RE-CONNECT TO NATURE

proposal for a design solution to improve the pedestrian connection between Skene and Assbergs raviner nature reserve

ARK174 Planning And Design For
Sustainable Development in a Local Context

Chalmers School of Architecture
Master's Program 2022/2023

By:
Belal Alabd Moustafa Alchaban

Table of Contents

Introduction 3
Background
Project Plan
Viskan
Viskan's Value For Inhabitants
And Urban Built Environment
Assberg Raviner

Objectives 10
Relation To Viskan, And The Nature
Pedestrian Accessible Pathway

Method 11

Theory 12

Analysis/ Context 16

Design Process Diagram 22

Proposal 25
1.Proposal For Connections Between City And Nature Reserve/River
3. Proposal For A New Entrance To The Natural Reserve.
2. Proposal To Re-Connect Existing Entrance With The Surrounding Environment
4. Proposal For A Social Multi-Purpose Area Along The River

Reflections 38

References 40

INTRODUCTION

Background

Throughout history, much activity has been going on around Viskans's water with hydroelectric generators, and textile industries depending on the river and the natural assets for their operations. Nowadays, this importance of the river and the surrounding nature has disappeared and such activities are forgotten.

In the city of Skene, the importance of Viskan and the natural reserve Assbergs raivner is limited today and the river is barely visible for inhabitants. Instead, the visitor and inhabitant could notice the importance of the commercial, industrial and historical buildings in the cities without any important attendance of Viskan and its surrounding nature physically and mentally.

The river and its banks are full of life.
The green and bio-diverse area is also a great resource for the town and should be seen as such. Viskan is also a storyteller of the history of a region that developed from being borderline to being a world mark of textile production to be one of the most beautiful natural attractions.

Project plan:

We will in this project work on a design solution intended to enhance the pedestrian connections between Skene and Assbergs raviner, and making the natural reserve more attractive by suggesting design for social activities in it. The overall aim of the project is to promote "or bring the nature to the front"
the nature reserve and the river value and presence today in Skene. Our design solution evolved with analyses of the physical and urban structures of the town and experimenting with theoretical concepts of intervention defined to improve the pedestrian experience in the local urban environment of Skene.

Viskan

History , natural value, and reality

Viskan is 142 kilometers long river and flows from lake Tolken (228 meters above sea level) west of Ulricehamn, into Öresjö and continues through Borås on its way through Mark's municipality and finally flows into Klosterfjorden in Halland, just north of Varberg. Viskan has been a life force for the people who throughout history have lived in its vicinity (Mark.se, 2016).

The municipalities near Viskan, are based on the hydropower from Viskan and Häggån as well as in the förläggare business (Mark.se, 2016). Before electric power came, the textile industry needed the power of water for the operation of the machines. We can see this through the placement of textile factories near the river, and in some cases the course of the river was diverted or a branch was established, as happened in the Rydal (Mark.se, 2016).

The flow of rivers was an absolutely decisive factor in the expansion of industrialization and the textile kingdom. Without water there is no textile industry. But industrialization had its negative impact on water quality. In the early 1900s, there were 533 industries along Viskan. Both industries and communities long used the river to eliminate waste (Mark.se, 2016).

The great exploitation of Viskan took place at the advent of industrialism. In the late 1800s until a couple of decades into the 1900s, the need for electric power meant that many of the major waterways were exploited (Mark.se, 2016).

The use of Viskan for hydroelectric power generation has a long historical continuity and we were surprised when we visited the textile museum in Rydal and we saw the power plant built near the historical museum building and we were able to see the station and the turbine and they are in technical condition that can be used until the present time, but the flow of the river, which decreased a lot from before, forcing the owner company to disconnect it from service

https://www.mark.se/invanare/om-mark/natur-och-friluftsliv/viskan-i-mark/. 2016

Viskan's Value for Inhabitants and Urban Built Environment

Through meetings with people in and from Skene, we identified a mental distance to the nature area along Viskan. Despite the central location of the area, few have expressed that they usually visit the area, even among houses living nearby.

As we can see, the river was used during a long period to serve the industrial development in the region, from power generation to even the disposal of industrial waste, which posed a real threat to biodiversity.

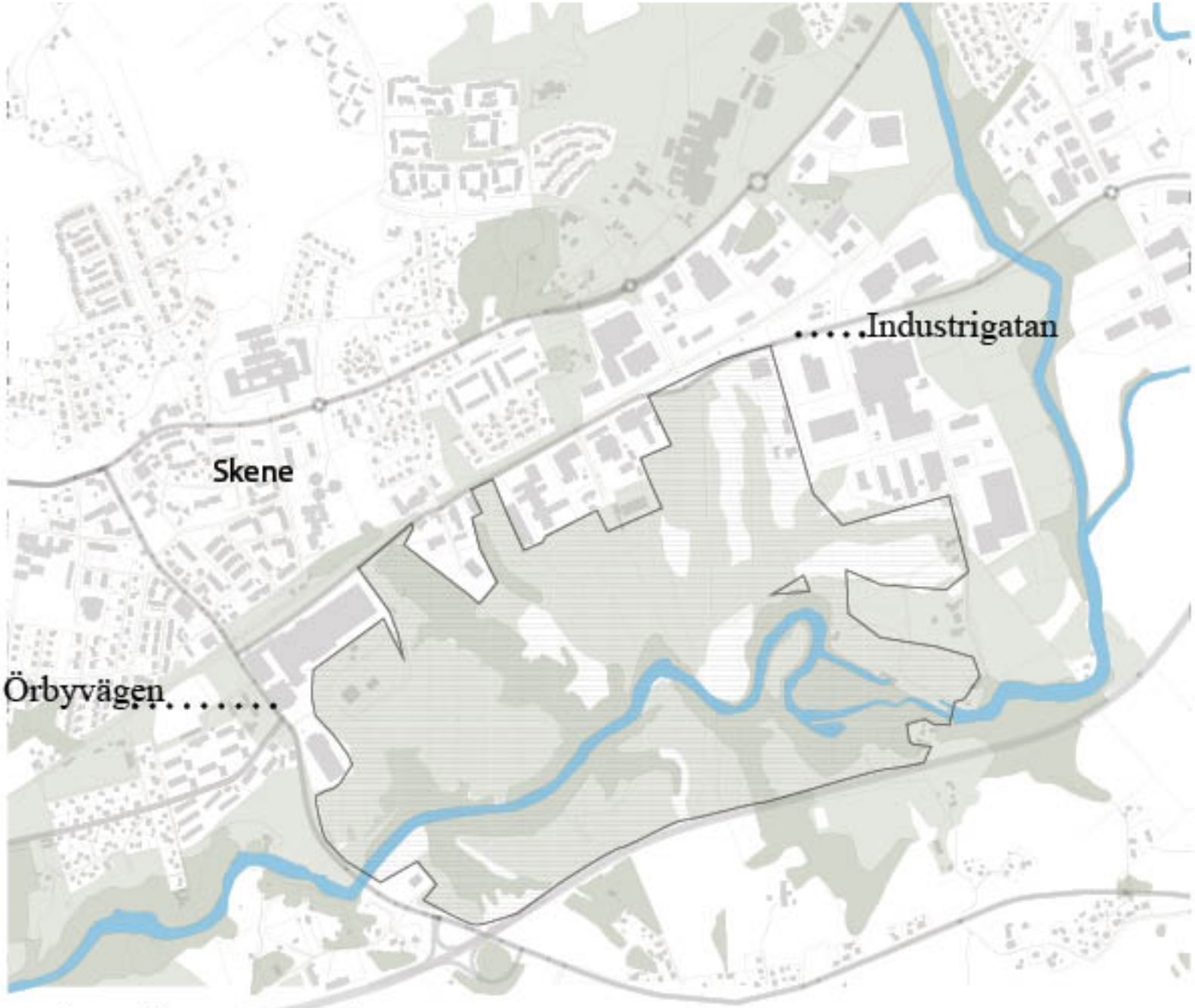
We noticed that urban development in the region was not concentrated on the periphery of the river, as many factories spread along its banks without any residential or social urban expansion. So that the visitor to the region could hardly notice the presence of the river, and even for the residents and workers in the region, many have expressed their opinion that they rarely relax in nature on the river's periphery. All this contributed to a decline in the presence of the river in the minds of the population and a decline in the role of the river as an essential urban artery for urban development

Assbergs Raviner

The nature reserve consists of the ravine landscape along Viskan south of Skene urban area, from the bridge over Viskan at Källdalen to the power plant at Kungsfors (Marknature, 2022). The ravines are created by the eroding, digging, work of the running water in loose clay deposits from the Ice Age.
A 430-meter-long natural trail is laid out in the nature reserve and has a hard coating that makes it easier for people with various aids to get around. For people in wheelchairs, the path is accessible with assistance (Marknature, 2022).

The flora is very rich in species and you will find, among other things, many discerning species that belong in meadows and pastures such as viper's-grass (svinrot), crepis (klasefibbla) , common milkwort (jungfrulin), pyramidal bugle (Blåsuga), spring vetchling (vårärt), cowslip (gullviva), dropwort (brudbröd), globeflower (smörbollar), quaking-grass (darrgräs) and meadow saxifrage (mandelblom) (Marknature, 2022). In the deciduous forest you can find liverwort (blåsippa),

https://[illegible].blogspot.com/2020/06/vi-vandrar-i-assbergs-ravinerchtml juni 05, 2020



Map showing the nature reserve Assberg Ravine.

common toothwort (vätteros) and fumewort (smånunneört).
In late summer, there are also some pasture mushrooms in the pastures, e.g. snowy waxcap (vitvaxing), meadow waxcap (ängsvaxing) and golden waxcap (sprödvaxing) and in the deciduous forest you can find ashen chanterelle (grå kantarell) (Marknature, 2022).

Some older deciduous trees are found and here you can find maitake (koralllticka), dilated scalewort (hjälmfrullania) and frizzy ulota(krusig ulota), A spring evening in the ravines offers a mighty bird choir with marsh warblers (kärrsångare), thrush nightingale (näktergal) and common rosefinch (rosenfink). Down by Viskan you can see grey wagtail (Forsärla), white-throated dipper (Strömstare) , and Common kingfisher (Kungsfiskare) Nearby to the industrial area means that black redstart (Svart rödstjärt) and common pied oystercatcher (strandskata) breed, and in the shrubbery, whinchat (buskskvätta) and European goldfinch (steglits) thrive. (Marknature, 2022).

A real hidden gem in the area is hazel dormouse (hasselmus) . It doesn't wake up until it's really hot at night, usually in mid-May, and then builds its nests high up in shrubbery and thickets, always facing south. The denser the thicket, the better. Once the leaves break out, nests, which are beautifully braided with leaves and straws, are almost impossible to see (Marknature, 2022).

