaces require continuous retaining structures to stabilize the surrounding earth and support the load of the park above and adjacent. These are conceived as thick load-bearing walls that work in compression, forming both structure and spatial enclosure. In this condition, structure and ground become inseparable. The walls do not merely support the rooms; they hold the terrain itself.

At the moat level, the structural logic shifts from retention to spanning. Here, the civic and institutional volumes use a lighter structural system, allowing for more open and flexible spaces. Timber structure, such as glulam or engineered timber elements, supports larger spans while creating a warmer interior atmosphere. There are also a blend of heaviness through the facade articulation between the timber members and limestone rammed wall. Vertical supports are minimized where possible, and loads are transferred through beams and frames, creating a more permeable ground condition that accommodates public activities.

The facade is not treated as a purely light envelope, but as a layered threshold where heaviness and lightness meet. The limestone rammed wall anchors the building to the bastion, while the timber members introduce rhythm, warmth, and tectonic lightness. Their combination allows the facade to express the project's central tension: a new intervention that is structurally and materially lighter than the historic ground, yet still belongs to its heavy stratified context.

As one moves through, the project can therefore be understood as a negotiation between compression and span, mass and frame. The retaining elements anchor the project within the terrain, while the spanning systems extend it into more open and accessible conditions.

These structuresreinforce the conceptual contrast of the project: earth and wall, mass and frame, compression and openness, permanence and adaptation. The structure is therefore not only technical, but also narrative.



The wall and ground as the structural logic framework and how it influence the atmosphere

3.5.2 Material Strategy

The material strategy responds to the articulated ground conditions of the site. Together with the structural strategy, it reinforces the distinction between embedded and exposed conditions while maintaining continuity across the project. Material also shapes the atmospheric qualities of the spaces, influencing how they are perceived, occupied and experienced over time.

For the subterranean spaces, materials emphasize mass, permanence and continuity with the ground. Concrete, limestone, stone surfaces or limestone aggregate mixes are used to define retaining and enclosing surfaces. These materials reinforce the perception of depth and weight. The resulting atmosphere is introspective and enclosed, where texture, shadow and filtered light define the spatial experience. This supports programs such as archives, immersive heritage spaces, black box rooms and contemplative collections.

In contrast, the civic and institutional volumes at the moat level adopt a lighter and more tactile material expression. Timber is introduced as the primary material for these structures. It brings warmth, tactility and a human-scaled atmosphere to the public and educational parts of the project. Glazing is used carefully to bring light into the institutional spaces and to create visual connections to the bastion wall and courtyards. Limestone is used as a grounding element. It relates to Tallinn's historic material culture and creates continuity between old and new. It may appear as a plinth, floor, wall lining, aggregate or threshold material depending on the specific condition. The aim is not to imitate historical construction, but to establish a material relationship with the site.

The meeting between materials is important. Joints between timber, stone, concrete, glazing and existing wall surfaces should remain legible. This allows the project to express temporal difference rather than hide it. The material strategy therefore supports the broader thesis: time becomes tangible where different layers meet.

Material Collage Elevations

Detail Sections

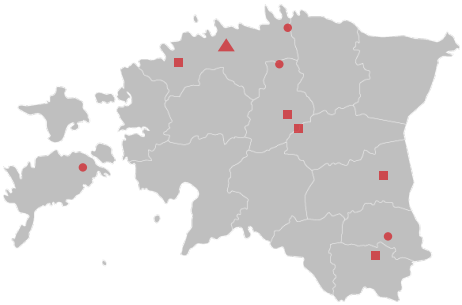
3.6 Circularity and Locality

A key aspect of the material strategy is the integration of circular principles through reuse, locality and material continuity. The first act of sustainability in the project is to work with the existing site rather than replace it. The bastion, wall, mound, tunnels and surrounding fragments are treated as resources for design.

Material removed during the excavation of the bastion mound and moat area can be reintroduced into the construction process where possible. It may be reused as aggregate within concrete mixes, as fill material, or as part of reconstructed mineral limestone rammed surfaces. This approach reduces waste while also reinforcing the conceptual idea of the project: the ground itself becomes a contributor to the new architecture.

This has both environmental and poetic significance. Material taken from the site is not treated simply as waste to be removed, but as part of the site's ongoing transformation. The new spaces are therefore shaped by the physical substance of the ground they occupy.

The project also emphasizes locality through regionally sourced materials. Limestone, widely associated with Tallinn's historical construction, is used as a primary grounding element and subterranean surface. Timber, also abundant in the region, is



Site (Tallinn)

Pine/Spruce/Oak Forest

CLT/Glulam Processing

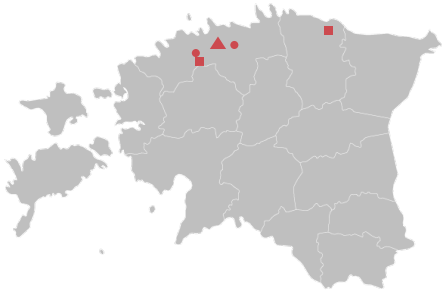
Tectonic

Light materials (CLT/Glulam) utilize Estonia's industrial timber hubs 200km to the South

introduced as the primary material for the civic and institutional volumes. The combination of limestone and timber creates a complementary relationship between heavy and light, mineral and organic, grounding and inhabitation.

Together, circular reuse and local sourcing form a cohesive material approach that is both environmentally responsive and contextually rooted. Rather than importing a foreign material language, the project works with what is already present, reusing, adapting and extending it.

This approach does not claim to solve every technical aspect of circular construction, but it establishes a clear attitude: the project should grow from the site materially as well as spatially.



▲ *Site (Tallinn)*

● *Limestone Quarry*

■ *RC + Cement Plant*

Stereotomic

Heavy materials (Limestone/Concrete) are sourced within a 20km radius, grounding the project in local geology.

3.7 Climate and Environmental Strategy

The environmental strategy follows the distinction between subterranean, civic and institutional conditions.

The subterranean spaces benefit from the thermal stability of the ground. They are suitable for functions such as archives, immersive exhibitions and contemplative spaces, where stable temperature and controlled daylight are important. However, these areas require careful waterproofing, drainage and controlled ventilation. Because they are embedded within the mound, the relationship between structure, moisture and air becomes essential.

The civic and institutional volumes are more exposed and can use daylight, controlled glazing and ventilation strategies. The façade should balance openness with thermal performance, especially in Tallinn's cold climate. Triple glazing, timber frames and façade depth can help reduce heat loss while maintaining visual connection to the site.

On the other hand, the roofscape contributes to environmental performance. Walkable roofs continue extending the public ground and provide usable landscape surfaces, while non-walkable green roofs can support water retention, insulation and biodiversity with limited maintenance. Drainage must be carefully coordinated because the project works with slopes, retaining walls and underground spaces.

The climate strategy is not only technical. It also supports the atmosphere of the project. Moving through the center involves changes in light, temperature, enclosure and air. These environmental differences reinforce the experience of moving between temporal layers.

In this way, climate becomes part of the spatial narrative. The contrast between the stable subterranean spaces, the brighter civic interiors and the exposed roofscape helps visitors feel the difference between earth, wall and city.

Light (Warm / Commons / Institute)

Tectonic

Heavy (Subterranean / Vault / Memory)

Stereotomic

3.8 Design Result Summary (A2 - A3 Thoughts)

The final design transforms Ingermanland Bastion into a Heritage and Material Culture Center structured by section, movement and material contrast. The project does not treat the bastion as a static monument, but as a layered spatial field. It activates the site through a public boulevard, sectional crossings, inhabited wall edges, courtyards, subterranean spaces and a material strategy rooted in earth and wall.

The design answers the research question by making temporal layers physically experienceable. Visitors do not encounter history only through objects or information. They encounter it by moving along the wall, descending into the ground, crossing through the bastion, pausing in courtyards, entering archival spaces and emerging back into the park.

The project therefore proposes architecture as a mediator between past and present. It preserves the ambiguity and depth of the site while giving it new civic life. The result is not a restoration of a former condition, but a new layer added to the palimpsest of Tallinn.


