

Czech Technical University Prague  
Faculty of architecture

## The Barrandov Terraces Swimming Pool Renovation

Master Thesis

Author: Bc. Latifah Aldousari  
Supervisor: doc. Ing. arch. Petr Kordovský  
Ateliér Kordovský – Vrbata  
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**ASSIGNMENT of the Diploma project**

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See the Application Form for DP

Assignment of the Diploma Project:

1/description of the project assignment and the expected solution objective

2/description of the final result, outputs and elaboration scales

3/list of further agreed-upon parts of the project (model)

To this list further attachments can be added according if necessary.

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Date and Signature of the Diploma Project Tutor: 15.3.2021 

Date and Signature of the Dean of FA CTU:

**Assignment of the Diploma Project:**

**1/description of the project assignment and the expected solution objective**

The project chosen is "BARRANDOV TERRACES POOL REVITALIZATION". The project site and area need some development to match the current development going above the rock. The development neglected the pool area to be part of the development and fixing issues with the surrounding site. The project will focus on restoring the pool and revitalizing Zbraslavská street proposing urban and architectural solutions to upgrade the area. The solution will address issues, such as, accessibility to the site, swimming pool heating and providing the necessary services needed. The project will have a cultural and entertainment attributes considering it has a rich history and a strong identity, judging by the mark it left on the city back in the days, the project will have a cultural effect on visitors and users to be able to re-live those memories or introduce it to the younger generation establishing a unique image of the city of Prague. Moreover, the project will provide wellness and entertainment facilities accessible by the public without exclusivity and fix connection problems.

**2/description of the final result, outputs and elaboration scales**

The final result should address all the mentioned issues using attributes such as, plans, section, 3D model visualizations, site study documentations and methodology.

**3/list of further agreed-upon parts of the project (model)**

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#### Dedication

This thesis is dedicated to my parents. Without their endless love and sacrifice I would never have been able to complete my graduate studies. I love you both endlessly.

#### Acknowledgments

Without the support of many people the completion of this project would never have occurred. I wish to express my sincere appreciation and thanks to the following people:  
doc. Ing. arch. Petr Kordovský, Ing. arch. Ladislav Vrbata and doc. Ing. arch. Akad. arch. Jiří Klokočka who gave me continuous support and kept on challenging me, give me guidance, encouragement and advise.

### **Abstract**

The purpose of this thesis is to propose a renovation of the Barrandov terraces swimming pool. Ever since I visited the old swimming pool ruins, I was fascinated by the site and by the rich history of the swimming pool and the terraces. It is a an area with a huge potentials and special genius loci. The proposal should encourage the local community and Prague residents to experience a similar glory to what the swimming pool had in the past, however made for modern conditions and requirements, by adding new activities that is not excluding of non swimmers users. This thesis contains chapters, each chapter will address different context. The first chapter will highlight the project overview where the project goals and objectives are defined, in addition, the chapter will mention the historical background of the project area. Chapter two will address detailed site analysis and environmental issues. Chapter three will go through the design standards and guidelines for swimming pool facilities to be used as a reference in this proposal. Finally, the last chapter will cover the documentation of the proposal using drawing and visualization.

## **CHAPTER ONE** Project Overview

## 1.1 Introduction

Swimming pools play a major role in terms of entertainment for the Czechs. Especially in summer, where there is nothing better than jumping in the cold water on a hot day, gathering with friends and family and taking a break from work or studying. A testimony to that can be witnessed in the Podolí swimming pools. Prior to the pandemic, swimming pools such as Podolí is visited by 2,500 people per day. One of the swimming pools that left a huge mark in Prague is the swimming pool located under the Barrandov terraces. Barrandov terraces, also known as Barrandovské terasy in native language, is a complex of structures located in southern Prague, Czech Republic. It is overwhelmed by the utilitarian view restaurant Terraces planned by engineer Max Urban between 1927 and 1931. Barrandov Terraces were part of the task of Václav M. Havel for the development of a neighborhood on the slant of the Habrová hill in the year 1924. After a visit to the USA, a development business visionary and later on the first president of the Czech Republic, Václav Maria Havel, returns to Prague with an idea that later ended up being practically a bright idea. Structural specialists in America were in a real sense intrigued by the concept of a cliff house built high on a rock over the Pacific Ocean. Inspired by the same idea, Václav Havel proposed his idea to architect Max Urban for construction and elaboration. However, due to the fact that there is no sea in the Prague, Havel decided to construct the project on a rocky hill located near Prague's Barrandov studios. The choice of this area turned out to be great, not only for its uniqueness, but also for its strategic location. It took the construction 6 months only since the laying of the foundation stone, to the grand opening in October 1929. It was on this day the doors of this monumental building first opened to visitors. Over 50,000 of visitors have come on this day. The bright white building towering over the Vltava became a "must go" place for both Prague's elite and ordinary people. In the main season, the restaurant would serve up to 3,000 lunches per day. In addition, one of Prague's famous orchestra of RA Dvorský played on the dance floor at that time. The Barrandov terraces represented a sought-after place for rest, entertainment and great cuisine. After one year of its opening, Havel had one of the most modern swimming pools in whole Europe built below the Barrandov rock hill by Architect Václav Kolátor. It was the first racing swimming pool in Czechoslovakia measured by 50 × 18 meters.

The swimming pool had a depth of four and a half meters and was dominated by an iconic diving tower with bridges at a height of 5 and 10 meters by architect Vladimír Grégr. The grandstands and the swimming pool could accommodate up to 4,000 visitors. The pool was used by the public in the morning, then belonged to swimmers in the afternoon. Food and drink were imported from above from the restaurant on the Barrandov terraces by using special cable car. Since the swimming pool was located on the west bank of the Vltava, a disadvantage can be noticed, where the sun can reach the area only in the morning, then in the afternoon, the area is covered by shadows. The pool water was cold because it was fed from the Vltava, which it did not warm up. In an effort to provide people with truly complete services, engineer Havel set up a special tram and bus line that took visitors from the center of Prague to Barrandov Terraces and back free of charge. One year later, in 1931, Václav Havel Sr.'s brother, Miloš, joined the whole project with a proposal of building film studios in the same area. His proposal was received with excitement and the construction began in November of the same year. Exactly 14 months later, the first film began to be shot in the newly built and above-standard equipped studios. The film was the famous Czech detective story, 'Murder in Ostrovní Street', starring Jindřich Placht. As the popularity of the Barrandov terraces grew extensively, so did its improvement. In a short period of time, there were 10 tennis courts, several courts, a sandy beach or a shipyard. To perfection, perhaps only the romantic night bar was missing, which in 1937 enriched the whole complex. It was named "Trilobit bar" and soon became a popular place of entertainment and relaxation, especially for the stars of the silver screen. It was not a matter of chance meeting important visitors, such as, Vlasta Burian, Oldřich Nový, Adina Mandlová and Svatopluk Beneš. In addition, The President Osvoboditel, Tomáš G. Masaryk, was one of the regular visitors to the lookout restaurant. The Barrandov terraces were in its best years. The complex went through financial problems and high debts, which the income of the pool did not cover. Moreover, in 1934 there was a fire in a wooden building that had to be repaired which caused an increase in debts. All these reasons led the swimming pool to be closed in 1955 before the restaurant closed. The Barrandov Terraces complex, including the swimming pool with a diving tower, was declared a cultural monument in 1988.



## 1.2 Project proposal overview

The project has a cultural and entertainment attributes. The project has a rich history and a strong identity, judging by the mark it left on the city back in the days, the project will have a cultural effect on visitors and users to be able to re-live those memories or introduce it to the younger generation establishing a unique image of the city of Prague. Moreover, the project will provide wellness and entertainment facilities accessible by the public without exclusivity.

## 1.3 Project Objectives

The project objectives can be defined as the following:

Cultural:

- To revive the project previous glory in the city of Prague.
- To establish an identity to the area.
- To add a monument/Landmark in the city.
- Re-introduce its important role to the younger generation.

Economical:

- To provide economic opportunities in support to the project.
- Establishing a design that will increase comfort and productivity.

