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– Santiago Calatrava

YACHTING CLUB BELGRADE

Bc. Katarína Slobodová





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01 ANALYSIS

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4. GREATER CONTEXT

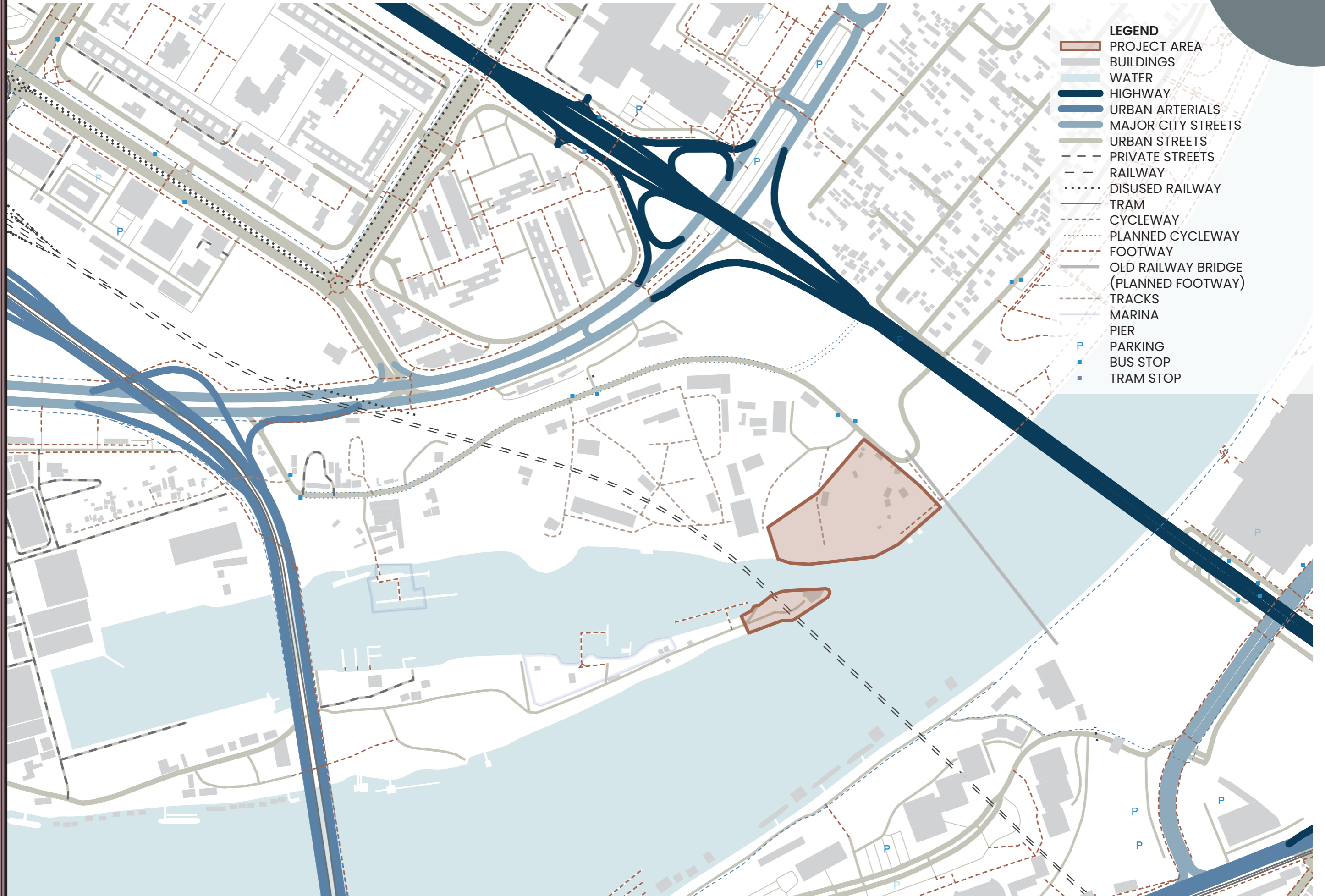


T R A N S P O R T A N A L Y S I S

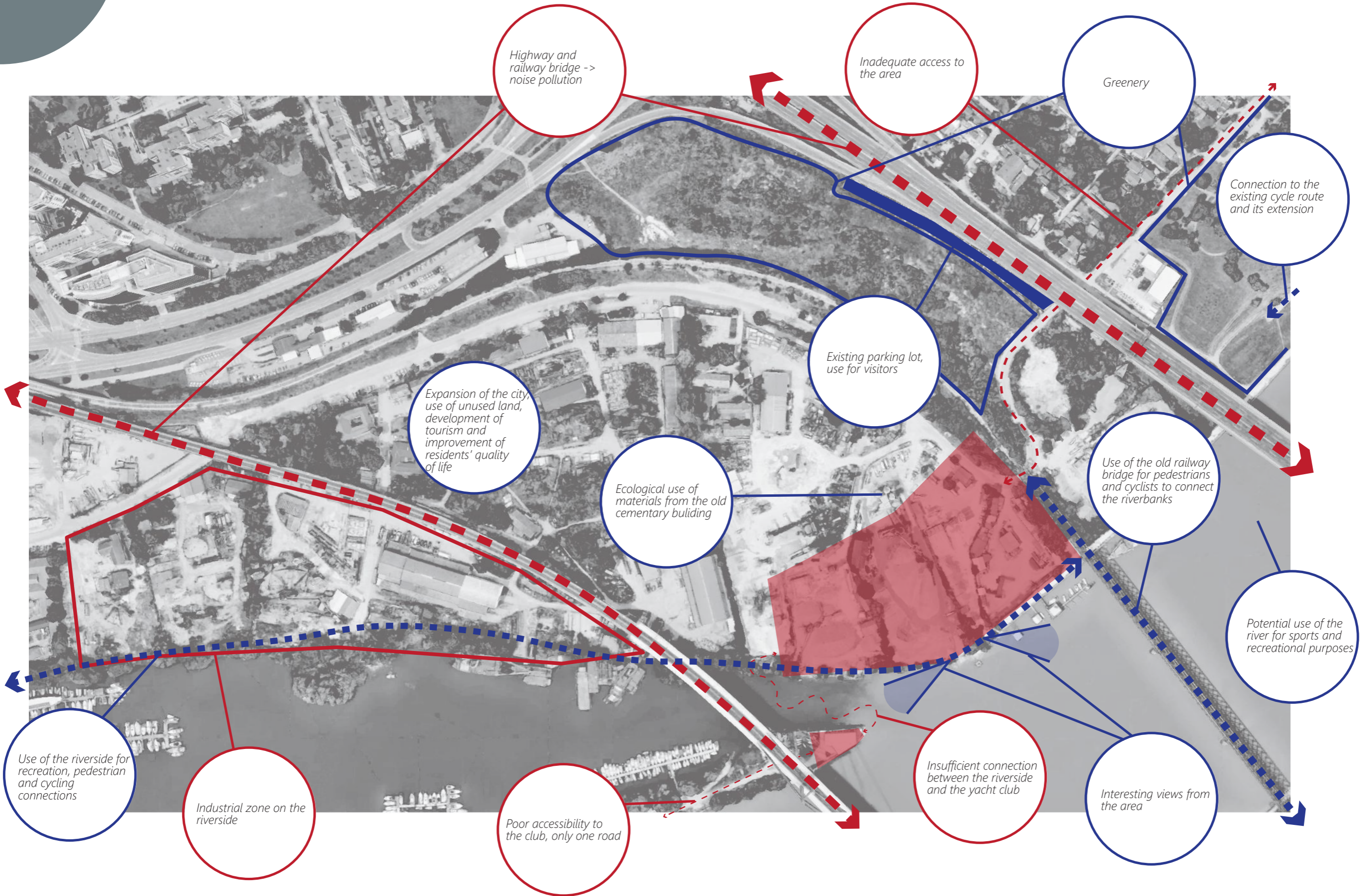
Subject: 2_AT3_A Ateliér III, Study program: architektúra, **THESIS: YACHTING CLUB BELGRADE,**
Student: Bc. Katarína Slobodová, Course coordinator: doc. Ing. arch. Michal Czafik, PhD., Thesis supervisor: doc. Ing. arch. Henrich Pifko, CSc., Akad. rok: 2025/26

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6. PROBLEMS AND POTENTIALS



GREENERY ANALYSIS

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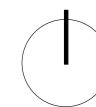
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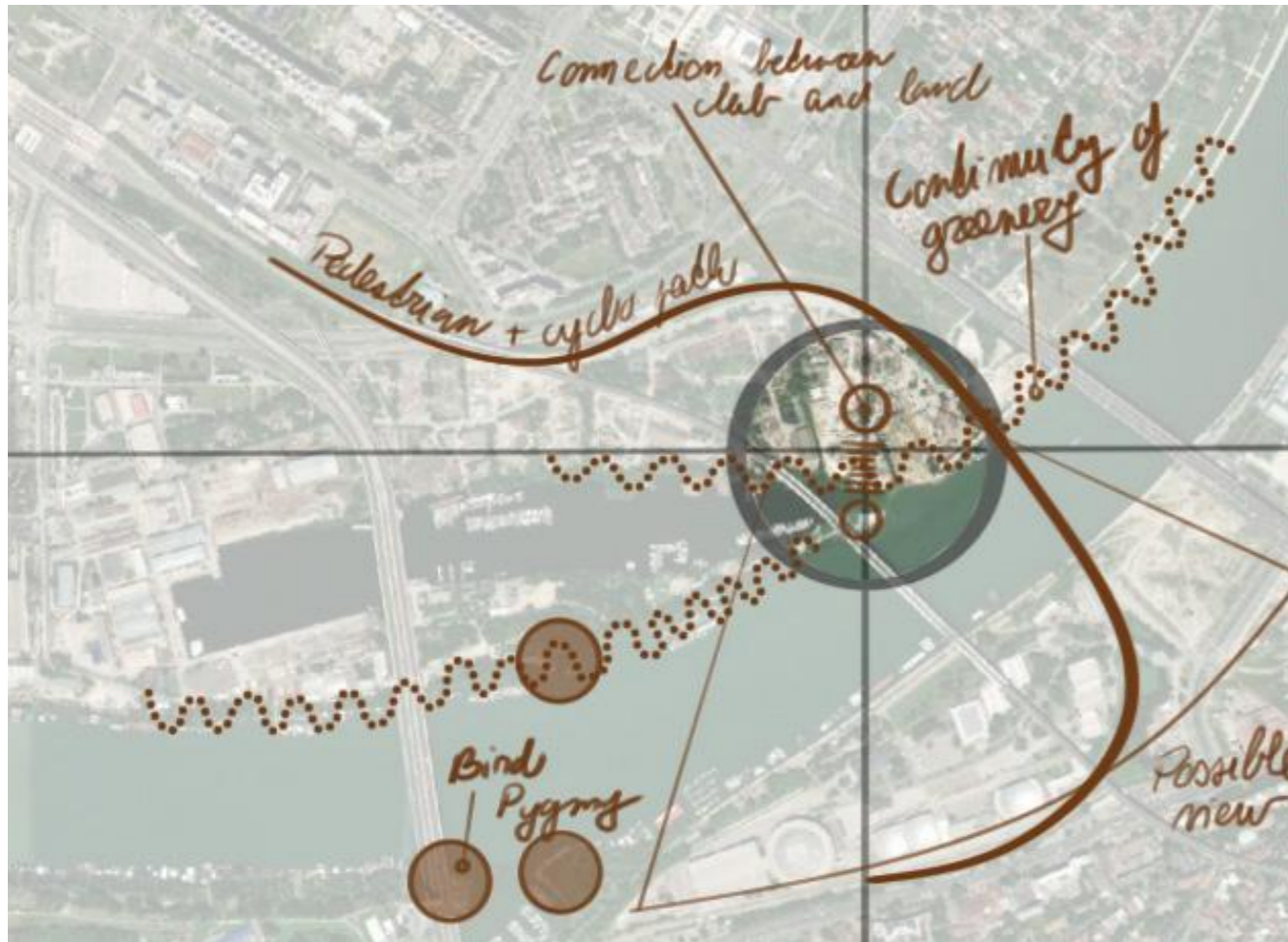
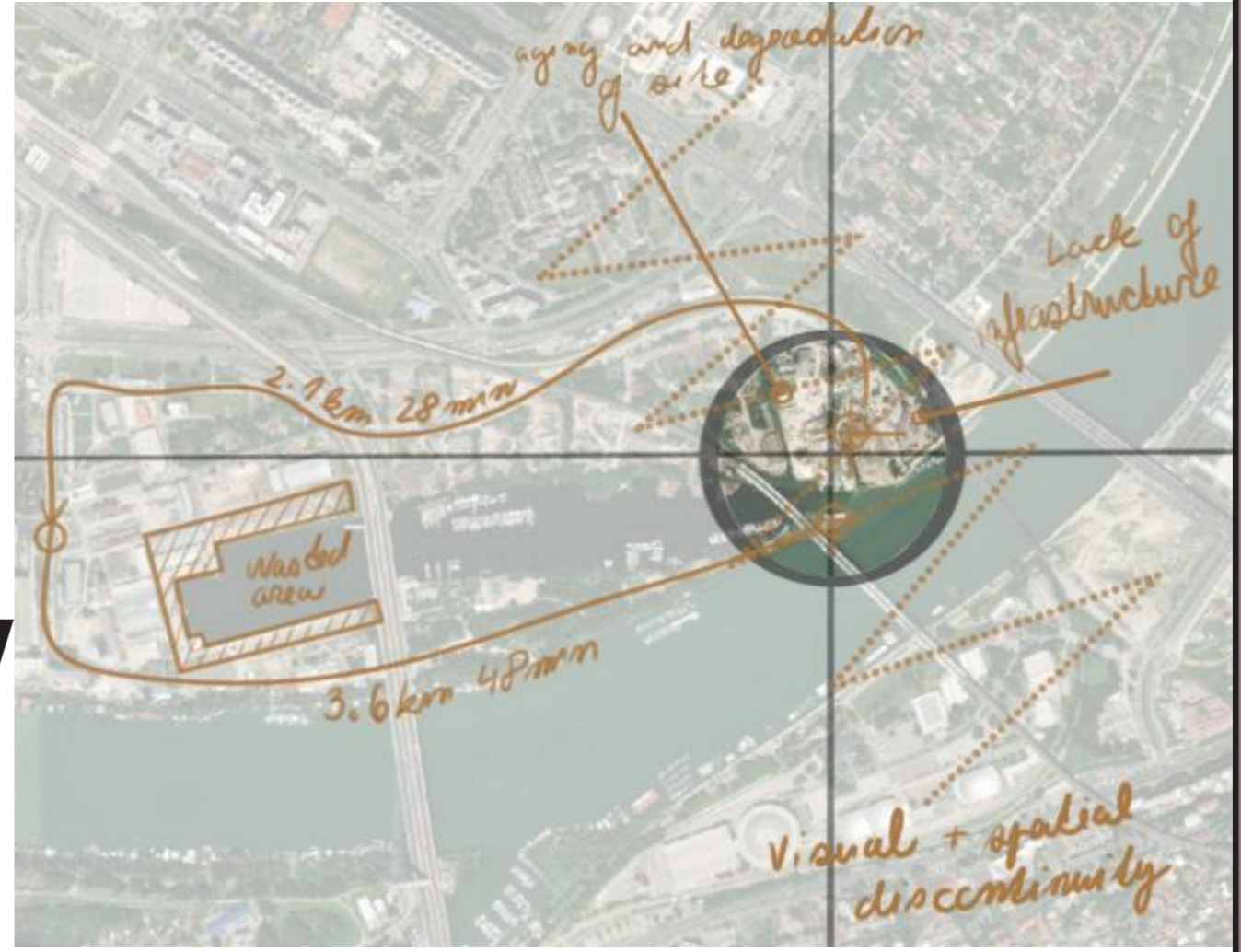
- planned area object for reconstruction
- river course Sáva
- river bay
- residential greenery
- private greenery
- parks
- protected natural habitat
- natural greenery

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02 CONCEPT

Report	10
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10. R E P O R T

BASIC PROJECT CHARACTERISTICS

The proposed building serves as a facility for a yacht club in Belgrade and is primarily intended for athletes, as well as for the general public – visitors to the riverside area along the Sava River. The building's program includes accommodation, dining, sports and regeneration spaces, as well as supplementary public functions. The concept responds to the seasonal use of the site and allows for its partial or year-round operation.

