

FOR EVER, FOR EVERYONE

TOWARDS ROBUST URBAN SPACES IN VÅGSBUNNEN

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Illustration 1. Group photo, taken at Mount Fløyen in Bergen

Personal Motivation

Our wish for the master thesis was to work within the framework of an actual, real-life project connected to a relevant, contemporary issue. As all three group members have a relation to Norway, the initial search led us to the north to investigate the possibility of writing about a Norwegian case. Early communication with the planning department in the municipality of Bergen led to an introduction to different current cases in the city, and so the idea of working within the context of Bergen and Norway became a reality. Bergen is Norway's second largest city, in addition to being one of the oldest Nordic cities. It is a city with a whole lot of history, culture, and tradition, but there is also a will to develop, be innovative and look towards the future. The balance between the old and the new, the past and the future, was intriguing and a new set of urban challenges to work within.

The case of Bergen and Vågsbunnen gives us the opportunity to dive into different urban design issues, where some of them are newer to us than others. We have been trained in working with the robust city and transformation of urban spaces, in terms of making them more sustainable. The big emphasis on the cultural aspect is however new to us, and working in a defined cultural context with set regulations requires us to put on a new pair of glasses.

Traditionally, being primed as an urban designer or urban planner is oftentimes about being a mediator or referee between different stakeholders, where the urban designer must stay value free and objective. This project is attempting to challenge this, where we as urban designers take a clear standing toward our own values of working dynamically with cultural heritage in a regulation and zoning driven context.

Preword

As our master studies come to an end, a prominent chapter of our lives is closing. We have been grateful for the knowledge, skills and competences that this education has given us, and we are very much looking forward to starting a new chapter, with a new set of challenges.

In the writing of this thesis a thank you note must be said. We have many people to thank for the achievement of this thesis. First, thank you to our families and friends who have been a great support in times of need, and to our classmates for valuable and constructive feedback throughout the process.

A special thank you to Karen Høstmark in Bergen kommune for providing base maps and crucial data for our thesis project, in addition to meeting with us in Bergen. The lovely ladies, Tone Takvam and Rigmor Huus, at Bergen Byantikvaren, must also be mentioned – thank you for an insightful conversation about cultural heritage in Vågsbunnen.

Thank you to Kasper Albrektsen for contributing with resources and insight into working with cultural heritage. Your reflections truly helped in nudging the project forward in a positive direction.

Lastly, a thank you to Tina Vestermann Olsen, our supervisor. It has been a pleasure working with you, and you always bring such positive energy to our supervisions. You know just how to ask the right meaningful questions and keep us uplifted through challenging times. That has been highly appreciated.

Daniel Hermansen

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Abstract

This master thesis aims to investigate how to make robust urban spaces in a cultural environment. Today cities are facing huge challenges with climate changes and changing needs within the cities themselves. Simultaneously, many cities also have a deep-rooted history. The purpose of this thesis is, through literature studies, integrated design and extensive analysis, to figure out how to find the balance between the need for sustainable, robust cities and the need to preserve important cultural heritage.

This project is working with a case in Bergen, Norway called Vågsbunnen. This case is an ongoing project from Bergen Municipality, who are currently investigating the need for a transformation and redesign of the district – a “gateopprustning” in Norwegian. The thesis will through a theoretical discussion try to elaborate on the concept of robustness and try to identify how to design robust cities, connecting it with an ongoing discourse on preservation in terms of cultural heritage. This thesis takes its standpoint in the cultural heritage discourse of the Climate Paradigm and will be elaborating on how that is reconcilable with the discourse on sustainable development. Through analysis of the site in Vågsbunnen, it will be investigated why the district is in need of a transformation, and it will further be elaborated what measures are needed in order to create socially and physically robust urban spaces while preserving the cultural heritage in Vågsbunnen.

The result is a design of the urban space in Vågsbunnen, called ‘allmenningen’. Allmenningen as an historic structure and consists of various smaller urban spaces with different characteristics. The design focuses on the physical robustification, where especially rainwater management and adaptation have been important to mitigate climate change, but also to ensure survival of important cultural heritage.

The thesis concludes, that in order to create robust urban spaces in Vågsbunnen, there is a need for both social and physical robustness. Pursuing these two, will ultimately create robust urban spaces. Additionally, working with cultural heritage and the specific site, also showed that there is potential in improving the storytelling of the city. To achieve this, the thesis proposes the utilization of the three design objectives: preservation, adaptation and addition.