Social:

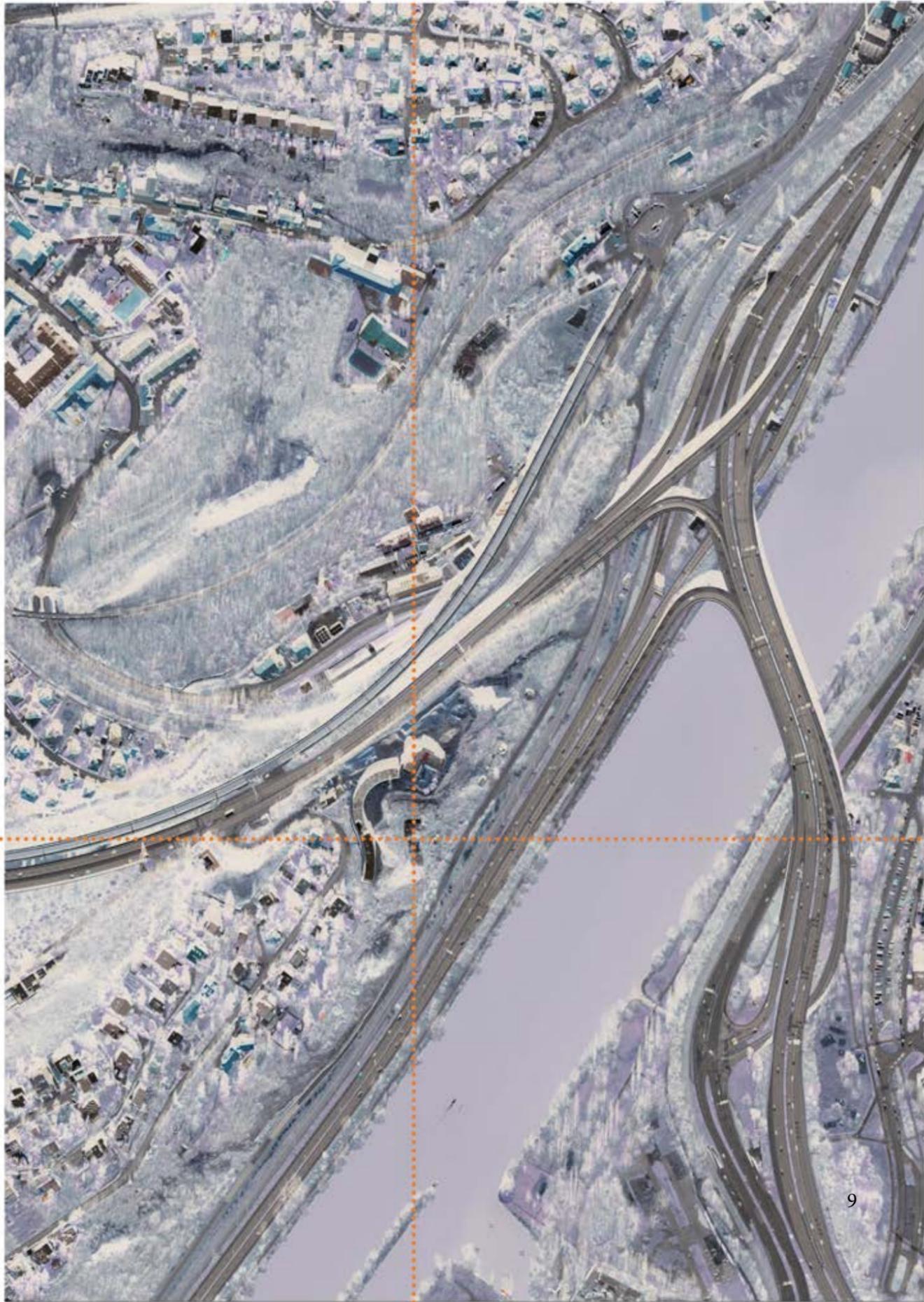
- To answer the community needs.
- Establishing community leisure.
- The ability to meet the public with a new approach of allowing more creativity and comfort in developing or reviving projects in the society.

Environmental:

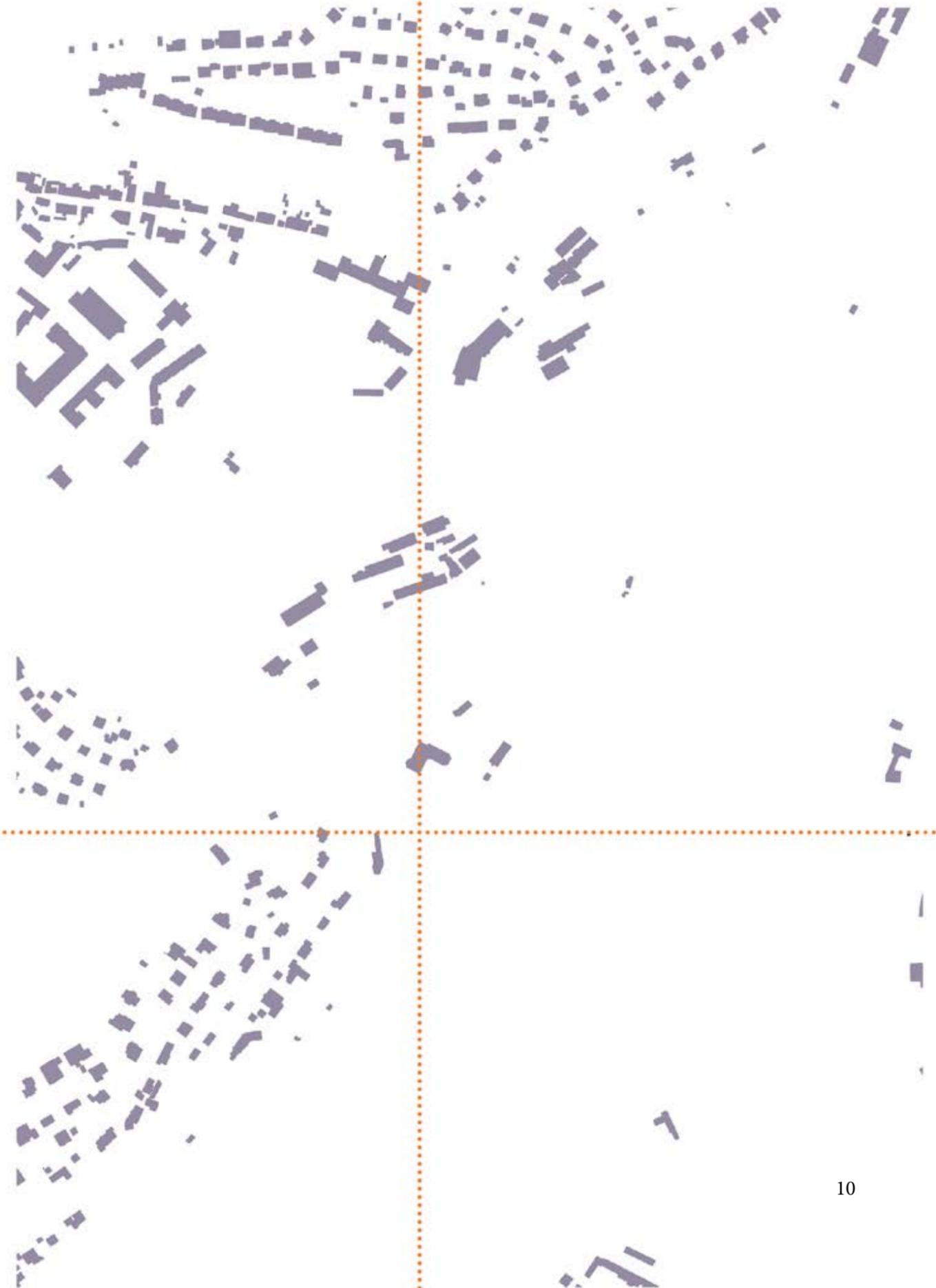
- To create a design that will use less energy and deal with weather problems.
- To create a comfortable environment to the users and visitors.
- Considering accessibility to all type of users.

# CHAPTER TWO

## Site Analysis



0 250



0 250

## 2.1 Introduction

The site is located in Barrandov, Prague, Czech Republic. My proposal will focus on the revitalization of the pool. However, it is important to mention that the Barrandov terraces is currently undergoing development. These developments could assist the development of the pool area. The main purpose of the undergoing terraces development is to reconstruct the historic building, including the restoration of the restaurant with a lookout tower so that it again becomes the dominant feature of Barrandov. It is assumed that two restaurants will be established in the building. The construction of two new buildings that the project envisages has also been resumed.



Current condition Barrandov pool. mapio.net



Reconstruction of Barrandov terraces. Stavbaweb.cz

For the project to be successful and comprehensive, understanding the site is considered one of the main steps in order to reach this goal. I performed a site criteria evaluation to see if the selected site is suitable for my project. The criteria for the site selected can be acknowledged through table (1). Each value will be given a factor called the weighting factor (WF); this method will help finding out if the site criteria was a match with the expected standards. The site will be evaluated out of 100 based on the following division. The evaluation was conducted by me after visiting the site and trying to focus on these criteria and experiencing it myself as a visitor.

Site Criteria	WF
Accessibility: an easy access by visitors. Accessing the site from minor arterials and collectors is more compatible than accessing it from high speed or high volume. Considering traffic speed and intensity at the point of driveway access is highly important.	7/10
Demographic Patterns: The site should be located where people can easily reach it and conduct other activities during the same trip. It should be a place where people naturally converge. The site should be where the largest percentage of the served people will have access to the site frequently in the normal pursuit of their activities.	11/15
Future Development Plans: This is a measure for the potential level of future developments in areas adjacent to a candidate site, which would have impacts on the site. Therefore, the value of the site could be increased or decreased.	15/15
Surroundings: The surrounding of the site should have a relation with the main functions of the project. Thus, the project will blend with the surrounding and assist in achieving the objectives of the project.	8/10
Visibility: Prominent location is required to attract a large number of people. A highly visible site along a major street with easy accessibility is ideal.	21/25
Visual Quality: The quality of the neighborhood surrounding the site needs to complement the site rather than detract from it. The site should be located in an area with a strong positive identity and image. The site should be compatible with surrounding land uses, both existing and proposed.	24/25
<b>Total</b>	<b>86/100</b>

Site criteria evaluation

## 2.2 Analysis

### 2.2.1 Strengths

The site is very unique with large open public space in front of the swimming pool. It is located where there is dense residents to be served and can use the area. Moreover, the area as a whole has a rich history. Not only the swimming pool and the terraces is considered to be monuments, but also some of the residential villas that were built for some celebrities near the site has the same importance. It is surrounded by landmarks and it is a tourist attraction where people can go on the trail next to the church and collect some fossils. The site offers great opportunity to have a project for the Barrandov locals and it offers great use of the space.