The architectural design is based on the idea of several independently functioning buildings that are spatially and visually unified by a concrete shell with a timber wooden structure, arching over the individual masses.

URBAN AND LANDSCAPE CONTEXT

The treated area is located on the Sava River embankment. The building is oriented along a north-south axis, with the main facades and living spaces oriented toward the river. In front of the building extends a riverfront with seating steps that allow sitting and spending time in direct contact with the water. The embankment includes a wooden pier and terrain areas gradually descending toward the river, thereby strengthening the relationship between architecture, landscape, and water surface.

A pedestrian and recreational pathway passes through the area, creating a connection to the club on the opposite peninsula. Along the river, there are also supplementary accommodation buildings that increase the overall capacity of the site.

The northern part of the site is devoted to park space with playgrounds, living areas, and a running track with a length of 12.68 km. Parking is located in the northern part of the area, with the possibility of short-term access for accommodated guests from the western side of the site to unload luggage.

MASSING AND SPATIAL SOLUTION

The proposed building consists of a system of independent volumes that function independently but are connected by a system of external walkways and vertical circulation. The tallest building has four above-ground floors.

The right part of the site is reserved mainly for accommodation and gym. These buildings are not directly connected to the concrete shell, creating a covered, semi-public space underneath them.

The left building is structurally connected to the shell and simultaneously forms its roof. This building includes pool, rehabilitation, and dining facilities for both athletes and visitors.

An important element of the design is the inter-space between the buildings, which functions as a multidimensional living space for athletes. It is not limited to the ground level but also develops vertically through walkways, staircases, and galleries, creating visual connections between the individual levels. Vertical circulation is prominently expressed in the exterior, supplemented by interior staircases and elevators.

FUNCTIONAL SOLUTION AND OPERATION

The building includes:

- accommodation capacity for athletes and visitors,
- dining facilities,
- gym and training spaces,
- pools and rehabilitation facilities,
- public and semi-public living spaces.

The operational concept allows for seasonal closure of part of the building – during the winter period, the main building may be closed, while the pool and rehabilitation section remains in operation and ensures year-round use of the site.

CONSTRUCTIONAL AND MODULAR SOLUTION

The main construction of the building is designed as a skeleton system with a module of 3.5 m in width. Within this skeleton, separate accommodation cells are inserted, which are individually thermally insulated.

The concept of the cell system enables:

- replacement or addition of individual accommodation units,
- flexible capacity expansion,
- creation of covered loggias and common spaces in locations where cells are omitted.

Technical connection of the cells is solved through installation shafts run within the skeleton walls.

Pre-installation for systems (electrical installation, water, sewage) is permanently integrated and, in the unused state, covered by inspection doors. When installing a cell, there is quick connection to existing distribution lines.

ARCHITECTURAL EXPRESSION AND INSPIRATION

The architectural expression of the building derives inspiration from a sailing ship's sail and maritime containers – their layering, modularity, and functional aesthetics. The concrete shell evokes a taut sail, while the accommodation cells, through their composition and variability, reference container architecture.

The playfulness of the concept also allows for cell overlaps, which create balconies with railings and enrich the facade with dynamism and plasticity.

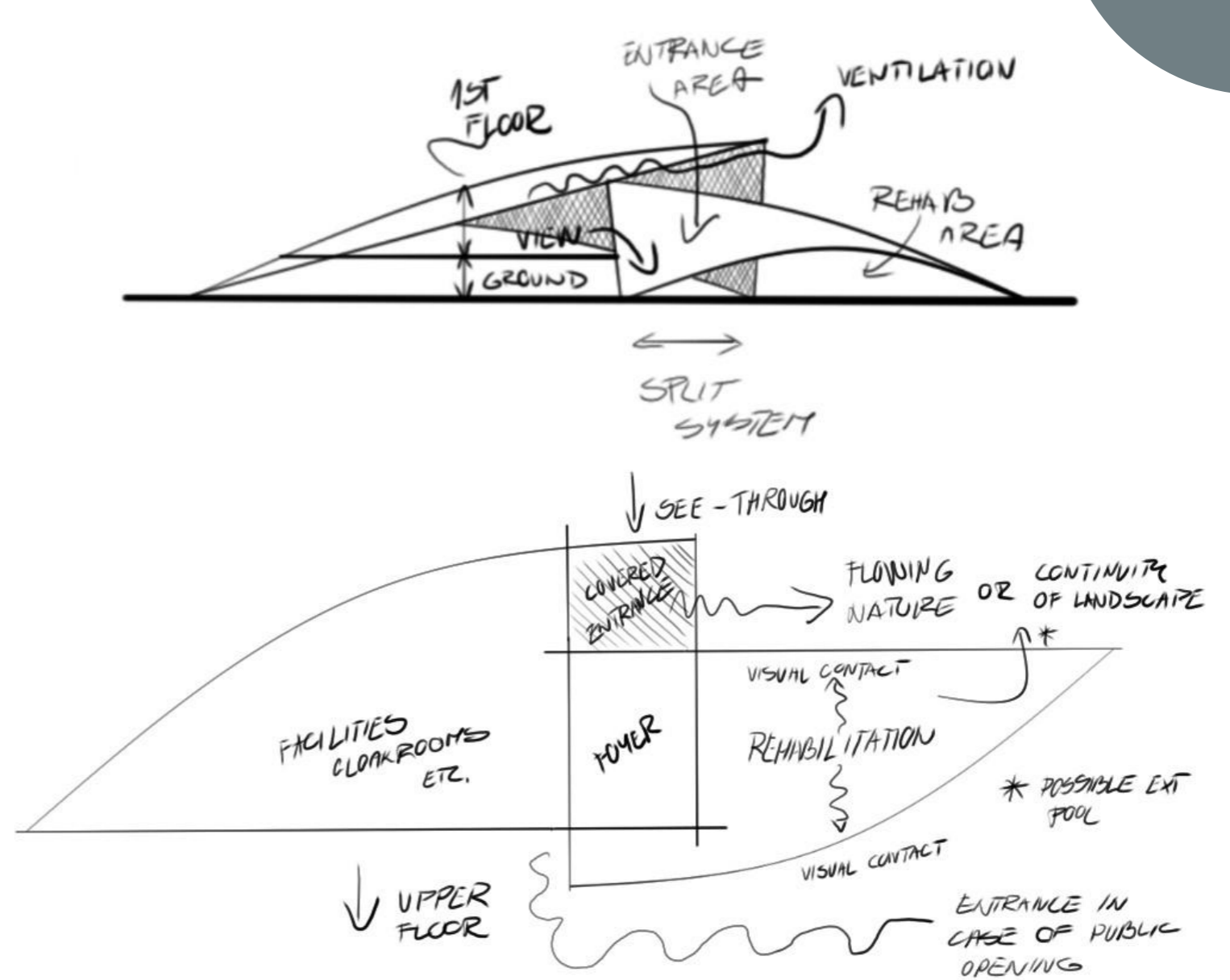
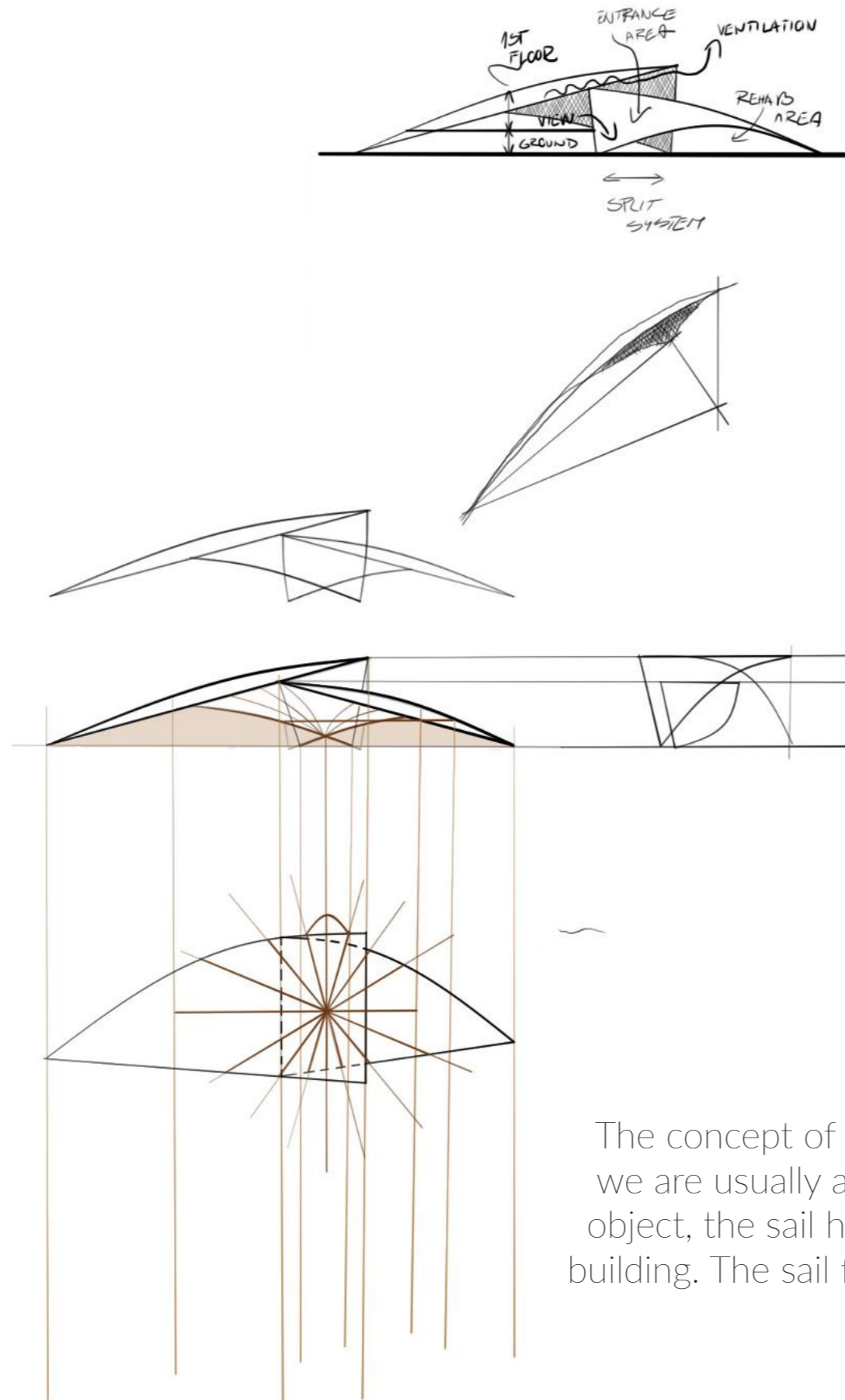
SUPPLEMENTARY BUILDINGS AND SITE VARIABILITY

The park area is supplemented by lightweight skeletal structures whose function is variable and adaptable to current needs. They can serve as:

- support structures for swings,
- temporary pavilions,
- food stalls (ice cream, mini café),
- reading rooms or shaded living areas,
- structures covered with vegetation.

Similar small objects are also considered in the inter-space between the main masses, thereby supporting the lively and flexible character of the entire site.