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Appendix A.

Reading Guide For Report

The report is to be read chronologically, and it is divided into six main parts. All photos or illustrations without a reference or source have been curated by the thesis group members. Historical photos are from the University Library at University of Bergen, and most base maps data has been received from Bergen Municipality.

The project area is marked with an orange, dotted line on all mappings.

The prologue (1) presents the case and problem of the thesis, in addition to the methodology used to execute the thesis. Important terminology, in addition to a discussion about working with cultural heritage, is also included here. Then, a theoretical (2) discussion regarding designing for robust urban space follows. It concludes with three important design objectives for the robust urban space. With this common understanding as a base, the next chapter (3) dives into Vågsbunnen and presents major analysis for the area. From this, there will be a (4) bridging between the analysis and the design, looking at the potentials for each urban space. The vision and concept for the further work with the design will also be formulated. The design (5) of Korskirkeallmenningen will then be presented, including recommendations for further work. Lastly, some final reflections and a conclusion (6) of the project.

READING GUIDE MAP





Reading Guide For Map

This fold-out map is meant as a guide map, made to follow you through the report. It contains streets names, names of districts and other important places in Bergen. Please fold it out and use it while reading the report, to better navigate and understand the bigger context of the project site.



Illustration 2.
Reading Guide Map
1:10,000

Dictionary

As the project works with a case in Norway, it is necessary that some key Norwegian words are introduced and explained. These words will be used throughout the report in their original state and will thus not be translated. The same applies to place and street names. This is a conscious decision, as the Norwegian words will aid in communicating the cultural and social setting of the project.

ALLMENNING

Based of the word 'allmenn', meaning public or accessible to all. Historically known as the wide streets or spaces, connecting city and landscape, harbour and country.

BERGENSERE

The name of the group of inhabitants in Bergen, "people from Bergen".

BRYGGEN

Meaning 'the harbour' or 'the dock'. Name of the UNESCO World Heritage Site, and the east-side of Vågen in Bergen. This is the area where the city Bergen first developed from.

FISKETORGET

The historical marketplace in the end of Vågen, today used as a seasonal market for locals and tourists. The name is composed of the word 'fisk' and 'torg' meaning the 'fish-square'.

FJELL

Norwegian word for mountain

KVARTAL

A city structure that is compiled by a group buildings build together in a defined space surrounded often by four roads, but can have other irregular shapes. The closest translation to the term will be a city block or city square. It is equivalent to the Danish 'karré'.

GATE

Norwegian word for street

SKOMAKER

Person who works with leather; a cobbler.

SMAU

A narrow corridor or passageway, often surrounded by dense buildings. Also known as 'smug' or 'smitt'.

VÅGSBUNNEN

Combination of 'våg', meaning small bay, and 'bunn', meaning the end of a hollow object. Implied meaning being the end of the small bay. This is the name of an old district in Bergen.

VÅGEN

'Våg' meaning small bay, in singular definite form. Name of the bay in Bergen.

