



Hochschule Neubrandenburg  
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# A green recreational park in a former industrial site in Rüdersdorf

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## Abstract

The former industrial site in Rüdersdorf, which is used to be a phosphate factory until the end of 20<sup>th</sup> century, was the subject of a design competition held by AIV-Berlin Brandenburg, the association of Architects and Engineers, in 2022, to be revitalized. The competition had seven areas, including Landscape Architecture, and the design was intended to be focused on the Sports and Movement, Arts and Culture, and Nature and Climate. Site's landscape has a dual characteristic of an industrial characteristic with the huge concrete buildings, and concrete ground surface on the eastern side, and a natural one with a lawn and woods on the western side. However, the growing nature has found its way to adopt the whole abandoned area and the free parties found it a proper space in the pandemic time, to shape the new life of the former factory. This thesis is done on the Landscape architecture part of the competition, trying not to change the existing situation as much as, and provide the opportunity and space for a new life. To bring life back to a post-industrial site in the form of a public space, the design focused on the new activities, which can attract people especially in the focus areas of the competition. The Design tries to embrace both the historical aspect of the post-industrial site, as well as the new life, which found the abandoned area to grow in. A recreational park is designed for people from Rüdersdorf and other neighboring residents, as well as Berlin. Considering the site's good connection to Berlin and surrounding areas through public transport and water way, a green access strategy is possible. This green access, followed by the climate friendly strategies and embracing the nature characteristics of the design area, forms a green approach for the whole landscape design, which provides people with different spaces and various options to do a wide range of indoor and open space activities, while spending a day or a whole weekend in the park.

Keywords: post-industrial, green access, recreational Park, open space activities.

## deutsche Zusammenfassung

Das ehemalige Industriegelände in Rüdersdorf, das bis Ende des 20. Jahrhunderts als Phosphatfabrik genutzt wurde, sollte im Jahr 2022 im Rahmen eines vom AIV-Berlin Brandenburg ausgelobten Wettbewerbs revitalisiert werden. Der Wettbewerb umfasste sieben Bereiche, darunter die Landschaftsarchitektur, und der Entwurf sollte sich auf die Bereiche Sport und Bewegung, Kunst und Kultur sowie Natur und Klima konzentrieren. Die Landschaft des Geländes weist einen doppelten Charakter auf: einen industriellen Charakter mit große Betongebäuden-Boden auf der Ostseite und einen natürlichen Charakter mit Rasen und Wald auf der Westseite. Doch die wachsende Natur und die freien Parteien haben in der Pandemiezeit einen geeigneten Raum gefunden, um das neue Leben der ehemaligen Fabrik zu gestalten. Diese Masterarbeit befasst sich mit dem landschaftsarchitektonischen Teil des Wettbewerbs, wobei versucht wird, die bestehende Situation so wenig wie möglich zu verändern und die Möglichkeit und den Raum für ein neues Leben zu schaffen. Um ein postindustrielles Gelände in Form eines öffentlichen Raums wieder zum Leben zu erwecken, konzentrierte sich der Entwurf auf neue Aktivitäten, die vor allem in den Schwerpunktbereichen des Wettbewerbs Menschen anziehen können. Der Entwurf versucht, sowohl den historischen Aspekt des postindustriellen Geländes als auch das neue Leben, das auf dem verlassenen Gelände gedeihen soll, zu berücksichtigen. Ein Erholungspark ist für die Menschen aus Rüdersdorf und anderen benachbarten Orten, aber auch für die Berliner vorgesehen. Angesichts der guten Anbindung des Geländes an Berlin und das Umland durch öffentliche Verkehrsmittel und Wasserwege ist eine grüne Verkehr Strategie möglich. Dieser grüne Zugang, gefolgt von den klimafreundlichen Strategien und der Einbeziehung der Naturmerkmale des Entwurfsgebiets, bildet einen grünen Ansatz für die gesamte Landschaftsgestaltung, der den Menschen verschiedene Räume und verschiedene Möglichkeiten bietet, ein breites Spektrum an Aktivitäten auszuüben, während sie einen Tag oder ein ganzes Wochenende im Park verbringen.

Schlagworte: postindustriell, grüner Zugang, Erholungspark, Freiraumaktivitäten

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## Introduction

During my internship, while considering various topics for my thesis, with the suggestion of Mr. Jarosch, I got to know about **AIV BERLIN, the association of architects and engineers of Berlin-Brandenburg**. Every year a design competition is held by AIV-Berlin, in which young designers participate. I started following the news and new content on the association's website. After finishing the internship as I was focusing on choosing a Subject for my thesis, in September 2021, I saw the announcement of the new **Schinkel competition**. After reading the first document, I became interested in the topic and with further studying the subject, design question(matter), criteria, visiting the site and talking to my professors, I decided to take part in this design competition as master thesis.

The AIV Schinkel competition, since 1855, has been aimed at young planners every year in order to awaken their creativity in solving future-oriented planning tasks. In addition to promoting young technical and scientific talent, the competition initiates a dialogue between the city experts, administration, politics and public. It aims to arouse interest in an area, to develop sensitivity in dealing with the inventory, to show the importance for the environment and thus to contribute to the qualification of the task of formal planning. In this sense, the competition aims to generate a relationship between the general public and the planning area and to win them over to the design of the public spaces. Due to its independence, the AIV Schinkel competition is able to incorporate suggestions into ongoing planning (AIV-Berlin-Brandenburg, 2021).

The reasons I can list for this decision include the importance of this competition because of the publishing organization, the **association of architects and engineers of Berlin-Brandenburg** (AIV), the oldest active association in Berlin which aims to promote building culture in Berlin and Brandenburg and finds its most important task in taking a stand on current planning processes, and therefore, influencing the developments in important areas of the metropolitan region. The AIV analyzes and comments on stages and projects, presents discussion approaches for future urban and metropolitan development, and therefore plays a critical role in the field of building and cultural history of Berlin and Brandenburg (AIV-Berlin-Brandenburg, 2021).

Another reason for choosing this subject was the subject by itself, as it was new to me and I never worked before on revitalizing a pre-industrial site, which in opposite to complete reconstruction, follows the approach to sustainability. It looked also interesting with the concrete constructions, waterway and the nature. Therefore I decided to work on this new and interesting subject as my master thesis.

The fascination of participating in a design event among students and young designers, apart from the chance to win or not, could be instructive on one hand, and dealing with the concerns of the day in landscape design, and participating in a design event held by an Association (AIV) who is active mostly in the region that I am going to work in after my studies (Berlin), could

involve me more with the professional community and issues of the region on the other hand, build my interest on the subject.

The competition's text material was published on 14.09.2021 online, a group site visit was available on 29.10.2021 and the deadline for submission was on the 14.02.2022 and it was held both online and in paper. It was held in seven areas: Urban Planning (Städtebau), Landscape architecture (Landschaftsarchitektur), Traffic planning (Verkehrsplanung), Architecture, Structural engineering (konstruktiver Ingenieurbau), Arts (freie Kunst), and Monument and craft (Denkmal und Handwerk). I worked on the Landscape Architecture part and submitted my designs for the competition as well as working on it for my master thesis, same as many other students from different universities I met on the site.







Pic 2 Design area highlighted on the aerial photo (AIV-Berlin Brandenburg, 2021, 29)

## Design goals

As explained by the competition, design should be prioritized on three main areas: **Leisure and local recreation**, **Nature and climate protection**, and **Art and Culture** (AIV-Berlin-Brandenburg, 2021).

In order to reach a space for **leisure and local recreation**, the activities should be focused on the topic of movement and sport. The area is intended to be a magnet for visitors and tourists specially from Berlin and Brandenburg, which defines the cultural landscape of design area. It should be accessible for all social and age groups, which makes it open to everyone.

The main issue regarding the **Nature and climate protection**, is sustainability. It needs the particular issues of sustainability in postindustrial areas, for example the water retention of the ground surfaces as well as the roofs, as it is mentioned, to be listed and considered in design, and also leads to the importance of the natural aspects of site.

In relation to Art and Culture, it is intended to provide possibilities for holding festivals and events, as well as other workspaces for artists, that may find the expenses and other conditions in Berlin limiting to their area of work (AIV-Berlin-Brandenburg, 2021).

The design concept is expected to answer the explained issues, while preserving the existing buildings as much as possible, and providing a space for exercise and leisure as well as peace and nature.



Pic 3 Landuse map of the design area's region (Landesvermessung und Geobasisinformation Brandenburg, accessed on 10.2021, no page)

### Site analysis

According to the design description published by Competition holders, and personal experience of visiting the site, different aspects of the site, which seemed important for the design, are divided in four categories, each is explained and analyzed, and in the end, some aspects are selected to be the basepoints, which the concepts came out from.

The very special feature of the processing area is its island character. The area is bordered with a railway line to the Museumspark in the south, in the north a water canal frames it with a natural border (AIV-Berlin-Brandenburg, 2021), however the canal is also humanmade. This character of being between an industrial and a natural element is seen in other scales in the area, which makes it an important theme of the existing situation.

### Location

In order to consider the area from the biggest scale, the location of the design area, and its connection to the neighboring habitations, which defines the user groups and the cultural landscape, is the first aspect for site analysis.

The design area is part of an agglomeration of industrial plants, with a 30 Kilometers distance east to Berlin. This proves the importance and possibility of designing it as an easily accessible recreational area for Berlin.

However, the nearest residential space to the design area is Ruedersdorf. This city has lived for a long time from the quarrying of the limestone, processing it into burnt lime and cement.



These industrial activities have changed the natural landscape to the industrial, which will be a big design question in the postindustrial time. The removal of the limestone mountain and the exploitation of the rock layers far below the terrain resulted in damaging the landscape and its natural identity while contributing to city's prosperity. Next to the limestone quarry, there are historic kilns, modern cement works, companies of building materials and logistics sectors. They have been developed as an agglomeration of localities, which are some highly active, and some abandoned and ruined. This contradiction from the competition holder's point of view, makes Ruedersdorf an interesting area for development and design (AIV-Berlin-Brandenburg, 2021).

In opencast mining, today, 3 million tons of rock are mined every year, almost 90% of which is processed into cement. But the whole mining activity is being stopped in 2062 according to the current mining laws. After the end of the opencast mining, the pit would probably be being treated like other post-mining landscapes, the pit will largely fill with water and the bank areas must be secured and renatured (AIV-Berlin-Brandenburg, 2021).



Pic 5 The water canal on the north and railway on the south of the design area ( AIV-Berlin-Brandenburg, 2021, no page)



Pic 5 Areal photo of Design area( Google earth, accessed on 11.2021)





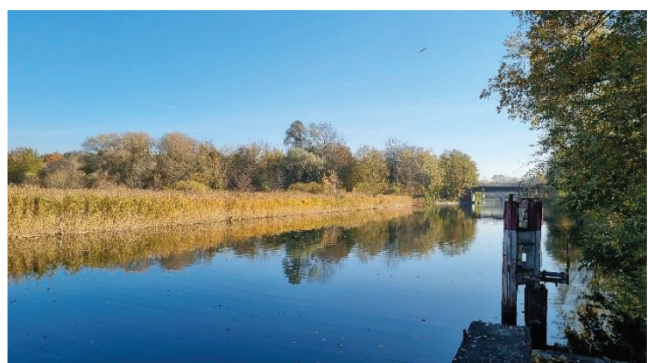
*Pic 6 Museumspark from the design area(Shahrokhi, 2021).*

As well as the industrial areas, a beautiful natural landscape, including forest and woody areas, and “Stienitzsee” lake, which is a federal waterway, are seen in the neighboring area. This feature reminds the importance of pedestrian connection of the area to its surrounding to make it possible to work together as a whole day wandering and entertaining destination.

As mentioned before, in the south, the design area has direct connection to the “Museumspark”, which is an open-air museum for industrial history, and a metal bridge connects them together (AIV-Berlin-Brandenburg, 2021).

The train railway in the southern arc border, which is still in use for industrial transportation, is more than 1 meter lower than the terrain in the design area. In some points near to the Museumspark bridge, the ground level goes down to be closer to the railway. In the whole arc, there is a proper band aligned with the railway that can be used as a path in the current situation, and be expanded to the railway area, when it is not used anymore.

The water canal in the northern part, in addition to creating a pleasant natural landscape, provides the possibility of water way transportation, and recreational activities based on water.



*Pic 7 Right: The bigger old dock. Left: A small old dock(Shahrokhi, 2021).*



The presence of three harbors, indicates the use of this route for transporting materials or products and equipment during the active time of the factory. This edge, at its western end, creates a beach among the trees, which can be considered in the design.

In Both northwestern and northeastern edges, there is a bridge for the railway, which has space in both sides for pedestrian, which are not too wide but still a connection to the other side of the canal.



*Pic 8 Top-left: Northwestern bridge( AIV-Berlin- Brandenburg, 2021, no page), Top-right: Northeastern bridge (AIV-Berlin- Brandenburg, 2021, no page) Down: Main bridge, main entrance(Shahrokhi, 2021).*

The main entrance to the design area, is through another bridge in the middle of northern border of area with the water canal. This bridge is a wide one, providing the accessibility for pedestrian and cars, which can be used for emergency and service access.

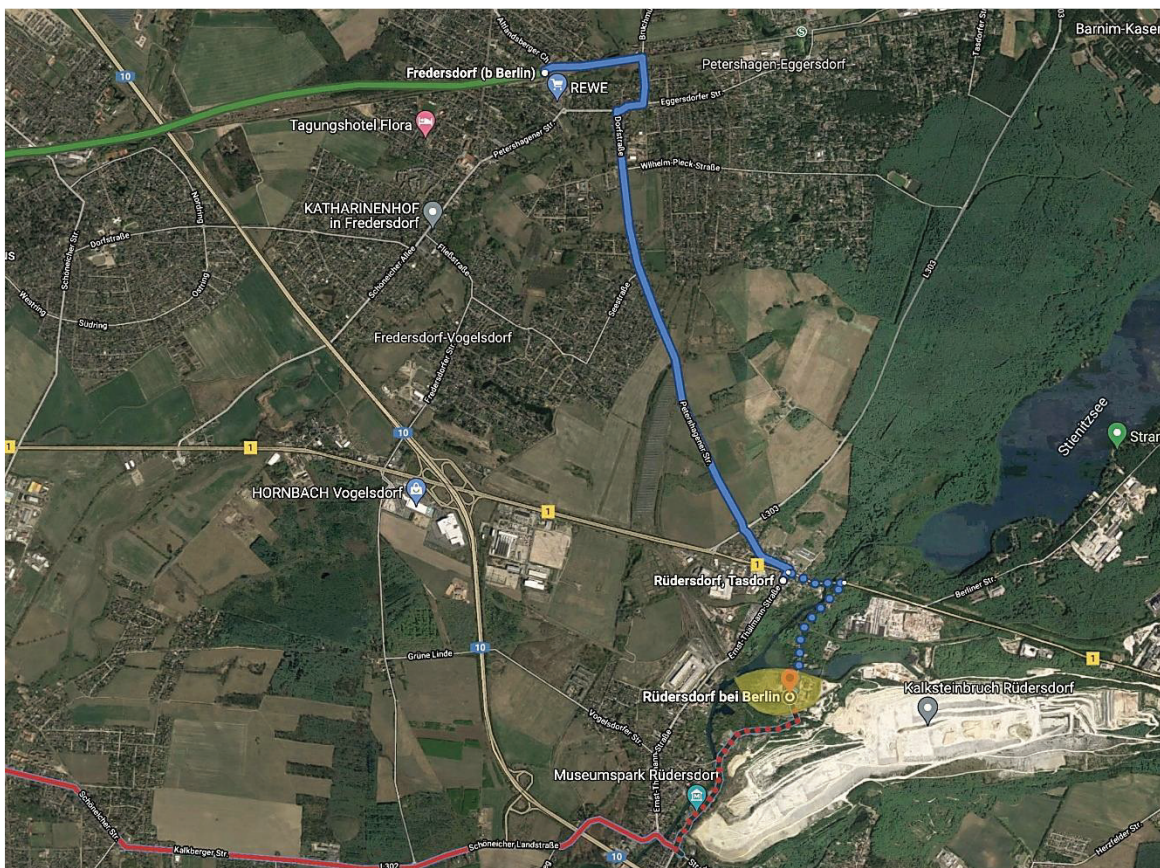




Pic 9 Main accesses to the site (Shahrokhi, 2022, on the image from Google Earth map accessed on 11.2021, no page).

Considering Berlin as the first and only big city in the region and the most important origin of users as well as Ruedersdorf, leads to analysis of the connections between area and Berlin.

The “Tasdorf” Train Station, connects two cities directly, but there is a distance between the station and design area, connected with a bus, which is an important connection from



Pic 10 Access with public transportation from Berlin to the site( Google Maps, accessed on 02.2022, no page).



Ruedersdorf to the area, and from the closest bus station, 15 minutes' walk to reach the area. This connection leads to the main entering Bridge on the north side of area. Another possible path through public transport is the Tram line. The closest station is accessible through a 20 minutes' walk from the southern area, to Museumspark and design area.

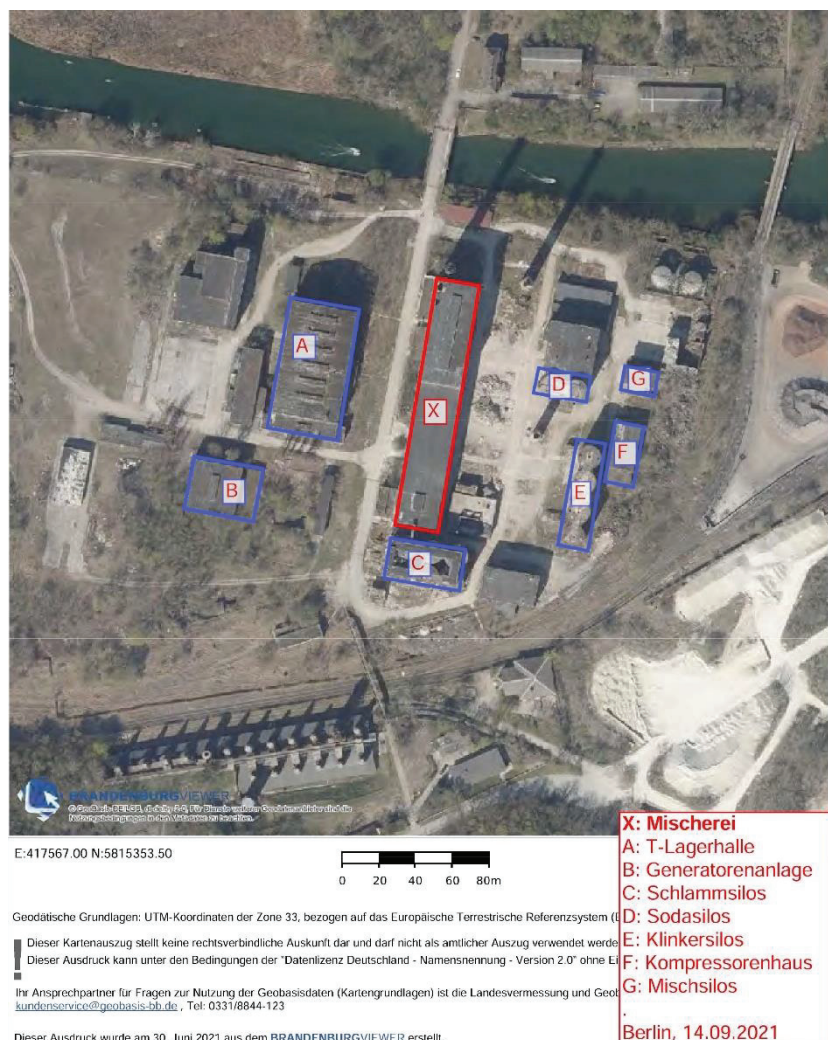
The canal provides a water way in one direction to several lakes leading to "Falkensee" and Berlin, and from another direction to "Steinitzsee" in a close distance. It is accessible with Boats and sightseeing fairies, therefore another path from Berlin and a connection to surroundings areas.

