

**“DEVELOPMENT OF THE SPATIAL PLAN FOR
THE ACADEMIC CENTRE OF THE UNIVERSITY OF LATVIA”**

ID No. LU 2022/5



UNIVERSITY CAMPUS

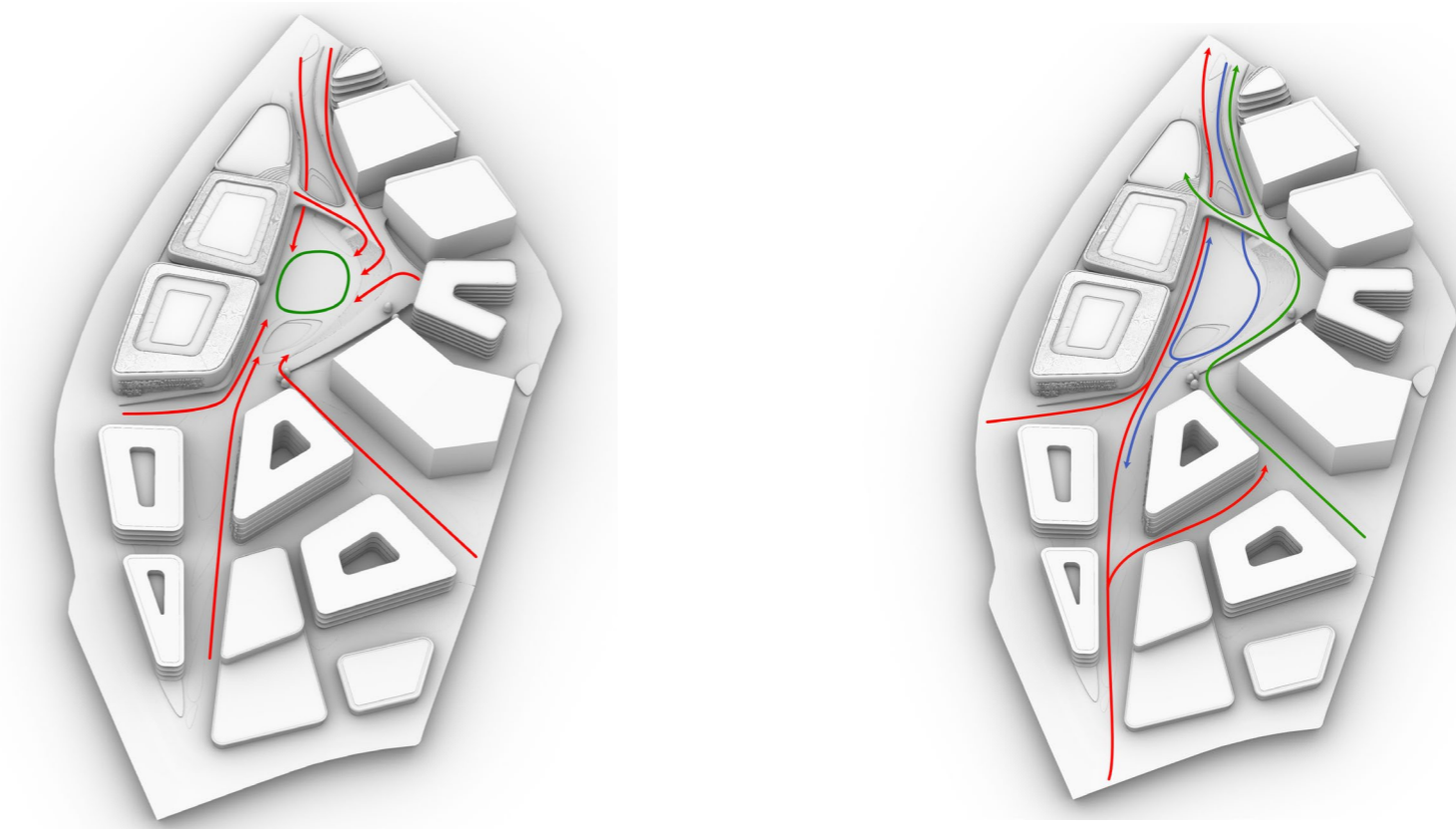
DEVELOPMENT OF THE SPATIAL PLAN FOR THE ACADEMIC CENTRE OF THE UNIVERSITY OF LATVIA”

The proposed Campus has an inclusive approach to education, bringing together a Academic, Research and adult-learning facilities, as well as community sports centre. Designed to create a sense of community and continuity between these different groups, the school building is a fluid sequence of spaces arranged along a central spine with central plaza and different cluster green spaces, the spine integrates and links a range of different teaching areas, full of various outdoor social spaces.

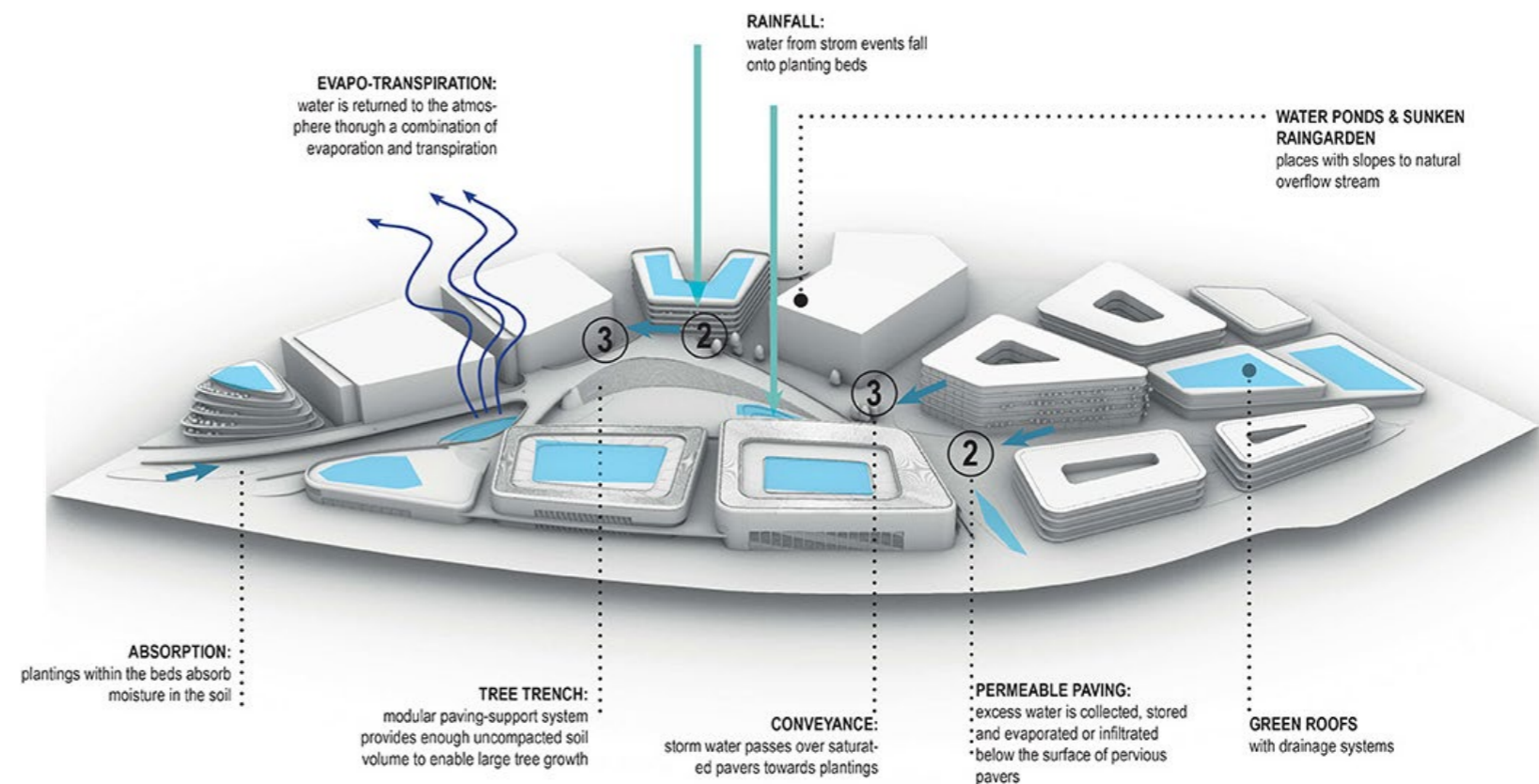
The masterplan creates a traffic-free oasis with green setting that includes a meandering ‘philosopher’s walk’, as well as new dynamic running track and pedestrian routes that promote movement and life through the site and link with local rail and bus services.

