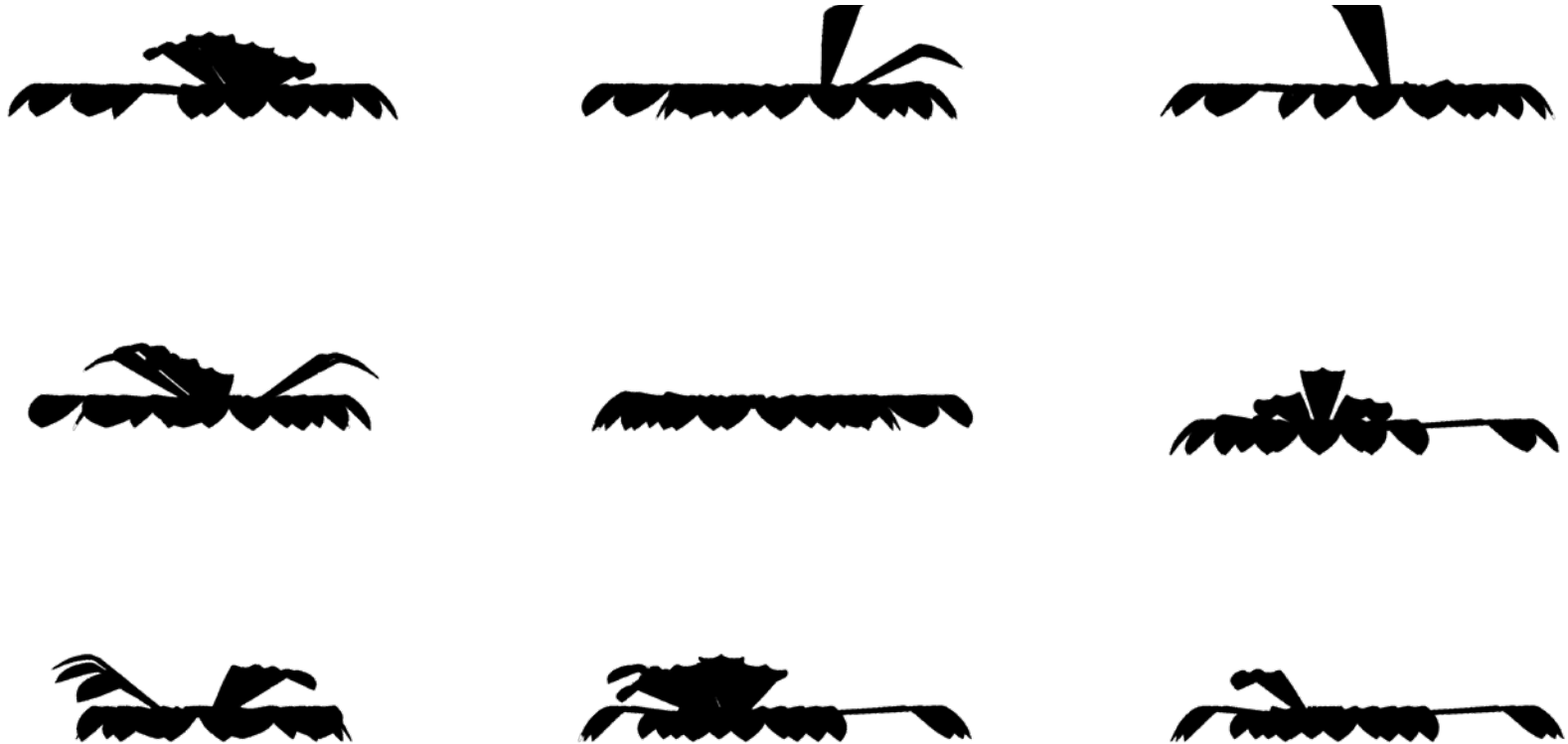




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THE NEW GATE OF KRONSTADT: A SYMBOL OF THE OPEN CITY



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ASTRATTO

Questo lavoro offre uno spaccato della vasta ricerca e pratica nella progettazione architettonica e urbana collocata nel contesto spaziale dell'isola storicamente rilevante di Kotlin, San Pietroburgo, considerando allo stesso tempo la natura dello sviluppo dell'isola nel corso dei secoli. L'obiettivo principale dello sviluppo della soluzione progettuale risiede nella recente smilitarizzazione dell'area che crea uno spettro di opportunità per un ulteriore miglioramento dell'accessibilità di Kronstadt e la generazione di un nuovo insieme architettonico della città.

Questo approccio sottolinea quanto il processo di composizione dell'insieme architettonico sia influenzato dalle condizioni ambientali e quanto sia importante il paesaggio che lo circonda, in particolare la presenza dell'acqua. Dopo un'analisi approfondita delle criticità e delle potenzialità dell'isola, la proposta progettuale si svolge con attenzione sulla costa nord, una zona ad alto poten-

ziale di sviluppo che si affaccia sulla parte continentale di San Pietroburgo sul Golfo di Finlandia, sollevando la questione di un possibile collegamento idrico tra le due.

Consentendo al nuovo canale di raggiungere il cuore dell'isola e ponendo il nuovo simbolo della città nel principale punto di contatto tra acqua e terra, il progetto crea un ambiente dinamico e invitante, rinominando l'immagine dell'isola da ex proprietà militare recintata ad una città aperta. Il percorso di sviluppo del progetto segue una ricerca di un nuovo simbolo adeguato di Kotlin e raggiunge il concetto di biomimetica e analogie tra manufatti artificiali e organismi viventi che sono stati un tema persistente fin dall'antichità e rimangono parte integrante del progetto architettonico del 21° secolo – soprattutto nell'architettura di Andrija Mutnjaković e Bogdan Bogdanović, il cui approccio eccezionale ha trovato il suo posto anche nell'opera.

ABSTRACT

This work offers an insight in the extensive research and practice in architectural and urban design placed in the spatial context of historically relevant island of Kotlin, St. Petersburg, considering at the same time the nature of island's development throughout centuries. The main focus of the design solution development lies in the recent demilitarization of the area which creates a spectre of opportunities for further amelioration of Kronstadt's accessibility and generation of new architectural ensemble of the city.

This approach emphasizes the fact of how much the process of composing the architectural ensemble is being affected by environmental conditions and how important is the landscape surrounding it, especially the presence of water. Following the thorough analysis of island's criticalities and potentials, project proposal carefully takes place on the north coast, a high-potential development zone overlooking the continental part

of Saint Petersburg over the Gulf of Finland, rising the question of possible water connection between the two.

By allowing the new canal to reach the heart of the island and by placing the new symbol of the city in the main contact point of water and land, the project is creating a dynamic and inviting environment, rebranding the island image from former enclosed military property to an open city. Path of the project development follows a reasearch for an adequate new symbol of Kotlin and reaches the concept of biomimicry and analogies between man-made artefacts and living organisms which have been a persistent theme since antiquity and remain a component part of the 21st century architectural design – especially in architecture of Andrija Mutnjaković and Bogdan Bogdanović who's exceptional approach found its place in the work as well.

KRONSTADT, KOTLIN ISLAND

Kronstadt is a pleasantly quiet city and naval base on Kotlin Island, 30 kilometers into the Gulf of Finland from Saint Petersburg. This town and its naval fortresses — a UNESCO heritage site — have protected Saint Petersburg and the northwest flank of Russia for centuries. A small place with a population of 43,000, resembles a Saint Petersburg in miniature, with similar architecture and layout. It's technically a suburb of Saint Petersburg, but Kronstadt has its own independent spirit, and has been crucial to the identity and survival of the city it guards.

Thanks to tectonic cataclysms, the place where the island of Kotlin is located has descended and risen, becoming the seabed before ultimately turning into an island. All of these motions has led to a unique alternation between marine and continental sediments, creating quite specific geological structure of the valley. In addition to this, Neva river has been washing away the lower layers of island for centuries, forming its current shape which resembles a bird's eye view of a prehistoric animal that may have been one of the inhabitants.

Figure 1 - 2001 Карта России 1:50K - 2001 Map of Russia 1:50K





Figure 2 - 1850 Map of Kotlin Island

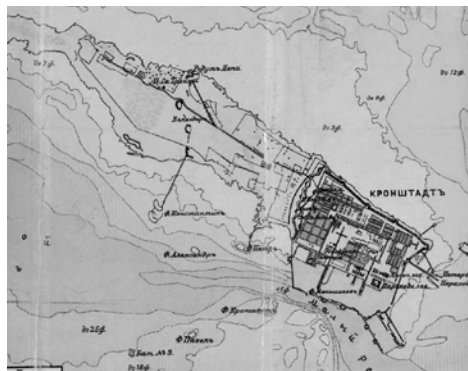


Figure 3 - 1900 Map of Kotlin Island

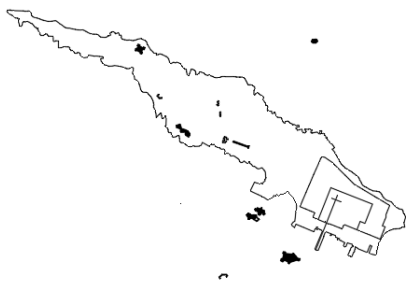


Figure 8

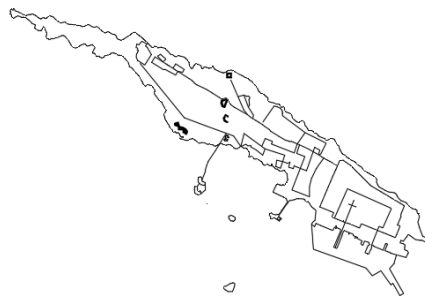


Figure 9



Figure 5 - 1985 Map of Kotlin Island



Figure 6 - 1990 Map of Kotlin Island



Figure 7 - 2001 Map of Kotlin Island

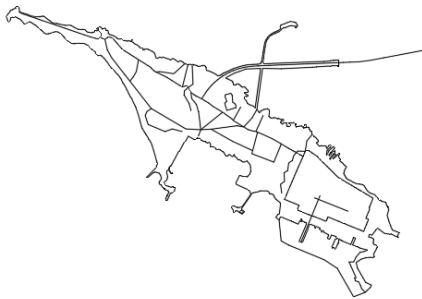


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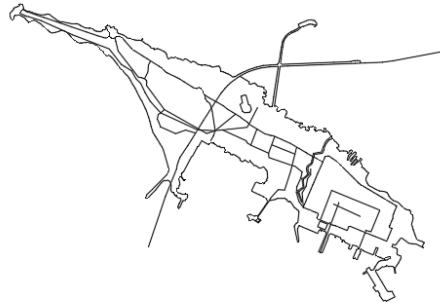


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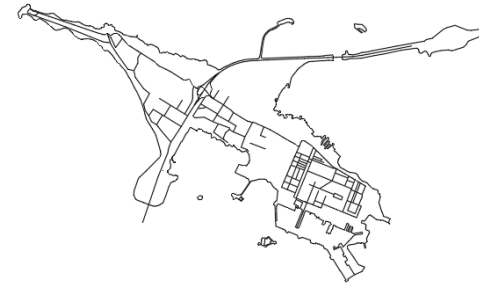


Figure 13



Figure 14 - Existing connections between Kotlin Island and Saint Petersburg and a new potential



Figure 15 - WW1, Kronstadt

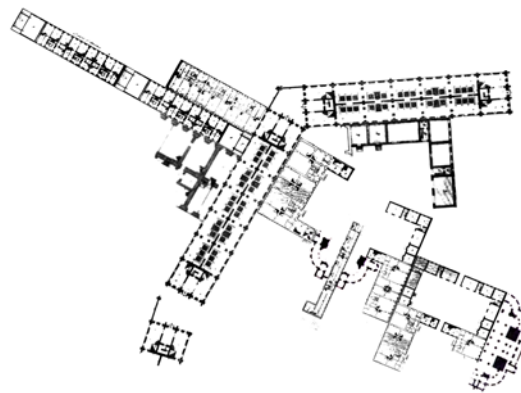


Figure 16 - WW1, Kronstadt



Figure 17 - scene from the movie "My iz Kronshadtta"



Figure 18 - WW1, Kronstadt



Figure 19 - WW1, Kronstadt



Figure 20 - WW1, Kronstadt



Figure 21 - Soul of the city collage, 2020

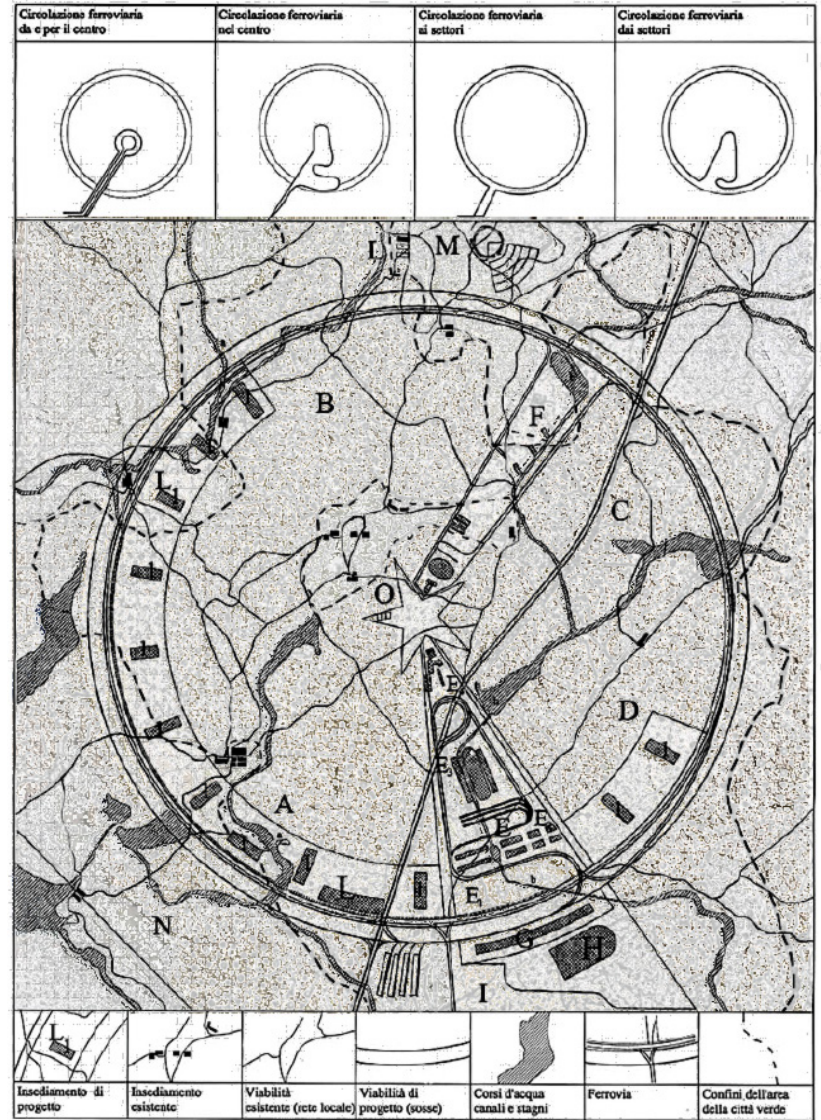
RESEARCH AND DESIGN APPROACH

THE GREEN CITY CONCEPT IN RUSSIA

Due to fundamental changes in the social structure of Russia, the linear trajectory of the development of the "green city" concept haven't had the chance to develop properly. For years it was possible to observe only a struggle between two social and town-planning concepts: urbanization and de-urbanization, where the concept of "green city" appears once during the "socialist city" discourse. Civil war and devastation did not contribute to the development of new ideas, but although the urban population of country drastically decreased, the idea of implementing the concept of "garden city" continues in the early years of Soviet power.

One of the outstanding representatives was architect Konstantin Melnikov, the leader of russian functionalism and constructivism, although he called himself "a creator of kinetic architecture". For hundred years theoretical thought between the radicalism and attempts to design organic models of the city went through constant oscillations. Nevertheless, russian cities today still keep marching towards their own version of "greening" approach.

Figure 22 - The Green City proposal, Konstantin Melnikov



BOGDAN BOGDANOVIĆ

Bogdan Bogdanović was an acclaimed Serbian designer, teacher, writer, urbanist and architect – one of the greatest of 20th century, having made deep impressions on the artistic and architectural legacy of Yugoslavia. With generating landscapes as agents of urban civilizations, Bogdanović left an enormous legacy that the European societies still have to learn to know and respect.

“Far more than merely a pragmatic instrument for inhabiting physical space, he saw the city as an instrument of intellection, a lens through which the world is viewed and conceived, a model of the cosmos.”

In his monumental work, he steered away from employing either traditionalist or modernist aesthetics, and instead opted to utilize ancient symbols and mo-

tifs from ancient and neolithic cultures.

This gave his work a sense of timelessness and connection to the past while still being firmly rooted in the present.

The monuments are supposed to remind us of historical events and to reveal dark secrets, but they often do exactly the opposite: by telling only one story in only one single symbolical language, they somewhat hide the truth. Bogdan Bogdanović realized that he might express himself in this media of architectural monument by enabling the visitors to read the messages on many different levels, transmitting his personal poetry into these monuments which are often urban-amorphous.

Figures 24 & 25 - Flower Monument in Jasenovac, Bogdan Bogdanović, 1966

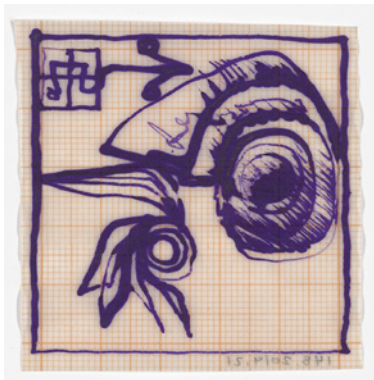


Figure 23 - Experimental sketches for a monument, Bogdanović

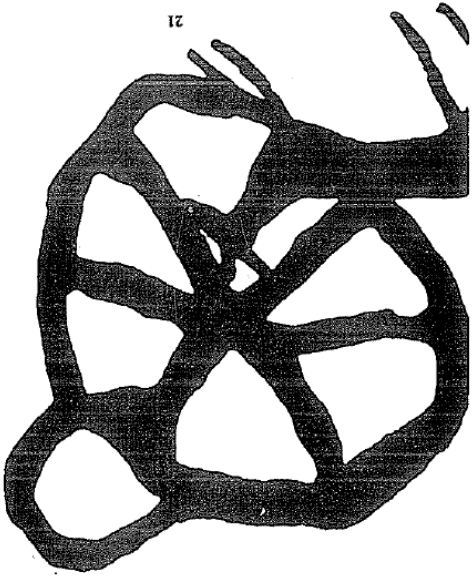


“Architecture of a human kind started from the head. Man has been a builder since the moment when the act of building, no matter how beginner level it was, crossed paths and strays of his thoughts.”

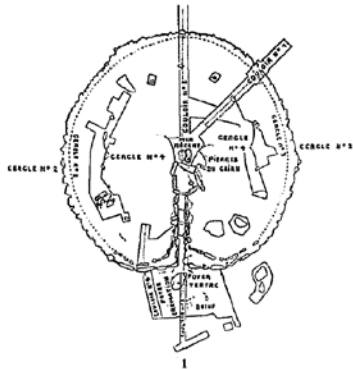
One of the motifs he extensively explores in one of his books (*Urban Mythologemes*) is a circle: a concept that does not leave the man-builder, or vice versa, and which occurs in too many occasions. From the drawings, the tumulus, the residential proto-building, onwards, there are just too many precise, very correctly drawn circles for it to be a coincidence, says the book.

Figures 26, 27 & 28 - Selection of illustrations from "Urban Mythologeme", Bogdanović

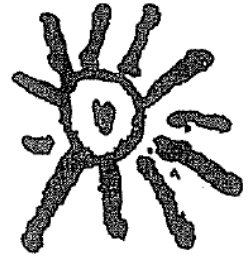
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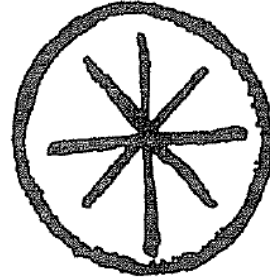
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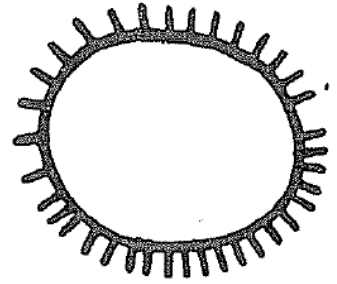
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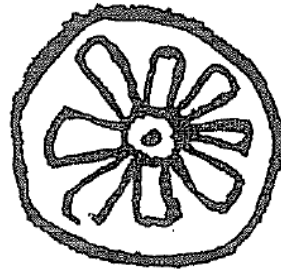
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18



19

CONCEPT OF DACHA VILLAGE

One of the products of post-revolutionary nationalisation and post-Perestroika privatisation and deregulation is the evolved and soon enough quite popular building type – dacha – a ubiquitous settlement pattern on the edges of the cities that became a fundamental part of the urban practice/experience in Russia. The everlasting issue that comes with the relation between town and countryside was not ‘blurred’ by the creation of a conventional suburb but by maintaining the both identities in one – two parallel existences.

In this way, the third existence is being created – dacha, a dwelling type widely accessible to the largest part of the urban population of Russia that requires understanding and design approach, but is also a development pattern that offers lessons of its own.

This cultural phenomenon stands for so much more than just “a house with garden”, it is a remnant of the system that allowed the sprout of small shacks, houses and vegetables on plots that would later become an escape from urban reality. Today dacha is part of russian psyche and is deeply rooted in the general concept of summer leisure and memories that come with it.

Figures 29, 30 & 31 - Selected photographs of dacha settlement atmosphere

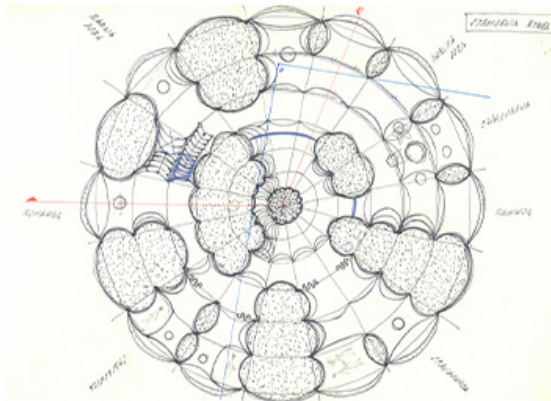
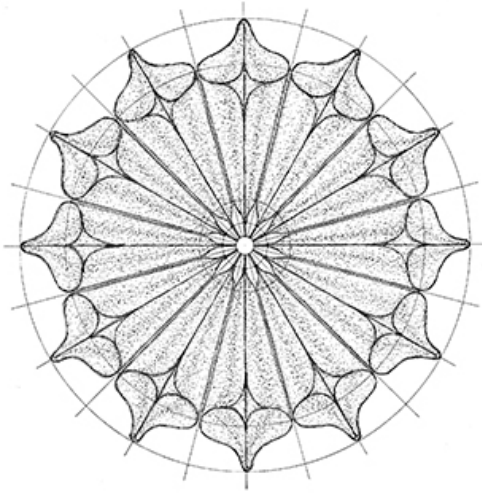


ANDRIJA MUTNJAKOVIC

Structures that find inspiration and reinterpret elements from nature, analogies between man-made artefacts and living organisms, were a persistent theme in Western thought since antiquity. The Egyptians, Greeks and Romans incorporated natural motifs, such as tree leaves, into their columns.

Biomimicry as a concept and an approach remains a component part of the 21st century architectural design. Croatian architect Andrija Mutnjakovic executed a visionary research of possible integration of natural laws into architecture and connecting dwellings to their environment, all the way to questioning gravity and suggesting new concepts of living in a tertiary town in the postindustrial era, when planet will encounter overcrowding problems.

Figures 32, 33 & 34 - House Flower, project for "Una porta per Venezia" competition, Mutnjaković



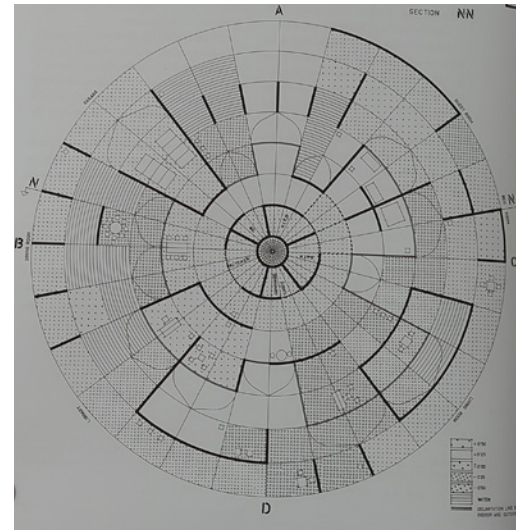
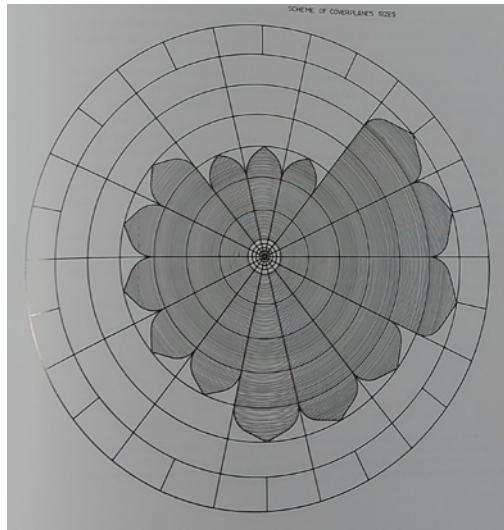
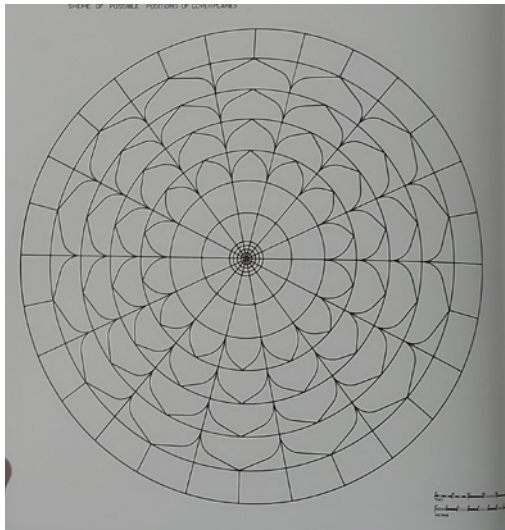
Mutnjaković is one of those multilateral witnesses of the times whose memory has “covered” many details from the history of culture beside architecture, discovering important links or determinants in the social and political context.

He is famous primarily for his futuristic visions and utopian projects of mobile architecture from the 1960s, while his opus is valued as the working of a playful architectural spirit, who sought from the very outset to achieve something new and different, or in any case different from the established system in architecture and urban planning.