The mouse then lives inside the thicket and eats berries and nuts. It is nocturnal and it is therefore unusual to see it. When it gets colder in the autumn, it crawls into the ground for its hibernation and you can see the abandoned nests dangling at the top of the shrubbery when the leaves fall. Therefore, if you want to look for hazel mouse, a good tip is to find a bush curtain facing south. It is a clear advantage if the area has shrubbery that has a relatively constant height over time, e.g. under power

Thrush nightingale(näktergal)

Hazel dormouse (hasselmus)

Marsh warblers(kärrsångare)

Rosefinch(rosenfink)

Bilderna presenteras här från https://marknatur.se/assbergs-raviner/ (Marknature, 2022)

snowy waxcap (vitvaxing)

globeflower (smörbollar)

dilated scalewort (hjälmfrullania)

common toothwort (vätteros)

dropwort (brudbröd)

spring vetchling (vårärt)

viper's-grass (svinrot)

quaking-grass (darrgräs)

cowslip (gullviva)

fumewort (smånunneört)

common milkwort (jungfrulin)

maitake (koralllticka)

ashen chanterelle (grå kantarell)

pyramidal bugle (Blåsuga)

Objectives

Relation to Viskan, and the nature

Despite the centrality of the Viskan River in Skene and the region and the geographical diversity surrounding it, where you can see the river, the plain, the plateaus and the forest, it is overlooked. The urban development in the region is concentrated on the industrial and commercial side. The river, with all its benefits and natural features, is in a way forgotten. Through this project, we are trying to contribute to strengthening the connection between people and nature as a valuable asset that would reshape the identity of the region.

Pedestrian accessible pathway

In Skene, the river and the natural reserve is located geographically near the city center, but access to the river is not easy, as there is an entrance to the natural reserve surrounding the river in an industrial area that does not encourage walking, due to the industrial buildings that lack human scale and wide streets designated for cars and trucks. The second entrance to the river near the city center of Skene is unpaved and not intended for pedestrian crossing via the main road. Therefore, through this project, we want to work on finding a design solution that promotes pedestrians to access the nature reserve and the river easily.

Method

We identified an initial design criteria for which we prepared our proposal and the general planning of the pedestrian pathways, we explored the areas that could constitute a challenge to the pedestrian paths.
Our suggested intervention and the areas of challenge were identified using the methods below.

Site visits
Through having several walks in the site, and following the journey of both the locals and visitors from the city to the river and natural reserve, we identified different pain points in the journeys.

Meeting and interviews
We had conversations with the locals, the municipality, and the stakeholders to better understand the future development planned for the urban environment. We used these interviews to ask about their relationship to the river and the natural areas around the city.

Map studies and analysis
We studied three main maps of the area; the urban built environment,
Land ownership, topography. These maps gave us insights into the areas that pose challenges to the pedestrian flow from the city to the natural reserve along the river.

Theoretical framework
We referred to theories of spatial design in an urban environment to guide our interventions to achieve a pedestrian friendly

Theory

In this section, we present the most relevant theoretical design concepts deduced from existing theories and research belonging to the fields of public life studies, space syntax studies and built environment studies . These design concepts are meant to promote the pedestrian oriented design approach in development of the built environment.

Orientation

Designing an area such that pedestrians can position themselves in relation to the urban network or context is known as the orientation design factor. Orientation emphasizes key elements that help pedestrians comprehend how their current location integrates with the larger urban setting.

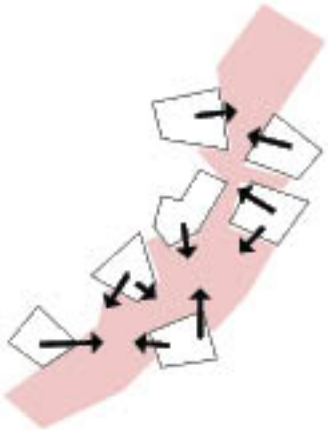
A good way to do this is to highlight and enable views of important landmarks, attractions, or qualities in the neighborhood. A totally enclosed pedestrian environment, for instance an underpass or a bridge without views, has been proven to be disorienting (Hillier et al. 1998; Lynch, 1960, p. 83).

Nodes

In pedestrian pathways, there should be nodes where paths intersect. Pedestrians perceive the built environment at nodes with greater clarity than at other places, making them critical for design. The structure of a network and connection in the built environment could be weakened by a poorly designed node, so if we are to devote more attention to design choices, we should start with the nodes (Lynch, 1960, p. 97).

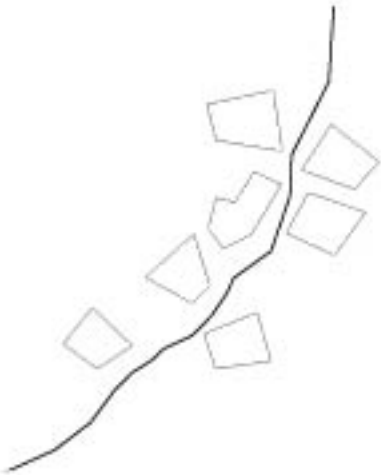
Connectivity

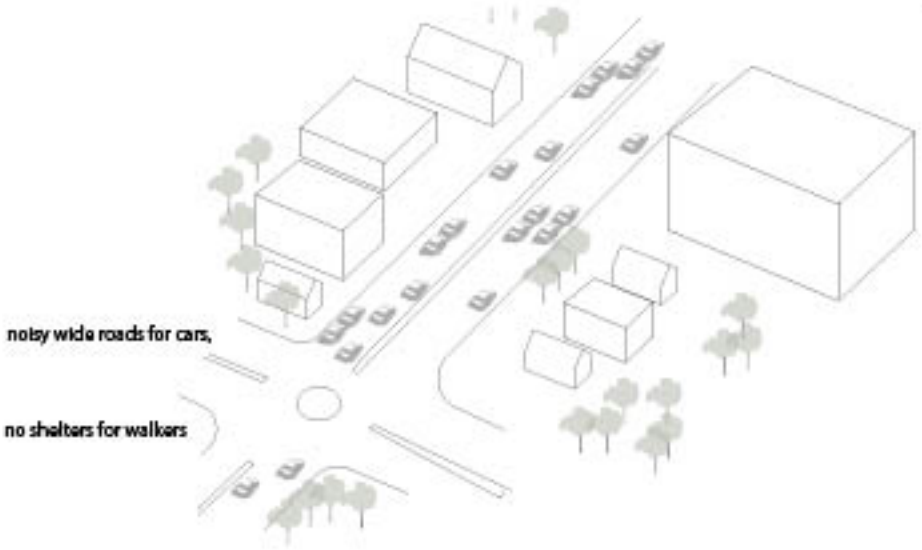
As a design factor, connectivity involves considering global connections, and ensuring more or less connections to the surrounding urban context, depending on the goal. The number of pedestrians in an area varies based on its connectivity properties, and people prefer to walk in well-connected areas (Hillier et al., 1993).

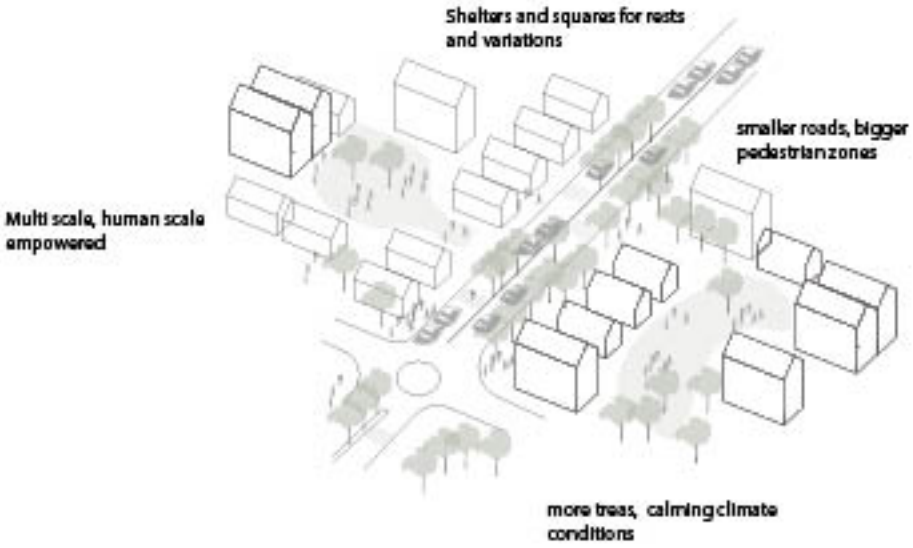


Directness

It is common for pedestrians to prefer straight routes to meandering routes, which are as close to their final destination as possible. A directional movement helps us feel oriented if we are moving towards what we are aiming at. The path of shortest visual distance is usually prefered by pedestrians when they can see the destination (Lynch, 1960, pp. 96-97).







Place for staying and climate shelter

When designing pedestrian paths, it is important to provide suitable and functional places where pedestrians can sit, lean, or stand to rest. In addition, There should be protection from sun, rain, and wind (Tibbalds, 2000, p. 49) . As pedestrians make decisions about planning their routes, they tend usually to be influenced by previous experiences and memories of climate conditions. Accordingly, climate considerations in pedestrian environments not only could affect present movements but also could influence future ones.

Contextual qualities

In order to enhance pedestrian experience the design should take into account existing nearby qualities. So, If there is water nearby or a characteristic building or landmark, we use it in a favorable way and make sure it is not ignored by the development. By that, we create interesting and engaging spaces for pedestrians (Tibbalds, 2000, p. 64).

Continuity

A pedestrian environment should be designed in such a way that frequent interruptions along the path are minimized. Interruptions to the pedestrian experience, both physical and mental, such as distinct curbs, and uncomfortable changes in level, rob the pedestrian experience of its richness and values. This means that pedestrians do not prefer underpasses, tunnels, decks and bridges that interrupt their pathways (Tibbalds, 2000, pp. 49).

ANALYSIS/ CONTEXT

The buildings in the vicinity of the river is surrounded by buildings of a public, non-residential nature, such as municipal, services, agricultural, and warehouse buildings. Residential buildings are spread along the main road network sometimes approaching the course of the river.

This gives an important impression about the nature of urban and architectural development in the region, in which the river constituted an important element in the service of industry, but did not have sufficient urban importance to be a center for the development of the city.

Here we see an important challenge to the urban development of the region and the population, as the naturally abundant part of the city has become a backyard for factories and large service buildings that do not encourage people to walk and approach.

Challenging areas of industrial buildings proximity to the existing paths.