C O N C E P T

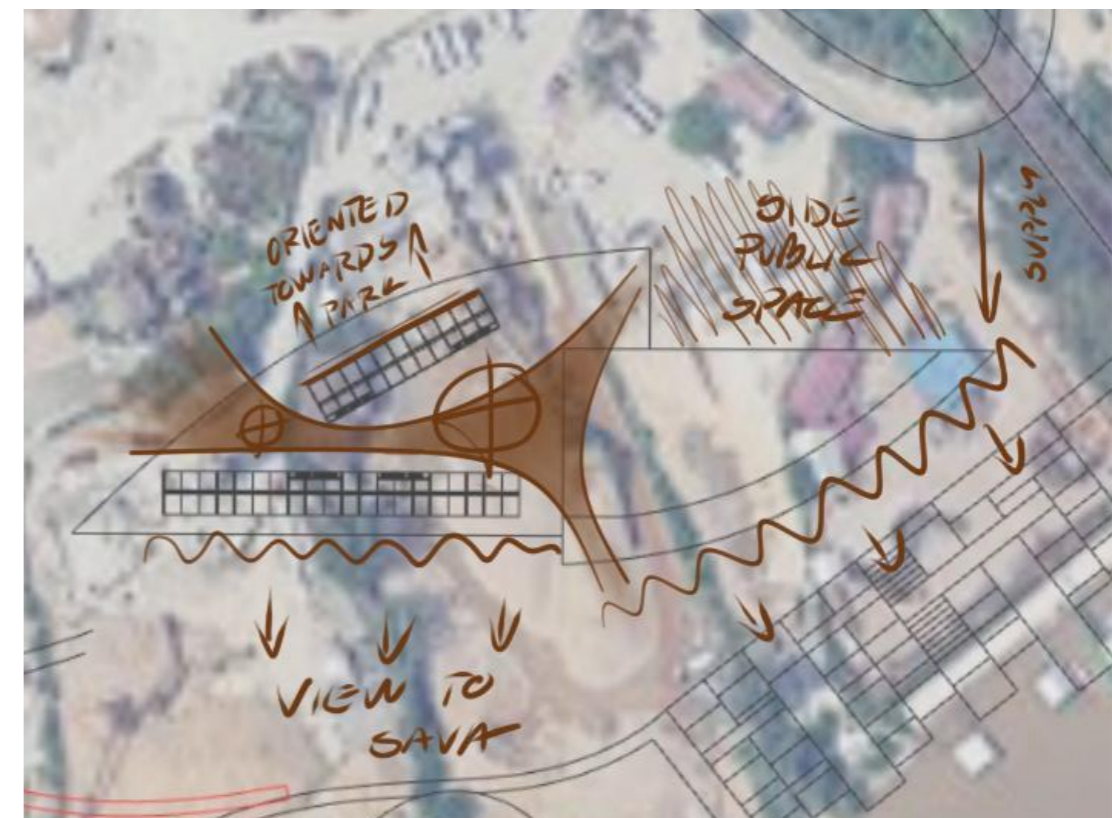
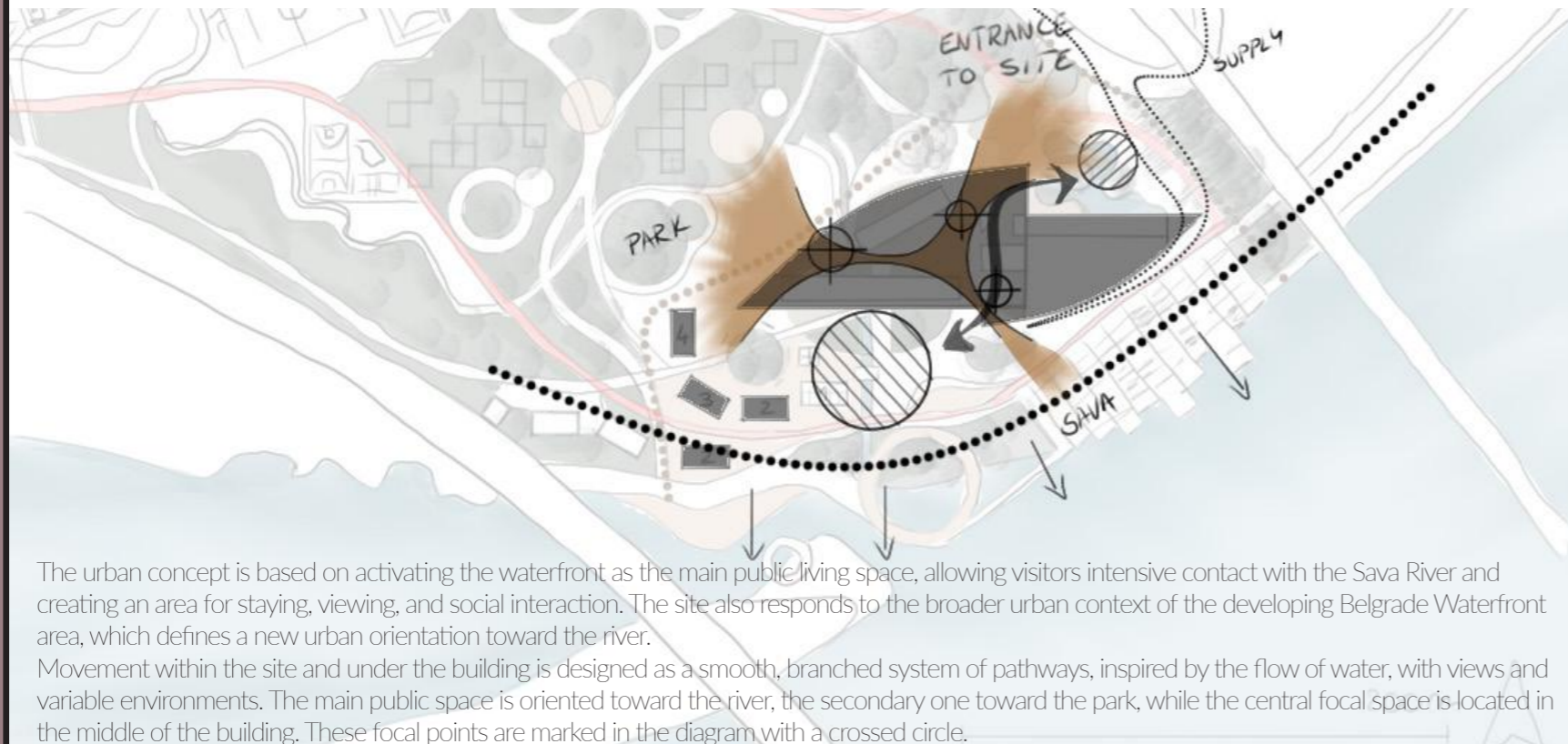


The concept of the building emerged from the idea of a sailing boat positioned differently than we are usually accustomed to. Instead of standing upright, the boat is laid horizontally. For this object, the sail has been placed down to form both the protective and structural element of the building. The sail functions as an independent structure, beneath which the building is hidden - an independently functioning object sheltered underneath.

03 NEW BUILDING

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S I T E P L A N



The urban concept is based on activating the waterfront as the main public living space, allowing visitors intensive contact with the Sava River and creating an area for staying, viewing, and social interaction. The site also responds to the broader urban context of the developing Belgrade Waterfront area, which defines a new urban orientation toward the river. Movement within the site and under the building is designed as a smooth, branched system of pathways, inspired by the flow of water, with views and variable environments. The main public space is oriented toward the river, the secondary one toward the park, while the central focal space is located in the middle of the building. These focal points are marked in the diagram with a crossed circle.

14. SITE PLAN CLOSE

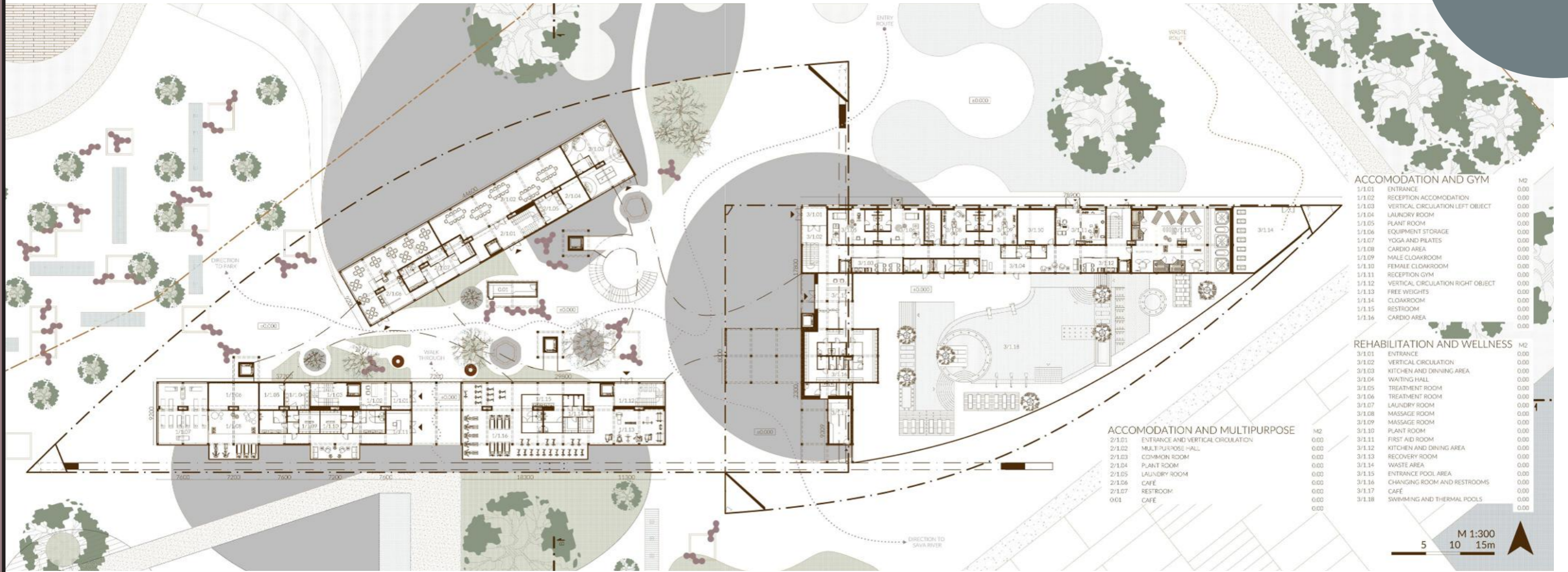


SITE PLAN

1	MAIN BUILDING
2	RIVERFRONT SEATING + WATER/WIND ORGAN
3	AKADEMSKI JEDRILIČARSKI KLUB BEOGRAD
4	ADDITIONAL ACCOMODATION BUILDINGS
5	PARK SPACE POSSIBLE EXTENSION OF ACCOMODATION
6	EXTERIOR ACTIVITIES
9	FIRE PLACE
	RUNNING PATH
	WATER AREAS
	WOODEN DECKS
	SITE ENTRANCE
	BOUNDARY OF DESIGN AREA



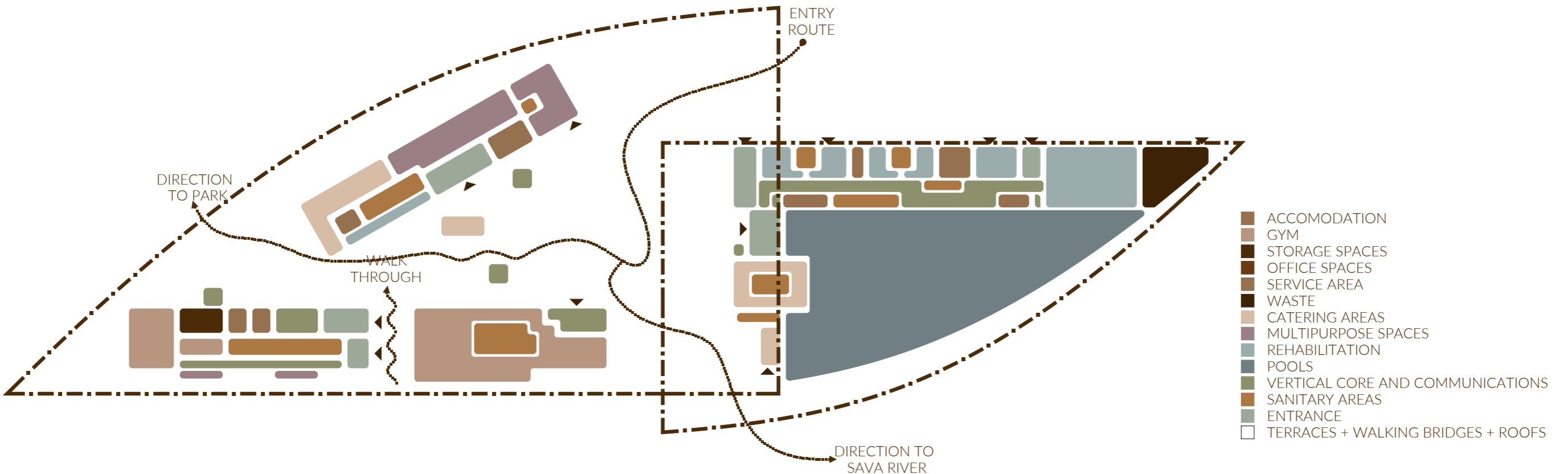
LEVEL 1 PLAN



ACCOMODATION AND GYM		M2
3/1.01	ENTRANCE	0.00
3/1.02	RECEPTION ACCOMODATION	0.00
3/1.03	VERTICAL CIRCULATION LEFT OBJECT	0.00
3/1.04	LAUNDRY ROOM	0.00
3/1.05	PLANT ROOM	0.00
3/1.06	EQUIPMENT STORAGE	0.00
3/1.07	YOGA AND PILATES	0.00
3/1.08	CARDIO AREA	0.00
3/1.09	MALE CLOAKROOM	0.00
3/1.10	FEMALE CLOAKROOM	0.00
3/1.11	RECEPTION GYM	0.00
3/1.12	VERTICAL CIRCULATION RIGHT OBJECT	0.00
3/1.13	FREE WEIGHTS	0.00
3/1.14	CLOAKROOM	0.00
3/1.15	RESTROOM	0.00
3/1.16	CARDIO AREA	0.00