He based his research on regional identity of contemporary architecture expression with the desire to cure the faceless atmosphere of the modernity, on the possibilities of endemic and bionic architecture as opposed to the usual schematism of contemporary urban planning, and experiments in mobile architecture as a new direction in the future of architecture, that would include kinetic and dynamic concepts of space.

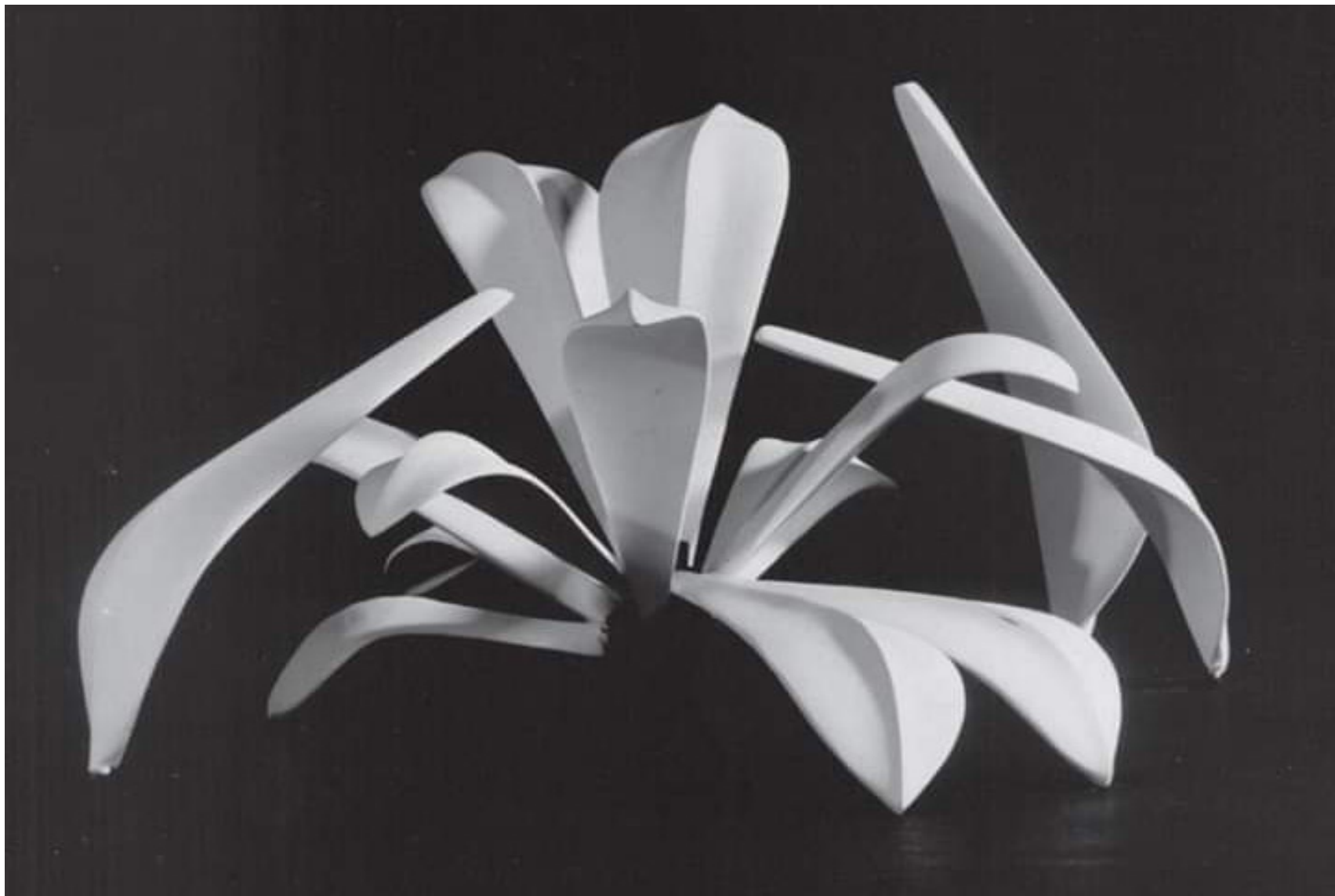
“Machines were something fantastic, they had transformed the world, so I thought: if everything can be a machine, why not the house, it could be a house-machine.”

Figures 35, 36 & 37 - Homobile, project for a kinetic, house-machine, Mutnjaković



On the same principle of the house-machine, Mutnjaković will create another unforgettable project - Ornitottero, inspired by the competition for the most beautiful house in the world, which was announced in 1988 by the Italian region of Emilia. Its resemblance to Leonard's eponymous design of the machine, made five hundred years ago, is immense, and not accidental. Because the essential elements of the system of that house are the cover surfaces (which, when raised and lowered, are similar to the wings of a bird!). The loanword (name and appearance) comes from "happy times when", as the author says, "machines were an integral part of architecture". Everything in the nature-mimicking house-machine is subordinated to function - where the function is the human being.

Figure 38 - Homobile, project for a kinetic, house-machine, Mutnjaković



1 NORTH COAST ZONE: NEW GREEN SETTLEMENT AS AN EXTENSION TO EXISTING BUILT ENVIRONMENT OF THE ISLAND WITH SPECIAL FOCUS ON THE WATERWAY ACCESSIBILITY

2 ZONE OF FUTURE MILITARY TOURISM SITE (DEVELOPMENT IN PROGRESS SINCE 2019) WITH ADDITIONAL FOCUS ON SPORT AND LEISURE ACTIVITIES TO THE SOUTH COAST OF THE ISLAND

3 PRESERVATION ZONE OF ISLAND'S FLORA AND FAUNA

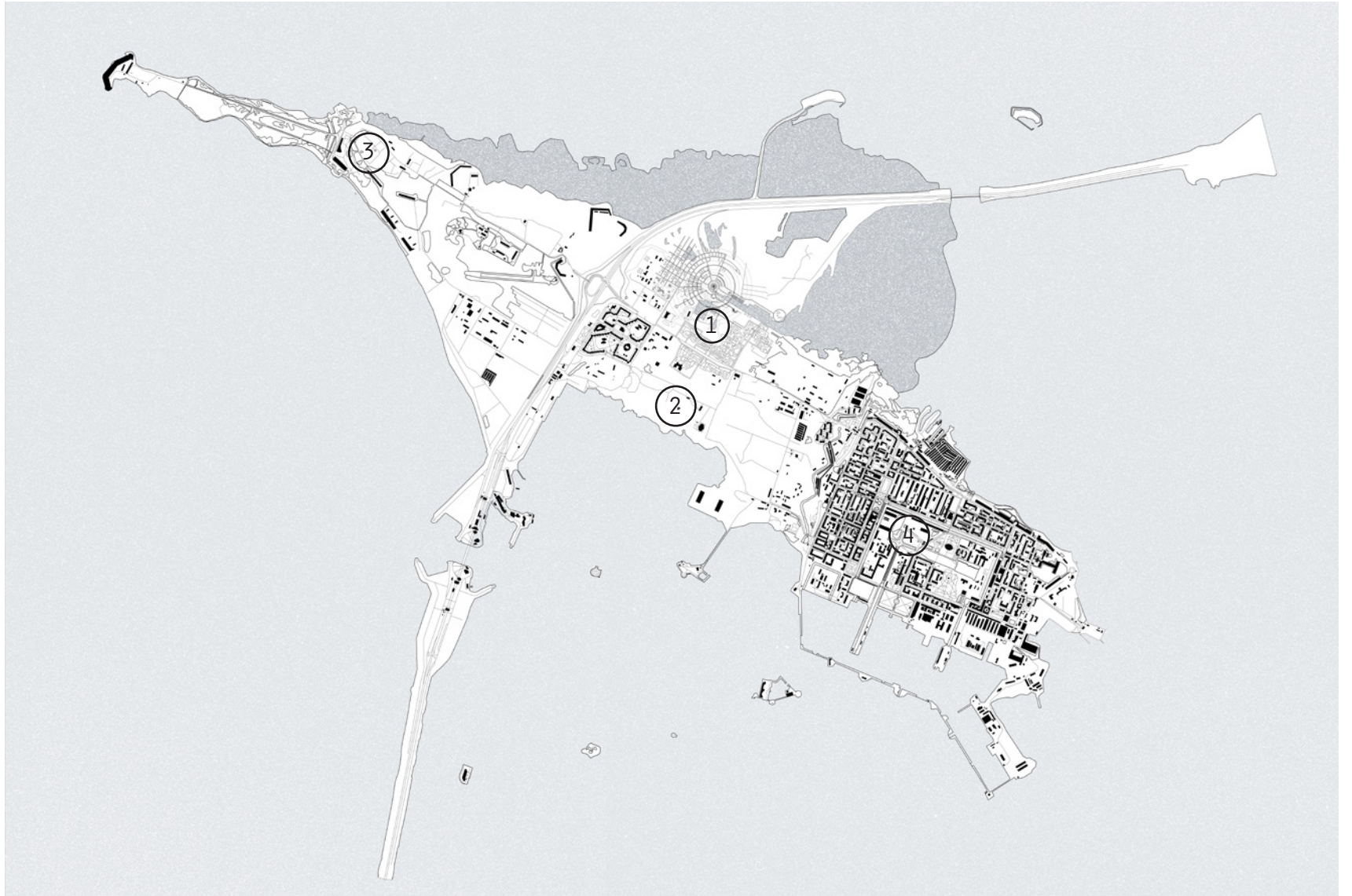
4 DEVELOPMENT OF PETROVSKIY DOK AND CORRESPONDING PUBLIC SPACES

DEVELOPMENT OF THE NORTH COAST (1)

Due to fundamental changes in the social structure of Russia, the linear trajectory of the development of the "green city" concept haven't had the chance to develop properly. For years it was possible to observe only a struggle between two social and town-planning concepts: urbanization and de-urbanization, where the concept of "green city" appears once during the "socialist city" discourse. Civil war and devastation did not contribute to the development of new ideas, but although the urban population of country drastically decreased, the idea of implementing the concept of "garden city" continues in the early years of Soviet power.

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Figure 39 - Development zones of the island



NORTH COAST DEVELOPMENT - PROJECT PROPOSALS A & B

Following the thorough analysis of island's criticalities and potentials, new ensemble carefully takes place on the north coast, a high-potential zone of development overlooking the continental part of Saint Petersburg over the Gulf of Finland, rising the question of possible water connection between the two. By introducing a new canal that would enable water traffic to reach the heart of the island, first step of the project aims towards answering the question of overall accessibility of Kronstadt, creating a new entrance, gate of the island, directly connected to the harbour of Saint Petersburg.

This kind of approach is partially motivated by the future increase of the people influx, a result of the island embracing and developing military tourism, and with that idea in mind it offers a completely new first impression of the place. Further into the design development, this very contact point between the inner part of the island and the new canal becomes the node, new point of reference and new generator of future built environment.

Figure 40 - Map of the north coast and its projects



PROJECT FOR THE NEW
SETTLEMENT PRODUCED
AS A PART OF THE
FINAL STUDIO A.V.
2019/2020

A

NEW PROJECT PROPOSAL FOR
THE NORTH COAST OF THE
KOSLIN ISLAND WITH THE
FOCUS ON THE NEW CANAL
AND KINETIC PORT GATE

B

B

C.1

A

PROJECT PRPOPOSAL A

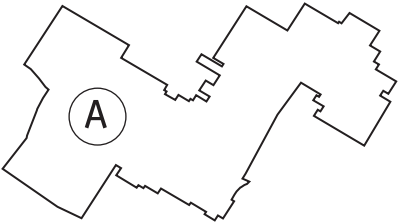
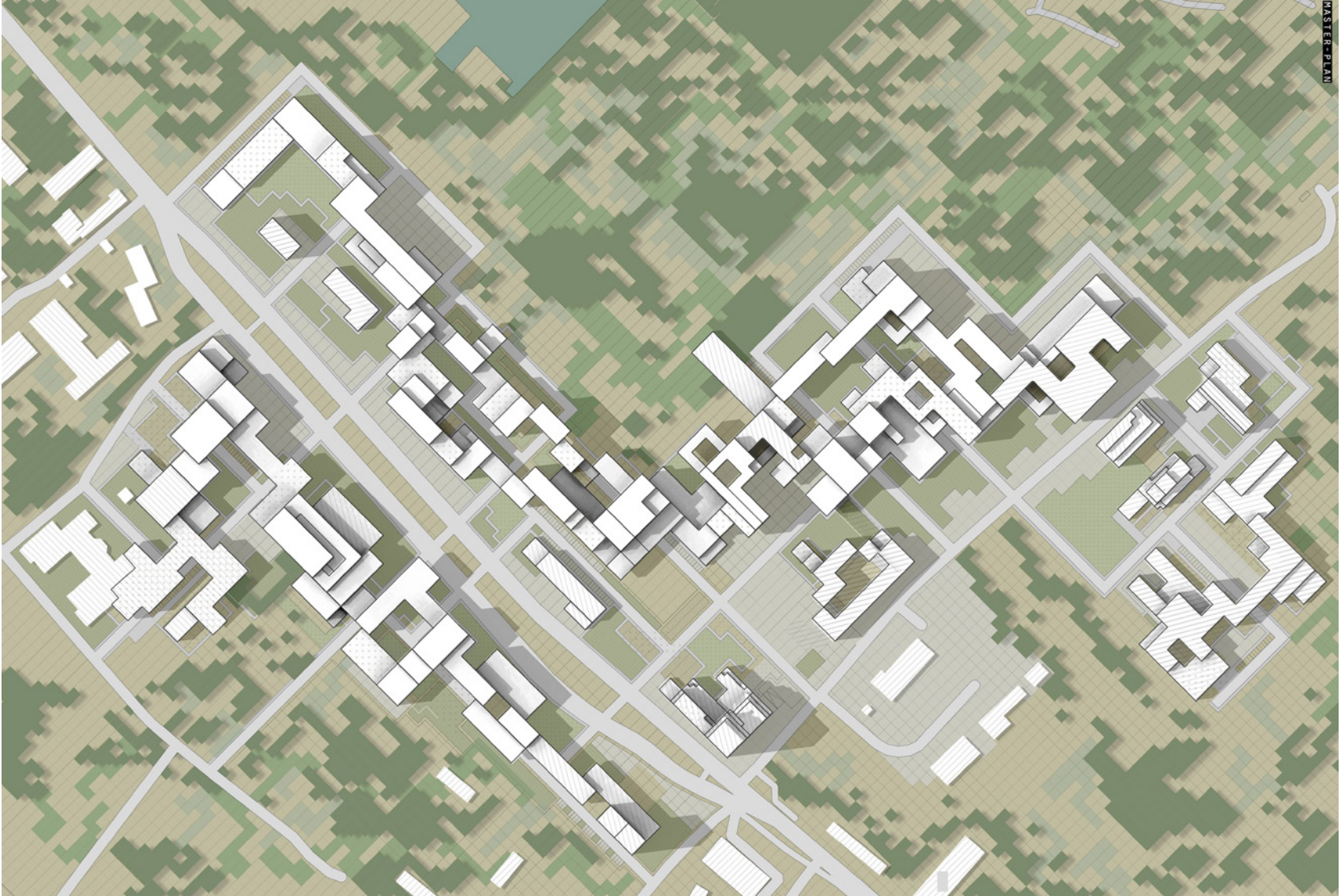
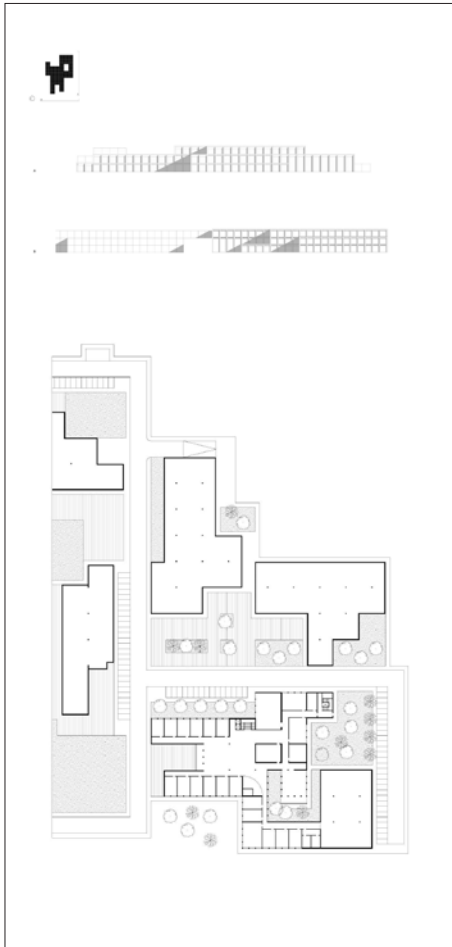
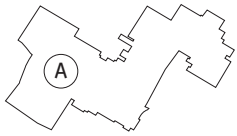


Figure 41 - Project proposal A, Masterplan







Figures 43, 44, 45 - graphic material: plans and sections

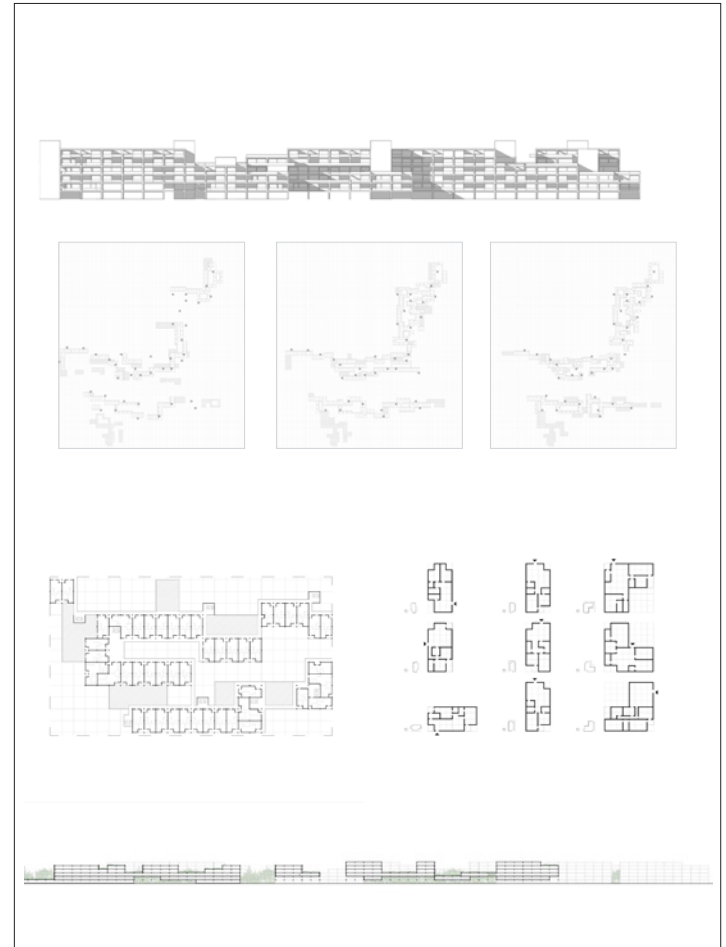
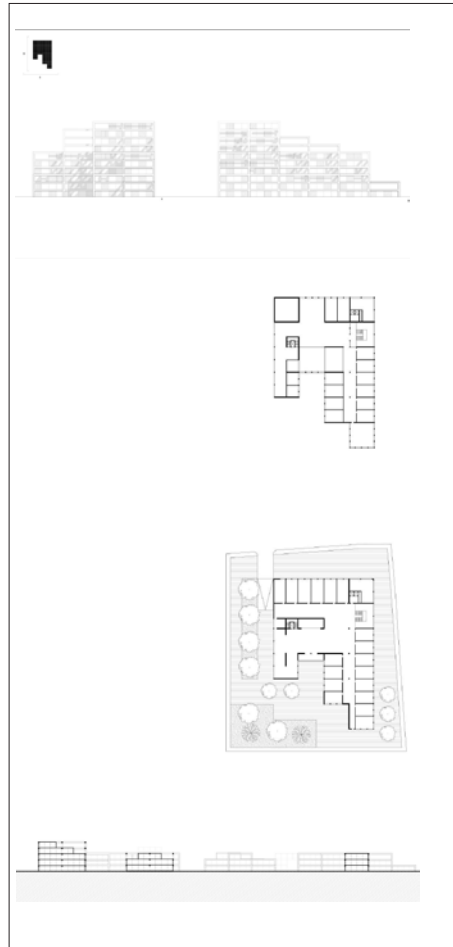
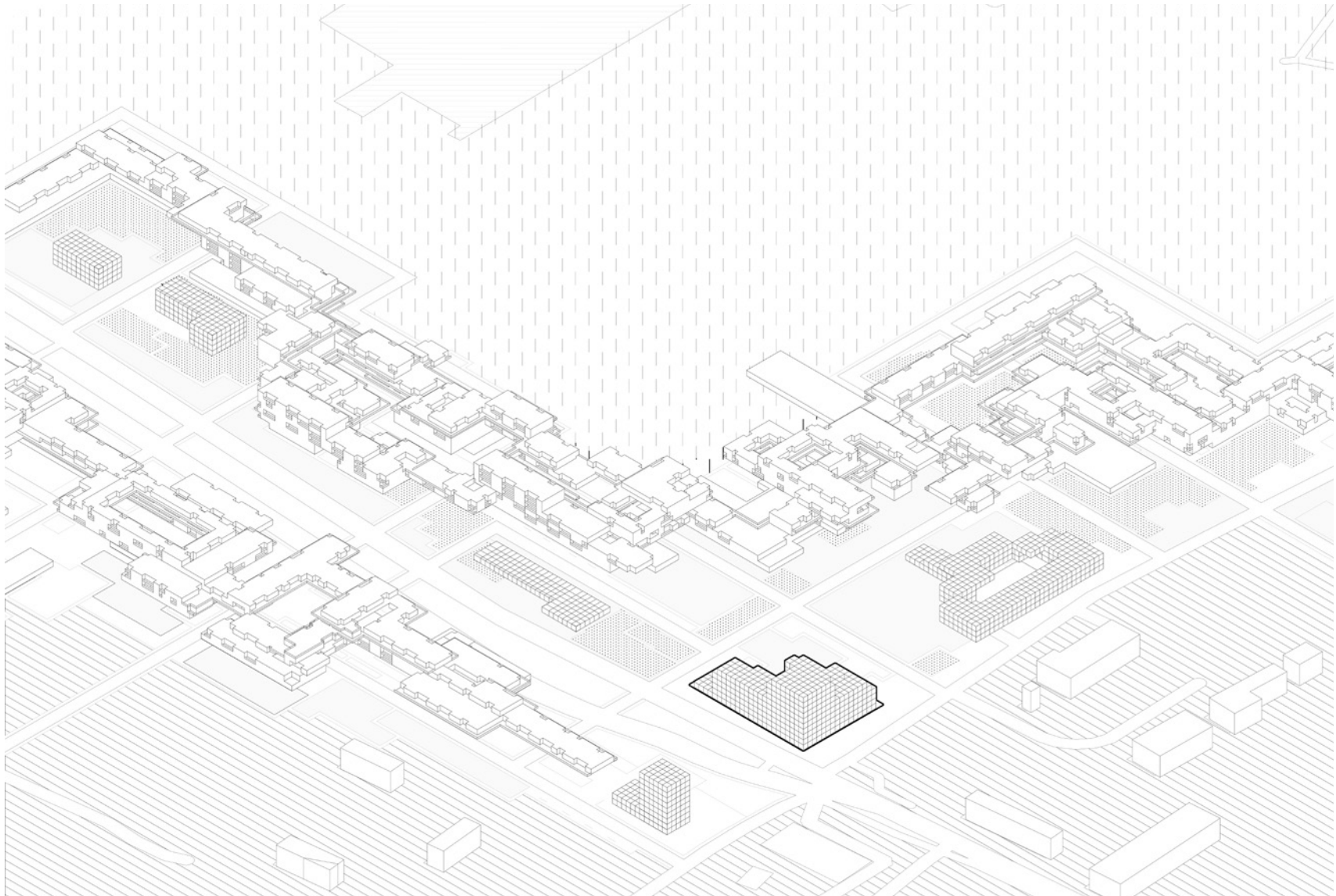