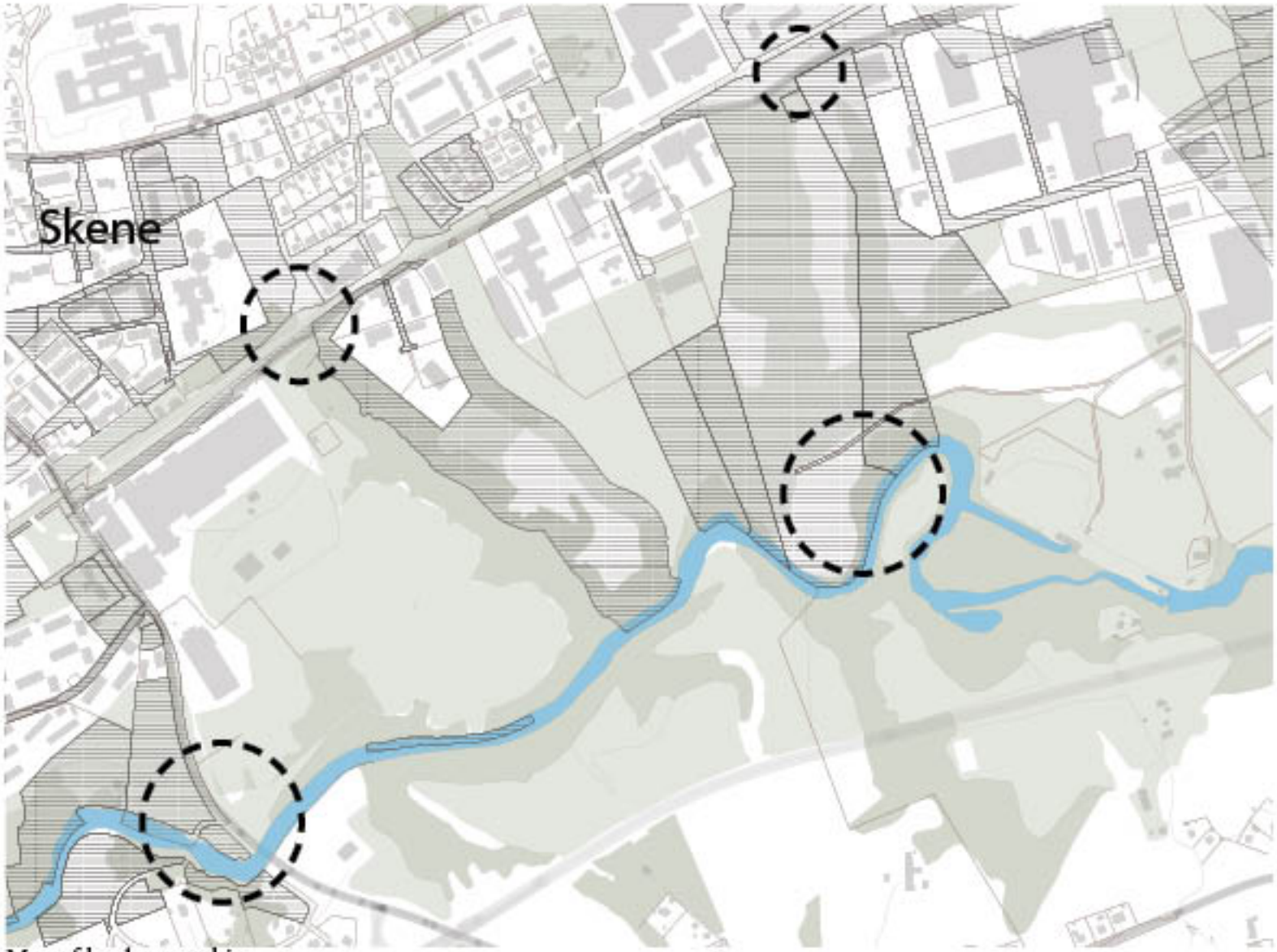
Other buildings

Residential buildings

Urban built environment

In the development of the area it is important to identify the ownership of the land, to be able to understand the stakeholders of future development.

We are especially focused on areas owned by the municipality as future development through the city is carried out on these areas. We suggested our design proposal/solutions in the areas owned by the city. Especially areas with potential to create accessibility into the natural reserves and areas that contain the pathways connecting the urban area to the natural reserve (areas hatched in gray).

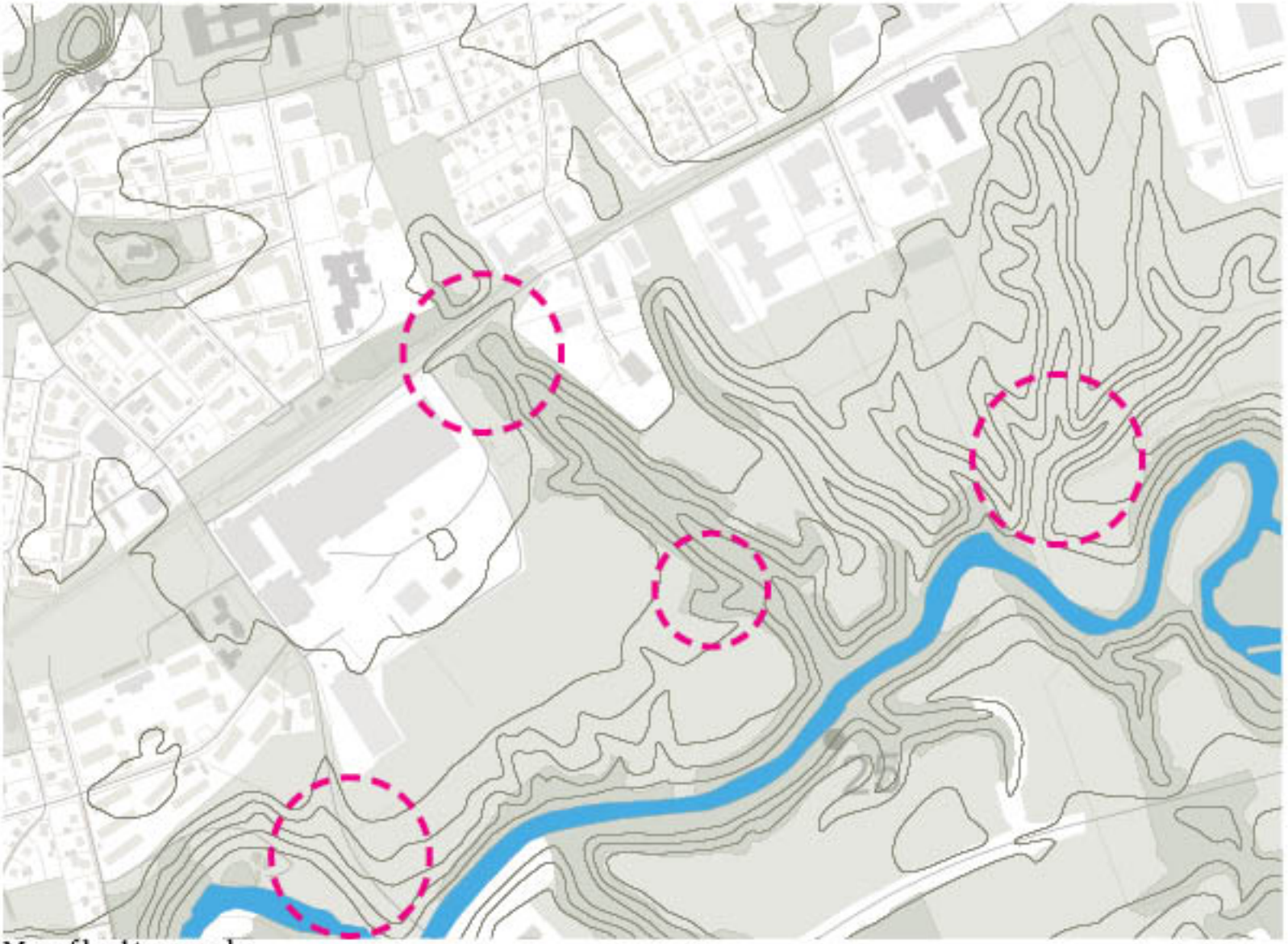


Map of land ownership.

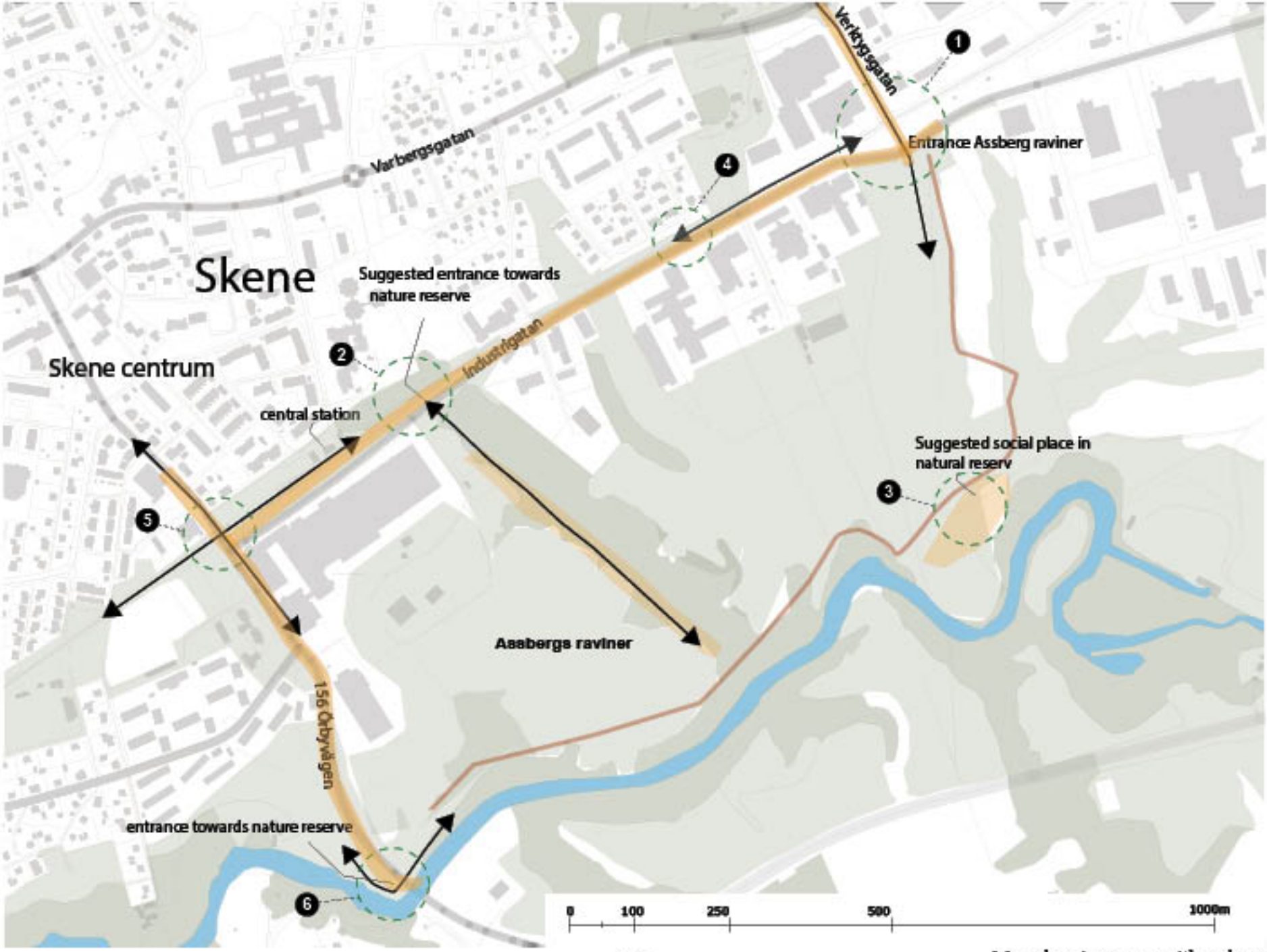
The Natural reserve's landscape has various lower levels in the topography. Creating an interesting topographical nature around the river. The different levels also pose some challenges when thinking about a safe and accessible path for pedestrians.