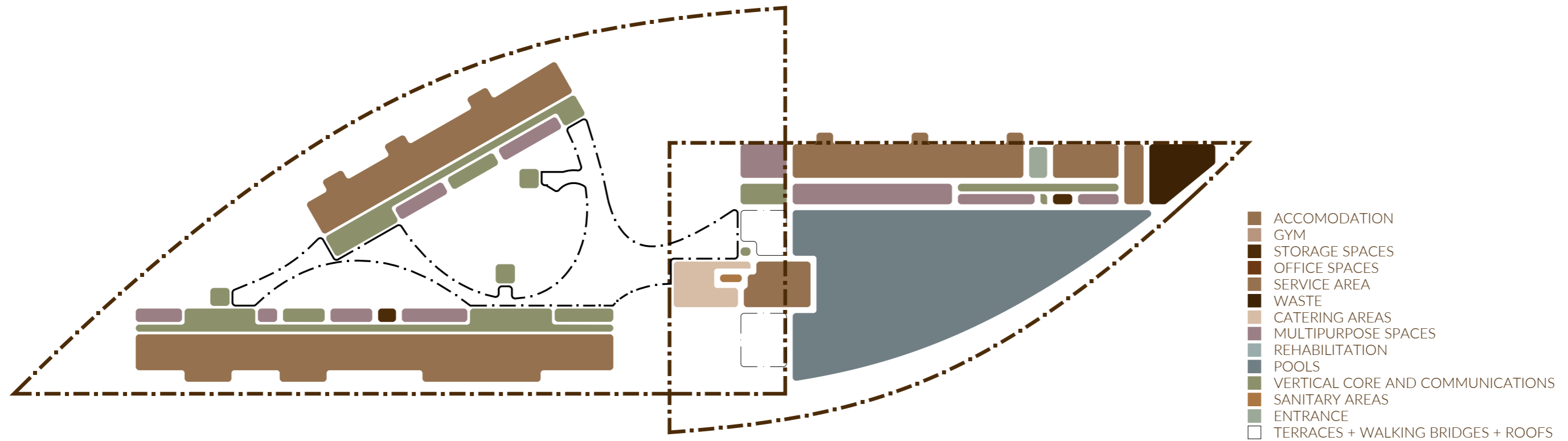
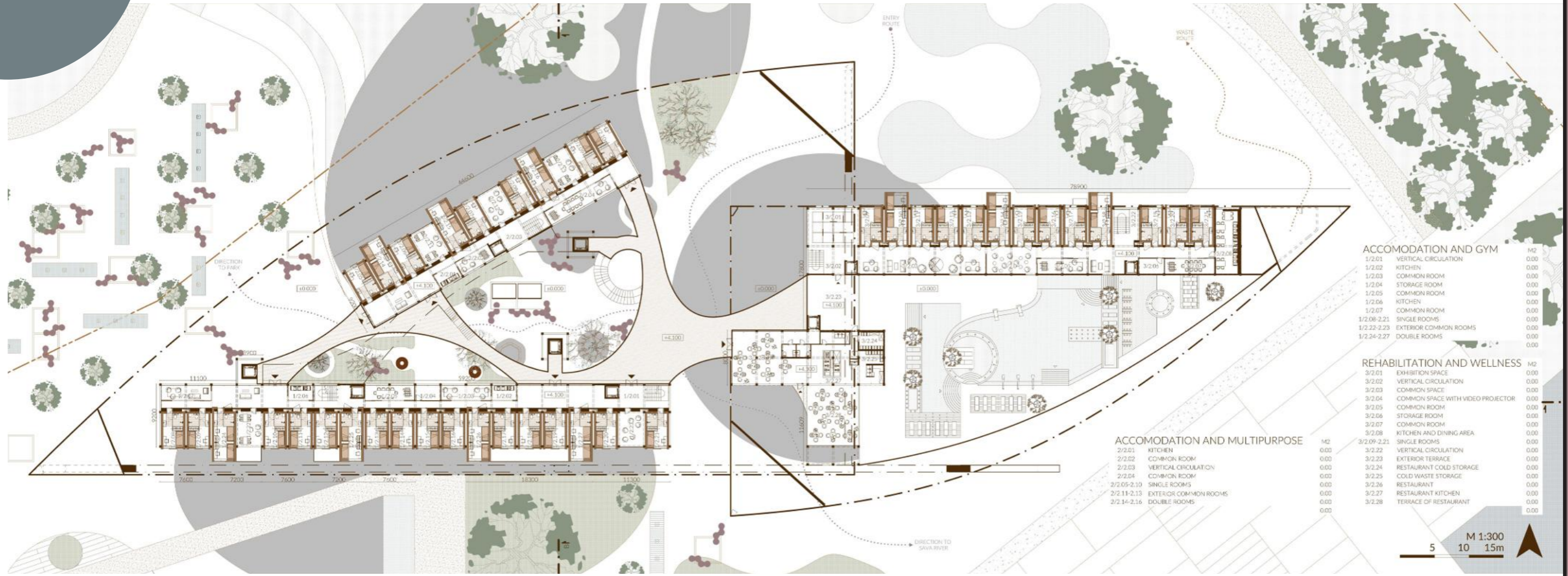
REHABILITATION AND WELLNESS		M2
3/1.01	ENTRANCE	0.00
3/1.02	VERTICAL CIRCULATION	0.00
3/1.03	KITCHEN AND DINING AREA	0.00
3/1.04	WAITING HALL	0.00
3/1.05	TREATMENT ROOM	0.00
3/1.06	TREATMENT ROOM	0.00
3/1.07	LAUNDRY ROOM	0.00
3/1.08	MASSAGE ROOM	0.00
3/1.09	MASSAGE ROOM	0.00
3/1.10	PLANT ROOM	0.00
3/1.11	FIRST AID ROOM	0.00
3/1.12	KITCHEN AND DINING AREA	0.00
3/1.13	RECOVERY ROOM	0.00
3/1.14	WASTE AREA	0.00
3/1.15	ENTRANCE POOL AREA	0.00
3/1.16	CHANGING ROOM AND RESTROOMS	0.00
3/1.17	CAFE	0.00
3/1.18	SWIMMING AND THERMAL POOLS	0.00

ACCOMODATION AND MULTIPURPOSE		M2
2/1.01	ENTRANCE AND VERTICAL CIRCULATION	0.00
2/1.02	MULTIPURPOSE HALL	0.00
2/1.03	COMMON ROOM	0.00
2/1.04	PLANT ROOM	0.00
2/1.05	LAUNDRY ROOM	0.00
2/1.06	CAFE	0.00
2/1.07	RESTROOM	0.00
001	CAFE	0.00



■	ACCOMODATION
■	GYM
■	STORAGE SPACES
■	OFFICE SPACES
■	SERVICE AREA
■	WASTE
■	CATERING AREAS
■	MULTIPURPOSE SPACES
■	REHABILITATION
■	POOLS
■	VERTICAL CORE AND COMMUNICATIONS
■	SANITARY AREAS
■	ENTRANCE
□	TERRACES + WALKING BRIDGES + ROOFS

16. LEVEL 2 PLAN

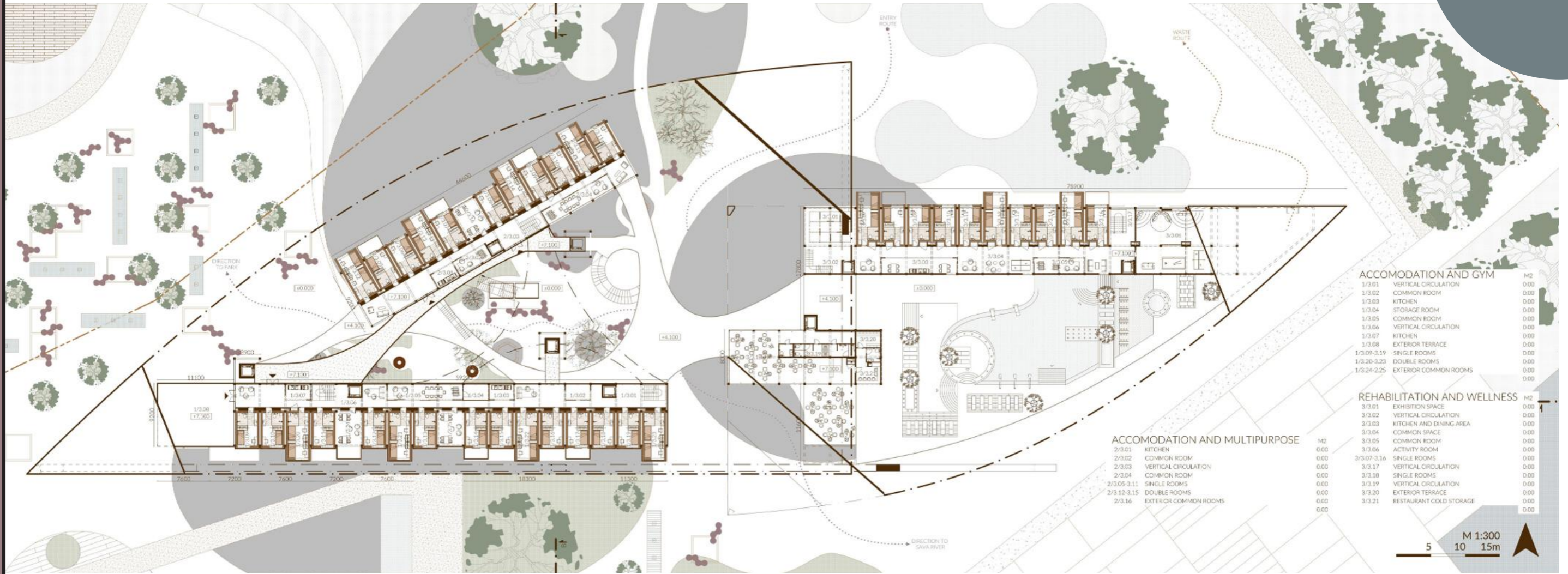


LEVEL 3 PLAN

Subject: 2_AT3_A Ateliér III, Study program: architektúra, **THESIS: YACHTING CLUB BELGRADE,**
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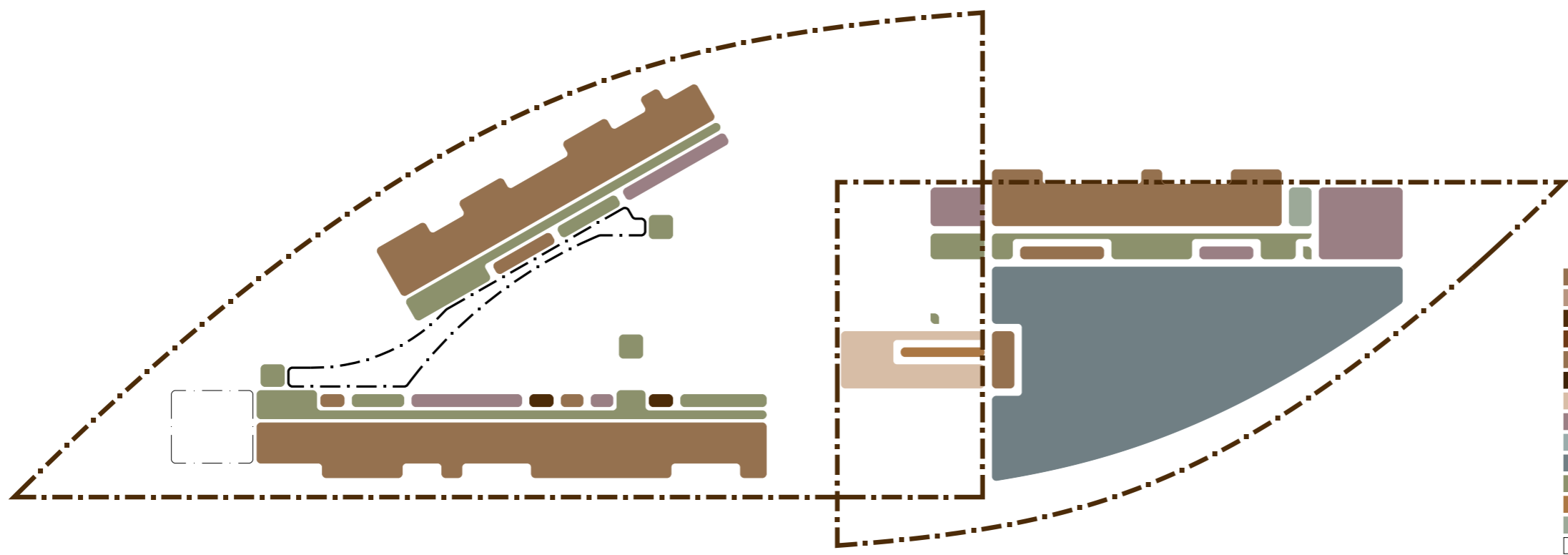
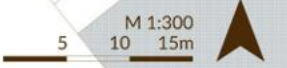
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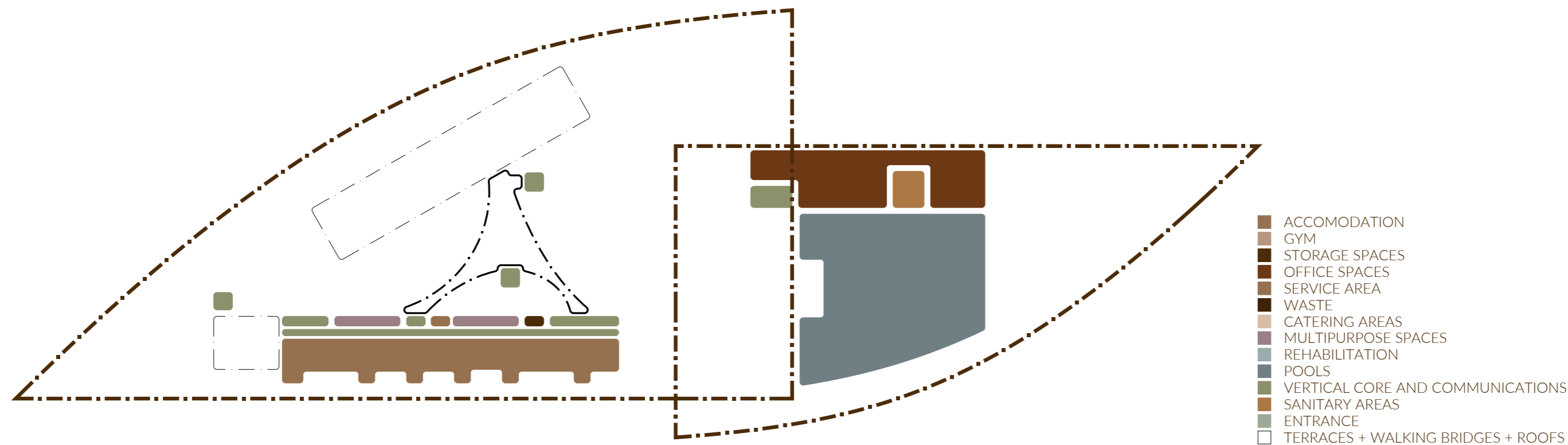
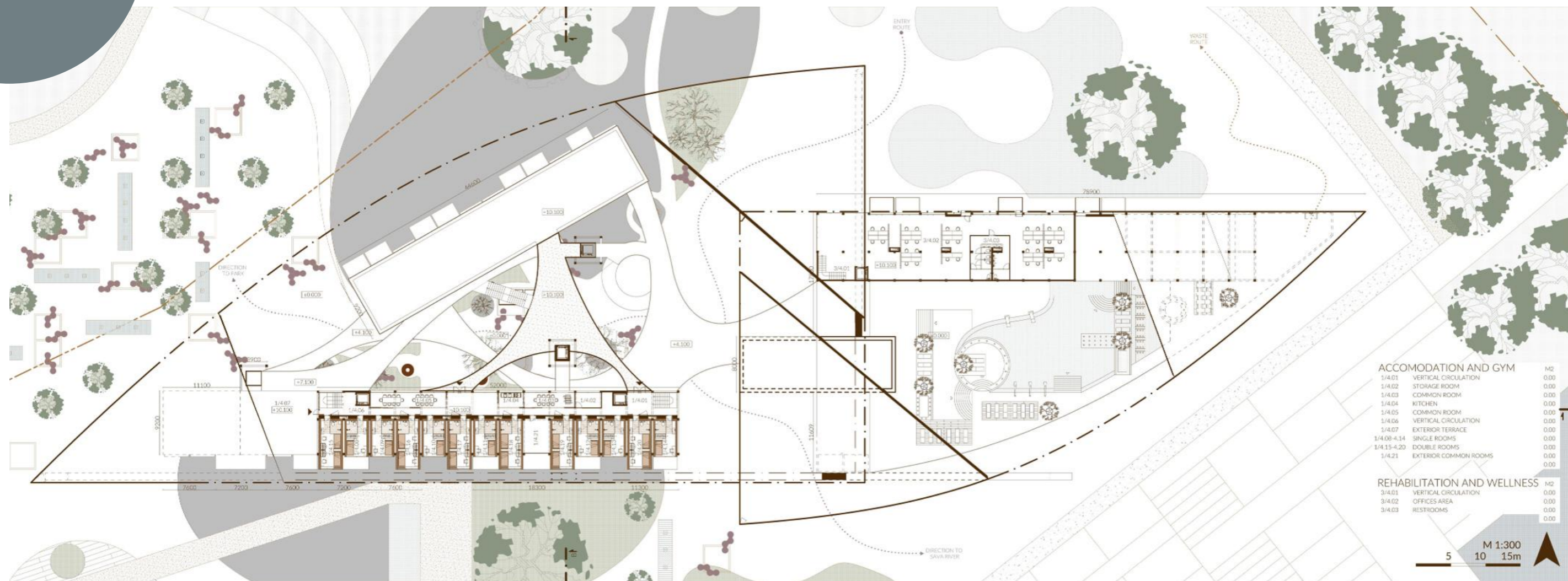
ACCOMODATION AND GYM		M2
1/3.01	VERTICAL CIRCULATION	0.00
1/3.02	COMMON ROOM	0.00
1/3.03	KITCHEN	0.00
1/3.04	STORAGE ROOM	0.00
1/3.05	COMMON ROOM	0.00
1/3.06	VERTICAL CIRCULATION	0.00
1/3.07	KITCHEN	0.00
1/3.08	EXTERIOR TERRACE	0.00
1/3.09-3.19	SINGLE ROOMS	0.00
1/3.20-3.23	DOUBLE ROOMS	0.00
1/3.24-2.25	EXTERIOR COMMON ROOMS	0.00