Figure 46 - axonometric representation



Exam boards produced during the Final Studio a.y. 2019/2020 for

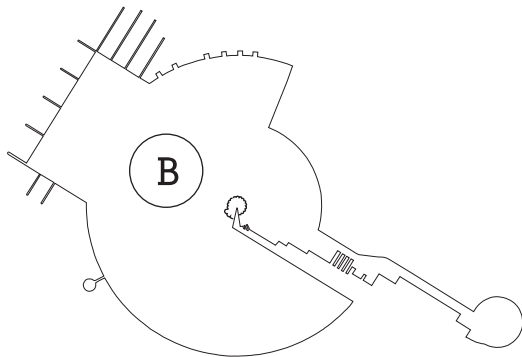
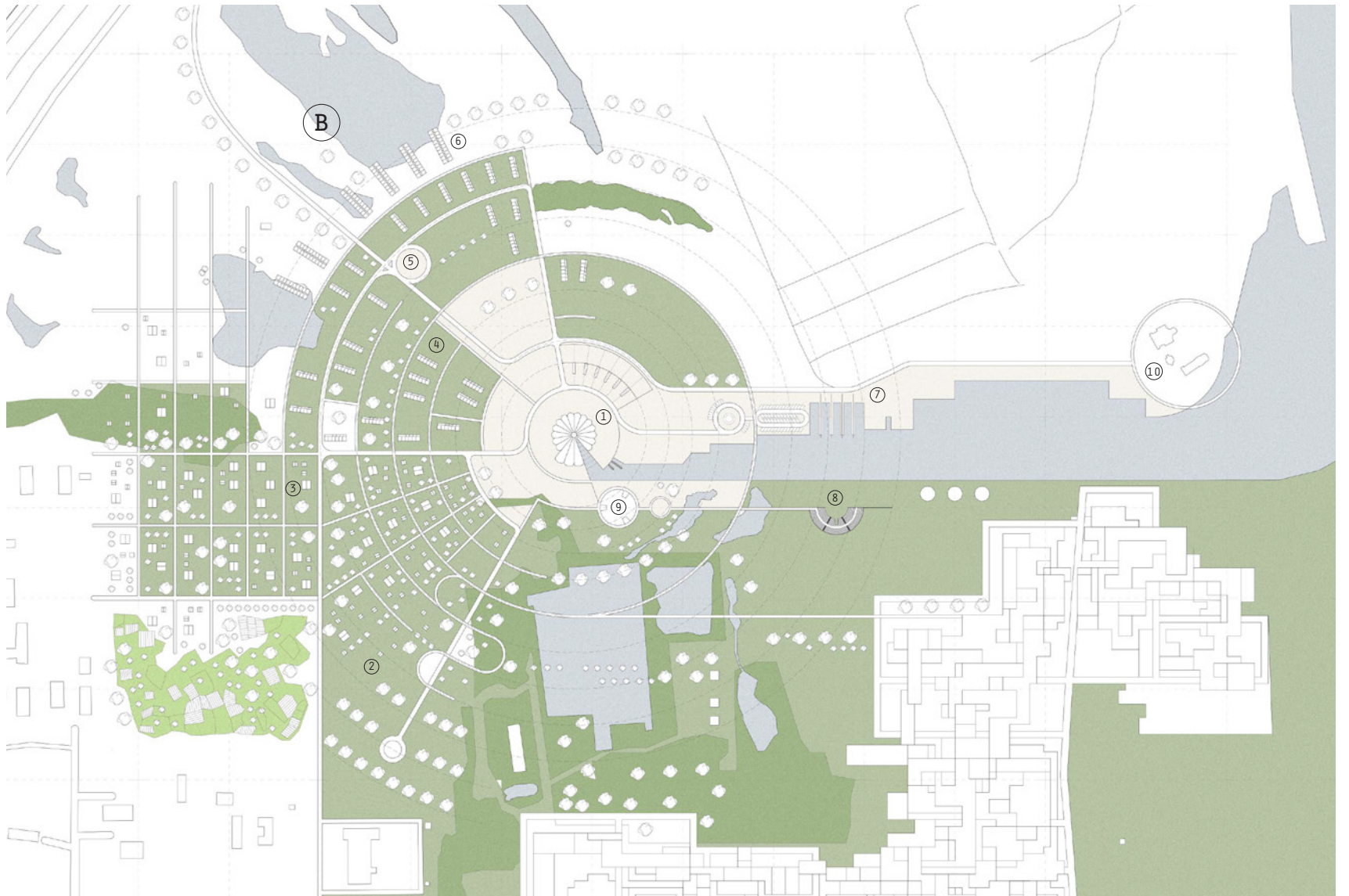
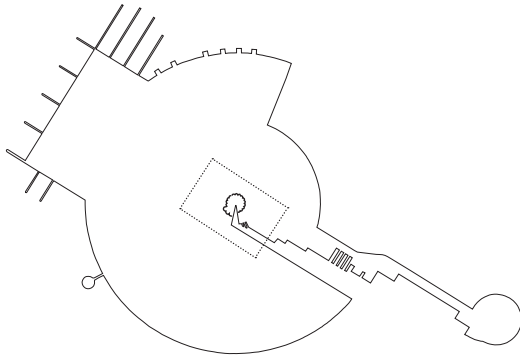


Figure 47 - Project proposal B, Masterplan



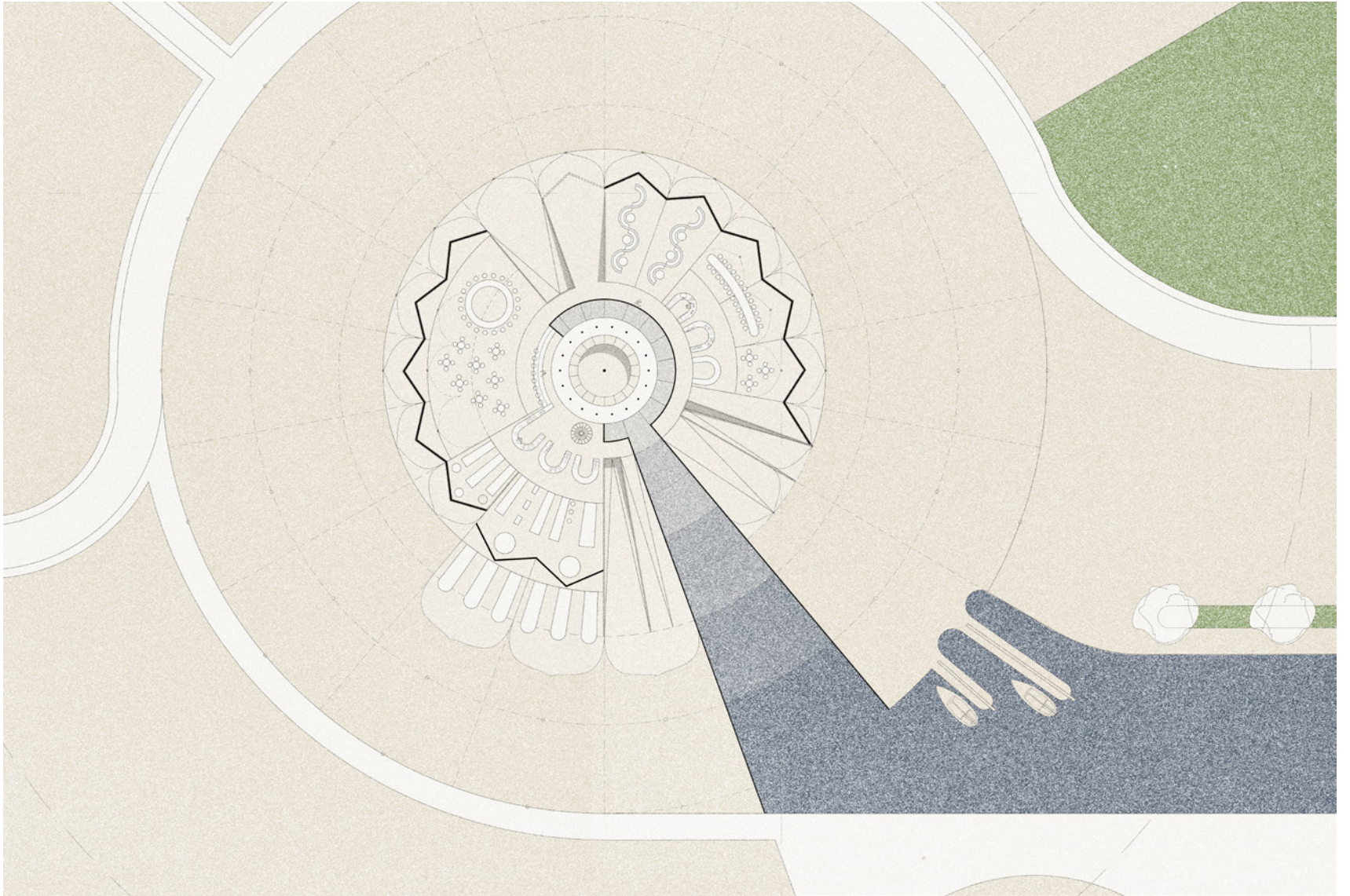


Investigating the natural factors that largely influence the island's environment – insolation, wind direction/frequency and coastal erosion stood out and gave point in the direction of a kinetic building that would answer and exist in relationship with it.

Next step was to define the frame and put a scale on the symbol of a city that has seen endless winters, isolation and death; honoring the past but looking forward to the future, to transform it from a feeling of striving for peace to form that would actually communicate it.

As Bogdanović explained in the development of the design of the Jasenovac Flower Monument, he felt making a monument that directly and overtly invoked images of death and horror would be ludicrous and sordid. "I knew... that I would neither look for nor find inspiration by bringing the evil back to life." Instead, he imagined a lyrical memorial that stood as a metaphysical statement on meditation, feelings of reconciliation and a "termination of the inheritance of hatred that passes from generation to generation".

Figure 48 - Flower Gate ground plan

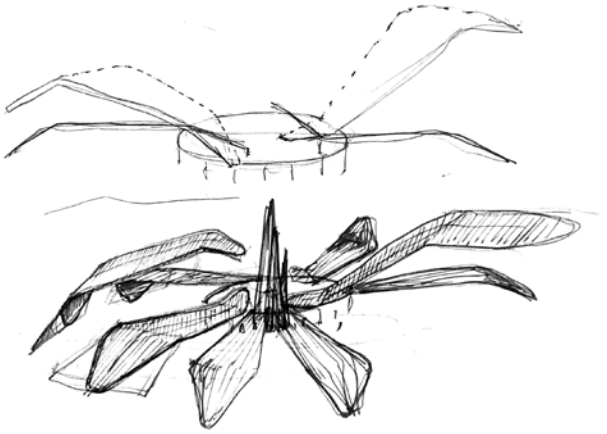
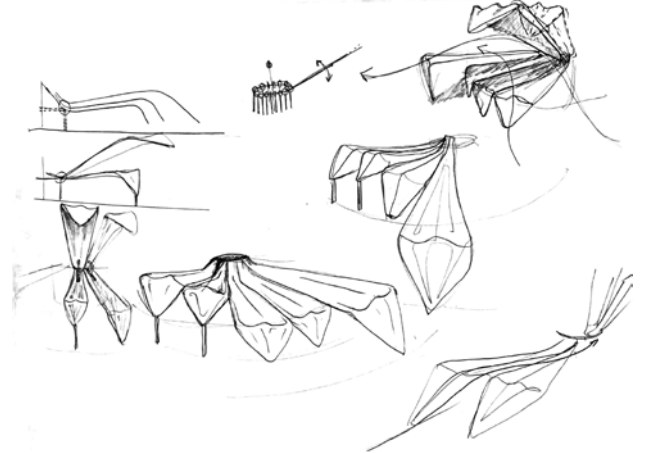
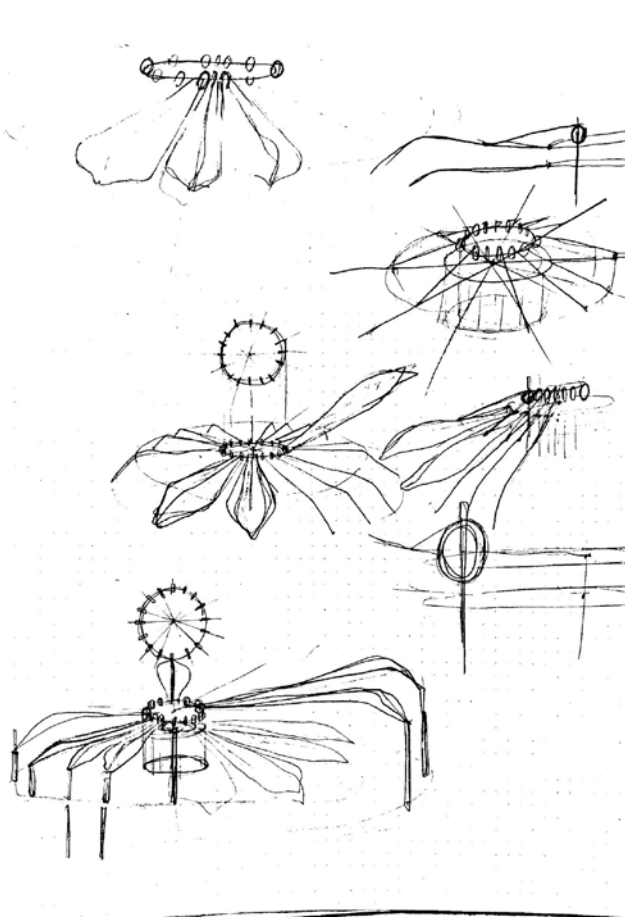
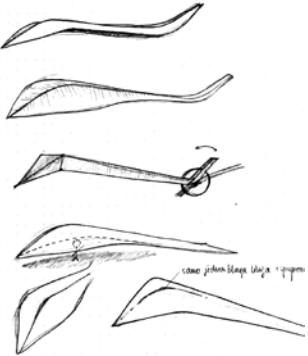
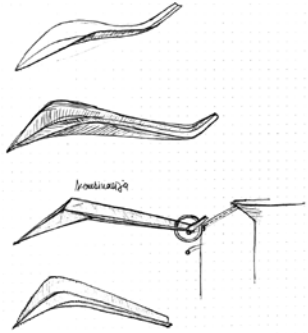


Following these case studies and references, design choices for a new symbol - statement of peace, new beginnings and acceptance – naturally progressed towards an organic form of the flower.

By experimenting with kinetic potentials of such form: a concept of movable petals and by exploring the ways in which the building can come to life through set of successful practices, we come to the first outlines and silouettes of the structure.

Combinig the materials, mechnics and functional organization of case studies, especially ones by Andrija Mutnjaković (House Flower – Una porta per Venezia; Homobil, Ornittottero) with the original concept of a gate-building that would be the first contact with the island, first impression as well as the generator of further movement, project develops further.

Figures 49, 50, 51, 52 - Development sketches of the flower petals and the mechanism



Building is divided in few main sets of elements. First ones are covering elements – petals – which are representing the main kinetic aspect of the structure with their possibility of ascension and descension in accordance with needs.

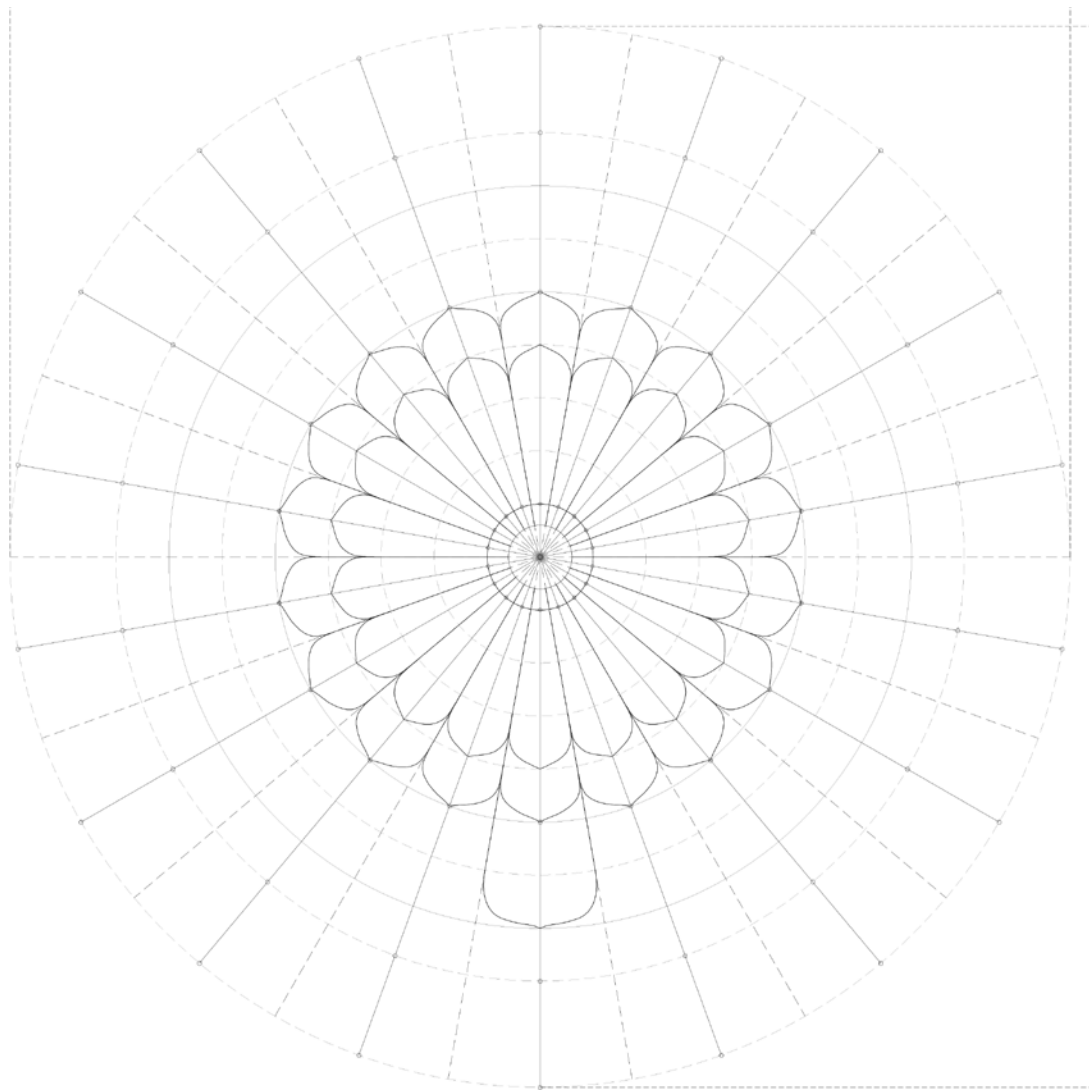
Their position can vary based on the different points during the day the day, following the sunpath and allowing for the visitors to experience maximum amount of the natural sunlight during their stay.

Petals are imagined to be made as a relatively light elements, from a material used in the production of airplane wings (concept explored by Mutnjaković during the development of the Homobile structure)

that could be manipulated easily by the central mechanism.

As it can be noticed on the related graphic representations, dimensions of the petals vary and so is their function and mobility: three biggest ones are fixed to the ground and provide a static all-day cover above the fresh food market; medium sized petals are fully movable and available for manipulation; while the smallest set of petals serve as a part of the interior design but also as a smaller cover during the parts of the day when their corresponding medium petals are up in the sky creating a more dynamic and stratified structure.

Figure 53 - Final set of petals, plan



Level P-1 is accessible through one of the three sloped entrances (ramps), contains the toilets for guests, service rooms and storage rooms accessible from the restaurant as well. Level P-2 is accessible only through staff elevator or set of service staircase which ultimately leads to the main central mechanism responsible for petal movement.

This system of entrances that follow different axis allow for inflow and further redistribution of visitors throughout the island, since every exit is orientated to a specific part of the urban ensemble.

Figure 54 - Building plan, level -1

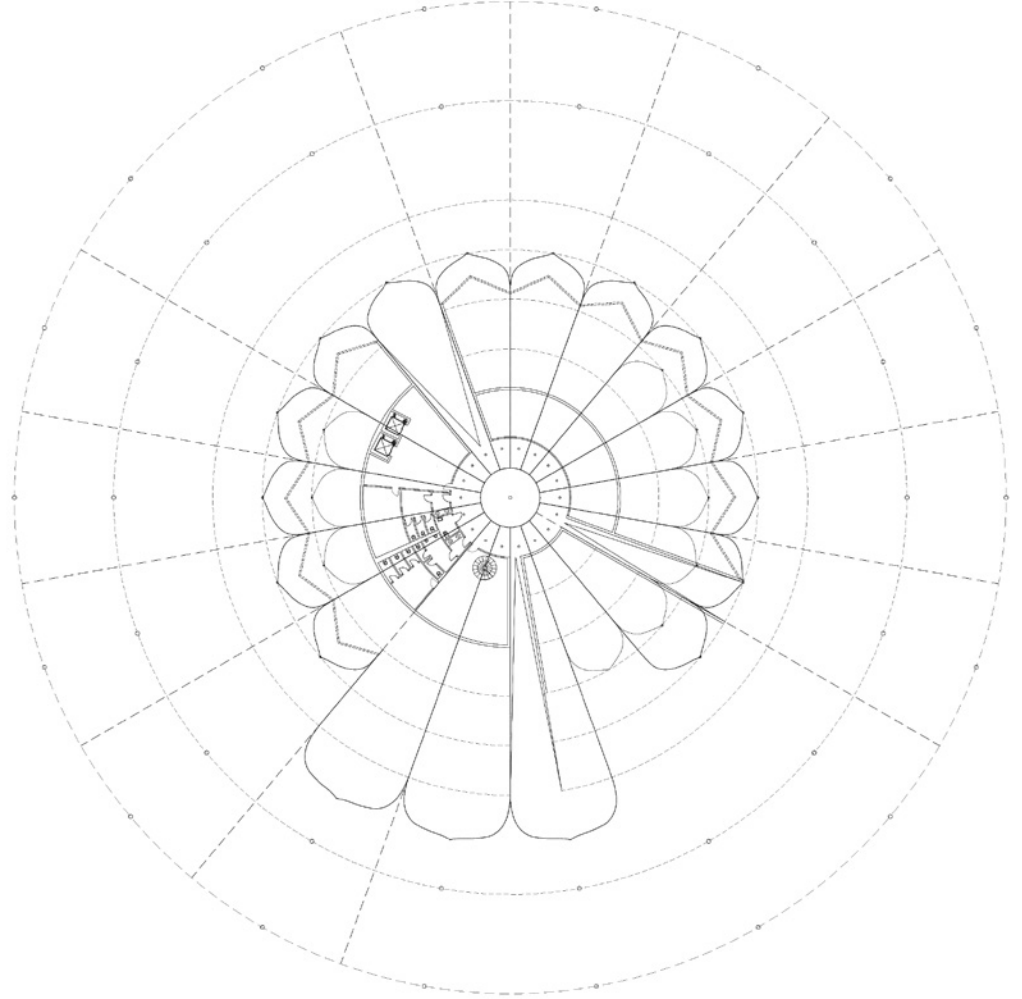
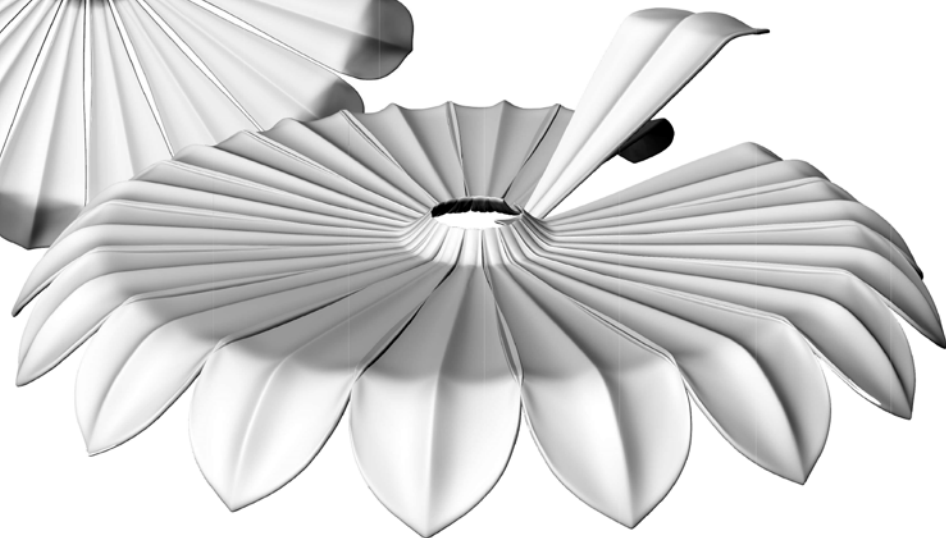
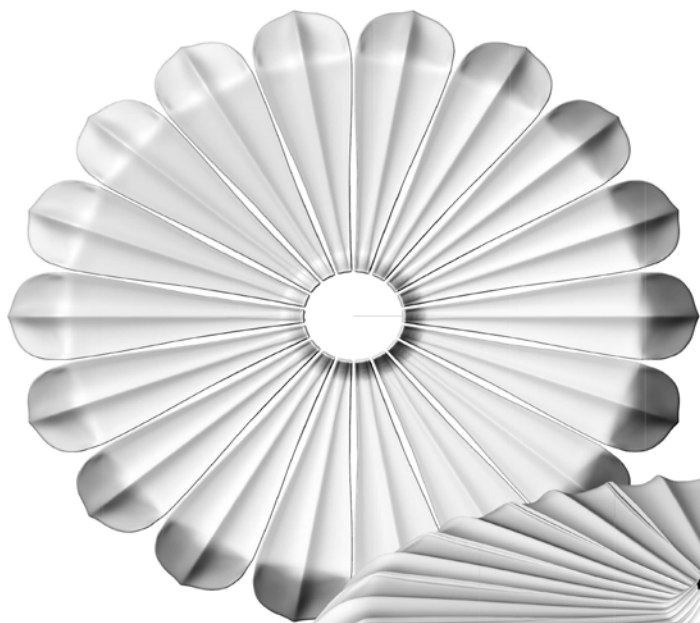