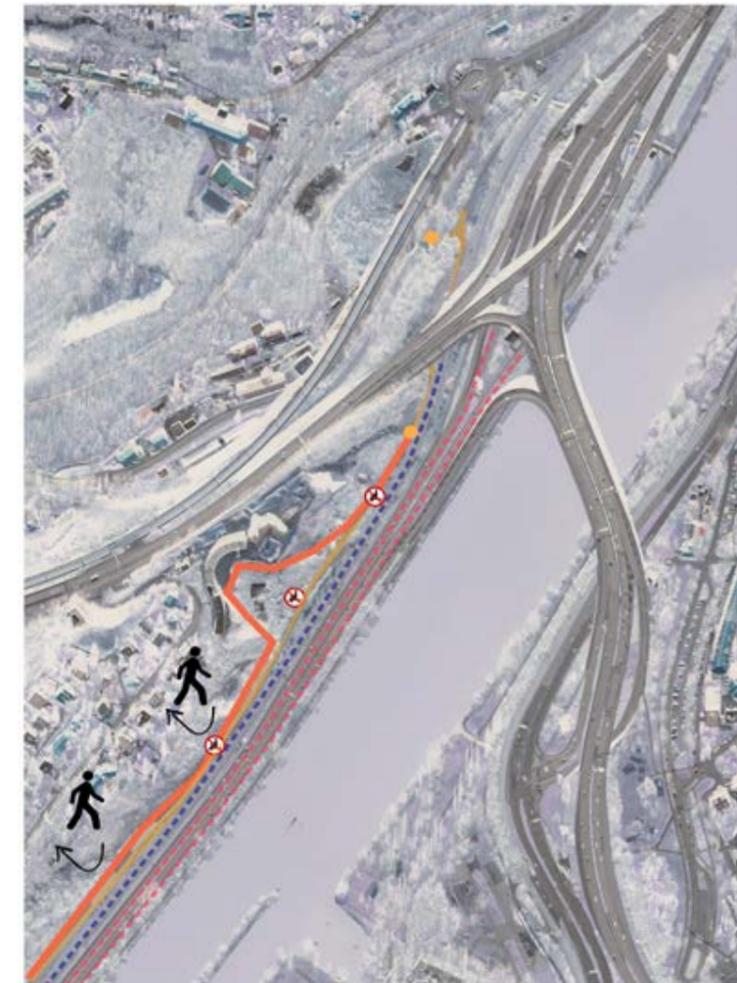


### 2.2.2 Weaknesses

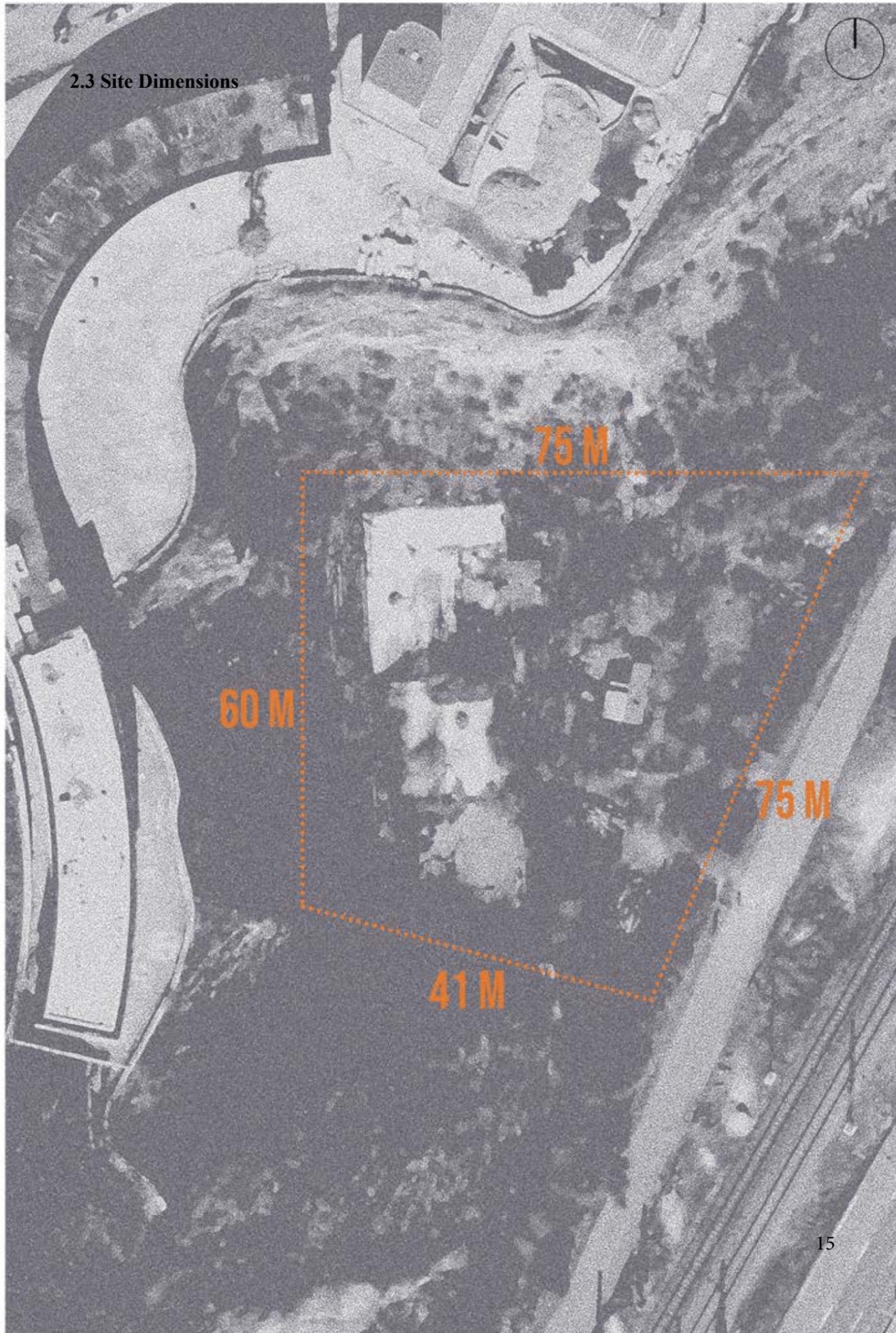
The site has some disadvantages such as, the public space are not organized, the noise due to the fact that is located near a highway, the structure surrounding the site is not well maintained if not neglected, lack of community space and street furniture making it a bit uninviting and connectivity limitation.

### 2.2.3 Observations

The lack of connectivity in the area is causing urban problems. After measuring Walkability, it takes 750 meter to walk from Hlubočepy to the swimming pool, 900 meters from Terasyto to the swimming pool, 1600 from Chuchle to the swimming pool and 2350 meter from Chuchle to Hlubočepy. The sufficient walking distance for the elderly is 500 meters. Having the project and creating new connections between above and below the rock hill will connect between all the areas to act as a rest stop for users when maneuvering between these locations.



### 2.3 Site Dimensions



### 2.4 Accessibility

The site is surrounded by three types of roads, Prague main ring road, secondary streets, footpaths and the railway area as it can be seen. Moreover, it could be possible to access the site by foot through the new development of the Barrandov Terraces once the new constructions are finished.