REHABILITATION AND WELLNESS		M2
3/3.01	EXHIBITION SPACE	0.00
3/3.02	VERTICAL CIRCULATION	0.00
3/3.03	KITCHEN AND DINING AREA	0.00
3/3.04	COMMON SPACE	0.00
3/3.05	COMMON ROOM	0.00
3/3.06	ACTIVITY ROOM	0.00
3/3.07-3.16	SINGLE ROOMS	0.00
3/3.17	VERTICAL CIRCULATION	0.00
3/3.18	SINGLE ROOMS	0.00
3/3.19	VERTICAL CIRCULATION	0.00
3/3.20	EXTERIOR TERRACE	0.00
3/3.21	RESTAURANT COLD STORAGE	0.00

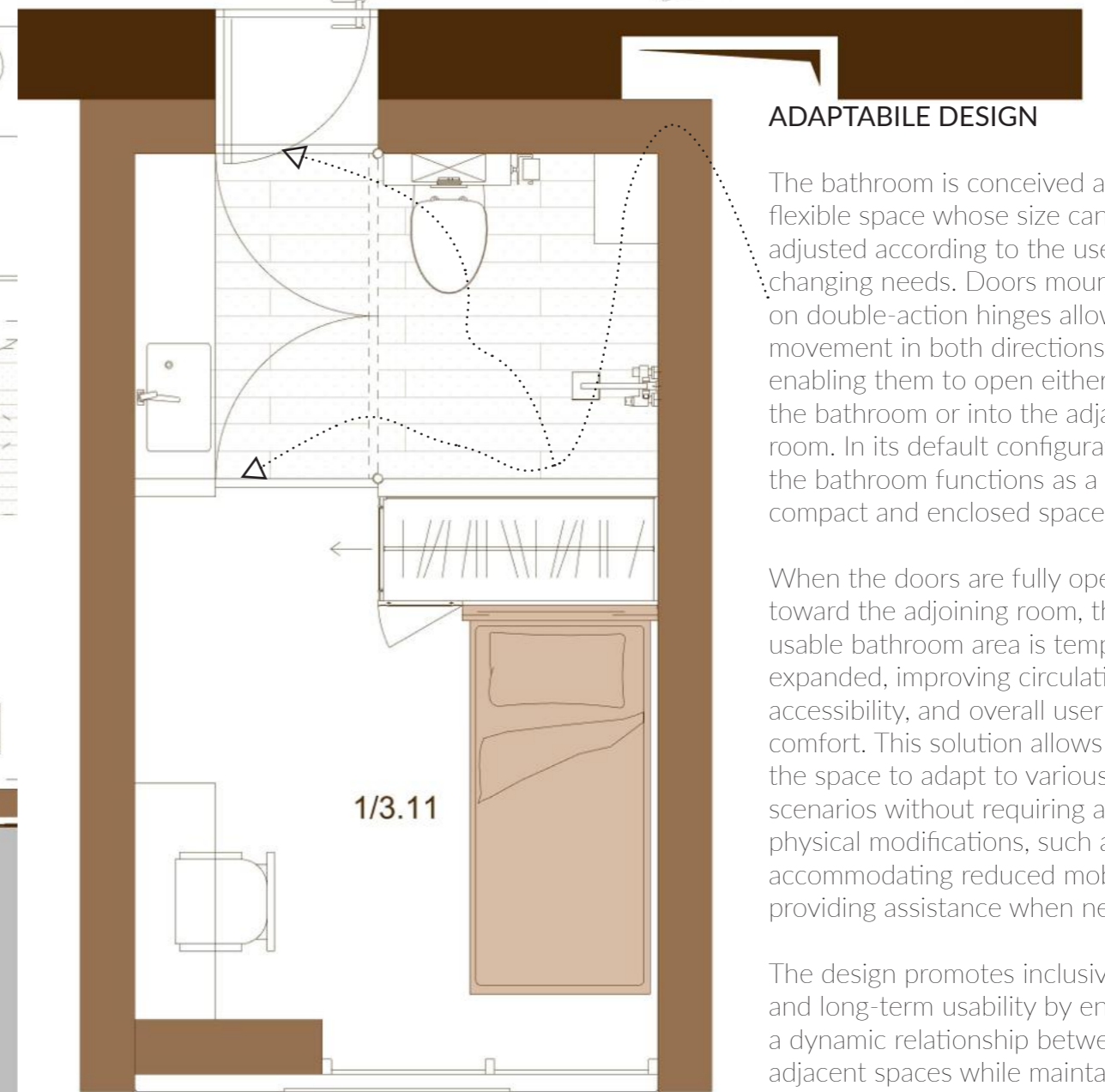
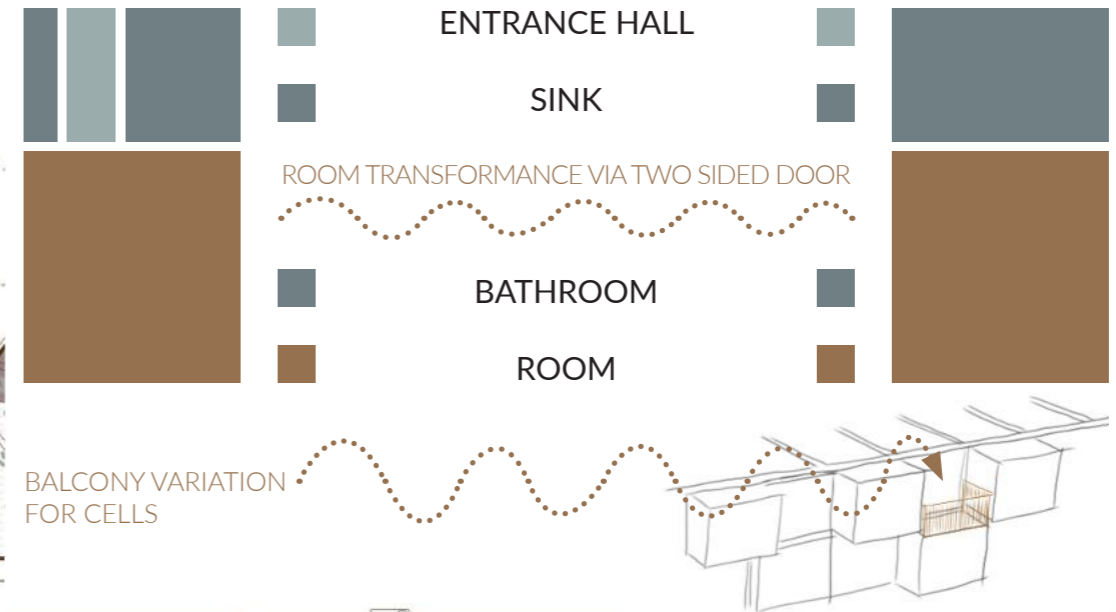
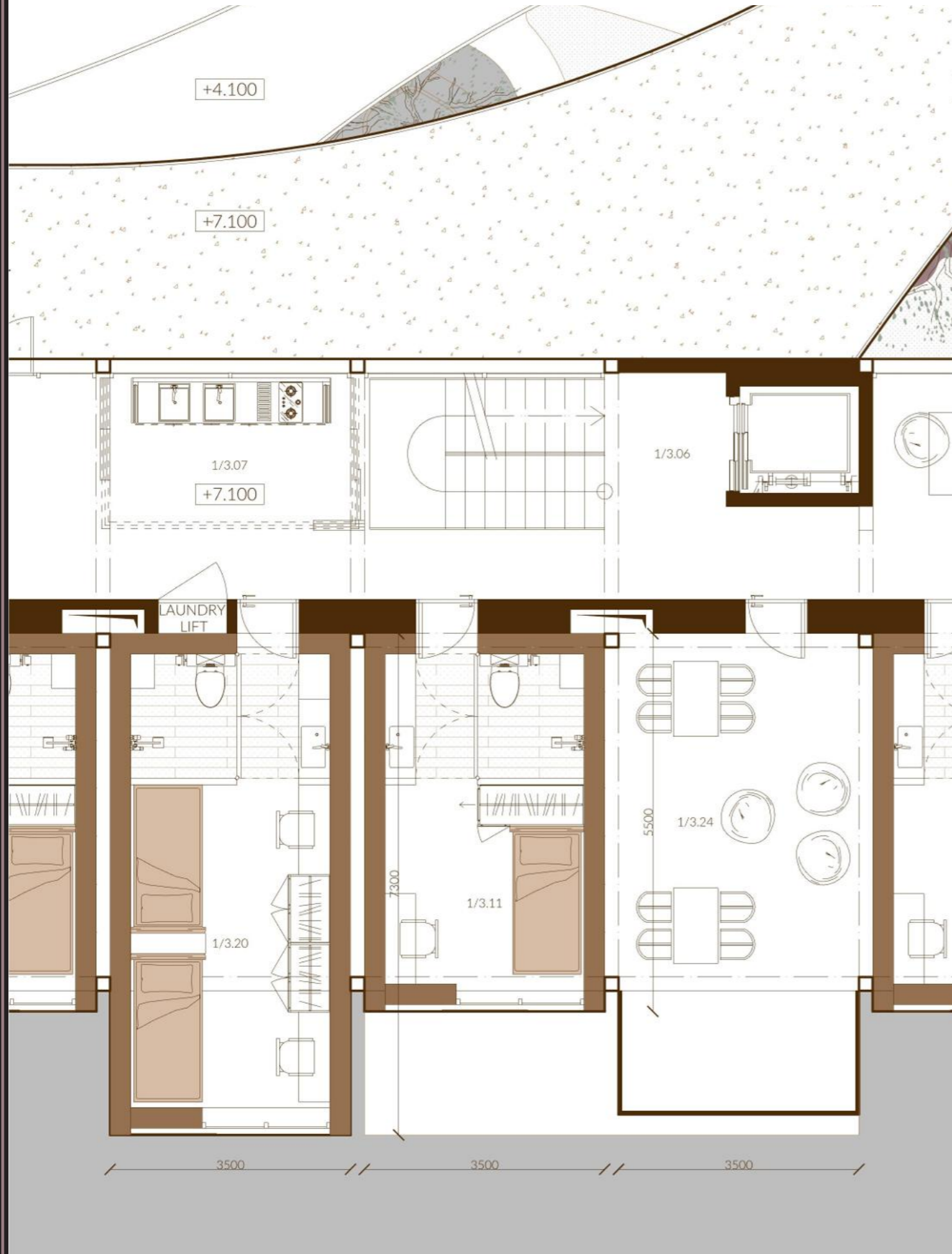


- ACCOMODATION
- GYM
- STORAGE SPACES
- OFFICE SPACES
- SERVICE AREA
- WASTE
- CATERING AREAS
- MULTIPURPOSE SPACES
- REHABILITATION
- POOLS
- VERTICAL CORE AND COMMUNICATIONS
- SANITARY AREAS
- ENTRANCE
- TERRACES + WALKING BRIDGES + ROOFS