It especially challenging in some areas of level changes for the continuity of pedestrian flow from the city to the reserve .

areas that pose challenges in the pedestrian path flow



Map of land topography



Map showing areas with vulnerability.

1

The main entrance to the natural area, surrounded by industrial buildings

2

Our suggested entrance connecting the visitors from the central station to the center of the natural reserve.

3

Proposed area for social activities for children and adults along the pathway with close proximity to the natural reserve's main entrance

4

Developing pedestrian safe paths connecting the entrance to the central station.

5

Developing pedestrian safe and accessible paths connecting the city center to the natural reserve.

4

Proposal for a new entrance to the natural reserve in the same spot of the historical entrance. Its safe and accessible to the city.

The map represents the areas we will work on in our proposal. The areas in orange are the areas we identified as areas to develop to increase the accessibility for pedestrians and help connect the urban areas to the natural area and the river. These areas were identified through the previous analysis of the ownership, topography, and built environment.

RESEARCH/ CONTEXT

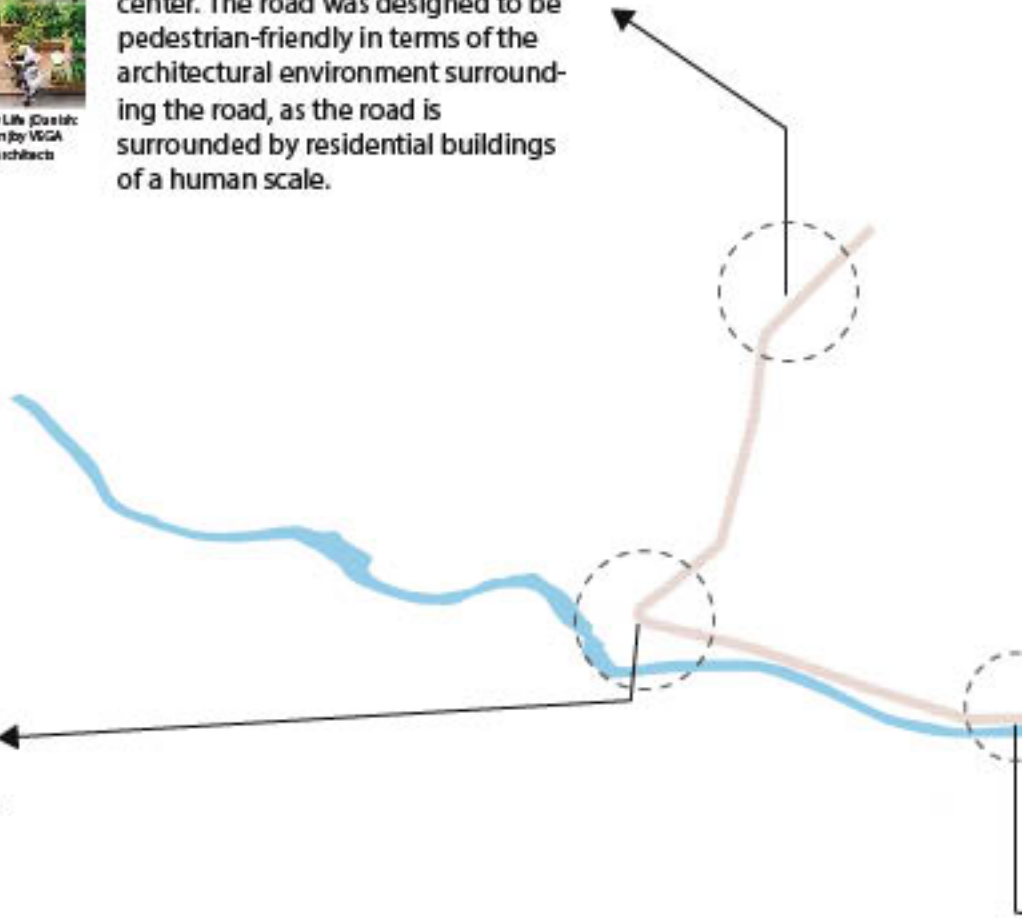
In this illustration, we present our research during the work process. From this project, we see examples of projects dealing with the development of the pedestrian/walkability experience in different areas. These projects are chosen as inspiration and reference in our analyzing of possible design solutions for our project.

Created by La Habitacion Verde landscaping studio

created by Gillian Webster

Instant City Life (Danish: Byliv Indsatsen) by VEGA Landskab Architects

The entrance to the city center of Skene, where the pedestrian road exiting the nature reserve meets the center. The road was designed to be pedestrian-friendly in terms of the architectural environment surrounding the road, as the road is surrounded by residential buildings of a human scale.



The entrance to the nature reserve, the entrance can be a bridge or a tunnel that makes entry safe without crossing the main road

Architect Moxon Architects
Client Worcestershire County Council
Structural engineer COWI

Within the nature reserve, we propose a design dedicated to children's activities as well as to adults. The activities include educational places and places for social activities.

Urban Furniture System by Mykolas Sackus and Antonio Gandolfo

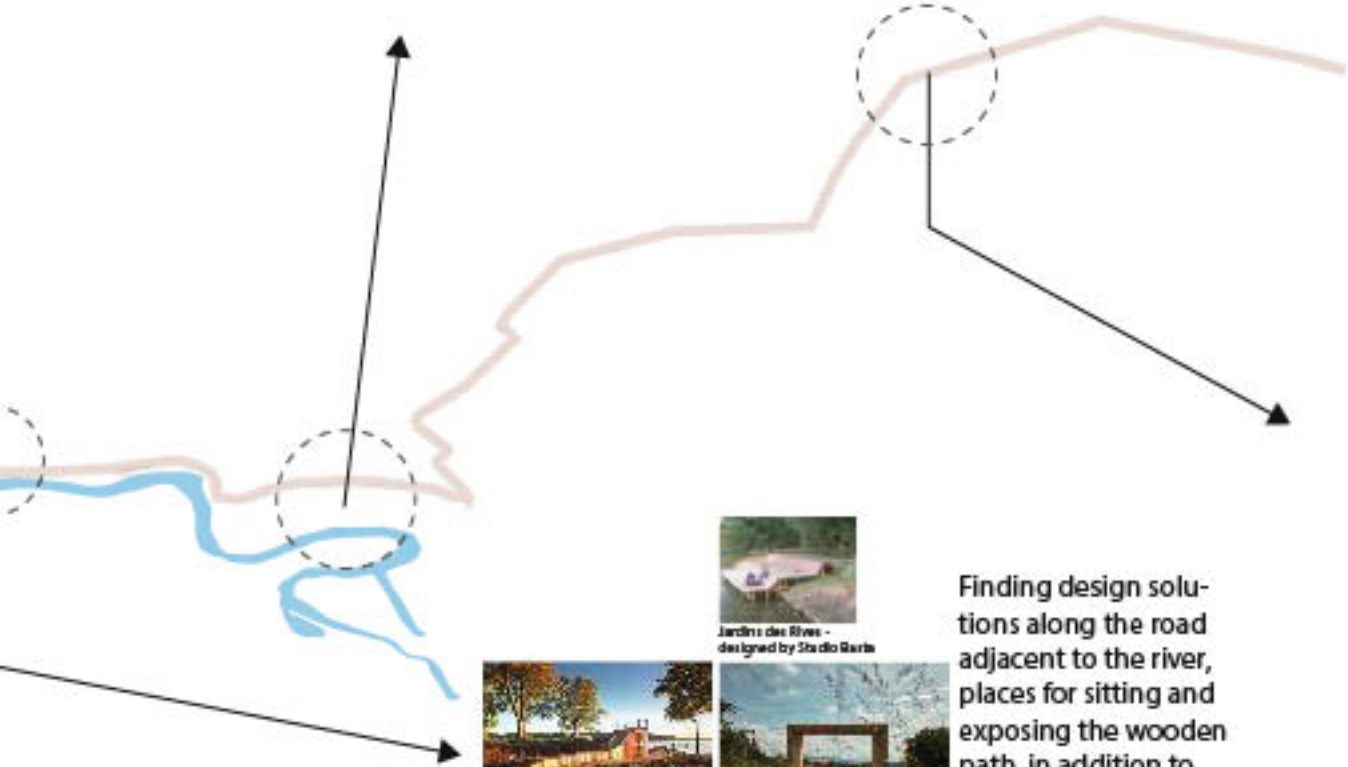
The Palmer Woodland Theater designed by Rieley & Associates.