Figure 55 - Dynamic silhouettes of different petal positions





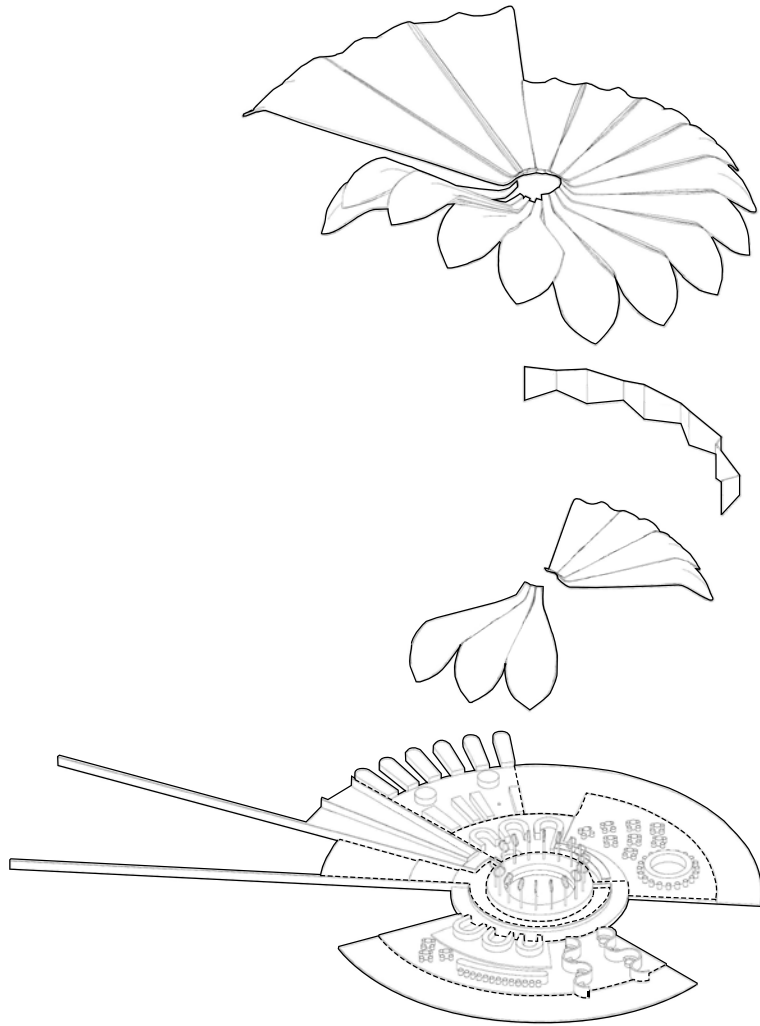


Figure 57 - Exploded axonometry, first part

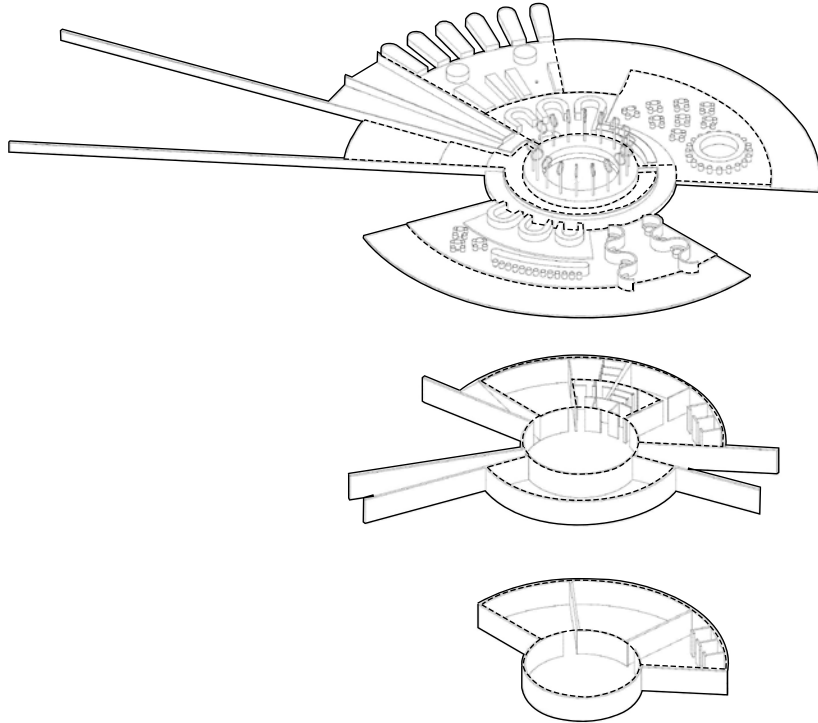


Figure 58 - Exploded axonometry, second part

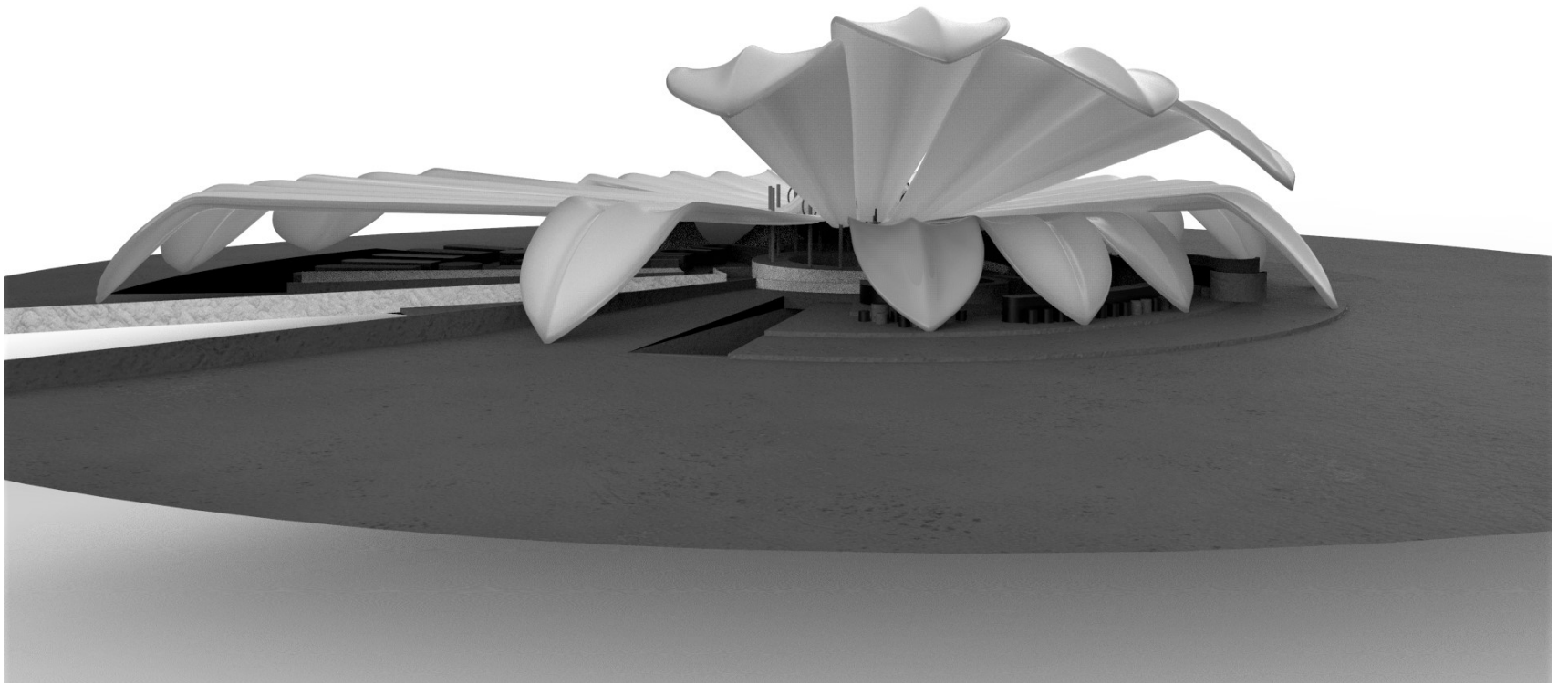


Figure 59 - 3d model

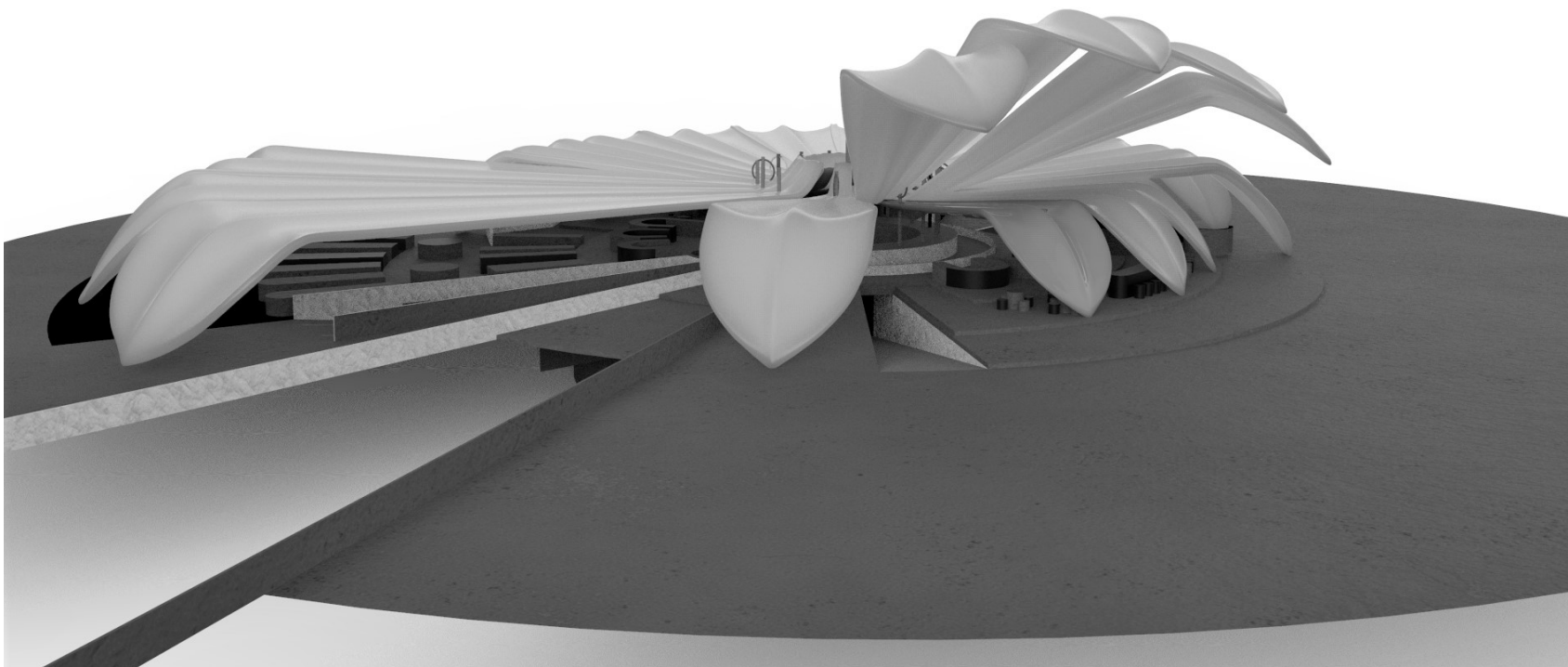
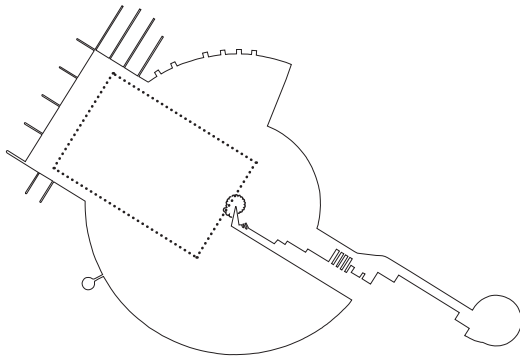


Figure 60 - 3d modeč



As the set of concentric circles continues to offset towards the inner parts of the island, it inevitably comes in contact with immediate surrounding and build structure, creating unique points of interaction. While the radial network keeps progressing, another two rasters are emerging in the new masterplan: dacha prosjek - a specific ratio of dacha settlement plots (in this case neighbourhood of Bykovo, Moscow was being used as a reference) and the previously developed project for a new settlement that used 7.5x7.5m grid in the process of generating a pixelated structure.

Figure 61 - Left branch of the project: dacha settlement

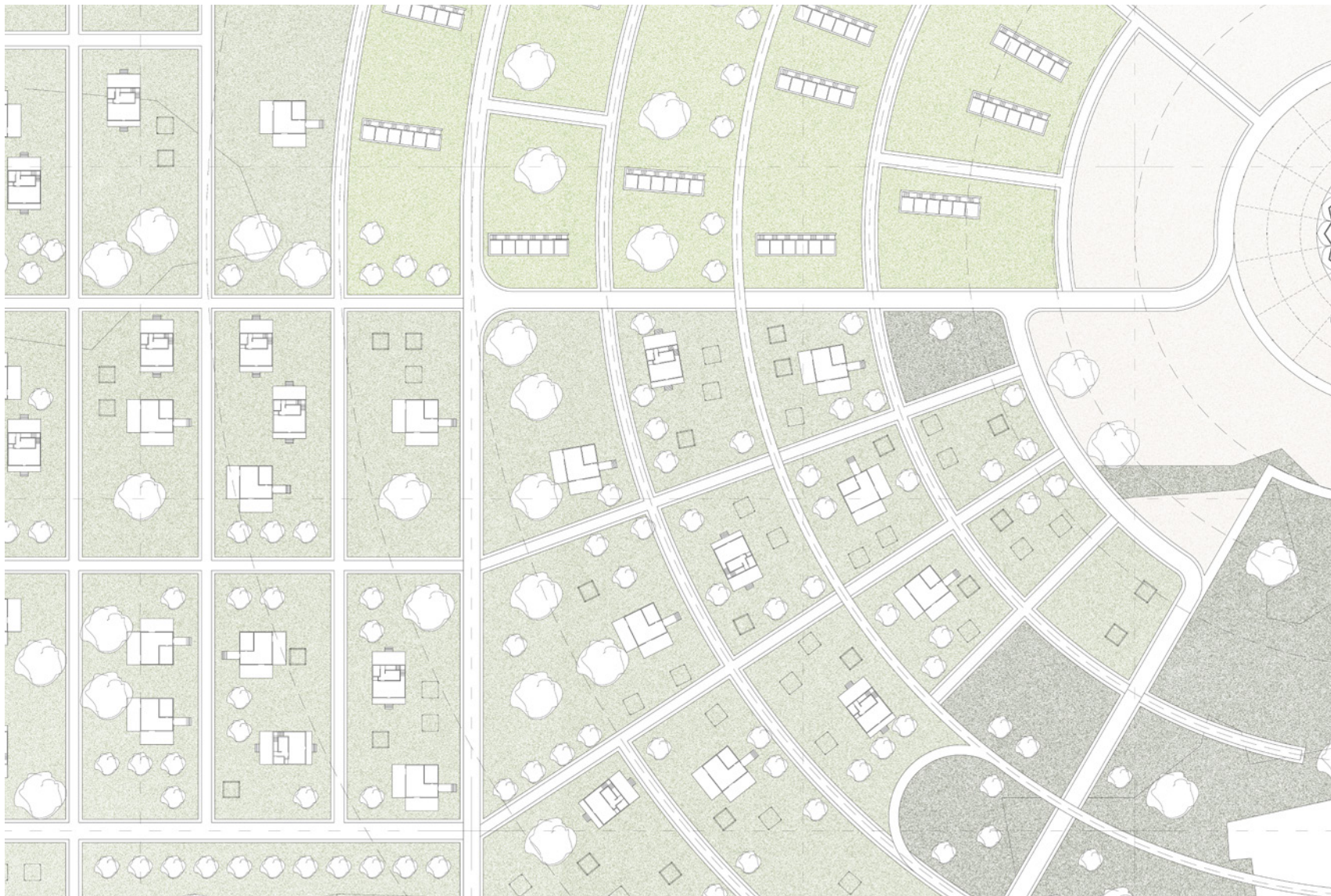


Figure 62 - Dacha settlement, single housing units, 3d model

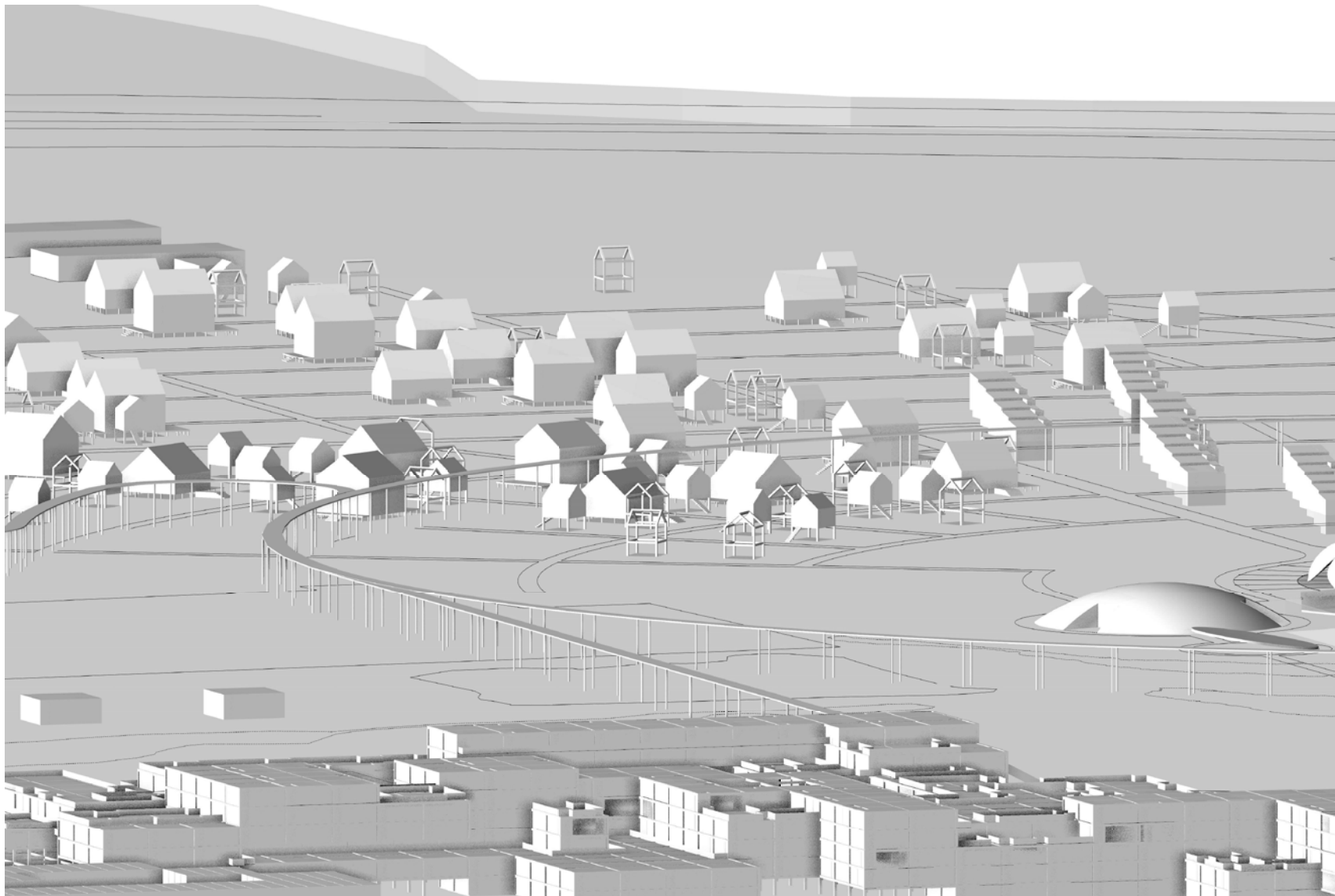
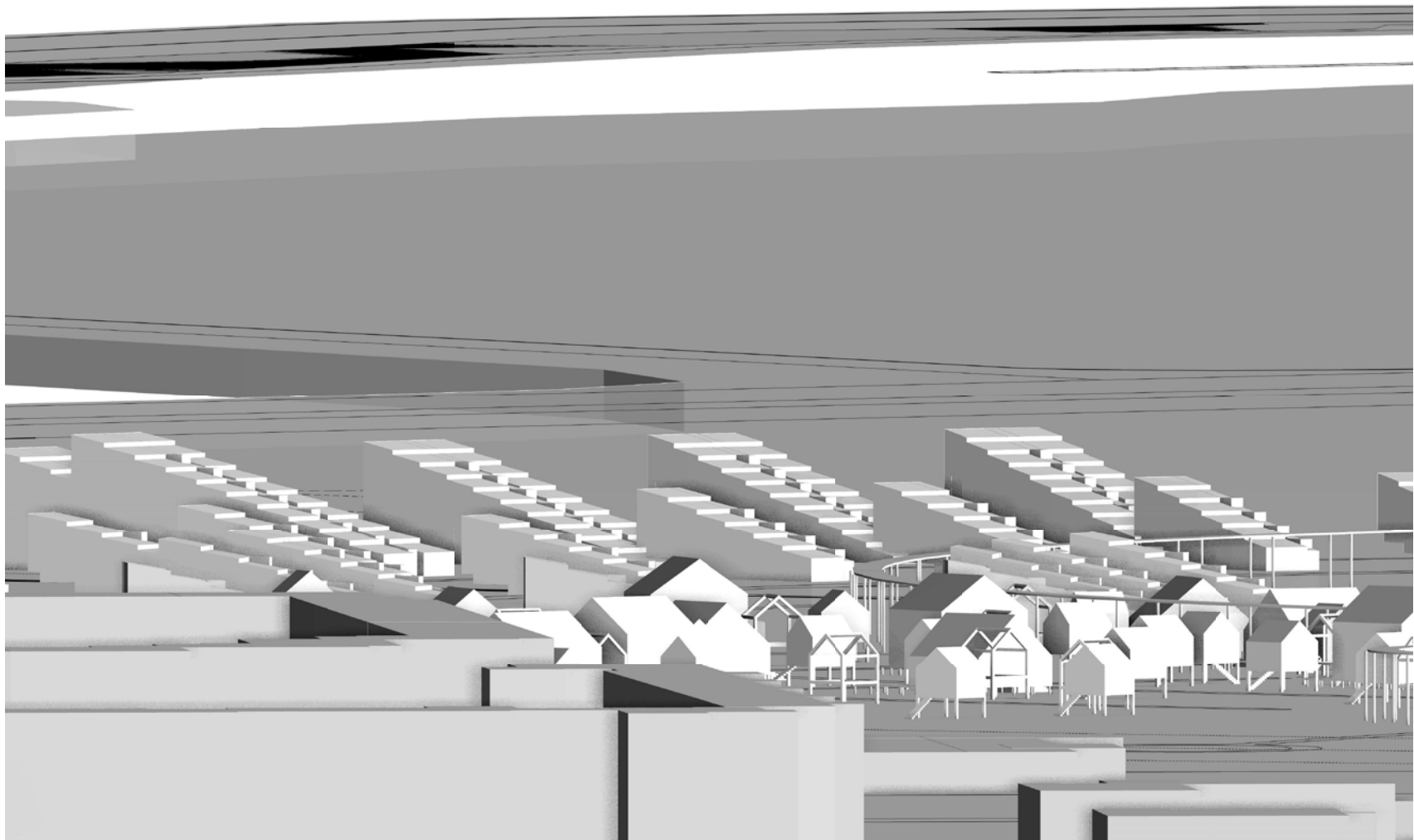


Figure 63 - Terraced multihousing units, 3d model



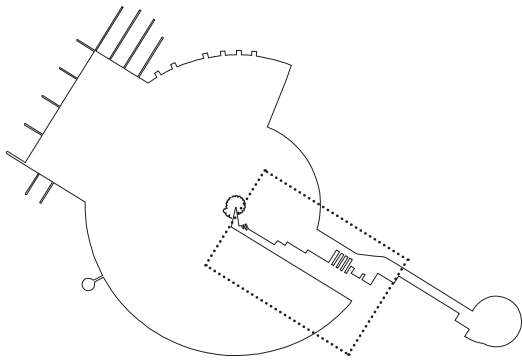
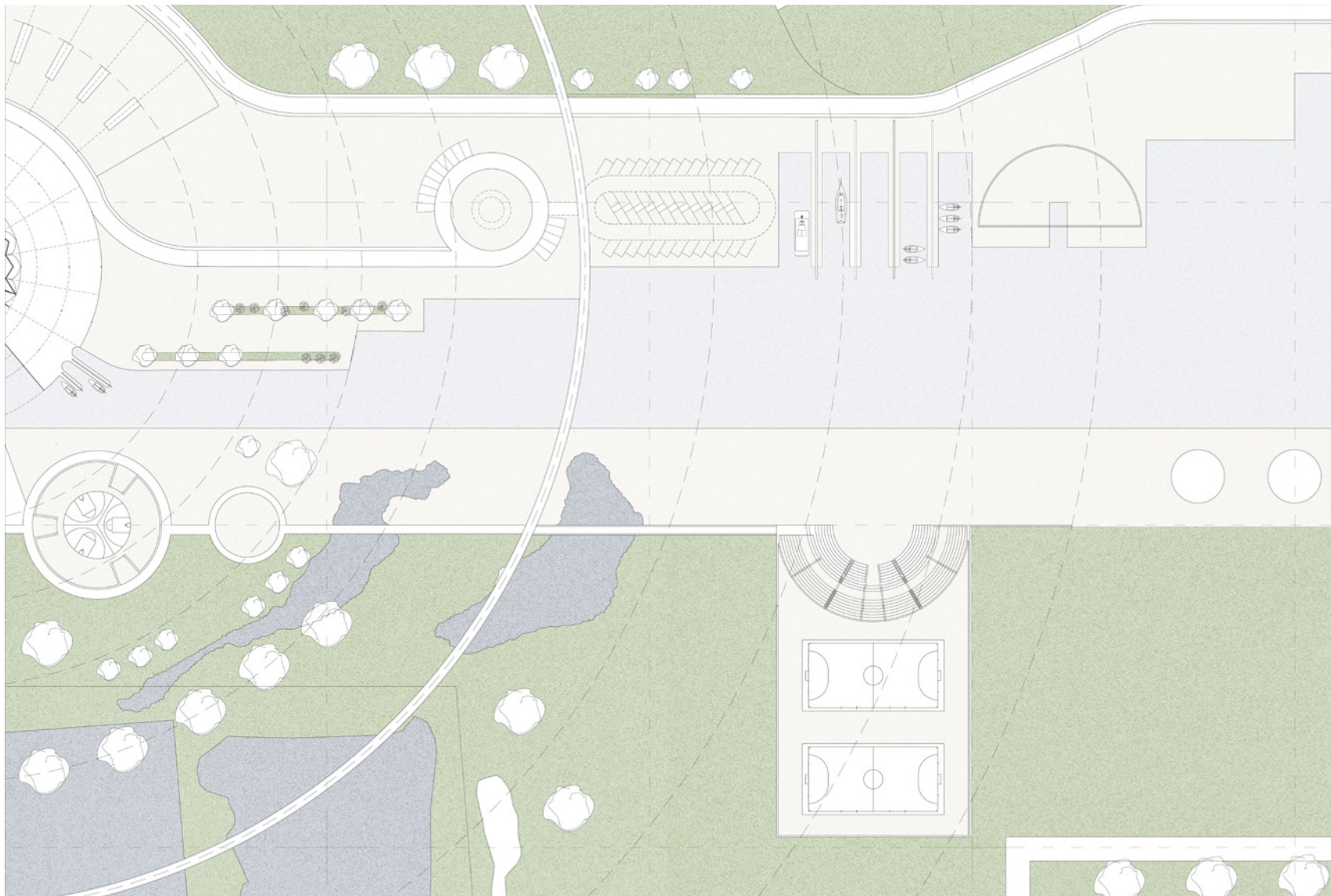