The area is also connected well with the car to Berlin, but the easy access through public transport and interesting water way, pushes the car access aside, as not an interesting nor the most efficient way, in comparison to other possibilities.

### Buildings

The building-system in the design area, includes the remaining buildings from the old factory, the Concrete slabs paving the ground, the connecting bridges, the small and big harbors.

Remaining factory buildings are mostly huge concrete shells of simple geometries, that shapes a modernistic look to the space, and three brick chimneys, two very tall and a shorter one, bolds the vertical axis to the sky, shaping an expose three-point perspective, reminding the vertical and brutalist imaginary cities, which were intended to picture the future at once. There are also some smaller and newer buildings without the special described features and some half-ruined ones, that can be demolished to make more open space or renewed completely. This doesn't seem to be reasonable, as the demolition in small amounts are allowed in the design task and the half-ruined constructions are not of the elegant ones.



Pic 11 Buildings in the design area (AIV-Berlin-Brandenburg, 2021, no page)

are allowed in the design task and the half-ruined constructions are not of the elegant ones.





*Pic 12 Concrete geometrical buildings in the design area(Shahrokhi,2021, no page).*

None of these buildings are protected as heritage, so that making changes into them are possible.

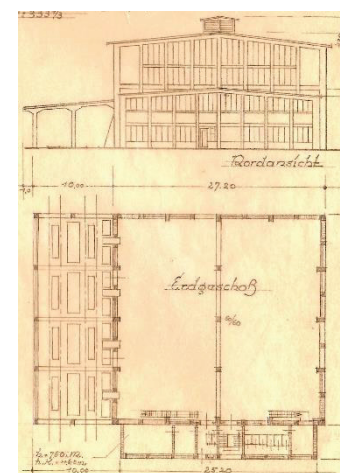
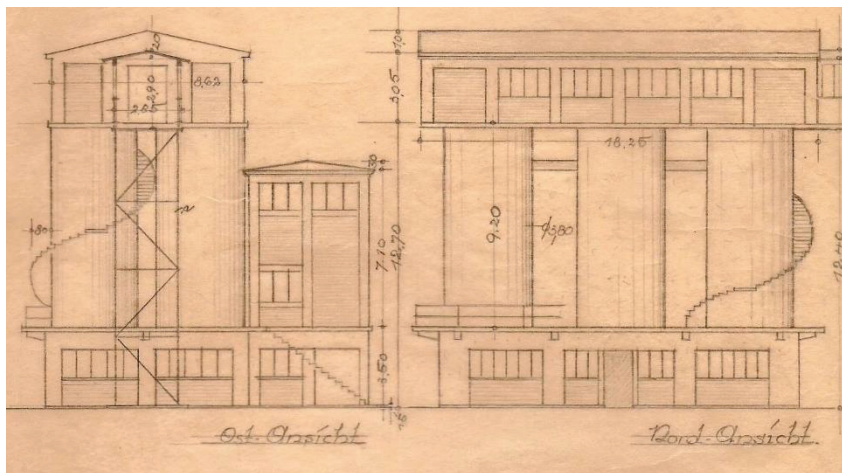
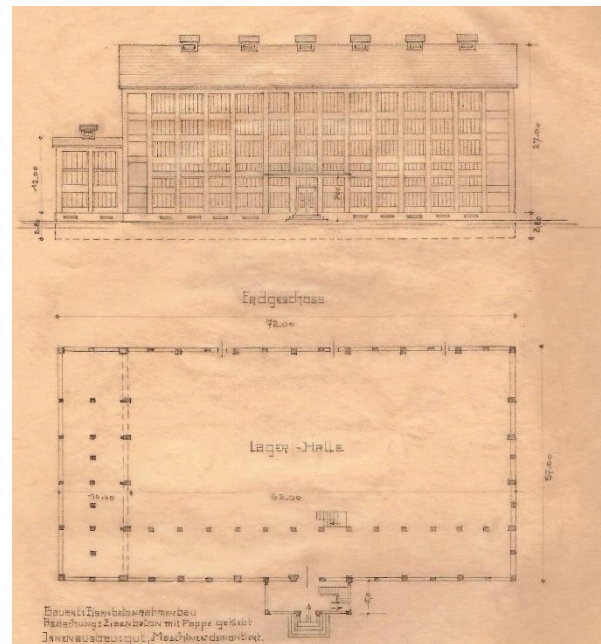
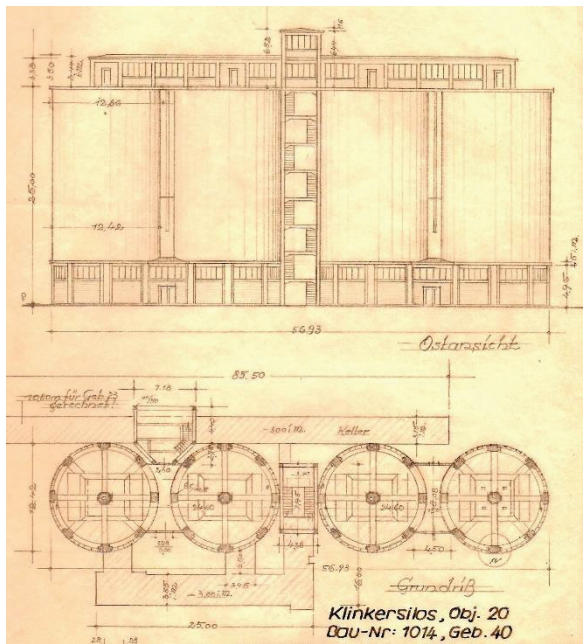
The ground around the buildings and between them is mostly covered with big concrete slabs and in some places, there is a channel under the slabs. This ground surface gives a stronger industrial character to the space, and generally has a good quality, that makes it possible and preferable to be kept.

There are four bridges connecting the design area island to the outer space, two of which are used now only for the railway, one provides the main access and the other connects to the Musumpark. Planning the public access independently from the museum park is a challenge of the design task (AIV-Berlin-Brandenburg, 2021).



*Pic 13 Buildings in the design area from bird eye view( AIV-Berlin-Brandenburg, 2021, no page)*





Pic 15 Architectural drawings of the buildings from 1949 (AIV-Berlin-Brandenburg, 2021, no page)



Pic 14 Ground surface and remaining ruins in the middle of the site between buildings(Shahrokhi,2021).



## Vegetation

The previous phosphate factory has a dual character, the industrial and natural. The natural character is shaped with the group of trees and the lawn, both naturally grew on the west side of the area, and some young trees, plants, and moss, grew on the east side, between the buildings, on the roofs and on the concrete ground surfaces.

The protection of the existing vegetation, in particular the tree population, and its expansion and supplementation are in the foreground.

The area offers space for completely different experiments, especially in the western area. The nature should be protected and the natural potential enhanced and the site-specific conditions regarding habitat suitability are to be addressed, in the sense of a real laboratory for nature conservation (AIV-Berlin-Brandenburg, 2021).



*Pic 16 Growing nature in the western side of the site(Shahrokhi,2021).*



The entire western area is viewed more as a zone of retreat and rest than activity, with the possibility of hustling tourists for night stay (AIV-Berlin-Brandenburg, 2021).

The lawn is a big open area in comparison to the spaces between the buildings, it makes it possible for people to gather for different open space activities. The current vegetation on the ground is long grass in its natural shape, a habitat for insects and support for biodiversity.

The forestry area, which is separated with fences and not accessible now, has parts of dense trees together and an opening between them.



*Pic 17 Foresty area in the western side (AIV-Berlin-Brandenburg, 2021, no page)*



*Pic 17 Meadow in the western side (Shahrokhi,2021).*





*Pic 18 Top: Vegetation on the canal embankment and in the western area (AIV-Berlin-Brandenburg, 2021, no page),  
Down: vegetation in the western area(Shahrokhi,2021).*

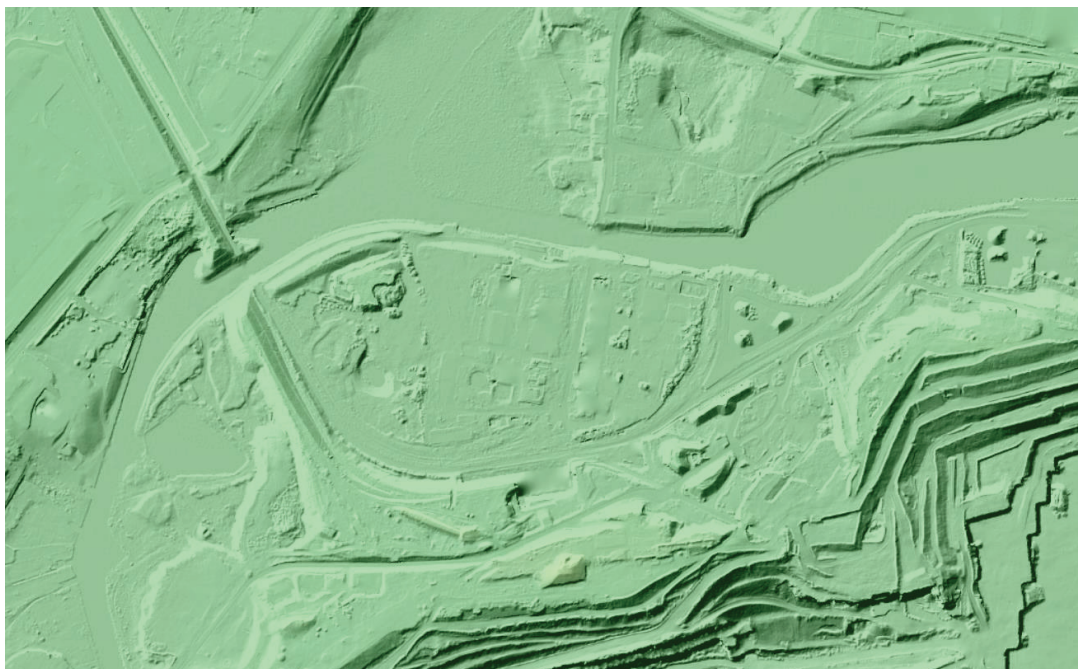




*Pic 19 Vegetation in the foresty area (AIV-Berlin-Brandenburg,2021, no page)*

### Topography

The topography photo derived by Google Earth, shows the area, as a quit flat land, borders by a lower-level ring, in north with water canal and in south with trail railway. The area in a contrast to the quarry pit, with a strong topographic level change, is seen as a flat area, however it has some different levels in the western area by itself. It can be seen on the picture, that in the middle area of western side, there is a part going slightly down and then up to the



*Pic 20 Topography in the design area (Google Earth, accessed on 11.2021, no page)*



west, and in the northwestern part, a partly higher area is seen which leads to a bank that shapes the border with water.

The railway bridge in the western side is constructed in a higher level and a bank has made this level change possible. These level changes in the western side, in combination to the existing natural vegetation there, makes it more interesting and with potentials for recreational activities.

#### Climate-environmental issues

In order to understand the climate related effects of the design area, four ecological maps published by the municipality of Rüdersdorf are analyzed. These maps seem to be useful to find out about the environmental effects of the area, in order to approach to an environmentally friendlier concept. The maps are made of cropped parts from the big maps studying the whole region of Rüdersdorf. The original maps are generated from 2008 to 2010, which are 12 to 14 years older than the time in which this study is done, and 8 to 10 years after the end of industrial activities in the area. Therefore, the situation's changes after 2010, are not reflected on the maps, and the factors are estimated to be less critical than what is seen on the maps. But, as the natural and organic recovery from the industrial time does not go probably fast enough to make significant changes within 12 years, studying and analyzing such maps, even though they are old, gives a useful idea of the climate related aspects of the site.

The first map (Pic 22) shows the **water condition functions** in the area. Pink color, which almost fills the design area, refers to the sealed surfaces, with a poor function of infiltration and absorb the rainwater, and yellow color shows the areas with a low groundwater level, which may have been caused by industrial activity and low vegetation in the area. It indicates the poor quality and function of the area relating to the absorption of water and groundwater level according to the ecological standards and the importance of taking actions in order to enhance these functions. However, there exist types of vegetation in the area, whether as meadow or woods, and from an optimist point of view, the map includes a wide outlook and is not defined accurately for the design area, so that in the case of a closer look, the situation may sound less critical, but it gives the motivation to step forward to design a greener space. The area is also marked as suspected of being contaminated area, because of the former



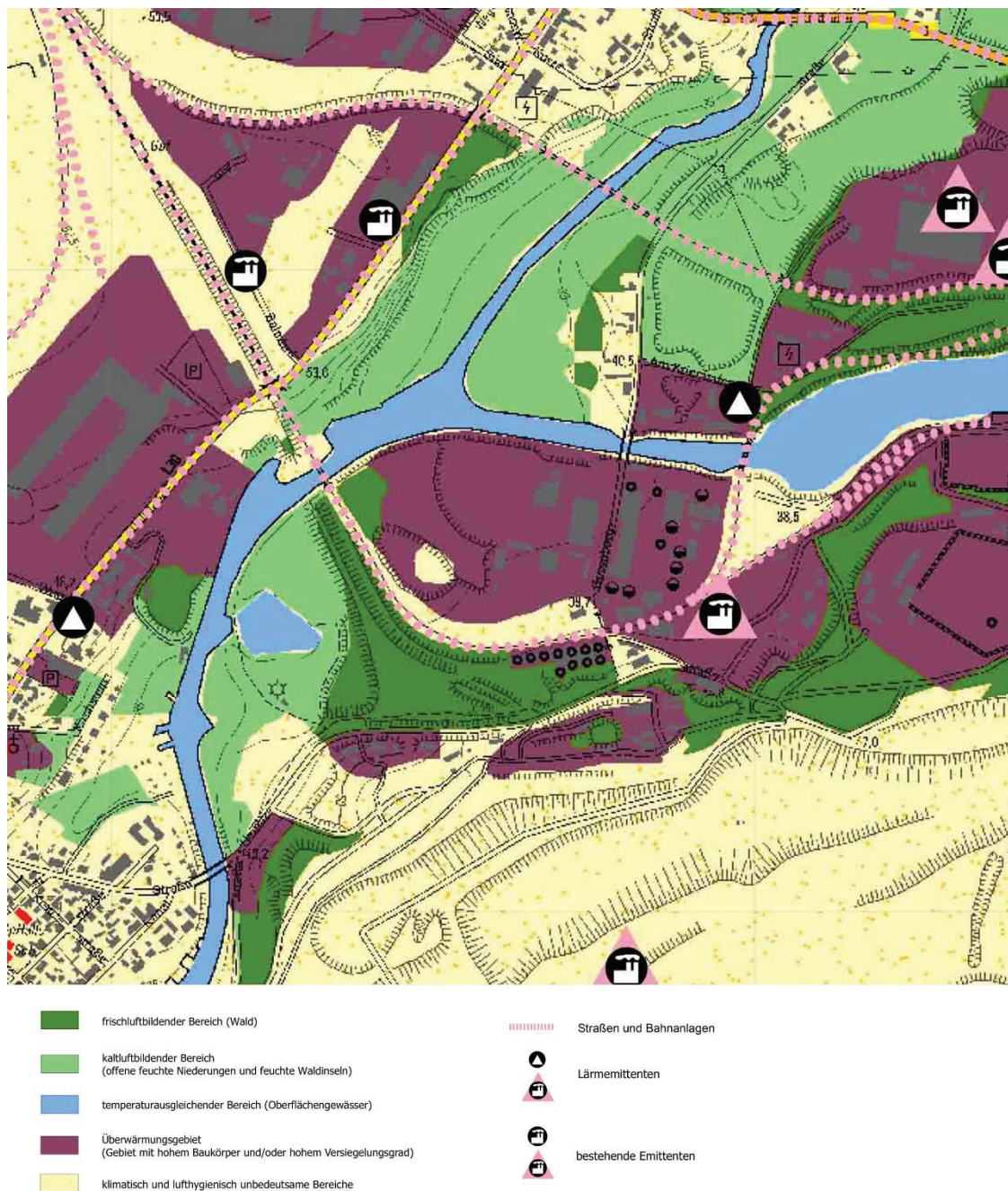
Pic 21 Water condition map of the area (Land Brandenburg, 2010, no page).



industrial activities of the phosphate factory, however the growing vegetation since the end of its active time, shows the potential of green improvement.

The next map (Pic 23) is title as **current status and significance of climate, air, and noise**. Design area is defined mostly as an overwarming (over heating) area, with a small part of fresh air area in the north-western corner, which is the woods, and a part with insignificant climate and air hygienic value.

The overheating affect might be the result of big concrete buildings with bare gray facades and roofs and the concrete ground cover. However, the map is generated in 2010, which is 12 years earlier than this study and in the middle time from the end of industrial activities in the area to the current day, and the natural growth of the vegetation, especially in the western

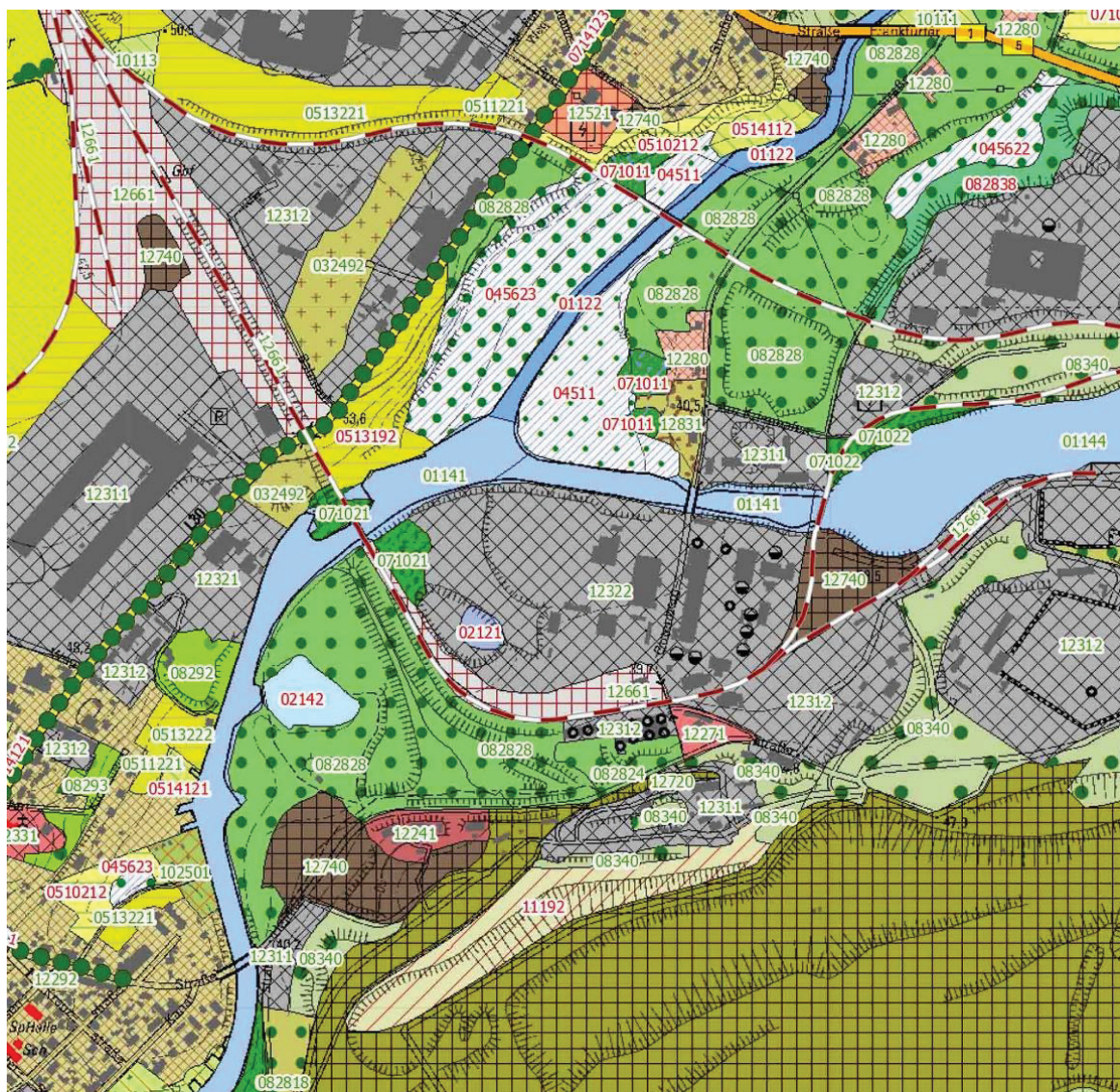


Pic 22 current status and significance of climate, air, and noise( Land Brandenburg, 2010, no page).



area, might have changed the situation, the map still gives a good guideline to the concerns that should be reflected in concepts.