CREATING WATER-FRIENDLY CAMPUS

In an effort to tackle multiple water issues in one go, on site, on Campus and the City , the concept of Sponge Campus has been introduced. A Sponge Campus is a specially designed campus that absorbs, cleans and uses rainwater in a natural and ecologically friendly way thus reducing runoffs. The campus aims at resolving water problems rather than creating and exaggerating it by retaining and using most of its rainfall. Like a sponge, the campus will need to absorb, filter, store and purify the rainwater. This will be done through the development of , green infrastructure, sustainable drainage systems, and water sensitive urban design with the campus and wider surrounding areas which would need to be co-ordinated within the surrounding planning zones. The primary goals is retaining seventy to eighty per cent of annual rainfall by applying green infrastructure concept, minimising water logging and urban flooding, improving water quality and more.



SPONGE CITY WATER MENAGMENT



The Techniques Involved

The project includes many techniques and methods involved when it comes to creating a Sponge City Campus. This is developed simply by reducing the number of hard surfaces and increasing the amount of absorbent land, particularly green space, which can make a significant difference in reducing the severity and frequency of flooding events. Supplementing this approach with efficient channelling and storage systems which help to counter the frequency of water shortages, which can be particularly acute in large public spaces and cities. Other measures include in the development :

- The provision of rooftop green spaces.
- The storage and harvesting of rainwater.
- Surrounding roads and parking spaces with porous surface materials.
- The use of water-intensive plants and trees.
- Creating land basins to hold excess water.
- Introducing ponds which can hold some of the excess water.

Creating green and blue spaces in terms of ponds, and wetlands, making the city campus more absorbing, Locating them at strategically defined low lying areas will help capture precious rainwater and bettering the groundwater level. The overall effect and properly implemented Sponge City Campus, the first in Latvia will have on the environment is more than water retention. It will help create green spaces in the city campus and beautify it. Green spaces and wetlands will promote bio-diversity providing habitat for a variety of flora and fauna. The better water management system will help bring down the temperatures too and reduce excessive temperatures during the summers, thus fighting climate change. The water and air pollution levels and carbon emissions will see a reduction.

Green spaces and water bodies incorporated into the Campus masterplan will provide relaxing amenity spaces for people as well as havens for wildlife, and we know that abundant green space is a key tool for boosting mental and physical wellbeing and social interaction.

HISTORICAL CONTEXT

The historical context of Kobronskanste and the old riverbed of the Mārupīte has been reflected in the solutions for the public open space. Designed streets are to simulate a naturally shaped river shoreline located 1.5 kilometers from the design space.

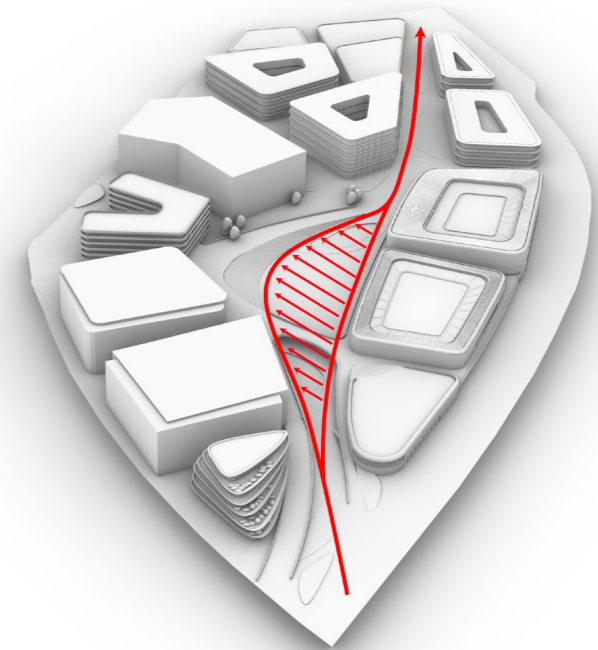
“Tornakalns” is the neighborhood that is seen as a garden suburb within minutes of Old Riga. This assumption means that the newly designed area must be consistent with the surrounding greenery

and the greenery planned in this area. The idea is to make it as green lungs of this area with a link to the protected built-up territory.

Until then, there is no formal straight-line passage from the area of “Tornakalns” to the Old Town and the Daugava waterfront. The project envisages a footpath leading along the railway lines, which then comes over the river.

The project is a creation of a presentable, aesthetically appealing environment, balancing the functions of commuting and recreation. Important are all surfaces shaped by architectural solutions. It was taken care of both internal and external borders of the territory and street fronts. Locations of main entrances were analysed not to create blind walls to make it attractive from all of sides. Arrangement of the main entrances are defined by main axes, which are leading through pavements to the center.

The project takes into account that the competition site borders on the urban districts are classified as landscapes of high cultural heritage value and railway landscape. Nearby parks are designated as landscapes of high ecological quality. In the development of sketch design solutions, the impact of the composition of buildings and solutions for functional and spatial organisation of the public open space on the overall spatial structure of the city and their interaction with the surrounding scenery are assessed.



FORM and LANDSCAPE

Voronoi landscape shapes are curved by the natural flows of the people incoming to the Academic Center, creating and forming the new buildings in the campus while respecting the existing volumes. These forms although are expressive, they are very functional and efficiently planned spaces internally.

Buildings heights are adapted to the views and in such a way as not to obscure perspective openings, as well as they are within

the limits of the number of storeys in the designed buildings in this area. The competition proposal substantiate the placement, massing and height of the vertical accents. The campus masterplan development considers the phasing of the construction and future expansion of the campus during different stages.

The Campus Masterplan development takes into account Level differences which have been minimized. It is no longer necessary to introduce measures preventing urban barriers. Necessary data and constraints regarding building heights were carefully analyzed.

The relationship between the height of the buildings and the number of storeys is shown in the diagrams. All car parks are above ground. The language of the projects is connected with the House of Sciences, but the new buildings are even more modernist and fluid, still fitting into the surrounding urban tissue.

The proposals respects the principle of the Thematic Plan for the division of city blocks using streets and pedestrian paths ensuring movement intersecting the blocks. When elaborating the spatial development vision for the territory, an analysis of the visual impact



was performed. Concept pays attention to the urban construction accents and the planned buildings blend within the urban environment, prioritizing the preservation of the historic centre of Riga as a UNESCO World Heritage Site, as well as the historic cityscape on the left riverbank of the Daugava, focusing on the urban scenery and the atmosphere created by the set of these values. The spatial composition reflects the blending of the new buildings within the surrounding urban structure and add high-quality features to the spatial composition of the left riverbank of the Daugava (assessing

the silhouette, panorama). The composition is created in such a way as to avoid any rivalry of heights with the building of the National Library.

The sketch design include a unified architectural design solutions, which is consisted of presentations of the front facades, information about materials, heights, specifications. Important element of this idea is an attempt to fit into the existing urban fabric and not dominate it.

SURROUNDING

We have taken into account during the development of the design the working solutions of the Tiga Spacial Plan and the Rail Balitica Local Plan under development. The submitted sketch design comply with the Designing Program such as traffic organization, connections to the new/relocated Tornakalns station, planned public transport stops, cyclist and pedestrian connections, links to surrounding areas, etc. are adequately addressed.