18. LEVEL 4 PLAN



A D A P T A B L E D E S I G N



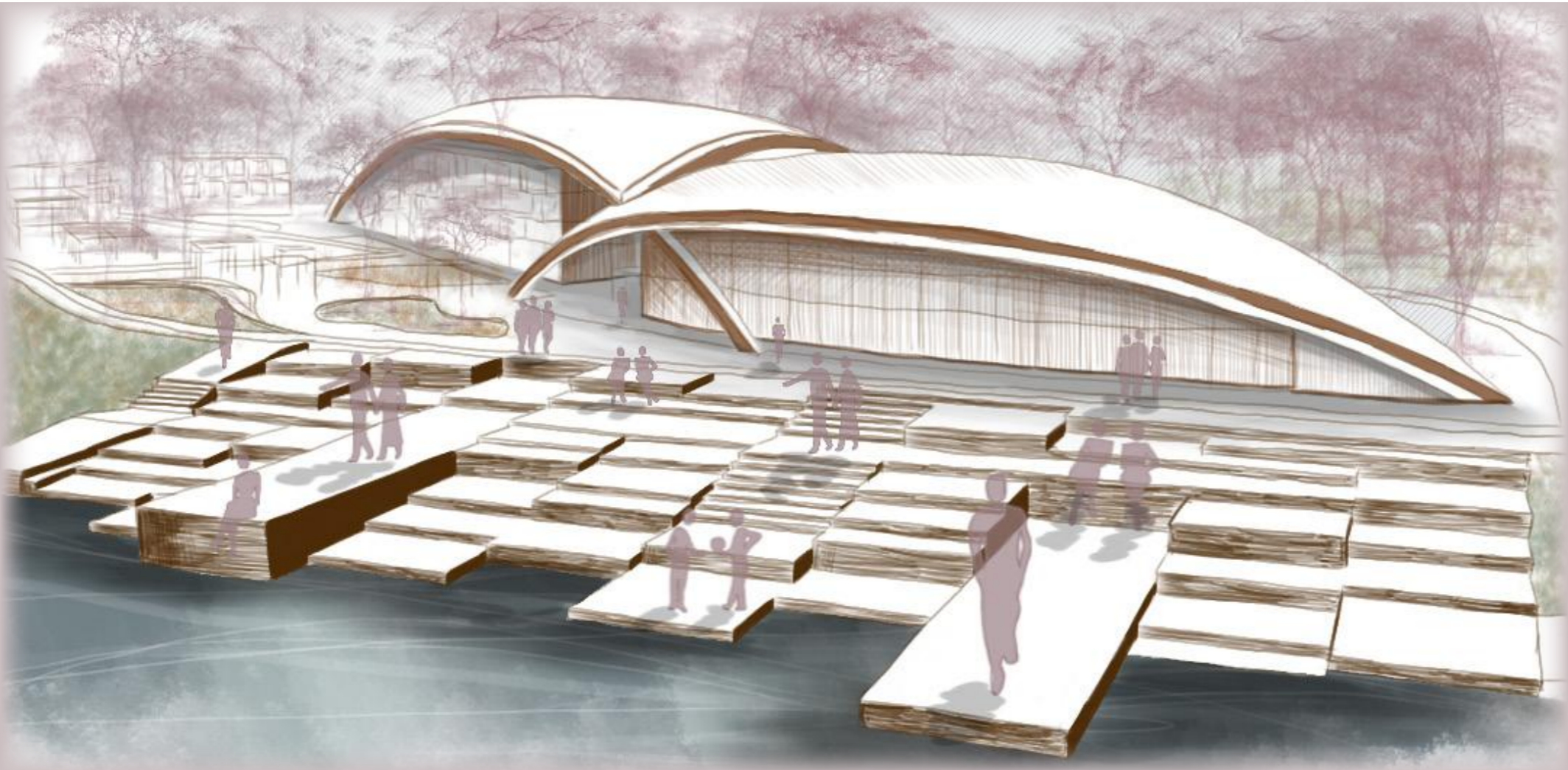
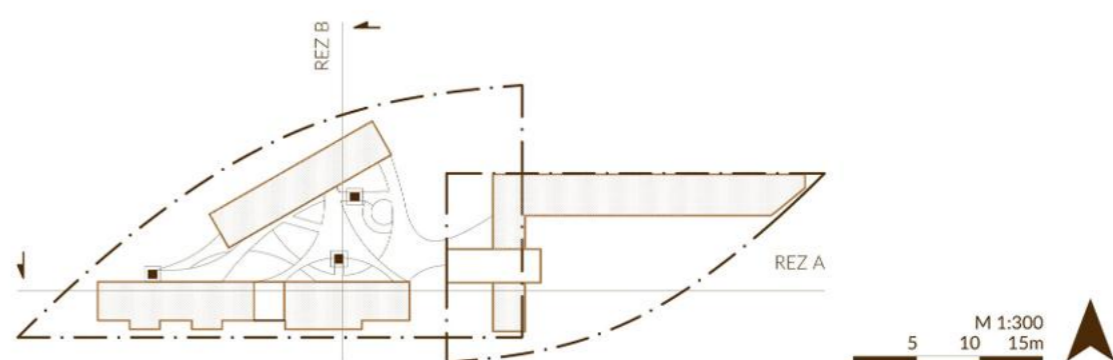
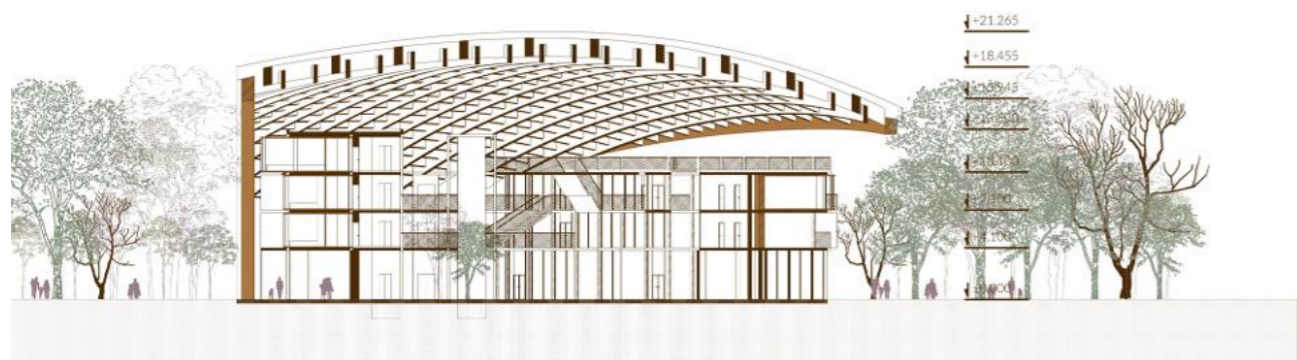
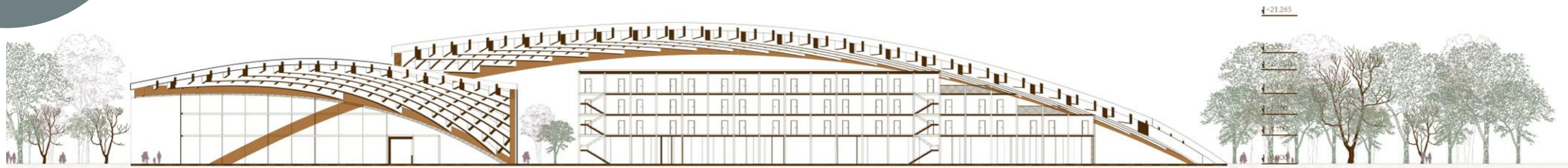
ADAPTABLE DESIGN

The bathroom is conceived as a flexible space whose size can be adjusted according to the user's changing needs. Doors mounted on double-action hinges allow movement in both directions, enabling them to open either into the bathroom or into the adjacent room. In its default configuration, the bathroom functions as a compact and enclosed space.

When the doors are fully opened toward the adjoining room, the usable bathroom area is temporarily expanded, improving circulation, accessibility, and overall user comfort. This solution allows the space to adapt to various scenarios without requiring any physical modifications, such as accommodating reduced mobility or providing assistance when needed.

The design promotes inclusivity and long-term usability by enabling a dynamic relationship between adjacent spaces while maintaining a clean and efficient spatial organization.

20. SECTIONS



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ELEVATIONS

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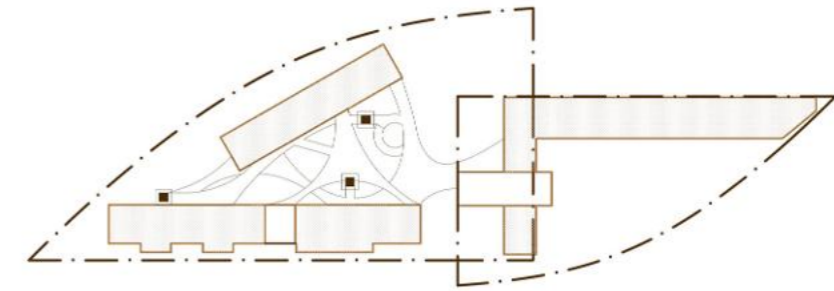
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SOUTH ELEVATION

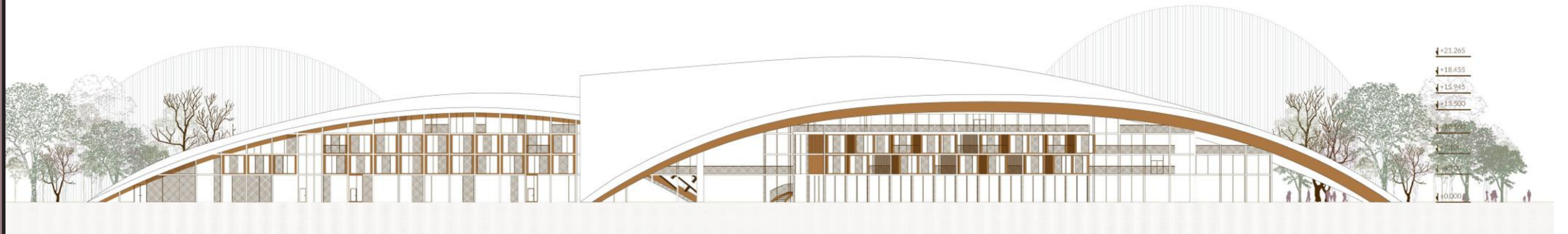


EAST ELEVATION



SOUTH ELEVATION

EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



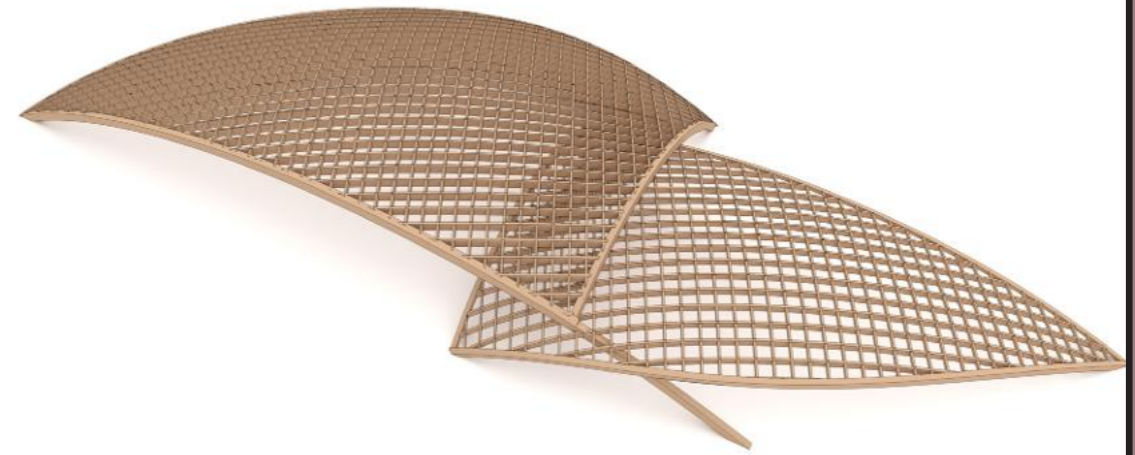
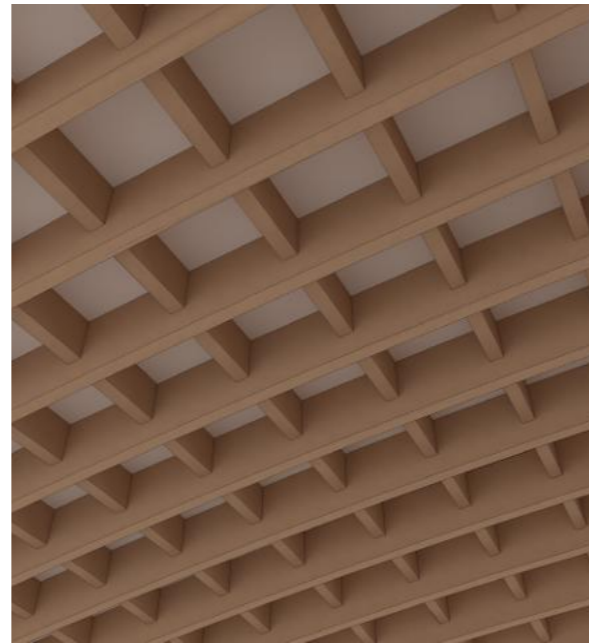
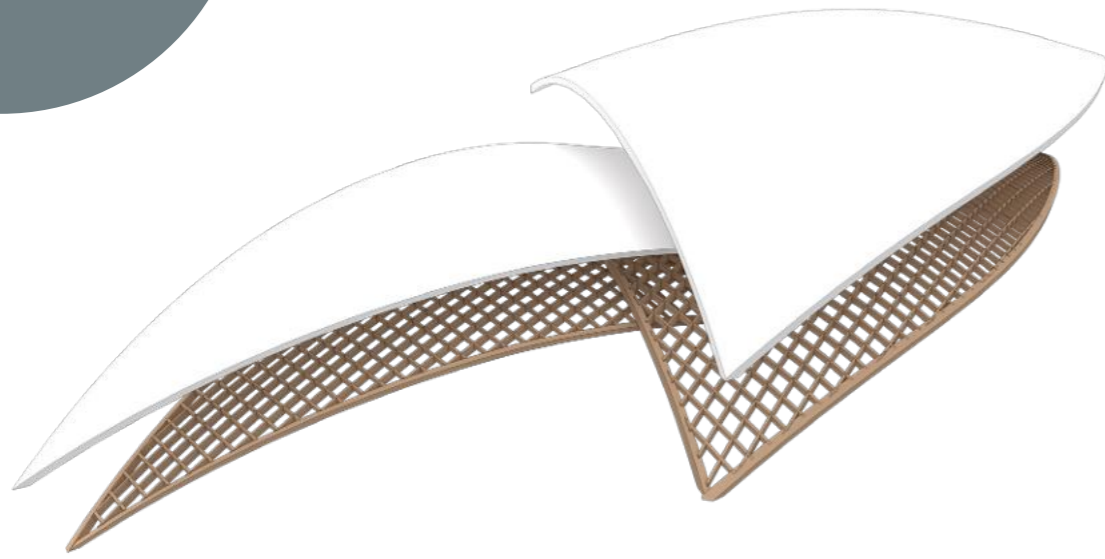
NORTH ELEVATION

WEST ELEVATION



M 1:300

22. R O O F D E T A I L



ROOF STRUCTURE

The roof is designed as a continuous monolithic concrete shell with smooth double curvature, supported directly by a curved timber grid structure. The timber lattice performs both structural and construction functions, acting as a spatial load-bearing framework while also serving as permanent formwork for the concrete casting. Thanks to the shell action of the concrete, loads are transferred primarily through compression into the timber structure and subsequently into point or linear supports. This allows the roof thickness and overall structural depth to be minimized. The double-curved geometry provides high stiffness and structural efficiency without the need for substantial secondary beams. The construction creates a contrast between the exposed timber lattice visible in the interior and the smooth concrete shell expressed on the exterior. As a result, the roof is perceived as a single, cohesive element that integrates architectural expression and structural performance into one unified system.