Figure 64 - Right branch of the project: entrance to the island



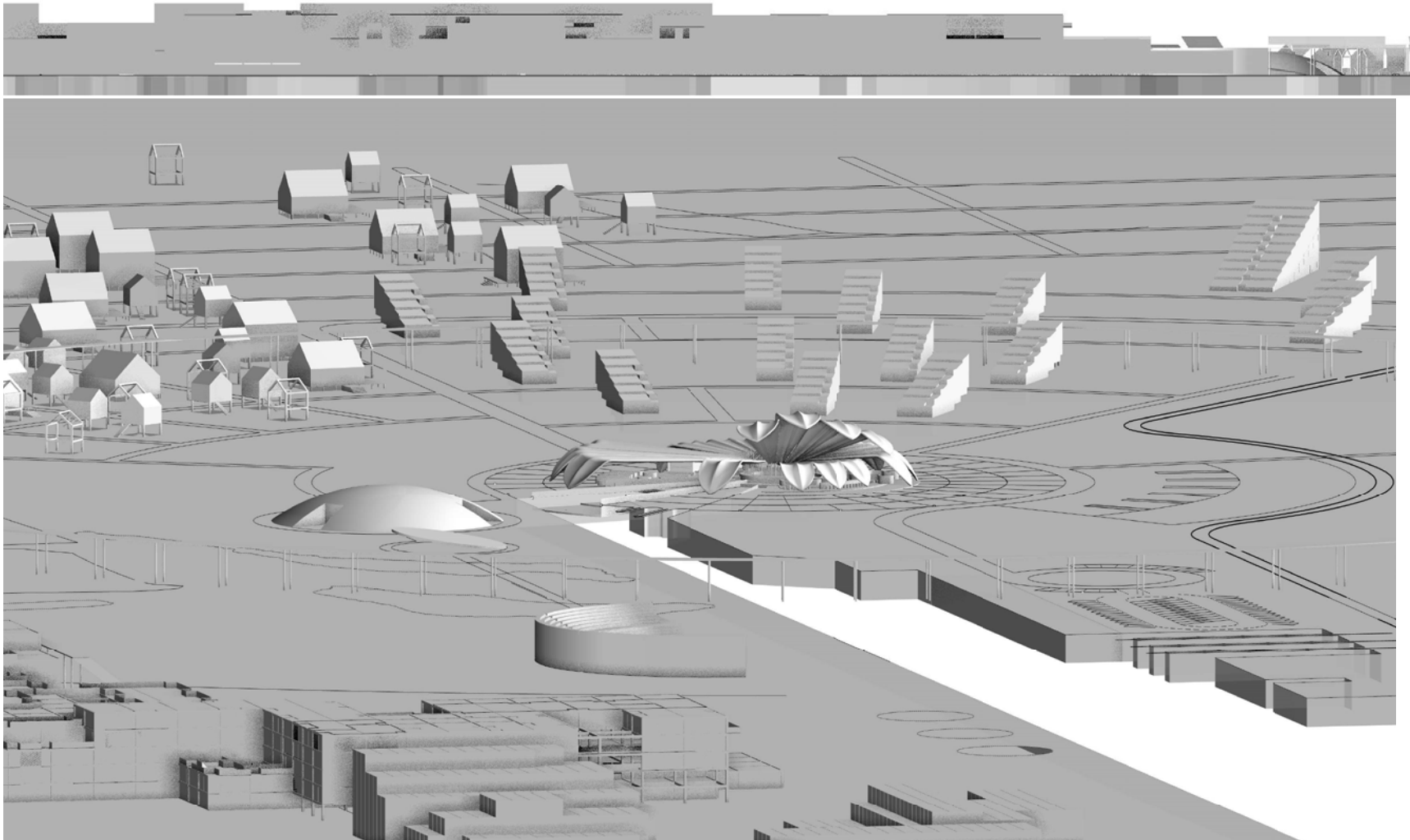


Figure 65 - View from the island entrance

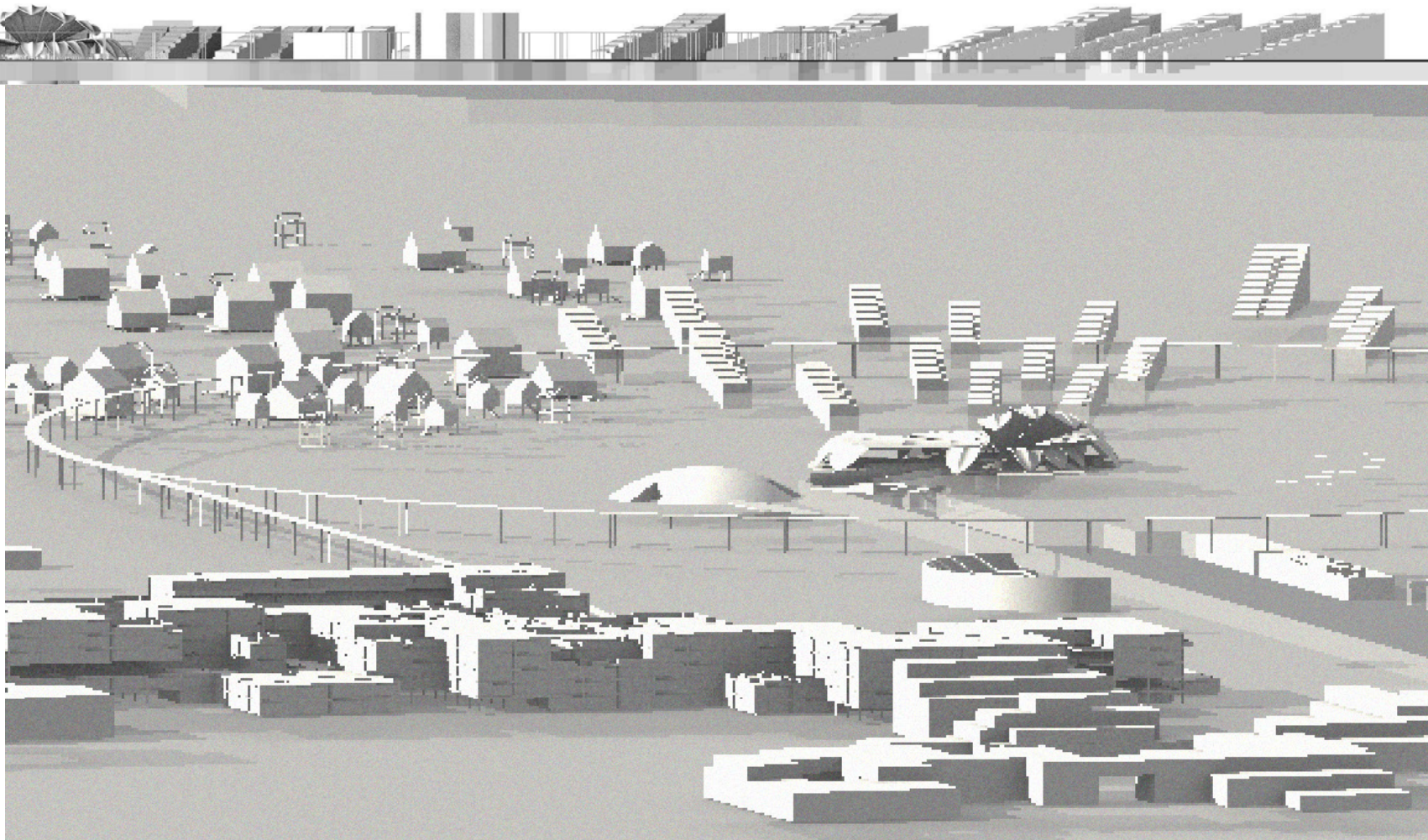


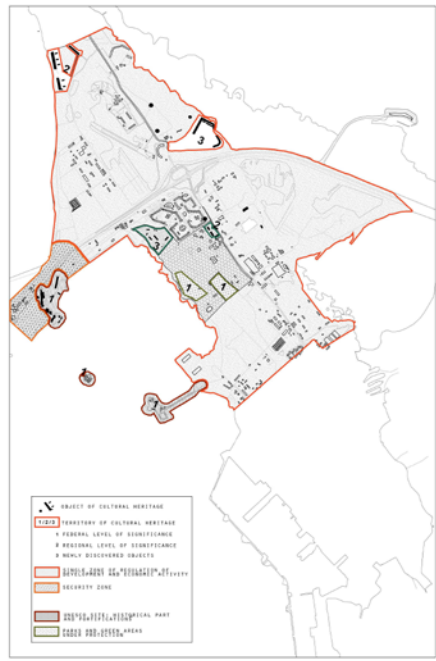
Figure 66 - View of the dacha settlement





COLLECTION OF BOARDS 2020 & 2022

HERITAGE AND PROTECTION



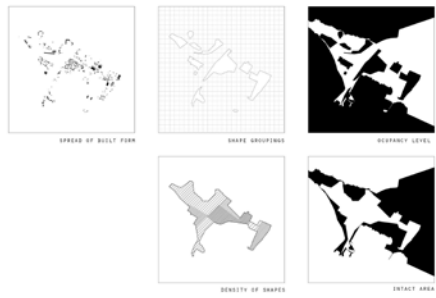
Stavros Savvay - Projected 2016

Closed to outsiders until 1996, Kronstadt is a pleasantly quiet city and naval base on Kotlin Island, 19 miles into the Gulf of Finland from Saint Petersburg. This town and its naval fortresses—a UNESCO heritage site—have protected Saint Petersburg and the northwest flank of Russia for centuries. A small place with a population of 43,000, it resembles a Saint Petersburg in miniature, with similar architecture and layout. It's technically a suburb of Saint Petersburg, but Kronstadt has its own independent spirit, and has been crucial to the identity and survival of the city it guards.

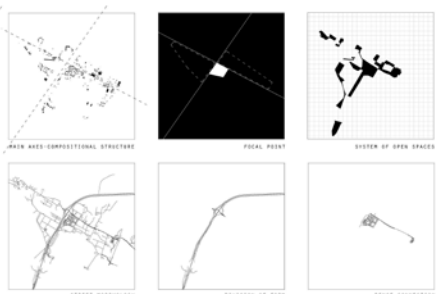
History shows that Kronstadt and the other fortifications fulfilled their role rather well. Aside from providing a deterrent to Sweden, the fortresses were also critical in the defense of Leningrad (now Saint Petersburg) during the Second World War. The city's military history is honored in a variety of ways. The island is dotted with numerous related monuments.

Much of the island is currently being reconstructed as a major tourist center focused on Russia's naval history. A cluster of new and renovated buildings, parks, and monuments call attention to the role that Kronstadt has played as the seat for the Imperial Russian Navy's administration, the historic Baltic Fleet headquarters, and the site of important events during the Russian Civil War and the Second World War. The result is not just a massive beautification effort, but also an attempt to make visitors feel a part of this history, excavating and interacting freely with its artifacts, and walking through locations that, while feeling modern, also broadcast their histories at nearly every turn.

MORPHOLOGICAL CHARACTER



Morphology of the Kronstadt built structure is characterized by the shapes of large military rectangular buildings spread in the natural environment. The structure in this area is irregularly spread throughout the central zone of the island losing its density towards edges. The built structure could be grouped in several separate forms, proving the formal detachment of the overall structure. The density of the built shapes degrades from the middle towards the edges of the area, forming the focal point around the residential block in the central part of the area. Grouping of all built structures into the single form reveals the area of the island that remains still intact by architecture. The composition of the morphological structure in the area is determined by two main intersecting axes formed

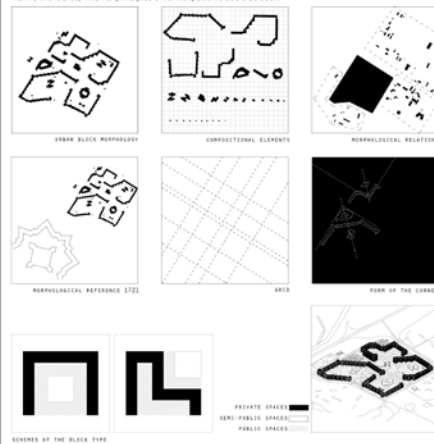


The composition of the morphological structure in the area is determined by two main intersecting axes formed by the main roads. On intersection of the axes built structure is the most compact, representing the unique formal entity. The morphology of the street system in the area is also characterized by those two axes. Starting from them the streets become gradually narrower towards the coast. The big road that connects the island to the main land divides it into two separate spatial pieces and it represents the main breakpoint in the continuity of the overall form.

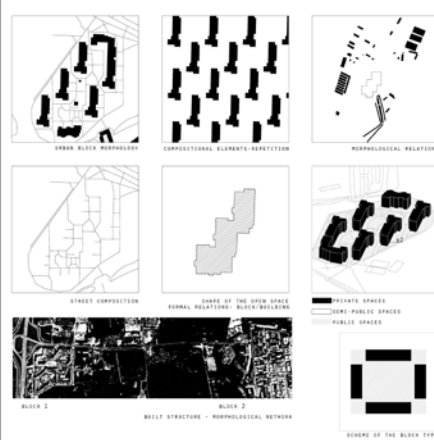


Compared to the morphology of the past, the area shows the continuation of the compositional principles. Comparing shapes from 1721 to the main built shapes of today, it is visible that the strong enclosed shapes were built in the central areas with the axial connection to the edge of the island which represents the similarity compared to the condition of today. In the comparison of the street morphology with the state from 1785 similar principles could be observed. The main axis, unlike today, was the one connecting two distant edges of the island, while the other one didn't have any role in composition forming.

By observing the two main built structures that are representing the densest and the most complex morphological forms in the area, internal principles of formal patterns could be seen.

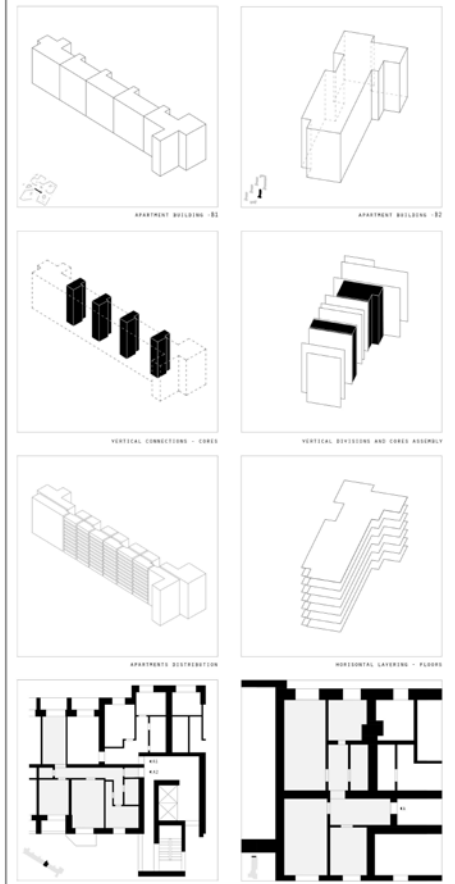


The central residential block is formed by the point shapes around which the borderline shapes are arranged in order to enclose the form. Combining multiple "U" shaped blocks with the educational facilities in the middle of each. Shapes of the blocks could be classified into four groups according to their size, differentiating the linear and point shapes. All of the shapes are arranged inside the orthogonal grid with respect to the main axes represented by the street that divides an entire composition into two parts. Linear shapes are positioned in a way that encloses the point shapes but also permitting the outer space to penetrate inside the structure without enclosing the form entirely. Adjacent structures are irregularly positioned around the block with respect to the axes formed by the edges of the block. The position of the structure on the island and its general shape could have a reference to 1721 plan of the fortification that testifies to similar morphological principles. The overall orthogonal form is broken by the treatment of its edges. One corner of the shape leaves the regularity of the grid and creates decentralization of the shape and formal guidance. Other sharp edges facing the street were cut out of the main form and treated as separate leftovers.



The second enclosed structure is characterized by the composition of the single autonomous elements arranged in form of closed space. The elements of the structure are morphologically identical and placed in a stepped manner in the orthogonal matrix. On the edges of the composition, the shape is bent so it can provide a proper enclosure. By the arrangement of the identical elements the shape of the enclosed space gained similar morphological characteristics as the elements that formed it. All of the buildings facing the street side are symbolically connected with gatelike arches proposing the private space inside of the block, while the block is fully open on the side that faces the forest.

TYPOLOGICAL CHARACTERISTICS



Two main residential complexes enable the reading of their typological features. The typological character of the apartment building B1 reveals functional groupings connected together into the single solid building. Each element revolves around the core that contains vertical communication (stairs and elevators and common balcony). Around each core, 4 apartments are distributed, composing the structure without hallways and corridors and reserving most of the space for residential purposes. Apartments are positioned in a way that each of them is having one side orientation while other sides are facing the core and adjacent apartments. The functional distribution of apartments is characterized by the arrangement of the identical elements the shape of the enclosed space gained similar morphological characteristics as the elements that formed it. All of the buildings facing the street side are symbolically connected with gatelike arches proposing the private space inside of the block, while the block is fully open on the side that faces the forest.

Apartment building B2 represents a single volume building repeated throughout the block that contains 7 buildings in total. Each building is having 2 entrances with 2 vertical communication cores. Apartments are distributed around the long central corridor with a single orientation, leaving the space at the end of the corridor for the double orientation apartments. Internal spaces are articulated with strong vertical division reflected also on the facade. Each of the buildings is connected by the street to the main road. The type is isolated from the surrounding area and forming a community inside of the block. Private spaces are articulated in the apartment buildings while the public space stays reserved for the ground floor facilitating commercial functions complementary to residential, and for the space inside the block. All of the buildings facing the street side are symbolically connected with gatelike arches proposing the private space inside of the block, while the block is fully open on the side that faces the forest.

LANDSCAPE AND ENVIRONMENT



The environment of Kronstadt is characterized by multiple overlapping elements. The landscape is composed of largely spruce forests that are interwoven with wetlands throughout the island. Forest continuity is broken by meadows and anthropogenic forms such as concrete and parks, providing the gaps in landscape composition. The natural spread is divided into two large parts with the construction of the highway that dissects the island. The environment is characterized by direct contact of the built environment and natural landscape since the typology of the buildings requires such a setting. Another important element that is a part of the Kronstadt environment is the beaches that are creating a separate atmosphere related to the water and cut from the rest of the island by the forest border. Although the east part of the island is characterized by the dense urban fabric the west part has a dominant landscape feature that overpowers the built structure.



GREEN AREAS DENSITY



002 HARBOR



003 HARBOR



004 WETLAND



005 HARBOR LANDSCAPE

AREAS ALONG THE SEA



FUNCTIONAL DISTRIBUTION ALONG THE COAST



ACCESSIBILITY AND REACHING POINTS



TYPES OF COASTLINE



006 LOWER AND MEDIUM VEGETATION



007 BEACH



008 AQUATIC VEGETATION



009 PROTECTED BEACH WITH HIGHER VEGETATION



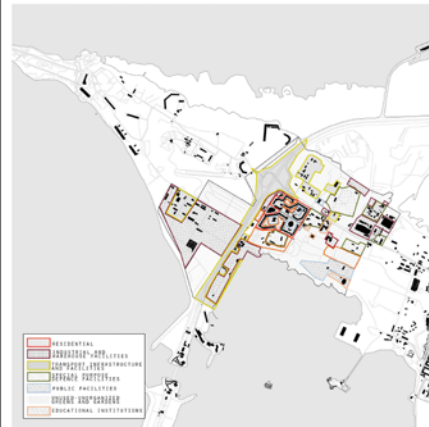
010 HIGH VEGETATION COAST



011 MEADOW

forms of the waterfront. Approaching from south-west road that is one of the island's connection with continental part of the country, coastline takes the form of the disorganized and for the most part unregulated beach with lower and higher type of vegetation that continues to spread throughout the area. As it is shown on the maps, the only built structures that reach the water are mostly just remains of the military and defense architecture of the past and facilities for military trainings, with traces of recreational activities. Regarding the accessibility from the inner part of the island, road infrastructure is developed and concentrated mostly in the middle part which leaves only smaller paths and walkways to actually reach the coast. On the opposite, north-east coast of the island, approaching the waterfront is far less possible due to the dense vegetation and its unregulated growth. Beaches, even in degraded form, are almost not present at all. Whole line of the immediate connection with water is characterized by small forests slowly developing into wetlands and eventually just becoming the Baltic Sea. Regarding the functions that take place on the very end, mainly industrial facilities managed to outreach this front, creating the unique image of Kronstadt.

SYSTEM OF URBAN FUNCTIONS



FUNCTIONAL ZONING

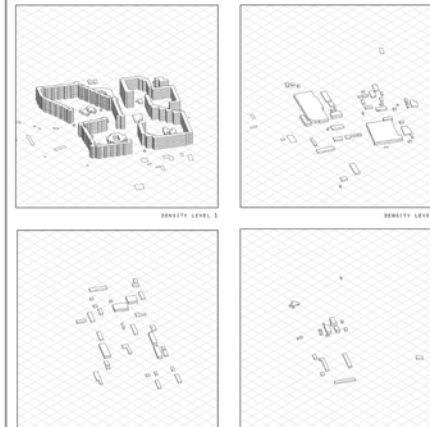
Understanding the functional organization of this part of the island is closely connected with understanding the development of the morphological structure throughout the location. Detachment of the form implies the possibility of the existence of multiple systems working as separate entities, which is to be inspected. Undeniably highest density of built structure can be seen in the central zone of the island, and it is the point from which form starts to disperse across the map. Significant part of the built structure outside of the central block is either hosting industrial / production activities, or on the other hand nothing at all - sheds, garages, ruins, remnants spread across the meadows and small forests. This kind of layout followed with large transportation infrastructure on the one hand and open unused green spaces on the other hand, shifts even more focus toward the main residential block of the island and the public facilities accompanying it. However, this nucleus is not the only home of the collective equipment - traditionally seen as just buildings that host public programs. Water distribution systems, land-use regulations or transport infrastructures are equally capable of constituting a collective around them. Collective equipment can be seen as spaces of intersection and reconfiguration of political struggles, and their role in catalyzing processes of social transformation, collective self-care and alternative forms of governance. As such, collective equipments are key devices in the formalization of popular culture.

LAND OWNERSHIP

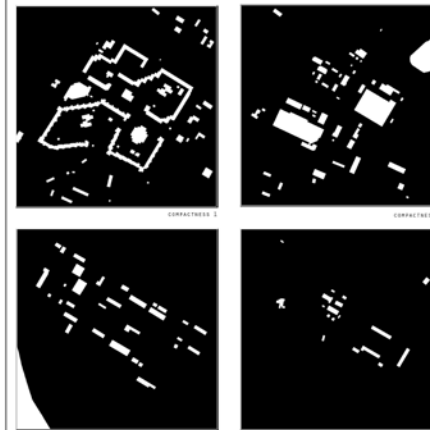


Since the Kronstadt is a military island the entire area was owned by the government, most of the built structures were used for military purposes and residential buildings were intended for the military. Lately, many of the Kronstadt areas were transformed into public areas and given to the City of San Petersburg and for many of them, such transformation is already planned. Private properties on the island are usually the ones containing residential or commercial functions. Most of the private and public properties are spread along the edges of the island, while the military property occupies the central zone of the island. Even after the release of many areas, the government still owns most of the island's territory.

BUILDING AND HOUSING DENSITY



Throughout the island different level of density and compactness of the built form are observable. Central - residential zone is characterized by average of 10 storeys per building organized in two compact semi-open blocks - which makes it the focal point of the island regarding the built environment. Second level of morphological density and compactness that can be observed on the island is far from the residential block, and since it is the industrial and production functional zone, it differs in multiple factors including the fact that the compactness of the formal composition is acquired thanks to the production needs and building typology (wide and covering bigger part of the ground level).





STATUS QUO MAP

- AREA BORDER
- HEAVILY IDENTIFIED HERITAGE SITE
- HERITAGE SITE OF FEDERAL SIGNIFICANCE
- STREET NETWORK
- WETLANDS
- FORESTS
- MANMADE GREEN
- MEADOWS
- RESIDENTIAL
- INDUSTRIAL AND WAREHOUSE FACILITIES
- HEADWAYS
- TRANSPORT INFRASTRUCTURE AND FACILITIES
- SPECIAL PURPOSE AND DEFENCE FACILITIES
- PUBLIC FACILITIES
- UNUSED/UNDERUTILIZED GREEN AREAS
- EDUCATIONAL INSTITUTIONS
- HIGH DENSITY
- MEDIUM HIGH DENSITY
- MEDIUM LOW DENSITY
- LOW DENSITY

CRITICALITIES

MILITARY HERITAGE
 MILITARY HERITAGE

SYSTEM OF OPEN SPACES
 SYSTEM OF OPEN SPACES

CENTRALIZATION
 CENTRALIZATION

BUILDING DENSITY
 BUILDING DENSITY

ISLAND ENVIRONMENT
 ISLAND ENVIRONMENT

COAST LANDSCAPE
 COAST LANDSCAPE

BEACH ACCESSIBILITY
 BEACH ACCESSIBILITY

STREET NETWORK
 STREET NETWORK

THE AREA SURROUNDING THE MILITARY HERITAGE IS HEAVILY IDENTIFIED AND PROTECTED AS THE MILITARY HERITAGE. THE PROPER REGULATIONS AND DESIGN METHODOLOGY THAT RESPECTS THE PAST HERITAGE IS CRUCIAL FOR THE AREA.

SYSTEM OF OPEN SPACES IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

CENTRALIZATION IN THE AREA CAUSES A CLOSED ENVIRONMENT WITHOUT POSSIBLE EXPANSION.

THE DENSITY OF THE BEACH STRUCTURE IS HEAVILY SPREAD ACROSS THE ISLAND WHICH LEADS TO AN UNBALANCED BALANCING WITH BEACH.

THE LANDSCAPE IS FLAT AND ALSO THE ACCESSIBILITY AND PROGRESS IN THE BEACH AREA IS LIMITED. THIS OFFERS THE OPPORTUNITY FOR ITS ARCHITECTURAL AND LANDSCAPE REGENERATION.

BEACH AREA REPRESENTS THE MOST VALUABLE LANDSCAPE AS IT OFFERS A HIGH POTENTIAL FOR DEVELOPMENT AND REGENERATION THAT REGULATES THE AREA.

BEACH INFRASTRUCTURE IS DEVELOPED AND CONCENTRATED ONLY IN THE BEACH AREA. THIS LEADS TO AN UNBALANCED REPRESENTATION OF THE BEACH POTENTIAL AND OFFERS THE OPPORTUNITY FOR ITS REGENERATION AND DEVELOPMENT.