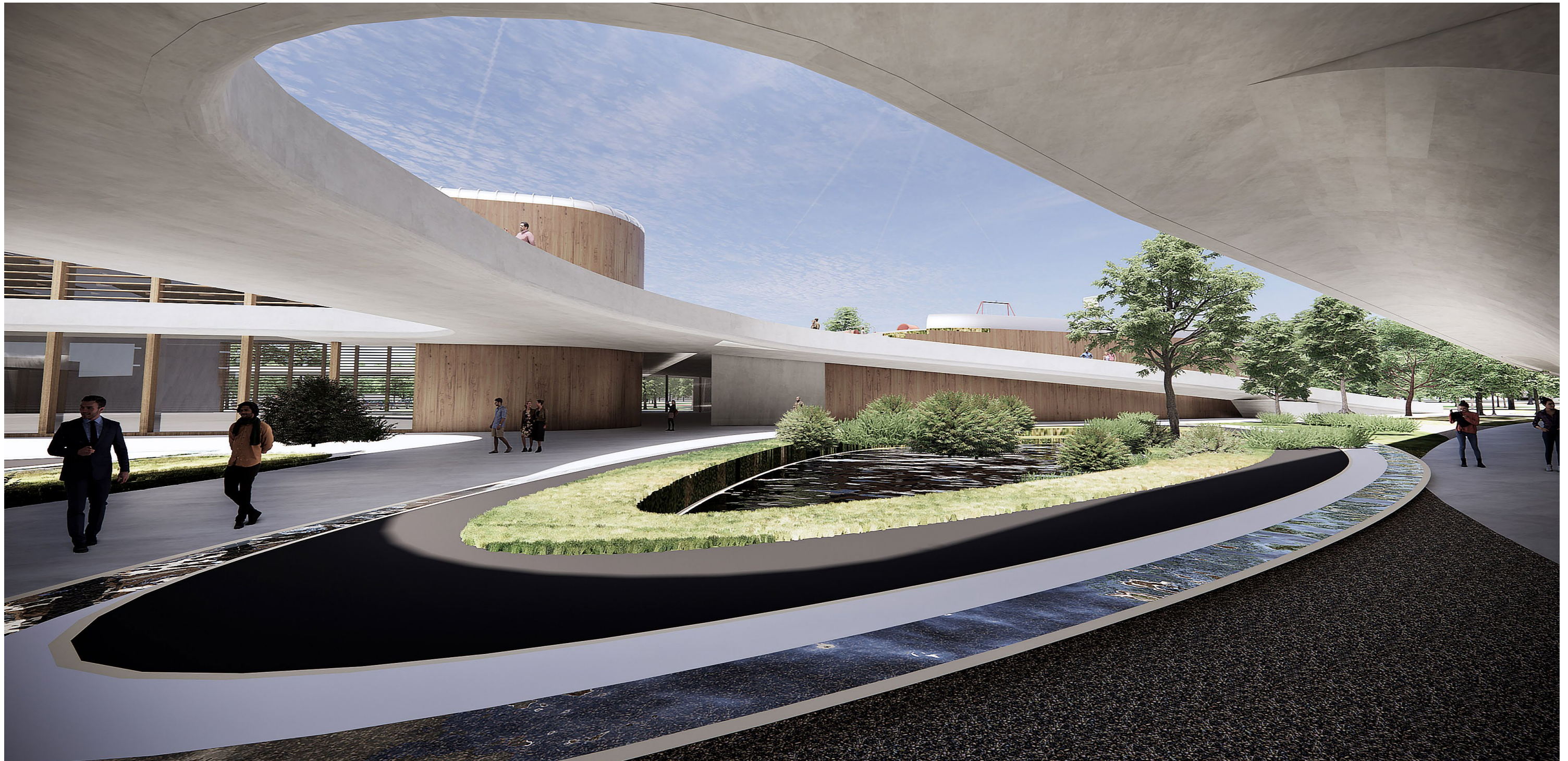
The idea of flows have been simplified. Planned new street lines of Vienības gatve and the changed trajectory of the tunnel of Vienības gatve/Raņķa dambis have been addressed in the design . There is the link with Torņakalna railway station and the location of the Academic Square is adopted .

View Analysis from different vantage points were made during the design process and finding provided in the submission. This action allowed to understand how the newly created complex fits into the existing scenery of the surroundings.

The planned development is in line with the changes of the street layouts and connections. New public transport connections reaching the vicinity of the complex was analysed. There is a proposed public transport scheme with existing and planned public transport stops. Diagrams detailing all means of transport nearby, consisting of solutions for transport to related buildings, neighbourhoods and attractions nearby. In addition communication link with Torņakalna Station is provided through a tunnel under the railway track. Another Important issue is the solutions for links with the neighbourhood centre to support and strengthen its functions and identity.

The division of common spaces into a central square and smaller decentralized ones means that their purpose is diverse. The largest plan can host a wide range of people, for example, to organize special events which is open to non-users of LU AC.

A comprehensive presentation is prepared, which includes drawings, diagrams, flat views of elevations, graphic representations explaining the entire design idea in the context of the urban environment.



The urban plan proposes pedestrian routes that connect the designed area with the historic center of Riga. The proposal assumes a compositional line that will make connection with the Old Town as a representative pedestrian route leading through the existing bridge.

Viewpoints are important elements of this design. That is why attention was paid to ensure that the buildings do not obscure the characteristic views, but on the contrary - create corridors through which they open up to them. This assumption is supported by visualisations. A holistic approach to the planning of the masterplan and the integration of the existing building in the competition territory were carefully observed and respected.

The competition proposals take into account and incorporate the significant public, urban and cultural heritage objects located in the area (e.g. the National Library of Latvia, the Latvian Railway Museum, nearby parks). There is a dialogue between the new complex and the protected built-up area of Torņakalns and its protected values. This district is consisting largely of gardens and mansions which was carefully observed in our design assumptions and adopted in the project masterplan. Its overall characteristics are to remain features such as: an oasis from the city, a green haven and historical symbols hidden in the landscape.

The overall composition of the new campus development and the solutions for the territory organisation includes the archaeological monument of local significance "Structures of the Kobron's scone fortification system" (national protection No. 9230). In the focal points of public spaces there are foreseen stands presenting excavating and archeological treasures. The development concept focuses on the wide implementation of the principles of environmental quality and sustainability.

Landscaping projects and development on the banks of the Daugava are planned within a complex manner, including both water and land areas. The defined boundaries of the neighbourhoods are served as basis for the spatial framework. The most significant views from the Daugava to the city, and from one riverbank to the other are evaluated within photomontages presented on the boards. The silhouette of the extended campus buildings on the right and left riverbanks and its future development are important.

Newly created parks and public gardens, especially in area of designed center and in degraded territories will be revitalized. A strong point of the project and very important is creating different green areas in terms of size and functionality and intensity of landscaping with a number of environmental values.



Problems with intersecting communication routes were noticed and new communication lines connecting the most important places were proposed. Elements of small architecture and facilities that affect the attractiveness of public places have been added.

Much attention has been paid to taking care of species and typology of the historically established plantation in the territories of cultural and historic value.

Current projects initiated by the Riga Municipality and related to the competition area were taken into account, i.e. the waterfront promenade in Mūkusalas iela, a pedestrian and cyclist bridge over the Kīļevins Ditch and a revitalisation programme of the Kīļevins Ditch. The solutions of the sketch designs respect the solutions of the Rail Baltica construction design, according to the information provided by JSC "RB Rail" and SIA "Eiropas Dzelzceļa līnijas".

The proposals for the traffic organisation is developed by combining them with the current materials of the draft Rail Baltica local plan. The solutions for pedestrian traffic is provided also on the northern side of the railway (in the study area of the competition site up to the tunnel under the railway along Akmeņu iela, as sug-

gested in the Rail Baltica construction design), and for connections with the Daugava embankment.

The proposals respect the principle set out in the Thematic Plan of the Greenery Structure and Public Open Spaces. In the part of analyses are shown existing and designed roads for cyclists. The connection of cyclist traffic is planned also through the territory of the competition site.

The connection of cyclist traffic planned through the territory of the competition site are taken into account and reflected in the solutions. Car park concept for the entire territory of the competition site is proposed on ground level. The surrounding (city) traffic organisation. Solutions for car parks are based on the previously developed competition solutions in the territory of the University of Latvia and the principles established in them. Parking spaces are located in the outer parts of the designed area most often.

SQUARES, GREENERY

An important part of the designed area is occupied by the central Academic Square, which is intended to attract like a sponge for events organized in LU AC. In addition, smaller squares were designed next to specific buildings, creating sub-centres in the assumption. There is also a concept for the placement of various objects of art and environment in the territory.