V I S U A L I S A T I O N S

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24. VISUALISATIONS



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04 RECONSTRUCTION

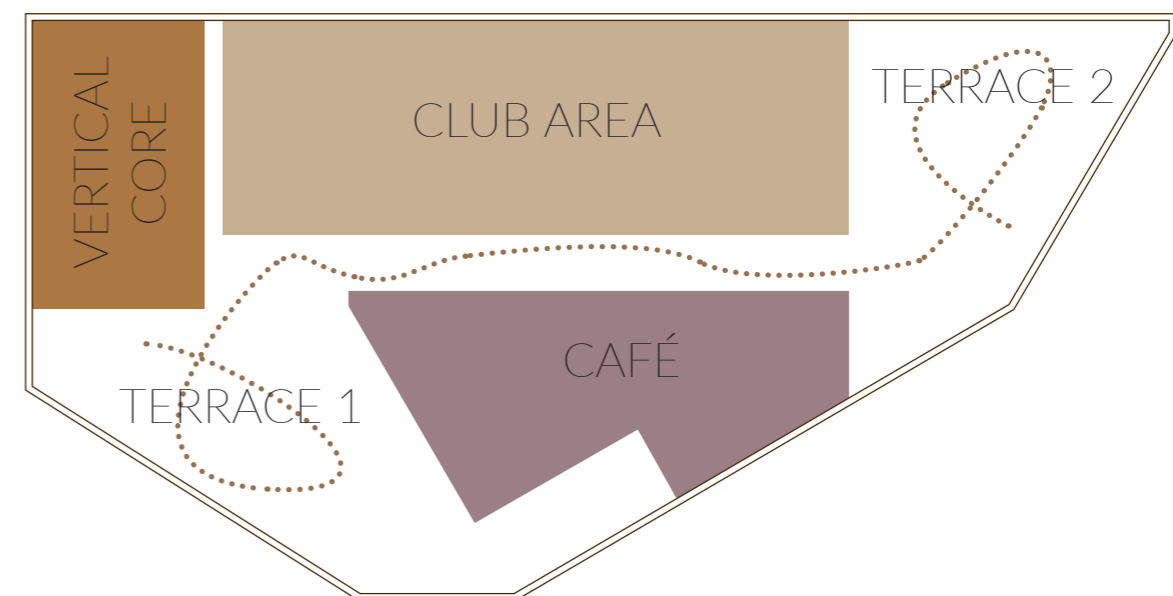
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26. IDEA OF RECONSTRUCTION

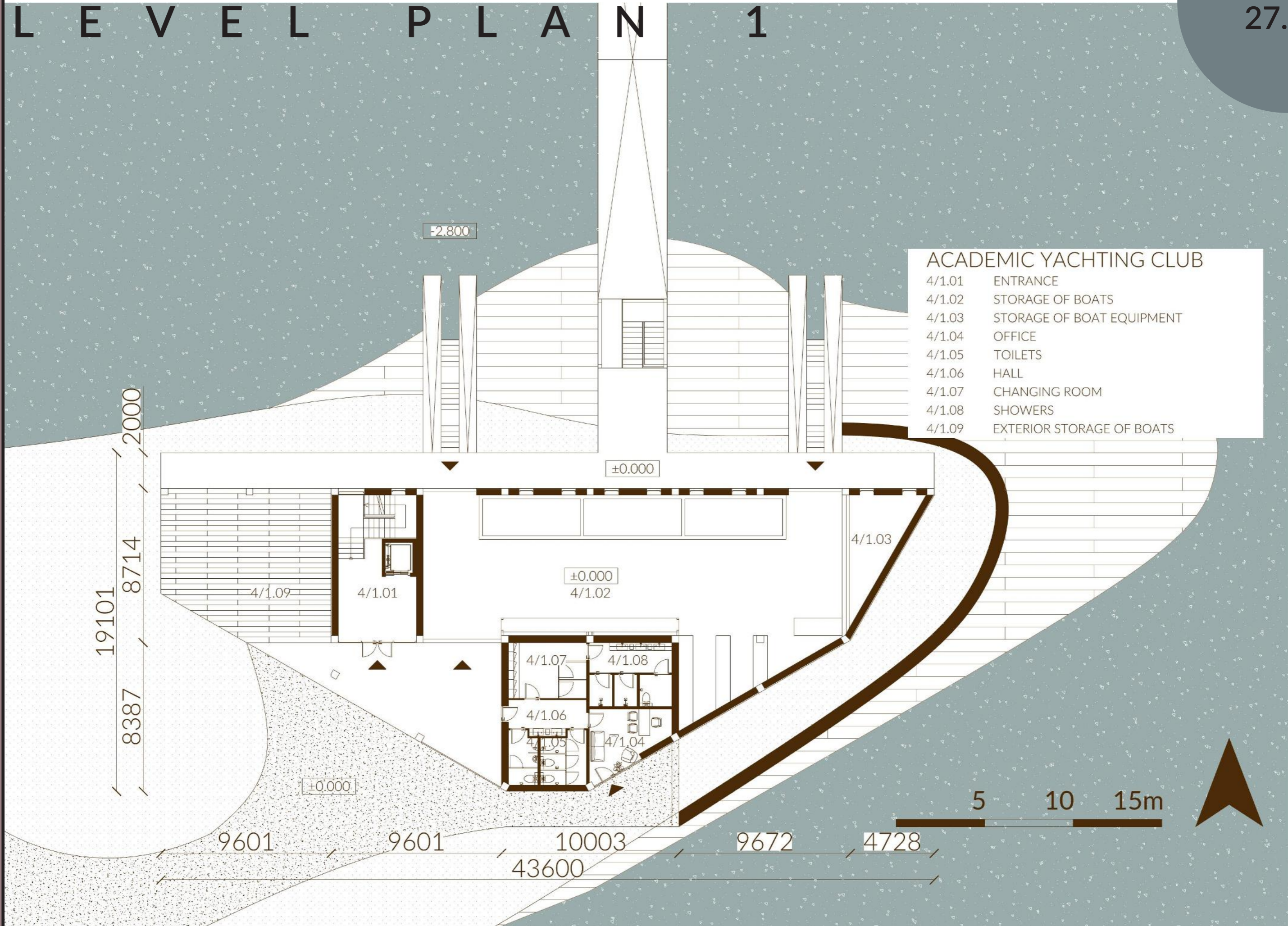


IDEA BEHIND RECONSTRUCTION

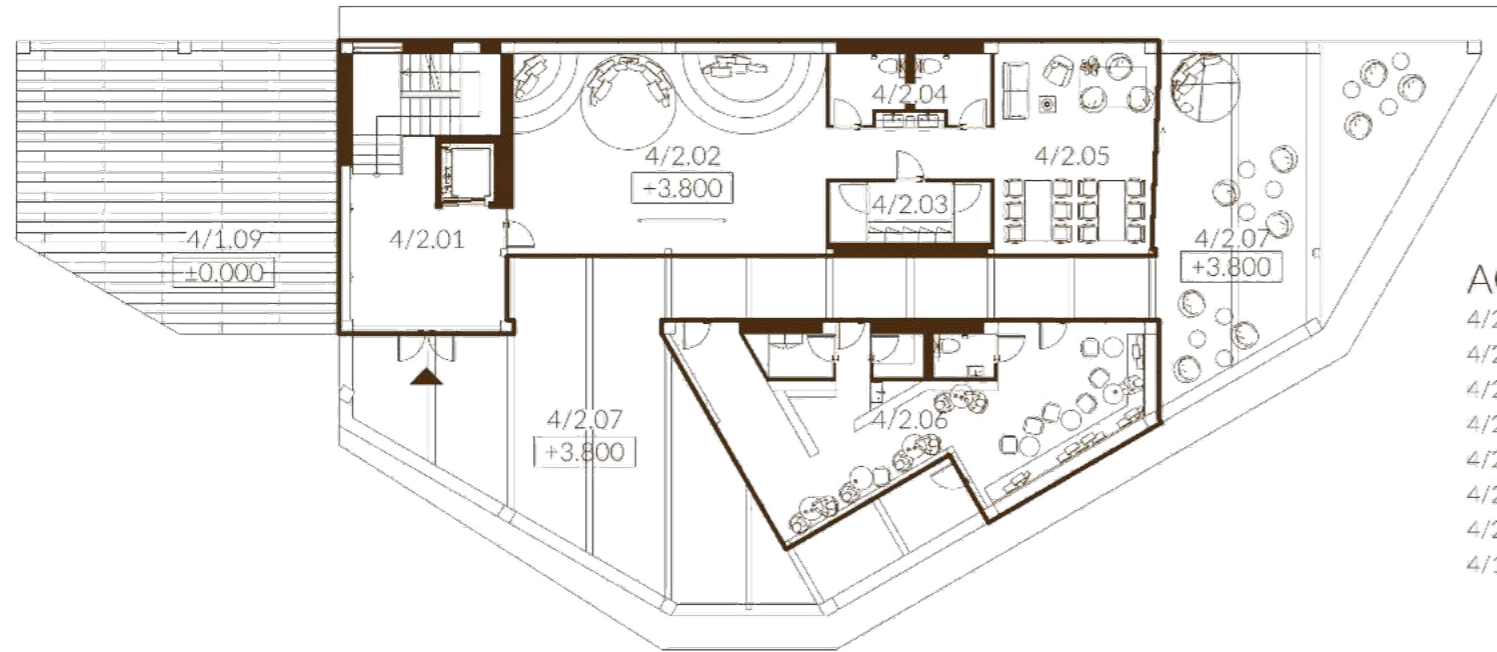
The object is based on the principle of mass fragmentation, where movement between spaces itself becomes the carrier of the architectural experience. The narrow passage, with light filtering through the wooden structure, creates a rhythm of transition and a play of shadow and bright surfaces, supporting the perception of the individual functional parts of the object as separate yet interconnected wholes. Transparent surfaces and a light construction feel open and natural, while the more solid walls give the space a sense of strength and stability. This contrast expresses the main intention of the design: to connect the reconstructed volume with a new supplementary object while preserving the readability of the different functions. The passage is therefore not only a circulation route, but also a place of orientation, visual contact, and gradual transition between the socially open café, the club area, and the supporting function of the new object.



LEVEL PLAN 1

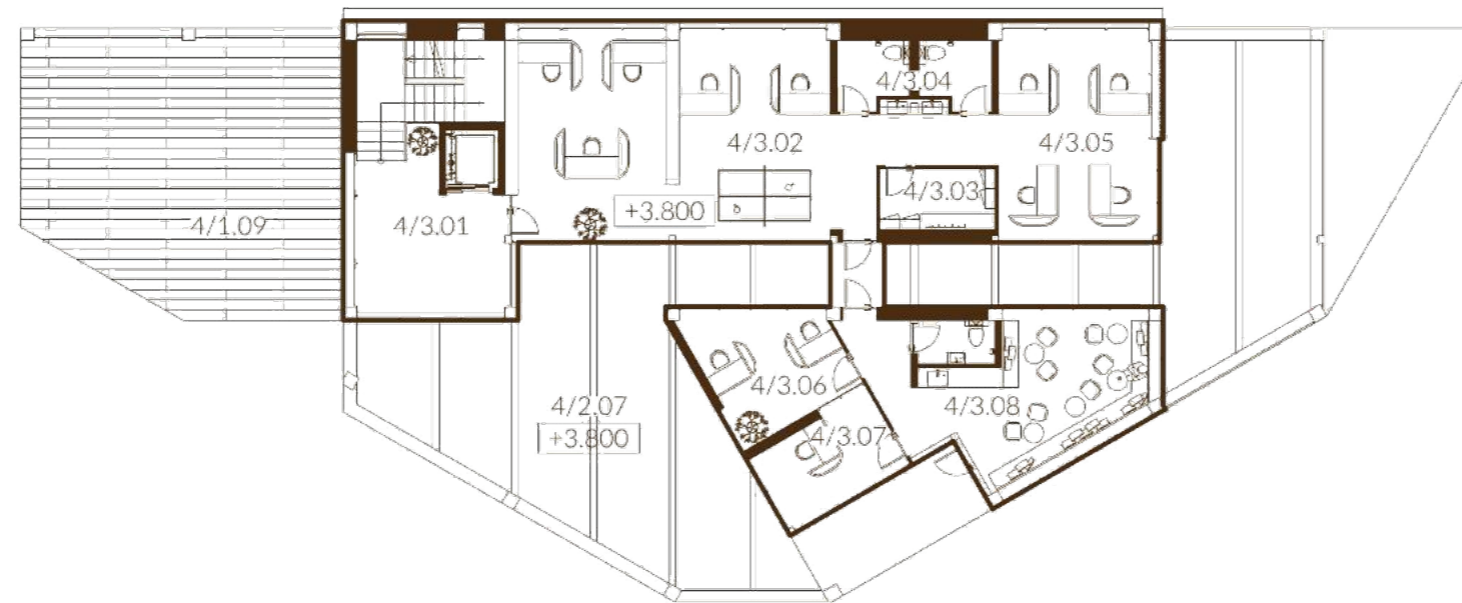


LEVEL PLAN 2 / 3



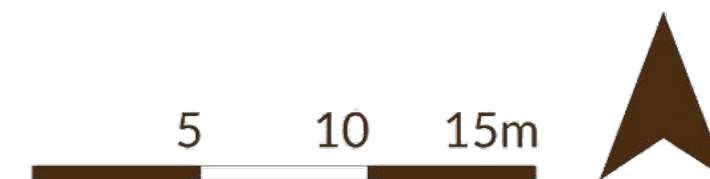
ACADEMIC YACHTING CLUB

- 4/2.01 VERTICAL CORE
- 4/2.02 MULTIFUNCTIONAL ROOM
- 4/2.03 CHANGING ROOM
- 4/2.04 TOILETS
- 4/2.05 MULTIFUNCTIONAL ROOM
- 4/2.06 CAFE WITH STAFF FACILITIES
- 4/2.07 TERRACE
- 4/1.09 EXTERIOR STORAGE OF BOATS