THE BEACH AREA IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

STREET NETWORK IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

PROBLEMS / OPPORTUNITIES

PROBLEMS - LEVEL OF IDENTIFIABILITY
 PROBLEMS - LEVEL OF IDENTIFIABILITY

HEAVY REGENERATION
 HEAVY REGENERATION

BEACH REGENERATION
 BEACH REGENERATION

STREET REGENERATION
 STREET REGENERATION

HEAVY REGENERATION IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

BEACH REGENERATION IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

STREET REGENERATION IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

GENERAL ACTIONS

GENERAL ACTIONS

HEAVY REGENERATION
 HEAVY REGENERATION

BEACH REGENERATION
 BEACH REGENERATION

STREET REGENERATION
 STREET REGENERATION

HEAVY REGENERATION IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

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BEACH ACCESSIBILITY
 BEACH ACCESSIBILITY

STREET NETWORK
 STREET NETWORK

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BEACH REGENERATION
 BEACH REGENERATION

STREET REGENERATION
 STREET REGENERATION

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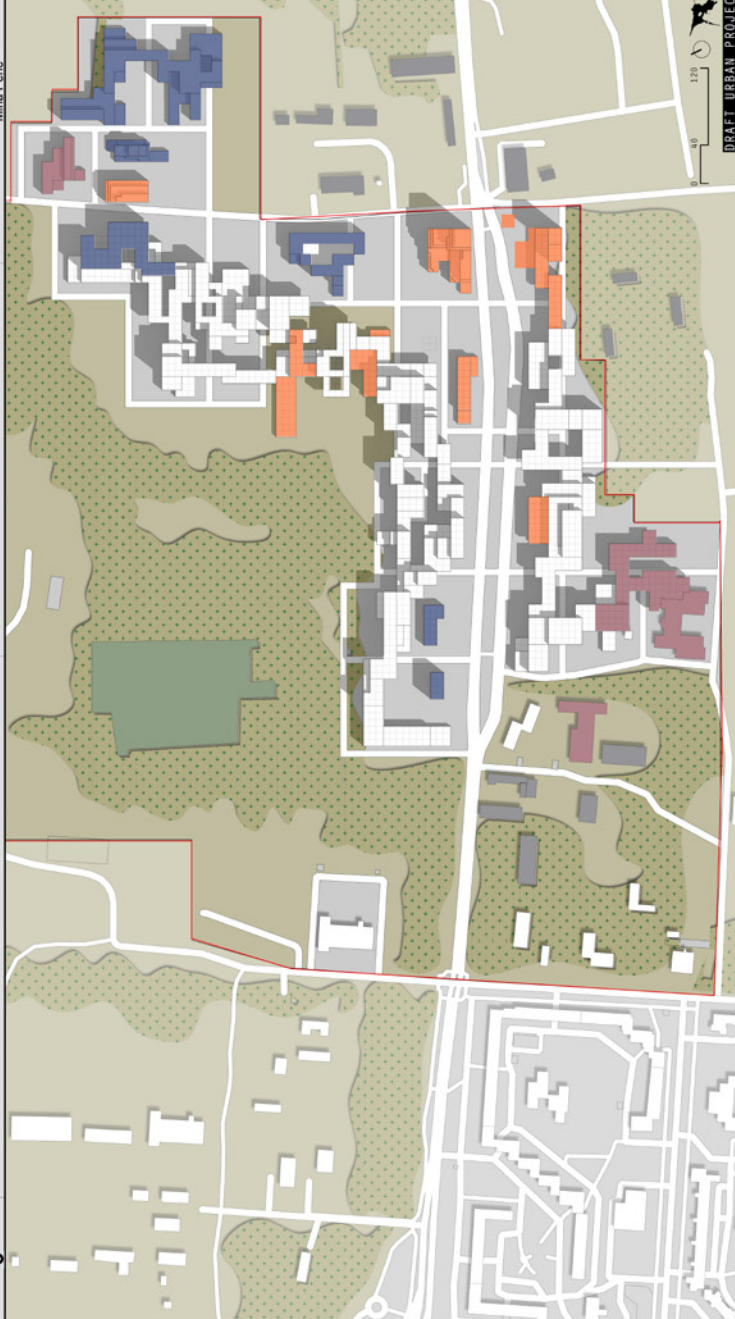
STREET REGENERATION IS CRUCIAL FOR THE AREA AND IN CONNECTION WITH BEACH AREAS IT COULD REPRESENT THE URBAN SYSTEM EXPANDING ALL OVER THE AREA.

BEACH REGENERATION
 BEACH REGENERATION

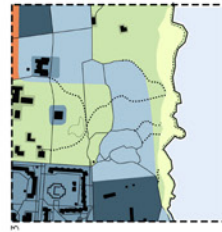
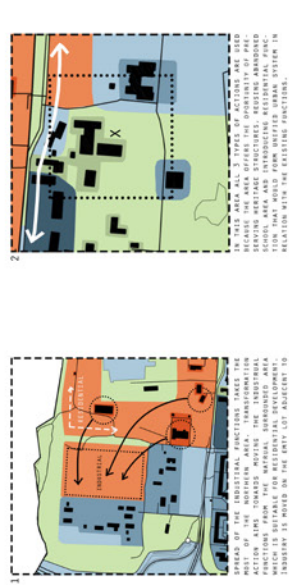
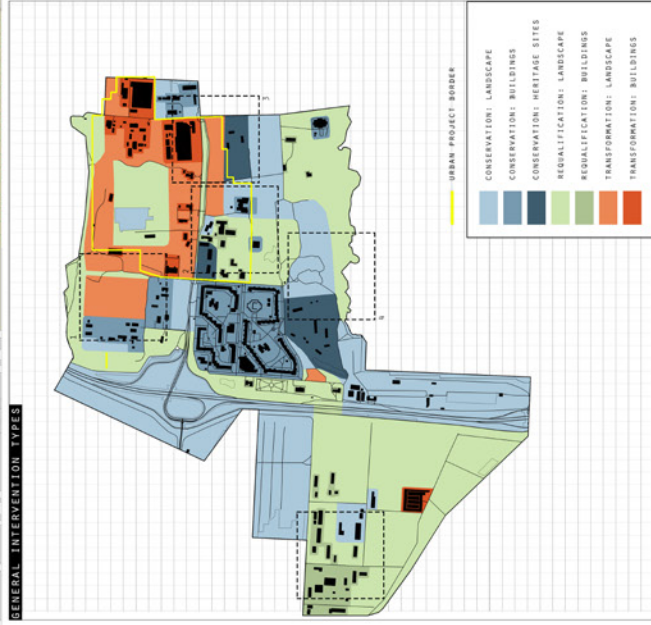
STREET REGENERATION
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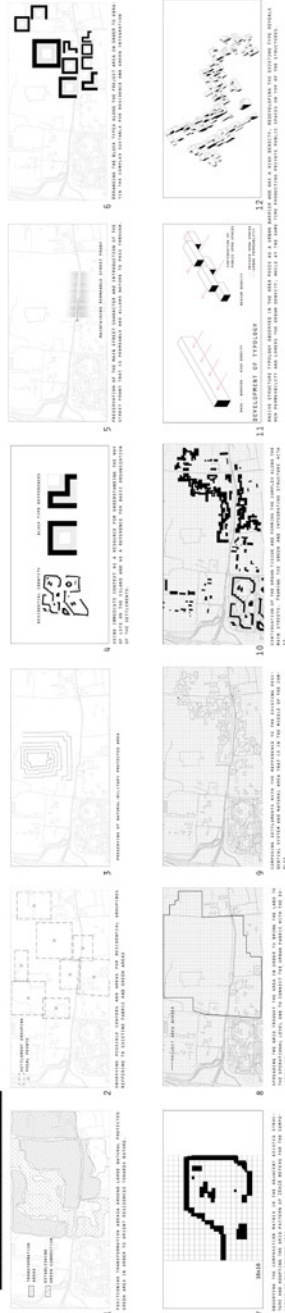
GENERAL INTERVENTION TYPES



10
 LANDSCAPE AS A MAIN FEATURE OF THE AREA IS CONSIDERED AS A HERITAGE SITE. THE INTERVENTION POINTS ARE PLACED IN THE MIDDLE OF THE AREA, WHILE THE ACCESS ARE REGULATED BY THE STREET NETWORK. THE NETWORK IS INTRODUCED IN ORDER TO ESTABLISH CONNECTION WITH WESTERN AND WESTERN PART OF THE SITE WITH SIMILAR FUNCTION.

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PROJECT GENESIS DIAGRAMS



1
 ANALYSIS OF THE SITE AND THE SURROUNDING CONTEXT. THE INTERVENTION POINTS ARE PLACED IN THE MIDDLE OF THE AREA, WHILE THE ACCESS ARE REGULATED BY THE STREET NETWORK. THE NETWORK IS INTRODUCED IN ORDER TO ESTABLISH CONNECTION WITH WESTERN AND WESTERN PART OF THE SITE WITH SIMILAR FUNCTION.

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7
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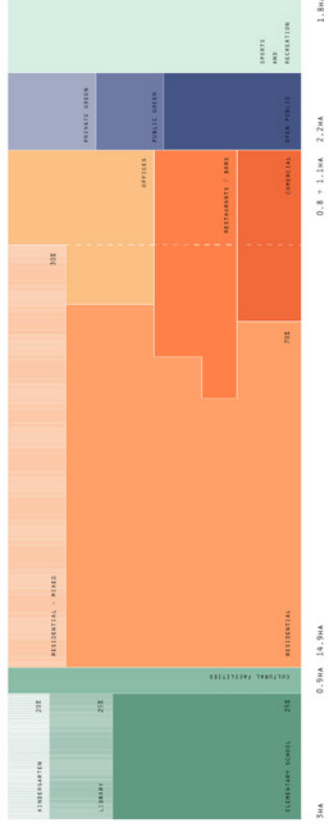
8
 ANALYSIS OF THE SITE AND THE SURROUNDING CONTEXT. THE INTERVENTION POINTS ARE PLACED IN THE MIDDLE OF THE AREA, WHILE THE ACCESS ARE REGULATED BY THE STREET NETWORK. THE NETWORK IS INTRODUCED IN ORDER TO ESTABLISH CONNECTION WITH WESTERN AND WESTERN PART OF THE SITE WITH SIMILAR FUNCTION.

9
 ANALYSIS OF THE SITE AND THE SURROUNDING CONTEXT. THE INTERVENTION POINTS ARE PLACED IN THE MIDDLE OF THE AREA, WHILE THE ACCESS ARE REGULATED BY THE STREET NETWORK. THE NETWORK IS INTRODUCED IN ORDER TO ESTABLISH CONNECTION WITH WESTERN AND WESTERN PART OF THE SITE WITH SIMILAR FUNCTION.

10
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11
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FUNCTIONAL ZONING SYSTEM



5ha 0.5ha 14.5ha

0.8 + 1.1ha 2.2ha

1.3ha

TOTAL AREA 27ha (19 + 8)

190 000sqm x 2cm/ism = 380 000CBM

380 000 / 100 = 3800t/m

3800 x 20 = 76 000sqm FOR SERVICES

190 000 - 76 000 = 114 000sqm FOR SETTLEMENT AND ROADS

80 000sqm x 2cm/ism = 160 000CBM

160 000 / 100 = 1600t/m

1600t/m x 20 = 32 000sqm FOR SERVICES

80 000 - 32 000 = 48 000sqm FOR SETTLEMENT AND ROADS

OUT OF TOTAL 27ha, BUILT VOLUME ON GROUND FLOOR IS 11.5ha

DENSITY OF SEPARATE BUILT STRINGS



EDUCATION 5ha

COMMERCIAL 5.5ha

RESIDENTIAL 14.5ha

COMMERCIAL/OFFICE 1.3ha

OPEN SPACES 2.2ha

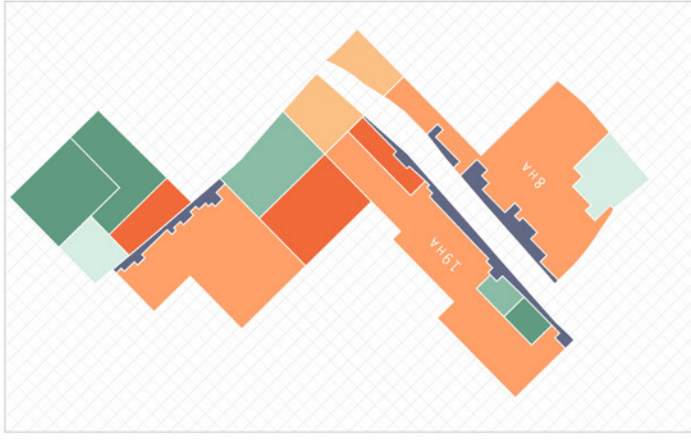
SPORT 1.3ha

REGISTRATION PARKING ENTRANCE BUILDING ENTRANCE
 PAYMENT REGULATED PRIVATE GREEN REGULATED PUBLIC GREEN CAR ROADS PEDESTRIAN PATHS
 REGULATED PRIVATE GREEN OFFICES PUBLIC GREEN
 BRASS SPORTS GREEN ROADS FOOTPATHS CAR ROADS PEDESTRIAN ROADS TREES

LEGEND FOR THE PLAN

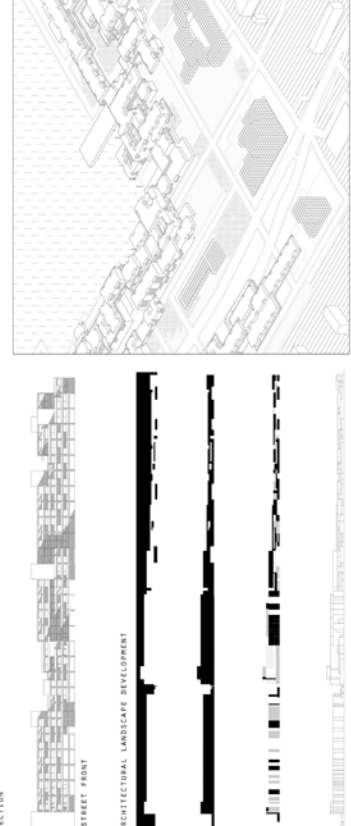
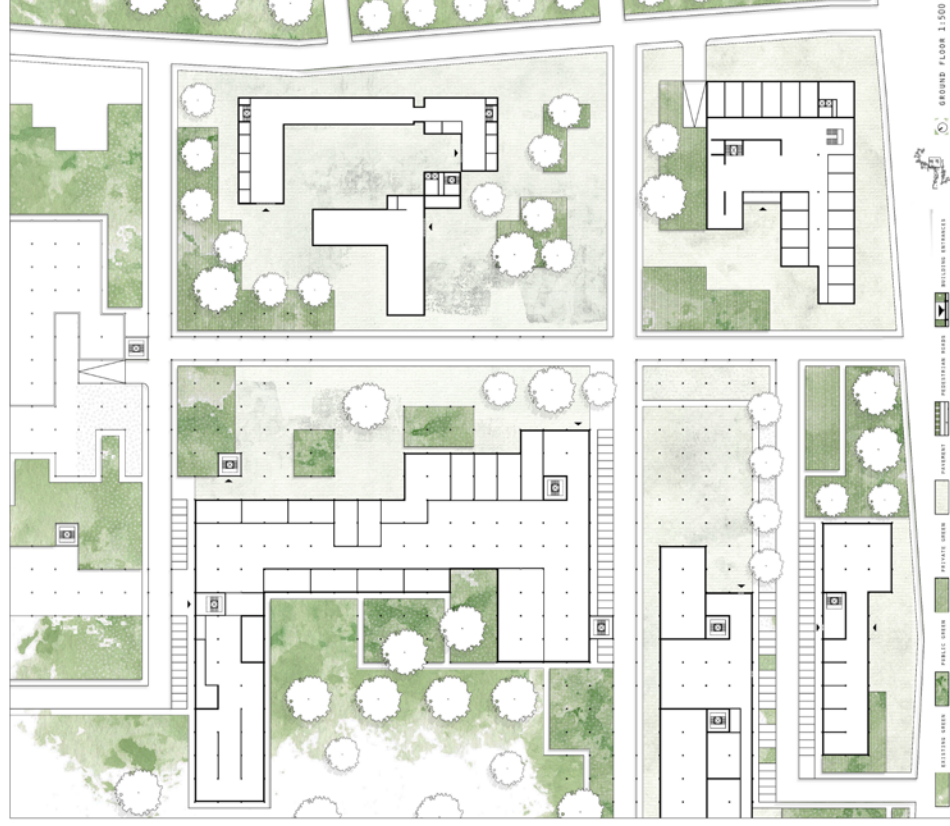


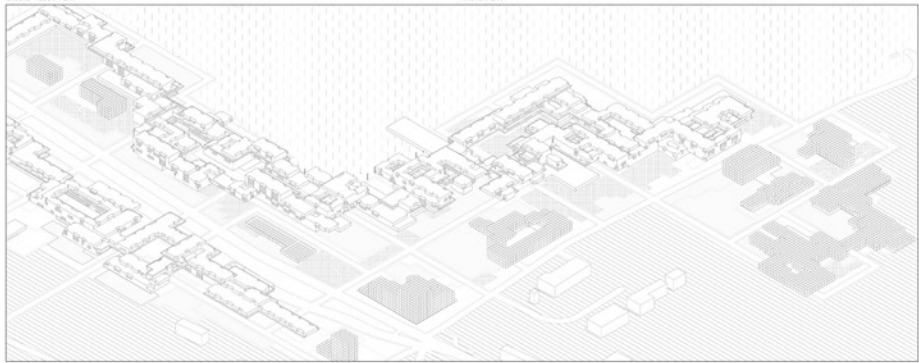
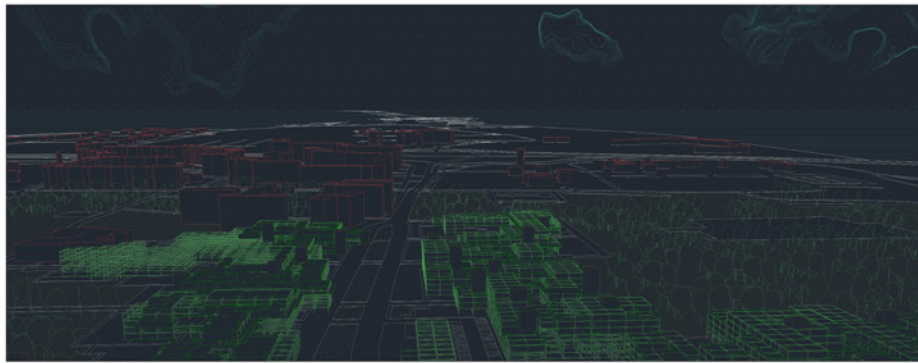
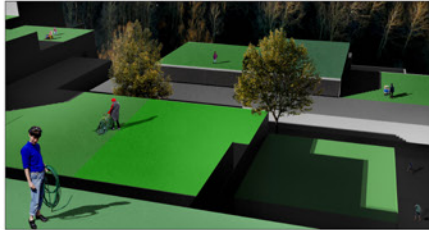
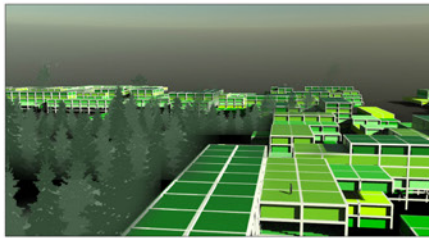
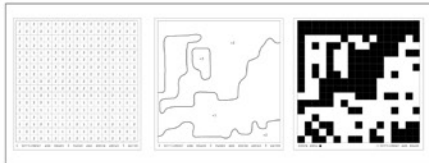
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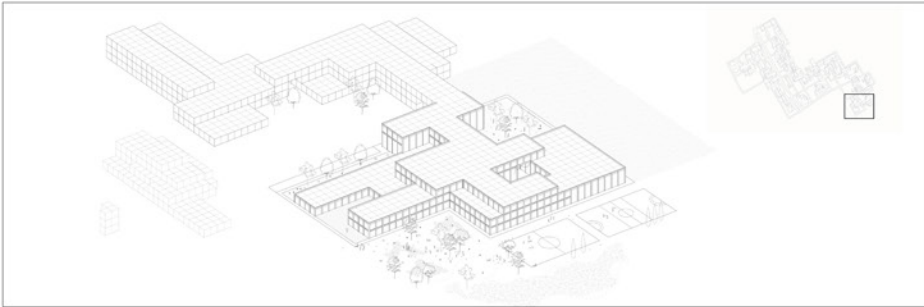


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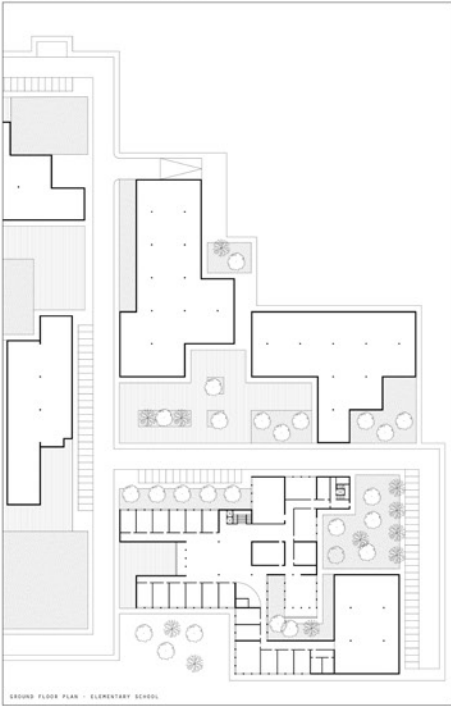




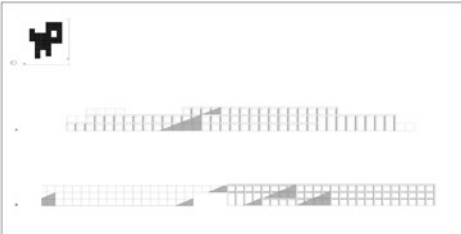




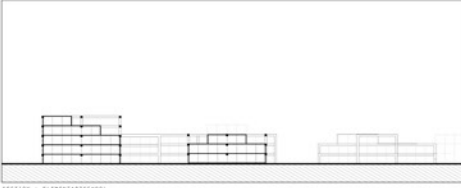
ELEMENTARY SCHOOL BUILDING DESIGN - ISOMETRIC VIEW



GROUND FLOOR PLAN - ELEMENTARY SCHOOL



FAÇADE DESIGN - ELEMENTARY SCHOOL



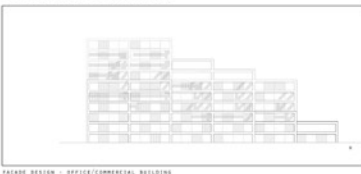
SECTION - ELEMENTARY SCHOOL



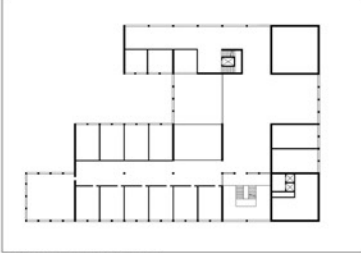
3D RENDERING - ELEMENTARY SCHOOL



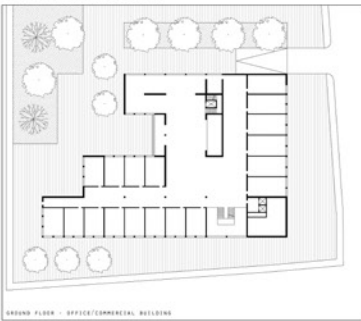
OFFICE/COMMERCIAL BUILDING DESIGN - ISOMETRIC VIEW



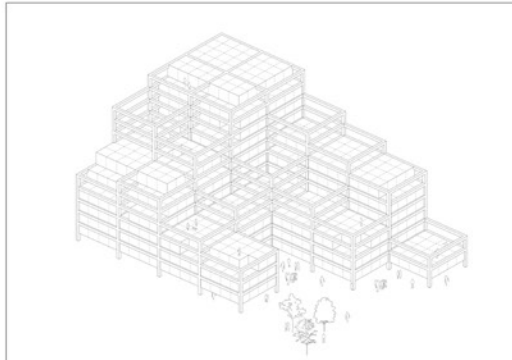
FAÇADE DESIGN - OFFICE/COMMERCIAL BUILDING



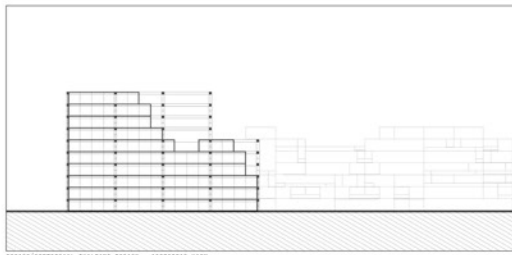
FIRST FLOOR - OFFICE/COMMERCIAL BUILDING



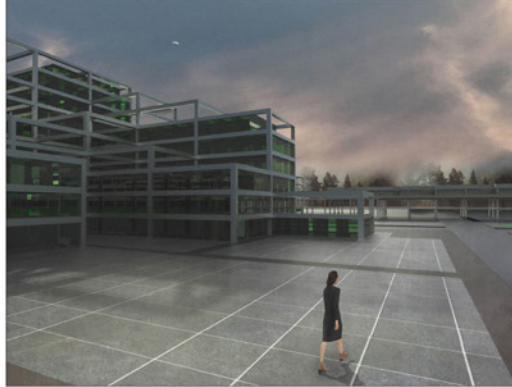
GROUND FLOOR - OFFICE/COMMERCIAL BUILDING

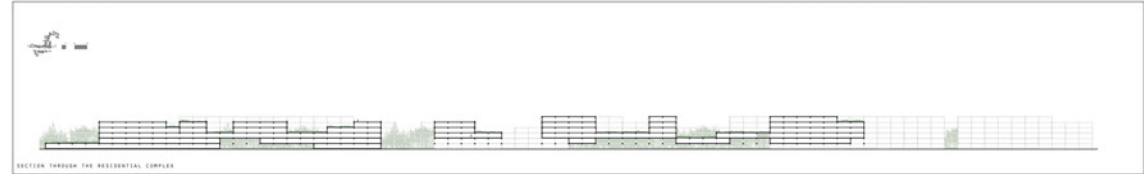
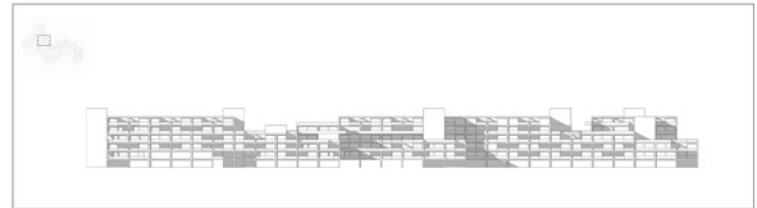
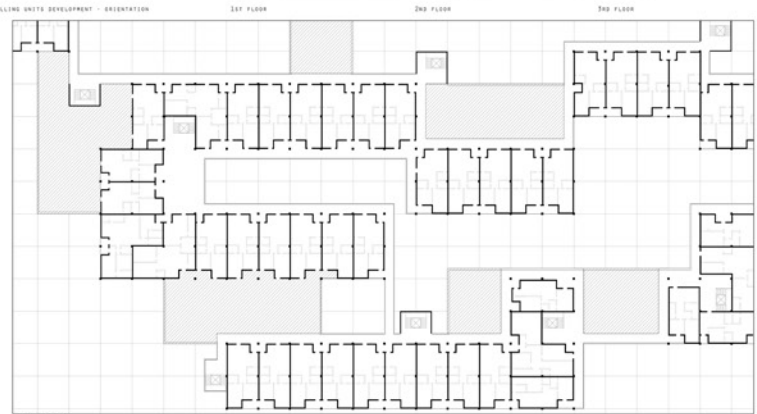
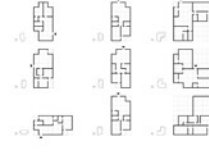


OFFICE/COMMERCIAL BUILDING DESIGN - ISOMETRIC VIEW



OFFICE/COMMERCIAL BUILDING DESIGN - ISOMETRIC VIEW





Kronstadt is a pleasantly quiet city and naval base on Kotlin Island, 30 kilometers into the Gulf of Finland from Saint Petersburg. This town and its naval fortresses — a UNESCO heritage site — have protected Saint Petersburg and the northwest flank of Russia for centuries. A small place with a population of 43,000, resembles a Saint Petersburg in miniature, with similar architecture and layout. It's technically a suburb of Saint Petersburg, but Kronstadt has its own independent spirit, and has been crucial to the identity and survival of the city it guards.

Thanks to tectonic cataclysms, the place where the island of Kotlin is located has descended and risen, becoming the seabed before ultimately turning into an island. All of these motions has led to a unique alternation between marine and continental sediments, creating quite specific geological structure of the valley. In addition to this, Neva river has been washing away the lower layers of island for centuries, forming its current shape which resembles a bird's eye view of a prehistoric animal that may have been one of the inhabitants.