designed by In Natura, natural playgrounds

photos from legepladsspecialist.dk

Washington and Lee university, Veginia

Photo by Brandon Thibodeaux



Jardins des Rives - designed by Studio Barda

Designed by Latvian studios Didzis Jaunzems Architecture and Jaunzemsun Abele

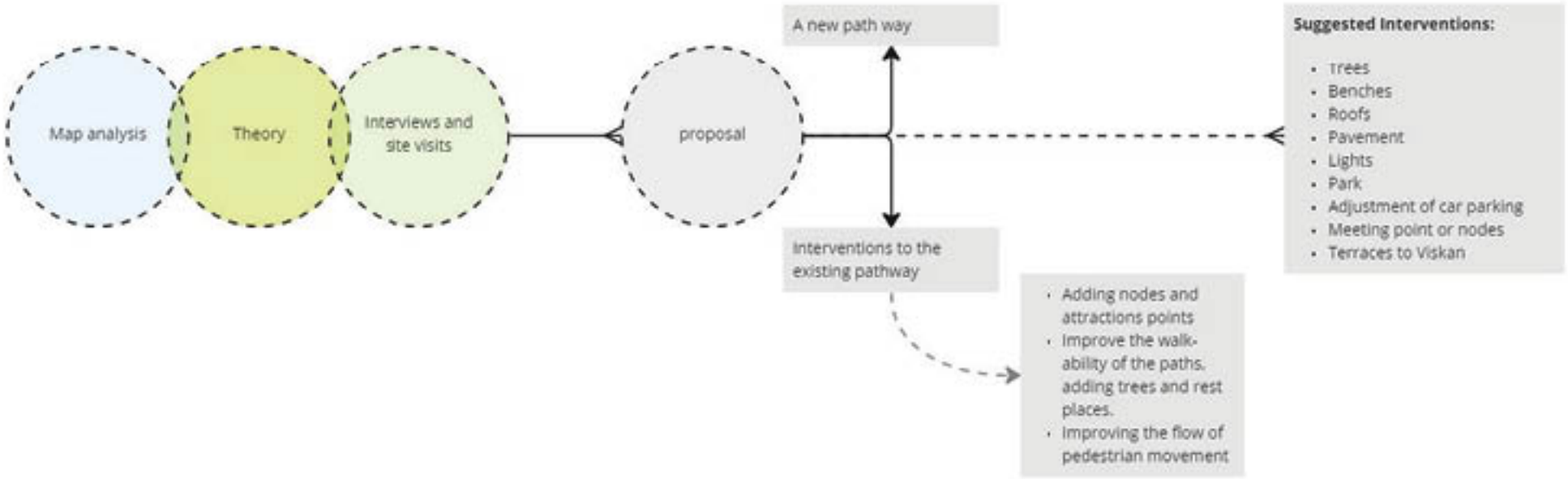
Project by Franek Architects

Finding design solutions along the road adjacent to the river, places for sitting and exposing the wooden path, in addition to places for meditation, sitting and gathering

As an attempt to bypass the industrial area, as it is not pedestrian-friendly we tried to makethe pathway surrounded by natural places and is equipped with resting places for pedestrian

Photo by chuyu2014

Design Process Diagram



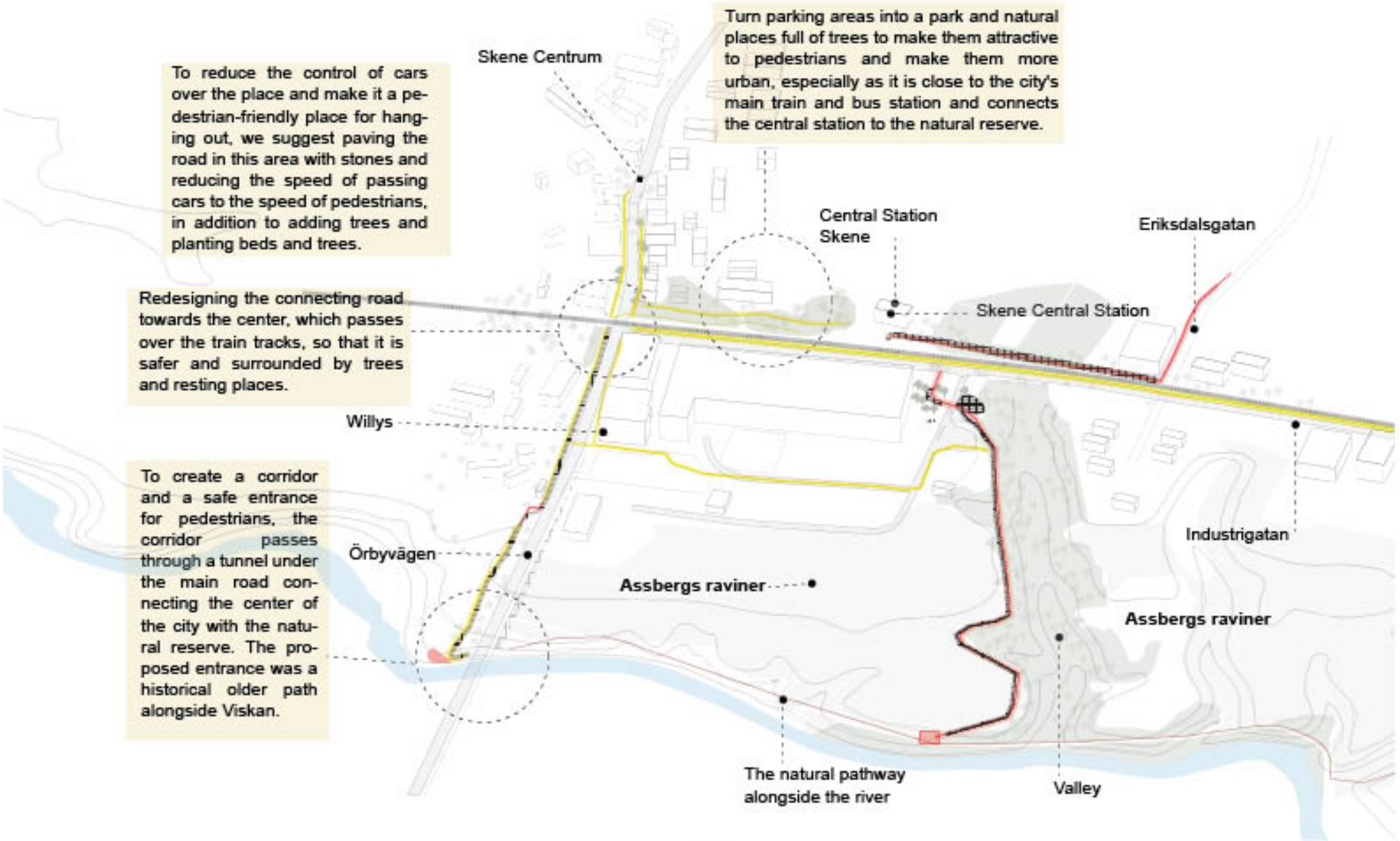
The diagram follows the methodology followed to reach our proposal. we reached the proposal of focusing our work in two directions; a proposal for a new path and a proposal for interventions on the existing path. We used interventions to make the paths pedestrian friendly and safe as walkers maneuver the urban landscape to reach the natural area

PROPOSAL

We created proposals for the different areas which represented challenges to the pedestrian flow; from the city to the river and the nature reserve, and back. When all these proposals come together they tackle the pain-points in pedestrian journey. However, if even some of the proposals are implemented they can still have a significant impact on the flow, and would still serve to strengthen the connection between the people and the environment around them.

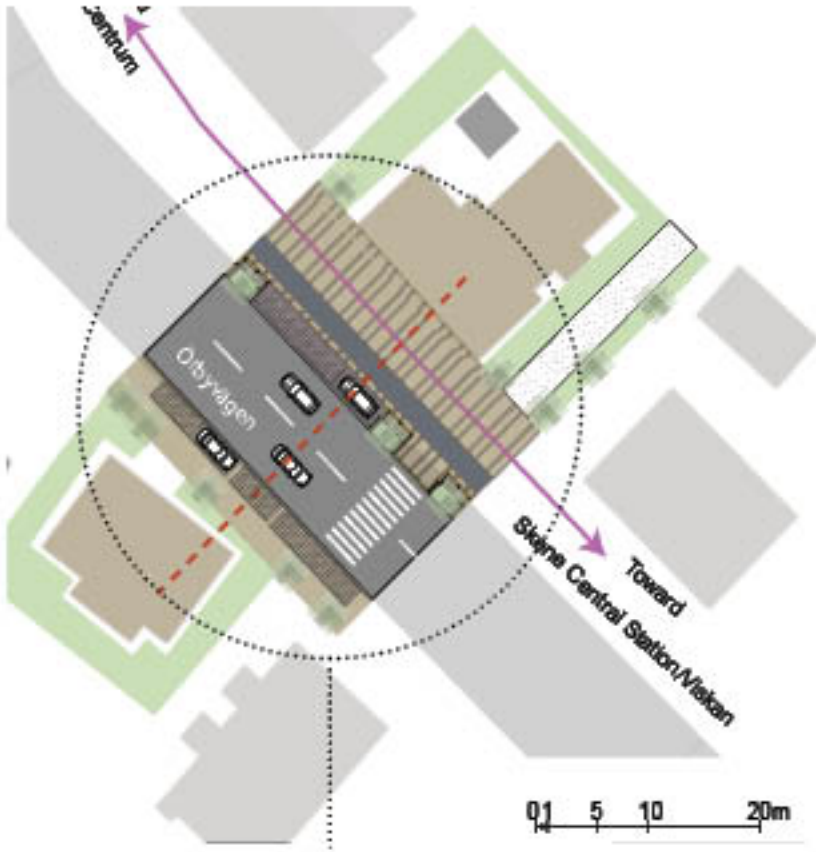
The following map shows the suggested areas of interest and suggested thoughts and ideas for solutions that inspired our work.

1 Proposal for connections between city and nature reserve/ River

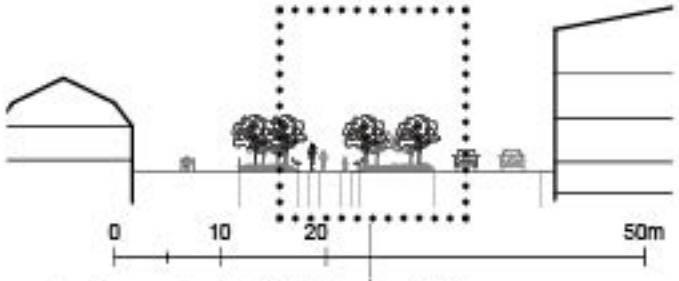


Proposal of design solution for the connection between the center of Skene and the natural reserve. We focused on design solutions for enhancing the pedestrian connection in Industrigatan and Örbyvägen. We worked on a new entrance to the natural reserve under Örbyvägen.

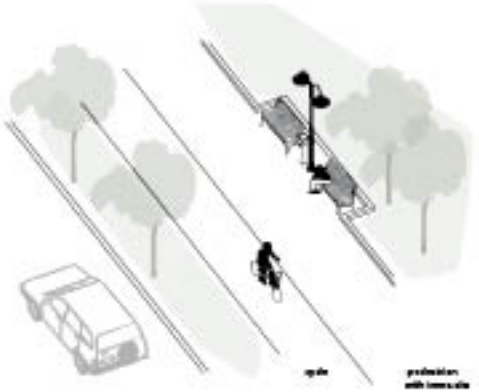
The proposed solution for this area aims to facilitate access and develop the urban reality of the area by changing the position of parking lots, determining pedestrian movement axes, and creating spaces front of the existing buildings.