The map of **Biotope types, Vegetation's structure and land use** (Pic 24), presents the design area mostly in the category of "industrial, business, commercial and service areas", and partly in the category of "rail platforms out of train stations", and a part of the north-western corner in the category of "new locations of deciduous bushes". This indicated the poor quality of the area in encompassing the biodiversity and the importance of investing on empowering it, in order to become more climate-neutral or climate-friendly.



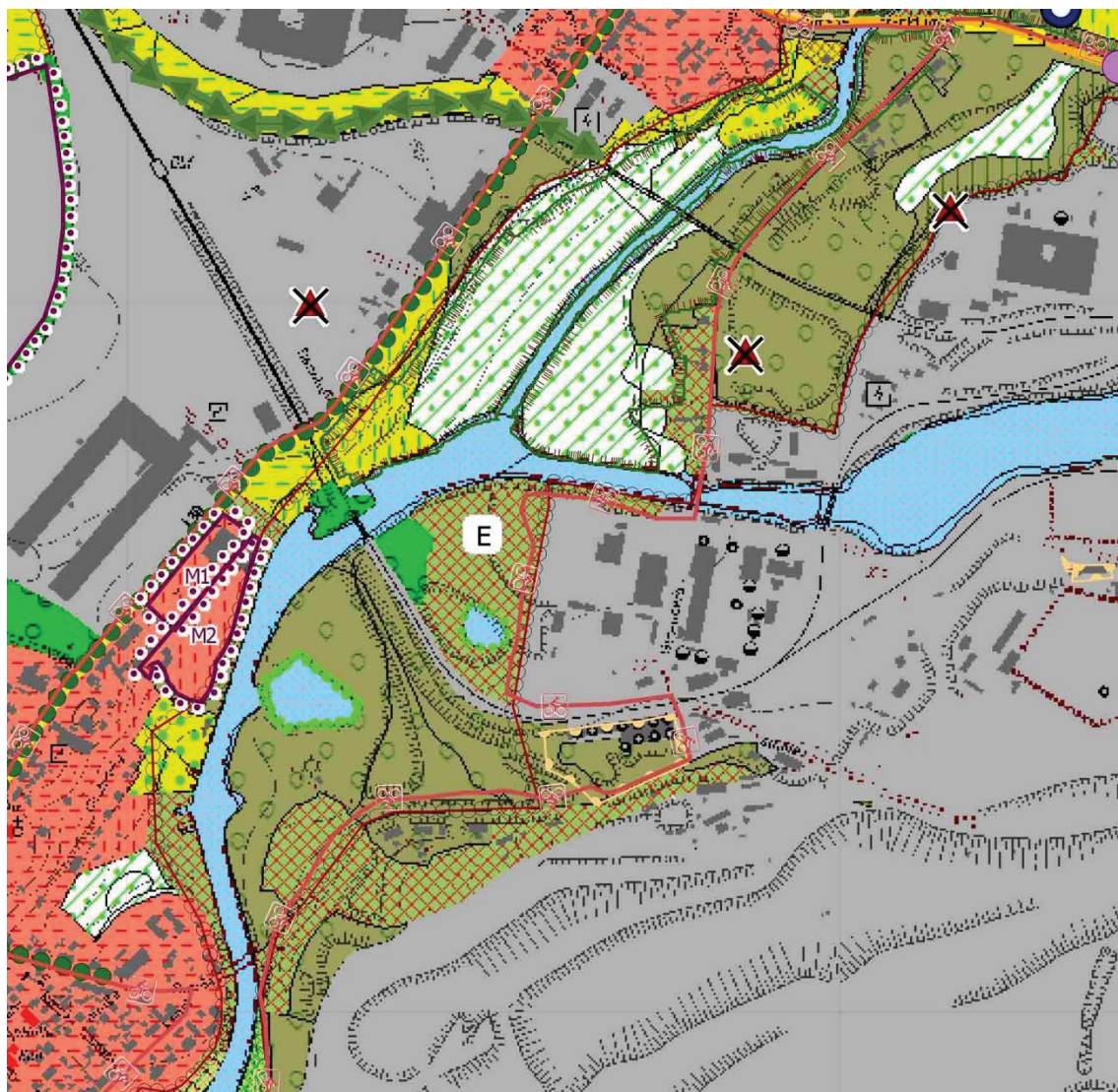
Industrie-, Gewerbe-, Handels- und Dienstleistungsflächen 12311, 12312, 12321, 12322	Laubgebüsche frischer Standorte 071021, 071022	Aufschüttungen und Abgrabungen
Gleisanlagen außerhalb der Bahnhöfe 12661	nährstoffreiche (eutrophe bis polytrophe) Moore und Sümpfe 04511, 04540	Grünlandbrachen 0513111, 0513192, 0513211, 0513212, 0513221, 0513222, 0513311, 0513321, 0513322
Vorwälder frischer Standorte 082821, 082824, 082825, 082828	Gehölze nährstoffreicher Moore und Sümpfe	ruderales Stauden- und Distelfluren 032401, 032402, 032432, 032441, 032442, 032491, 032492
Lagerflächen 12740	Einzel- und Reihenhaus- sowie Villenbebauung 12251, 12261, 12271, 12272	Feldgehölze armer und trockener Standorte 071141

Pic 23 Biotope types, Vegetation's structure and land use (Land Brandenburg, 2010, no page).



The other map (Pic 25) is titled as **development's concept**. The whole eastern side of the design area, including the area with buildings and concrete ground surface, needs “minimizing the sealed surfaces and designing more green spaces with indigenous trees”. The western side needs “revitalization of the soil and developing the vegetation in the form of plants, trees and animal habitats as well as the recreational functions in nature”. The north-western corner, needs “supplementation with indigenous trees and bushes”.

This shows the high intention of increasing the green spaces in the forms of plants and indigenous trees and bushes in the whole area, however, it's application in design, does not seem to be possible with preserving the built constructions there.



- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>■ Sonstige, z. T. gewerblich genutzte Flächen<br/><i>Minimierung der Versiegelung und der Emissionen; Grünflächengestaltung mit überwiegend heimischen Gehölzen</i></li> <li>■ Revitalisierung des Bodens, Entwicklung naturnaher Vegetation als Lebensraum für Pflanzen- und Tiergesellschaften sowie für die naturgebundene Erholung (Flächen für Ausgleichs- und Ersatzmaßnahmen A/E 4, A/E 45, A/E 46)<br/><i>(Wieder) Herstellung eines durchwurzelbaren Oberbodens; Initialpflanzung einheimischer Laubgehölze; Durchwegung</i></li> <li>■ Erhalt und Entwicklung von Laubgebüsch (Flächen für Ausgleichs- und Ersatzmaßnahmen)<br/><i>Neu- bzw. Ergänzungspflanzung mit einheimischen standortgerechten Baum- und Straucharten</i></li> </ul> | <ul style="list-style-type: none"> <li>E Reduzierung des Versiegelungsgrades durch Rückbau (Flächen für Ausgleichsmaßnahmen A/E 2, A/E 3, A/E 8, A/E 10, A/E 11, A/E 12, A/E 17, A/E 18, A/E 21, A/E 22, A/E 25, A/E 27, A/E 28, A/E 47, A/E 48)<br/><i>Entsiegelung und Bodenansanierung nicht mehr genutzter und nicht für eine Neubaueung vorgesehener Flächen</i></li> <li>✗ Sicherung von Altablagerungen ohne wesentliches Gefährdungspotenzial</li> </ul> | <ul style="list-style-type: none"> <li>■ Umbau in naturnahe Laubholzbestände<br/><i>Umbau von monostrukturierten Laubbeständen nicht-heimischer Arten in ungleichaltrige Laubmischbestände heimischer und standortgerechter Arten mit hoher Anpassungsfähigkeit</i></li> <li>■ Erhalt und Stabilisierung bestehender Moorgesellschaften (Flächen für Ausgleichs- und Ersatzmaßnahmen A/E 7, A/E 38)</li> <li>■ Extensive Nutzung und Pflege von Feucht- und Frischwiesen bzw. -sümpfen, Feucht- und Frischweiden auf grundwasserbestimmten Standorten (Flächen für Ausgleichs- und Ersatzmaßnahmen A/E 5, A/E 24)</li> </ul> |
|---|--|--|

Pic 24 development's concept (Land Brandenburg, 2008, no page).

All the maps, show the poor function of the whole area, in the field of climate and environmental issues, whether it is the ground water and infiltration ability, overheating affect, or biodiversity. The development's concept's map shows the importance of reducing the sealed surfaces and increasing the green spaces and indigenous vegetational species and providing the context for animal species.



## Concept

Considering different aspects of design question, especially the mentioned focus points from competition's point of view, and site features from site analysis, the main concept is formed. It is based on seeing and recognizing the existing situation, keeping the characteristic of the space as much as possible with less changes, and revive it with new life. The design area in its existing situation, is a postindustrial site, in which the nature had a chance to dominate the hardscape and grow and being adopted by people who didn't find a place to gather and celebrate their energy in the limitations of pandemic time. The aim of the design is to accept and give credit to the nature's growth and the youngsters energetic activities.



*Pic 25 Right: naturally growing vegetation all around the buildings area, Left: remains of fireworks from underground parties on the ground(Shahrokhi,2021).*

The keywords derived out of the design goals of the competition are Sports, Arts, Activity and Movement, Recreation and Nature. These bring in mind a variety of activities and event spaces, probably with a majority of younger and teenager users. Therefore, the first aspect of concept would be finding **activities**, which lead to the goals. On the other hand, Berlin is in the cultural landscape of this area, which is famous for being open to different, energetic and extremely new activities.

As the place is considered to function as a recreational area for the residence of Berlin, with a distance of 30 kilometers, as well as the residence of Ruedersdorf and other nearby residential areas, it must be interesting enough to attract people to come to. So that, the activities should be focused on the ones that are not easily possible or planned inside the city, while providing space for more often use for the users coming from Ruedersdorf. A list of activities related to the design goals, with the mentioned features are made in the first hand, and the possibility of each one's application to the area is discussed later.



*Pic 26 Sketch of climbing facilities on the silo's building (Shahrokhi,2021).*








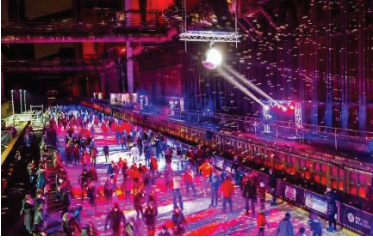










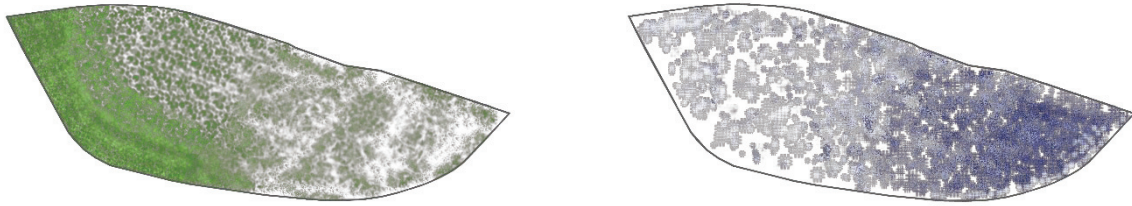
Sports	Art	Freizeit
<p>1. Bungee jumping</p> 	<p>2. Disco</p> 	<p>3.</p> 
<p>4. Parkur</p> 	<p>5. Exhibitions</p> 	<p>6. Eis Bahn</p> 
<p>7. Pump Trail</p> 	<p>8. Graffiti</p> 	<p>9. Urban Dance</p> 
<p>10. Skateboarding</p> 	<p>11. Concerts</p> 	<p>12. Nightstay</p> 
<p>13. Hochseilparcours</p> 	<p>14. Movie show</p> 	<p>15. Aussichtsplattform</p> 
<p>16. Climbing</p> 		

Table 1 Suggested activities categorized in sport, arts and leisure (Shahrokhi,2021).





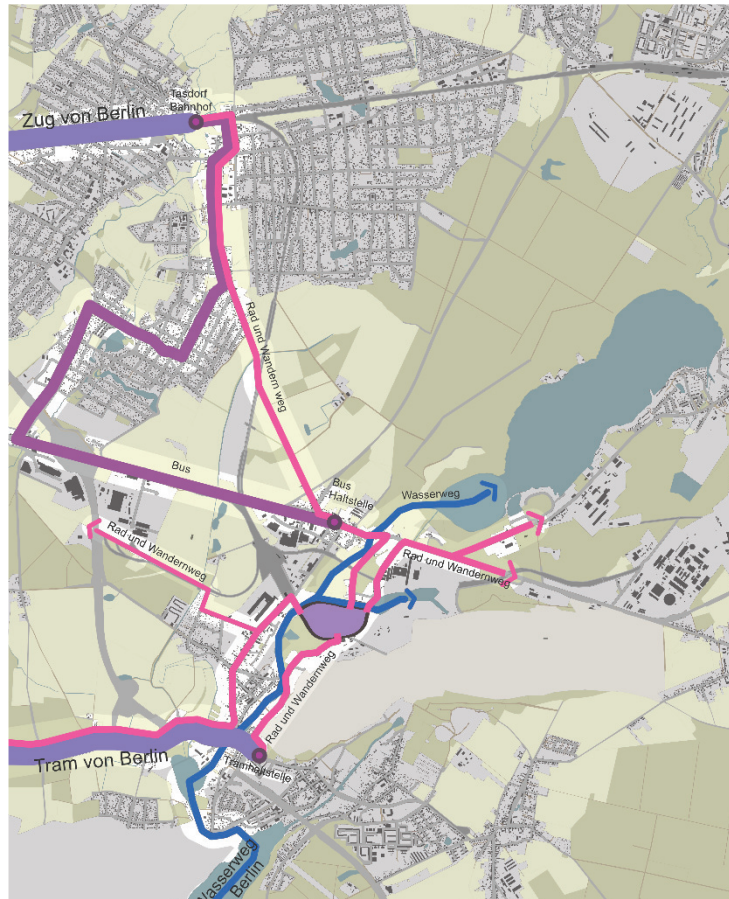
Pic 28 Right: Density of activities on the site, Left: Density of nature element on the site(Shahrokhi,2022).

An important feature of the design area is its **dual industrial-natural characteristic**, which is not only mentioned in the competition text, but also obviously understood in the visiting experience. This duality is selected to be the basic theme for the landscape design, to provide users with divers interesting experiences in the same place, making it possible for spending a whole day or a weekend of doing energetic activities and resting. It is also tried to increase the contrast between its two parts and become two poles. In an exaggerated way, space is seen as bipolar, which, like bipolar disorder, makes an experience between madness and stillness, from reaching the sky through towers to settling down in the meadow or spending the night in the woods. This **dual character**, is being exaggerated and applied into the activities planned for each side, however, extending each character to the other side in some points, whether in forms and elements or other special experience aspects, seems essential for a unified undivided design.

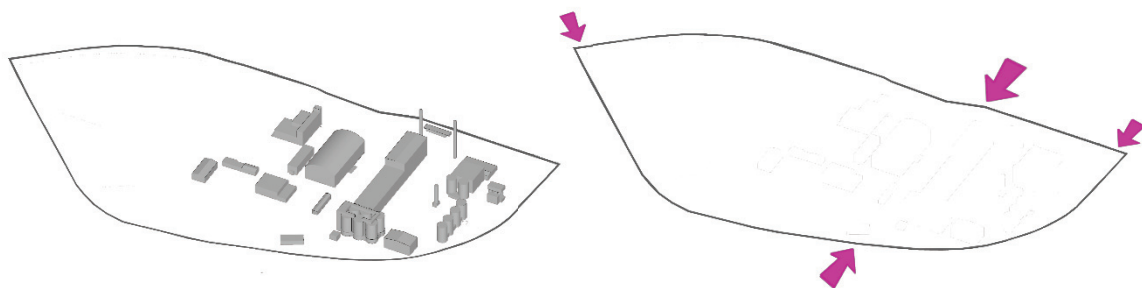


Pic 279 Concept sketches for new activities for the existing constructions (Shahrokhi,2022).

Regarding to accesses to the area, Ruedersdorf, surrounding lands, and Berlin must be considered. As explained, the connection to Berlin is possible with Train followed by a bus and Tram to a distance from the design area that can be passed on foot or bicycle. The waterway through water canal is another interesting connection. These ways make it possible to reach the area even from Berlin without using a car and in approach to sustainability, this has become a traffic concept, leading to a **Green Access** using public transport. The **Green Access** concept requires some actions, such as providing a barrier free connection for example a bus access directly to the entrance and provide a better connection and more accesses to neighboring



Pic 29 Green access using Public transport system, waterway and biking and wandering paths(Shahrokhi,2022).



Pic 30 Right: Enterances to the site, Left: Buildings to be conserved (Shahrokhi,2022).

areas, in order to succeed. It also makes it possible to focus on such issues rather than providing parking spaces for the users. The **Green Access** concept invites people to spend a day or a whole weekend, without driving their car, disconnect from city life and connect to the nature.

The concrete huge buildings will stay and restored according to the needs, but in some points, when the building is greatly ruined or in case of small and newer constructions without an architectural aesthetic feature, a renewal won't take place and they should be ruined in order to make more of open space in the industrial side. The fascination of the old concrete industrial buildings increases the attraction of the place, but the environmental issues in a sustainable approach to the future of the space should be considered. Therefore, a literature review and similar attempts analysis might be helpful to find out the **environmental concerns**



of reusing a former industrial space. This may include the efforts to reach a more climate friendly area, using green strategies such as extending the green spaces with the ability of infiltration of rainwater, and using greening the facades and roofs, if possible, in order to reduce the warming effect of the industrial space.

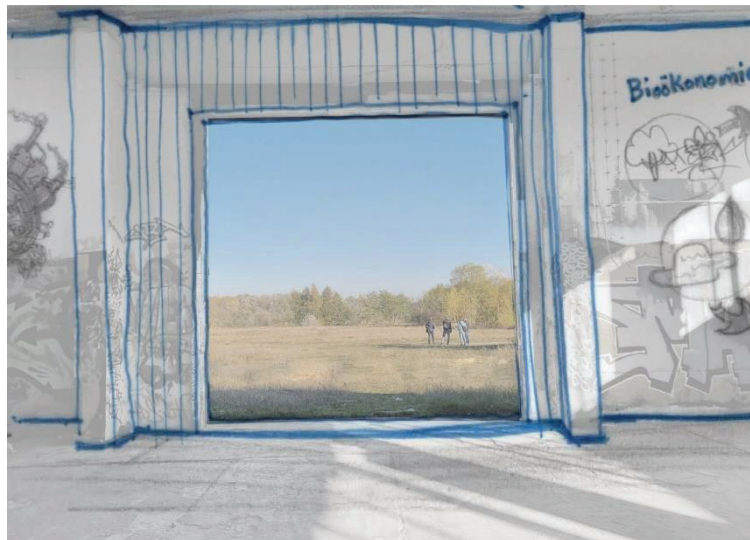
The competition also brought up the climate change relating issues, as a focus point. With the potentials of the western natural side, it makes sense to consider spaces for raising awareness about **climate issues** such as a climate house and areas in the meadow or in the woods, for biodiversity protection.