POSITION OF THE ISLAND IN RELATION TO CITY OF SAINT PETERSBURG AND MAIN MARINE AND CONTINENTAL CONNECTIONS

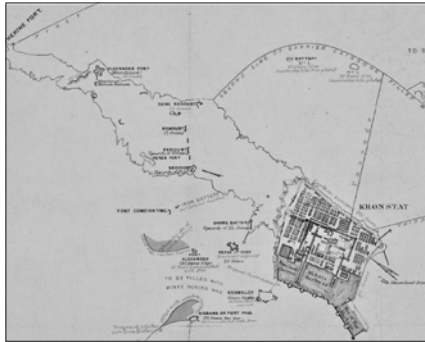


POSITION OF THE CITY OF KRONSTADT ON THE KOTLIN ISLAND AND THE MAIN CONNECTING AXES



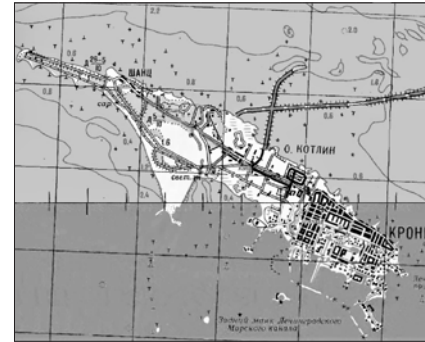
VIEW OF THE OLD FORTIFIED CITY OF KRONSTADT THAT HAS MAIN POINT OF DEFENSE FOR CENTURIES





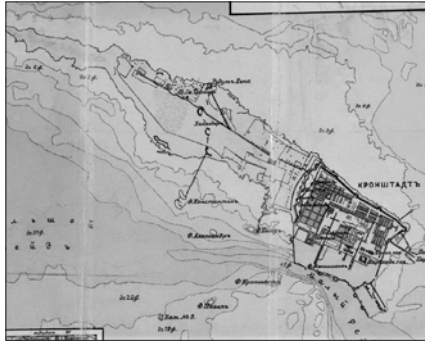
1850

FROM THE YEAR 1703, WHEN THE ISLAND BECAME AN OFFICIAL NAVAL BASE, THROUGHOUT ITS TERRITORY IT IS POSSIBLE TO IDENTIFY A CONTINUOUS SPROUT OF DIFFERENT FORTIFICATIONS, CANALS, DOCKYARDS AND EVENTUALLY HOUSING AND PUBLIC BUILDINGS.



1885

ISLAND "REACHES" THE CONTINENTAL PART WITH NEW CONNECTIONS BUT IN PRACTICE IT STAYS CLOSED FOR THE PUBLIC ALLOWING ONLY ENTRY WITH A SPECIAL PERMISSION. THIS SETTING WILL LAST UNTIL 1996.



1900

IN PREVIOUS HALF OF THE CENTURY ADDITIONAL SET OF FORTIFICATIONS GREW ON THE ISLAND, GRANITE FORTS BECAME VULNERABLE AND EVENTUALLY EXCHANGED FOR EARTH ONES. KRONSTADT STARTED CONNECTING WITH OTHER HALF OF THE ISLAND.



1990

BEFORE THE 1996, WHEN THE CITY FINALLY OPENED ITS DOORS TO THE VISITORS, ISLAND WENT THROUGH LANDSCAPE CHANGES DUE TO EROSION, NEW DAMS FOR FLOOD PROTECTION APPEARED AS AN IDEA AND OVERALL CONNECTION AND ACCESSIBILITY ON THE ISLAND STARTED DEVELOPING.



1941

IN 1921 KRONSTADT WAS THE SETTING ITSELF FOR AN UNSUCCESSFUL REBELLION AGAINST THE COMMUNIST GOVERNMENT OF THE EARLY SOVIET STATE; THIS SPECIFIC YEAR THE CITY IS RAIDED BY GERMAN LUFTWAFFE, SIEGE BEGUN AND THE ISLAND WAS ISOLATED.



2001

THE CITY HAS BEEN OPEN TO THE PUBLIC FOR 5 YEARS. "WINGS" OF THE ISLAND CONNECTED WITH THE CONTINENTAL PART DRABSTICALLY IMPROVING THE ACCESSIBILITY, NEW SETTLEMENTS STARTED APPEARING OUTSIDE THE BORDERS OF OLD KRONSTADT AND ISLAND FINALLY STARTED RECOGNIZING ITS POTENTIALS FOR FUTURE DEVELOPMENT.



LANDSCAPE AND ENVIRONMENT

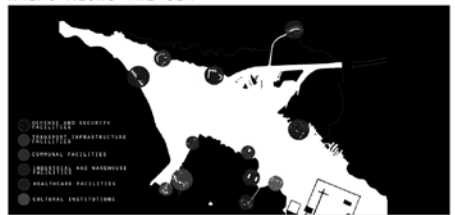


The environment of Kronstadt is characterized by multiple overlapping elements. The landscape is composed of largely spread forests that are intertwined with wetlands throughout the island. Forest continuity is broken by meadows and anthropization forms such as cemeteries and parks, providing the gaps in landscape composition. The natural spread is divided into two large parts with the construction of the highway that dissects the island. The environment is characterized by direct contact of the built environment and natural landscape since the typology of the buildings requires such a setting. Another important element that is a part of the Kronstadt environment is the beaches that are creating a separate atmosphere related to the water and out from the rest of the island by the forest border. Although the west part of the island is characterized by the dense urban fabric the west part has a dominant landscape feature that overpowers the built structure.



TYPES OF LANDSCAPE

AREAS ALONG THE SEA



FUNCTIONAL DISTRIBUTION ALONG THE COAST



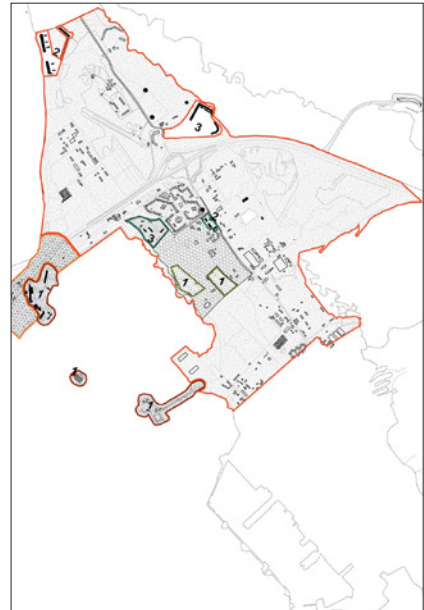
ACCESSIBILITY AND REMAINING POINTS



TYPES OF THE COASTLINE



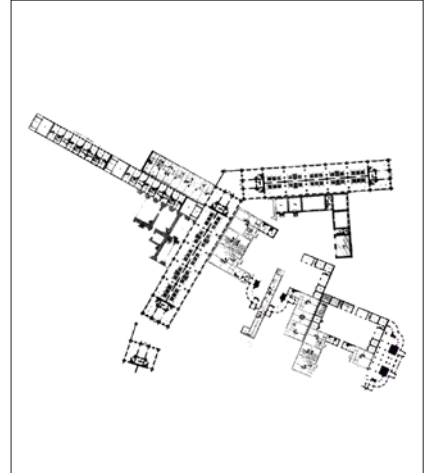
forms of the waterfront. Approaching from south-west road that is one of the island's connection with continental part of the country, coastline takes the form of the disorganized and for the most part unregulated beach with lower and higher type of vegetation that continues to spread throughout the area. As it is shown on the maps, the only built structures that reach the water are mostly just remains of the military and defense architecture of the past and facilities for military trainings, with traces of recreational activities. Regarding the accessibility from the inner part of the island, road infrastructure is developed and concentrated mostly in the middle part which leaves only smaller paths and walkways to actually reach the coast. On the opposite, north-east coast of the island, approaching the waterfront is far less possible due to the dense vegetation and its unregulated growth. Beaches, even in degraded form, are almost not present at all. Whole line of the immediate connection with water is characterized by small forests slowly developing into wetlands and eventually just becoming the Baltic Sea. Regarding the functions that take place on the very end, many industrial facilities managed to outreach this front, creating the unique image of Kronstadt.



SYSTEM OF URBAN FUNCTIONS



Understanding the functional organization of this part of the island is closely connected with understanding the development of the morphological structure throughout the location. Detachment of the built structure is associated by the existence of multiple systems working as separate entities, which is to be inspected. Unusually highest density of built structures can be seen in the central zone of the island, and in the open form which is suitable to observe across the map. Significant part of the built structure outside of the central block is either housing or industrial production facilities, or on the other hand, remains of all air-traffic, garage, ruins, remnants spread across the meadows and small forests. This kind of layout followed with large transportation infrastructure on the one hand and open-landed green spaces on the other hand, which even today focus toward the most residential block of the island and the public facilities accompanying it. However, this nucleus is not the only focus of the collective environment - traditionally open-air built public programs, leisure distribution systems for these regulations or transport infrastructures are equally capable of constituting a collective around them. Collective environment can be seen as a space of interaction and negotiation of political struggles, and their role in catalyzing processes of social transformation, collective self-care and alternative forms of governance. As such, collective equipments are key devices in the formalization of popular culture.





CRITICALITIES



MILITARY HERITAGE CHARACTERIZES THE ENTIRE AREA AND AS SUCH SHOULD BE REVALUED AND PROMOTED AS THE ELEMENT OF THE PLACE. LEGISLATION, APPROPRIATE REGULATIONS AND DESIGN METHODOLOGY THAT RESPECTS THE PAST

SYSTEM OF OPEN SPACES TO SCATTERED AND IN CONNECTION WITH GREEN AREAS IT COULD REPRESENT THE URBAN SYSTEM CONSIDERED HAS OVER THE AREA

SERVICES AND FUNCTIONS ARE MAINLY CENTRALIZED IN THE AREA CREATING ENCLOSED SPACES, WITHOUT POSSIBLE SPREADS.

THE DENSITY OF THE BUILD STRUCTURE IS OVERLY SPREAD ACROSS THE ISLAND WHICH LEAVES THE POTENTIAL FOR ITS BALANCED CITY SCENE.

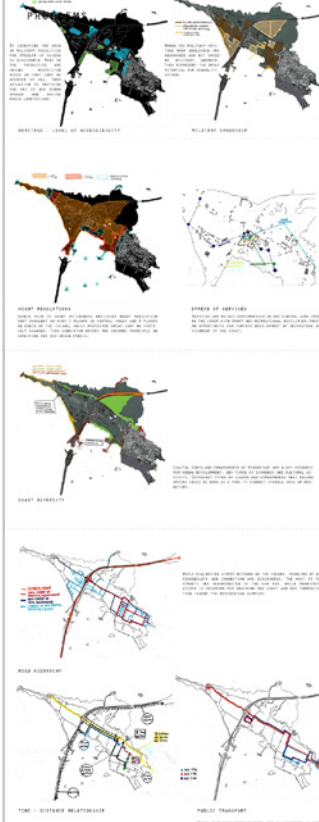
THE LANDSCAPE IS INTACT AND WILD THROUGHOUT THE AREA WHICH IMPROVES THE ACCESSIBILITY AND MOVEMENT ON THE ISLAND. THE NATURAL POTENTIAL OFFERS THE OPPORTUNITY FOR ITS ARTICULATION.

BEACH AREA REPRESENTS THE MOST VISITED PART OF THE ISLAND AND ITS LANDSCAPE IS AN URBAN POTENTIAL THAT COULD BE DEVELOPED IN A WAY THAT REGULATES THE AREA.

ROAD INFRASTRUCTURE IS DEVELOPED AND CONCENTRATED MOSTLY IN THE MIDDLE PART WHICH LEAVES ONLY SMALLER PARTS AND WALKERS TO ACTUALLY REACH THE COAST SINCE THE GREAT REPRESENTS THE GREAT POTENTIAL FOR THE DEVELOPMENT. THE CONNECTION THROUGHOUT THE ISLAND LEAVES SPACE FOR IMPROVEMENT.

ADVANCING THE INFRASTRUCTURE THAT IMPROVES MOVEMENT IN THE AREA CAN BE AN IMPORTANT STEP IN URBANIZATION PROCESS.

PROBLEMS / OPPORTUNITIES



THE MAIN ROAD IS ACTING AS LARGEST DIVISION IN THE AREA GREEN CONNECTION COULD BE USED TO OVERCOME THAT OBSTACLE. BY INTRODUCING THE ARTICULATED GREEN AREAS SPACES WILL GAIN ON USE AND COAST WILL BE CONNECTED TO THE CENTRAL RESIDENTIAL ZONE MEANWHILE PRODUCING THE INTEGRATED URBAN SYSTEM.

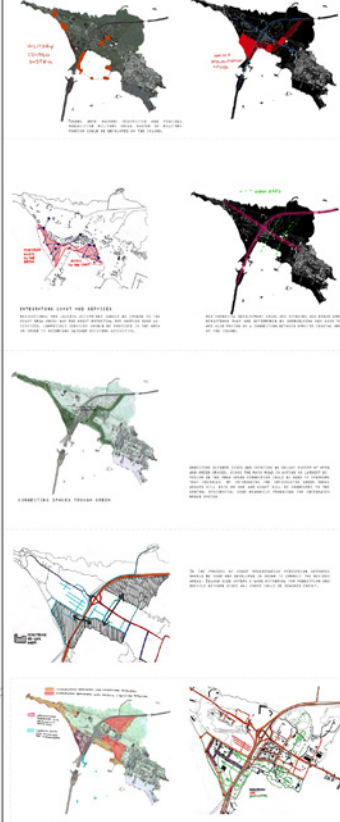
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GENERAL ACTIONS



MILITARY HERITAGE CHARACTERIZES THE ENTIRE AREA AND AS SUCH SHOULD BE REVALUED AND PROMOTED AS THE ELEMENT OF THE PLACE. LEGISLATION, APPROPRIATE REGULATIONS AND DESIGN METHODOLOGY THAT RESPECTS THE PAST

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THE LANDSCAPE IS INTACT AND WILD THROUGHOUT THE AREA WHICH IMPROVES THE ACCESSIBILITY AND MOVEMENT ON THE ISLAND. THE NATURAL POTENTIAL OFFERS THE OPPORTUNITY FOR ITS ARTICULATION.

After thorough analysis of the context, island is understood as an entity divided into two main categories of the environment, natural and urban. The main idea of the project is to create a transitional zone, to connect those separated entities and to establish an island as a whole. Starting from the scale of the entire island, after adopting the requirements made by general plan of San Petersburg main planning goals are made.

- Reuse of abandoned military structures - Military heritage characterizes the entire area and as such should be highlighted and promoted as the identity of the place. Among the military heritage many buildings are abandoned and not owned by military anymore. They have the great potential for requalification and as such could be used for establishing of the military tourism route (Figure 1a) that would induce further exploration and use of the island.
- Establishing green connection - The landscape is intact and wild throughout the area which reduces the accessibility and movement on the island.

Coastal zones and embankments of Kronstadt are a key resource for urban development, new types of economic and cultural activity. Different types of coasts and atmospheres that island offers could be used as a tool to connect overall area of Kronstadt. Connecting divided sides and creating an unique system of open and green spaces (Figure 1b). Since the main road is acting as largest division in the area green connection could be used to overcome that obstacle. By introducing the articulated green areas spaces will gain on use and coast will be connected to the central residential zone meanwhile producing the integrated urban system.

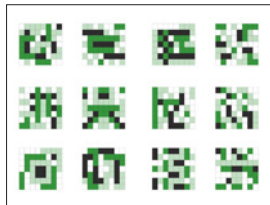
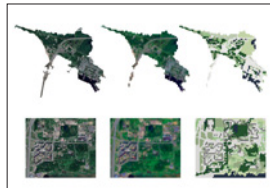
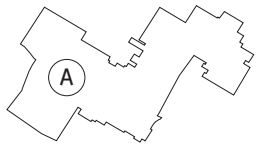
- Pedestrian road network - road infrastructure is developed and concentrated mostly in the middle part which leaves only smaller paths and walkways to actually reach the coast. Since the coast represents the great potential for the development, this network should be widened so the island could reach the edges easily. While evaluating street network on the island, problems of accessibility and connection are discovered. The most of the streets are subordinated to the car use, while pedestrian access is reserved

for reaching the coast and for communication inside the residential complex. In the process of coast regeneration pedestrian networks should be used and developed in order to connect the divided areas. (Figure 1c) Island size offers a good potential for pedestrian and bicycle network since all edges could be reached easily.

Secondary goals included: Heritage accessibility, integrating coast and services, maintaining the height regulations. After the analysis of the uses and potentials of all island areas, the location for the urban project is set. Based on the available land positions from general plan of San Petersburg, proximity to the proposed green and military network and as a location with a high potential for residential development. Location covers the only unused area possible for development and industrial area that was framing the large protected green space with the proposal to replace it with the residential function. Intervention spreads along the main street that connects the urban and natural part of the island.







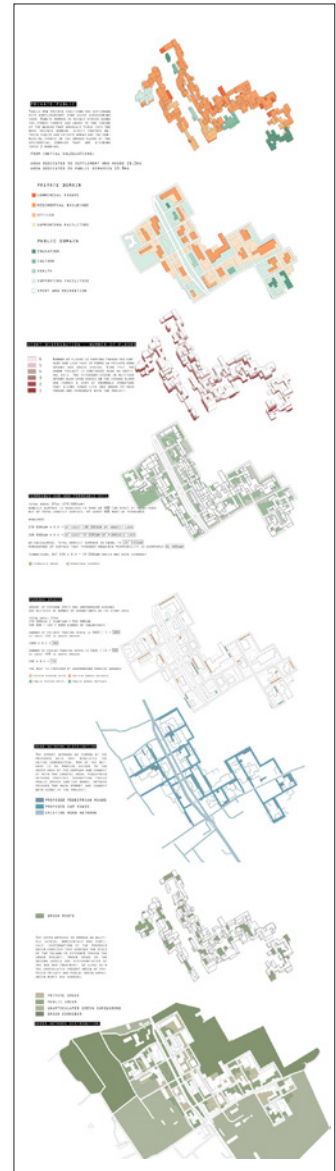
STRATEGY OF DESIGN DEVELOPMENT



MASTERPLAN



GROUND FLOOR PLAN



On the given area multiple centers and areas for residential groupings are observed, referring to the existing urban fabric and green areas, while the protected forest area is completely preserved.

Using the immediate context as a resource for the understanding the way of life on the island and as a referent 1) for basic organization of the settlements main block types are designated.

By observing the composition matrix in the adjacent existing structure, the present operative strategy is adopted and the grid is imposed on the area in order to bring the island to operational scale and extend the present urban composition.

This way, space of the project is divided into the equal parts for the purpose of interacting with the environment in an orderly manner. Using the Hoornse Kwadrant project by MVRDV as a reference for this kind of approach, typological system that offers permeability and lowers urban density is developed, while at the same time produces private public spaces on top of the structures.

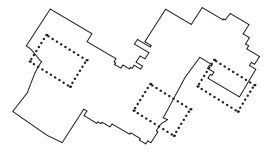
With an aim to create an urban system and strategy that could be later extended and more developed by need, the modular system is genesis steps adopted. The traditional block system present in the area is preserved and translated in the system of modular elements overlapping with each other and forming a dynamic urban tissue that could be later extended by the same principle.

Structural principle of the operating with modular elements in the fixed conditions is applied according to the present natural context.

After introducing spatial patterning as a principle, the project is set in a linear manner in order to act as a spatial and physical connection between built and natural area. As a way to vertically extend the urban space and to integrate it with green and residence, the modular patterning allowed extensions of the open spaces on multiple floors creating an urban system that vertically develops through the area.

With an aim of integration residential urban area with green, ground floor plan acts as a permeable urban tissue that allows activity and life to pass through and like that, forms a connection between separated sides of the island. The road network develops starting from the main street that is used as a spine on which the facilities, such as commerce and schools, are grouped. On both sides there are streets lined with dwellings. The perpendicular streets were laid out to a plan. These dispositions of opposing bends and abrupt corners, which interrupted the perspective, accentuated the private character of these secondary streets.

The objective of this project was to propose a way to organize an urban complex integrated with green, and offer an experimental way of residence that would include urban spaces on all levels and that would obtain significance by reflecting present morphology in a new way. In its physical, programmatic, and social aspects, it builds a community complex through the establishment of pattern order that represents adoptable system that is operational at multiple scales.



SCHOOL - VIEWS

SCHOOL - GROUND PLAN

OFFICE BUILDING - VIEW

OFFICE BUILDING - PLANS

OFFICE BUILDING - SECTION

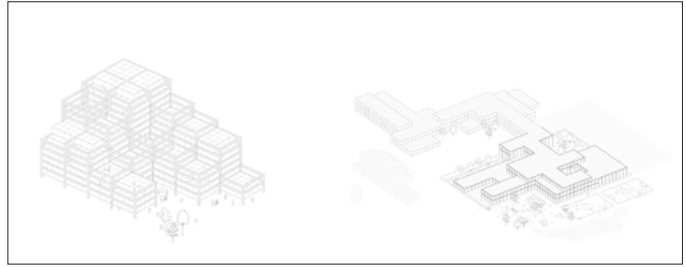
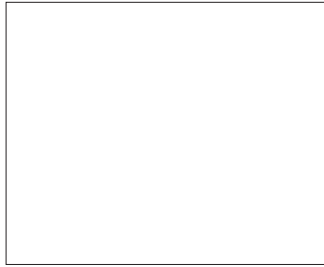
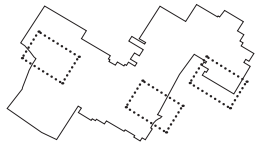
VIEW

PLAN VARIATIONS

CLOSE-UP PLAN

APARTMENTS TYPOLOGY - ORIENTATION

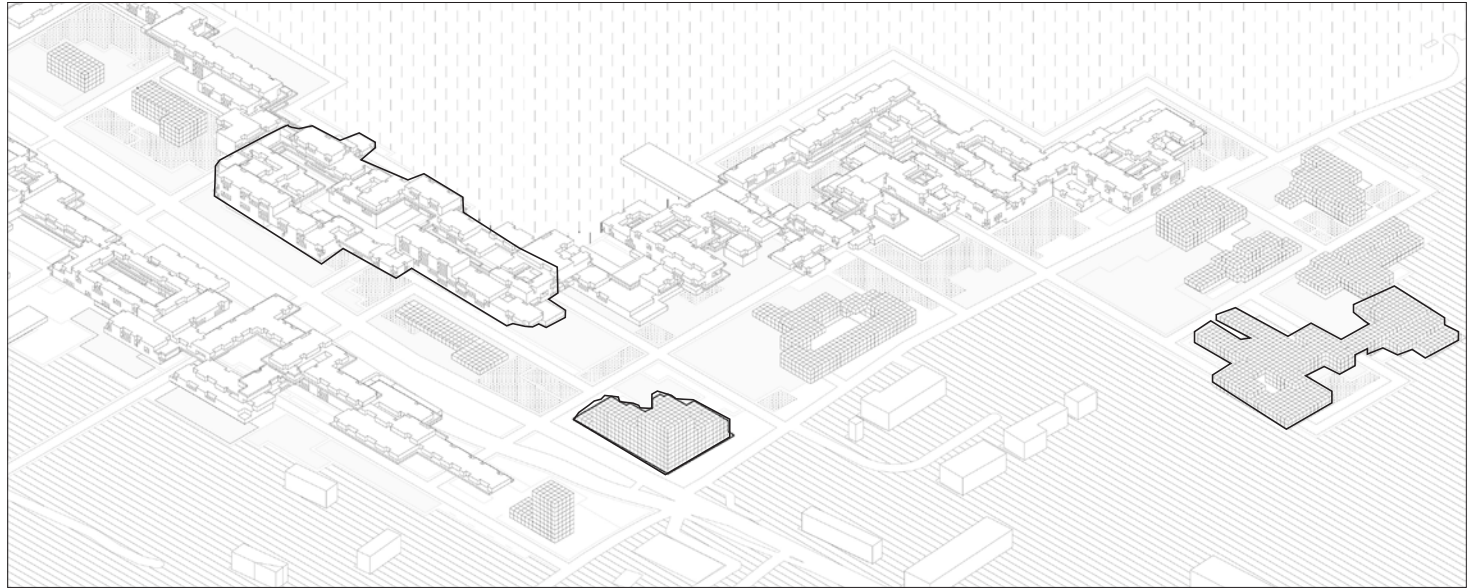
RESIDENTIAL BUILDINGS - SECTION



RESIDENTIAL COMPLEX

OFFICE BUILDING

SCHOOL



AXONOMETRY OF THE WHOLE COMPLEX WITH MARKED BUILDINGS THAT WERE DEVELOPED IN DETAIL



EXPLODED AXONOMETRY OF THE COMPLEX



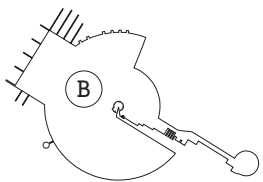
RESIDENTIAL COMPLEX



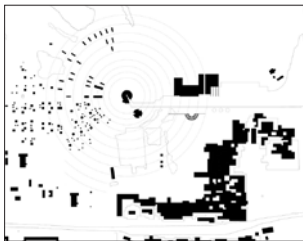
OFFICE BUILDING



SCHOOL



NETWORK OF ROADS



BUILT ENVIRONMENT



LANDSCAPE - GREEN AREAS



LANDSCAPE - WATER ELEMENT

- ① NEW GATE FOR KRONSTADT
- ② STANDARD DACHA SETTLEMENT
- ③ RADIAL INTERPRETATION OF DACHA
- ④ TERRACED MULTIHOUSING UNITS
- ⑤ NEW PUBLIC TRANSPORT STATION
- ⑥ TERRACED MULTIHOUSING - DOUBLE
- ⑦ DOCKS - HARBOUR
- ⑧ LANDSCAPE AMPHITHEATRE
- ⑨ SPORT OBJECT
- ⑩ CHURCH ENSEMBLE



General aim of the project was to, in accordance with the current geographical, political and socio-economic characteristics, identify the potentials of a place with a unique combination of natural and historical values like the ones observed on the island of Kotlin, and to approach them with a desire for further development of the area. Taking into account the existence and ongoing development of the project which focuses on transforming parts of the island into an open-air military museum and on emphasizing a unique set of fortifications from different developmental points of the island - following work took path towards designing a new settlement following the principles of the green city and towards finding an appropriate new symbol of the city. Main motivation behind the project proposal lies in the recent demilitarization of the area which creates a spectre of opportunities for further amelioration of Kronstadt's accessibility and for generation of new architectural ensemble of the city.

and that it is often significantly affected by environmental conditions, this project proposal emphasizes the process of composing the ensemble in relation to landscape and in presence of water.