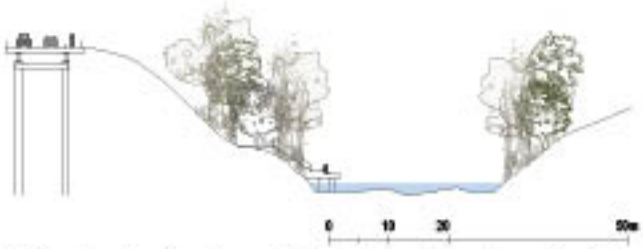
Section crossing the Örbyvägen



Section crossing the Örbyvägen near Willys



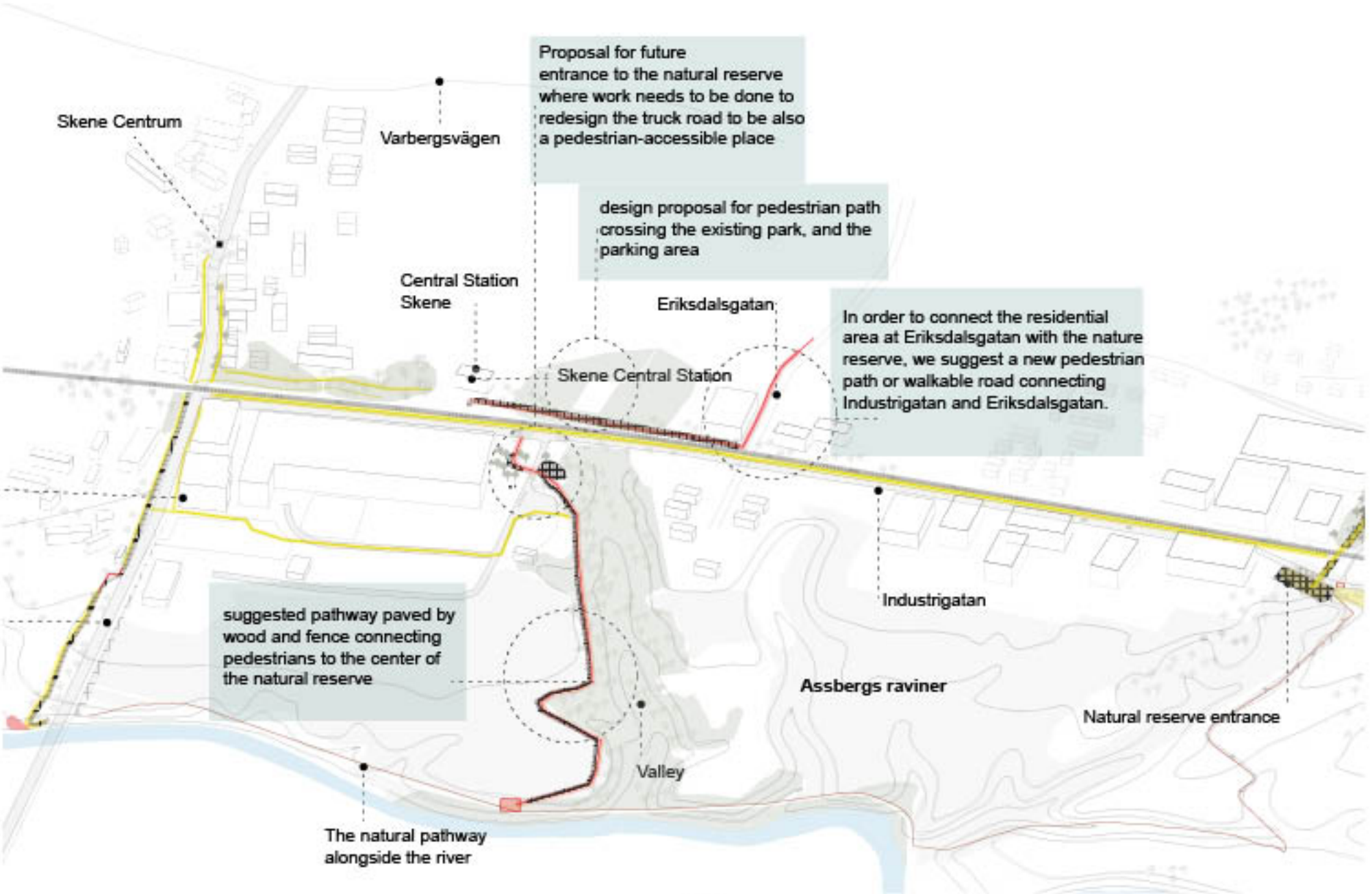
Redsign the patwhay by adding elements which could enhance the pedestian experince of people walking between the entrance of Assbergs raviner and Skene centrum

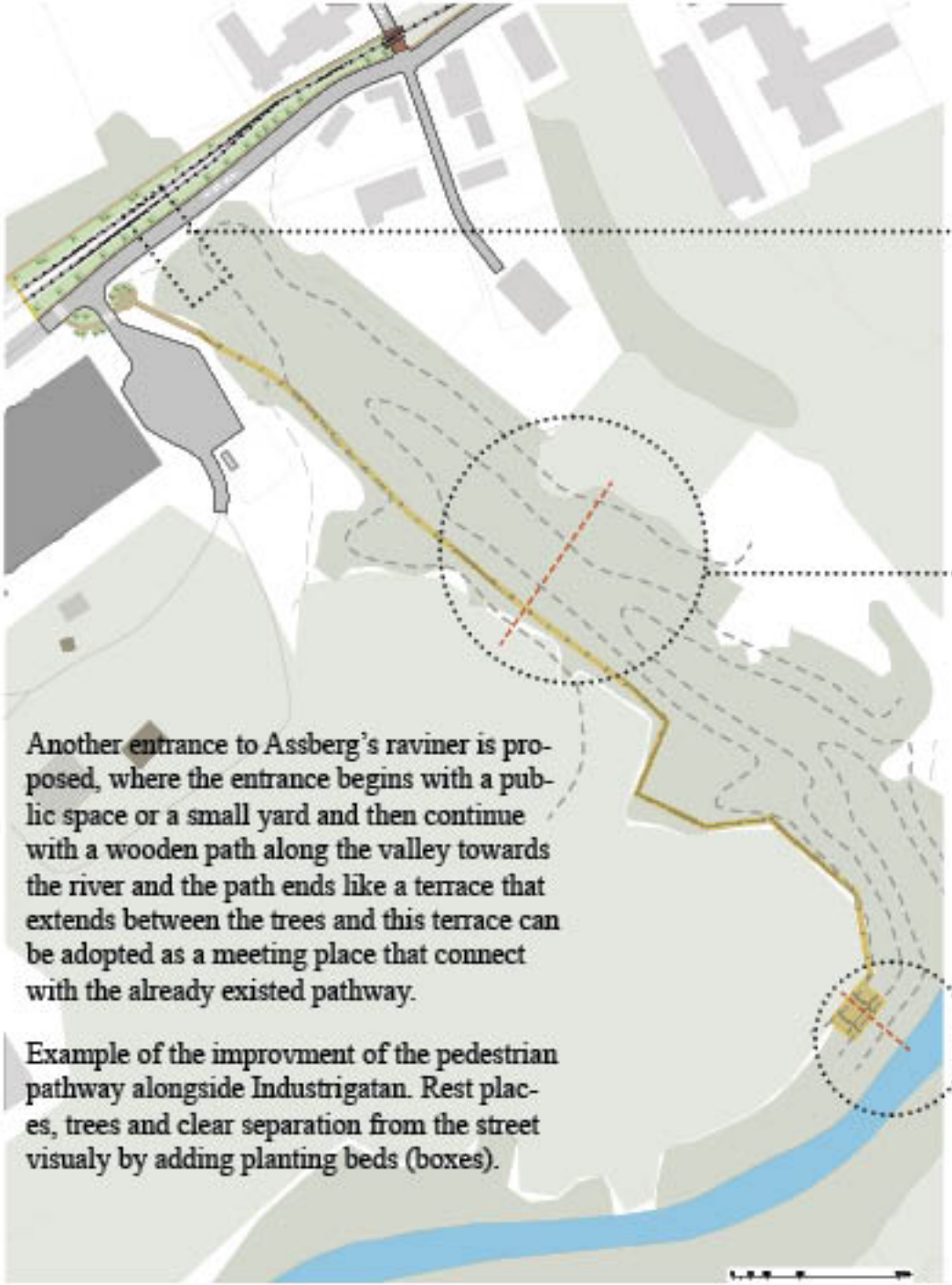


Section showing the relation between the main road and the water

A new attraction point could be added as we see in the section, therfore we suggest a new terrace at the entrance of the natural reserve.

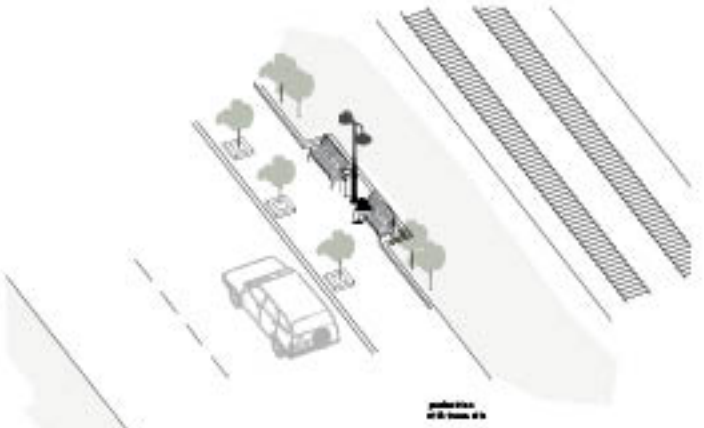
2 Proposal for a new entrance to the natural reserve

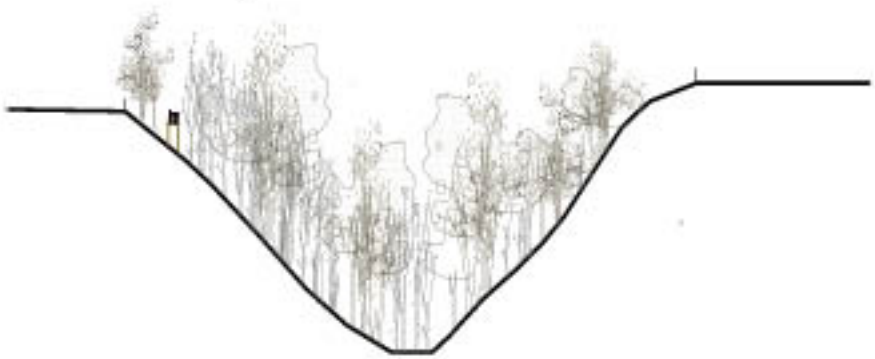




Another entrance to Assberg's raviner is proposed, where the entrance begins with a public space or a small yard and then continue with a wooden path along the valley towards the river and the path ends like a terrace that extends between the trees and this terrace can be adopted as a meeting place that connect with the already existed pathway.