The whole area of design is intended to be accessible as much as possible for everyone, therefore it needs a plan of the paths and ways inside the area, with well-connected entrances and connection between them, access to each part and area, providing paths for pedestrian

and bicycles, as well as a space for service, delivery, or emergency access for cars. The form of the island, borders by transport lines, whether it is public or the industrial trainline, and the bridges locating in four points, reminds a **ring** around the whole area. This **ring**, make it possible to have an easy access from each entering point to all areas, gives a good-length path for walking, running, and cycling and shapes the structure of paths, for attaching access to any part of the area. In the middle area, it is needed to be a street path, for the emergency access or other essential car accesses, and the secondary accesses should connect all areas with different features. In the eastern side, the buildings area, the ground surface is vastly covered with concrete slabs and there is no need to add paths, however if the plan is going to include more plantation and greening the surfaces in this area, the combination of paths and new green areas, should be considered. In the western side, the natural area, there is a need to think of paths, which makes the access possible and in case of using the lawn or part of is as complementary areas of natural and environmental studies, for example biodiversity protected

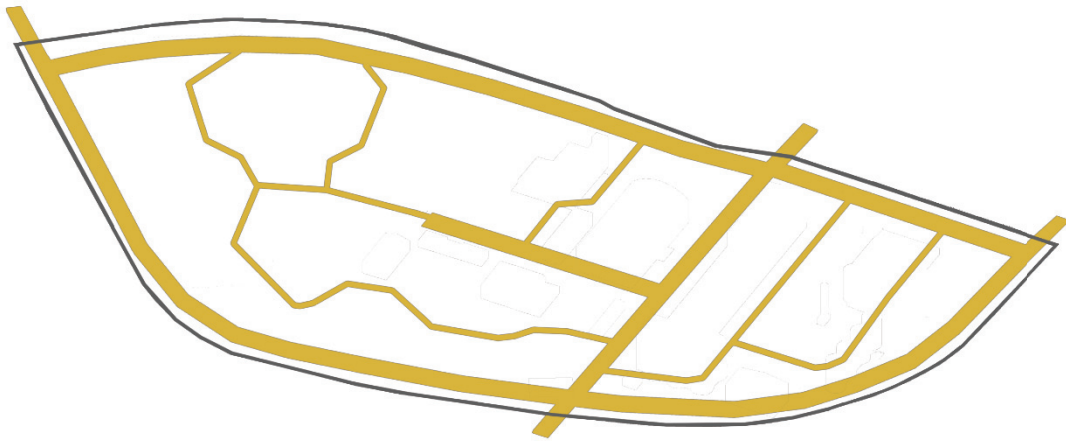


*Pic 31 Sketch of new planting on the existing ruins in the middle of open area between buildings (Shahrokhi,2022).*



*Pic 32 Sketch of Climate house in an existing building, with a big window showing the nature outside (Shahrokhi,2022).*

areas, this path should not cause damages. Therefore, including a dock might be useful in some parts of the path's strategy.



*Pic 33 The path system design concept (Shahrokhi,2022).*

To summarize, the design concept is to transform the space from a desolated industrial area to a **recreational park** which is open to a wide range of **activities** in the field of **arts, sports, entertainments**, as well showing openness to activities that may find no space in the city to take place, in an area with **dual industrial-natural character**, while embracing the existing situation and making **minimum changes**. It follows the approach to **sustainability** with several green and **climate friendly strategies** such as taking the advantage of public transport and water way to suggest **Green Access**, providing the space to study and raise the awareness about **climate change, biodiversity** protection areas and considering strategies of greening the postindustrial site. The dual bipolar nature of the place will be used to make it **welcoming** for people with **various interests** aiming to the **future**.



*Pic 34 Sketch of the promenade in the entering area in south from Museumpark (Shahrokhi,2022).*

## Literature review

In the process of developing the concepts to get to design, there are some terms that need to be looked closer and studied. This part focuses on the subjects that may lead to useful factors and aspects, or the ones with a question of technical possibility.

### Adaptive reuse

Adaptive reuse as it defined by the Department of the environment and Heritage of Australian Government “is a process that changes a disused or ineffective item into a new item that can be used for a different purpose. Sometimes, nothing changes but the item’s use” (department of the environment and heritage, 2004, 3). In another definition, “Adaptive reuse is the act of modifying a building to accommodate uses that are different from those originally intended. These modifications are often accompanied by significant physical changes to the building” (Rayman Mohamed; et all 2016, 3).

“Adaptive reuses” is used in most resources as a term for the historic or valuable buildings rather than a landscape, but it is also applicable in the urban landscape and industrial landscapes. The definition of historic urban landscape by UNESCO, represents some significant factors that are somehow similar to the situation of the industrial site in Rüdersdorf, which is not urban, nor listed as heritage, but with many same or similar values. “The historic urban landscape is the urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of “historic centre” or “ensemble” to include the broader urban context and its geographical setting. This wider context includes notably the site’s topography, geomorphology, hydrology and natural features, its built environment, both historic and contemporary, its infrastructures above and below ground, its open spaces and gardens, its land use patterns and spatial organization, perceptions, and visual relationships, as well as all other elements of the urban structure. It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity” (UNESCO 2011, 3). To understand the approach of adaptive reuse, it is useful to consider that “The most successful built heritage adaptive reuse projects” are claimed to be “those that best respect and retain the building’s heritage significance and add a contemporary layer that provides value for the future” (department of the environment and heritage, 2004, 3).

The term is mostly used in the subjects with Heritage value, in order to find a sustainable way to preserve the heritage as well as reuse it, but it can be applied in any situation with a question of saving the existing building of any constructed item that is abandoned at the time and giving it a new life. Even if there is no heritage to be protected, reusing is a strategy with more sustainable value than demolishing and building a completely new building and especially an open space in the landscape. It is also used as a solution instead of leaving a build environment aside and look for a new and untouched area, to build the needed or intended environment, so that, the already built environment will be used again and returns to the cycle of life.

In order to focus on the application of the term “adaptive reuse” in a postindustrial situation, as in Rüdersdorf, it is necessary to define the industrial heritage and the aspects that adaptive reuse may follow in such situation. In a definition, industrial heritage sites provide tangible

and intangible links to our past and have great potential to play significant roles in the futures of our cities, towns, and rural environments (Clark 2013). “The remains of industry include dramatic buildings, landscapes, sites and precincts as well as more everyday structures and spaces that work together to give our cities, towns and regions their character. All offer opportunity for reuse” (Clark, 2013, 3). “Industrial heritage places and spaces link the contemporary world to the work of the past. The remains of our industrial heritage are more than the buildings that housed industrial activity – they include landscapes and precincts, machinery and industrial archaeology, remnants and other traces of processes and production. Agriculture and mine workings have both had major impacts on our landscapes and topography – including the large-scale mounds of mine mullock and tailings” (Clark, 2013, 4). If the industrial site is considered as heritage, it can have the historic, aesthetic, social, or technical significance. Whether it is listed as local, state or Commonwealth government heritage or it is completely unprotected, if they have any of mentioned significances, they may have the value for an Adaptive reuse approach and this approach might be a good solution even if the place is already just abandoned and left aside.

As adaptive reuse is defined as “the conversion of a building, site, or precinct from one use to another” (Clark, 2013, 6), it seems to be well suited for the situation in the design area in Rüdersdorf. Besides, adaptive reuse claims to give “new life to a site, rather than seeking to freeze it at a particular moment in time. It explores the options that lie between the extremes of demolition or turning a site into a museum” (Clark, 2013, 6), which makes it closer to the approach of this work to the design question.

This Approach claims “Adding a new layer without erasing earlier layers, an adaptive reuse project becomes part of the long history of the site. It is another stage, not the final outcome”, and this leads to respect the other life periods of the site and not only the industrial layer, which in the case of Rüdersdorf, is interpreted to respect the period in which nature had the change to reclaim the area or the time that the area was adopted by groups of people to gather and party in the pandemic time, however, they were not invited, but they found the way to an abandoned place and brought life of their type to it. “Although different to preservation and interpretation works aimed at making a museum of the site, adaptive reuse includes both within its scope. It provides an opportunity to maintain heritage fabric, spaces and sites that might otherwise be lost and to make them available to new generations” (Clark, 2013, 6).

Some factors that may affect the adaptive reuse of industrial heritage are defines by Clark (2013) as social values and community expectations, placemaking and heritage-led regeneration, finding an appropriate re use, temporary and interim uses, environmental sustainability, economics, process, procurement and management, regulations and contamination.

As industrial heritage sites have tangible link to the history and the memory of the communities, that used to be their source of livelihood. In order to make a contribution to social sustainability, the adaptive reuse of such sites, need a study of its meanings in the community’s memories, whether it is a pride kind or a decline. To gain the community support for the new design and reuse, it needs to connect to the past role of the area in order to create



new stories and identity for the space. Caring about the immediate community users, may have a game changer's value on the success or failure of the adaptive reuse (Clark, 2013)

The new uses of the former industrial sites, needs to be fit with the physical plan for the space, and how the changes would be applied to the existing situation. One of the best opportunities for a usage change, is the recreational use of former industrial sites. For example, a common new use for the abandoned railways, is using them as trail, cycling and walking purposes.

As it is not always possible to find permanent use for the industrial sites, temporary uses are considered as good solutions that provide the chance to avoid demolishing. Finding permanent and temporary uses parallel to each other may be the better solution in order to bring new life and give time to the area to create its new story and find its place in today's life, while giving time and chance to people to shape the uses.

While retaining existing constructions help to the sustainability by reducing the demolished waste, and resource consumption and energy, it also supports the social sustainability, with reserving the environment of memories and make it available for people to step in and experience it closer and in a more interesting way.

There is always an important question of management and regulations, to fit the space for new standards, needs and provide the base to adapt itself to the future needs.

In several industrial sites, contamination is an important issue, that may cause big challenge. Taking precautions regarding to this issue affects all the adaptive reuse project, because if it goes in the wrong way may lead more to the ruin or damages to site itself, the environment, or people, or at least may cause heavy costs (Clark, 2013).

The term of Adaptive reuse has meaningful similarities in the definition and the approach to an old building or landscape, as the approach that is taken by this study in the landscape design in Rüdersdorf. However, this work does not identify as an "Adaptive reuse" project, as it has several other aspects that is preferred to be focused on. But still it can be categorized as an example in which the design tries to reach an adaptive reuse for the area. Therefore, different factors and terms defined in Adaptive reuse, turn to be useful to be studied.

### Event landscape

The paradigm changes from garden design, in which the landscape is something to show, to event landscape design which provides the space for events and occasional use, and to the current time which is simply providing space for people to spend time individually or together in order to increase the quality of life. This approach aims the inhabitants of neighboring areas more than the tourists

"To reinterpret existing structures and enhance them artistically with the aim of 'value addition'. This has been attempted most consistently by IBA Emscher Park in the industrial landscape of the Ruhr. Considerable power can be mobilized if there are enough structural and spatial relics of a past economic mode that can be aestheticized and romanticized, and if these relics are spectacular enough to hold their own with the events of here and now" (Event landscape, 39)

## Climate adaptation strategies

As discussed before, according to the ecological maps of Rüdersdorf, the environmental situation in the design area faces several crises. As a result of the industrial architecture, there are several concrete constructions including the buildings and ground surfaces in the site. These vast concrete elements, reduces the ability of the water absorption of the ground, which is not only a problem for the infiltration of rainwater but also leads to the low ground water level that makes the ground poor for the plantation. Besides, the large, sealed surfaces, whether with the ground covering or the buildings, has a great quantity of air warming effect that is harmful for the environment. A reason for this warming effect, are the vast gray facades and roofs.

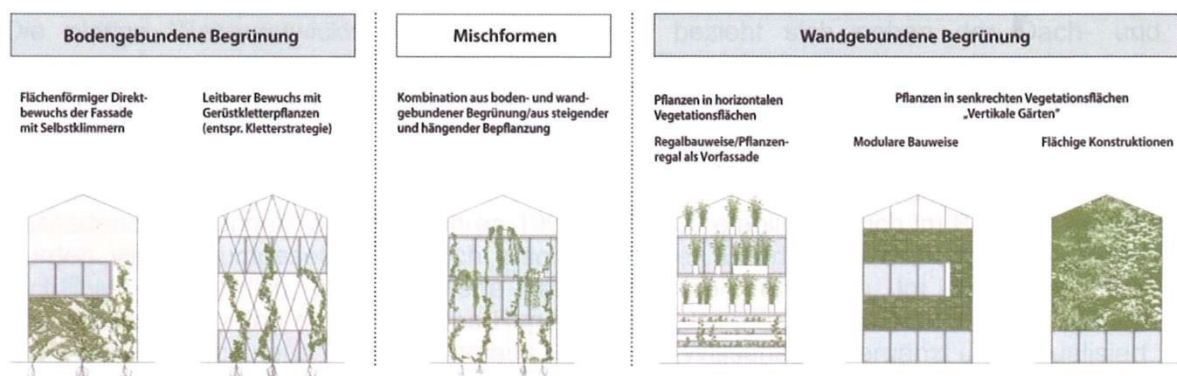
On the other hand, the area is poor in term of biodiversity and needs to be empowered. These two aspects, leads to a green strategy not only in the field of traffic and access, but also literally having more green areas in different types from increasing the green spaces instead of sealed surfaces and dry surfaces, to including any other green strategies such as green facades and green roofs.

This part discusses the green facades and green roofs, using the FLL standards, to find the solutions which fits the situation in the design area in Rüdersdorf.

### Green façade

To increase green elements in the design area, weather to reduce the warming effect, aesthetic reasons to step forward from a post-industrial site, or to increase the biodiversity according to the needs found out from the site analysis and design question, adopting the green façade idea has advantages. The bare concrete facades of industrial constructions, with small or no openings, have potential to be greened.

According to FLL, some functions of green facades are urban and open space design and aesthetic function, Building's physical and service functions such as improving indoors temperature and air condition, biological and climate relating functions such as improving the microclimate in the terms of air's temperature and humidity, ecological functions such as providing the habitat for biodiversity and improving the environment for flora and fauna, and economical functions such as covering some climate services for indoors and reducing the reflection effect from facades that increases the air warming and many other benefits in the mentioned aspects( FLL, 2018)



Pic 35 Different types of green façade according to the wall-based, ground-based or mix form (FLL, 2018, 10)



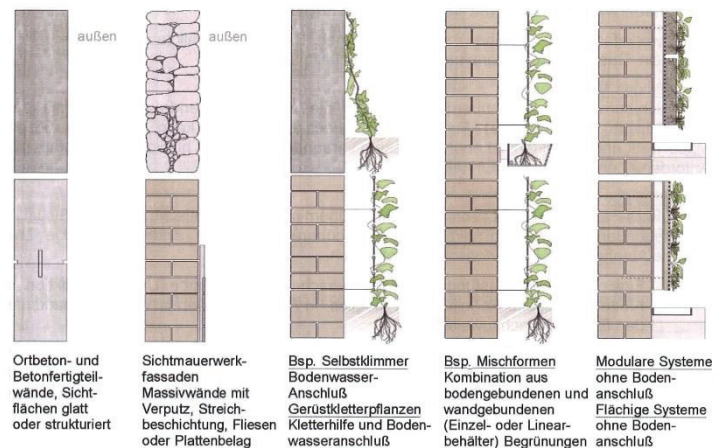
There are several systems for greening the facades, some ground-based, some wall-based, or combination of both. Each of them, has specific requirements and benefits or disadvantages.

To choose the suitable system for the situation, the first important aspect, is the kind of façade that is in hand. Buildings in design area, are the massive concrete walls, with less openings and the attachment of an extra system for the green façade, may not be easy or economical if it needs a massive change. Also, from the aesthetic point of view, as the existing construction has the identity of the post-industrial architecture and this is intended to remain due to the main concept of taking less interventions and keeping the areas historical identity, the green facades systems in which the whole façade is covered perfectly with vegetations or even partly covered with a specific façade design, are not preferred. Furthermore, the maintenance and its costs specially for upper parts of the facades, without enough openings, are extremely high, that makes it totally uneconomical.

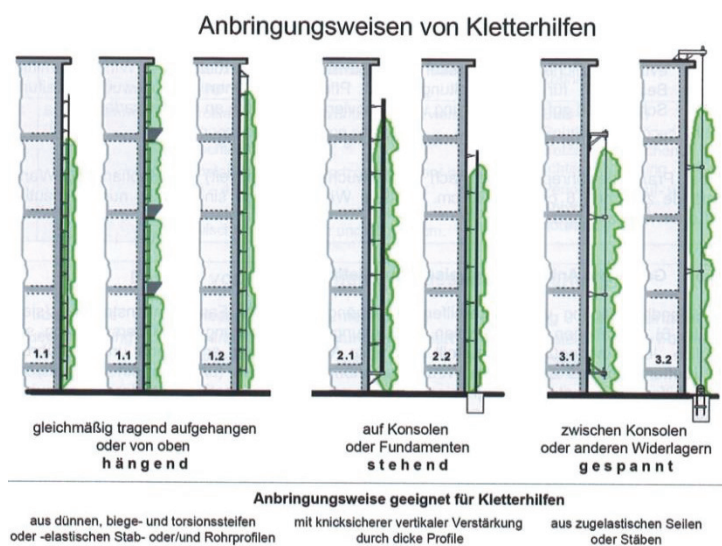
Even in the ground bounded or ground-based systems, the plants need some structure to lead and support them to raise on the wall, some being attached to the wall, some on the top of the wall and some in the ground or a combination of some.

Considering the material of the walls, some of these hanging support structure may work in the situation. For the concrete wall, the hanging supports that should be attached to the wall itself doesn't work, so whether the hanging systems that are based on ground or roof, should be studied.

From the aesthetic and design's point of view, it is preferred that the plants hang directly and without distance to the walls, to represent itself more similar to an organic growing nature, same as the moss on the ground concrete surface. Even though, because of the high facades that are in hand, it should be decided whether a high growing form with more hanging



Pic 36 different types of hanging the plants to the wall, according to the walls material and plantation type (FLL, 2018, 33)



Pic 37 Different types of hanging the plants on the wall for high raising strategies (FLL, 2018, 86)

supports are preferred of a low growing form in a more natural system with less hanging support.

### Green Roofs

Green roofs can be used as a solution in urban planning, climate adaptation, nature conservation or water management. There are standards defining for example the type of vegetation, substrate order, the use of the space and rainwater storage capability (FLL, 2018).

Green roofs also influence the air condition inside the buildings that makes it more pleasant, less costly and more climate friendly.

According to FLL guidelines, there are three types of green roofs: intensive, simple intensive, and extensive.

The intensive type, involves perennials, bushes, grass, summer flowers and even woody plants. It can even include trees. It needs great preparation and arrangements in the structure of building and roofs, a thick layer of soil depending on the vegetations, and intensive maintenance.

The simple intensive type is similar to intensive type but somehow easier to be maintained and constructed and limited use of the place.

The Extensive type is more natural form of vegetation, than need less maintenance and can develop further by itself. The vegetation types are mostly consisting of moss, grass, herbs, and shrubby plants, that may flower so often. The structure is simpler that the other two types of green roofs, the maintenance and costs will be much less, and these terms make it easier and more possible to be used in different situations (FLL, 2018).