0
500
1000
1500
2000
2500
Krulli kvartal
Kalamaja
Kultuurikatel
Sadama
Tallinna Sadam
Medieval Towers + Walls
Telliskivi
Rottermann
MEDIEVAL
Swedish Bastions
TOOMPEA
Pelgulinn
Kelmiküla
Raua
Südalinn
Kassisaba
Maakri
Torupilli
Sibulaküla
Tatari
Tõnismägi
Keldrimäe
Lilleküla
Veerenni

Part 4: Conclusion and Discussion

What is the impact?

4.1 Conclusion: Main Findings

This graduation project began with the question of how architecture can mediate Tallinn's temporal layers spatially, enabling time to be experienced rather than only represented. Through the research, analysis and design process, I have come to understand temporal layers not as fixed historical periods or visual traces alone, but as active spatial conditions. They are embedded in ground levels, material junctions, walls, voids, routes, fragments and patterns of occupation. Time is therefore not only something that belongs to the past, but something that continues to shape how a site is accessed, perceived and inhabited.

The main finding of the project is that temporal layers can be made legible through architecture when they are translated into spatial relationships. This means that history does not need to be explained only through signage, reconstruction or museum display. Instead, it can be encountered through movement, section, material transition and bodily experience. The project demonstrates this through the transformation of Ingermanland Bastion into a Heritage and Material Culture Center, where the existing wall, mound, moat, tunnels and ground levels are not treated as separate historical objects, but as parts of one stratified spatial field.

The theoretical and analytical phase was essential in forming this position. The idea of the city as a palimpsest helped me read Tallinn not as a city of isolated historical monuments, but as an accumulation of overlapping traces. The disciplinary analysis of Hobuveski further revealed how time can operate through changing use, ground level transformation, material continuity and architectural adaptation. Its transformation from horse mill to storage, abandonment and later theatre showed that temporal layering is not only physical, but also programmatic and experiential. This helped me understand that architecture can hold multiple lives at once, and that reuse does not erase the past, but can reactivate it through new forms of occupation.

The contextual analysis of Tallinn across urban, architectural, human and detail scales also showed that temporal layers are strongest when they can be read across multiple dimensions. At the urban scale, they appear through boundaries, routes and infrastructure. At the architectural scale, they emerge through reused buildings, fragments and additions. At the human scale, they are experienced through thresholds, stairs, slopes, hidden passages and changes in speed. At the detail scale, they become visible through material contact, joints, surfaces and traces of construction. These observations led to the strategies of condensing and revealing, slowing and permeating, stitching and exposing. These strategies became the bridge between research and design.

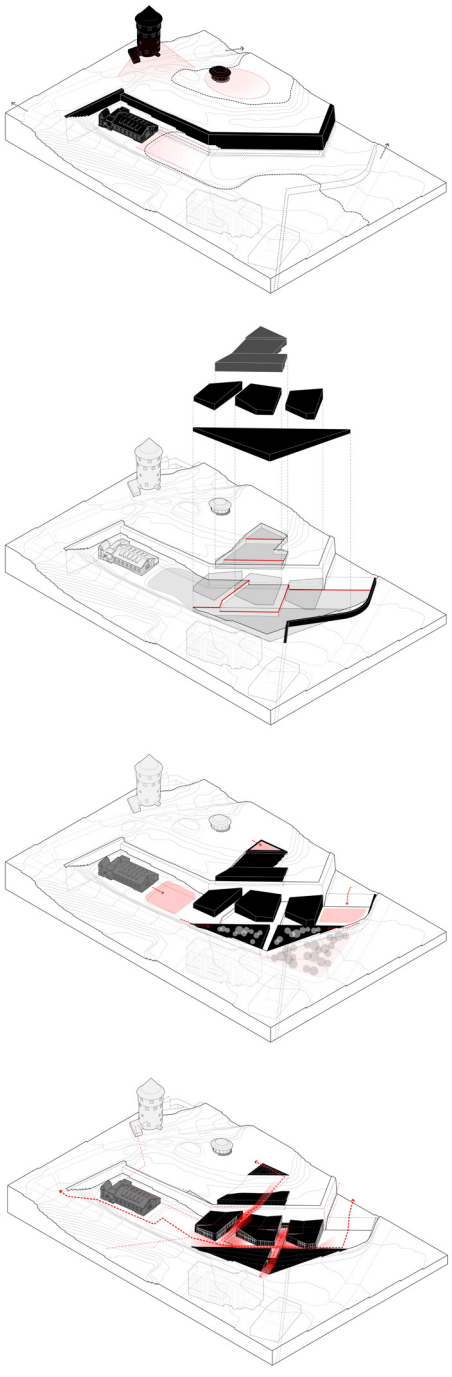
In the design proposal, section became the primary tool for translating these findings into architecture. Rather than beginning with an object placed on the site, the project began by working through the ground. The bastion was understood not as a surface or backdrop, but as a thick inhabited condition. By cutting, excavating, inserting and connecting, the design activates the space between earth and wall. This approach allowed the project to engage with the bastion's defensive history while transforming it into a civic and cultural place.

The boulevard spine is one of the key design outcomes of this sectional thinking. It creates a continuous spatial spine along the base of the bastion, connecting the civic, institutional and subterranean parts of the project. It organizes movement while also allowing moments of pause, branching and encounter. It is not only a corridor, but a public threshold where the site gradually unfolds. Along this route, visitors experience shifts in light, scale, enclosure and proximity to the wall. The boulevard therefore becomes a device for reading the bastion through movement.

The second important finding is the role of ascent and descent. The project shows that moving vertically through the site can become a way of experiencing time. By passing from the moat level into the mound, from open civic spaces into compressed subterranean interiors, or from dark excavated rooms back toward the park surface, the visitor experiences the site as a layered volume rather than a flat landscape. The existing tunnels and the new excavated spaces create different temporal conditions: one belongs to the inherited defensive infrastructure, while the other introduces a new contemporary layer within the earth. Their coexistence creates a dialogue between inherited and newly constructed depth.

A third finding concerns the bastion wall itself. In the design, the wall is no longer only a boundary or historical remnant. It becomes an active spatial condenser. The areas along and within the wall accommodate circulation, research spaces, material libraries, seminar rooms and moments of visual connection. In this way, the wall is transformed from an edge into an inhabited thickness. This is important because it shifts the perception of heritage from something distant and untouchable into something that can be approached, used and understood through proximity.

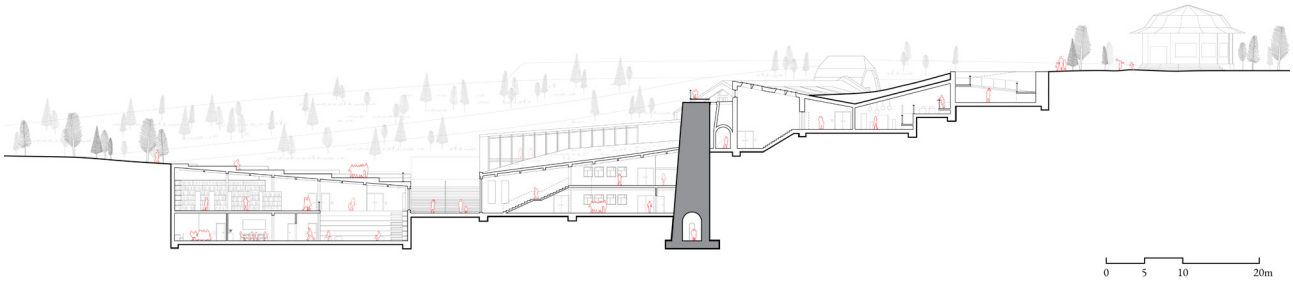
The material and structural development of the project further reinforces this relationship between time, ground and inhabita-



Ground and Volume Morphology

tion. The heavier subterranean parts of the project use concrete, stone and limestone-based surfaces to express compression, retention and permanence. These spaces are shaped by the logic of the earth and carry a more introspective atmosphere. In contrast, the civic and institutional volumes use timber, glazing and lighter structural systems to create openness, warmth and public accessibility. The contrast between heavy and light, mineral and organic, embedded and exposed supports the conceptual distinction between the different spatial conditions of the project.