By introducing a new canal that would enable water traffic to reach the heart of the island, first step of the project aims towards answering the question of overall accessibility of Kronstadt, creating a new entrance gate of the island, directly connected to the harbour of Saint Petersburg. This kind of approach is partially motivated by the future increase of the people influx, a result of the island embracing and developing military tourism, and with that idea in mind it offers a completely new first impression of the place.

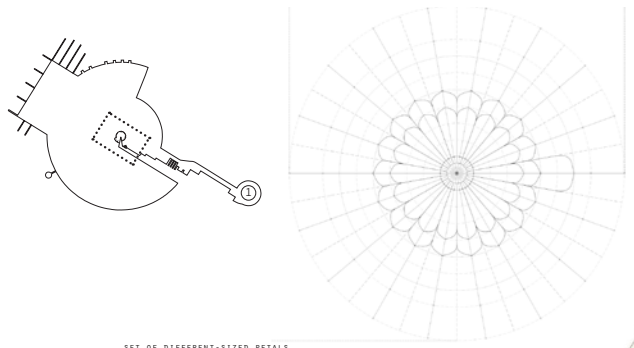
Further into the design development, this very contact point between the inner part of the island and the new canal becomes the node, new point of reference and new generator of future built environment.

The architectural ensemble, by simple definition, represents the unity and harmony of the spatial compositional solution of a complex of buildings or structures and as a word of French origin, it directly translates as 'integrity' or 'connectedness'.

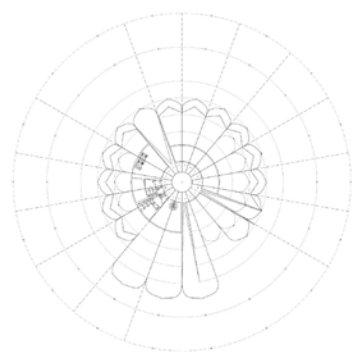
Noted that the perception of the architectural ensemble directly correlates with a time of the year, level of illumination or presence of people

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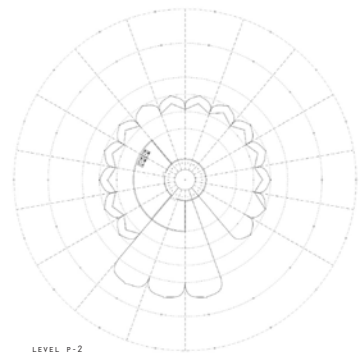




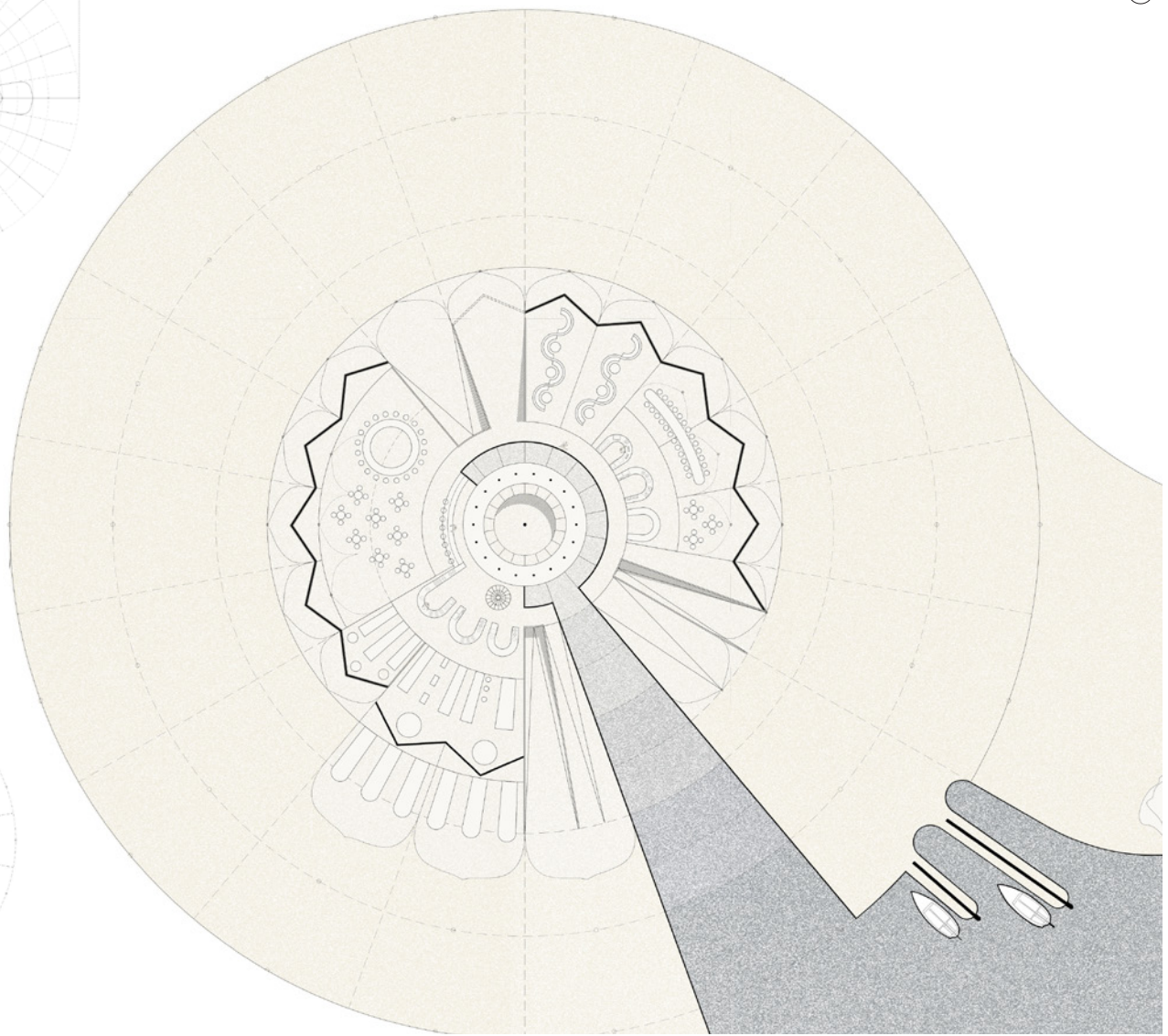
SET OF DIFFERENT-SIZED PETALS



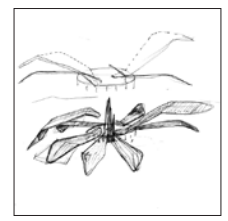
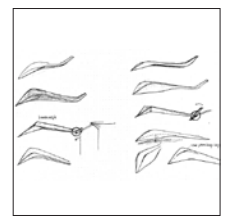
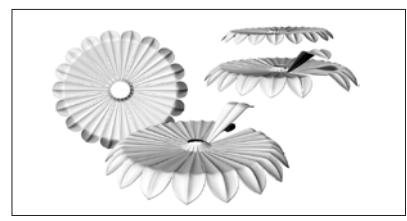
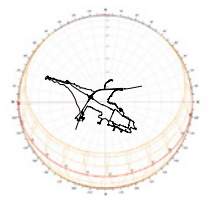
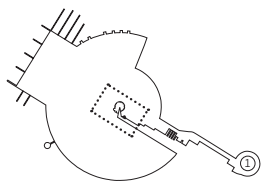
LEVEL P-1



LEVEL P-2



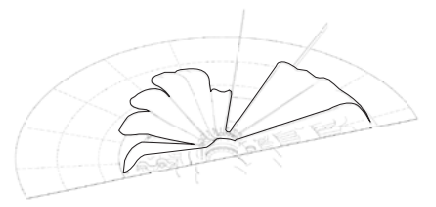
PROJECT B - NEW GATE OF KRONSTADT, PLAN



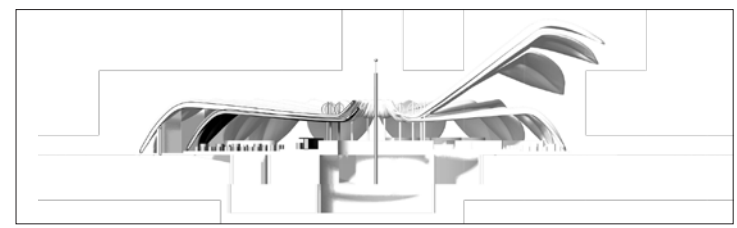
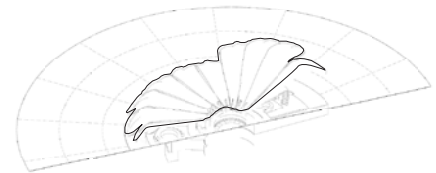
DEVELOPMENT PHASE OF PETAL DESIGN



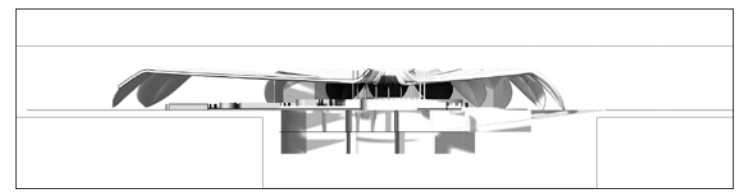
DIFFERENT PETAL POSITION DEPENDING ON THE AMOUNT OF SUNLIGHT



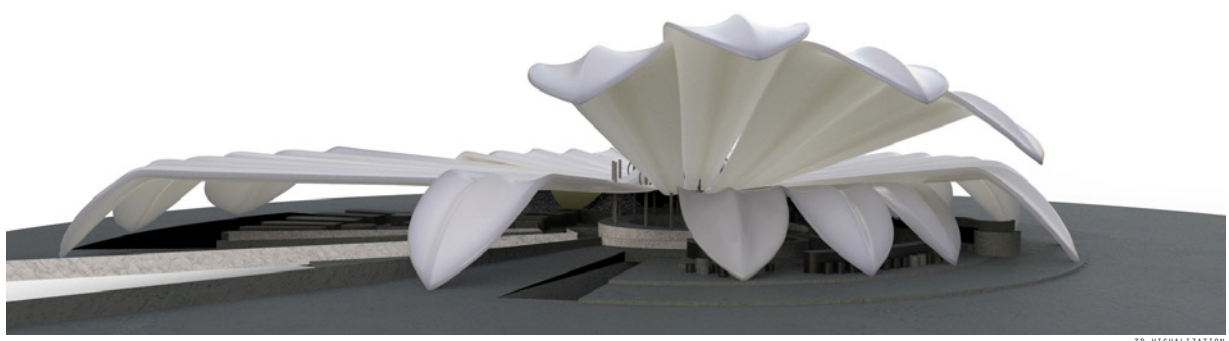
AXONOMETRIC SECTIONS A & B



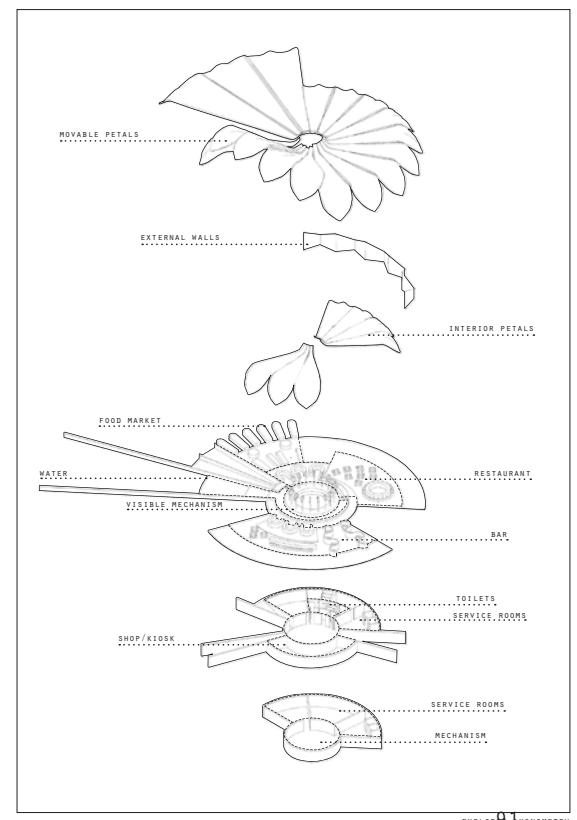
SECTION A



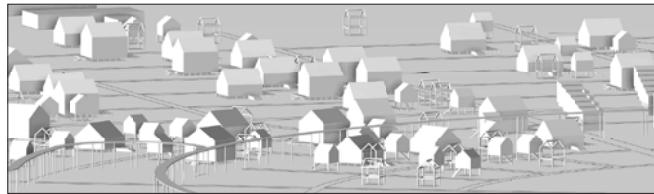
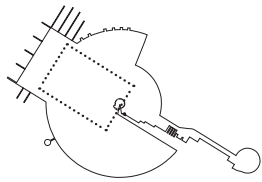
SECTION B



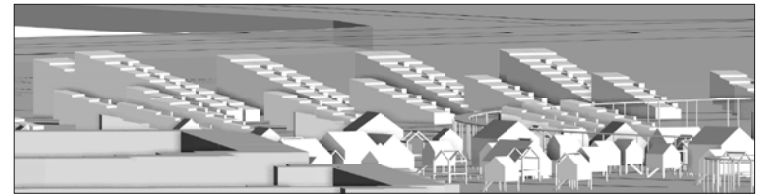
3D VISUALIZATION



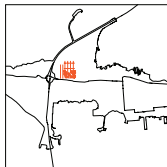
EXPLODED AXONOMETRY



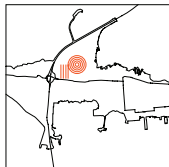
DACHA SINGLE HOUSING UNITS - 3D MODEL



TERRACED MULTI HOUSING UNITS - 3D MODEL



DACHA: INTRODUCTION



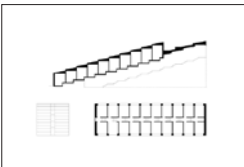
DIALOGUE I



DACHA - UNITS

Dacha – a ubiquitous settlement pattern on the edges of the cities became a fundamental part of the urban practice/experience in Russia. The everlasting issue that comes with the relation between town and countryside in this case is not being "blurred" by the creation of a conventional suburb but maintains the both identities in one – two parallel existences.

In this way, the third existence is being created – dacha, a dwelling type widely accessible to the largest part of the urban population of Russia that requires understanding and design approach, but is also a development pattern that offers lessons of its own. This cultural phenomenon stands for so much more than just "a house with garden", it is a remnant of the system that allowed the sprout of small shacks, houses and vegetables on plots that would later become an escape from urban reality.



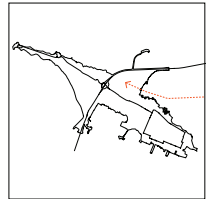
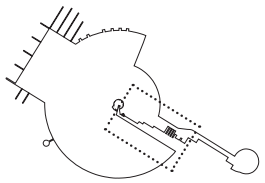
TERRACED MULTI HOUSING

Today dacha is part of russian psyche and is deeply rooted in the general concept of summer leisure and memories that come with it, and every attempt in reimagination carries with itself a number of questions.

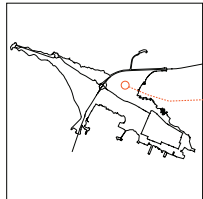
The obvious overlap between the concept of "garden city" and the unique idea of dacha community allows for a conceptualization of the settlement that can offer the best of the both worlds, a rural getaway in the middle of an urban area. By creating both radial and orthogonal systems of single and multihousing units throughout the north coast, emerges the low density neighbourhood, surrounded by vast public and private green areas. In this very case, standard single dacha units are having their own private gardens as a part of the property, while terraced object, although without private gardens, enjoy shared green and water spaces.



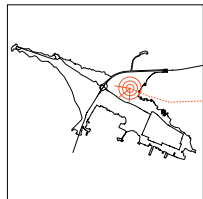
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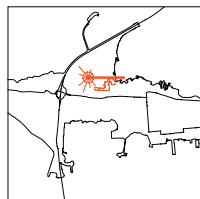
CANAL: INTRODUCTION



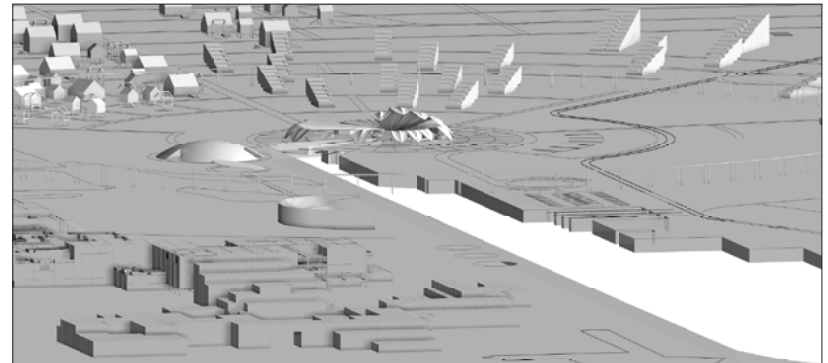
REACHING POINT



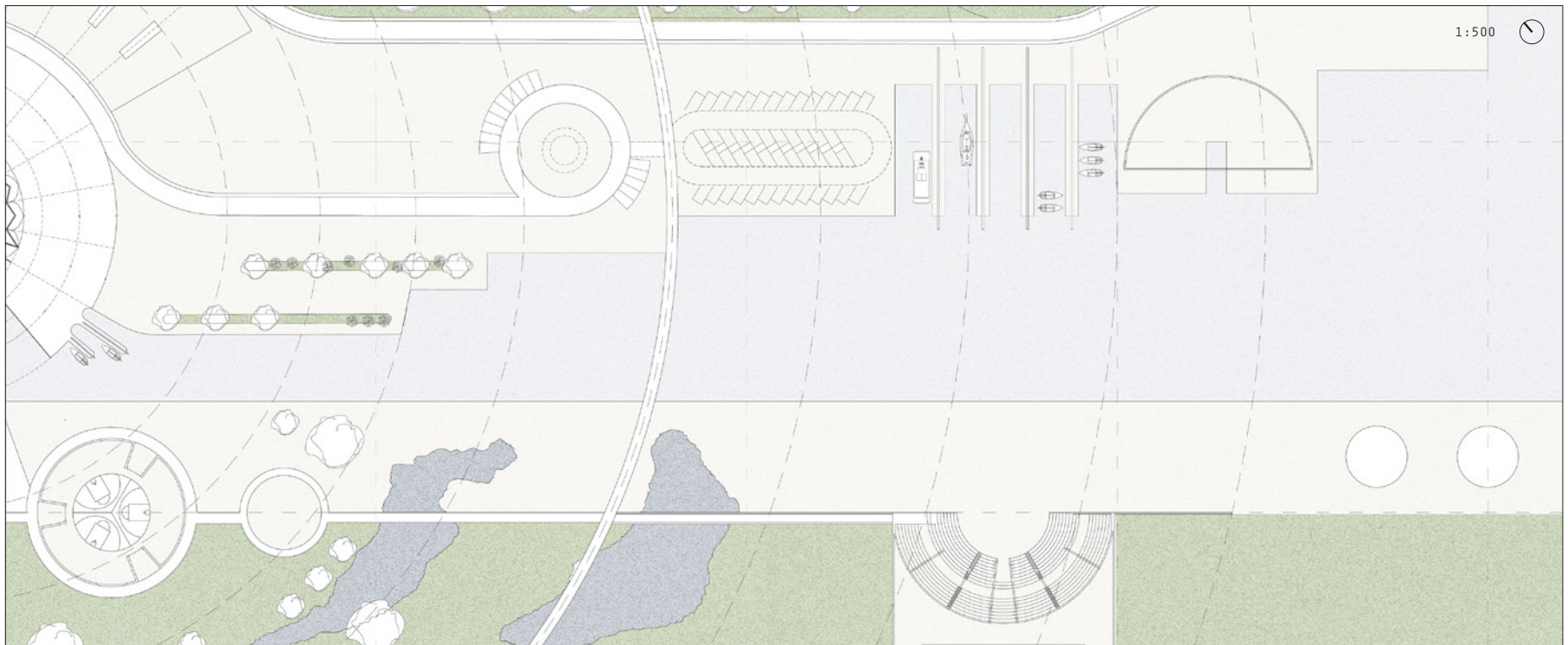
MOVEMENT GENERATOR



DIALOGUE



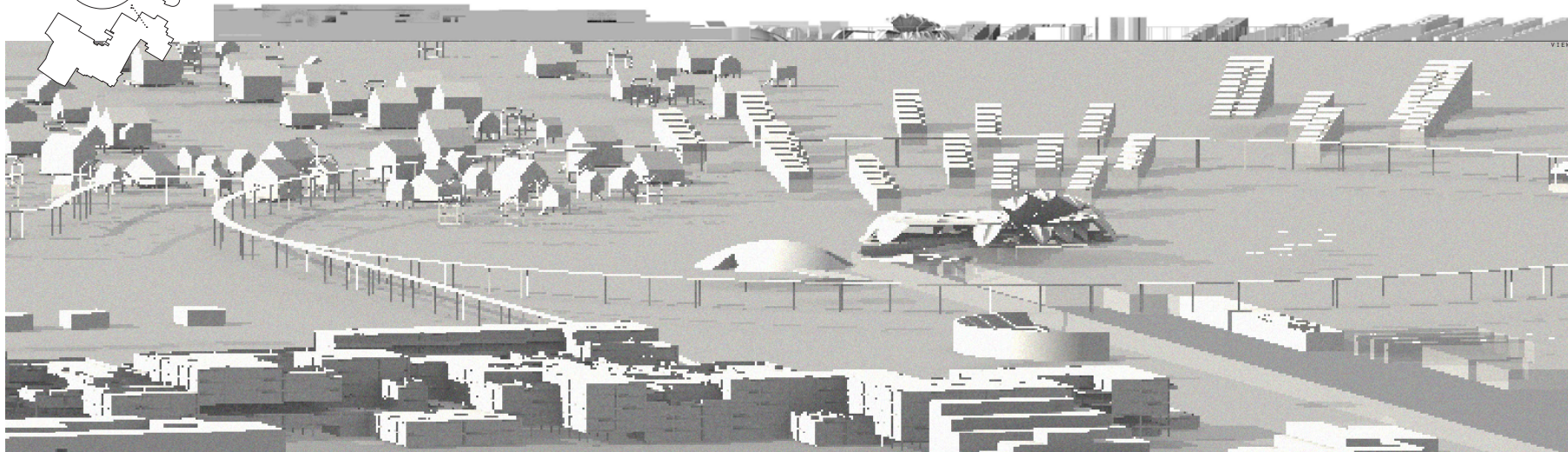
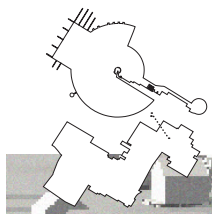
RIGHT BRANCH OF THE PROJECT - CANAL WITH THE NEW HARBOUR



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RIGHT BRANCH OF THE PROJECT - CANAL WITH THE NEW HARBOUR



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TO:

MY PROFESSOR / THESIS SUPERVISOR MAURIZIO MERIGGI & THESIS MENTOR RILIND COCAJ FOR GUIDANCE,
INEXHAUSTABLE INSPIRATION AND WHOLE LOT OF PATIENCE DURING THIS LONG PROCESS

MY PARENTS FOR UNCONDITIONAL SUPPORT IN EVERY ASPECT

MY BROTHER LUKA FOR HIS TECHNICAL SUPPORT AND HIS UPLIFTING SPIRIT

MY ROOMMATE AND PARTNER IN THIS ADVENTURE ILIJANA LJEVAJA (AND HER DOG TONI) WHO SPENT EVERY
STEP OF THIS PROJECT DEVELOPMENT BY MY SIDE, SUPPORTING ME UNCONDITIONALLY AND SHARING A BEER
DURING THE HARDEST OF NIGHTS

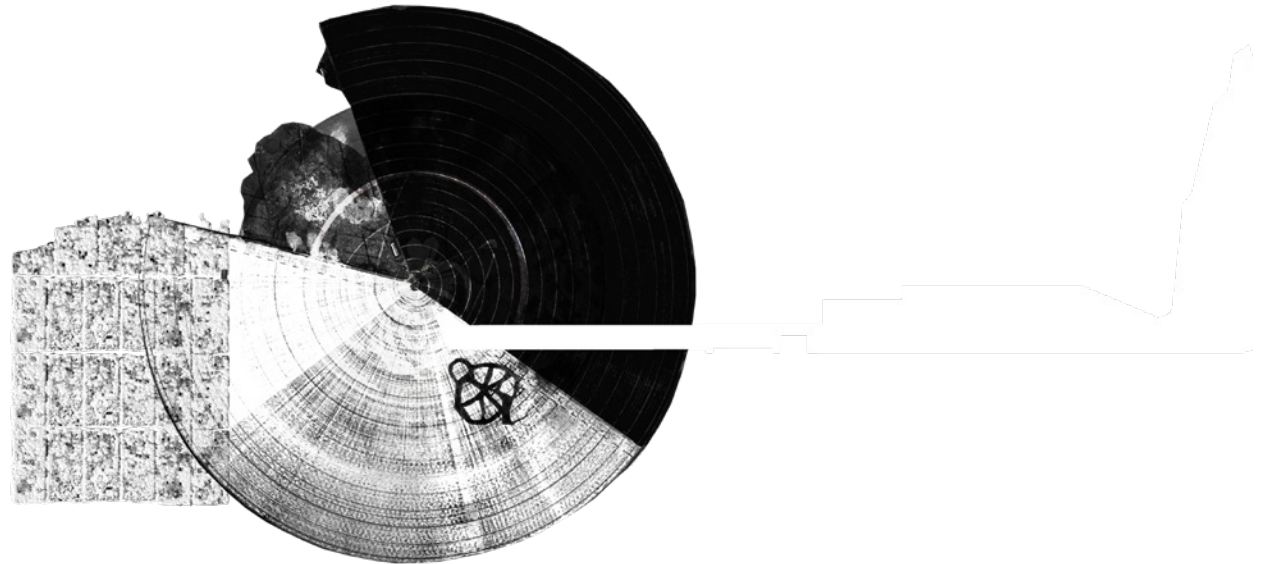
MY FRIENDS KATARINA, IRENA, MAGDALENA, DANIJELA; SCATTERED AROUND THE WORLD BUT ALWAYS CLOSE

ALL THE PEOPLE I ENCOUNTERED AND BEFRIENDED DURING THIS PERIOD AT POLITECNICO DI MILANO WHOM I
WILL CARRY FOREVER IN MY MEMORY AND WHO SHAPED MY PERSPECTIVE IN THEIR OWN UNIQUE WAYS

ALL THE PEOPLE WHO LISTENED TO ME TALK ABOUT THE THESIS FOR MONTHS

THANK YOU,

M



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APRIL 2022