- Motorway, Prague ring road, public transport
- Important streets, roads, footpaths
- Railway areas

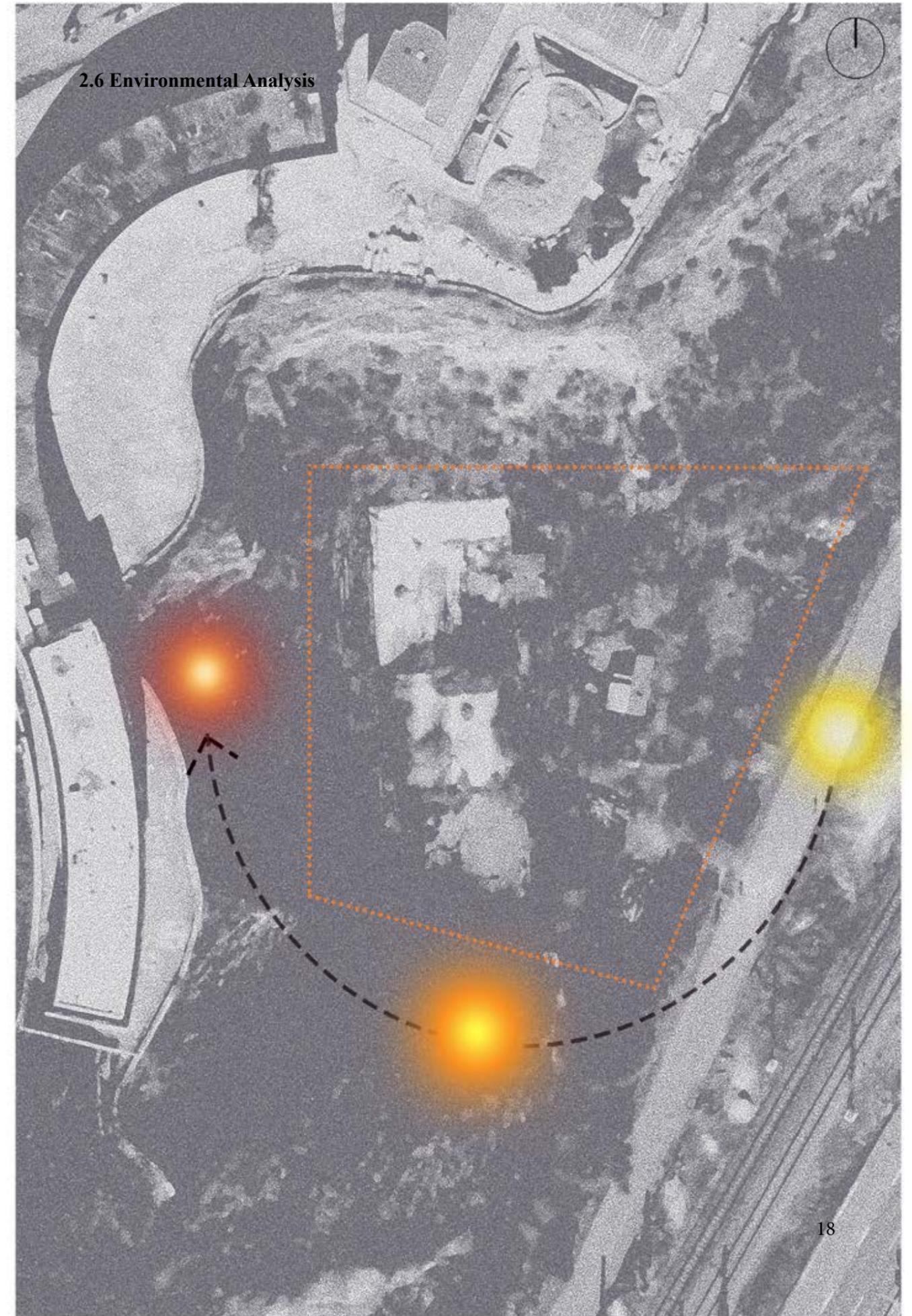
## 2.5 Urban Contexts

The site is surrounded mostly by greenery and residential buildings. There is not much of commercial services or city service in the site so it should be considered in the design process to include these aspects in the design program.



- Housing
- City service
- Non-disruptive production

## 2.6 Environmental Analysis



The Sun can reach the Site from 9:00 AM to 12:00 in the afternoon. However, from 1:00 PM to 2:00 PM it can be seen a decrease in the sun accessibility to the poo. This issue is the cause of the pool being cold for previous users in the past.



Fig.15 Sun from 9:00 AM - 12:00 PM. Google earth



Fig.16 Sun from 1:00 PM - 2:00 PM. Google earth

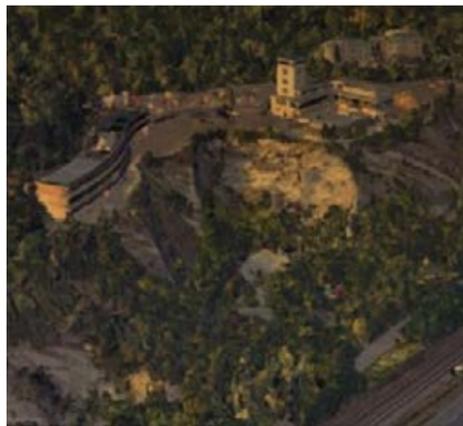
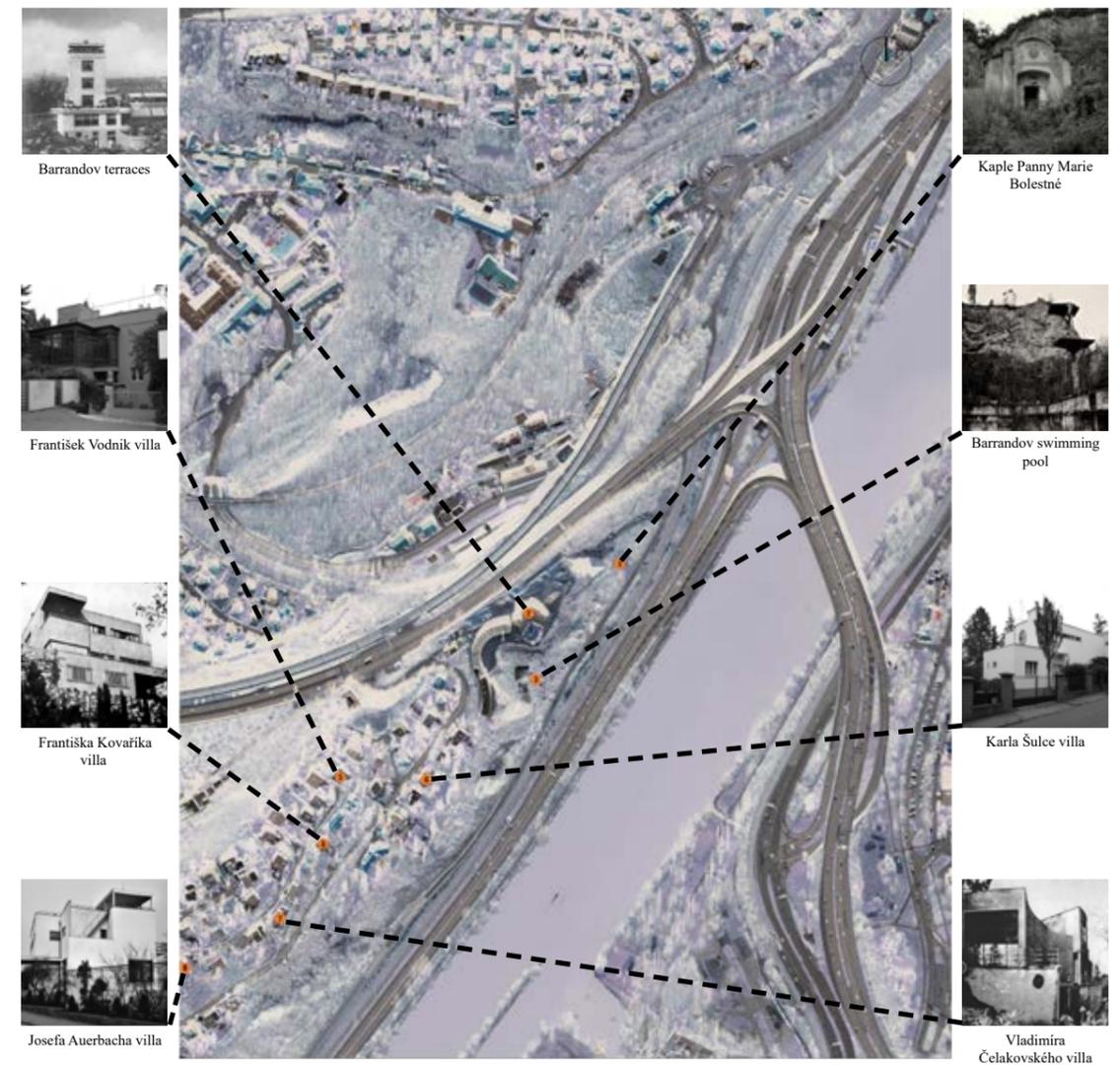


Fig.17 Sun from 2:00 PM - 5:00 PM. Google earth

## 2.7 Visual Analysis

### 2.7.1 Site Landmark

The site has a great advantages in terms of water and hill view. The site is surrounded by unique landmarks such as, Kaple Panny Marie Bolestné and some celebrities villas located in the residential areas near the site. It is noticed that some tourist will take a walking tour on a trail to see these landmarks and villas.



### 2.7.2 Site Visibility



### 2.7.3 Photo Documentation



## CHAPTER THREE Design Standards

### 3.1 Introduction

A well designed swimming pool can last and be maintained in a good manner. In addition, it will attract users and make it pleasant to use. A good designed will need to be based on a comprehensive understanding of the building type design standards and guidelines. A successful swimming pool design can offer public appeal, flexibility to incorporate different programs for different users and a well organized circulation.