Together, these findings answer the research question by showing that architecture can mediate temporal layers when it operates simultaneously as a spatial, tectonic and experiential framework. Time becomes perceptible not because it is represented as a narrative, but because it is encountered through the body. The visitor reads the site by walking, descending, turning, touching, pausing and emerging. The project therefore proposes an architecture that does not freeze history, but allows it to remain active within contemporary life.



Bastion as Spatial Condenser

4.2 Implications and Societal Impact

This project, in many senses, challenges in how we can reconsider the **role of heritage within the contemporary city.** In many cases, many heritages are treated either as an object to be preserved or as a cultural attraction to be consumed. This can create distance between people and the historical layers of the city. The past becomes something observed from outside, separated from everyday use. This project proposes another possibility: heritage as an inhabited and shared spatial condition.

By transforming Ingermanland Bastion into a Heritage and Material Culture Center, the project gives the site a renewed civic role. The bastion is currently rich in historical significance, but much of its spatial potential remains fragmented, hidden or underused. The mound functions mainly as a seasonal park, while the lower edges are affected by inactive spaces, parking and weak connections. The proposal addresses this by creating year-round public, educational, cultural and research functions distributed across the site. This gives the bastion a more continuous presence in the city, not only as a green space or historical monument, but as a place of learning, production, gathering and reflection.

The project also contributes to **sustainable development by working with existing conditions** rather than replacing them. Its approach is mainly based on reuse, adaptation and careful insertion. Instead of clearing the site or imposing an autonomous building, the design works with the existing wall, ground levels, tunnels, mound and surrounding fragments. This reduces the need for a completely new architectural object and supports a more resource-conscious attitude toward construction.

The reuse of excavated material within the material strategy also strengthens this approach, allowing the ground itself to contribute to the new architecture. In this sense, sustainability is not only technical, but also cultural and spatial. It involves extending the life of what already exists and allowing its accumulated meanings to remain present.

The new life of Ingermanland Bastion area

The project has socio-cultural impact because it makes Tallinn's layered identity more accessible to the public. The Heritage and Material Culture Center is not imagined as a closed institution, but as a **civic landscape where different users can engage with the site in different ways**. Visitors may move through exhibitions, researchers may work with archives and material collections, local residents may use the public spaces, and students or makers may participate in workshops. This mixture of programs prevents heritage from becoming static. It allows history to be connected to contemporary practices of making, learning and gathering.

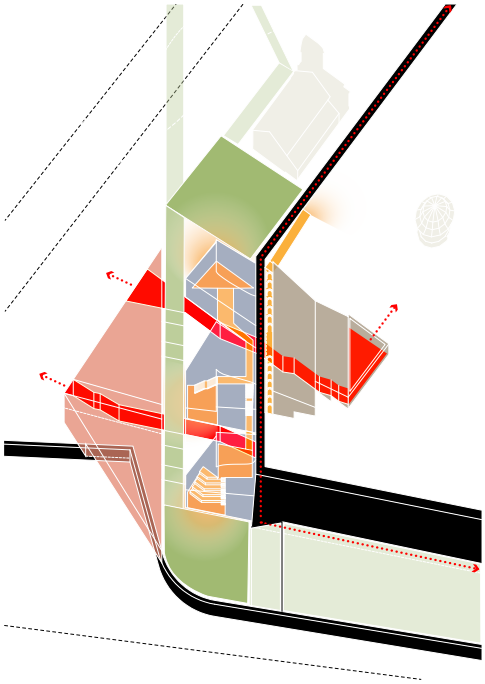
Architecturally, the project also suggests that underground and defensive heritage sites do not have to remain passive or isolated. They can be broken from its original defensive morphology and reactivated through careful spatial mediation. However, this comes with responsibility. Intervening in a bastion requires sensitivity toward structural stability, archaeological value, public accessibility and the atmosphere of the existing site. The design therefore does not aim to erase the ambiguity of the bastion, but to work with it. The **tension between preservation and transformation** becomes productive. The project accepts that heritage is not only about maintaining what is already visible, but also about deciding how hidden or fragmented layers can be brought into new relevance.

The transferability of the project lies in its method rather than its exact form. The design is specific to Ingermanland Bastion, but the approach could be applied to other layered heritage sites: reading temporal layers across scales, identifying spatial discontinuities, extracting strategies, and testing them through section, movement and material relationships. Other cities with buried infrastructures, defensive landscapes, industrial remains or altered ground conditions could benefit from a similar approach. In this sense, the project contributes not only a design proposal, but a way of thinking about how architecture can work with temporal complexity.

4.3 Recommendations

Based on the results of the project, I believe several recommendations can be formulated.

First, heritage sites with strong spatial depth would be best to be approached through section, not only through plan or conservation boundaries. In sites such as bastions, earthworks, tunnels or former infrastructures, the most important relationships are often vertical or embedded. Sectional analysis can reveal hidden connections and help identify where architectural intervention can be meaningful.



Circulation Diagram

Second, public routes through heritage sites should not be treated only as circulation. Movement can become a medium of interpretation. If paths are designed with changes in speed, enclosure, level and material, they can help people experience the temporal depth of a place without relying only on textual and image explanation.

Third, adaptive reuse should be understood beyond the scale of the building. Many historically significant sites are not single structures, but landscapes, infrastructures, voids or ground conditions. Reuse in these cases requires a broader architectural attitude that works with terrain, fragments, edges and existing atmospheres, and sometimes, the best resources could be on the site itself.

Fourth, material strategy should not only respond to aesthetics or performance, but also to memory and continuity. Local materials, reused excavated ground and visible junctions between old and new can help express the temporal relationship of a project. Rather than hiding difference, architecture can make difference legible.

1:50 Timber Fragment Model

Finally, interventions in heritage contexts should balance activation and restraint. Not every layer needs to be exposed, and not every fragment needs to be transformed or connected. The value of a site often lies in its ambiguity and incompleteness. Architecture should therefore act selectively, revealing and connecting where necessary while allowing some conditions to remain quiet, hidden or unresolved.

4.4 Reflection on Graduation Process

Reflecting on the graduation process, one of the most important lessons has been learning how to maintain a clear relationship between research and design. At the beginning, the topic of temporal layers was broad and abstract. It could easily remain as a theoretical interest without becoming architecturally specific. Through the process, I gradually understood that the concept needed to be tested through concrete spatial tools: section, circulation, thresholds, materiality and structure. The project became stronger when temporal layering was no longer treated as a theme, but as a design method.

The research approach worked well in establishing a strong conceptual foundation. The combination of theoretical research, disciplinary analysis and contextual analysis allowed me to develop a layered understanding of Tallinn as well as making an informed choice on site selection. The multi-scalar analysis was especially useful because it prevented the project from focusing only on historical information. It helped me see how temporal conditions are experienced through movement, levels and material details. This directly informed the later design strategies.

My favourite discovery in site visit: Rummu Quarry, an abandoned mine turned into a seasonal attraction, where people utilize the submerged water body for water activities

However, the process also revealed difficulties. One challenge was the complexity of the site. Ingermanland Bastion contains many existing layers, routes, levels and fragments. Because of this, the design initially risked becoming too complex, with too many movements, programs and spatial intentions competing with each other. I had to constantly return to the main question: how does each decision help reveal, mediate or activate temporal layers? Would all these make everything hard to understand? This helped me simplify the project and clarify the hierarchy between the boulevard spine, transversal crossings, bastion edge and subterranean spaces.

Another challenge was translating sectional ideas into plan and program. Since the project was driven strongly by section, the plan initially developed more slowly. It took several iterations to align spatial experience with functional organization. The 3 by 3 metre

grid, the site boundary and the programmatic gradient eventually helped to give the project a clearer structure. Through this, I learned that section and plan should not be treated separately but a back and forth process. Section can generate the spatial logic, but plan is necessary to make the project usable, coherent and communicable.

