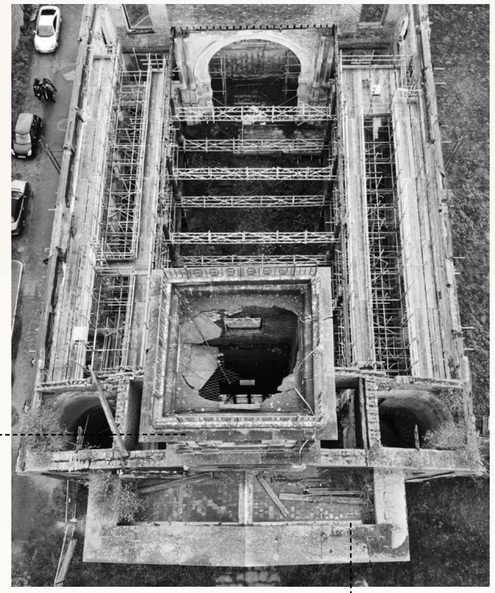
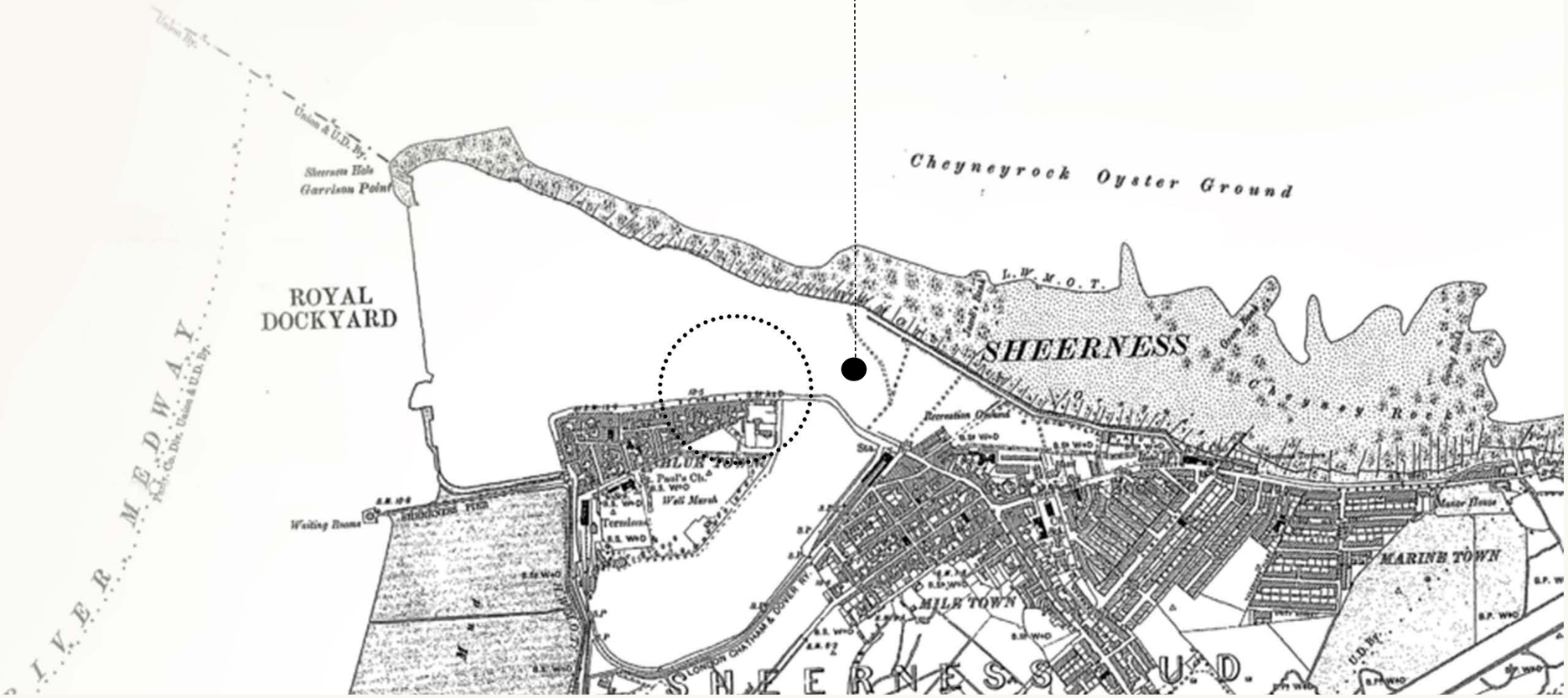
Weather(ing) Station

Thesis Project of Eva Amouriq
Under the Direction of Graeme Brooker
Interior Design ; Re-Use Platform
2019-2020
Royal College of Art



Dockyard Church, Island of Sheppey
Kent Coast
United Kingdom

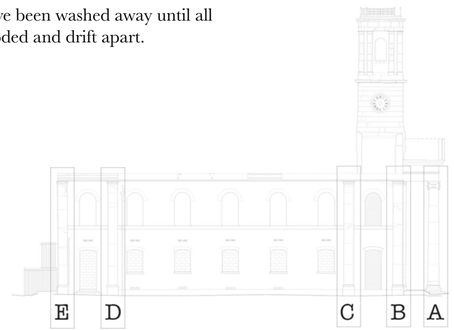
The Dockyard Church stands at the entrance to the former Royal Dockyard on the Isle of Sheppey. Facing the sea, exposed to the well known tumultuous element of the Kent coast, the naval construction was built between 1826-1828 and survived two consecutive fires in 2003 and 2011. After the second one the building as been disused, and recently took part in the Dockyard preservation trust, for being rehabilitated by Hugh Broughton Architects.



Phase 1 : Contamination

The first encounter with the building revealed the time that has passed by over the year. Indeed, the wind dragging salt and algae, the constant rain, and fires left scars behind them. Embodies by erosion, (rift, cracks, mold, infiltration..) resulting in colorimetric alteration especially noticeable on the pilasters.

Two different phenomena of decay are occurring ;
When the outside facade directly exposed to the elements succumbs to the darkness it is resulting in a multiplication of particles inside the matter.
When the inner space seems to have been washed away until all the decorations and ornaments eroded and drift apart.



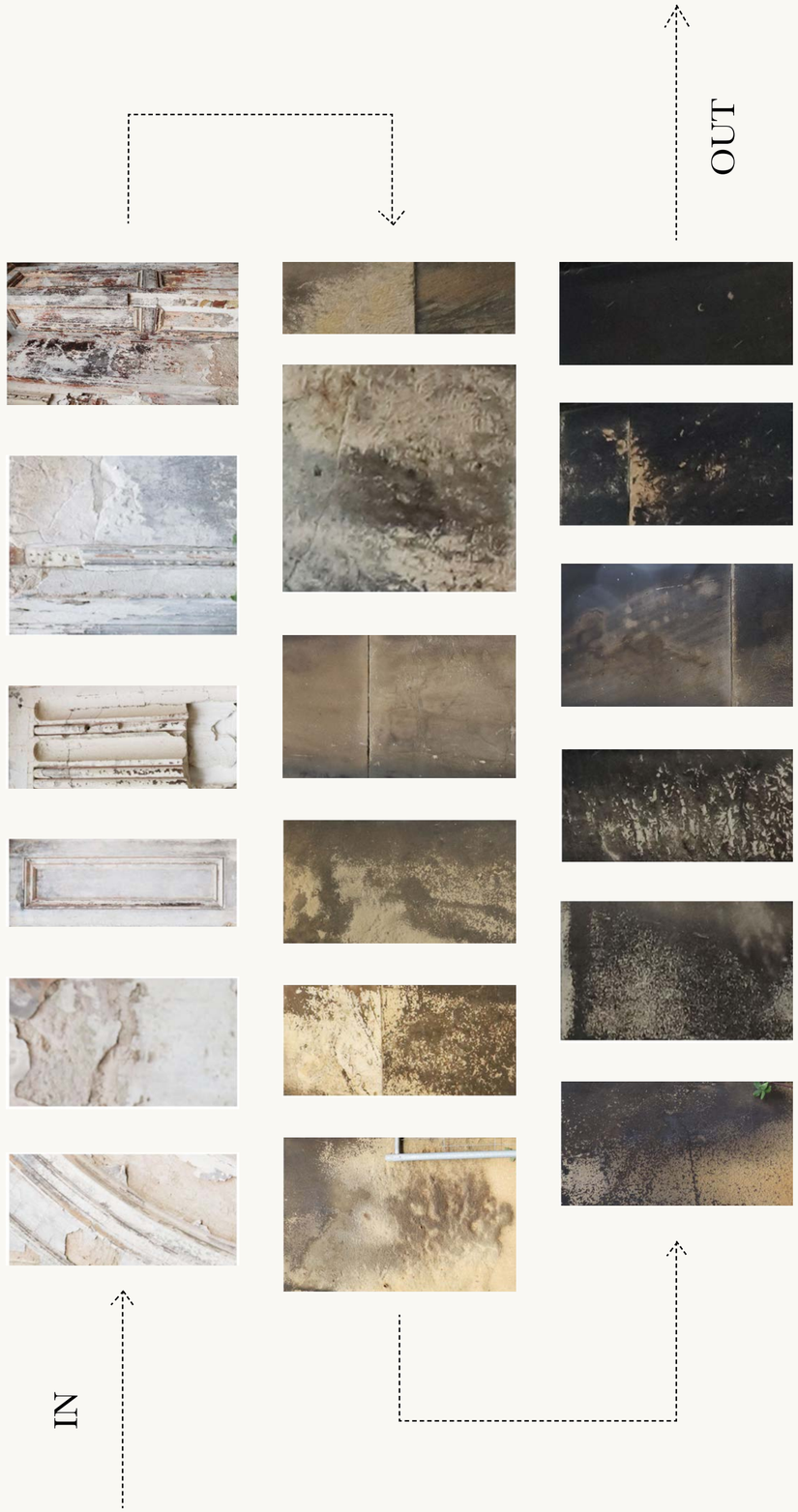


Fig 1

1.1 Sample of Decay

Getting closer to the materiality of the church, the contamination provoked by weathering starts to uncover the layers of construction, through the depth of the erosion.
Paintings faded away when the plaster starts to crack under the heavy rain, to finally exposed the bricks of the former of the building.