### 3.2 Pre-design Considerations

#### 3.2.1 Leisure features

Swimming pool facilities usage does not have to be intended for professional swimmers only. The design should consider leisure options to attract other type of swimmers. These options can include; varying water depths, water features e.g. rain showers, spa facilities, including varying temperatures and children's wet play equipment. These consideration can increase excitement and appeal. to Achieve a successful design, I needed to answer the following questions;

- Who will be the users?

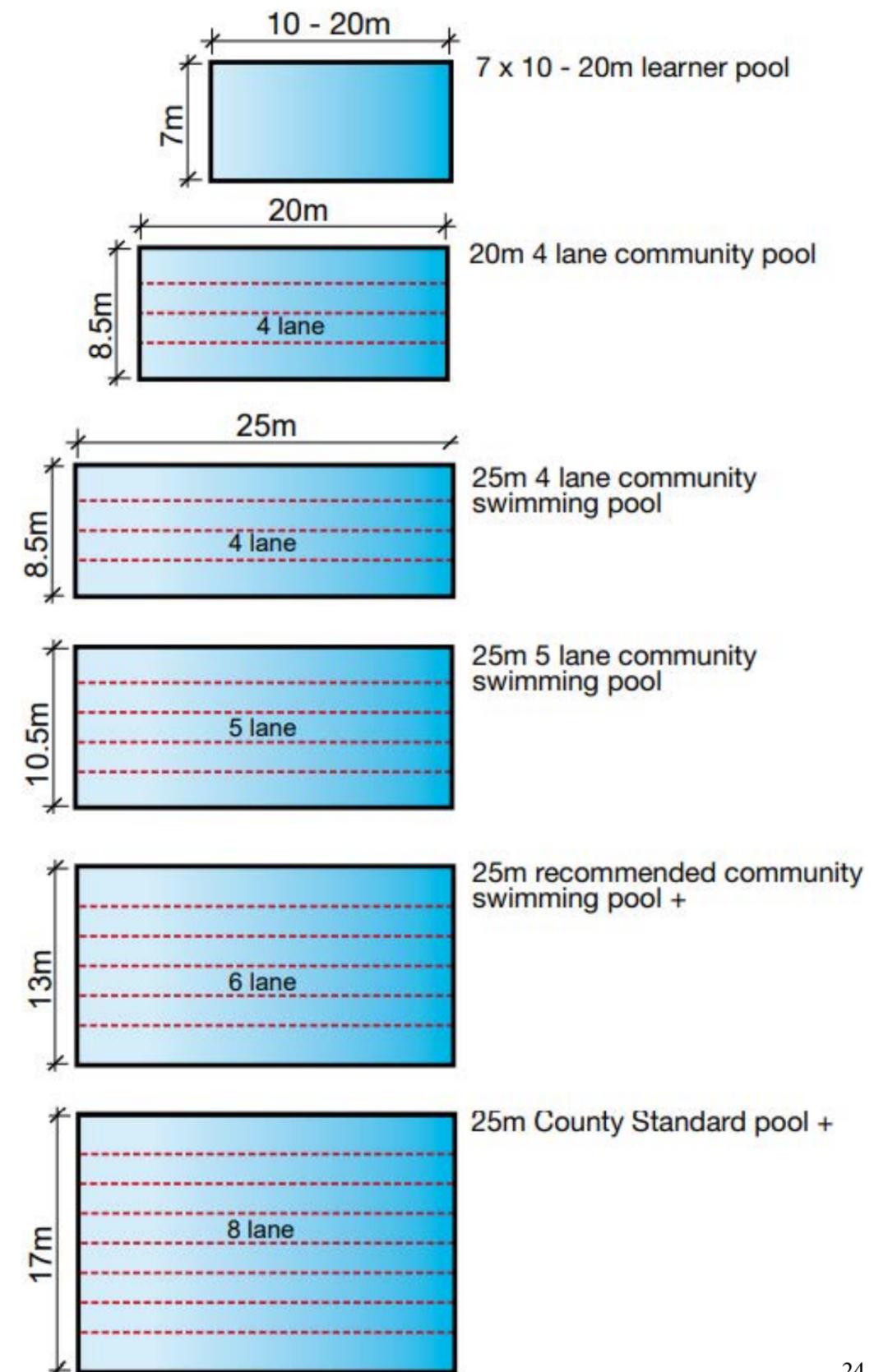
Pool users will include the local existing community, people with disabilities, older people and family with babies and young children

- What activities need to be accommodated?

Leisure activities, Fitness swimming: e.g. lane swimming and aqua aerobics, diving and Training.

- Type, size and depth of pool required?

All of these activities can be accommodated in a standard 25m or 20m community pool with depths ranging from 0.9m–1.8m, by simply dividing the area with floating lane markers.



### 3.2.2 accessibility to the water

Easy access to water must be provided for all types of users. This can be done by providing appropriate combination of recessed 'easy going' steps, recessed ladders, ramp, submersible platform and / or hoist. In this respect deck level pool surrounds are preferred. A ramp or walk-in steps are the best options for wheelchair users and people with walking difficulties.



### 3.2.3 Site planning

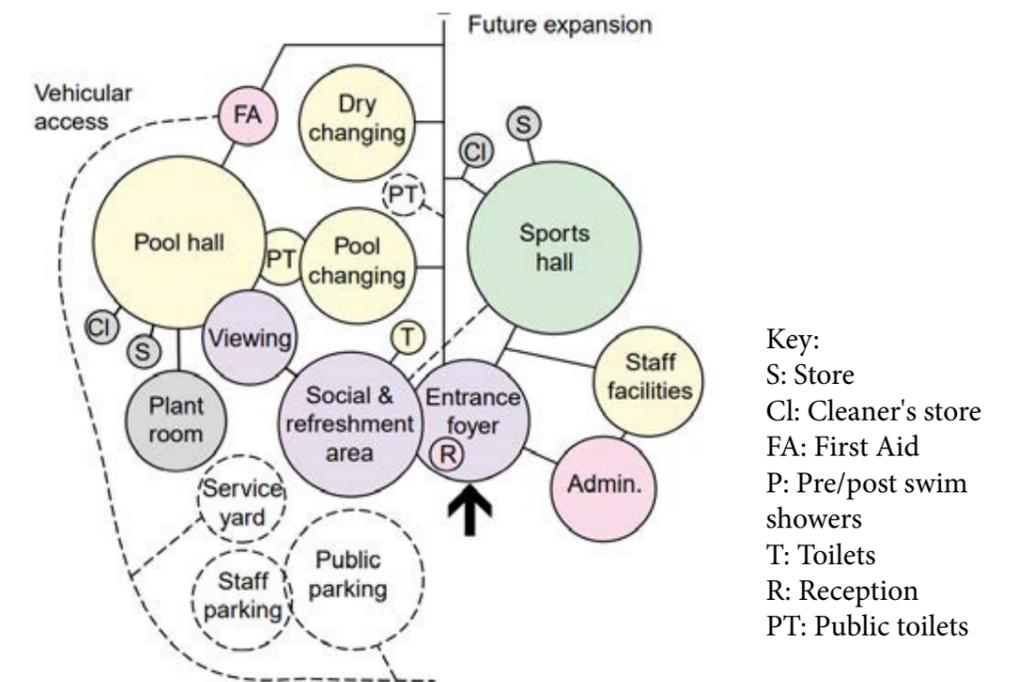
Once the a site has been selected and evaluated, the site arrangement will depend on many factors such as, Position of existing and new access roads, public utility services, orientation in relation to natural lighting and solar glare, visibility of the facility and how it complements its surroundings, car parking, access for service and emergency vehicles.

### 3.2.4 External Design Considerations.

The design must answer to the needs of all groups of users. These considerations must include the following; the main entrance should be clearly visible from the pedestrian and vehicular approaches to the site, wheelchair access for users with disabilities must be provided with Incorporate dedicated car parking close to the entrance and easy accessibility to the first aid room with proper sized doors for stretcher access.

### 3.2.5 Building Organizing

It is very crucial to have the building element distributed in a manner that will create good circulation. To achieve well designed circulation, the relationship of the spaces needs to be understood.