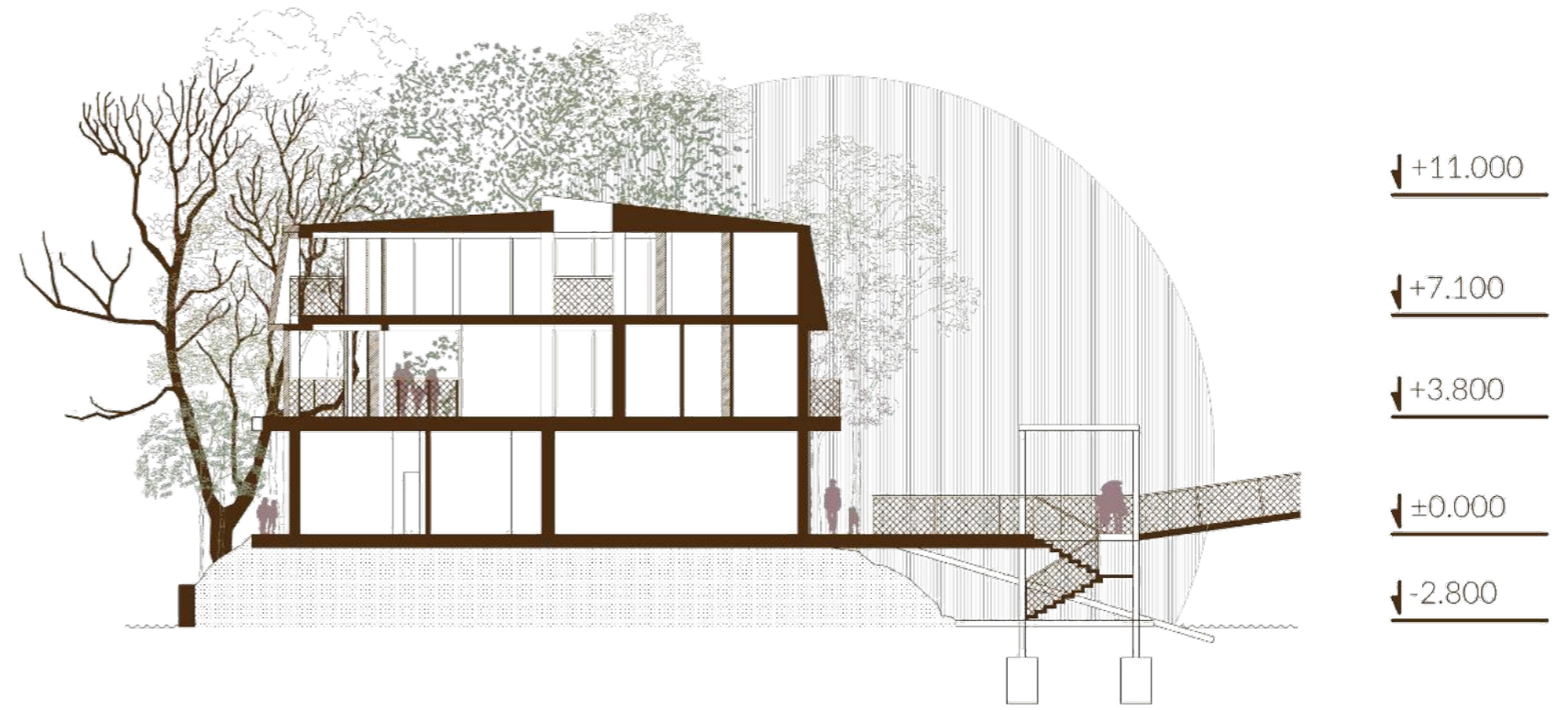


ACADEMIC YACHTING CLUB

- 4/3.01 VERTICAL CORE
- 4/3.02 OFFICE
- 4/3.03 CHANGING ROOM
- 4/3.04 TOILETS
- 4/3.05 OFFICE
- 4/3.06 OFFICE
- 4/3.07 OFFICE
- 4/3.08 MULTIFUNCTIONAL SPACE + KITCHEN
- 4/2.07 TERRACE
- 4/1.09 EXTERIOR STORAGE OF BOATS



E L E V A T I O N / S E C T I O N



30. VISUALISATIONS



Subject: 2_AT3_A Ateliér III, Study program: architektúra, **THESIS: YACHTING CLUB BELGRADE**,
Student: Bc. Katarína Slobodová, Course coordinator: doc. Ing. arch. Michal Czafík, PhD., Thesis
supervisor: doc. Ing. arch. Henrich Pifko, CSc., Akad. rok: 2025/26

••••• **STU**
••••• **FAD**

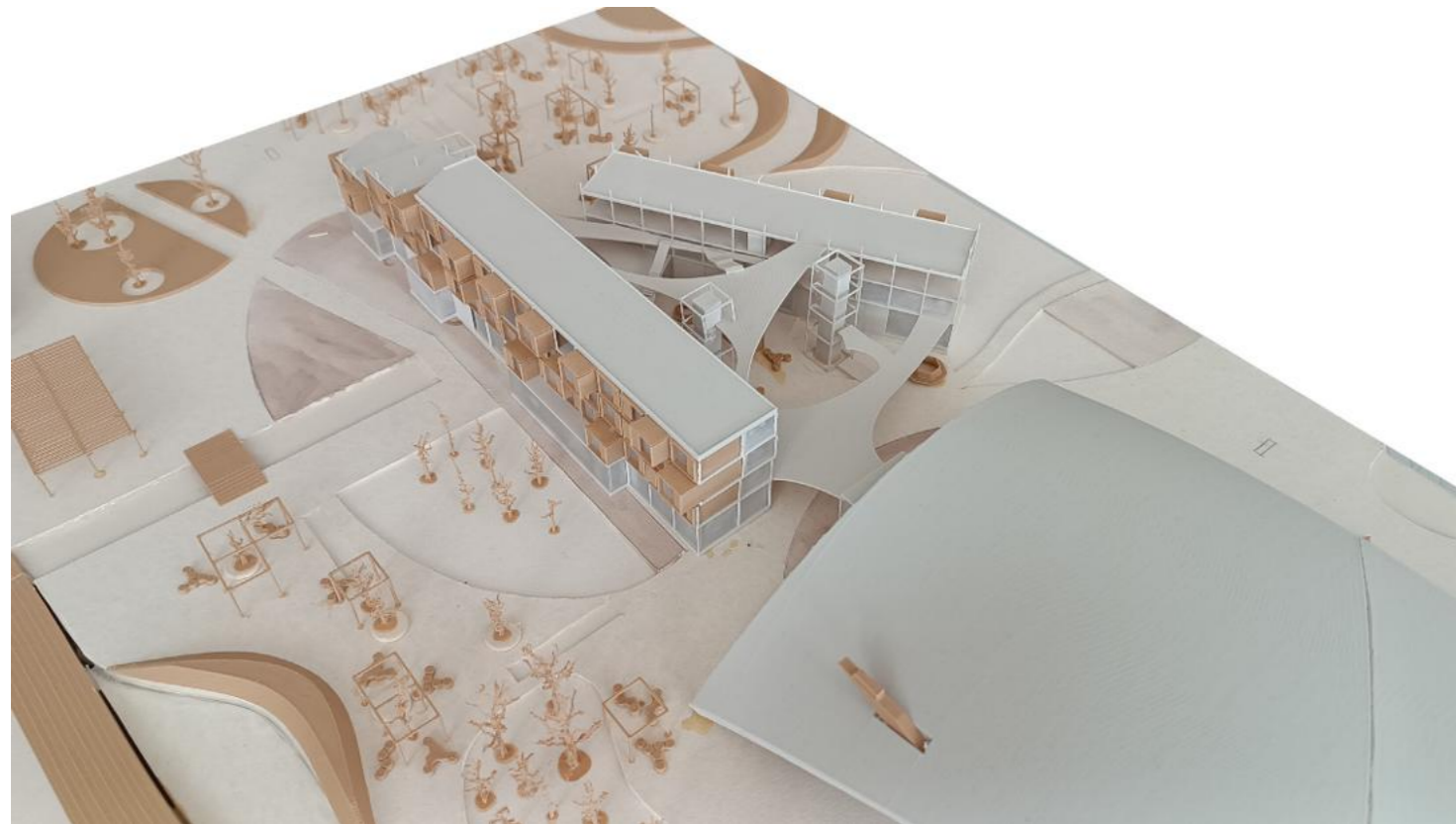
SLOVENSKÁ TECHNICKÁ
UNIVERZITA V BRATISLAVE
FAKULTA ARCHITECTÚRY A DIZAJNU

05

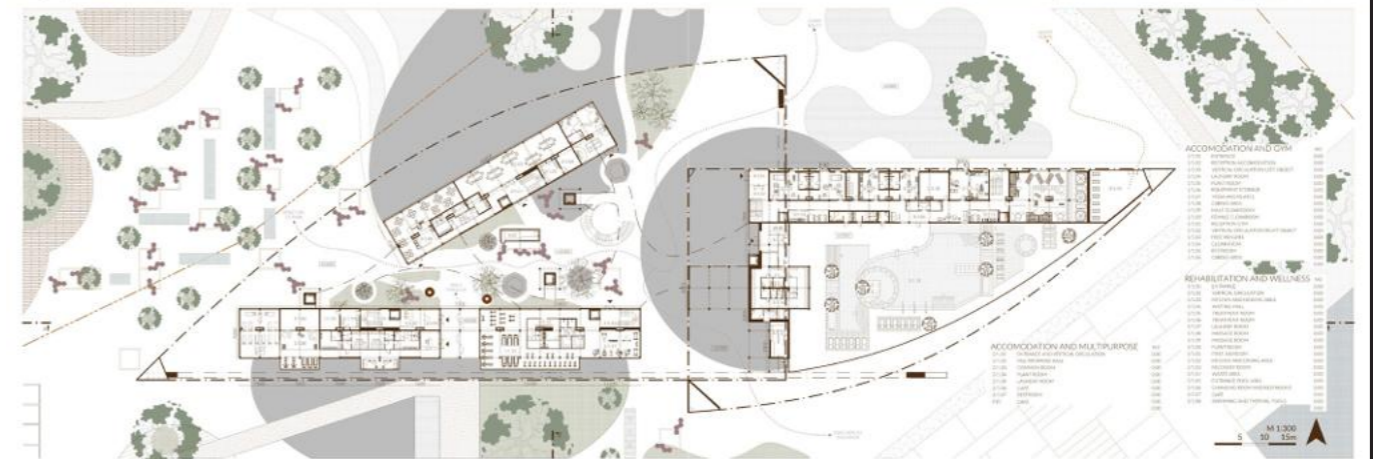
ATTACHMENTS

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32. MODEL + POSTER_1



FLOOR PLAN - GROUND FLOOR



FLOOR PLAN - SECOND FLOOR

SOUTH EVELATION/WEST ELEVATION

IDEA SKETCH



SECTIONS



SKETCH



Subject: 2_AT3_A Ateliér III, Study program: architektúra, **THESIS: YACHTING CLUB BELGRADE**,
 Student: Bc. Katarína Slobodová, Course coordinator: doc. Ing. arch. Michal Czafik, PhD., Thesis
 supervisor: doc. Ing. arch. Henrich Pifko, CSc., Akad. rok: 2025/26

STU
 FAD

SLOVENSKÁ TECHNICKÁ
 UNIVERZITA V BRATISLAVE
 FAKULTA ARCHITECTÚRY A DIZAJNU

POSTER_2 / 3

SLOVENSKÁ TECHNICKÁ
UNIVERZITA V BRATISLAVE
FAKULTA ARCHITEKTÚRY A DIZAJNU

STU
FAD

Subject: 2_AT3_A Ateliér III, Study program: architektúra, THESIS: YACHTING CLUB BELGRADE, Student: Bc. Katarína Šlobodová, Course coordinator: doc. Ing. arch. Michal Czafik, Ph.D., Thesis supervisor: doc. Ing. arch. Henrich Pifko, CSc., Akad. rok: 2025/26

YACHTING CLUB BELGRADE RECONSTRUCTION 308963

ELEVATION

SECTION

SITE PLAN

TEXT

- The proposed building is designed as a yachting club facility in Belgrade, serving both professional athletes and the wider public visiting the Sava riverfront. The program includes accommodation, dining, sports and training areas, rehabilitation facilities, and a range of public and semi-public spaces. The concept responds to the seasonal character of the site, allowing partial operation during off-season periods while maintaining key functions year-round.
- The architectural concept is based on a composition of independent volumes that function autonomously, yet are unified by a distinctive concrete shell combined with a timber beam structure spanning above them. This gesture creates a strong visual identity inspired by sailing dynamics and modular container architecture, conveying structural clarity with expressive form.
- Situated along the riverbank, the design strengthens the connection between architecture and landscape. The building is oriented towards the river, with main facades and communal spaces facing the water. The riverfront is activated by terraced seating, a wooden pier, and landscaped areas descending towards the Sava, encouraging direct interaction with the water. A pedestrian and recreational route runs through the site, linking it to the surrounding context.
- The spatial organization is defined by separate functional blocks connected through external walkways, staircases, and vertical circulation cores. The space between the volumes forms a multi-level social environment, not limited to ground level but extending vertically through galleries and bridges, creating visual and physical connections across the complex.
- The structural system is based on a modular timber frame with a 3.3 m grid, into which prefabricated accommodation units are inserted. This system allows flexibility, easy replacement or expansion of units, and the creation of shared spaces such as loggias and terraces.
- Overall, the project integrates lightweight construction, modular design, and strong landscape interaction, resulting in a flexible, dynamic, and user-oriented environment for sport, recreation, and public life.

FLOOR PLAN - FIRST FLOOR

FLOOR PLAN - SECOND FLOOR

FLOOR PLAN - THIRD FLOOR

ENERGY EFFICIENCY OF BUILDING

Prostředky ve vztahu k výškové podlažnosti	Výšková podlažnost: 1929,3 m ²	Metoda	Certifikát	Společnost
Měrná potřeba tepla pro vytápění:	22 kWh/(m ² a)	Měrná potřeba tepla pro vytápění: 0,5 h ⁻¹	15 kWh/(m ² a)	no
Výsledek zkoušky neprůvzdutnosti:	0,5 h ⁻¹	Měrná potřeba primární energie (TV, vytápění, chlazení, pom. a dom. spotřebiče): 66 kWh/(m ² a)	0,6 h ⁻¹	ano
Měrná potřeba primární energie (TV, vytápění a pomocná a domácí spotřebiče):	33 kWh/(m ² a)	Měrná potřeba primární energie (špora elektřiny pomocí vlastní energie): 16 kWh/(m ² a)	120 kWh/(m ² a)	ano
Měrná potřeba primární energie (špora elektřiny pomocí vlastní energie):	11 kWh/(m ² a)	Měrná potřeba primární energie (špora elektřiny pomocí vlastní energie): 11 kWh/(m ² a)	15 kWh/(m ² a)	ano
Čistost přívodu tepla z obnovitelných zdrojů:	0 kWh/(m ² a)	Čistost přívodu tepla z obnovitelných zdrojů: 0 kWh/(m ² a)	15 kWh/(m ² a)	ano
Měrná potřeba energie pro chlazení:	4 kWh/(m ² a)	Měrná potřeba energie pro chlazení: 4 kWh/(m ² a)	15 kWh/(m ² a)	ano
Chladič vzduchu:	4 kWh/(m ² a)	Chladič vzduchu: 4 kWh/(m ² a)	15 kWh/(m ² a)	ano

CONCEPT

ONE CLICK LCA

Cradle to grave (A1-A4, B4-B5, C1-C4)	kg CO ₂ e/m ²
(A1-A4)	253
(B4-B5)	118
(C1-C4)	485
(A1-A4, B4-B5, C1-C4)	856

CONSTRUCTION DETAIL

Wall System Description - 33403 (R5)

This system from Saint-Gobain Fiberglas is a lightweight non-loadbearing internal partition wall, suitable especially for timber structures.

Build-up:

- Cladding (both sides): 3x gypsum board Rigipal (DPR) EKO, 12,5 mm
- Substructure: Metal studs (2x45 system)
- Insulation: Mineral wool (e.g. Isover), 60 mm
- Main structure: Acoustic insulation - 50 dB
- The resistance is highly REI 30-60 (depending on variant)
- Fire-resistance: suitable for hotel areas (locker rooms, changing areas)
- Application in Your Project Gym + Changing Rooms, Public Area!

KEY ADVANTAGES OF THIS SYSTEM

- Lightweight → ideal for timber construction
- Good acoustic performance for public spaces
- Suitable for humid environments
- Flexible for installations (MEP integration)
- Fast construction
- Adaptable to modern architectural elements (glass facades)

Ecophon Akusto™ Freedom

- Acoustic solution for multifunctional spaces in building