Greenery and water constitute a coherent spatial grid that intertwines with internal pedestrian walkways and public squares. A water is created on a bigger scale and more space is allowed for infiltration. Taking into account this issue, new water beds are designed. created circulation at ground level for proper airflow through this area. Variety of greenery on this area consist of natural vegetation, designed trees and sectors of arranged grass beds.

The territory of the competition site is the area for testing of smart-city technology in Riga. It includes solutions reflecting the implementation of the smart-city concept in this area along with innovative and sustainable proposals for energy efficiency, mobility, design of the public open space.

Green infrastructure is used as much as possible in the design of public open spaces. The project contains additional green areas used for recreation and sustainable drainage of rainwater, e.g. surface coverings with greenery or roof gardens. Other elements of green infrastructure is also used, i.e. rain gardens, ponds, wetlands or wet meadows with natural vegetation, green walls of buildings and structures. The (blue-green) structure of greenery and water bodies of the competition site is linked with the surrounding territories, integrating it into the overall system of city greenery and water areas.

Sport Building

To break down the scale of the building, three Voronoi shape mass formed along the spine overlooking the central spine, each with its own double-height internal play court. These flexible spaces, called 'sport zones', provide sport areas for the campus. Externally, the spaces between each volume provide sheltered open-air social areas.

Designed to be robust and energy efficient, the timber frame structure has pre-cast concrete floors and is clad in warm red cedar wood, harvested from renewable sources. Bands of timber form brise soleil around window openings, shading the glazed walls and unifying the whole composition. Proposed technology reduces the carbon foot print within the process. To aid natural

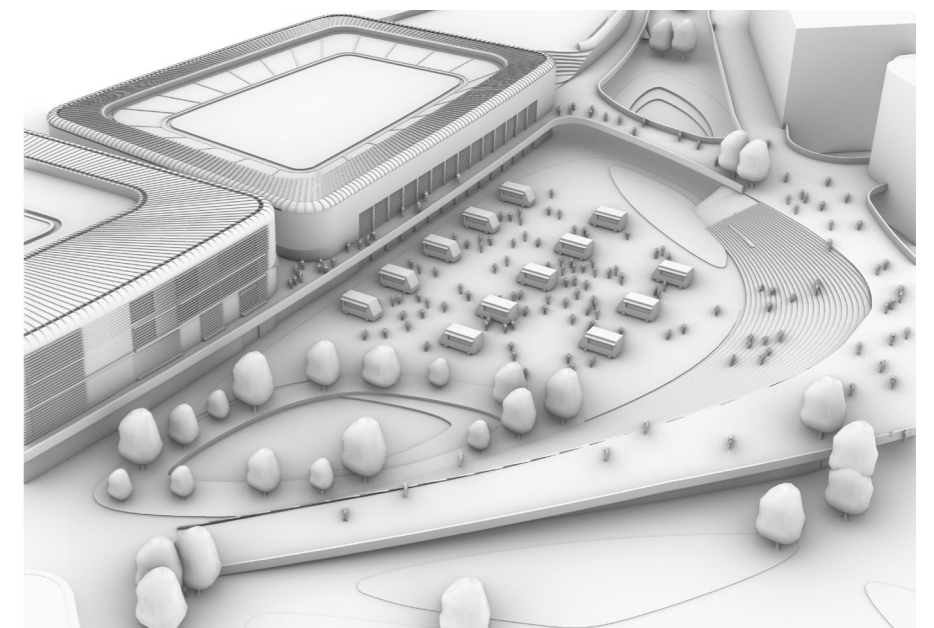
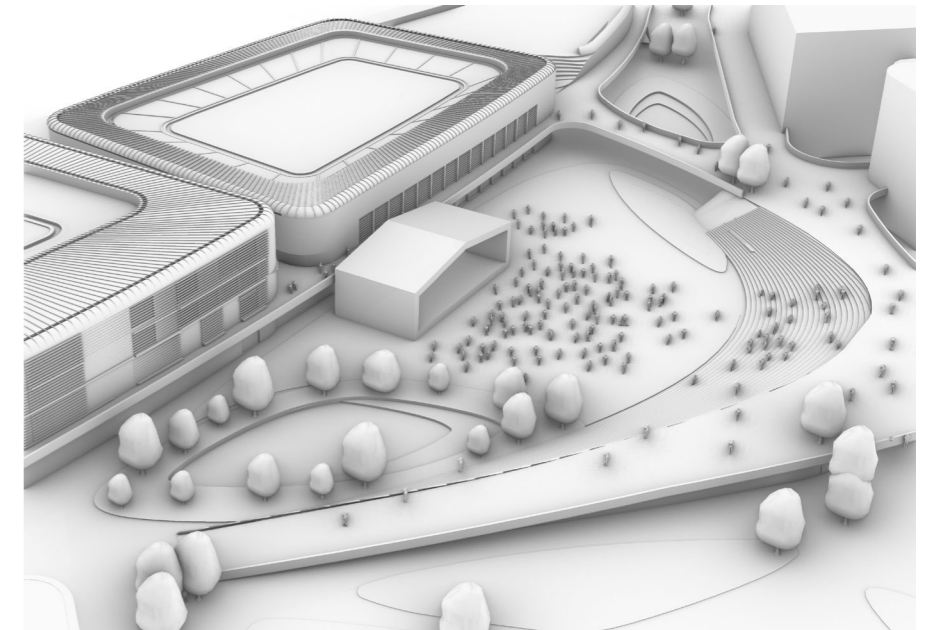
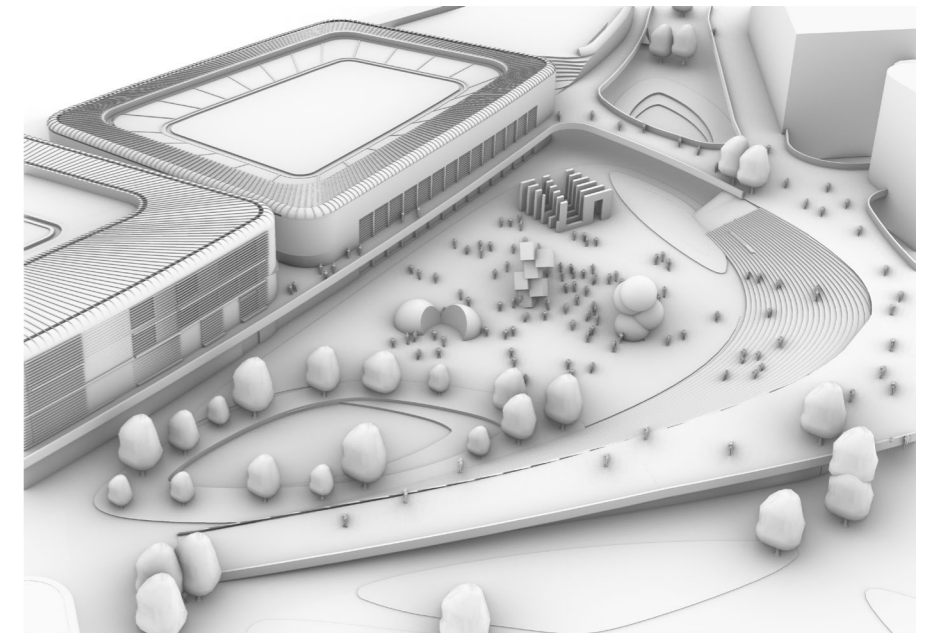
ventilation, air is drawn through the building via an undercroft and a building management system further reduces electricity use with advanced heating and lighting controls. Large

The timber structure becomes also internal finish reducing cost of fit-outs and giving the natural bright mood to the interiors. Beams with its large spans cover the roofing over sport halls.

Sport house are going to be built as the priority that's why possibility of designing and prefabricating as much as possible would speed up the construction process.

COSTS

Taking into account the costs associated with the implementation of the proposed solutions in the first stage design, attention was paid to limiting complicated and expensive elements, such as level differences, vertical connectors, bridges and tunnels.