### 3.2.6 First Impression

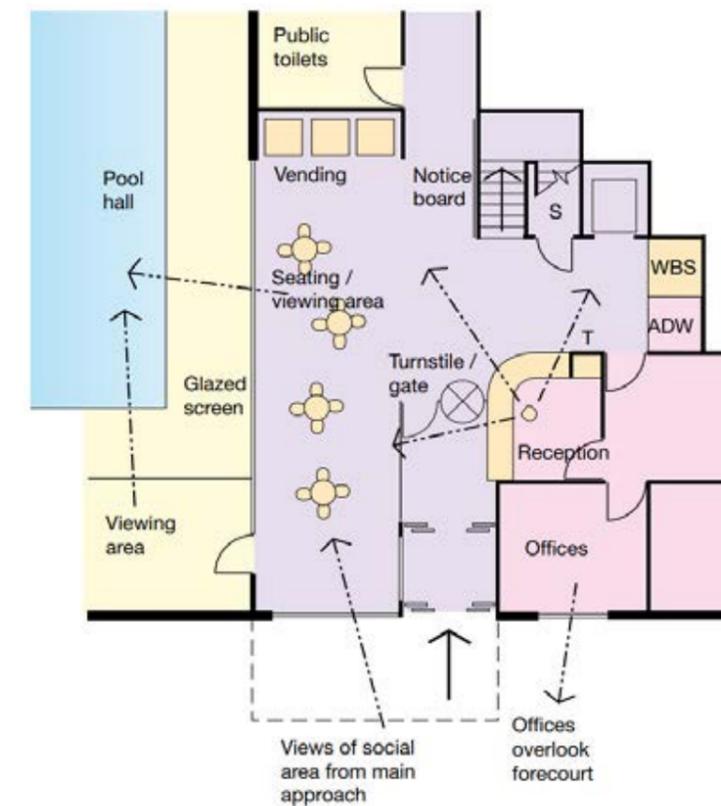
Swimming pool facilities must be a appealing and well maintained to attract the users. The users experience must start from the moment of approaching the building. Moreover, the surrounding site elements can be used as an important factor to add an identity to the building. The building entrance must have acceptable space to establish an understandable orientation for users and be welcoming and non-aggressive. It must also allow sufficient and unnoticeable supervision by staff members. Having a positive first impression will affect the user judgment of the facility as a whole. Materials and colors can as well affect the overall image of the reception area and can provide a theme for the rest of the building.

Open arrangements can function best with better levels of transparency into the main areas of the building, such as the pool hall and refreshment areas. However, there must be convenient security measures provided to avoid unauthorized access. Moreover, an adequate environmental separation must be managed with pool/wet areas that have high temperature, humidity and air-borne chemicals. In addition, a welcoming area that enables staff to provide information to users can be provided.



### Main Entrance

The entrance area must provide enough space for a number of people to circulate, view notices or wait for friends. An open wide not crowded reception area can make circulation and customer orientation experienced easily. The entrance area must combine: easy and clear 'in' and 'out' access, a draught lobby to reduce heat loss provided with automatic doors and a well positioned and instantly recognizable reception desk. The reception area location is important to allow visual supervision of the entrance/exits routes, restraint of unsupervised access by arranging all circulation to pass through the reception desk, sufficient waiting and queuing space between the entrance and the reception based on estimated numbers of users.



Key:  
WBS Wheelchair /  
buggy storage area  
Key  
ADW Assistance  
dog waiting area.  
T Public telephone  
at low level  
S Store

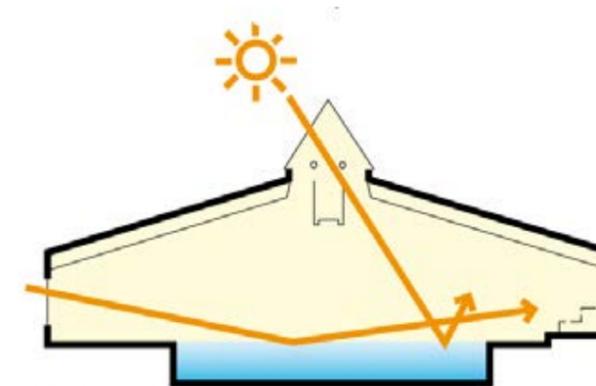
## Refreshment areas

The refreshment area is usually located close to the main entrance with a view of the pool area and can also be located before the reception desk in order to attract users. The refreshment or food service area is often intended for users who don't intend on using the building for swimming purposes. The refreshment area can be also located on the upper level, but in this case, it should be linked by stairs or elevators that are accessible and visible from the reception area.

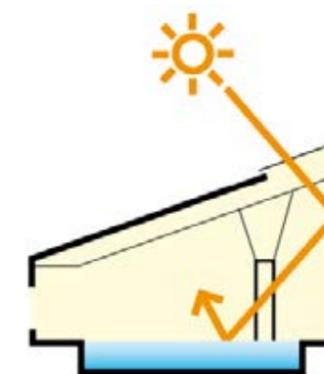


## 3.2.7 Glazing

Natural lighting can be a factor to add life and uniqueness to the pool hall, However, it must be considered and controlled carefully. Roof glazing over the pool area can provide acceptable natural light allowing sunlight to be reflected off internal side walls while keeping glare, solar gain and heat loss to acceptable levels. A poor positioned direct side wall glazing can create excessive glare and solar gain. Side glazing has great chances in causing reflection on the water surface, because of light being reflected at a low angle on to the pool water causing the surface to appear mirrored which can be dangerous because it will affect the life guard visibility.



Top glazing will not create reflection on the water for spectators. However side glazing may need to be screened



Glazing in a mono-pitch roof can allow safe sun penetration into the pool hall



Side lighting can cause specular glare on the pool surface limiting visibility below the water's surface. Careful positioning of lifeguards can minimise the impact of the glare

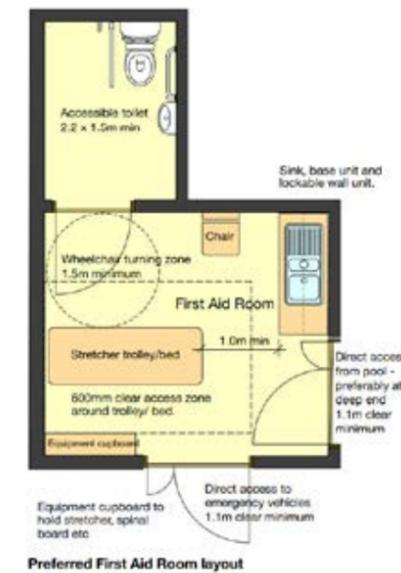
### 2.2.8 Changing rooms

Pool changing rooms must be separated from the dry changing area. The changing rooms generally can have higher temperatures and humidity, lack individual showers, and it is more difficult maintain and keep clean. In order to avoid this problem, the layout of the changing rooms must arrange a circulation to separate between the two.



### 3.2.9 Administration and aquatic staff

Offices must be provided in swimming pool facilities. An average swimming pool facility that has a 20 or 25m pool requires the following, manager's office large enough to accommodate up to six people and a general office, either separate or connected to the reception desk, with a workstation for one person. The staff area should have an aquatic staff changing rooms that is separated from the public and main activities including a small restroom with tables, chairs, sink unit and lockers. In addition, There should be a first aid room. The first aid room should be directly accessible from the poolside with separate external access to a parking area for emergency vehicles. Doorways



## CHAPTER THREE

### Project Proposal

#### 4.1 Design Concept

The site is very unique due to its natural factors, the design concept was inspired by the geological context of the site. The building design incorporate the same lines of the natural context that can be identified in the site to preserve the genius loci.





## 4.2 Program and plan

Ground floor:

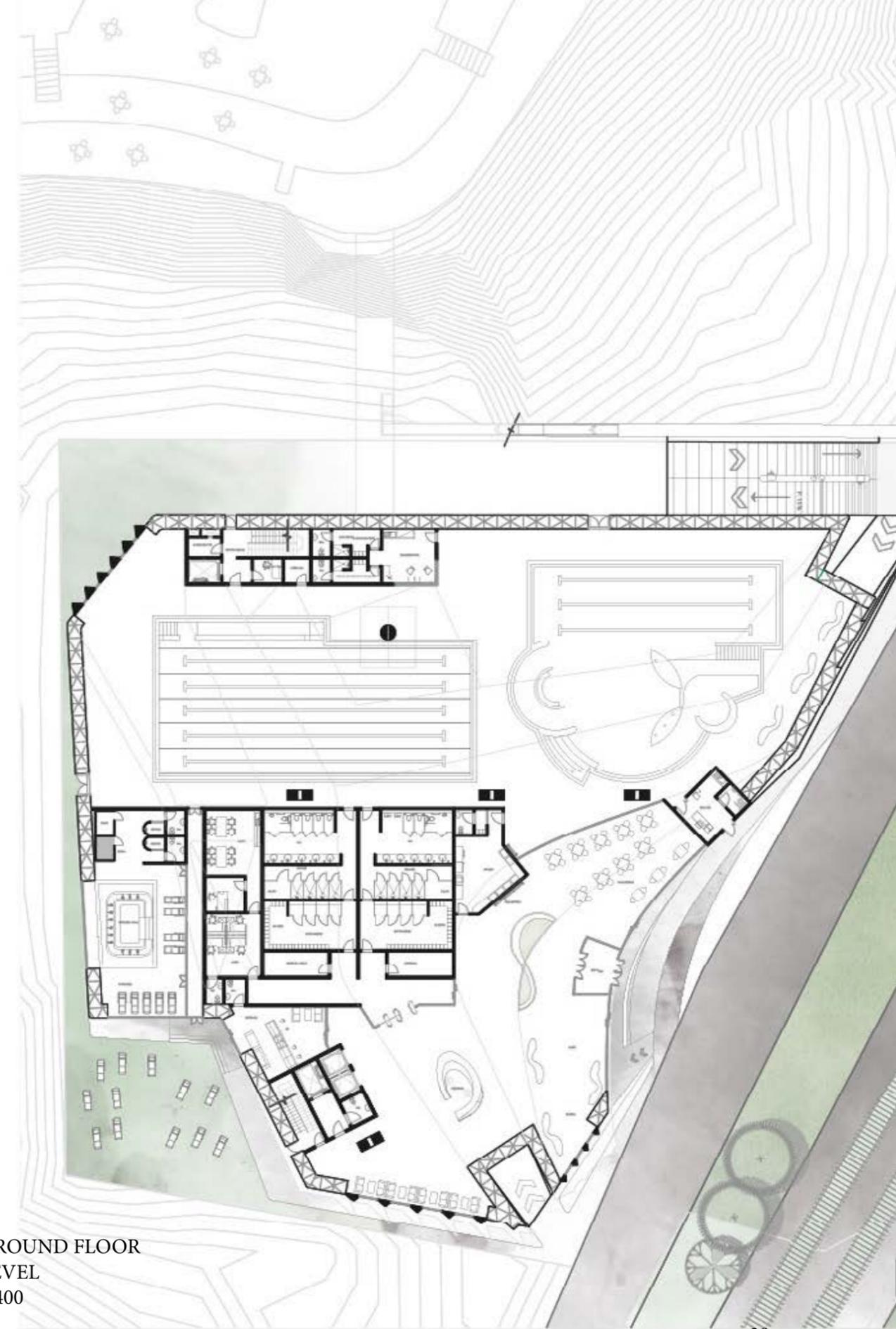
1. Main entrance
2. Lobby
3. Reception
4. Refreshment
5. Food service
6. Pool viewing
7. Changing rooms
8. Swimming pool
9. Wellness.
10. Aquatic staff
11. First aid
12. Administration
13. Custodial