The relationship between research and design has therefore been iterative rather than linear. Analysis produced strategies, strategies produced design tests, and design tests revealed new questions about the site. This research-by-design method was appropriate for the project because the subject itself is about transformation and reinterpretation. The final result is not a direct application of research, but a spatial argument developed through repeated testing.

The process also made me more aware of the ethical responsibility of working with heritage. Intervening in a bastion is not neutral. It involves decisions about what to expose, what to preserve, what to change and what to leave untouched. While the project proposes cuts, excavations and insertions, these actions are not intended as aggressive gestures. They are intended as ways to make the site more accessible and meaningful. Still, the project acknowledges that such interventions would require further archaeological, structural and conservation studies if developed beyond the scale of an academic proposal.

Looking back, the project has strengthened my interest in architecture that begins from the specific conditions of a site. It has also helped me understand the value of working through constraints rather than avoiding them. The bastion's thickness, topography, existing tunnels, retaining conditions and fragmented edges were difficult, but they also gave the project its architectural depth. The design emerged by negotiating with these conditions rather than simplifying them away.

On a personal level, this graduation process has changed the way I understand design. I began with an interest in time, but through the project I learned that time only becomes architectural when it is translated into spatial decisions. A concept needs to become a route, a section, a threshold, a material joint, a structural logic or a programmatic relationship. This translation from idea to architecture was one of the most challenging but meaningful parts of the process.

Ultimately, **BETWEEN EARTH AND WALL** proposes that architecture can make time inhabitable. It does not attempt to restore the bastion to a single historical moment, nor does it treat the site as a neutral platform for new construction. Instead, it works within the tension between earth and wall, past and present, concealment and exposure. Through excavation, movement, material contrast and programmatic activation, the project transforms Ingermanland Bastion into a place where temporal layers can be physically experienced, socially shared and continuously reinterpreted.

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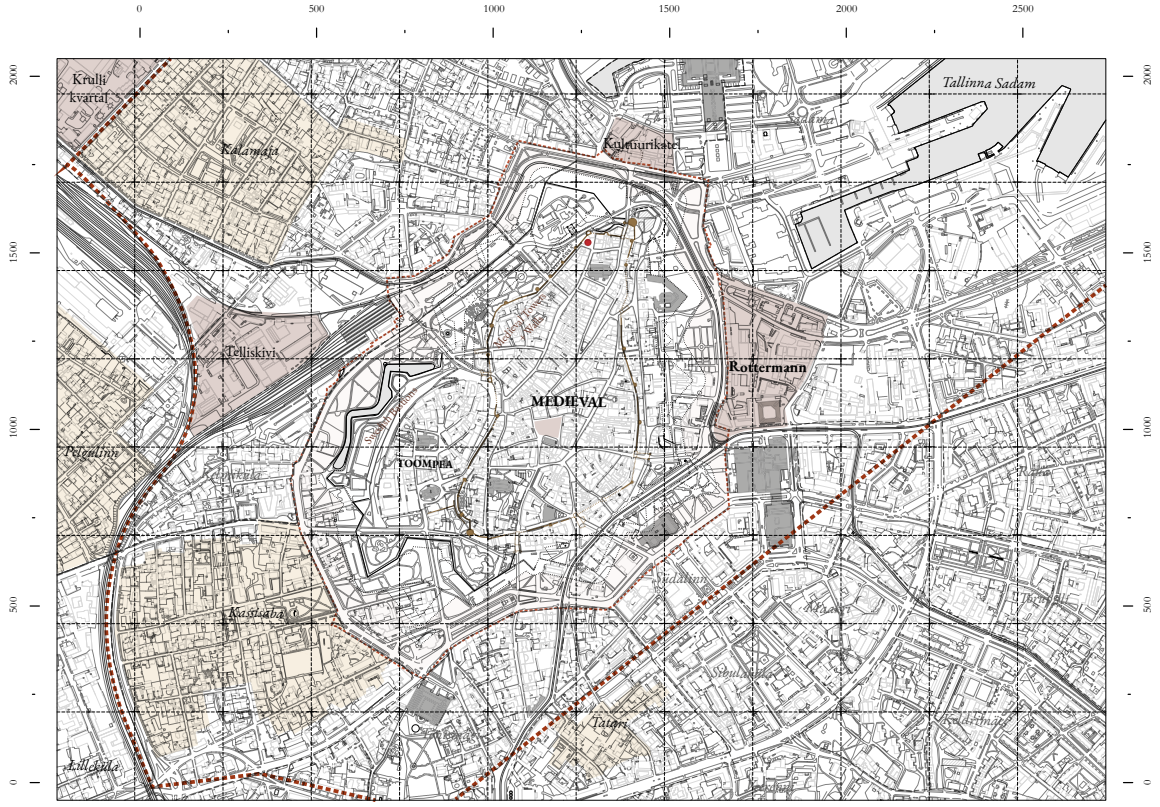
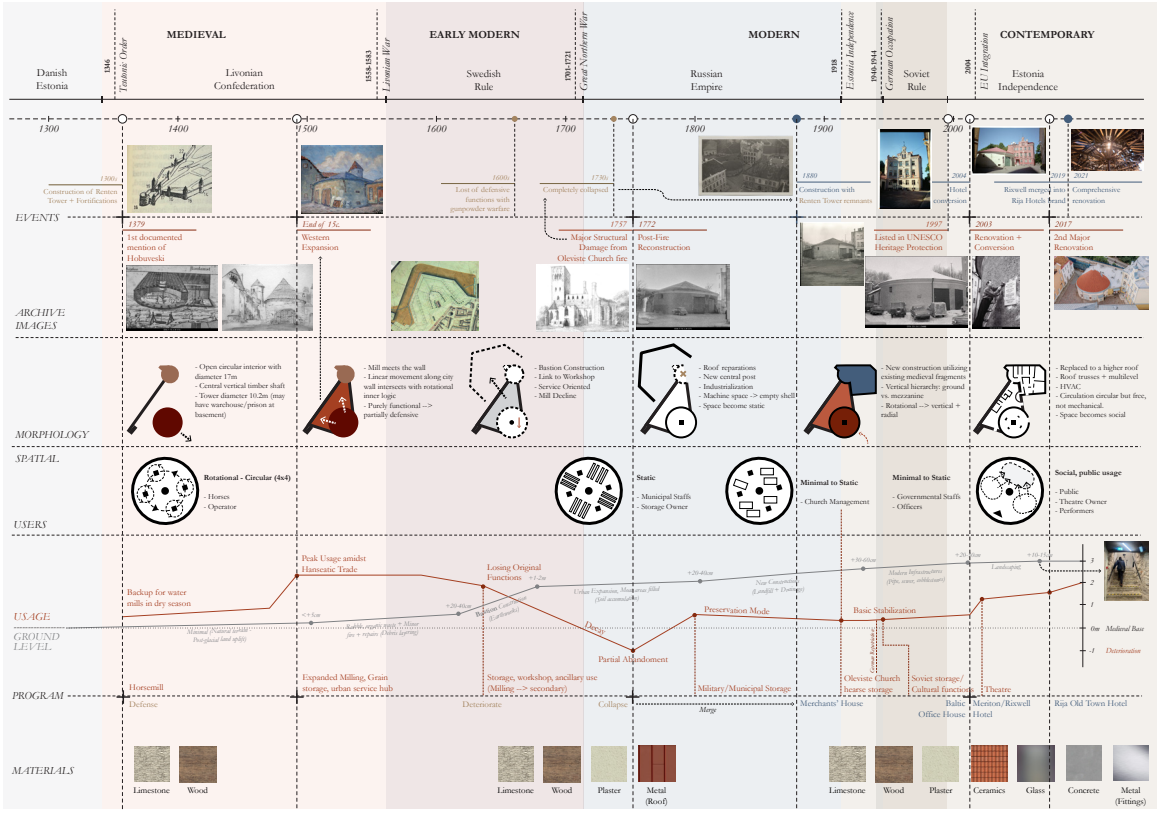
Appendices