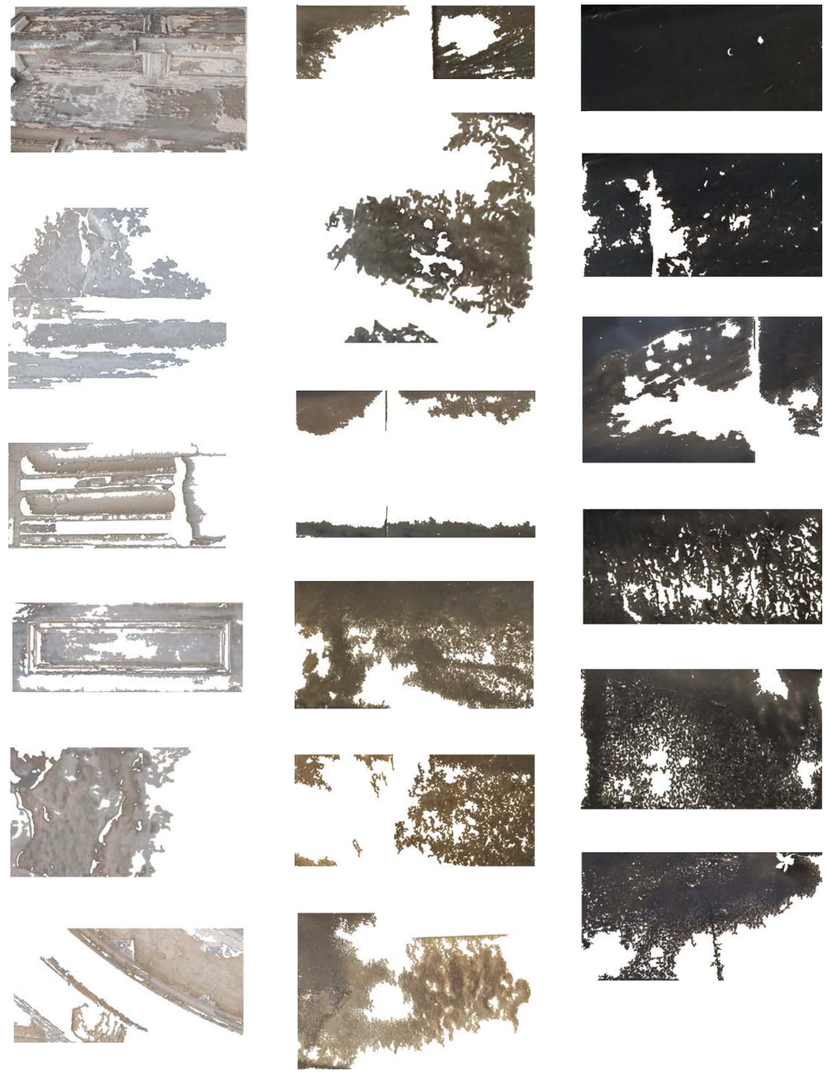
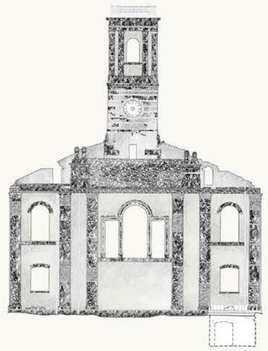
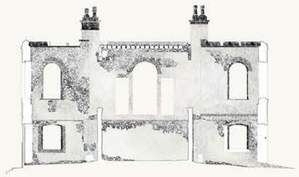
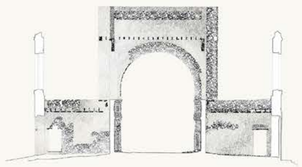


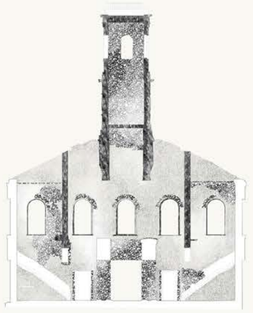
Fig 1. Original samples from the found state of the church
Fig 2. Soustraction of the salubrious part of the sample, exposing the altered part.

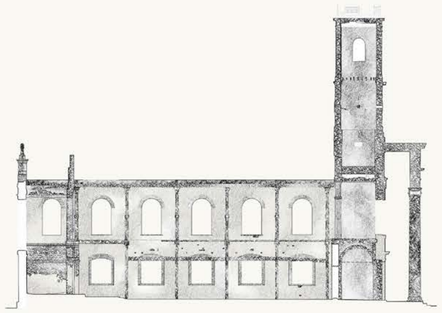
Fig 2

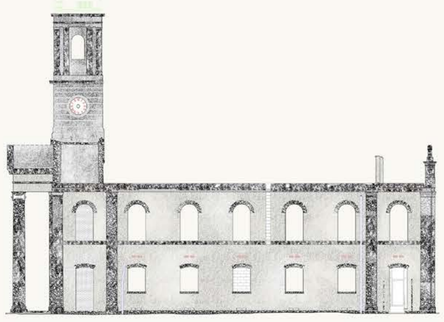


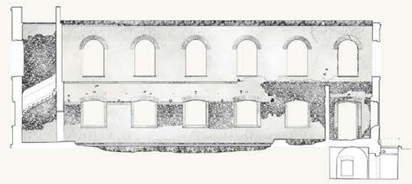












1.2 Mapping the contamination

From the disappearance to seriously damaged the contamination spreads over the whole building. The mapping of the church alteration starts to give answers about how the weathering is occurring and points out the weakest point of the building. The tower and upper part are the most exposed and intrinsically the foremost damaged when the arch seems to have been protected and only suffer from minor erosions.

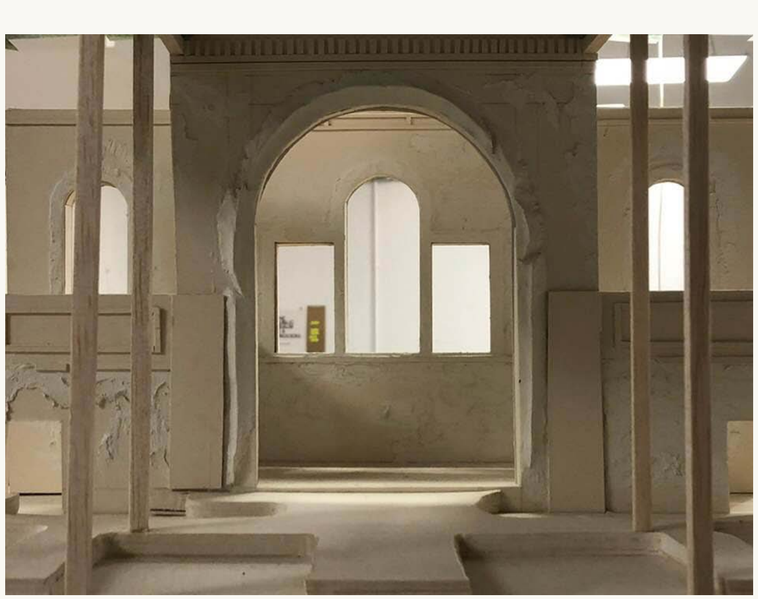
Phase 2 : Weathering

2.1 Uncovered skins : walking through time

The erosion uncovering the skins of construction is particularly interesting on the arch as it is the only well preserve part of the building remaining. Indeed it encapsulated the time and phases of the church, which are now accessible through its decay.

The action of weathering draws attention to a time scale where its location and climate will influence its shape. It is an inescapable finish of the construction held by time and not necessarily an act of destruction.

1 «Finishing ends construction, weathering construct finish» David Leatherbarrow, on weathering



Study Model 1/50.

Series of collages, around the action of detachement

A

B

C

D

E

F

2.2 Arch Salvation

The almost intact state of the arch could be explained by the succession of the frizes and architraves which have worked as protectors, easing the circulation of water toward its surface.
The major components of it have been spared, such as the iron cast columns, the arc underlined with a strong horizontal succession of frize and architrave on each side, paintings, and ornaments especially located on the lower parts of the facade.

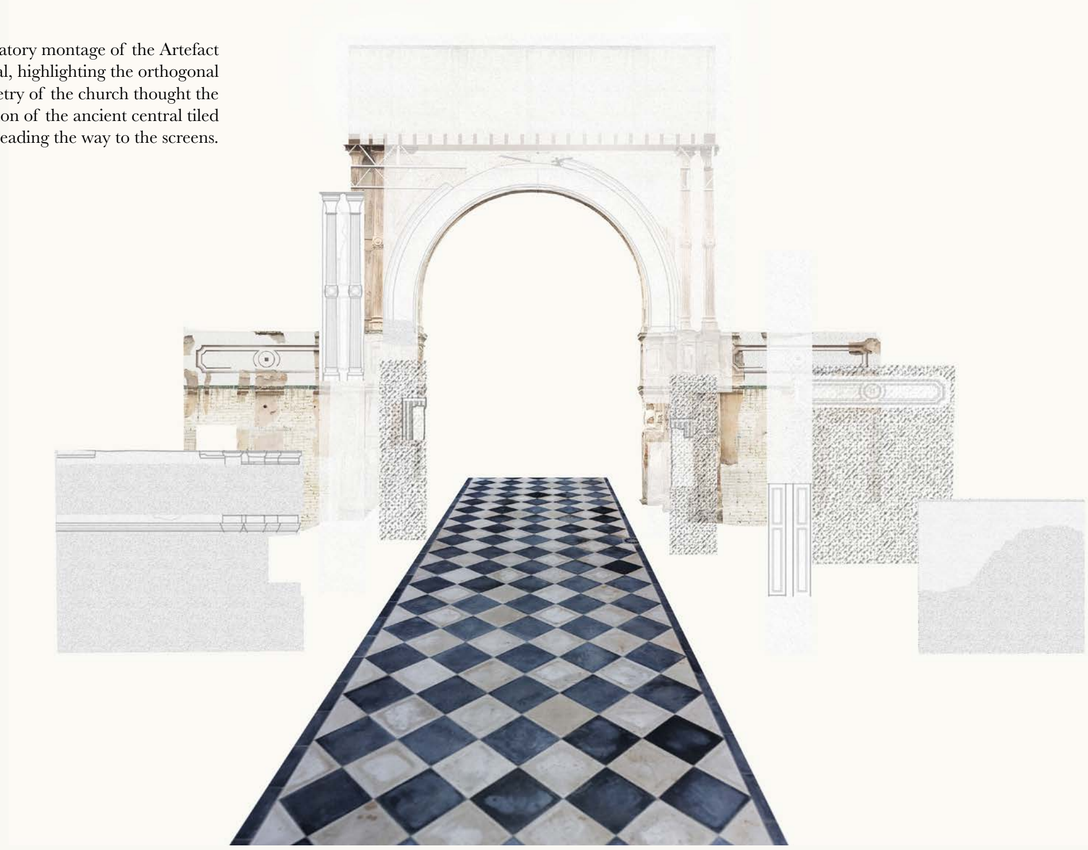
2.3 Arch Artefact

From my previous research, the artifact intends to draw a pathway into the skins of the Arch,(deconstructing and layering its history) and aimed to start a conversation in between the Host building, and the screens placed in front of it, where the Ghost of the reminiscent components are highlighted. The screens work as a testimonial of the found state of the building, acknowledging that the weathering will go further and further on the former facade.

Draft model, exploring the detachement of skins.

Final artifact proposal, model scaled at 1/20

Preparatory montage of the Artefact proposal, highlighting the orthogonal symmetry of the church thought the conservation of the ancient central tiled path, leading the way to the screens.



Phase 3 : Indomitable Weather

3.1 The Surge of 1953

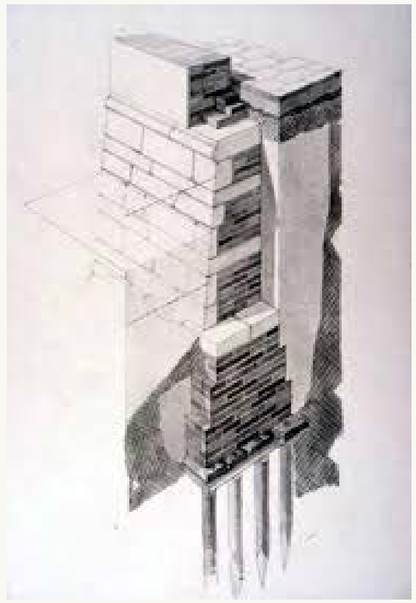
Further research on the climatic context of Sheerness has shown a concerning exposure to the rise of the sea due to climate change. The island facing the strength of the North sea has noticeably suffered from its wrath over the last 50 years.
In 1953 a massive surge hit the east coast of the UK. Sheerness didn't escape the floods spreading until the inner land, cutting the isle from the rest of the country when the Sheppey Crossing Bridge found itself underwater.

Collage of aerial views during the Surge in 1953, when the habitants founds refuge on the dikes.

3.2 Evolution of the Coastal Management

After this dramatic climatic event the isle found itself plagued to the back and forth of the sea. Building on the same model than Venice, with pile burried in the ground, those assaults from the sea weaken the coast, which started to constanly erode over the years.
The coastal border has been pushed back into the inner land, which leads to the disapperance of local shops, neighborhood, and esplanade...