First floor:

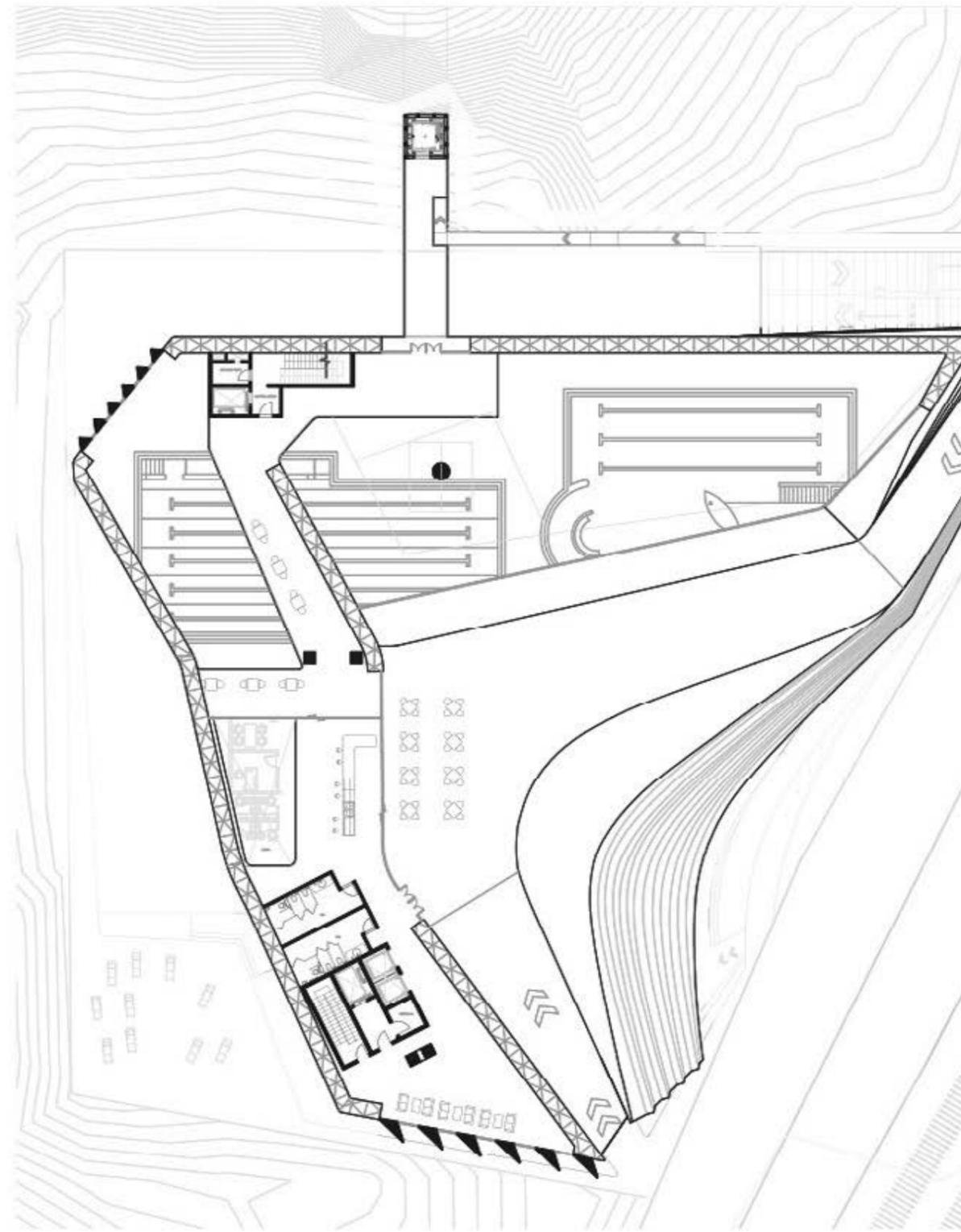
1. Roof refreshment
2. Pool Viewing
3. Rock hill restaurant access

Basement level:

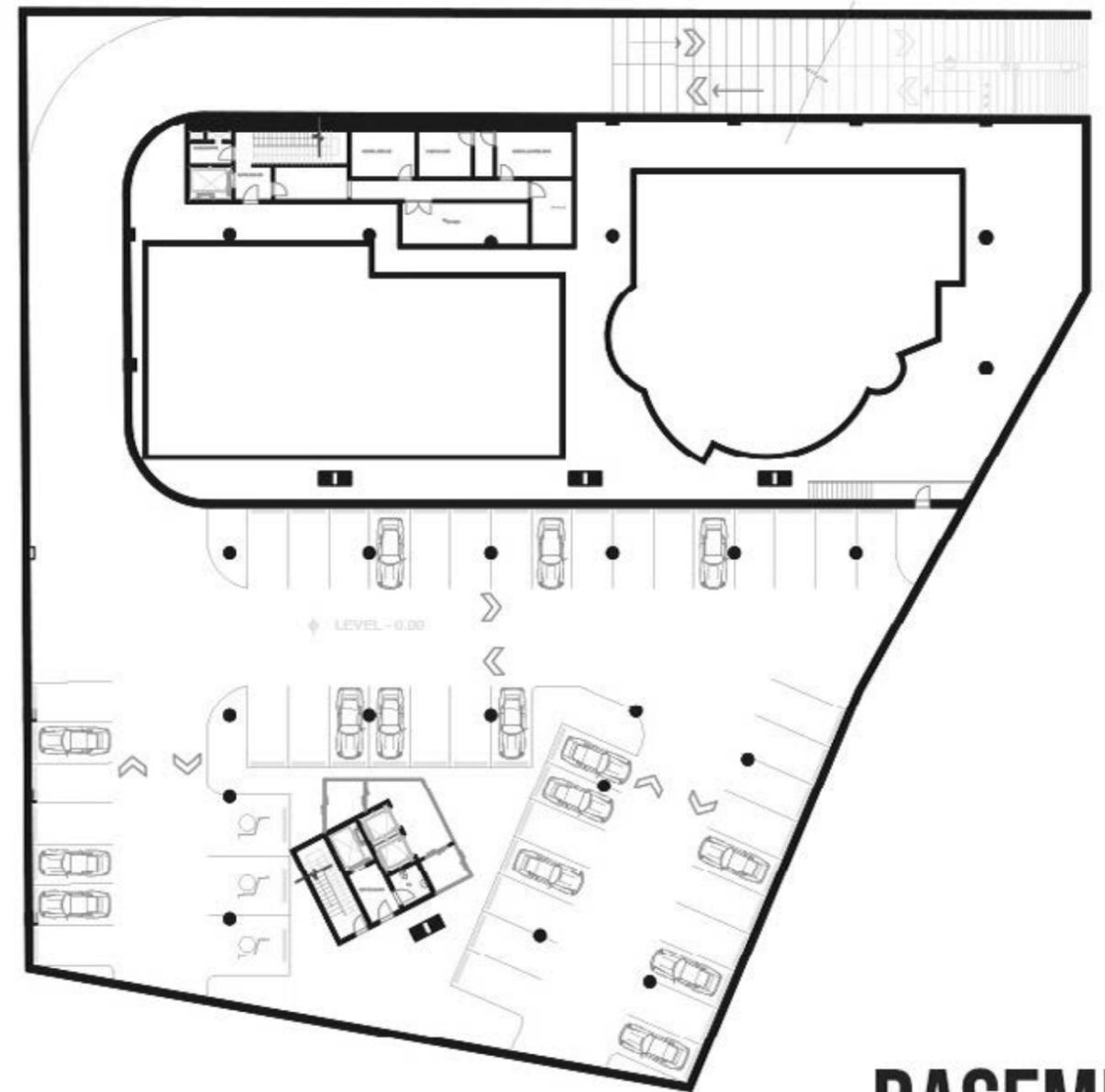
1. Chemical control room
2. Chemical room,
3. Chemical storage
4. Plant room
5. Storage
6. Services
7. Parking