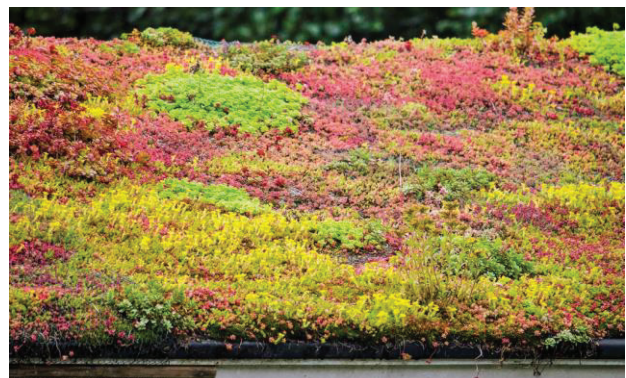
In Rüdersdorf, the industrial buildings with gray vast roofs, and great amount of sun radiation reflection that increases their warming effect, seem to be a good base for involving the green roofs. the moss, that has already grown on some parts of the roofs, support this idea.

The main vegetation forms for extensive green roofs are:

- Moss-sedum
- Sedum-moos-herbs
- Sedum-herbs-grass
- Grass-herbs (FLL, 2018, 24)



Pic 38 Moos on the concrete roofs (Shahrokhi,2021).



Pic 39 A sample picture of the intended planting type for the green roofs (<https://www.mein-schoener-garten.de/gartenpraxis/extensive-dachbegruenung-43807>, accessed on 03.2022, no page)



There are many climate-related and Building-specified factors that must be obtained to design the green roofs.

The climate-related factors, define the possibility and need for green roofs in general for the specific area, such as local and microclimate, rainfall distribution, average sunshine factors, probable dry periods, frost periods, snow, and wind factors (FLL, 2018, 24). However, these factors are determining for the success of idea, the existence of moss without any preparation or help, even on the curve roofs with high slope, is considered as a proof of its possibility.

Regarding building-specified factors, the sunny-shadow areas, wind facing spaces, exposition of roofs, the reflections from facades and other build structures, slope, thickness and load capability of the roofs, and other attachments on the roof are the most important ones from this study's point of view.

The idea sounds reasonable from roofs thickness and load capability, due to the huge concrete construction of the buildings in Rüdersdorf. But regarding the slope, some of the roofs seem to be inappropriate, even though the existing moss. The slope for extensive green roofs must be minimum 2% and preferably to 8,8 %. It is possible to design this type of green roofs, for the roofs with up to 45% slope, however, because of the great water drainage and material stability problems which lead to high maintenance need and costs, does not seem reasonable (FLL, 2018, 29).

Regarding the green roof's construction on the existing roofs, the thickness is calculated due to the vegetation type. For extensive green roofs, it varies from 4 cm to 20 cm. This thickness is important as it defines the added load to the existing structures, and this must be as less as possible, as it is not easy to estimate how much extra load the old structure can take. So, using two types of vegetation; moos-sedum or sedum-moos-herb with the 4 to 10 cm construction thickness, seems possible (FLL, 2018,57).



Pic 40 A sample picture of the intended green roof ( <https://www.mein-schoener-garten.de/gartenpraxis/extensive-dachbegruenung-43807>, accessed on 03.2022, no page)

In Rüdersdorf's design area, the roofs must be considered with the factors of slope, sun and shadow situation and the estimated ability of structure for extra load.



## Case studies

Three projects are selected because of their similarities to the subject and studied as example. These are selected from projects with different scale, one as big as a Landscape Park in Ruhr region which continues in more than a federal state, or in the scale of a park in Berlin. The common aspect between them, is that all are the projects that are designed in a postindustrial landscape and tried to keep the past and add a layer to bring the area back to life. It is also possible to categories them from an adaptive reuse point of view, which tries to find a way to sustainability.

### The Emscher Landscape Park in Ruhr region

“The Ruhr region lies between two rivers, the Ruhr to the south and the Lippe to the north. Between Ruhr and Lippe, the Emscher flows. All three connect to the Rhine, which divides the region to the west (Regionalverband Ruhr, 2018, 2). “The discovery of hard coal gave the region a mighty impetus. In the 19th century coal mines were shooting up from the ground like mushrooms” (Regionalverband Ruhr, 2018, 3), and this shaped the region as an industrial one during it’s time.

It is “counts among the greenest regions of Germany: more than 39 % is agricultural land and in addition it has 18.3 % woodlands” (Regionalverband Ruhr, 2018, 2). It is the Largest urban agglomeration in Germany and one the largest in Europe, but “quite a different type of metropolis than, for instance, London, Paris, or Barcelona” (Regionalverband Ruhr, 2018, 3).

Passing from the industrial time to a new period of life, the area which is shaped by and because of the industries, needs to find its way to the future and to create a new story for itself to go on. The Emscher Landscape Park project aims to answer this question and find a way from the industrial time into a climate friendly life for the whole area. As the region has not only a historical value of industrial heritage, but also a considerable population in the scale of metropolis, but in a different decentralized form, the solutions need to be multi aspectual in order to perform a balance between these aspects and between the past and future.

“The Emscher Landscape Park adopts in a way the idea of the public park that was born in Germany in the 1920s and re-invents it on a larger terrain. The availability of open spaces for all, as well as complete accessibility to the space, have become reality here” (Regionalverband Ruhr, 2010, 41). “The RVR – founded in 1920 as the SVR (Siedlungsverband Ruhrkohlenbezirk [Association of the Ruhr Coal Region]) and renamed between 1979 and 2004 as KVR (Kommunalverband Ruhrgebiet [Municipal Association for the Ruhr Region]) – is committed to developing the Ruhr region: regional planning, safeguarding of open spaces, infrastructure projects such as the industrial heritage route and the Emscher Landscape Park, as well as the planning and construction of the cycle-path network” (Regionalverband Ruhr, 2010, 2).

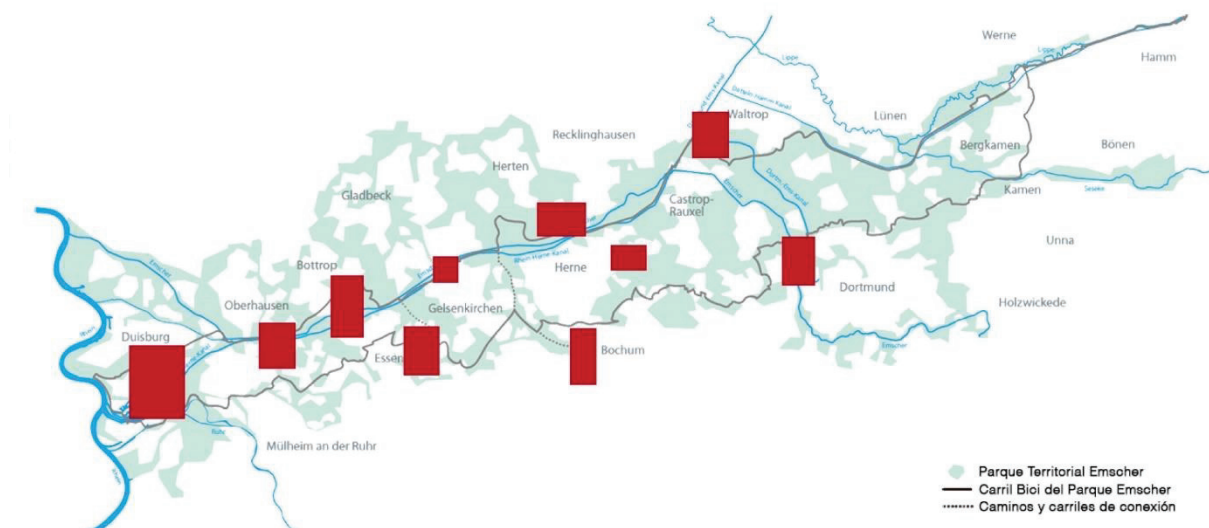
“In the late 1980s it was recognized that the Ruhr region had to change totally. 1989 five billion DM flowed across the state of North-Rhine Westphalia for ten years to give the Ruhr region a face-lift. Under the title International Building Exhibition (IBA) conversion of the polluted Emscher – the sewer tunnel for the Ruhr region – was driven forward and its re-naturalization as Emscher Park made effective publicity. The further development of the greenways in a north-south direction represented a second lead project, and a new east-west connecting greenway was added. The new parkland increased the leisure facilities in the heart of the Ruhr

region. The outstanding feature of this IBA however was that it saved the industrial heritage from demolition, giving it a second chance for development. Thus, the IBA selected around 100 collieries, blast furnaces and other industrial complexes in the Ruhr region and developed them as symbols of its industrial culture” (Regionalverband Ruhr, 2010, 6).

“With the profile climate metropolis RUHR 2022 the Ruhr region has been marketed since 2012 as a showcase for climate-friendly regional development. The former hard coal territory is no longer just relying on its industrial culture but is directing its focus on the future. So, in 2027 the International horticultural show is to take place in the Ruhr region, decentralized for the first time (Regionalverband Ruhr, 2010, 6). As it is claimed to be successfully turned from industrial to a climate friendly life, studying and analysis of the work done under the “Emscher Landscape Park” project is useful as a case study for Landscape design in Rüdersdorf.

As mentioned before, the region, also called as Metropole Ruhr, “is one of the largest industrial conurbations in Europe” (Regionalverband Ruhr, 2018, 2). Since the approach change from industrial time to a climate friendlier way of living in the post-industrial time has begun in Ruhr region, many studies and design have been done that form a useful literature to look into, as case study in the design project with a question of reusing a former industrial site in a sustainable way.

“When, in the 1980s, de-industrialization had at last also reached the Emscher region with great force, the district started to build Europe’s largest landscape park. The Emscher Landscape Park, initially a large-meshed fabric, gradually became more tightly woven, extending through the Emscher valley from Duisburg to Dortmund and beyond” (Regionalverband Ruhr, 2018, 9).



Pic 41 The Emscher landscape park (<https://www.metalocus.es/en/news/emscher-landscape-park>, accessed on 04.2022, no page)

The main idea for dealing with the whole landscape, which had been heavily changed from the original natural form, for the industrial plants and infrastructure during times, was based on taking the situation as it is and not to demolish anything, level or subsequently cover with soil. “The topography of industry is the park’s trademark. Nature is to be given back almost all that was once taken from it: protective zones for rainwater, wild plants and animals.



“Architect nature”, with its beautiful colours and forms, is unequalled. It has to be left alone and above all given time” (Regionalverband Ruhr, 2010, 11).

As the postindustrial situation in the region is taken as a cultural heritage of industrial time, “what is happening in the Ruhr area can no longer be paraphrased with the word “park”. It is a regional cultural landscape, unprecedented in cultural history, that is emerging here” (Regionalverband Ruhr, 2010, 11). This approach, however, is different from the one taken by this thesis, but have many similar points, such as dealing with the industrial architecture, sustainable strategies, and way of designing a green traffic, that makes it worth of studying. The whole Emscher Landscape parks project includes several parts and spots designed as parks, that “are not green islands in the industrial sea but starting points for reoccupying a lost natural space” (Regionalverband Ruhr, 2010, 59). “While the large-scale parks, with their combination of industrial heritage and industrial nature, are very attractive for tourists”, “the recreational landscape thus becomes a cultural landscape mirroring the Ruhr area’s history of development”, at the same “all measures concerning the development of the Ruhr area’s open spaces were predominantly aimed at improving the inhabitants’ quality of life” (Regionalverband Ruhr, 2010, 60).

In order go on the sustainable way of living for Ruhr region, an important step was to empower the nature and plantation to rebuild itself, “One of the fundamental decisions made was to give natural processes time and space. The fact that vegetation is able to colonise even contaminated soils or grounds that have been treated with weed killers for decades, gives evidence of the resilience of nature” (Regionalverband Ruhr, 2010, 37). However, in order to find out how exactly this passive strategy is applied to the specific design of each area in the whole region, a more detailed study is needed, but assuming the more passive approach as a main idea for Ruhr region, makes is somehow different from this thesis’s point of view in Rüdersdorf, even though the signs of natural growth is obvious in the site of former Phosphate factory, and it proves the ability of nature to recover even from a long period of industrialization. Giving vegetation the freedom to rebuild itself, as it is tried by “the French landscape architect Gilles Clément presented in his book “Le jardin en mouvement” (Garden in Movement)<sup>1</sup> in which he recounts observations from his own private garden in the Département Creuse where nature has been allowed to develop freely and spontaneously, with only a few careful interventions on his part”(Regionalverband Ruhr, 2010, 39) seems exciting especially because of the uncertain results, but in the case of a limited space and aim to reach other goals such as involving people to find their place in an pretty abandoned space, more actions are needed in the first place and the “freedom of growth approach” can be adopted into some areas, in the case of Rüdersdorf in western side, but not into the whole design area.

In the question of dealing with the former active build landscape, there is a question of what to do with the ruined or half-ruined constructions as it is in Rüdersdorf. From writer’s point of view, the buildings and all built constructions should be studied first with an aesthetical and practical measure, so that it could be easier to choose the parts to reserve and the parts to eliminate. The situation varies in the case of having a heritage to be preserved as in the Ruhr region, but dealing with the ruins, that already exist, is a similar question in both cases. “From the 16th into the 18th century, European garden architecture set up artificial ruins as symbols of decay and impermanence in the middle of gardens and landscape parks. In post-industrial park designs, industrial plants now seem like a special variation on the theme of this classical park inventory” (Regionalverband Ruhr, 2010, 59).

“Artistic placements of large landmarks and an appreciative handling of the place’s historic layers emphasize the significance of the industrial age as a cultural era and have led to a revaluation of its functional architecture” (Regionalverband Ruhr, 2010, 63). This helps designers to take the advantage of an interesting landscape parallel to dealing with the difficulties of a sustainable design in an area that is probably contaminated during decades of industrial activities.

“In the 19th century, the Ruhr area’s iron and steel industry was linked to the world via waterways and railway tracks. Virtually inconceivable amounts of goods reached the consumers via partly intersecting transport systems. Whilst this meant mobility to the iron and steel industry, it left behind a cut-up landscape full of obstacles for pedestrians and cyclists” this transport system can be interpreted with a design language as a potential well connected network to place the pedestrian and cyclist’s paths, and this region is a good example of providing “tightly woven network of regional walking trails and cycle paths” as “Leisure traffic” after 1980s (Regionalverband Ruhr,2010, 180).



Pic 42 Duisburg landscape park (<https://www.metalocus.es/en/news/emscher-landscape-park>, accessed on 05.2022, no page)

From the several parks and designed points in the Emscher Landscape Park, what has been done in Duisburg’s Landscape Park seems more similar to the situation in hand in Rüdersdorf, hence it is studied apart from the Emscher Landscape Park.

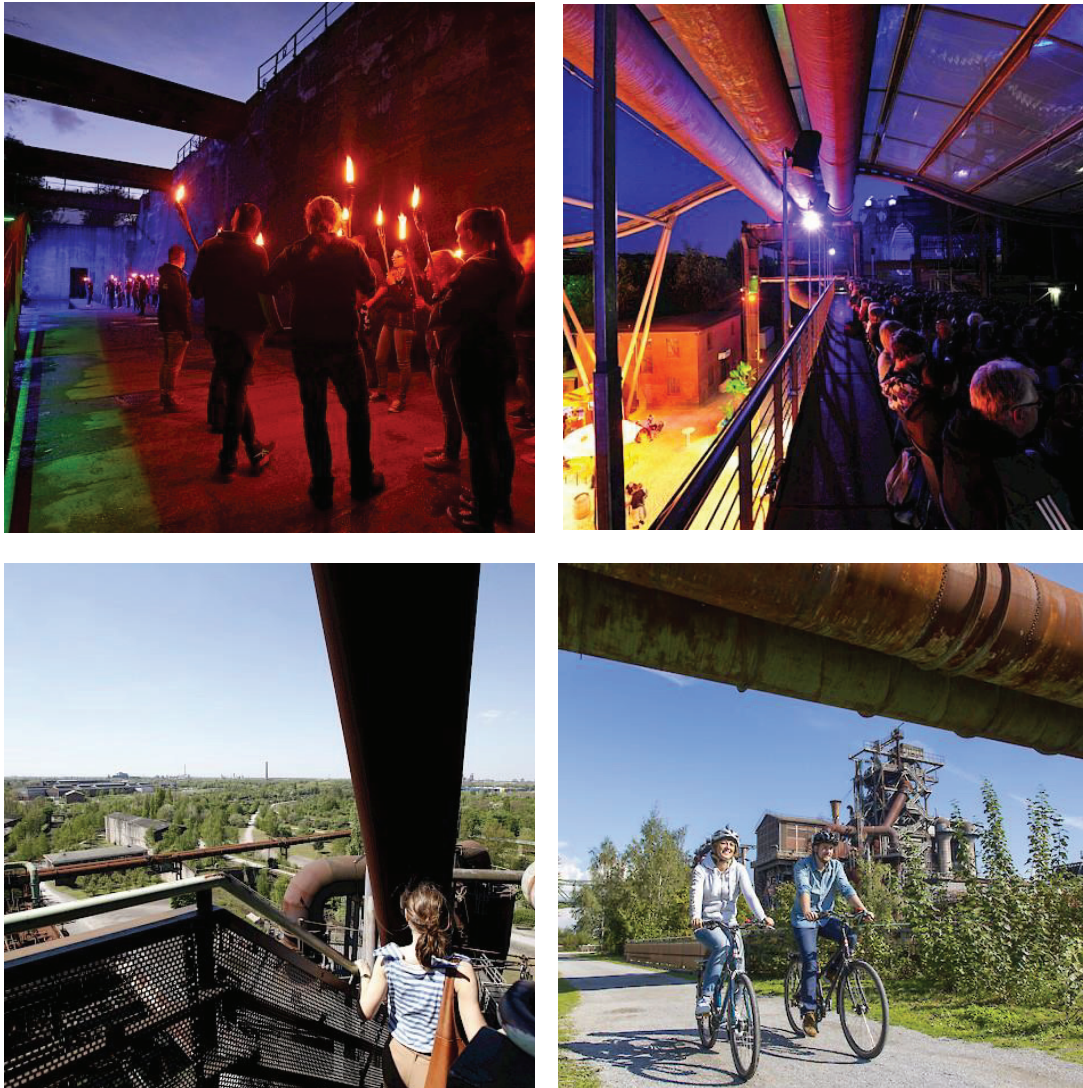
#### Duisburg’s landscape park

Duisburg’s landscape park, which is a part of Emscher Landscape Park project, has similarities to Rüdersdorf, which makes its analysis useful.



The whole park is protected as heritage. The huge old ironwork facilities stay as industrial monuments and acts as an industrial heritage museum, as well as hosting other events and activities.

“The fundamental pattern of the park architecture, marvelled at world-wide, was, however, established by Peter Latz with his design for the landscape park in Duisburg on the former site of the ironworks founded by August Thyssen in 1901” (Regionalverband Ruhr,2010, 11).



Pic 43 Duisburg landscape park (<https://www.landschaftspark.de/en/christmas-market/lichtermarkt-the-premium-artisan-market-2022>, accessed on 05.2022, no page)

“Post-industrial gardens and parks range from scenes of wild industrial nature to arenas for the art of garden design where industrial relics are interpreted in new ways. In parks like the Duisburg-Nord Landscape Park creative intervention is cautious, providing for reliable access points, encouraging enhanced landscape perception with all senses and giving room to natural processes”. This design style is involved with arts and creates an exciting experience for the visitors rather than an everyday one. As it is described about Duisburg Landscape Park, “In the evenings, the former ironworks in Duisburg-Meiderich undergoes a metamorphosis into a surreal sight”. This is reached with the artistic lighting of the build environment and due to this, “The lighting concept of the London designer Jonathan Park has become a trademark of industrial heritage” (Regionalverband Ruhr,2010, 65).