As a consequence the landscape of Sheeppey has been transformed and layered corresponding to a strategy of resilience, including pools easing the floods, seawalls and staircases as a second bulwark leading to the extended beach.



Sketch of piles foundation constructions.
(Source unkown)

Eastchurch cliff fall: House hanging over edge after second collapse
https://www.bbc.com/news/uk-england-kent-52868241

The coastal border has been pushed back into the inner land, which leads to the disappearance of local shops, neighborhoods, and esplanade...

As a consequence the landscape of Sheppey has been transformed and layered corresponding to a strategy of resilience, towards the rise of the sea ; including pools covered by vegetation easing the floods, seawalls, and staircases as a second bulwark leading to the extended beach.

Actual state of the coast from February 2020 during low tide.

Actual state of the coast during high tide.

Archive picture dated from 1952, by Francis Frith.

3.3 Rise of Sea's Prediction

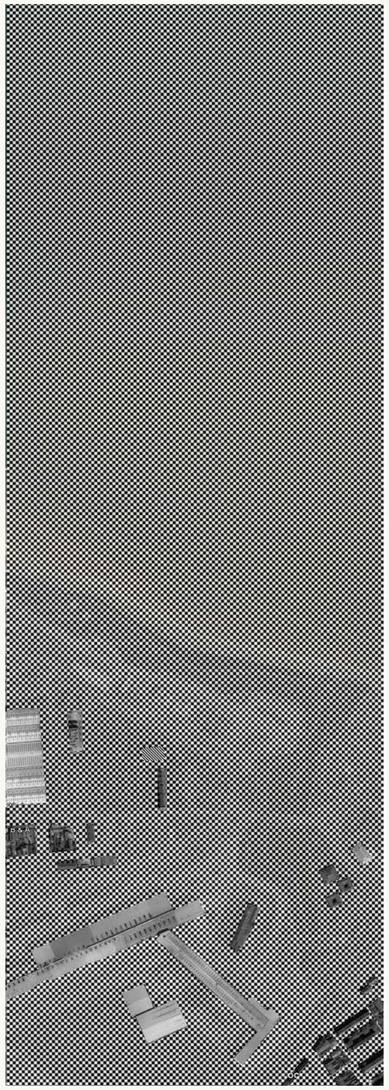
Close up of the actual context of the Coast facing the former Church

Aerial view from the area and delimitation of actual leveled land according to the actual coastal management

Prediction of the isle state in 50 years where the coastal landmark will be pushed back to the inner land where the Moat pool will merge with the North Sea.

Prediction of the isle state within 100 years, when Sheppey will disappear underwater.

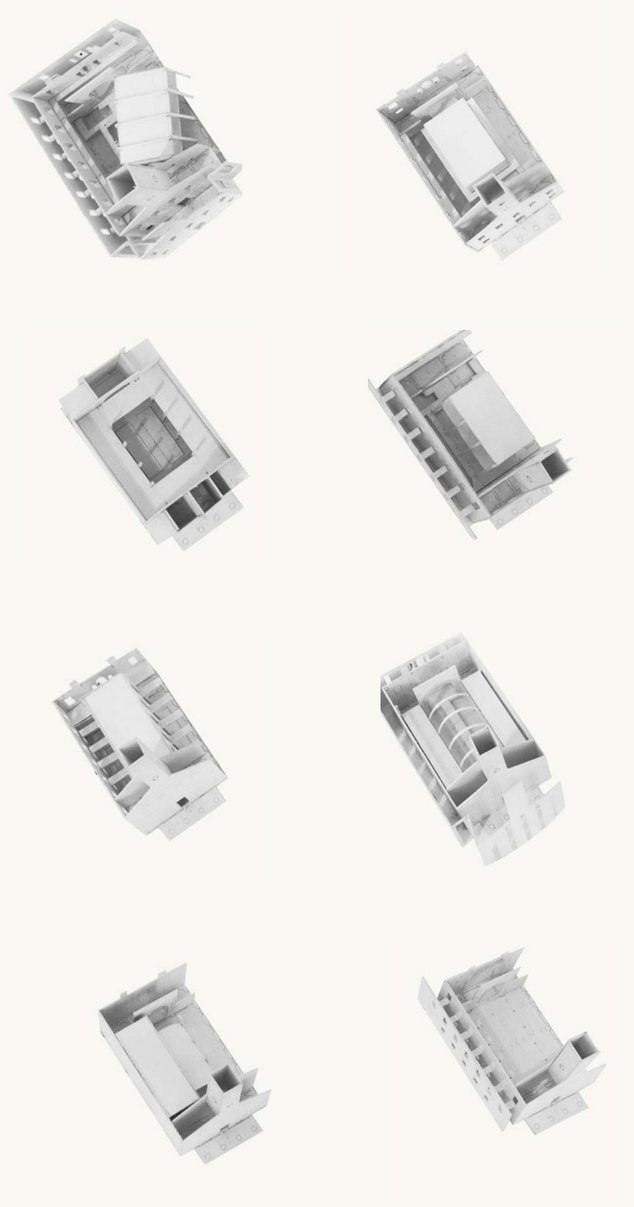
Prediction of the isle state within 100 years, some buildings including our site will still raise upon the North sea.



An attempt of new coastal management by layering the landscape from the sea, aiming at reducing the force of water, by implanting vegetation at the forefront of the coast to ease the absorption of water

Phase 4 : The Weather Station

4.1 Shapping the progam



Series of model making experientation at 1/200

From the previous research and interest, the idea of adapting the former church into a Weather station emerged. This place would be able to monitor the climate, studying the mutation of land.
I started to experiment with this program toward the idea of skins inviting the outside in the inside.
As the function of this proposal started to be precise to an Observatory, a Weather station, and a Paleoclimatology Pavillion, I choose to divide the space regarding those three activities, taking advantage of the particularities the host building was offering to emphasize their needs and regulations.

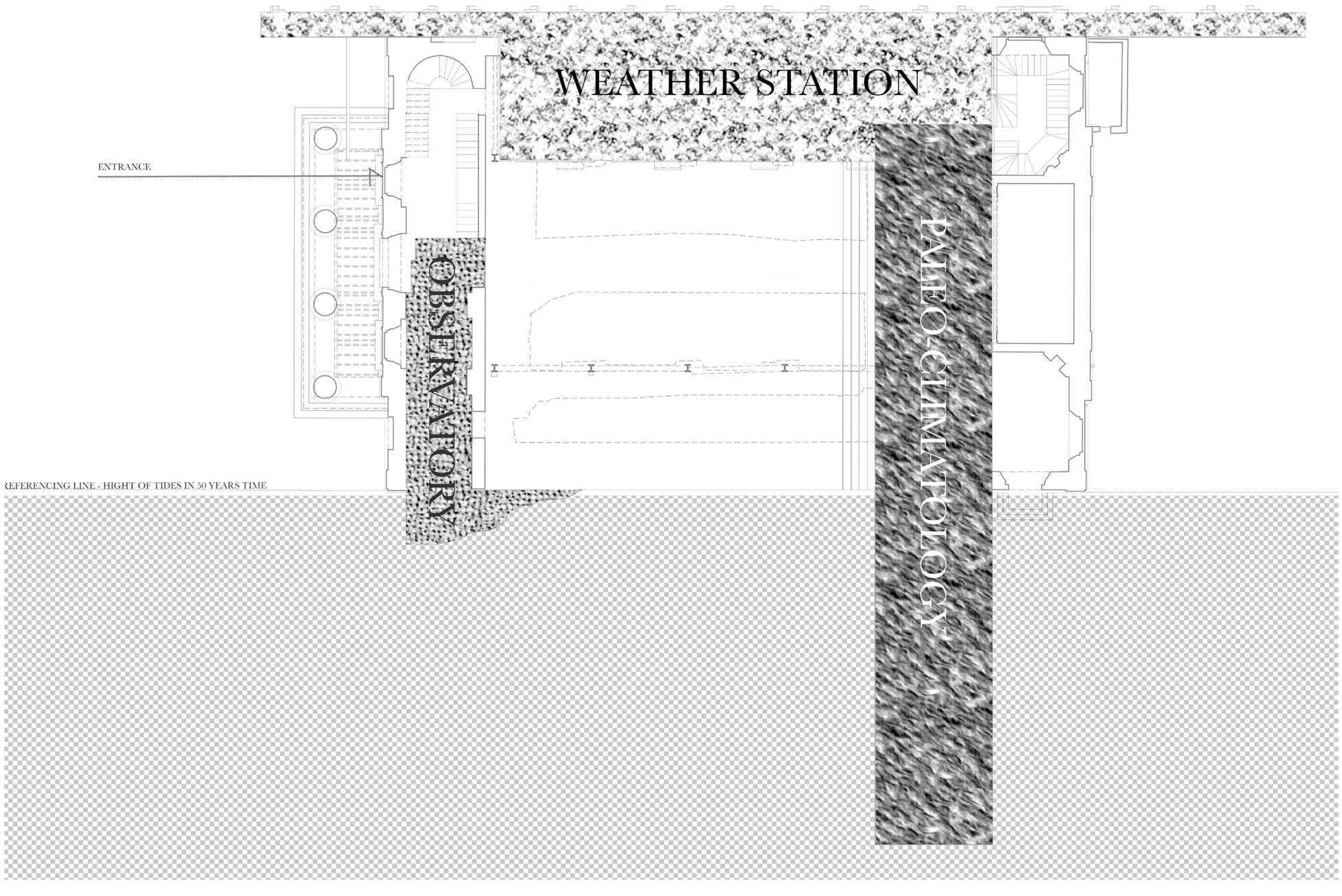
Model making 1/200 ; retained draft proposal of the program's shapes

Three interventions form the station ;

- The first is the main weather station; a long room that shores up the existing building terrace adjacent wall.

- The second is a subterranean paleoclimatologist wing; a room submerged into the ground and closely connected to the soil from which patterns of climatic disruption can be analyzed.

-The third is an observatory, connected to the existing bell tower; which will be a place to observe migrating birds and waves.

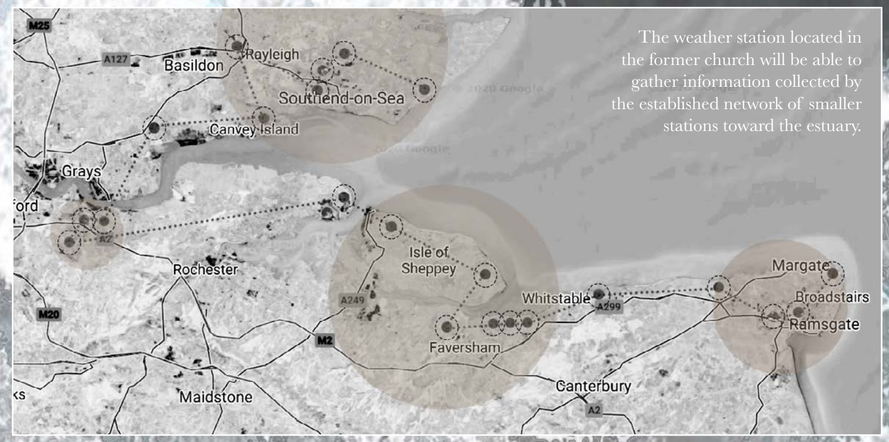


Model making at 1/100, first attempt to the application of the program.