GROUND FLOOR  
LEVEL  
1:400



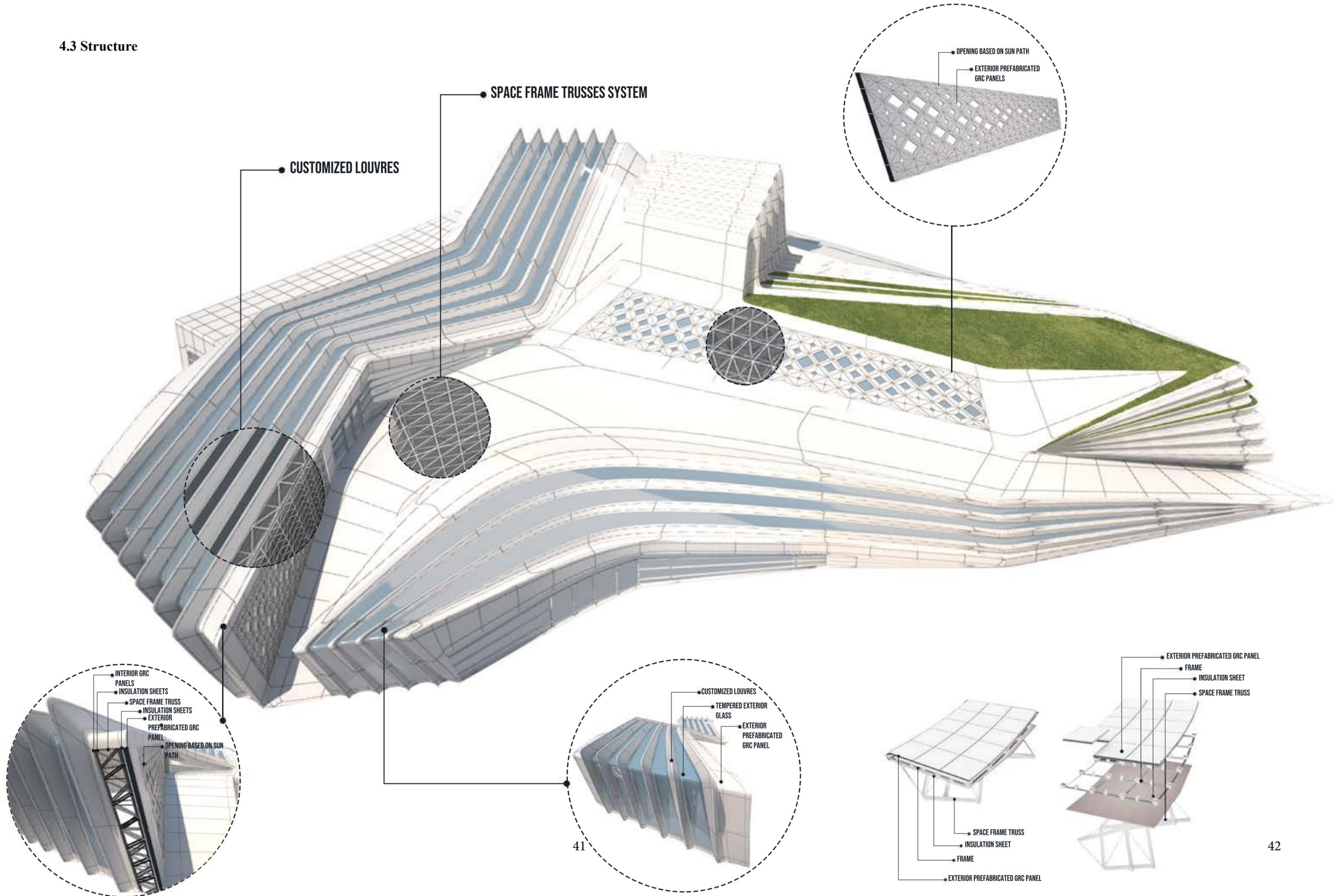
FIRST FLOOR  
LEVEL  
1:400



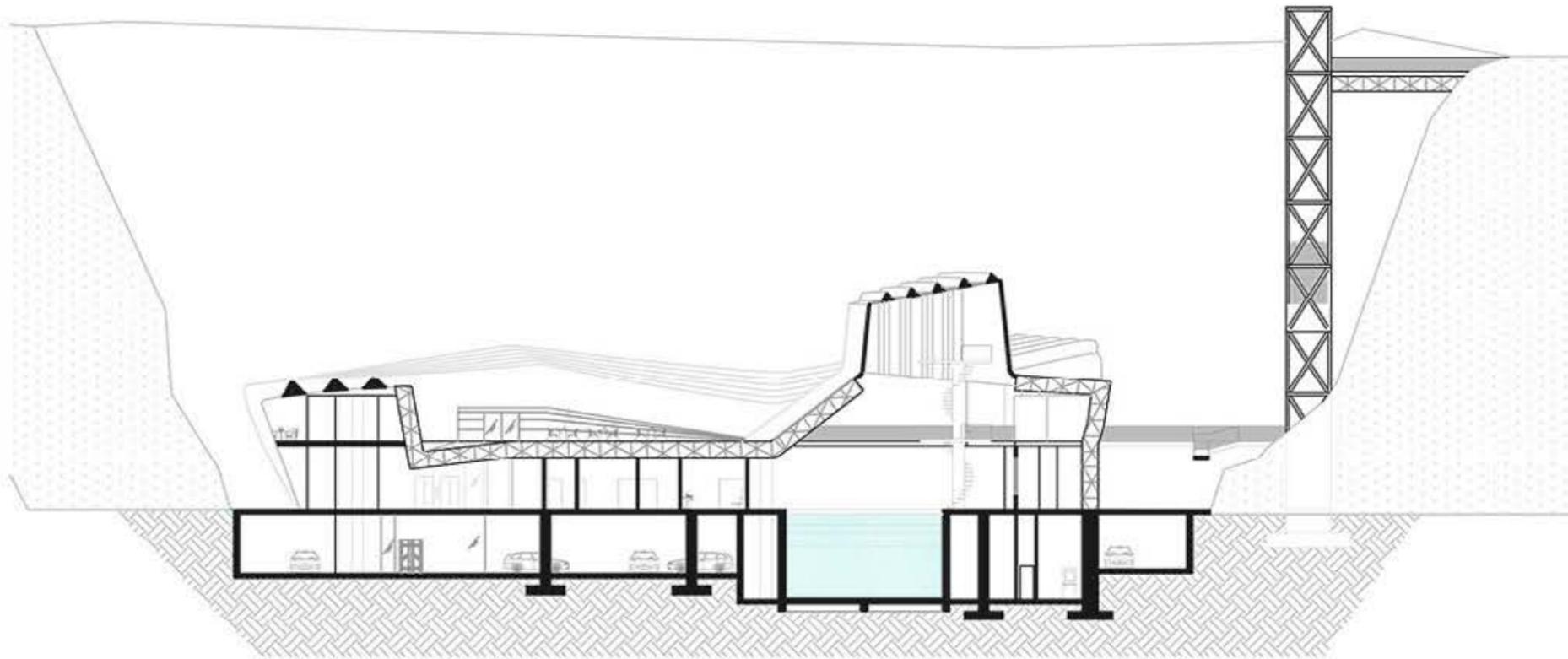
BASEMENT LEVEL  
1:400

**RACEMEI**

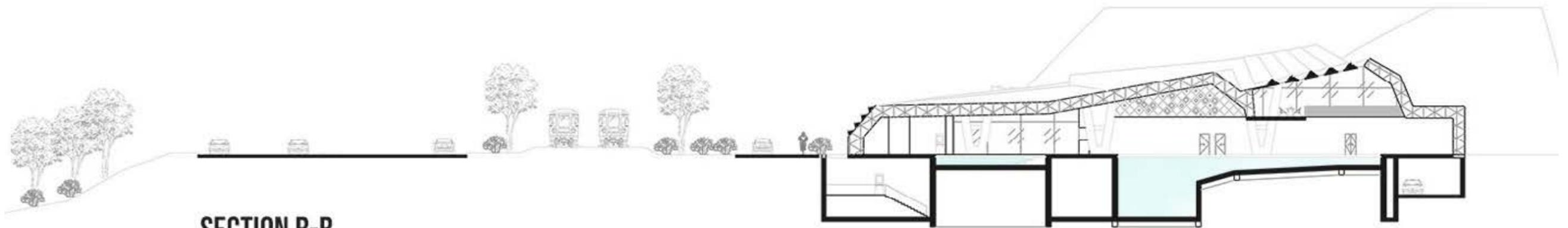
### 4.3 Structure



4.4 Section



**SECTION A-A**  
**1:400**



**SECTION B-B**  
**1:400**

4.5 Visualization