Tallinn Urban Layered Plan

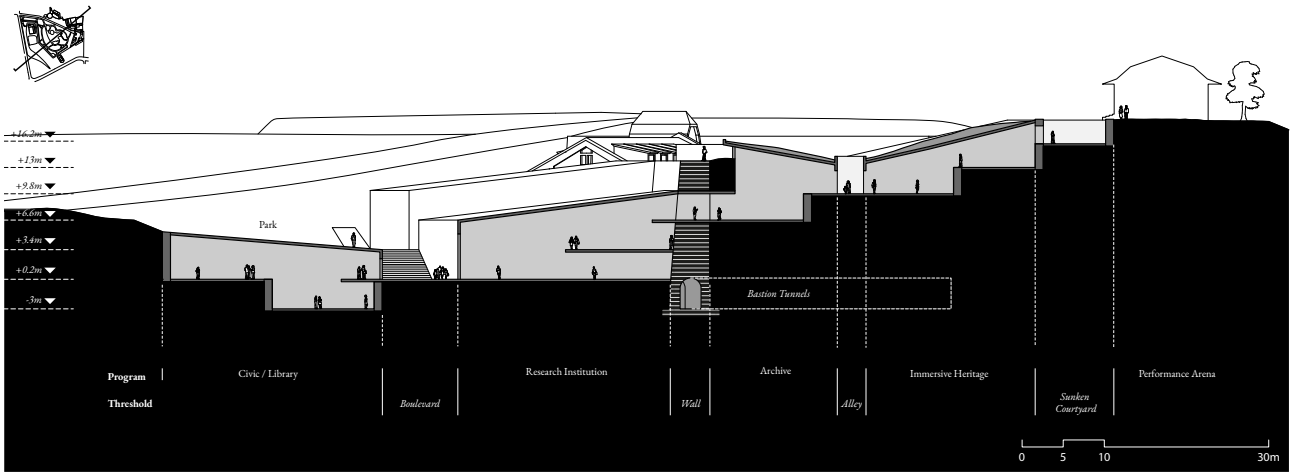


Hobuveski Matrix

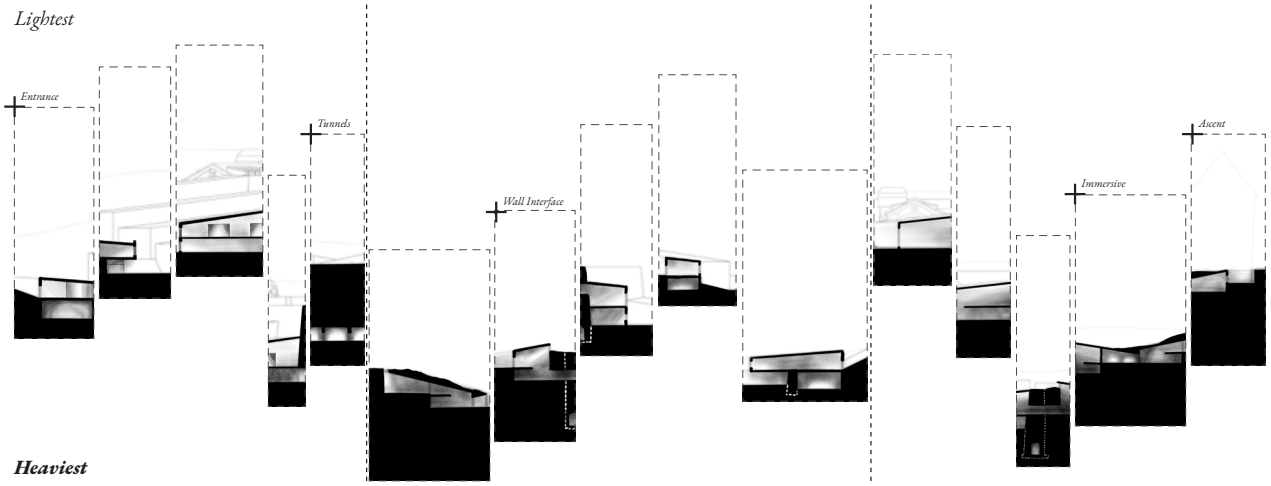
Site Condition Photography

TEMPORAL LAYERS	FORTIFICATION 17th-18th c.	DEMILITARISATION & PARK FORMATION Mid–Late 19th c.	CIVIC & LEISURE CITY Early 20th c.	TURBULENCE (WWII + SOVIETS) 1940–1991	CONTEMPORARY Post 1991
Ingermanland Bastion (Earthwork & Walls)	*Bastion Fortification*	*Redundant military infrastructure*	*Landscape substructure*	*Urban green infrastructure*	*Protected cultural landscape*
	Artillery defence, territorial control	None / transitional ground	Base for public park	Public recreation	Heritage, recreation, monument support
	Angular earthen rampart, thick sloped profiles, stone escarp walls, moat edge	Slopes softened, defensive edges blurred	Terraced mound, promenades following rampart geometry	Informal slopes, open lawns	Layered ground (park over buried fortification)
	Soldiers, military engineers	City authorities, early park users	Citizens	Residents, youth groups	Public, tourists
	Compacted earth, limestone masonry	Existing earthworks, planted soil	Earth, turf, gravel paths	Maintained landscape	Earth, stone remains, landscape finishes
Bastion Tunnels / Passages	*Subterranean military infrastructure*	*Abandoned infrastructure*	*Emergency infrastructure (partial)*	*Back-of-house storage / shelter*	*Museum / heritage space*
	Troop movement, storage, shelter	-	Civil defence shelters	Auxiliary uses	Exhibition, interpretation
	Linear vaulted corridors, casemates, enclosed chambers	Sealed voids beneath park	Reinforced interiors, utilitarian fittings	Neglected, closed networks	Experiential underground sequence
	Soldiers	-	Authorities	Limited access + Punk youths + Homeless people	Visitors, tourists
	Limestone vaults, brick, earth cover	Existing masonry	Masonry with added concrete / steel	Aging Masonry	Exposed limestone, lighting, steel inserts
Harjumägi Park (On Mound)	*Military Terrain* (LANDSCAPE)	*Public park*	*Urban leisure park*	*Civic open space*	*Heritage park*
	-	Recreation, promenade	Socialising, concerts, cafés	Informal gatherings, cultural exchange	Recreation, commemoration
	Steep, inaccessible	Walkways, stairs, planted slopes	Terraces, bandstand zones, viewpoints	Flexible open areas	Scenic overlook, memorial edges
		Citizens	Urban public	Youth, local communities	Public, tourists
		Soil, trees, gravel	Landscape + light wooden structures	Hardscape + landscape	Stone paving, planting, monuments
Harjumäe Kõlakoda (Pavilion)	*Military* (STRUCTURE)	*Park pavilion (early precedents)*	*Café / bandstand pavilion*	*Park amenity building*	*Contemporary pavilion*
	Earth, grass	Refreshment, leisure	Social hub, music support	Refreshments, meeting point	Cafe, viewpoint
		Small freestanding object in landscape	Open, lightweight, centrally placed	Modest, utilitarian volume	Object-like form on mound crest
		Park visitors	Leisure public	Locals	Locals, tourists
		Timber	Wood, metal	Wood, metal, masonry (possibly)	Timber, glass, metal
Moat + Building (now Pizza Americana)	*Defensive landscape (moat)* (DEPRESS(0M))	*Residual urban land*	*Sports facility*	*Utility / service building*	*Commercial adaptive reuse*
	Protection, separation	-	Tennis / recreation	Sports / parking	Restaurant
	Sunken void, open edges	Depressed terrain	Low, pragmatic building in moat	Introverted, functional	Enclosed volume embedded in former moat
			Athletes	Drivers, locals	Diners, tourists
			Masonry, concrete	Concrete	Concrete, glass, interior finishes
EKNK Toompea Kogudus Building	*Military* (SUNKEN(+4M))	-	*Institutional (school gym)*	*Adapted institutional building*	*Religious + community building*
	Earth (possibly water in some parts)	Earth	Education, physical training	State / community uses	Worship, gatherings, cafe
			Large clear-span interior, masonry shell	Repartitioned interiors	Hall-based interior with auxiliary rooms
			Students + Teachers	Public institutions	Congregation, community
			Brick / stone masonry	Existing masonry, concrete	Historic masonry + contemporary interiors