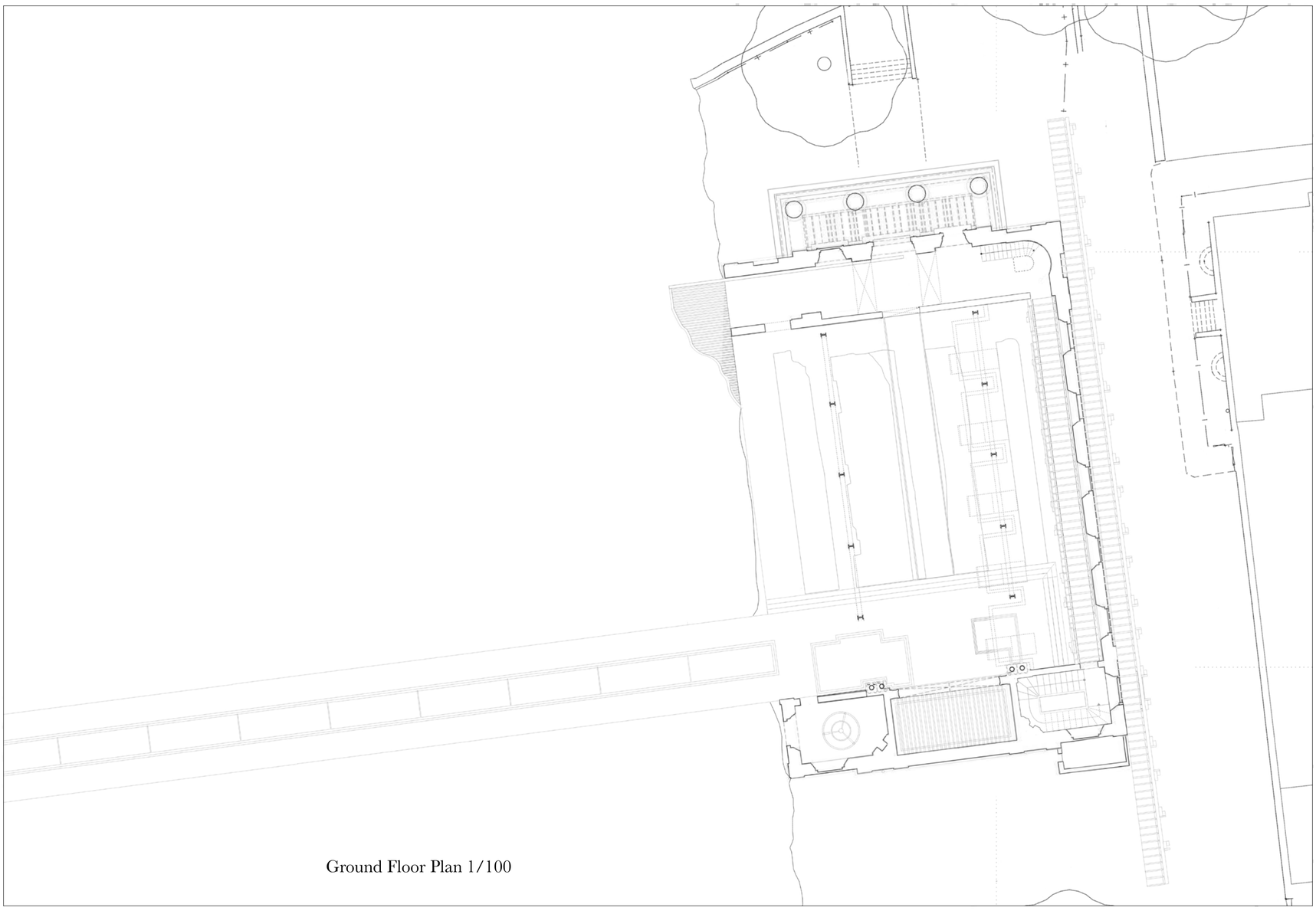
Model making 1/100 Second attempt refining the relation inbetween the host building and the intervention.

As a result of the climate catastrophe, the Dockyard church will become the new coastal landmark as the rise of the Sea will approximately reach its walls in 50 years.

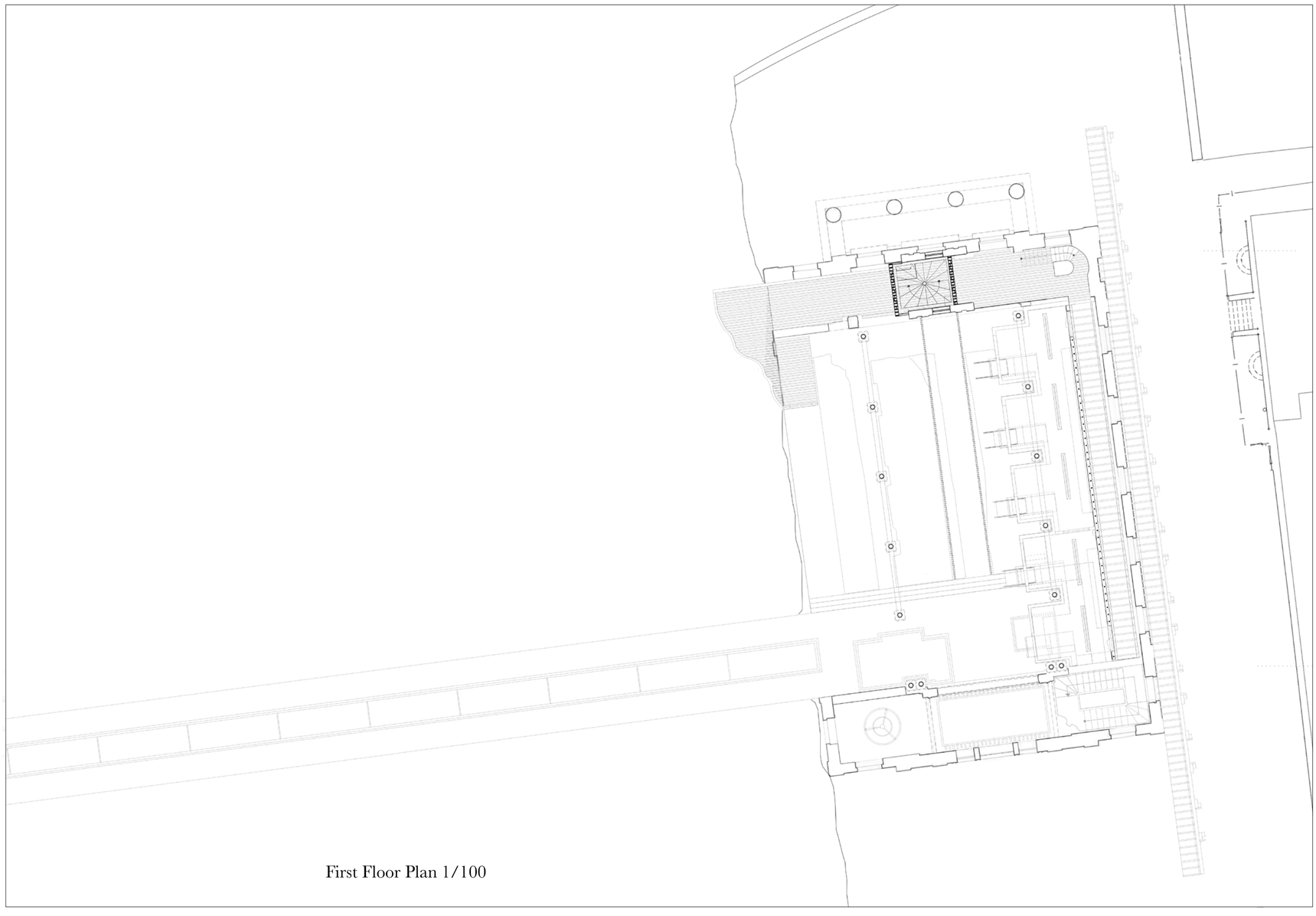
The proposal rooted in the actual ruined state of the church and aimed to emphasize its qualities toward a design inspired by its alteration and former shape. So, the entropy and decay of the existing building, has become a site of research and mediation on the processes of landscape change and building dematerialization.



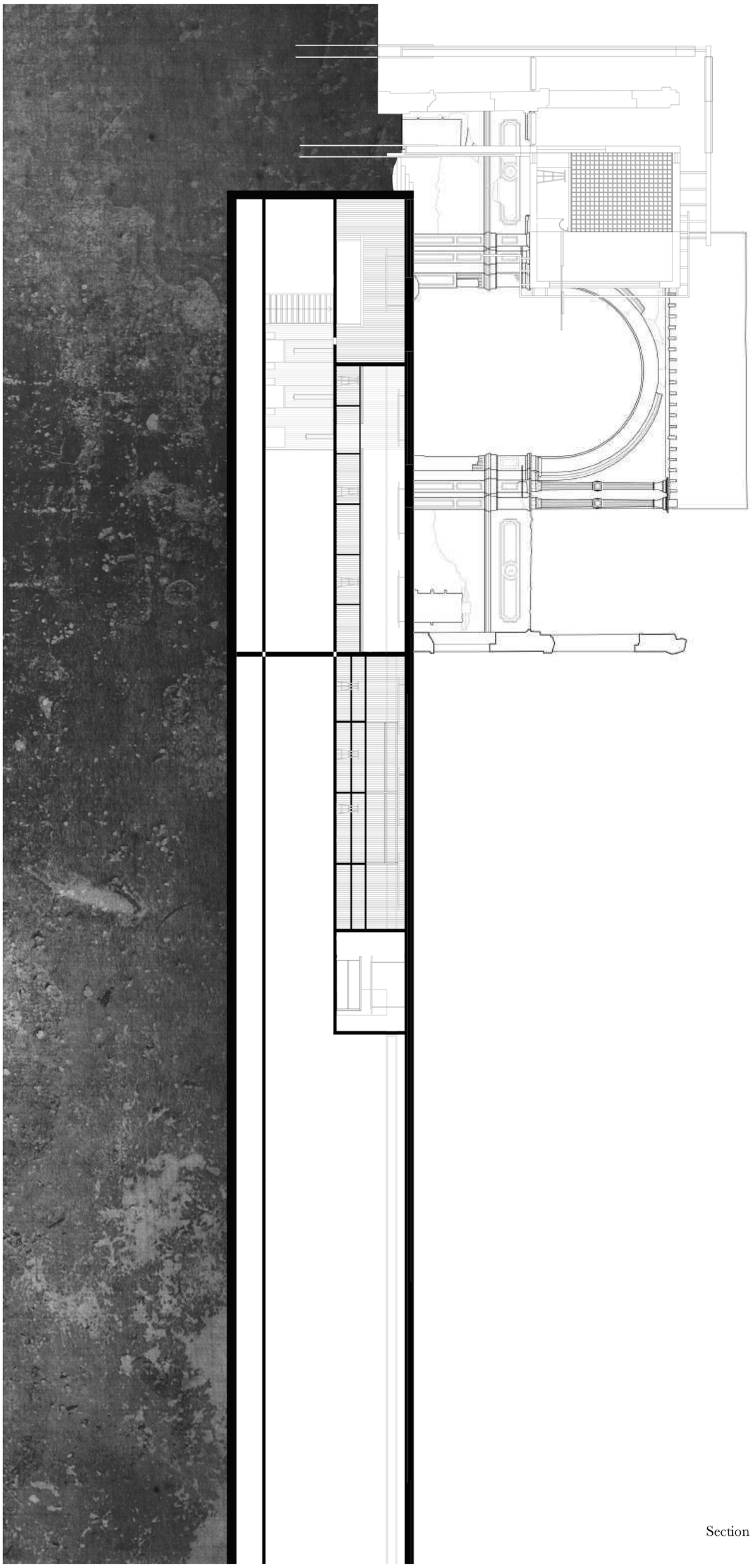
The weather station located in the former church will be able to gather information collected by the established network of smaller stations toward the estuary.