“Stage by stage, from 1992 until 2002, the landscaping concept by Latz + Partner was translated into practice, interpreting the existing “syntax of landscape” with its structures, functional facilities, and architecture. The steelworks, now protected as a historic monument, and its surrounding wasteland were transformed by means of subtle interventions into a recreational landscape located in the immediate vicinity of the city. The ironworks’ relics are not given the feel of romantic-pastoral ruins in historic gardens nor is any attempt made at re-interpreting the encountered objects as artistically elevated sculptures. Rather, using only minimal intervention, the relics become readable as important levels of landscape information” (Regionalverband Ruhr, 2010, 65). This design approach to the buildings in Duisburg Landscape Park was one of the layers of the Park’s design.

“In the park, four independent layers are interlinked: the “Blast Furnace Park” in the ironworks, the “Rail Park” with its parks and promenades, the “Water Park” with canals, sedimentation and catchment basins, and the sophisticated ecological vegetation concept. The layers, developments and conflicts of natural and cultural influences, both past and present, thus become tangible. The Old Emscher, which during the ironworks’ active phase ran underground, has been designed as a straight clear water canal with natural vegetation on its banks. Restoration into a near-natural meandering stream was deliberately not attempted here” (Regionalverband Ruhr, 2010, 65-69). These four layers, shape a different range of activities and experiences available in the park, that are subconsciously recognized by the visitors while experiencing it as a landscape.

On the way of becoming climate friendly, “The new wind energy tower supplies the energy needed for the oxygen treatment in the clear water canal. Pioneer plants have spread over the slag embankments. Regular clearing helps to prevent overgrowth and to ensure the visibility of the terrain’s characteristic structures” (Regionalverband Ruhr, 2010, 69).



Pic 44 Right: Night view of Duisburg landscape park (<https://www.landschaftspark.de/en/christmas-market/lichtermarkt-the-premium-artisan-market-2022>), Left: Climbing on the old constructions in Duisburg landscape park (<https://www.landschaftspark.de/en/christmas-market/lichtermarkt-the-premium-artisan-market-2022>, accessed on 05.2022, no page).



This variety of actions in the landscape design and climate friendly strategies were possible in Duisburg Landscape Park only because of its great size and potentials that are obviously far more than what is in Rüdersdorf in hand, but still the way of looking into the question is helpful.

Another interesting point in Duisburg landscape park, is the variety of planned events and activities. They vary from seasonal events such as the Christmas Market and winter sports and entertainments, to the ones that take the advantage of industrial buildings whether indoors or outdoors. The park functions as a living museum as well as a leisure park and place for many different art events. The activities, whether they as simple as cycling in the areas between the old industrial construction or playing games at night with the special lightening as described before, or even climbing the constructions in form of different sports, whether it is an art installation, a workshop, a concert, or an indoor ice rink, is designed to attract people to visit and enjoy their time as well as getting familiar to this industrial heritage and take it to the future.

### Park am Gleisdreieck

“In the middle of the capital, Park am Gleisdreieck was created in 2013 from an inaccessible wasteland – an urban open space in the countryside with a variety of uses: Skaters and joggers, walkers and beach volleyball players, picnic and sports fans, nature discoverers and technology enthusiasts make Park am Gleisdreieck a hotspot between



Pic 45 Furniture in Park am Gleisdreieck(Shahrokhi,2022).



Pic 46 Greenspaces of Park am Gleisdreieck (Shahrokhi,2022).



Friedrichshain-Kreuzberg and Tempelhof-Schöneberg.

Park am Gleisdreieck was awarded the Architecture Prize Berlin in 2013, the Special German Urban Design Prize in 2014 and the German Landscape Architecture Prize in 2015”

(<https://gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park>, accessed on 05.2022, no page).

The park provides people with space to spend time doing several activities or experience its nature, in a well-connected location to the public transport in different points and close to the technology museum. It attracts users from different age and interest groups and shapes a family friendly space.

Park has two parts in west and east side of the railway, which are connected to each other and create a big area with several opportunities that have been taken to design



Pic 47 Playing facilities in park am Gleisdreieck (Shahrokhi,2022).



Pic 48 Old railroad with new concrete path construction in Park am Gleisdreieck (Shahrokhi,2022).



a multifunctional park with several parts for experiencing the nature as well as the city open space.



*Pic 49 Quiet space in the corners of Park am Gleisdreieck (Shahrokhi,2022).*

### Activities

The park has several possibilities of doing sports such as cycling, skating, jogging, Nordic walking, table tennis, boules, beach volleyball, motor skills sports activities, trampolining, basketball, football, equipment fitness or yoga. Some sport events take place regularly and occasionally there.

There are also Cafes in the park where people can grab a drink or gather to meet and eat.

It has also playgrounds for kids and a big lawn that can be used for several activities and events.

### Urban nature

“In terms of landscape, Park am Gleisdreieck is characterised by the central, extensive lawn and meadow areas, which are lined by small woods and individual trees and crossed by wide paths. The primary goal of the maintenance and development measures was and is to harmonise the interests of nature conservation and recreational use in Park” (<https://gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park>).

“In its time as a wild wasteland, a unique ecological diversity has grown up at Gleisdreieck, which is also to be preserved in the new park. In addition, the park also offers very special open spaces and meeting places: the "Rosenduft" intercultural garden and the natural





Pic 50 Biodiversity area in the Park am Gleisdreieck (Shahrokhi,2022).

experience realm in the Ostpark, as well as the "Gärten im Garten" [gardens in the garden] in the Westpark. In addition, the design concept ties in with the historical use of the site – attentive visitors will find traces of the past in the form of old railroad tracks, signalling systems, and buffer stops, especially in Ostpark and Flaschenhalspark” (<https://gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park>, accessed on 05.2022, no page).



Pic 51 Woods in Park am Gleisdreieck (Shahrokhi,2022).

The Natural experience realm is considered to be free of any playground equipment, but still interesting to children as well, to experience the nature in a 3500 m2 area. “The ground has been lightly modelled, and the hollows are regularly filled with water in summer, inviting children to splash around to their heart's content” ([https://gruen-](https://gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park)



[berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park](https://www.gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park), accessed on 05.2022, no page).

“The intercultural garden "Rosenduft" was founded by “südost Europa Kultur e.V.” for traumatised refugees from Bosnia and Herzegovina, who created a small garden on the Gleisdreieck in 2006. In the course of park planning, the garden was secured on the site. In the meantime, many people of different nationalities from the neighbourhood participate in the project. They help with the gardening, organise parties together and are happy about the gardening and social enrichment of the neighbourhood. The Rosenduftgarten [rose scent garden] is run by the “Südost Europa Kultur e.V.” association”.



Pic 52 Untouched spaces in Park am Gleisdreieck (Shahrokhi,2022).

“The pilot project "Gärten im Garten" integrates sixteen plots of the allotment garden site "Potsdamer Güterbahnhof " north of the U2 bridge into Park am Gleisdreieck. The opening takes place through commons, project and intercultural community gardens. The marketplace as the centrepiece and connecting element serves as a meeting place and showcase of urban gardening. Together with the café, a place was created that facilitates communication and interactive exchange between neighbours, park visitors and allotment gardeners”.

“The former railroad stays in the park, and in some points, it is used to design the path, in others it stays simply there showing a part of history of the place and the city” ([https://gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park](https://www.gruen-berlin.de/en/projects/parks/park-am-gleisdreieck/about-the-park), accessed on 05.2022, no page).

The park is does not have the kind of landscape designs that changes or organizes every part and every single area. There are still some places that are left in their original situation, some of which are not even safe to step in. This feature gives the visitors who are going to explore deep inside and not just taking the benefits of the designed and equipped spaces, a sense of experiencing another layer of untouched natural urban space, and see the park as a living open space with a sense of freedom and escape from the city, instead of a perfect finished design that leads the users to do exact actions in exact places and from the writes point of view, this seems to be a style or theme specially in Berlin’s open spaces.



## Natur Park Südgelände

The Natur Park Südgelände is designed to combine three layers of technology, art and the environment. It is designed on the site of the former Berlin Tempelhof marshalling with “relics from past railroad history, surprising artistic insights and wild urban nature worthy of protection” (<https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park>, 05.2022, no page).



Pic 53 Old construction at the entrance of Natur park Southlands(Shahrokhi,2022).

## Technology and History

Railroad technology, with relics of railway, old locomotive, and the 55 meters high steel water tower, which once were being used for rail operations and now is the parks landmark. This is an open space museum with information boards that explains the process as it was in it's time. This makes this layer, easy understanding for visitors and leads into the wild nature through old railway lines.



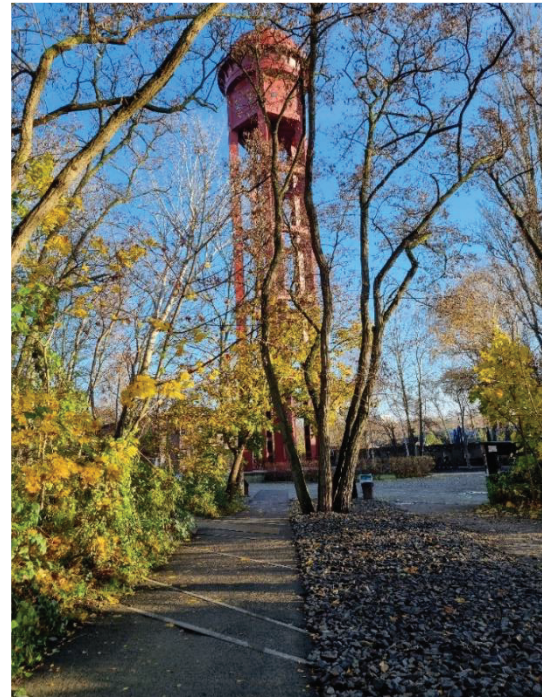
Pic 54 Old Lokomotive and information board in Nature park Southlands(Shahrokhi,2022).



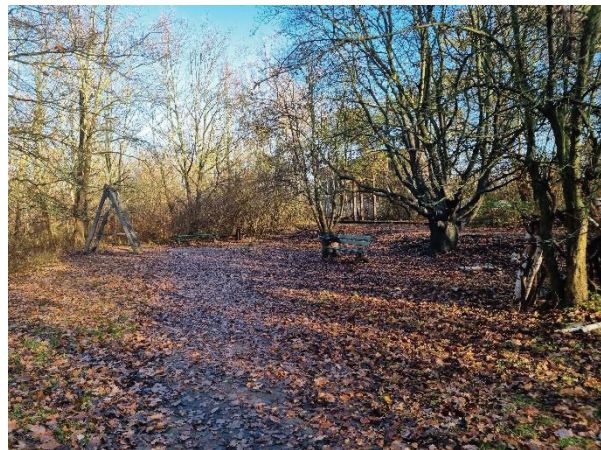
Some of the railways is used to build new paths, and others stay without new usage. They form a part of this alive museum and presents itself as a history museum as well as the technology one, combining different layers of the place and Berlin's life in the same place.

“Numerous water cranes, light poles, rail tracks and switches are also reminders of the railroad's history. One of the oldest turntables in Germany is also part of the park's inventory” (<https://gruen-berlin.de/en/projects/parks/natur-park-fllschoeneberger-suedgelaende/about-the-park>, accessed on 05.2022, no page ).

There are also some buildings remaining from past, that are used now as a warehouse, a Café and the administration of the park.



Pic 55 Water tower in Nature park Southlands (Shahrokhi, 2022)



Pic 56 Landscapae design of Nature park Southlands (Shahrokhi, 2022).



## Nature

“After rail operations at the Tempelhof marshalling yard, completed in 1889, were discontinued in 1952, nature gradually reclaimed the terrain. Valuable dry grasslands, tall herbaceous meadows and a native forest emerged from the railroad wasteland – without human influence”



*Pic 57 Dock path and Iron elements design in Nature park Soujthlands (Shahrokhi,2022).*

([https://gruen-](https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park)

[berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park,](https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park)

[accessed on 05.2022](https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park), no page). This situation is kept in the development of the park, and is available to be visited through 2 paths, a short and a long one. The paths start from the central point with the water tower and continue to the north direction, along the linear park and from the technology part step by step into the natural part. The paths are in some parts built on the ground and covered by water bound materials, and in some parts, distant from the ground in the form of metal dock. The long paths, reminds the form of railways with their width and length, even in the natural part.

There are boards giving information about the nature of the park for example the different flora and fauna species. There is also some biodiversity or species protected parts that is not open to step in.

## Art & the environment

“The ecological richness and the pronounced vitality of the area stimulate imagination and creativity. Above all, it offers artists space for original creations, be it sculpture, music, painting, photography or performing arts” (<https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park>, accessed on 05.2022, no page).

The role of art in the park varies from the landscape elements design which are the parts of the park’s design, to the events such as workshops, open air theater and other similar events, and even the selection of the colors used to paint the historical elements, the bright ochre used to paint the long concrete wall which is the main element seen just after entering the park, to the red color of water tower and the red color of rust iron that represents and reminds the historical identity of the place.



“The former six-member Berlin artists' group, which formed in 1982 at the Hochschule für bildende Künste in Berlin, has left its mark everywhere in the Natur-Park Südgelände. In addition to many abstract steel sculptures, it also constructed the 600-metre-long steel walkway that runs through the nature reserve. On the one hand, the art of ODIIOUS picks up on the former



*Pic 58 Special Landscaping design elements in Nature park Southlands (Shahrokhi,2022).*

industrial function of the site and the rusting relics of this time in its monumentality and materiality, and at the same time corresponds wonderfully with the wildly proliferating nature – and therefore gives the nature park its special, fascinating character as an enchanted place” (<https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende/about-the-park>).

These elements, in company of the wild nature, forms a special fascinating experience that fits perfect to the user group that is people who live in the city.

The interesting points of landscape design in this park, which made it relevant to be studies in this work, is how it is turned from a former industrial site to an urban park, dealing with both industrial elements and nature, preserving both feature the same time and connecting them with the means of art and Design, so that the park is perceived as a unified space. This approach seems to be useful for the landscape design in Rüdersdorf, however, the different aspects of two place have significant differences.

## Design

The concepts are developed with the knowledge gained during literature review and case studying and is explained in detail in following.



Pic 59 Overview of Landscape Design (Shahrokhi,2022).

The final design tries to represent a park, in a postindustrial site, that is welcomes different people with various interests, in a two polar area with natural side and activity side, while



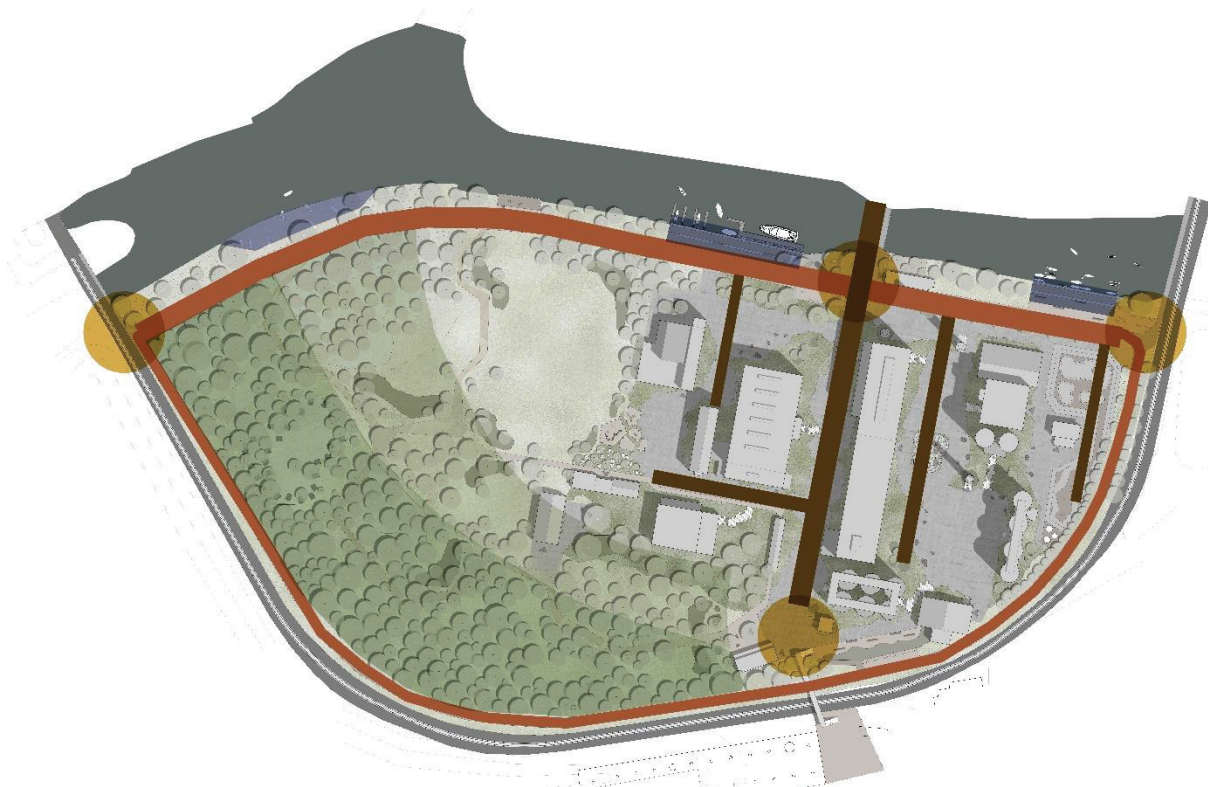
Pic 60 Site Plan (Shahrokhi,2022).



keeping the connection of two sides and site's unification. It follows the idea to provide visitors with a recreational green and car-free weekend.

### Structure

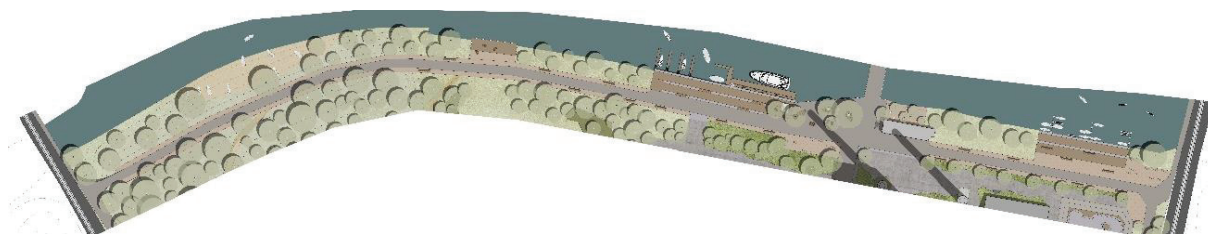
The structure of the landscape design consists of the ring as most important path, and in the north side, form the promenade along the water canal, four entrance areas, the main axis in the build area, harbors and the natural areas with different densities. Each element is described and showed in detail in follow.



*Pic 61 Structure plan of the Landscape design (Shahrokhi,2022).*

### Ring and Promenade

The ring with asphalt material and 3,5 meters width, connects the entrances, circling the whole area. It provides a cycling, walking path and a totally barrier free access all around the area. It also can be used for car access in case of emergency or maintenance.