Example of the improvment of the pedestrian pathway alongside Industrigatan. Rest places, trees and clear separation from the street visualy by adding planting beds (boxes).

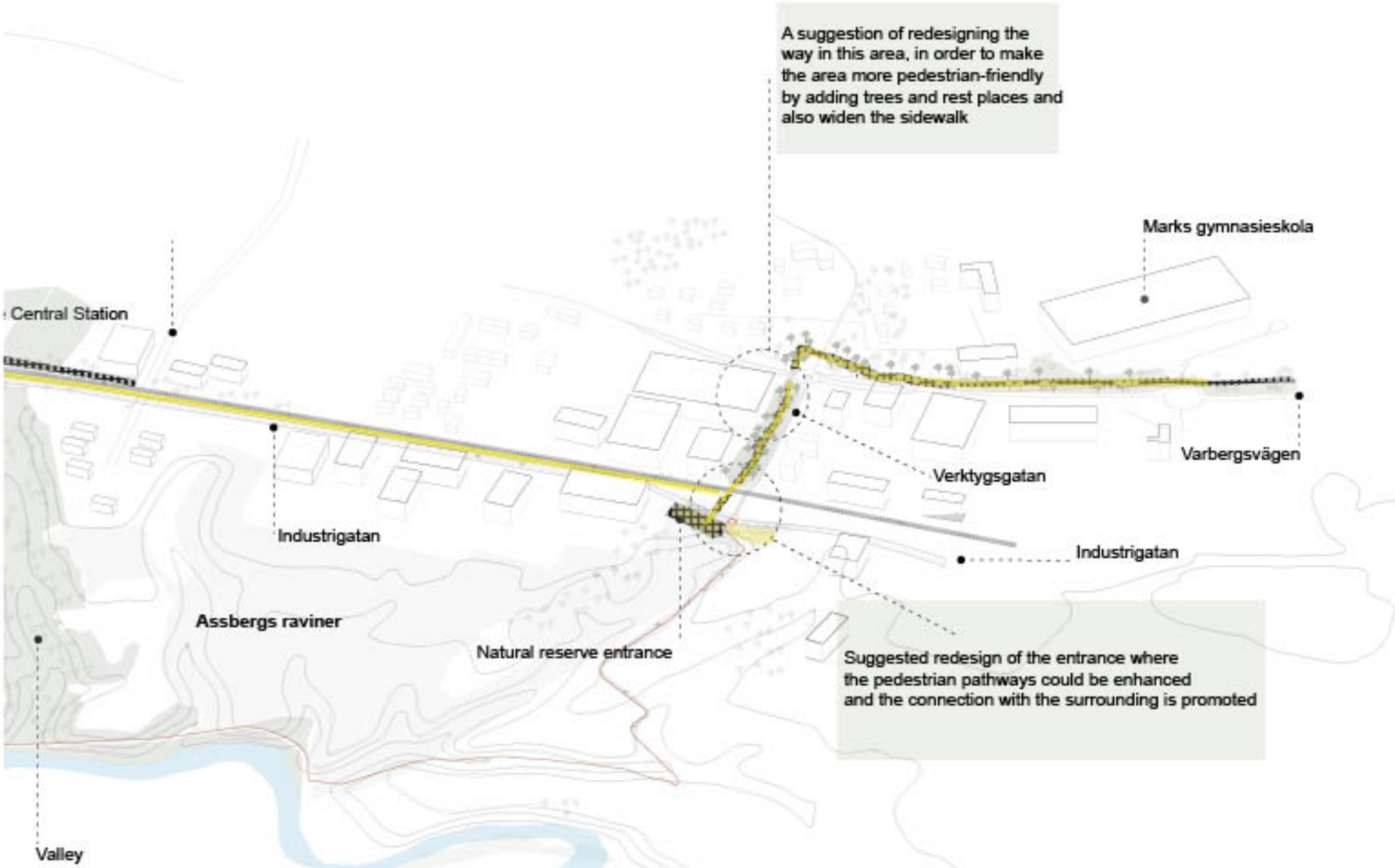


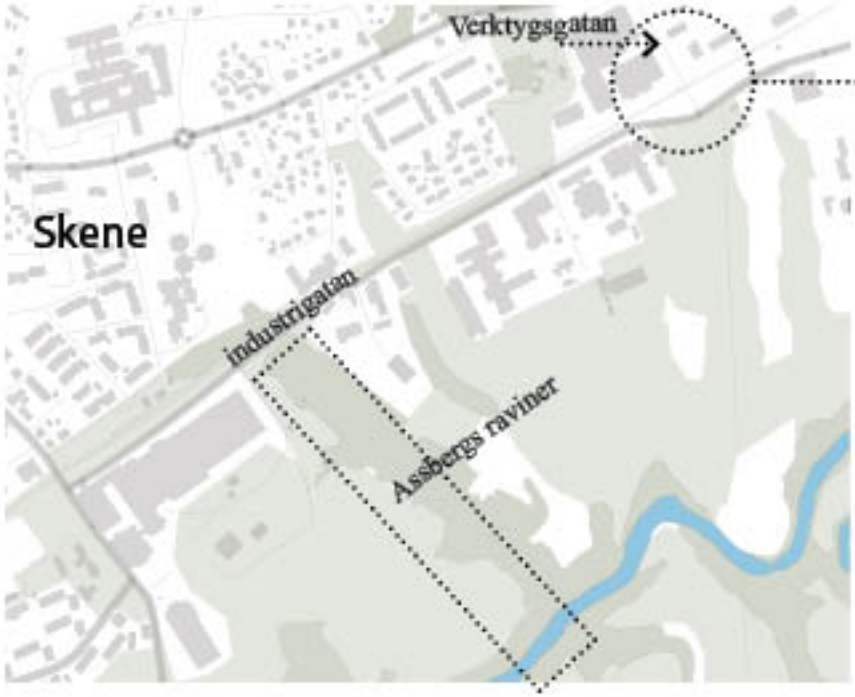


Section 1 across the valley 0 10 20 40 100m

Section 2 the wooden pathway meeting Viskan 0 10 20 50m

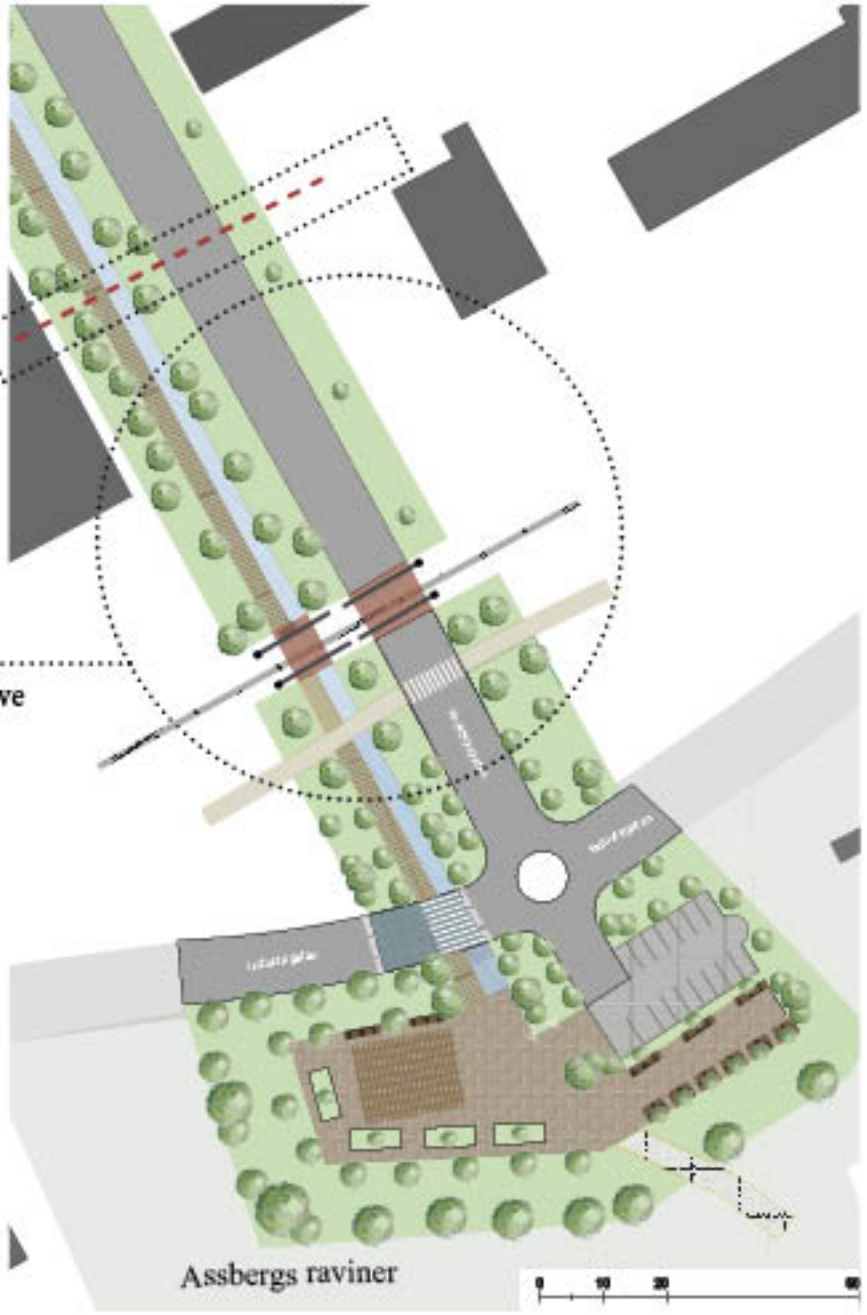
3 Proposal to re-connect existing entrance (of nature reserve) with the surrounding environment.