Ground Floor Plan 1/100



First Floor Plan 1/100

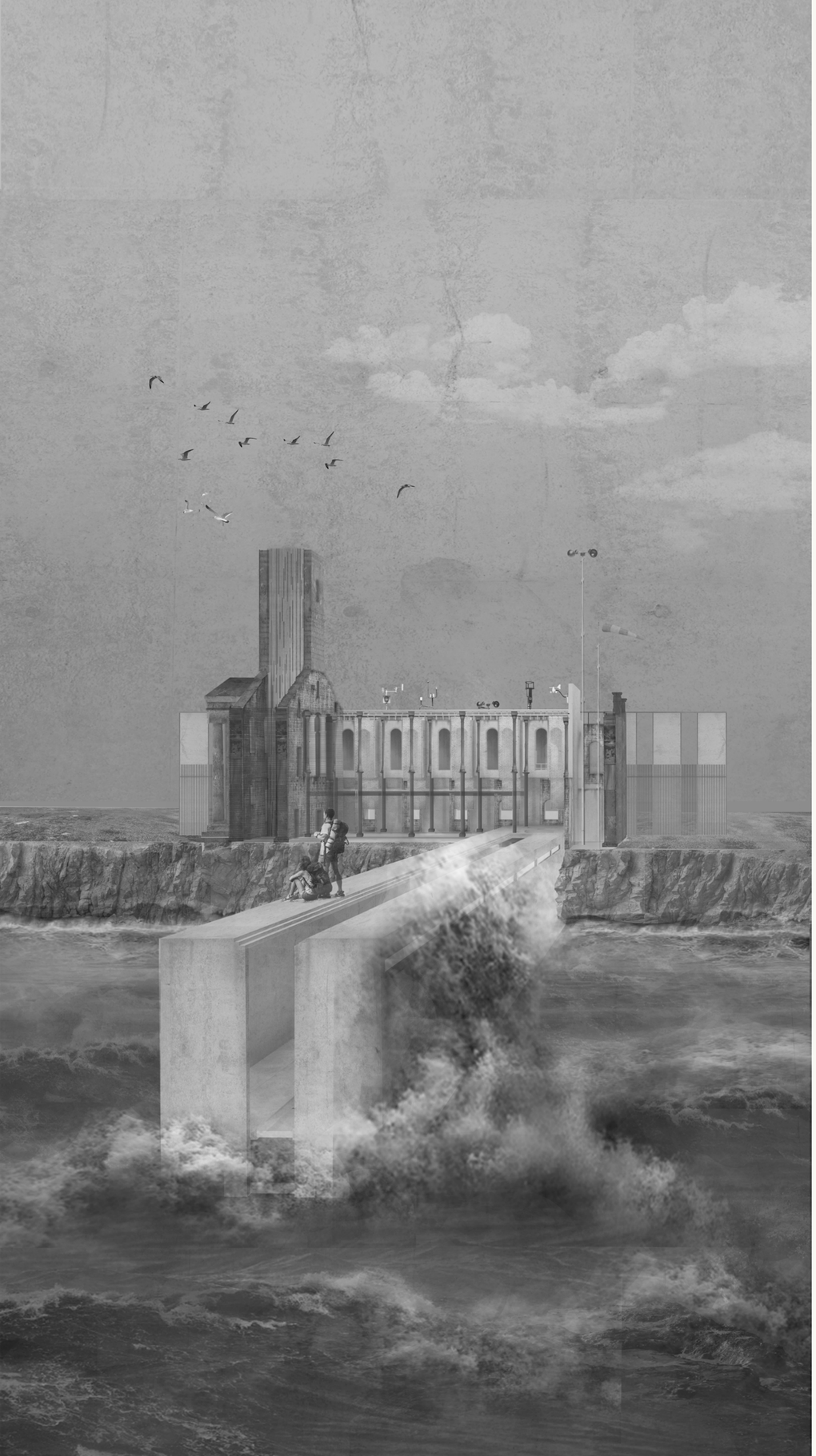


Section 1/100

Over the years the dockyard church turning into a state of ruin became part of the landscape, where the fauna and flora felt free to settle again. There was a blurred limit in between the building and the landscape, which I wanted to emphasize and bring to another level by the disappearance of the west wall, opening the core of the former church, becoming a terrace facing the North Sea.

From the obsession of the Arch and the orthogonal symmetry I was dragged to, I wanted to highlight the central former aisle surrounded by the traces of foundation converted into pools working as a receptacle for rainwater.

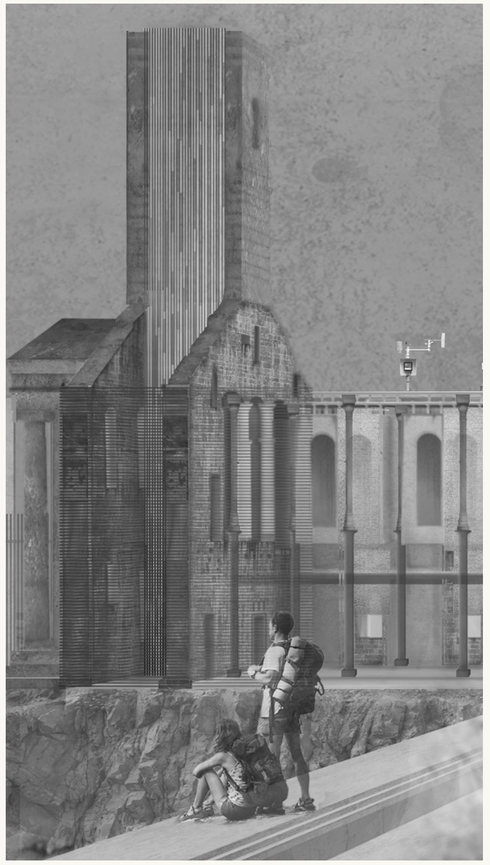
(The imagery of my proposal reside in mixed media visuals, which result from a back and forth in-between 3D rendering, collages hand drawings and water color. Some of them were then printed on plaster by ink transfer and revealed by water, responding to the action of weathering.)

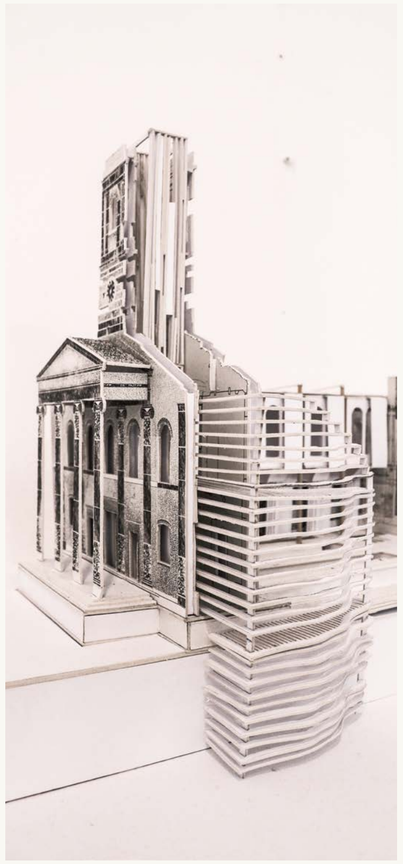


4.3 The Observatory

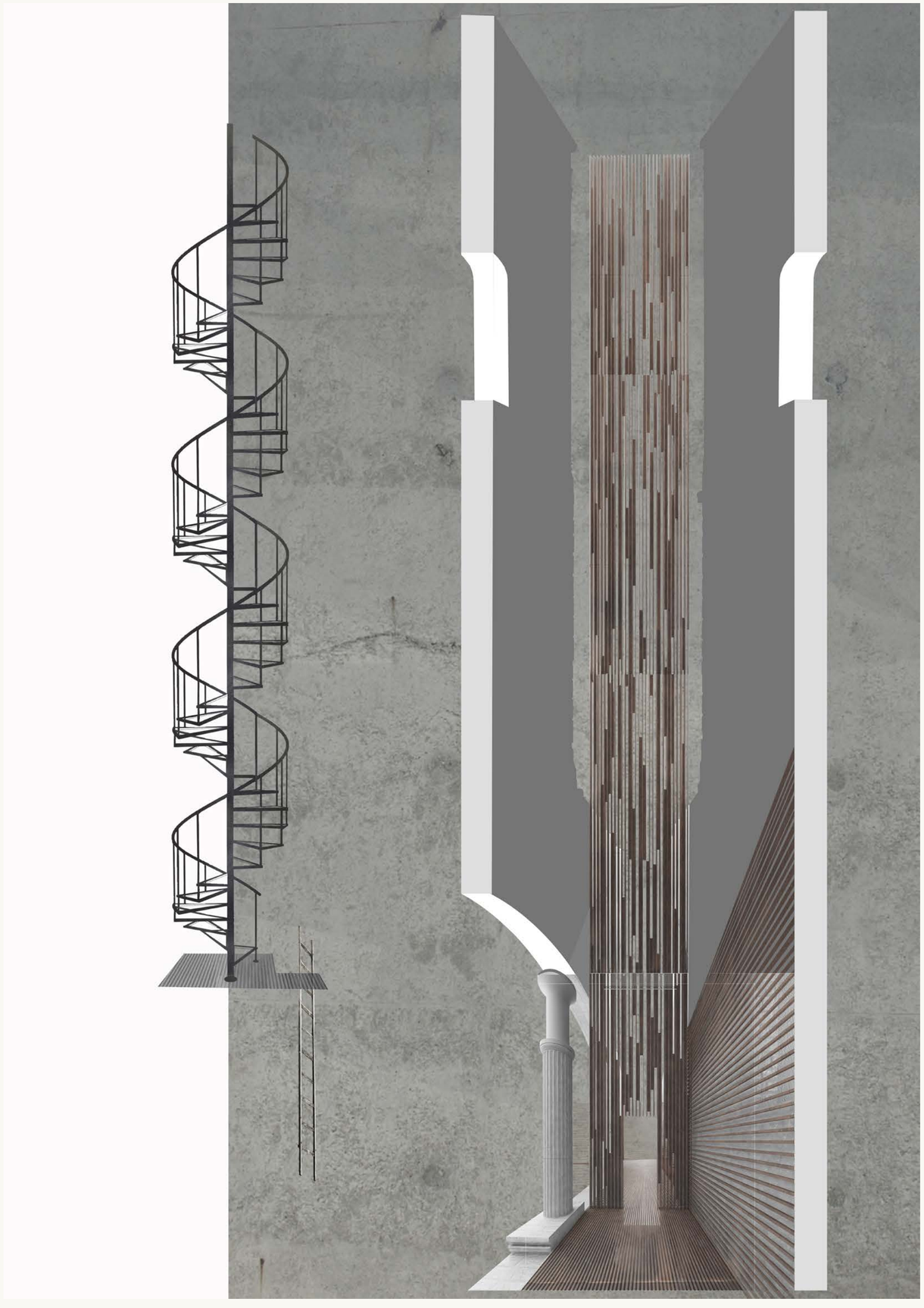
The observatory, connected to the existing bell tower; is affording its occupants a monitoring station to view and analyzed the migrating birds over the estuary, and sea rising as they are disrupted as a result of climate change.