Areas specification - up till 2029		
Masterplan (m2)		
Parkings		8871
Bicycyle paths/running tracks		2851
Pedestrian routes paved		38687
Pedestrian routes unpaved		2709
Greenery		20388
Water		901
Street furniture		700
Total landscape areas		75107
Architecture BUA (Built up areas) (m2)		
House of Sports	1A	5354
	1B	4013
	1C	2482
House of Students	2A	1174
	2B	1388
House of Health		2215
House of Technology	4A	3879
	4B	1001
Total buildings' areas		21506
Total designed area		96613

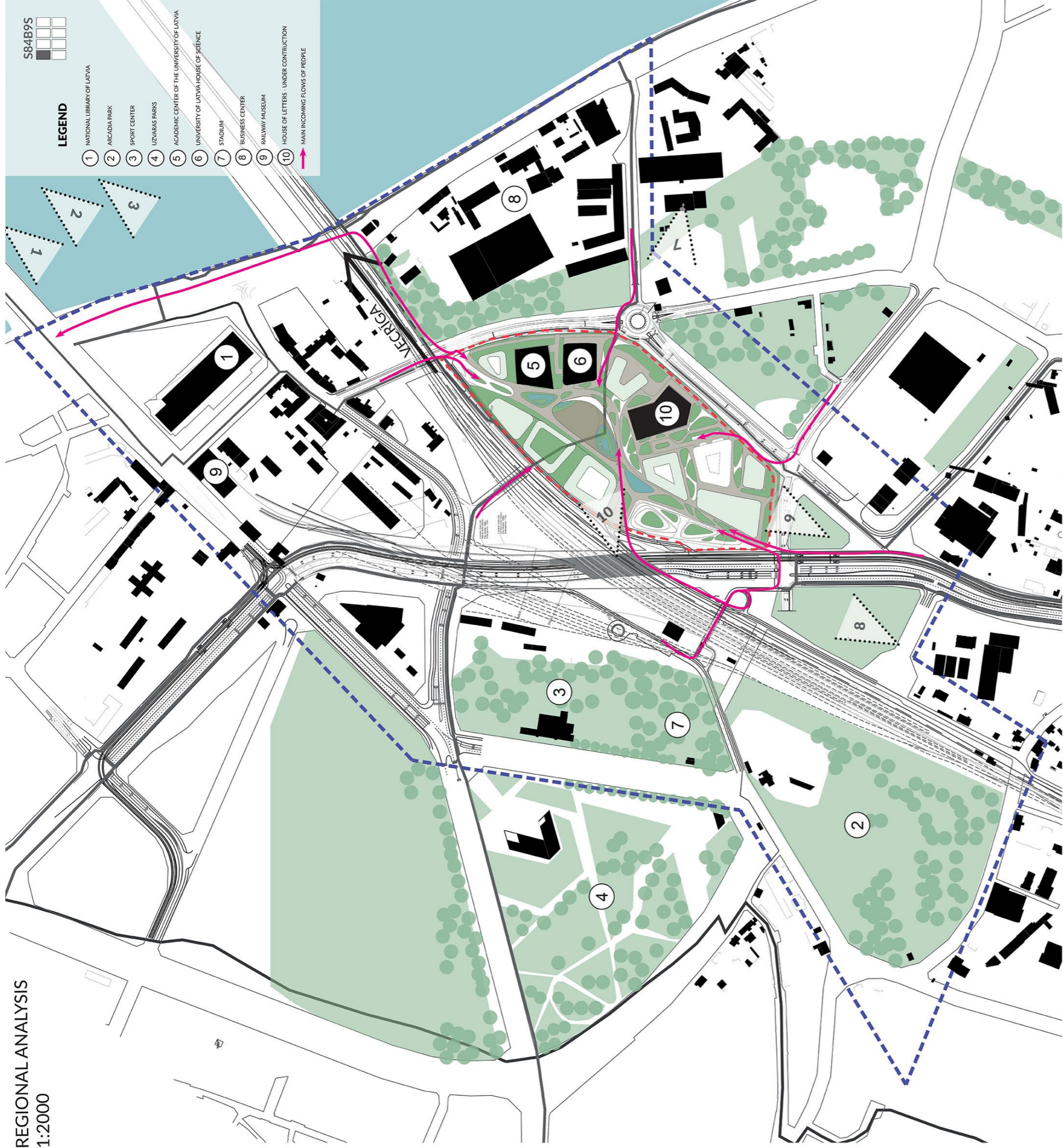
Architecture TOTAL AREA (m2)		
House of Sports		14500
House of Students	2A	7044
	2B	8328
House of Health		11075
House of Technology	4A	4500
	4B	1001
Total buildings' areas		46448

Architecture CUBIC CAPACITY (m3)		
House of Sports		169908
House of Students	2A	26767.2
	2B	31646.4
House of Health		42085
House of Technology	4A	17100
	4B	3803.8
Total buildings' areas		291310.4

Intenscity (%)	0.480763458
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parking spaces:	500
bike spaces	800

REGIONAL ANALYSIS
1:2000



S84B9S

LEGEND

- 1 NATIONAL LIBRARY OF LATVIA
- 2 ARCADIA PARK
- 3 SPORT CENTER
- 4 UZVARAS PARKS
- 5 ACADEMIC CENTER OF THE UNIVERSITY OF LATVIA
- 6 UNIVERSITY OF LATVIA HOUSE OF SCIENCE
- 7 STADIUM
- 8 BUSINESS CENTER
- 9 RAILWAY MUSEUM
- 10 HOUSE OF LETTERS - UNDER CONSTRUCTION
- MAIN INCOMING FLOWS OF PEOPLE

BUILDINGS

- RESIDENTIAL BUILDINGS
- EXISTING TROLLEYBUS ROUTE
- COMMERCIAL BUILDINGS
- EDUCATION BUILDINGS
- INDUSTRY BUILDINGS

TRAFFIC

- EXISTING CAR ROADS
- NEWLY DESIGNED CAR ROADS

PEDESTRIANS

- PEDESTRIAN PATHS - 10 MINUTES ROUTE
- PEDESTRIAN PATHS - 20 MINUTES ROUTE

BICYCLES

- BICYCLE PATHS
- BICYCLE PARKINGS

PUBLIC TRANSPORT

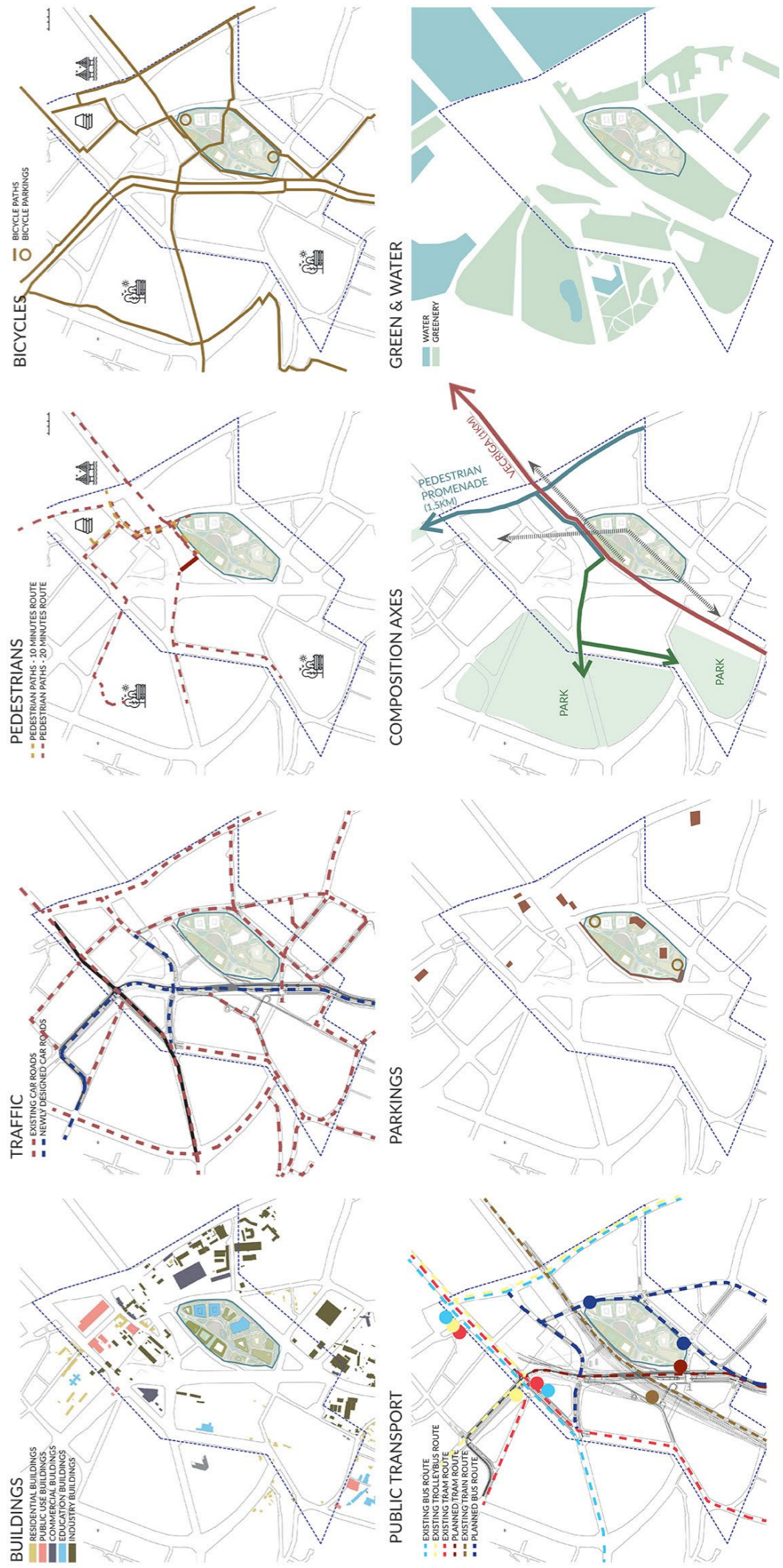
- EXISTING BUS ROUTE
- EXISTING TROLLEYBUS ROUTE
- PLANNED TRAM ROUTE
- EXISTING TRAIN ROUTE
- PLANNED BUS ROUTE