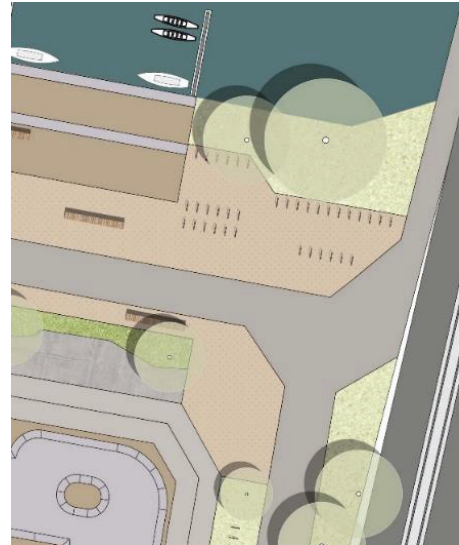
*Pic 62 Promenade in the north side of design area (Shahrokhi,2022).*

The north part of the ring, which represents itself as a promenade, is even tree meters wider. This wider part is divided in two bands of water bounding materials in both sides of asphalt path, with benches and view to the water canal. This promenade connects the two harbors, a sand beach and a former dock that provides the look to the water canal.

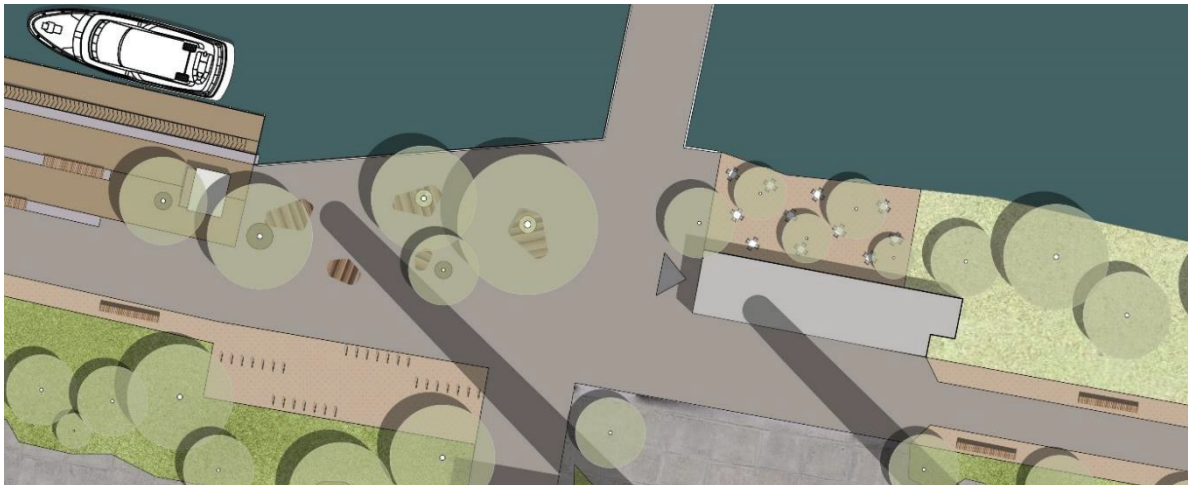
## Entrances

Entering to the area is possible from four points. The first and main entrance is through the main bridge, in the middle of the north side. It provides the access also for cars in the case of emergency or service. At this entering area, a café and information center in an existing building, some furniture around the existing trees, to create a meeting point, and a group of bicycle racks are designed. This area is the entering point from the bigger harbor, so it is going to host many people at their arrival.

The second important entrance is located at the southern end point of the axis from the main entrance, where a bridge connects the Museumspark to design area. This point is designed to represent as a small Promenade with sitting spaces, because of the good view to Museums



*Pic 63 Entering point in the northeastern corner (Shahrokhi,2022).*



*Pic 65 Space at the main entrance (Shahrokhi,2022).*



*Pic 64 Space at the entrance point from Museumspark (Shahrokhi,2022).*



park, as the topography smoothly connects the flat area of the design island to the railway level which is same as the ring path's level in this point, a group of bicycle racks are designed there to make it a parking point for bicycles and for people who enter with bikes from one of the other two train bridges.

The other two entrances from two train bridges, are connected to the ring, but only in the northeastern point, next to the small harbor, there are bicycle racks and a meeting point and the other entrance from northwestern is just an entering point without and special space, and the traffic is distributed to the promenade or the ring.

### Paths

The path system consists of the Ring, with Asphalt material and 3,5 meters width, accompanied by two bands of water bound materials in the north part shaping a promenade, the asphalt north-south axis road that lays along with the mixing building, providing a service emergency access to the middle of the area, the concrete ground cover between the buildings functions as a part of path system and in the western nature side, there are wooden docks and free paths filled with sand or simply shaped with peoples footprint during time.

### Green spaces

In order to increase the water absorption capacity and the needed infiltration in the eastern area, green areas are designed to cover the areas without a groundcover and replace part of



Pic 66 Plan and section of the green spaces (Shahrokhi,2022).

the concrete ground cover. To save the industrial identity of the space, the concrete ground cover will stay but the green spaces with forms inspired from the form of growing moss in the site, will moderate the relation between the sealed and unsealed areas. This space is designed to be 15 cm lower than the concrete ground level, in order to work better as infiltration area. This level change happens with a smooth slope from the borders of concrete slabs to the middle of green spaces to make a sense of continuing and being barrier free. However, there are short paths leading to the entrance of buildings through green spaces.

### Gathering spaces

There are some spaces, that are considered for gatherings, without special design to separate from soundings, but just giving the space and providing some furniture.

In the buildings area with the design of green spaces, their free form, make it possible to shape the spaces that represent itself welcoming to small or big gatherings.

In the natural area, there is a big space than can also be used for gatherings. It is bordered with the wooden dock and some existing and new designed trees and some areas of bushes and perennials.

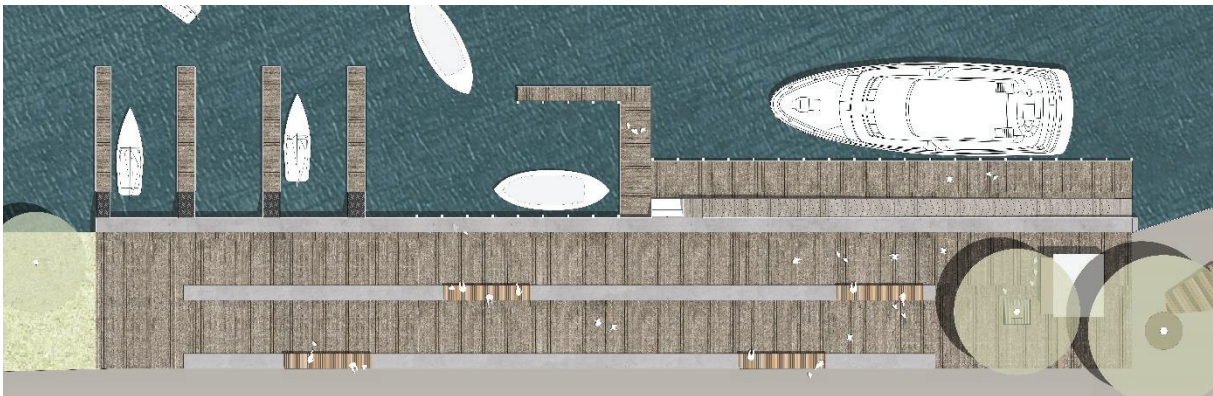


*Pic 67 Gathering open spaces (Shahrokhi,2022).*

### Harbors

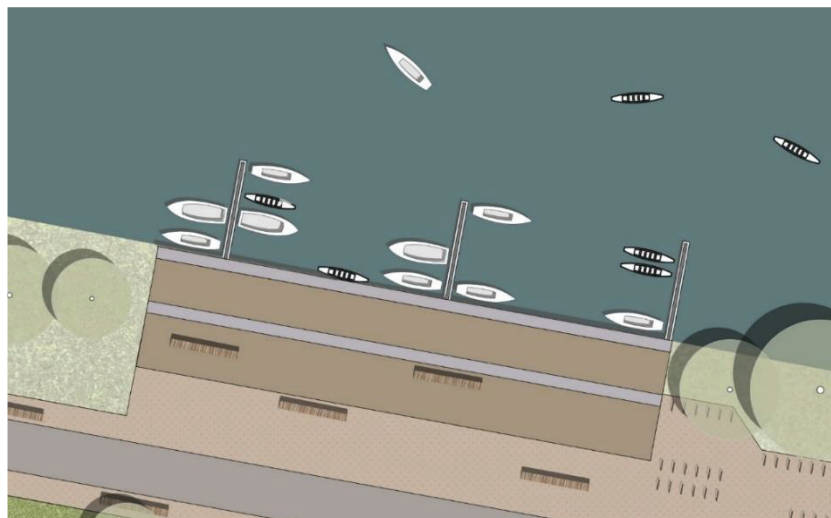
Three entering points to the site from water ways are designed, two of which are harbors with docks for boats and small size canal ship. The main and bigger dock is designed on the old dock in the middle of the north side of the site and close to the entrance bridge. It has a higher part, with the same level as the site itself and the old dock, which is about two meters higher than the water level providing a meeting point and siting place and a kiosk, and a lower part, about 50 cm higher than water level, that makes it proper for boats.





Pic 69 Main harbor Perspective and plan (Shahrokhi,2022).

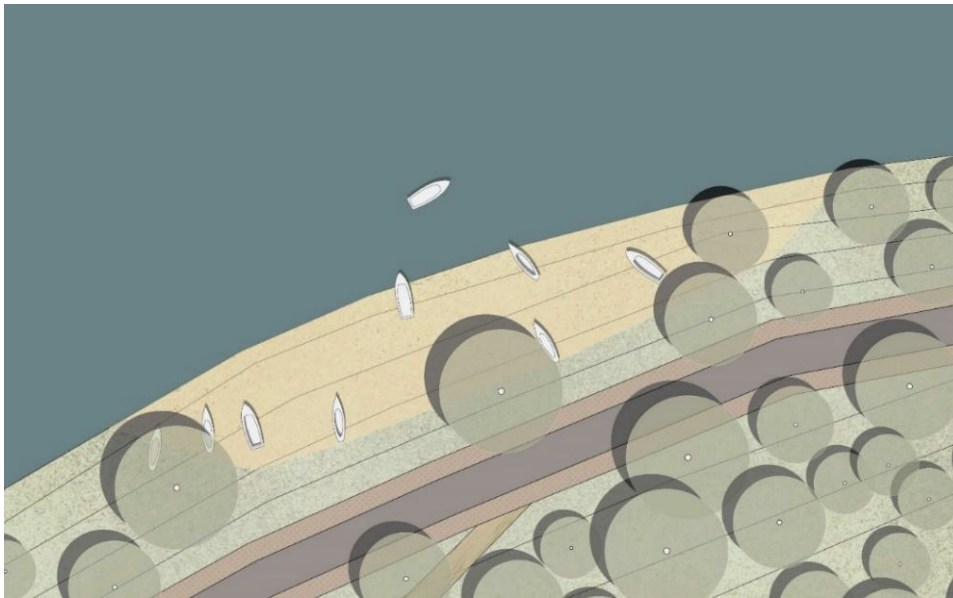
The other Harbor is located in the northeastern corner, and close to the railway bridge. This is a place for small boats to dock, beside the entering point, so the area is furnished with sitting spaces and bicycle racks.



Pic 68 Harbor on the northeastern corner (Shahrokhi,2022).



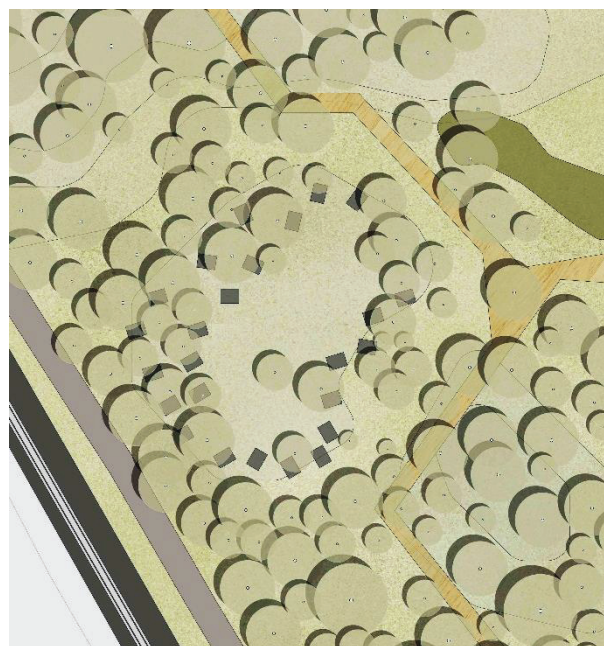
The third entering point from water ways, is a small beach on the northwestern corner, where the topography touches the water smoothly. This area is well connected to the ring path in the promenade part. This is also in the natural side that makes a good combination with the small cells in the nature for staying the night. This makes it possible for people or groups who reach from water way with a boat and want to stay the night, to have a good access in a calm area.



*Pic 70 Beach at the Northwestern corner(Shahrokhi,2022).*

### Natural side

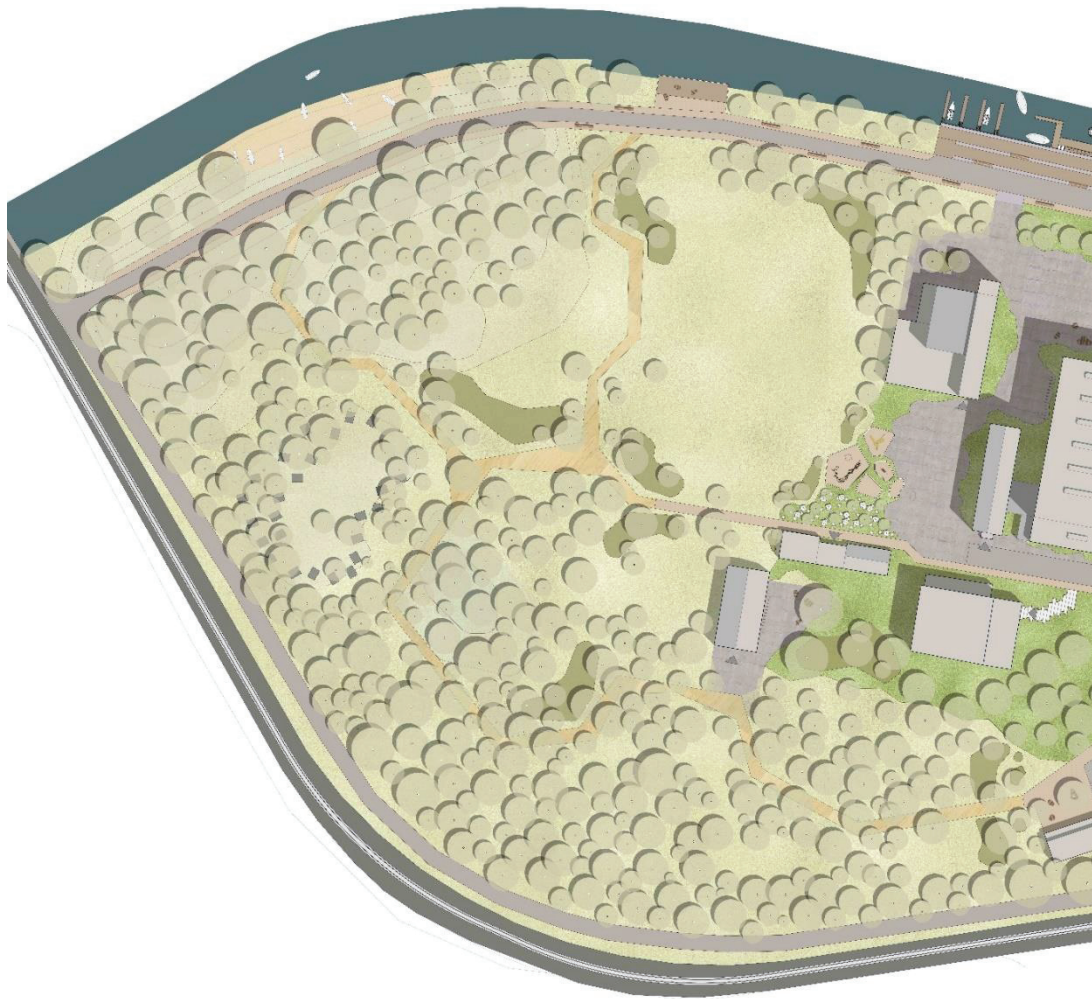
In the western side, there is less activity spaces, and more natural spaces with trees and vegetations, creating a calm space for walking, wandering, stay in small huts or cells, a gathering space and some areas for biodiversity protection.



*Pic 71 Right: The stay huts. Left: The gathering area on the lawn with the cafe and playgrounds(Shahrokhi,2022).*



The biodiversity protection areas are located simply in the woody area, not free to step in, and the access is just provided with wooden dock that gives the space under the path for the same reason.



*Pic 72 The natural side (Shahrokhi,2022).*

Some existing constructions or buildings will stay and with little changes be turned into a climate house, to be used for raising awareness about climate change, which is followed by the biodiversity protection areas into the wood's direction.

Rather than the wooden dock, new trees are planned and, in some points, other type of vegetation such as perennials and small bushes and plants, are used to weather form a space or divide two areas smoothly.

### Activity side

This side is the busy and full of activities part. Buildings are spaces for many activities relating art, sports or other leisure activities, and open space provides a space for sports like trail, skateboarding and trampoline, or free multifunctional space for weather dance or gather. The bare old concrete walls are open for graffiti and in some parts, growing plants raise on them to create a view with all layers of site's life. The concrete ground covering stays and the green space with the forms inspired by moss, grows on it, to make a more alive space and include more green elements such as bushes and perennials, small trees, and grass.

The remaining ruins in the middle of area, will stay and with some plantation, it turns to a monumental element, showing the identity and history of the space and how this park is designed to give the former and abandoned factory a new greener life.

The activities, happen inside the buildings, in the open space between and around buildings and even on the building. Some activities such as climbing, bungee jumping, high rope parcourse and so on, will find a place on the high raising buildings to take place.

The place tries to represent how it is open to change and to new things by letting the bare walls to be painted by people and plants instead of a well designed and constructed façade, and the freely designed greenspaces to replace parts of the existing ground cover and keeping the rest of it, instead of a complete change.

There are also café, bar and small restaurant space, followed by a playground, closed to the gathering space, to give service and create a more family friendly space. They are designed in the middle of the space, and where the activity side separates itself smoothly from natural side.