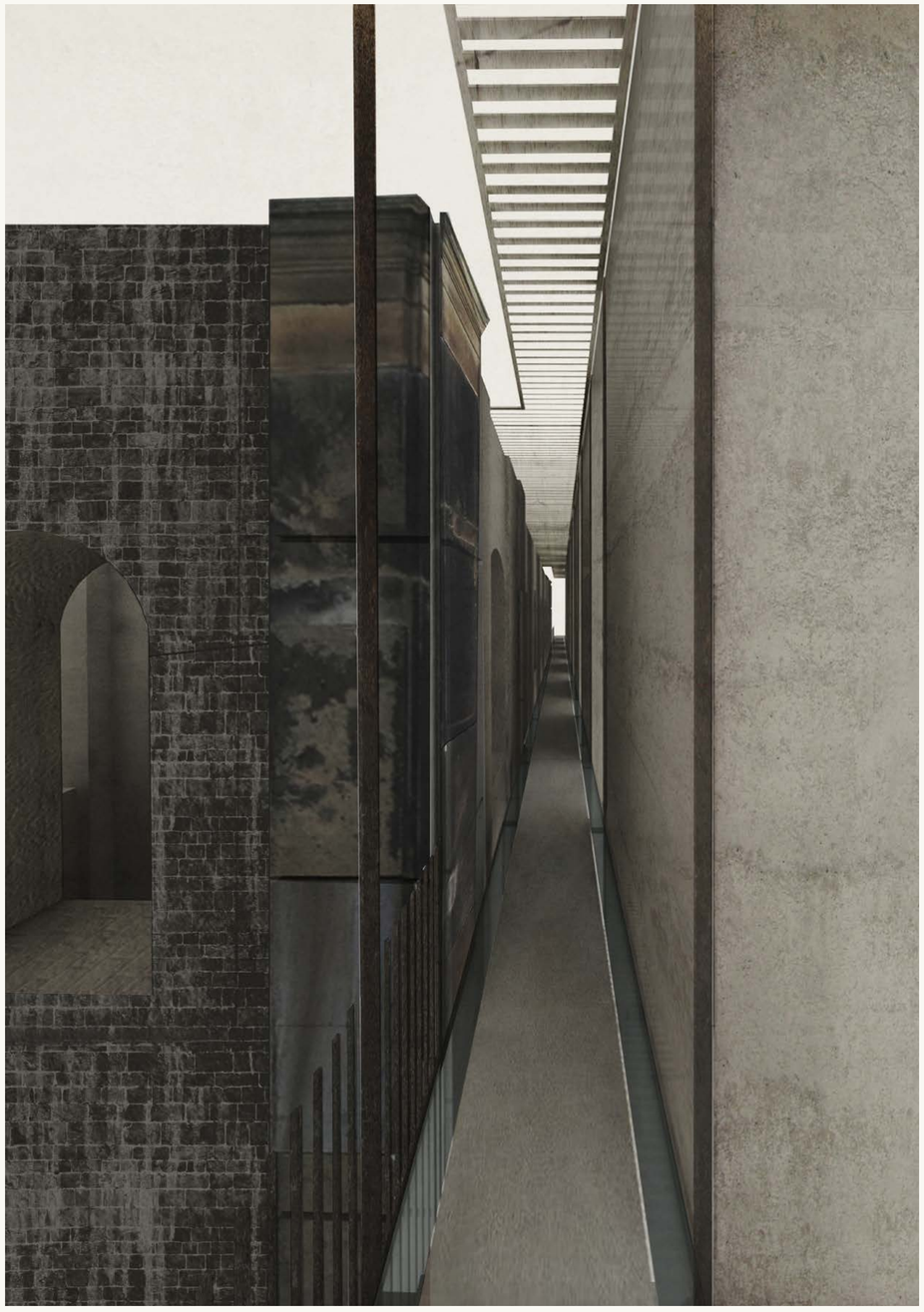
Beginning from the inside east entrance the corten structure will run to the outside of the building creating balconies facing the sea, which are following the shape of the new coastal landmark, on respectively ground and first floor.





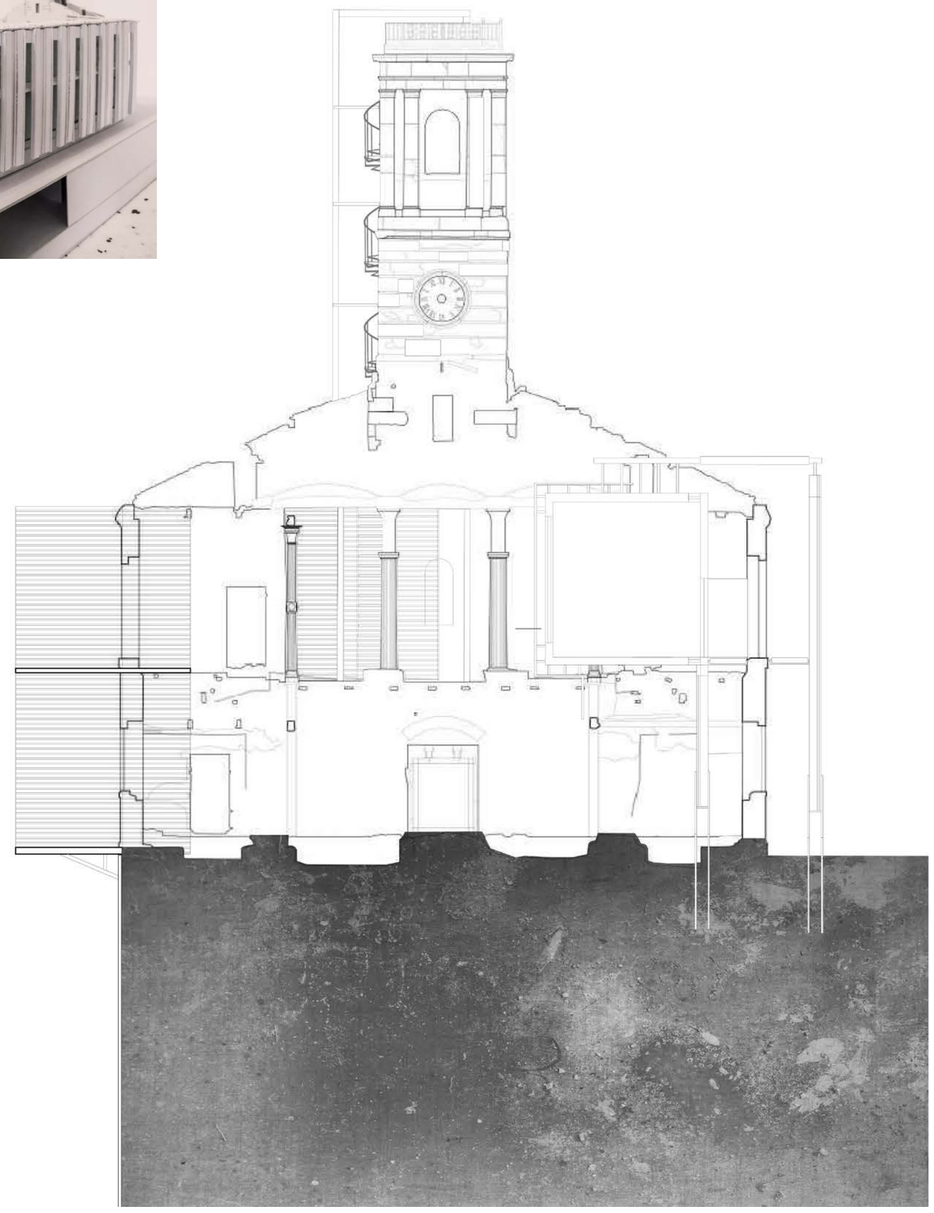
The main observatory located in the tower is using limestone clamped on a parallels corten's bars recreating the aspect of the small holes made by birds all over the building's wall. This structure will be able to give different points of view thought small apertures without being noticed during the journey up to the top. The access would be possible from a ladder staircase were visitors and scientists would experience a « hiking » ascension.





The weather station is working as a spine, shoring up the southern terrace wall, emerging in between the columns which seem to be clamped on the ruin. The concrete skin held by a corten structure is drawing pathways in and out of the lateral side of the building but also works as a protective layer for this pavilion. Indeed a weather station has to be white to avoid any absorption of the light which may alter the results we got from climate monitoring.
Following this idea of a weather responsive building the use of shutters makes us able to control the incidence of natural elements toward the station.

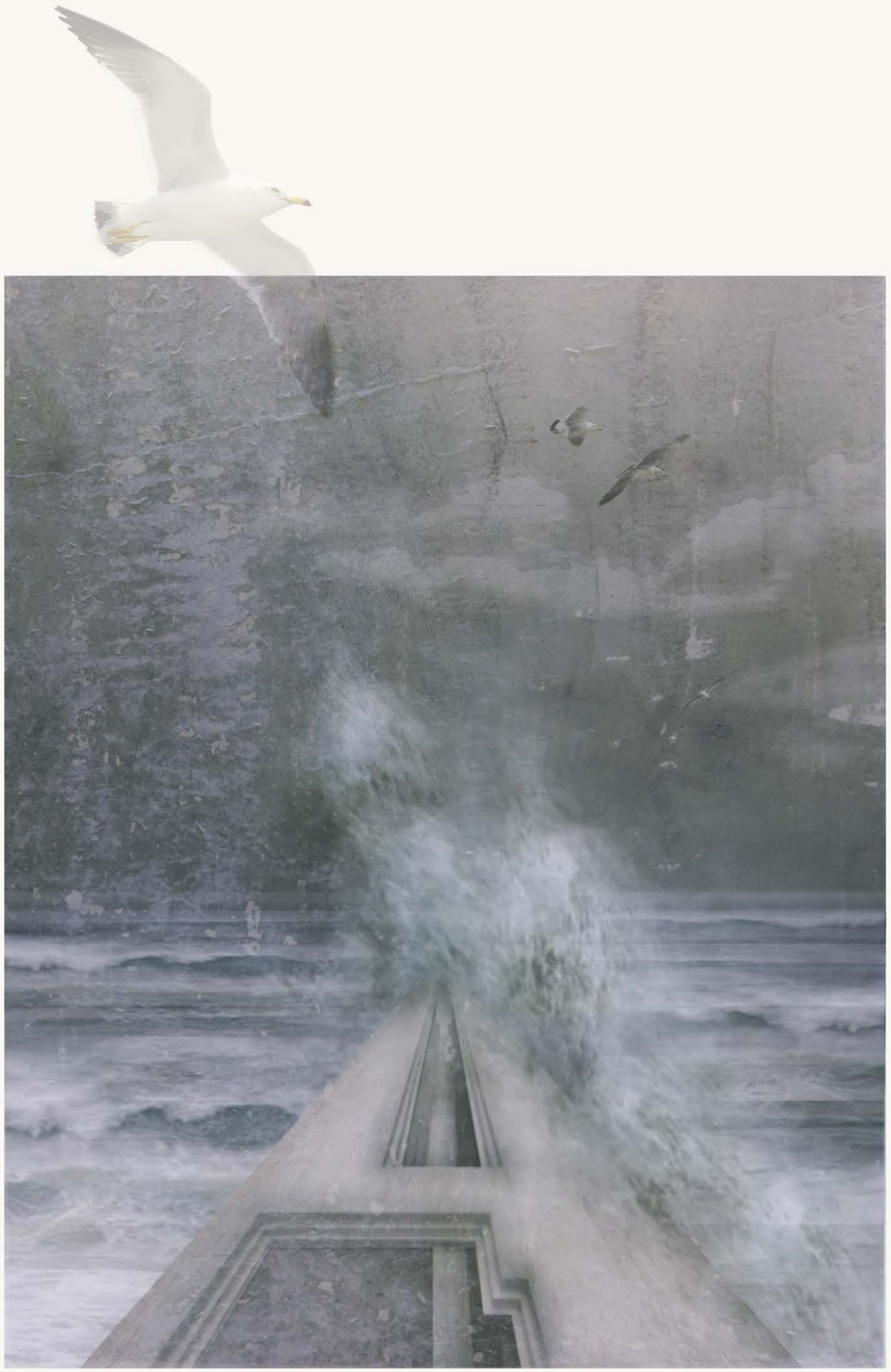
4.4 The Weather monitoring office



1/100 models experimentations of the weather station facade's skins toward light exposure.

Facing the sea the office and laboratory of the station will benefit from northern light. This part of the building will be dedicated to the analysis and the monitoring of information gathered from weather measuring devices located on the rooftop.

The importance of the connexion between the object of study and the place of study became quite important. So the furniture is used as a chance to link the inside to the outside, where the right end of the desk can be slide to the exterior, to facilitate temperature and atmospheric pressure measurements for insistence.