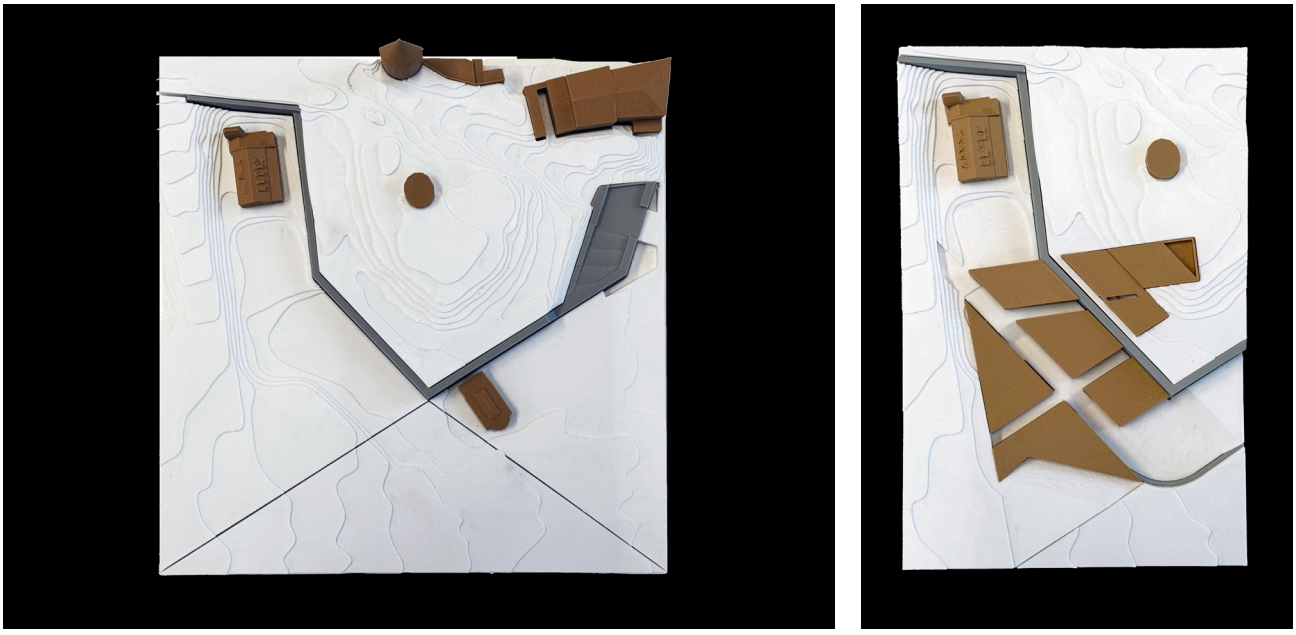
Site Temporal Layers Synthesis



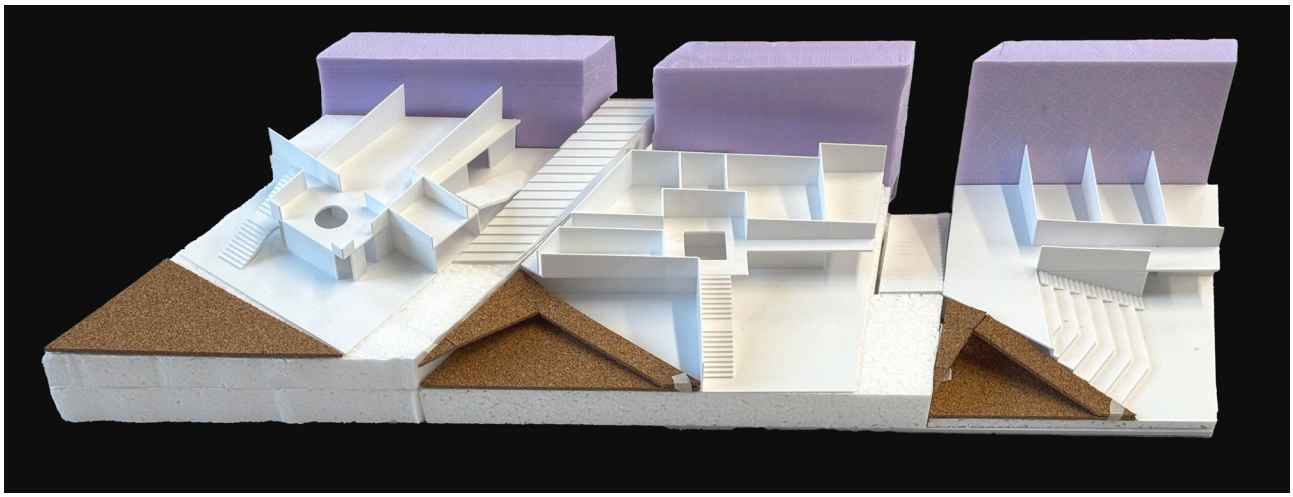
First Design Section Iteration



Section Atmosphere Studies

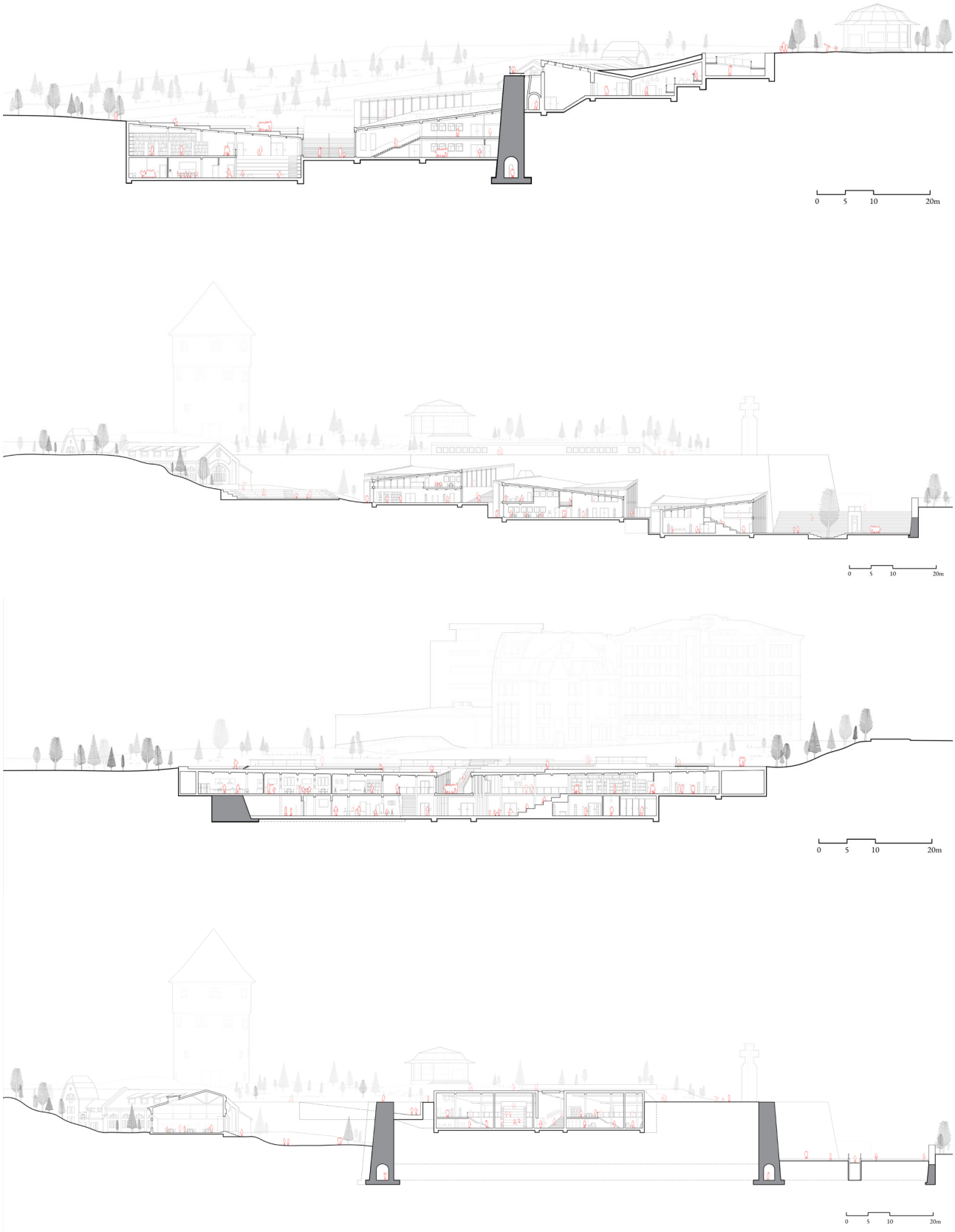