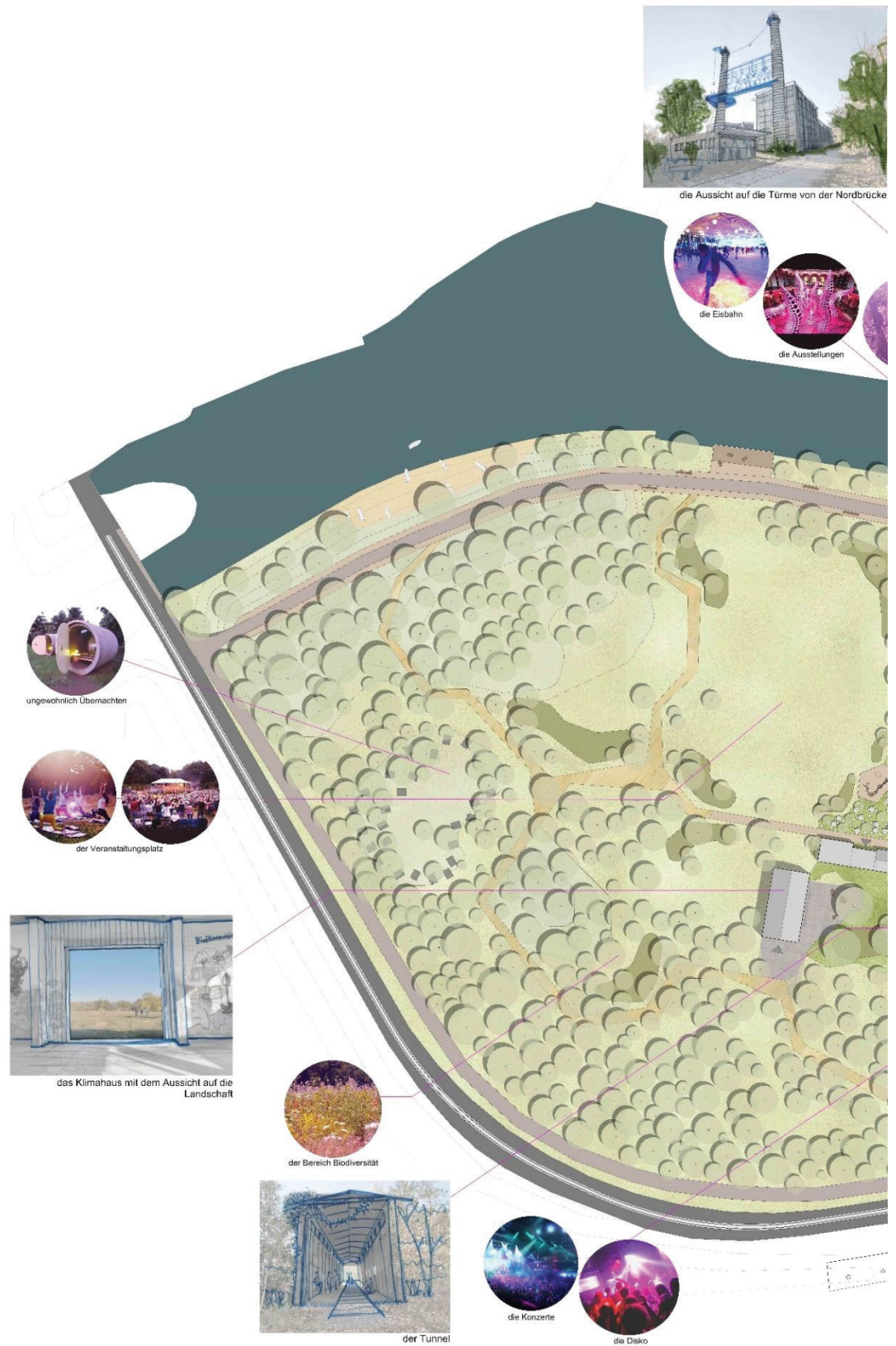


*Pic 73 The Trail, Skating, and outdoor sport area (Shahrokhi,2022).*

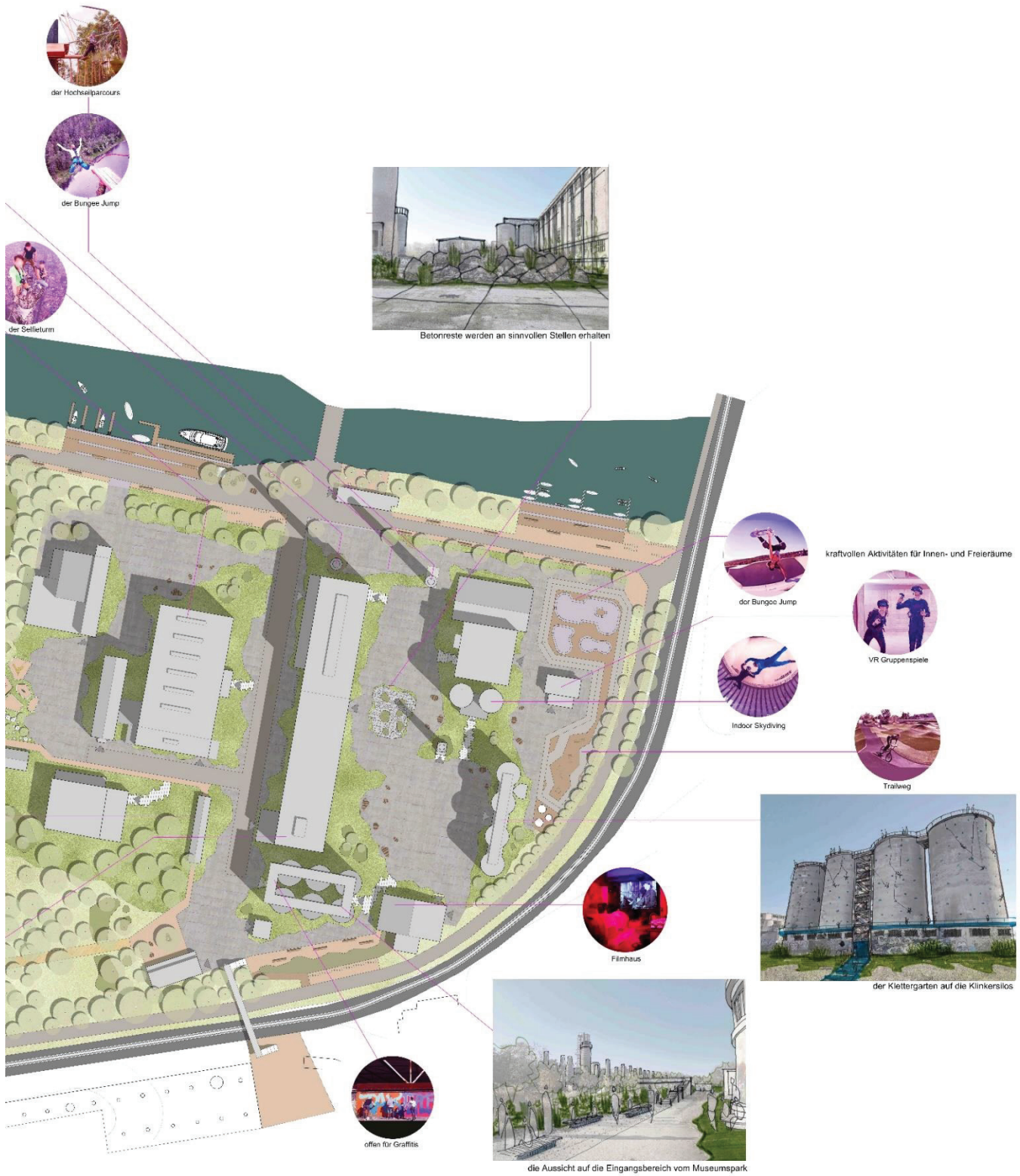


*Pic 74 The gathering space and green spaces in the middle area between the buildings (Shahrokhi,2022).*





Pic 75 Activities on different parts of the site(Shahrokhi,2022).





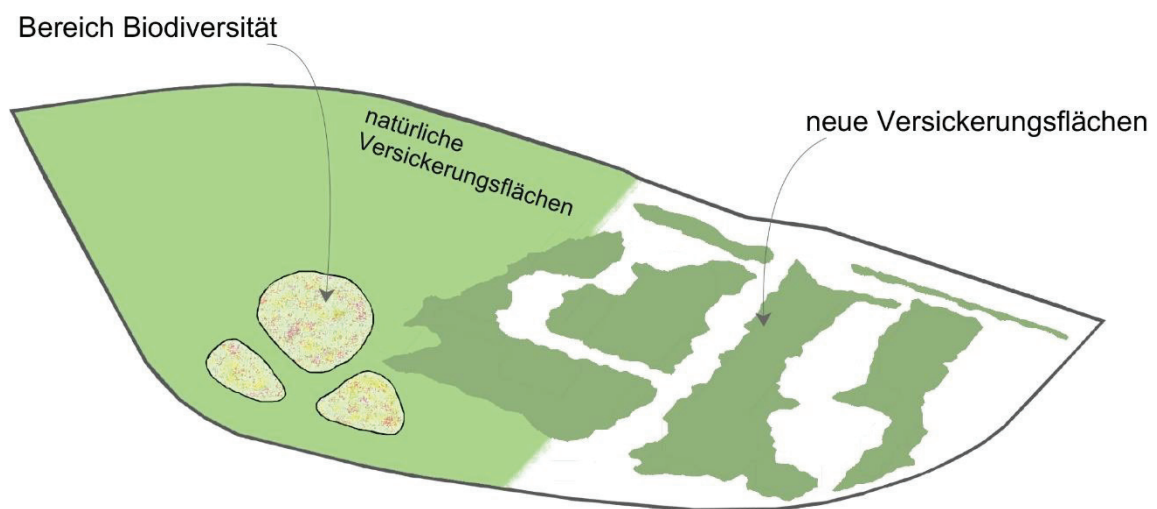
### Climate related

According to the climate and environmental related concepts, new green spaces with infiltration function are designed with forms inspired by the form of growing moss that is seen easily everywhere in the site, on and between concrete slabs of ground covering in the buildings side.

The vegetation in the natural side, which function as natural infiltration areas, is being empowered in order to improve in the field of species and biodiversity.

Some areas are considered specifically as Biodiversity areas, they are the areas that should be left untouched to protect the biodiversity.

There are some other ideas, such as green roofs and green walls and the new plantation in a more detailed view, that are explained in following parts.



*Pic 76 different green areas(Shahrokhi,2022).*

### Green roofs

According to the conditions described before, some of the roofs, seem to have a good condition for a green roof design. This is simply estimated regarding to the slope, sunlight cover, the size of the roof and the possibility of access for the maintenance purposes, and no accurate analysis is done. However, according to the resources studied in the literature view section, more roofs than those that are selected in this part, seem to be possible for a green roof design, but neither greening everything is the approach of this piece of work, nor it seems economical for all the roofs, so that the marked roofs seem to be on the same direction as writers. As explained before, the best type of the green roof for this purpose is intensive green roof with sedum-moos-herb and 4 to 10 cm construction thickness.



*Pic 77 Buildings suggested for a green roof design (Shahrokhi,2022).*

### Green facades

According to the terms studied about designing green facades, the highlighted facades, seem to be proper for a green façade design. They are big concrete facades on sunny side of the buildings, and the green facades will be ground based and hanged lightly direct to the concrete walls. The plants will not cover all the facades but grow partly on it with a more natural form.



*Pic 78 Facades suggested for green facade design (Shahrokhi,2022).*



## Furniture

Two forms of furniture are designed for two different spaces. Simple long boxes with concrete material and wooden seat in the linear promenades, and free shaped benches with concrete material and wooden seats in all other spaces. These free-shaped furniture fits to the form of perennials and plants areas in the green spaces and the form of playground, near to the café and restaurant.



*Pic 79 Two type of furniture, designed for different parts of site (Shahrokhi,2022).*

## Resources

- Clark, J., 2013. *'Adaptive Reuse of Industrial Heritage: Opportunities and Challenges'*. Victoria: The Heritage Council of Victoria.
- Federation of German Landscape Architects, 2003, *'Event Landscape'*, Bund Deutscher Landschaftsarchitekten BDLA.
- *'Fassadenbegrünungsrichtlinien - Richtlinien für Planung, Bau und Instandhaltung von Fassadenbegrünungen'*, 2018, FLL.
- *'Dachbegrünungsrichtlinien - Richtlinien für die Planung, Bau und Instandhaltungen von Dachbegrünungen'*, 2018, FLL.
- *'Metropole Ruhr, Small Atlas Metropole Ruhr, The Ruhr region in transformation'*, 2018, Regionalverband Ruhr.
- Rayman Mohamed, Robin Boyle, Allan Yang, and Joseph Tangari, 2016. *'Adaptive reuse: a review and analysis of its relationship to the 3 Es of sustainability'*. USA: Emerald Publishing Limited.
- *'Adaptive Reuse - Preserving our past, building our future'*, 2004, Department of the environment and heritage.
- *'Unter freiem Himmel - Emscher Landschaftspark, Under the Open Sky - Emscher Landscape Park'*, 2018, Regionalverband Ruhr.
- *'Richtlinien für die Standardisierung des Oberbaus von Verkehrsflächen- RStO 12'*, 2012, FGSV.
- *'Zusätzliche Technische Vertragsbedingungen und Richtlinien für den Bau von Verkehrsflächenbefestigungen aus Asphalt- ZTV Asphalt-StB 07/13'*, Ausgabe 2007/Fassung 2013, FGSV.
- *'Holz und Holzprodukte im GalaBau- Empfehlungen für Planung, Bau und Instandhaltung von Bauwerken und Bauteilen aus Hölzern, Holz- und Verbundwerkstoffen im Garten- und Landschaftsbau'*, 2019, FLL.
- <https://geoportal.brandenburg.de> (Accessed November 2021).
- <https://geobroker.geobasis-bb.de/> (Accessed November 2021).
- <https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende> (Accessed April 2022).
- <https://gruen-berlin.de/en/projects/parks/natur-park-schoeneberger-suedgelaende> (Accessed April 2022).



## Appendix

### List of plans

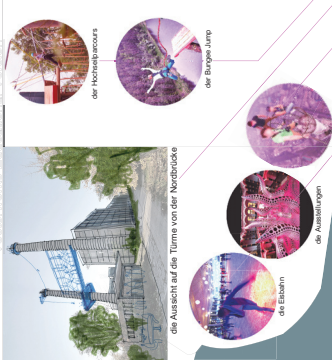
	Title	Plan number	Page number
1	Design sheet	01	68
2	Design sheet	02	68
3	Details	03	69



Abgerundete Balkone werden an geeigneten Stellen zu Hügel aufgeworfen, die eine spezifische Habitat für die sich neu ansiedelnde Ruinenvegetation bilden. Informeller Lagerplatz dienen als strukturelles Rückgrat und weisen auch später, wenn neue Nutzungen in die Gebäude einströmen darauf hin, dass die Infrastruktur ursprünglich für ganz andere Aufgaben entwickelt wurde.



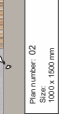
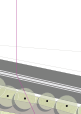
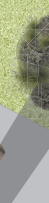
Das Gelände ist aus Berlin und dem Umland sehr gut zu erreichen, in einer Stunde von Scharnbein mit dem Zug und in 2 Stunden mit dem Fahrrad.



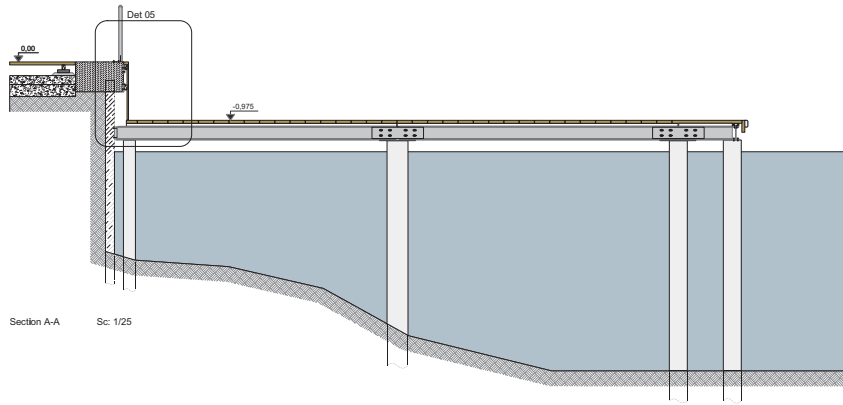
Die Aussicht auf die Turm von der Nordseite der Bucht.



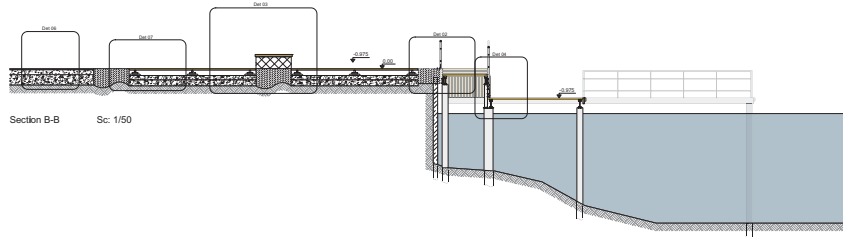
Schauplan 1:2000



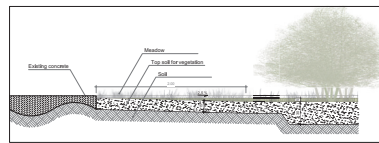
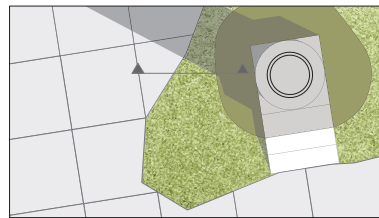




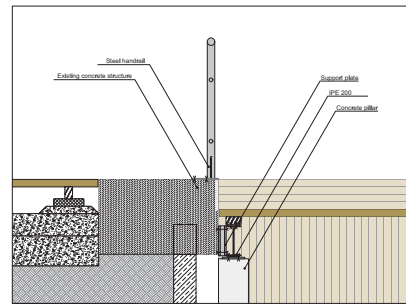
Section A-A Sc: 1/25



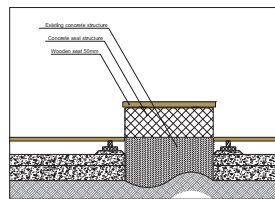
Section B-B Sc: 1/50



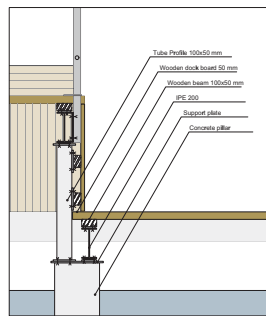
Det 01- Section of new greenspaces alongside the existing concrete ground surface and plan of section's area Sc: 1/20



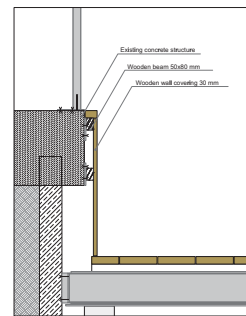
Det 02- Connection of steel handrail, wooden dock on ground and wooden dock of harbor to the existing concrete structure of harbor Sc: 1/25



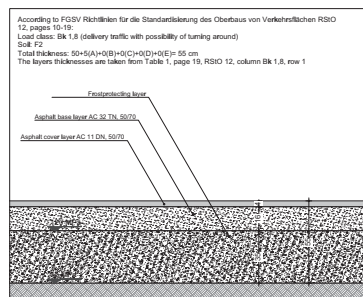
Det 03- Concrete seats with wooden cover on the existing concrete structure Sc: 1/20



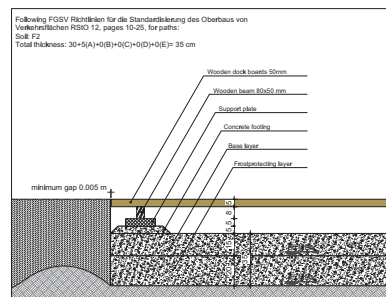
Det 04- Structure of wooden dock of the harbor Sc: 1/10



Det 05- Wooden wall covering on the existing concrete structure of harbor Sc: 1/10



Det 06- Asphalt road construction layers, according to FGSV RStO 12 Sc: 1/25



Det 07- Wooden dock structure on the ground, following FGSV RStO 12 Sc: 1/25

<b>Master Thesis:</b> A green recreational park in a former industrial site in Rüdersdorf		Plan title: <b>Details</b>	Plan number: 03	
By: Maryam Shahrokhi URN: um.nbn.de:gbv:519-thesis2022-0337-1	Supervisors: Prof. Ing. Thomas Jarosch Prof. Dr. Ing. Caroline Rolka	Submitted to: Hochschule Neubrandenburg Department of Landscape Science and Geomatics Master of Engineering Landscape Architecture and Greenspace Management	Scale: 1/10 - 1/20 - 1/25	Size: 650 x 1500 mm

## **Declaration of Academic Integrity**

I hereby confirm that the present master thesis/ Ich bestätige hiermit dass die vorliegende masterarbeit

### **A Green Recreational Park in a Former Industrial Site in Rüdersdorf**

is the result of my own independent scholarly work, and that in all cases, material from the work of others (in books, articles, essays, dissertations, and on the internet) is acknowledge and credited and quotations and paraphrases are clearly indicated. No material other than that listed has been used. I have read and understood the institute's regulations and procedures concerning plagiarism.

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