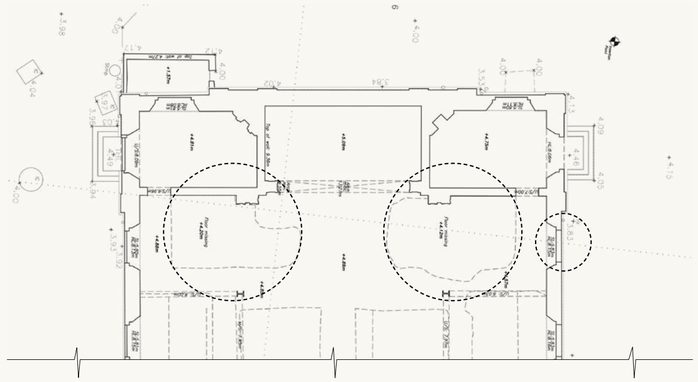


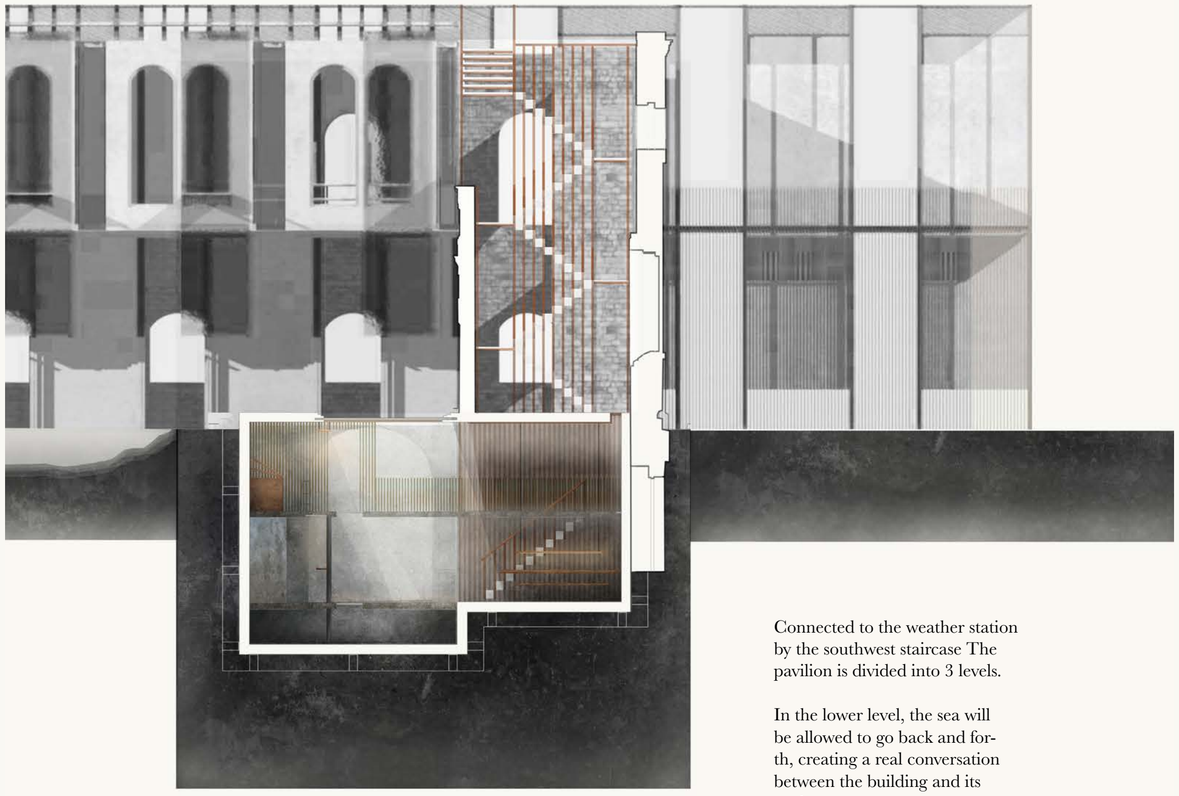
4. 5 The Submediteranean paleoclimatologist wing

Exposed to the strength of the North Sea the paleo climatologist pavilion is located underground next to the former basement and go further down the coast. It will be used as a pathway into and over the sea, which could be accessible from both in and outside of its concrete shell.

Mixed media drawings printed on plaster, (ink transfered revealed by water).

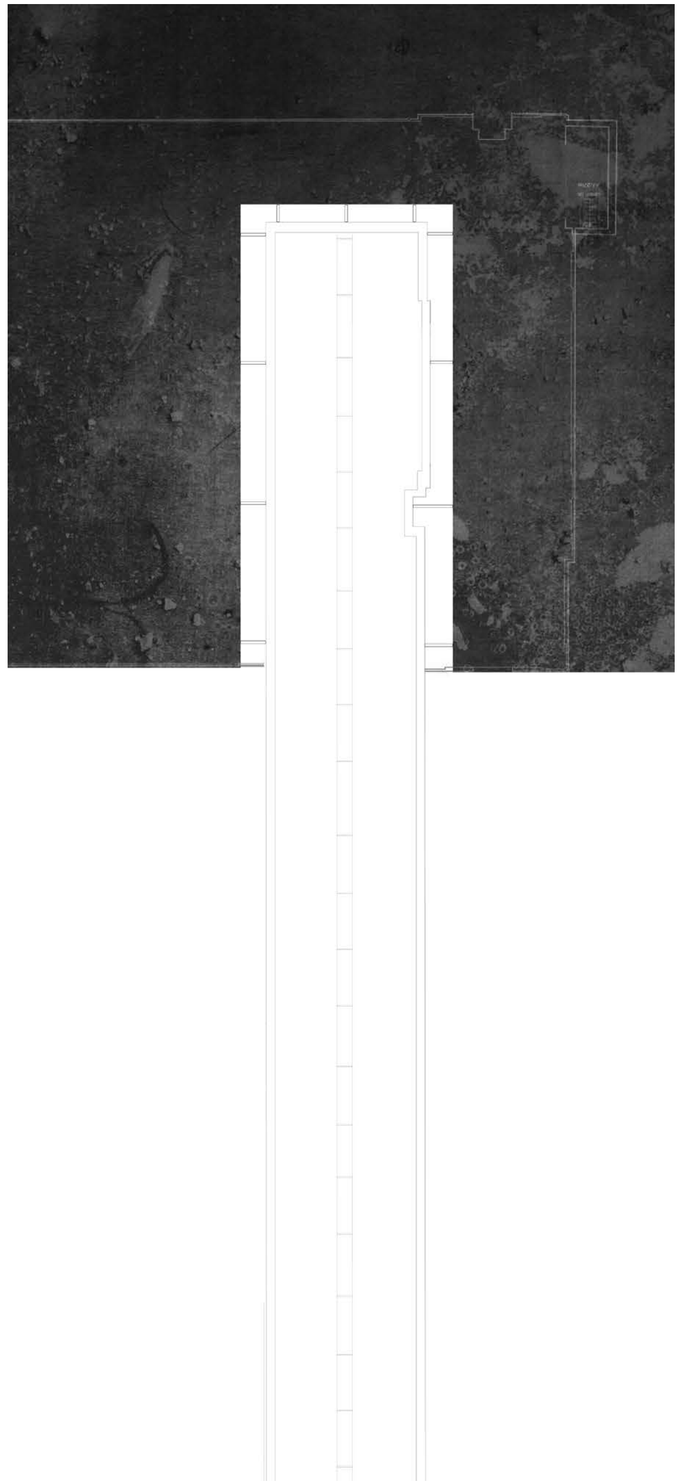
Skylights based on the traces of the foundation will bring a diffused light throught the prism of water. This very same linear opening could be found on the floor so as to lead the light to the lower level during day time. On each side artificial lighting hidden in the lower part of wall will take over during gloomy days.



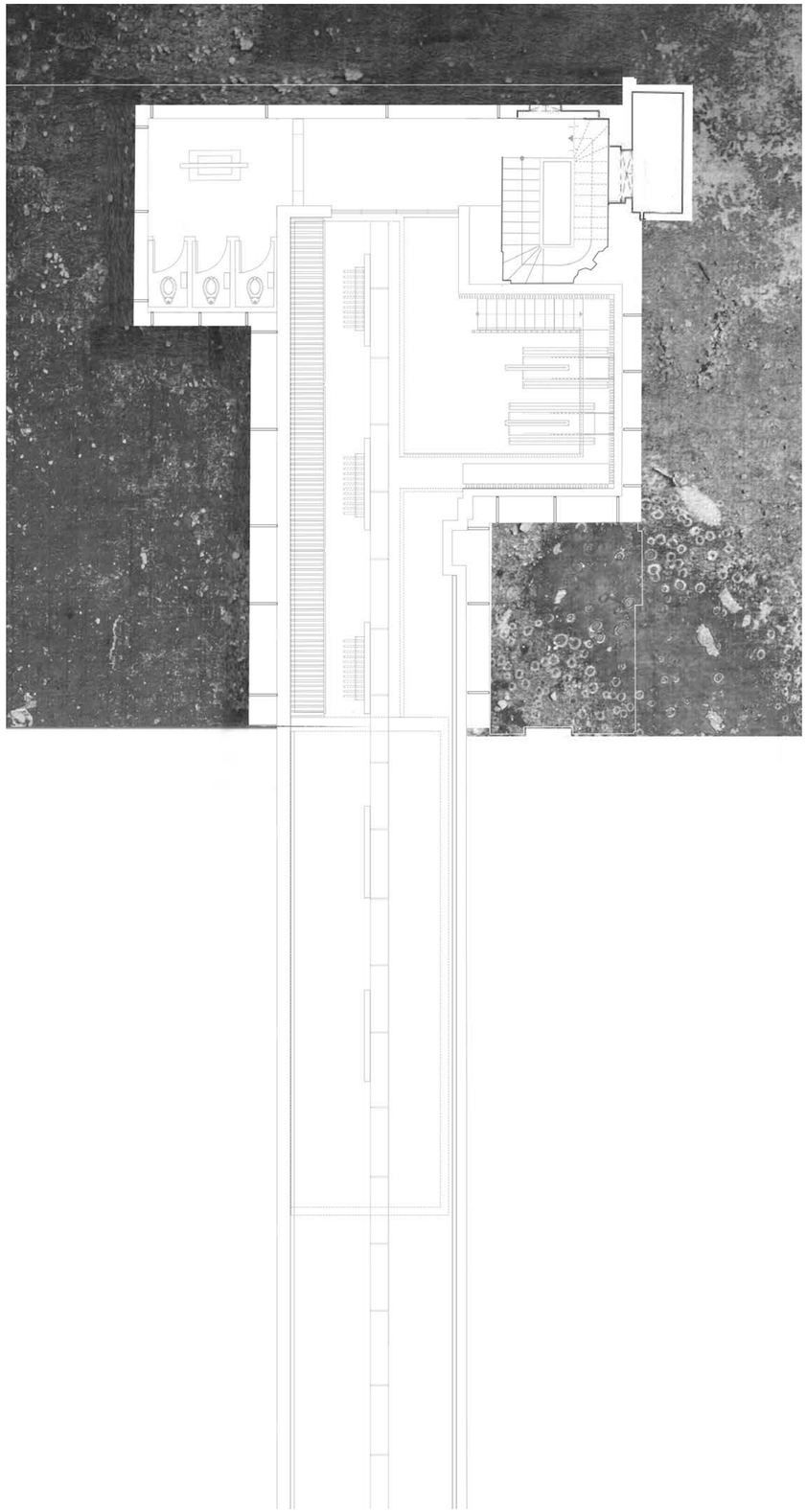


Connected to the weather station by the southwest staircase The pavilion is divided into 3 levels.