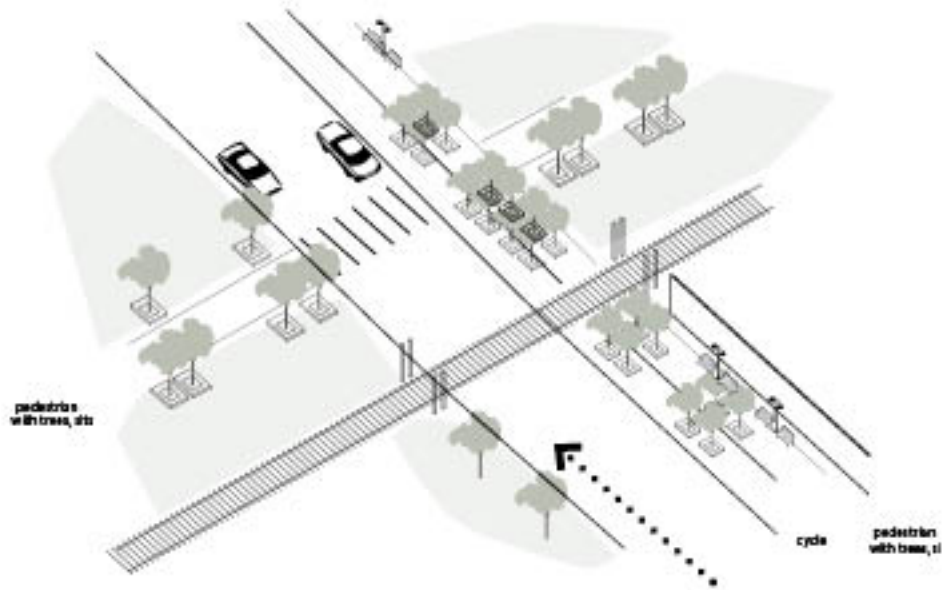
section

Perspective



Developing the current entrance to Assberg's raviner area by converting the intersection into a roundabout for pedestrian safety reasons. Cars would need to slow down their speed.

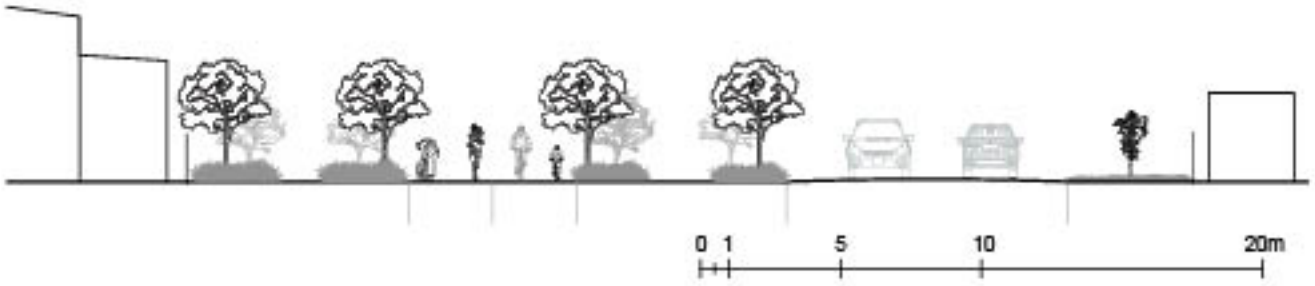
These pedestrian pathways in the surrounding area connecting to the entrance of the natural reserve improved with design elements where trees and resting places to accommodate users. Improvement of pedestrian experience for people moving their enhanced by widening the path and adding a clear path for cyclists



Towards Assbergs raviner entrance

The entrance of the natural reserve; crossroad Industrigatan with Verktygsgatan. The situation after adding our design solutions

The improvement of the already existing entrance by a new design of the parking lots; making more spaces for cars. Also, adding rest places and shelters, and information boards. The idea behind this development is to enhance the attractiveness of the natural reserve and improve the experience of the visitors and local people walking by the entrance.



Section showing how pedestrian pathway could be improved in Verktygsgatan

4 Proposal for a social multi-purpose area alongside the river

Alongside the river and the pathway, many multi-purpose activities are proposed to be installed, such as an outdoor gym, a playground for children, interactive learning places, informative boards and play equipment for pets.

1 Planting boxes: to enhance the social interactive aspect in the place planting boxes could be a tool for people to spend time together and learn to plant.

2 Open air theater, place for social activities, The place could be used for summer festivals

3 High cottage to see the valley, and take pictures.

4 Roofed resting places overlooking the valley and connected to social activities

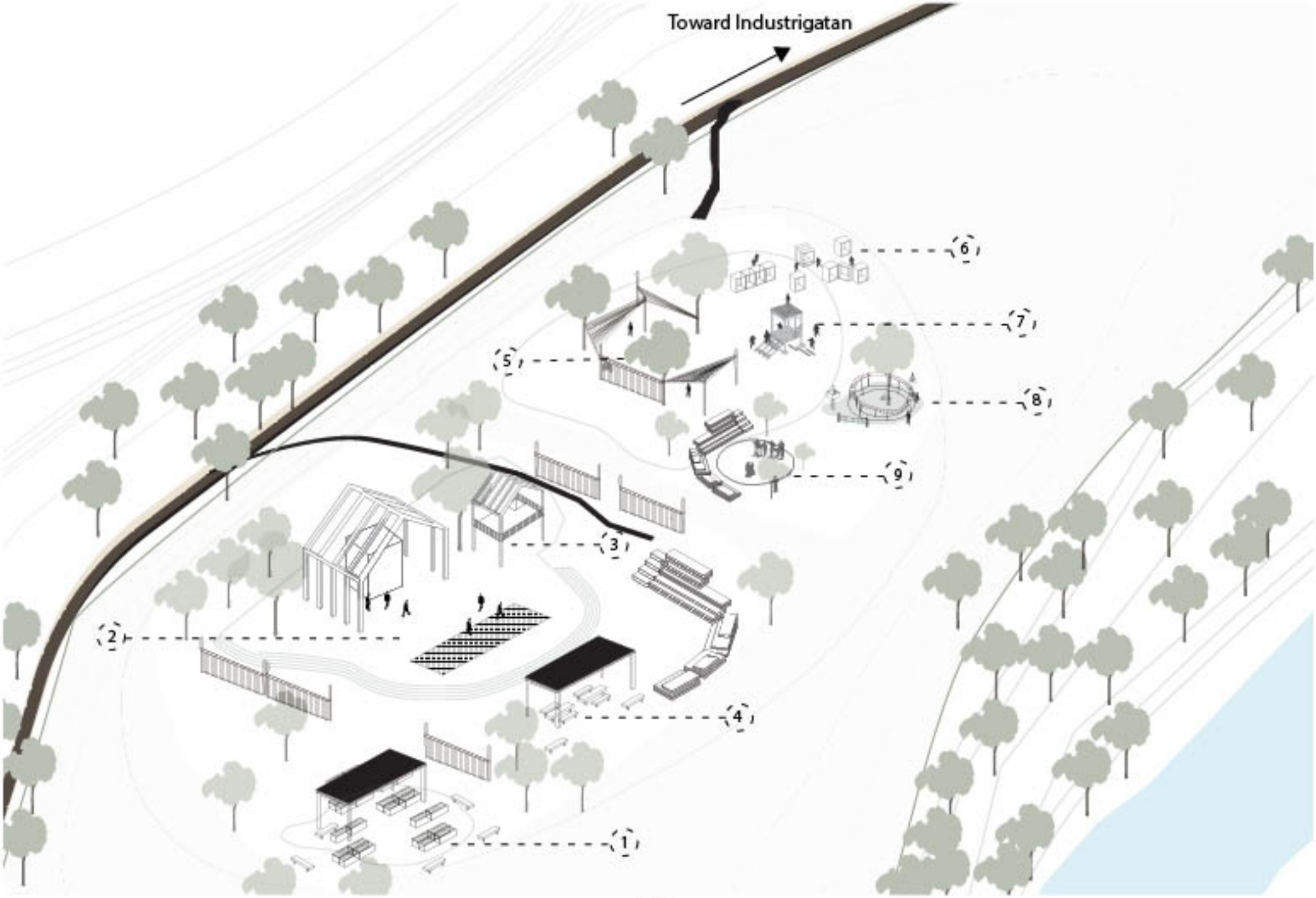
5 Playground for children and adults

6

7 Multipurpose, learning, playing and Information boards

8

9 Outdoor theater or classroom
Offering the students in the area the possibility to have outdoor classes, where children can learn about nature and build connections with natural places. The place could be used for summer festivals


Toward Industrigatan
1
2
3
4
5
6
7
8
9

REFLECTIONS

Achievement of the objectives

Mental connection to Viskan and natural reserve

We worked through the project and design solutions to enhance the role of the river and natural reserve in people's lives, by being a natural place that is easily accessible and part of the daily urban movement of residents and visitors. All this makes the river a part of the city's daily life, and transforms the river to being an urban landmark that represents the city in the minds of the inhabitant and the visitor

Pedestrian accessible pathway

To enhance access to the river and nature reserve. We worked to make the roads leading to the river friendly to pedestrians and cyclists, by equipping it with resting places, shaded areas, green spaces, and trees. We took into account that the passage of the pedestrian pathway needs to go through architectural environments of a human scale, such as residential buildings with two floors or one floor. In addition, designs were proposed for the entrance and exit of the natural reserve surrounding the river, taking into account the needs of visitors and pedestrians, as well as proposing secure entrances for pedestrians through tunnels, bridges, or places designated for crossing the road.

Overall view of the progress of work

During the project, work was done to identify theoretical starting points and test them in a theoretical framework through analyzing maps, visits to the place, and interviewing residents and decision-makers. This contributed to understanding the potential for development and identifying the places most in need of architectural intervention to achieve the goals of the project. This method can be described as back-and-forth research work. As defining the basic theories in the design was not a single stage, but rather a process that developed throughout the project after testing these theories and their effectiveness and suitability to reach the goals. Limited time generally affected the choice of research method, as we were unable to work on integrating stakeholders into the design process effectively.

Reflection on methods

The results of the research are generally design proposals that use local characteristics and values and reuse them to reach the project goals. Through working on adhering to the standards of sustainability, the most important of which are: reusing and benefiting from the pre-existing built and natural materials and environment, taking into account cost-effective solutions that do not require costly radical changes, focusing on green solutions where nature is integrated with the urban environment. What is special about this project is that these solutions could be implemented as a whole or as parts and that each part can be carried out on its own as a project that contributes significantly to the development of the urban environment in the city of Skene.

Future development

Future progress in this project could be done by defining stages of implementation where the most urgent required solutions could be prioritized. To implement it we recommend experimenting with the effectiveness of the proposed design solutions by involving local stakeholders in this process through workshops and meetings. Stakeholder workshops could contribute to developing these solutions in a real user-oriented framework.

REFERENCES

Hillier, B., Stonor, T., Major, M. D. & Spende, N. (1998) From Research to Design. Re-engineering the Space of Trafalgar Square. http://gisweb.massey.ac.nz/topic/Spatial_Syntax/wbrefs/ Space%20Syntax%20Laboratory%20-%20from%20research%20to%20design.htm

Lynch, K. (1960). The Image of the City. MIT Press.

Hillier, B., Penn, A., Hanson, J., Grajewski, T., & Xu, J. (1993). Natural Movement: Or, Configuration and Attraction in Urban Pedestrian Movement. Environment and Planning B: Planning and Design, 20(1), 29-66.

Tibbalds, F. (2000). Making People-Friendly Towns: Improving the Public Environment in Towns and Cities. Taylor & Francis.