1:1000 Test Site Context Model

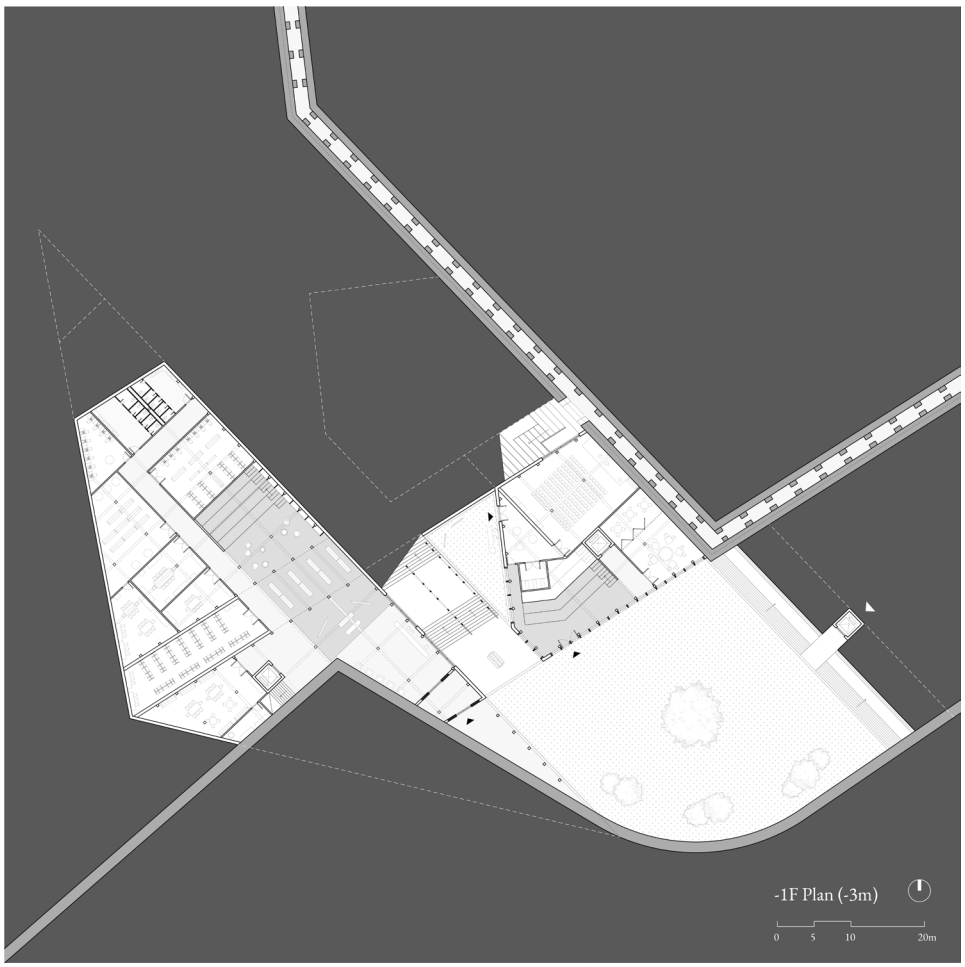


1:150 Institution Model

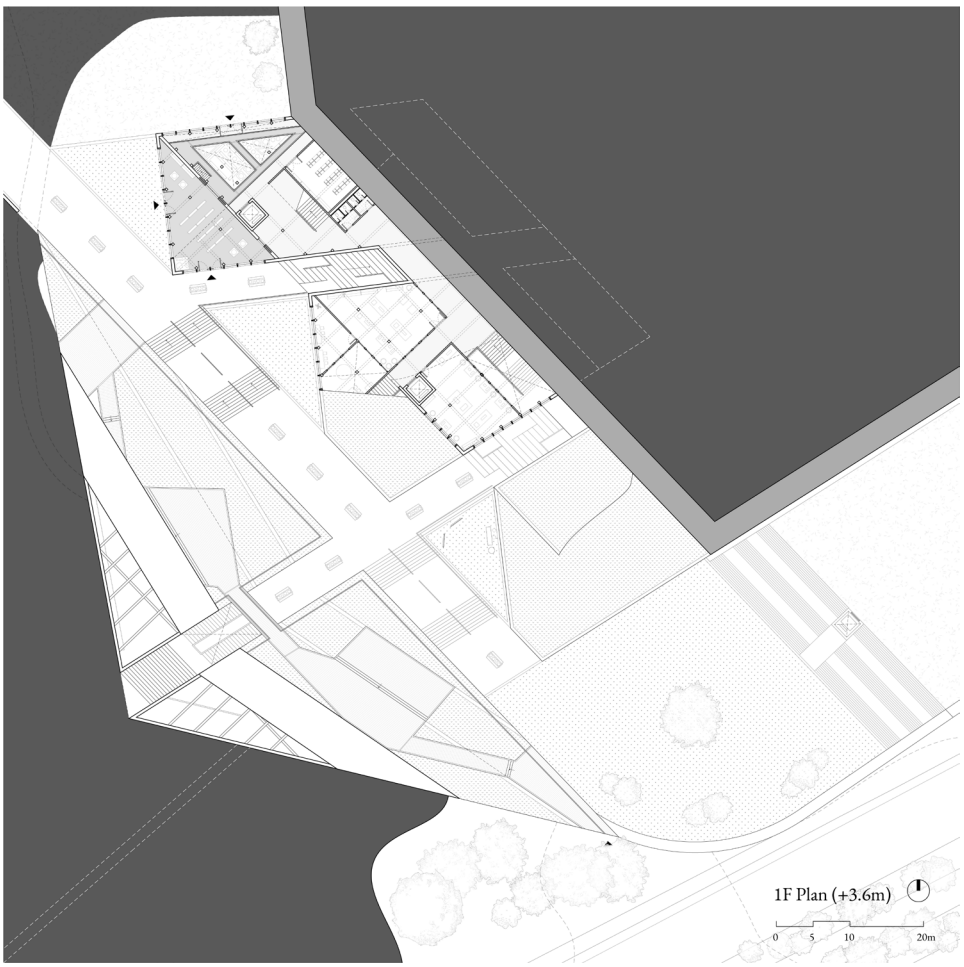
1:50 Fragment Model

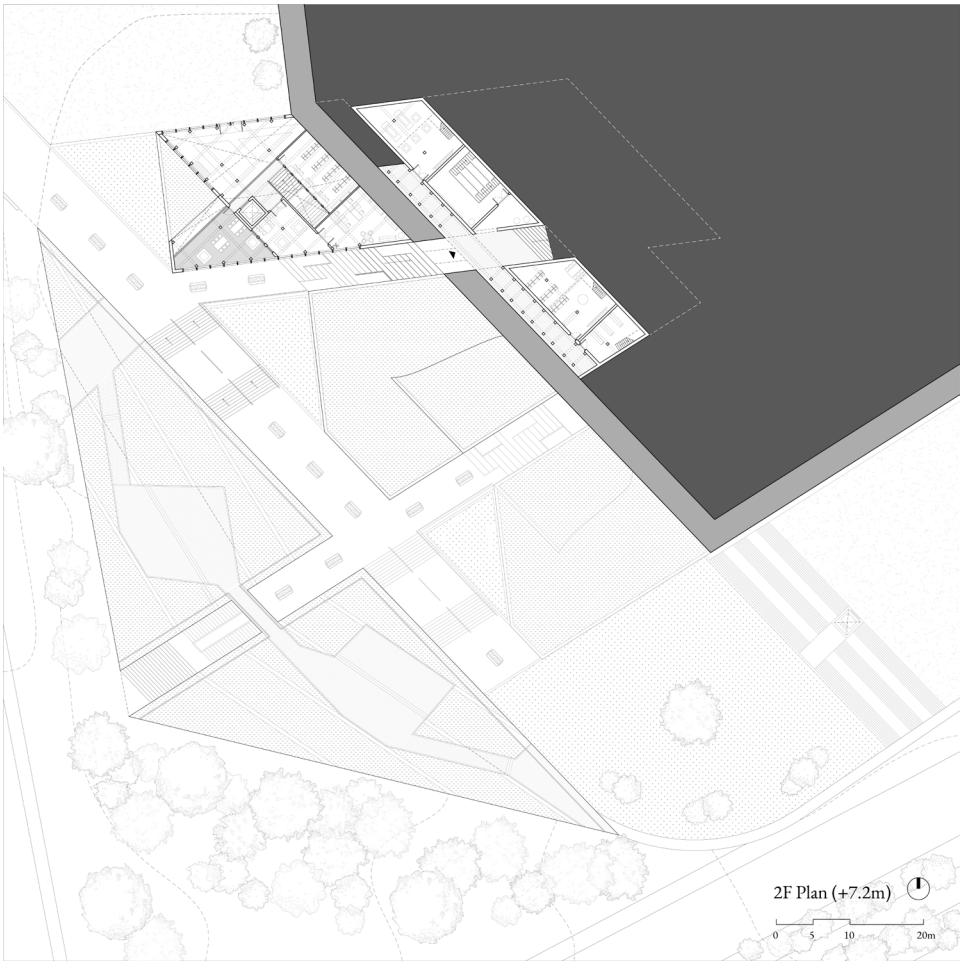