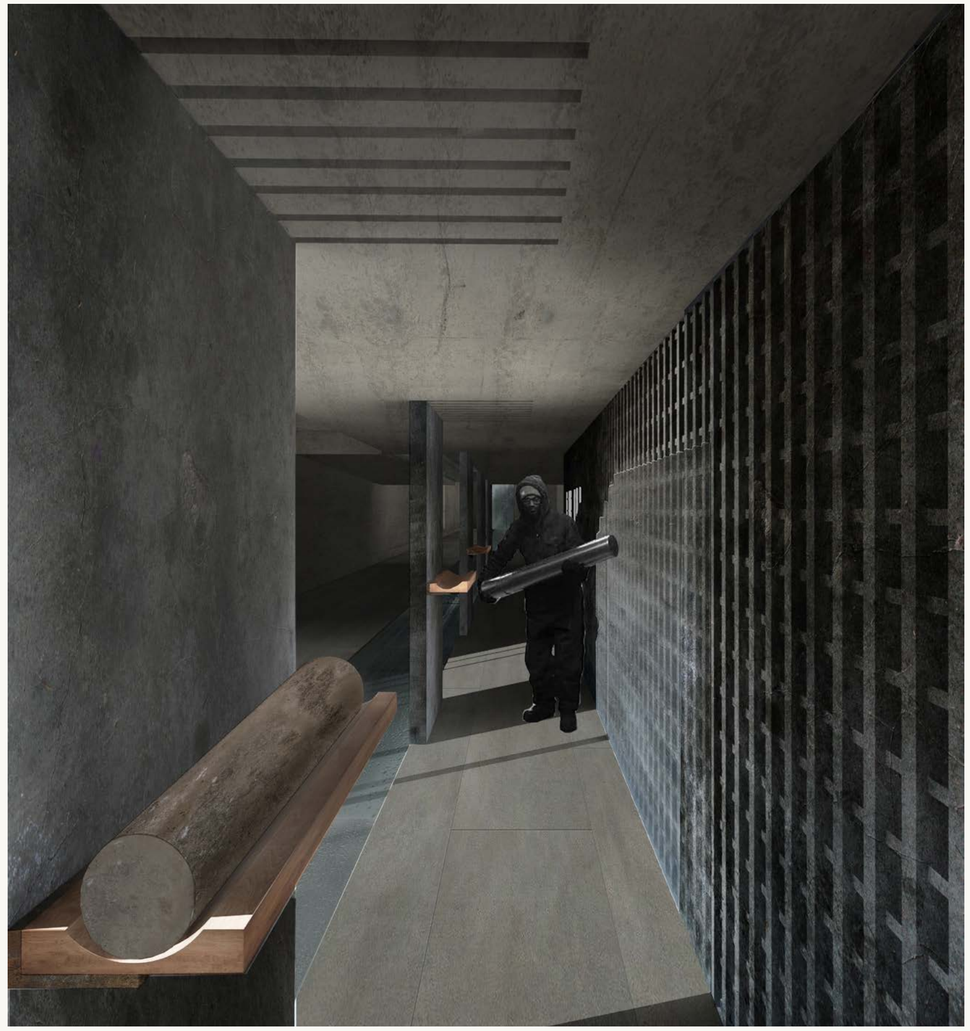
In the lower level, the sea will be allowed to go back and forth, creating a real conversation between the building and its environment.



-3 Floor Plan 1/100

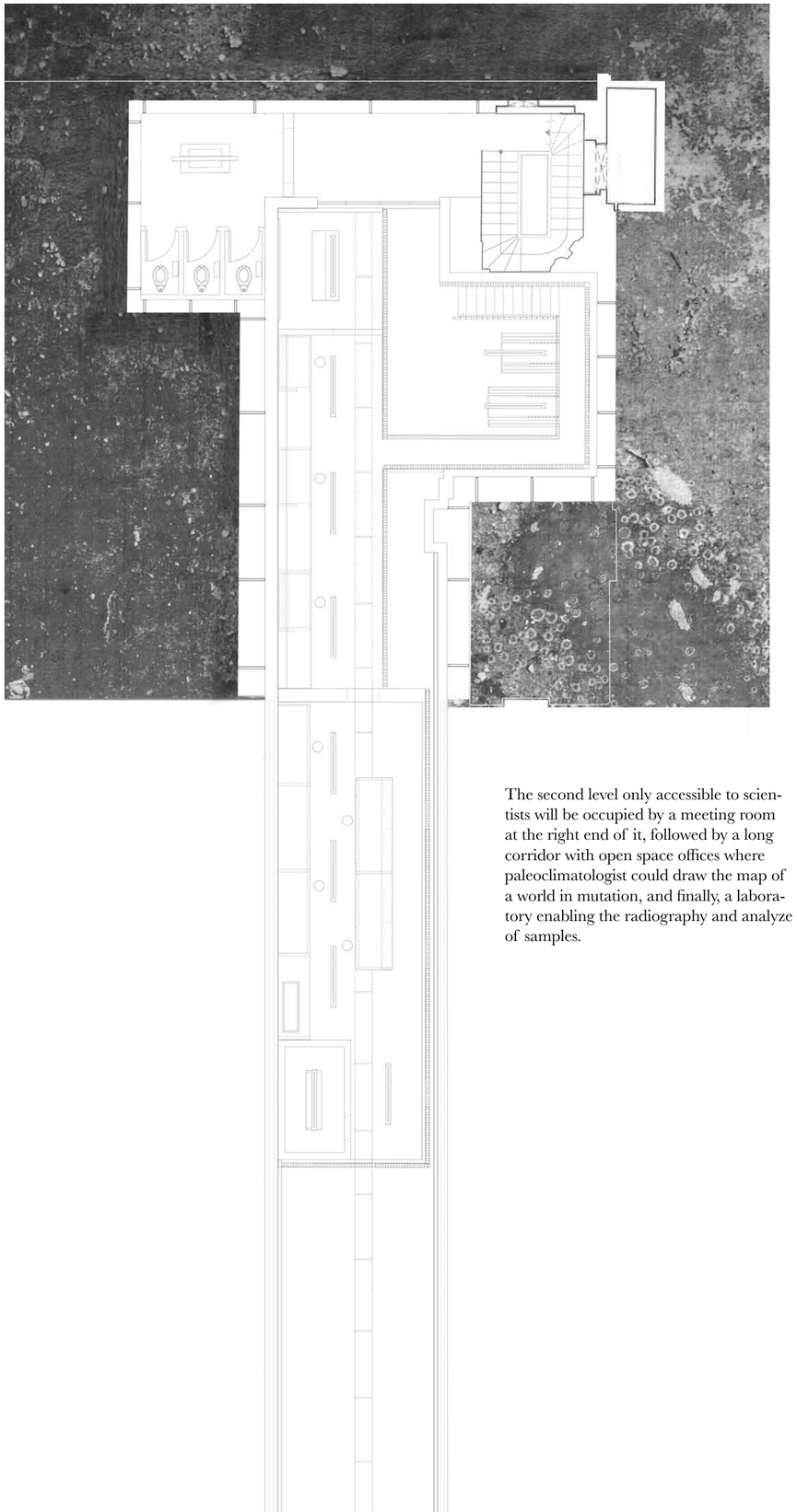


-2 Floor Plan 1/100



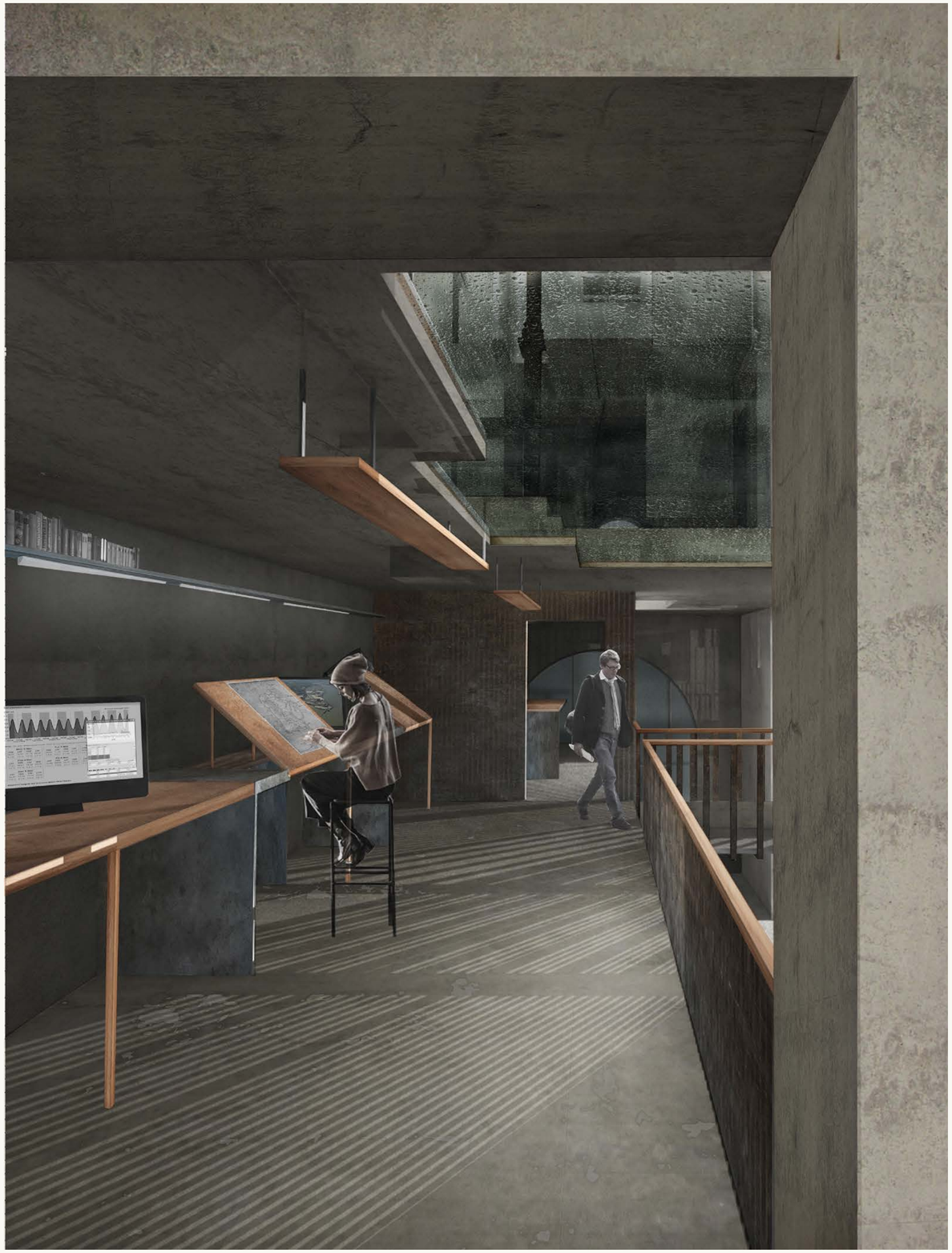
The first level which will be accessible to the public will be occupied by a library of samples to enable their conservation for their study.
(Each storage is size to correspond to the normative dimension of the sample (100mm x 1100). Small studies will be placed all along to ease their manipulation.)

On the same level, a communal space located underneath the former alter will link the upper mezzanine from the staircase and balustrade grown from the uncovered parallel line structure.



The second level only accessible to scientists will be occupied by a meeting room at the right end of it, followed by a long corridor with open space offices where paleoclimatologist could draw the map of a world in mutation, and finally, a laboratory enabling the radiography and analyze of samples.

-1 Floor Plan 1/100



The Future we are facing is challenging, over the next 100 years, the mutation of the world under the influence of climate change will ask us the shift our ways of living. Probably using boats or kayaks as new ways of transport to overcome the rise of the sea.
We can't bend the power of Nature but we can compose with it.
This is where Architecture and Interior will need to adapt, finding new ways of inhabiting space, toward the acceptance of entropy and dematerialization.