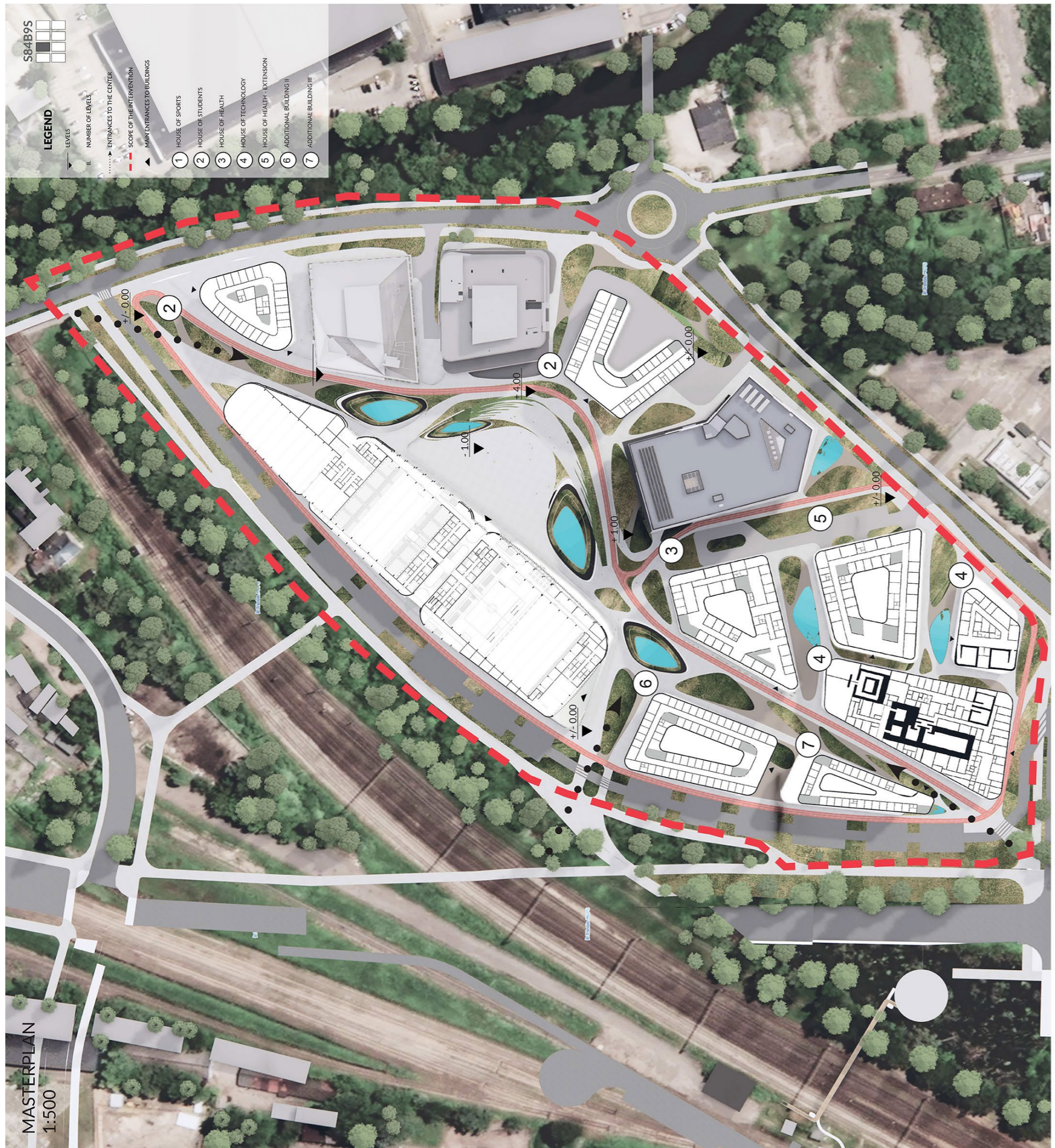
PARKINGS

COMPOSITION AXES

GREEN & WATER

- WATER
- GREENERY



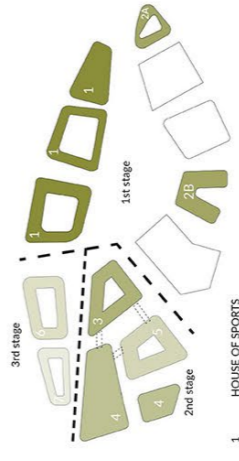


LEGEND

- LEVELS
- NUMBER OF LEVELS
- ENTRANCES TO THE CENTER
- SCOPE OF THE INTERVENTION
- MAIN ENTRANCES TO BUILDINGS
- HOUSE OF SPORTS
- HOUSE OF STUDENTS
- HOUSE OF HEALTH
- HOUSE OF TECHNOLOGY
- HOUSE OF HEALTH - EXTENSION
- ADDITIONAL BUILDING II
- ADDITIONAL BUILDING III

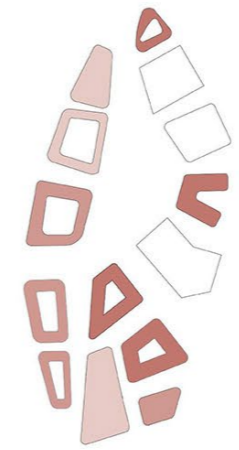
- 1 HOUSE OF SPORTS
- 2 HOUSE OF STUDENTS
- 3 HOUSE OF HEALTH
- 4 HOUSE OF TECHNOLOGY
- 5 HOUSE OF HEALTH - EXTENSION
- 6 ADDITIONAL BUILDING II
- 7 ADDITIONAL BUILDING III

STAGES



- 1 HOUSE OF SPORTS
- 2 HOUSE OF STUDENTS
- 3 HOUSE OF HEALTH
- 4 HOUSE OF TECHNOLOGY
- 5 HOUSE OF HEALTH - EXTENSION
- 6 ADDITIONAL BUILDING II
- 7 ADDITIONAL BUILDING III
- POSSIBLE BRIDGE CONNECTIONS

HEIGHTS OF BUILDINGS



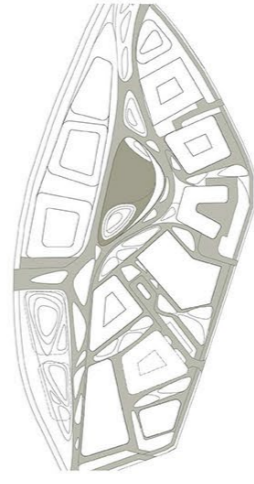
- 4 AND MORE FLOORS
- 3-2 FLOORS
- EXISTING