Section Series: Overall, Institute, Civic, Vault

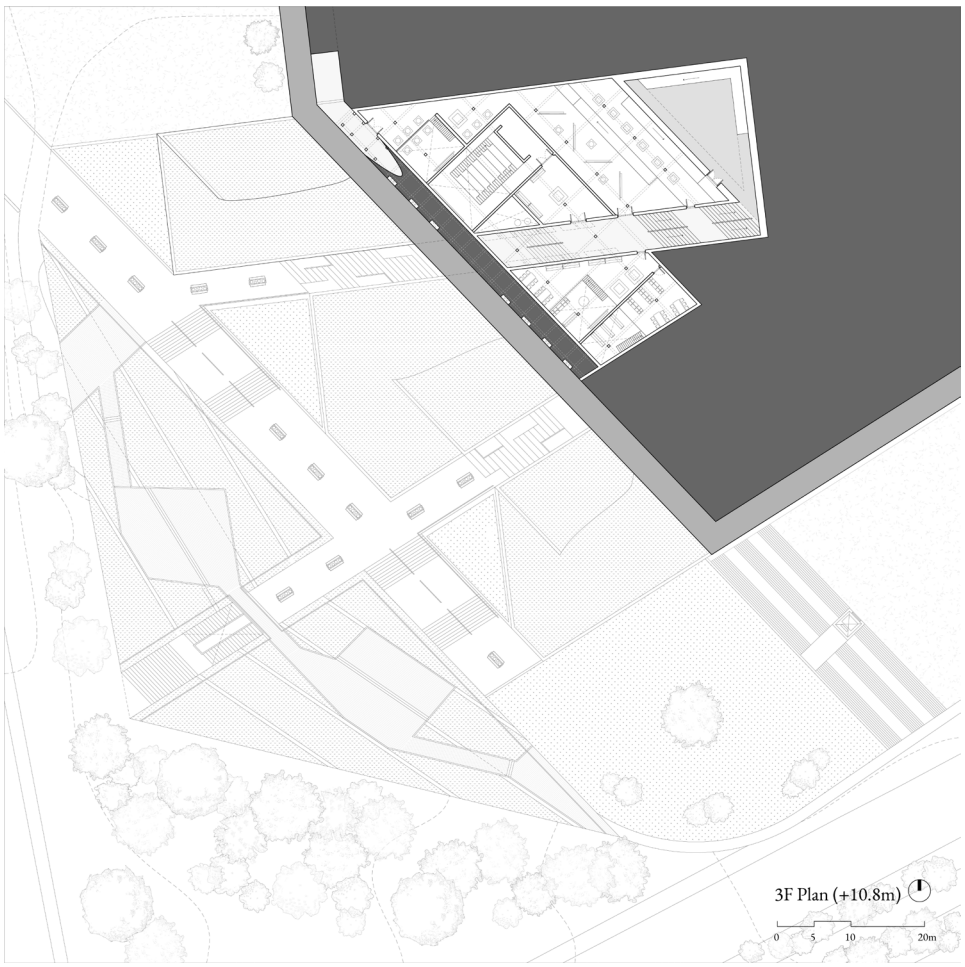


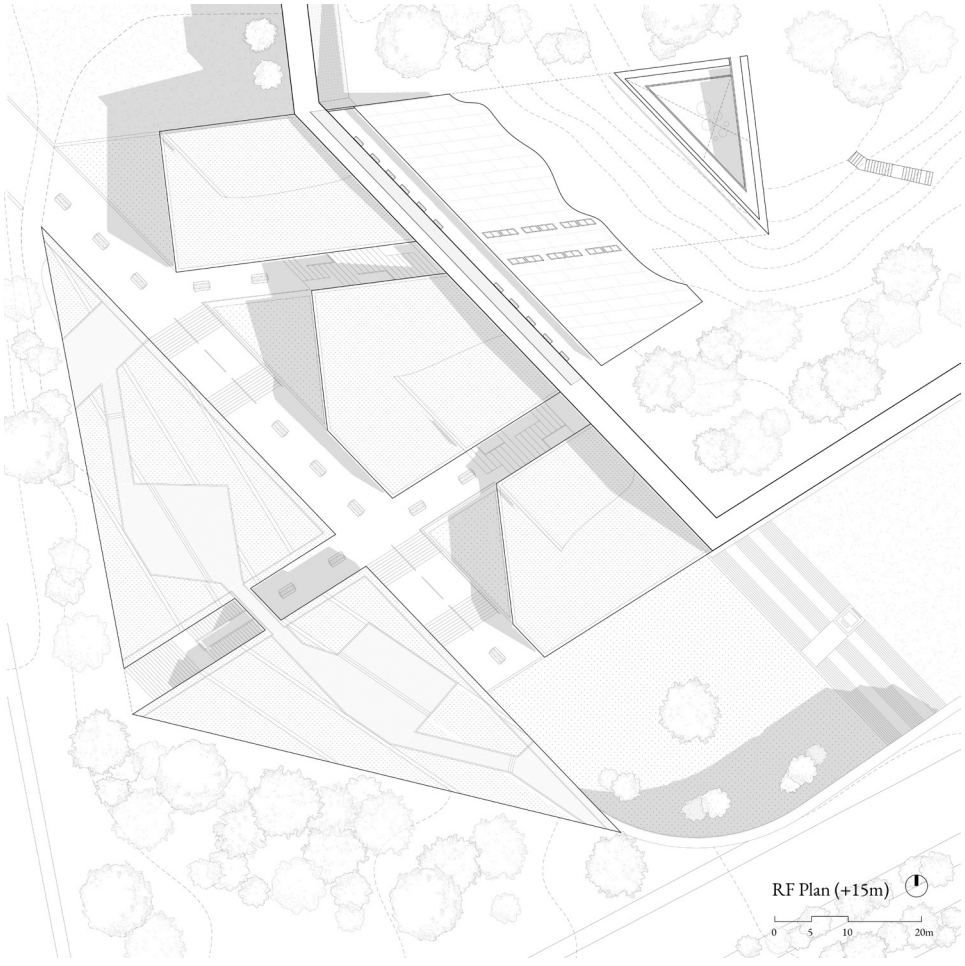
-1 and 0F Plans





1 and 2F Plan





3 and Roof Floor Plans