GREEN & WATER



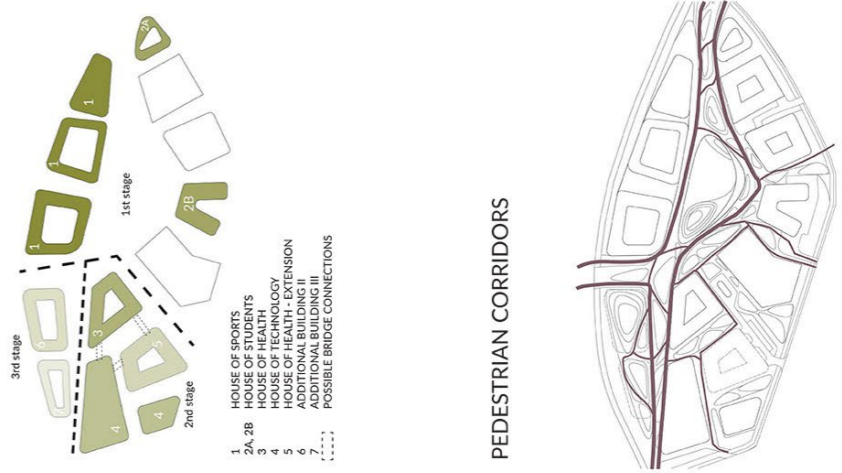
- GREEN SPACES
- GREEN ROOFS
- EXTENSIONS OF CAMPUS

PAVEMENTS



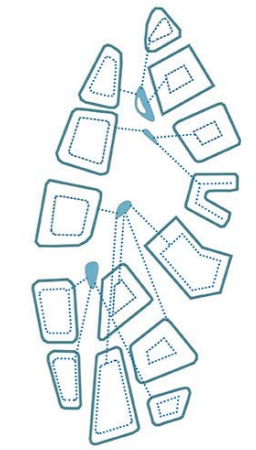
- PEDESTRIAN PAVEMENTS

PEDESTRIAN CORRIDORS



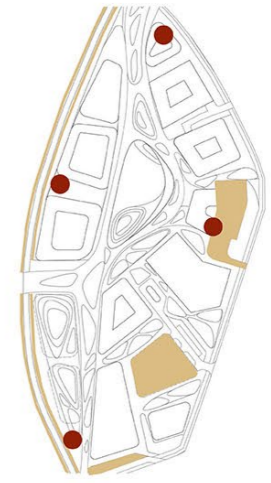
- MAIN AXES
- SIDE AXES
- RUNNING TRACK

WATER CIRCULATION



- WATER TANKS
- WATER DRAIN DIRECTIONS

PARKING ZONES
BIKES / CARS



- BICYCLE PARKINGS
- CAR PARKINGS

NOISE LEVEL



- PROTECTED ZONE
- BUFFER
- NOISE



CARPARK ZONE

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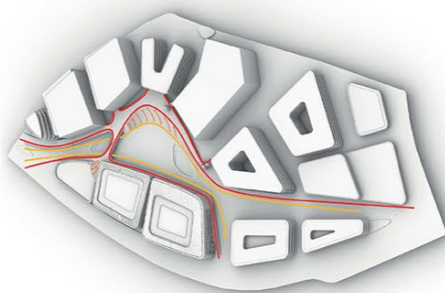
TEMPORARY PARK AREA



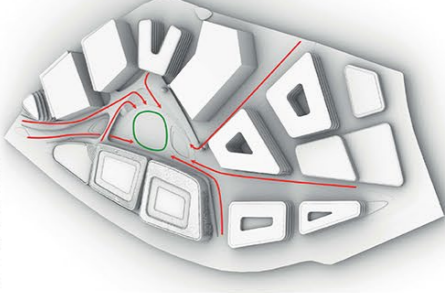
HOUSE OF HEALTH EXTENSION

FUTURE EXTENSIONS

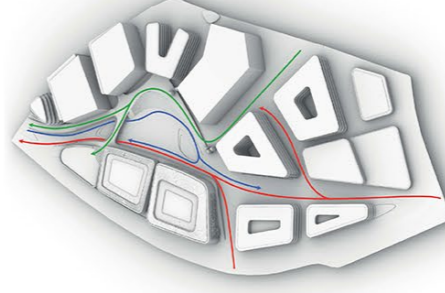
LEVELS CONNECTIVITY



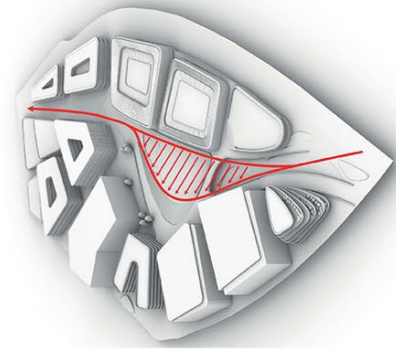
FOCAL POINT



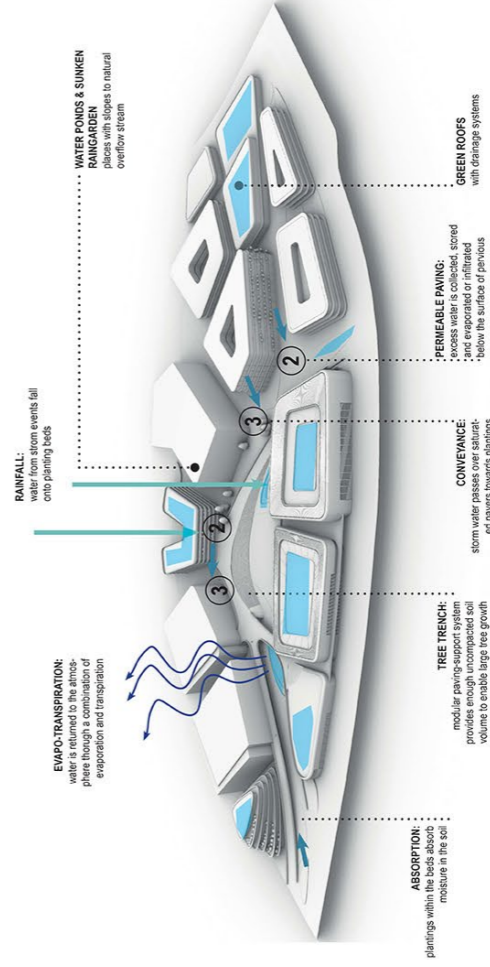
PATHS



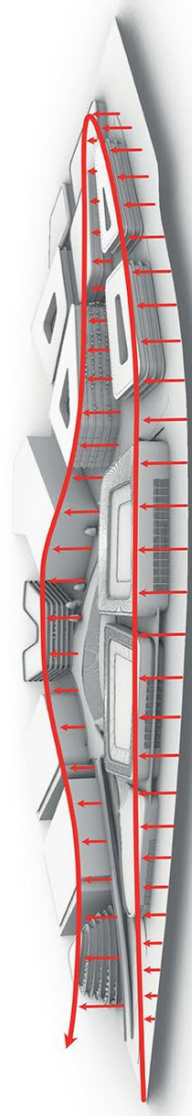
WIDENING PLAZA



SPONGE CITY
WATER MANAGEMENT



GRADUALLY RISING BUILDINGS HEIGHTS





HALL A - BASKETBALL



MAIN EVENTS
NO. OF SEATS:



LOCAL GAMES MODE
NO. OF SEAT:



TRAINING MODE
NO. OF SEATS:

HALL B - FLOORBALL



MAIN EVENTS
NO. OF SEATS:



LOCAL GAMES MODE
NO. OF SEAT:



TRAINING MODE
NO. OF SEATS:

HALL C - FOOTBALL



MAIN EVENTS
NO. OF SEATS:



LOCAL GAMES MODE
NO. OF SEAT:



TRAINING MODE
NO. OF SEATS:

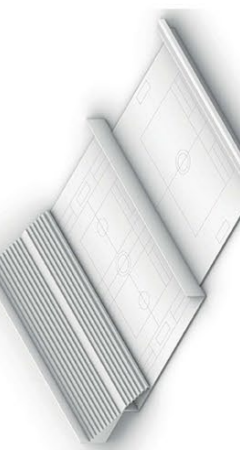
HALL A + C - COMBINED



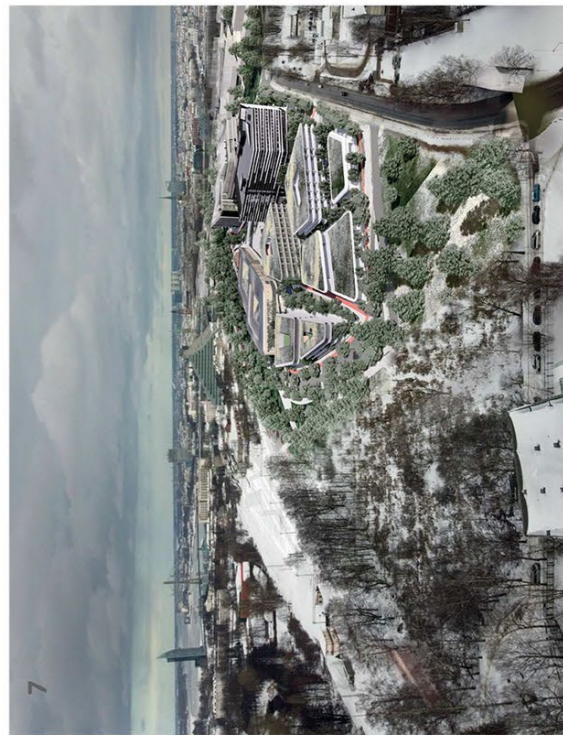
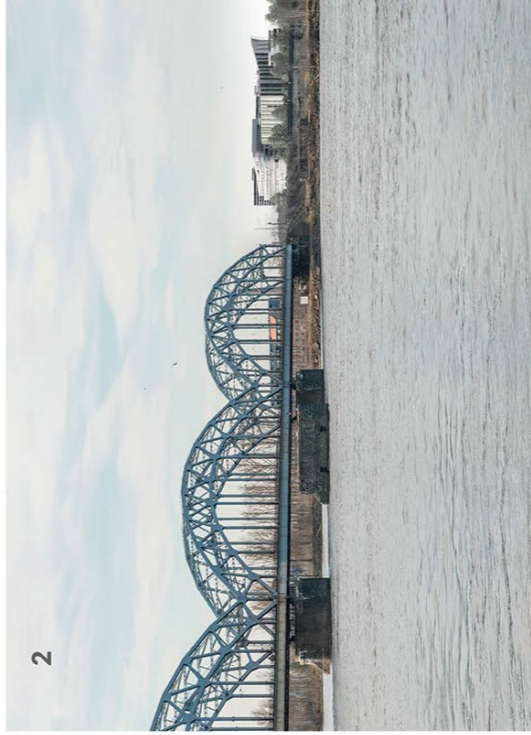
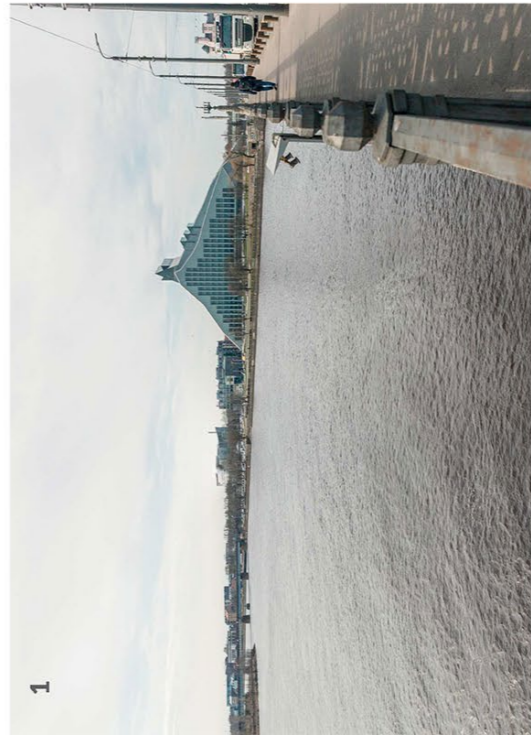
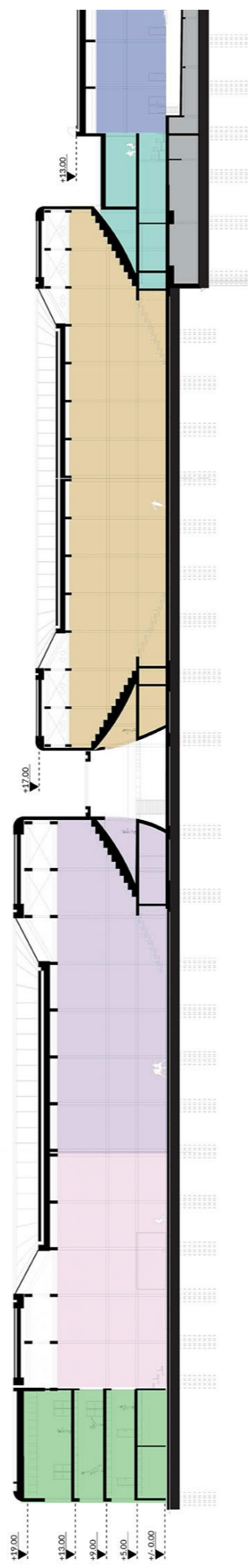
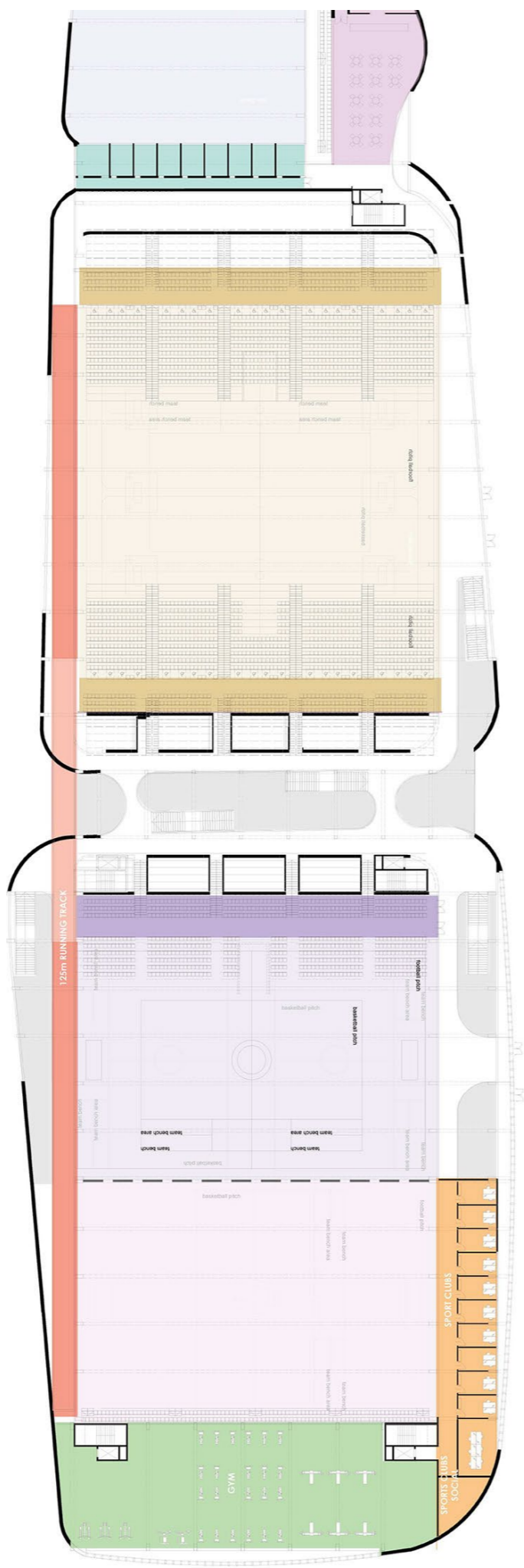
MAIN EVENTS
NO. OF SEATS:



LOCAL GAMES MODE
NO. OF SEAT:



TRAINING MODE
NO. OF SEATS:



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