STRANDSIDEN

The west side of Vågen in Bergen

OPPRUSTE

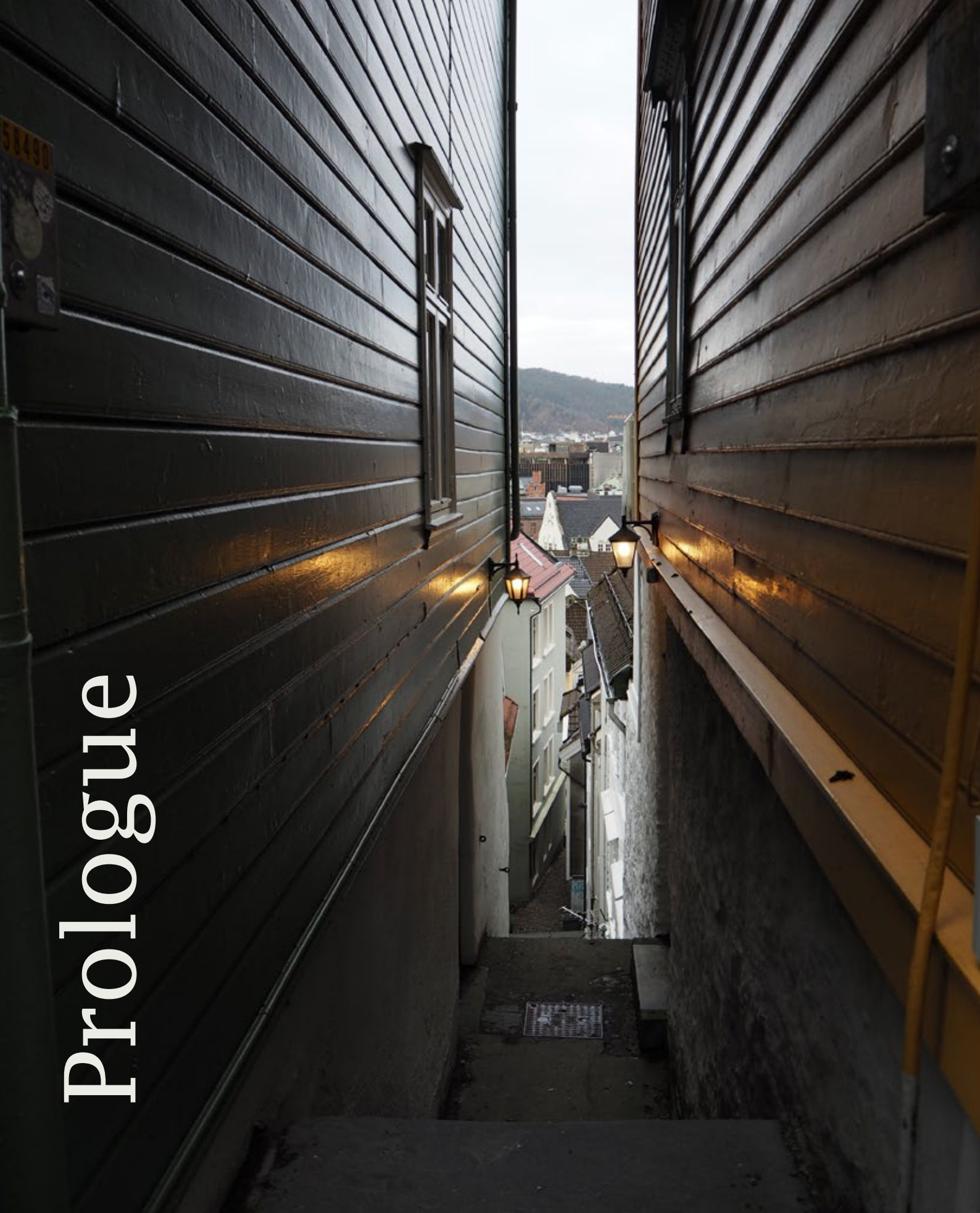
To upgrade with a certain robustness. See page 16 and 41.

The prologue presents the framework for this master thesis. This includes a presentation of the main themes and urban design challenges the thesis is working with, and the case. To understand the case and the task at hand, the terms 'opprustning' and 'cultural environment' are also explained in more detail. Lastly, the problem statement and the methodology used in the project are presented.



01

Prologue



The Robust Urban Space in a Cultural Environment

Cities today are rapidly transforming. They have to deal with increased pressure on several fronts. From atypical weather incidents due to climate change, population growth and densification, changing political and economic interests, to lack of social activity due to global pandemics, and diverse user groups with different needs and demands. Sustainability is by now a well-known term, and the original statement from the Brundtland Commission in 1987 still stands:

"meeting the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987).

We must create cities now, that will endure and withstand the test of time. Expanding and shrinking because of changing needs, the city is a dynamic organism, and it is crucial that it is strong enough to manage transformation. Simultaneously, many cities carry the stories of the past with old urban structures, providing important information of the societies that came before us and their traditions. The cultural heritage in cities is due to social and environmental changes at risk of being lost. Making robust structures in our cities is a way of working with these uncertainties, bringing new and historical structures sustainably into the future.

Building on a current municipal project from Bergen in Norway, this urban design thesis investigates several contemporary design issues related to the making of robust cities and its urban spaces - from urban life and functions, rainwater management, to cultural heritage and historical identity. Based on these issues, the thesis will seek to understand how to create robust urban spaces in a context with cultural importance. The final product will be a redesign of a historical urban space, pushing what is possible in a cultural and historical context.

THE ROBUST CITY

In the Cambridge Dictionary (2023) "robust" is defined as:

"strong and unlikely to break or fail"

Applying the term to the city, a robust city is therefore a strong city. In practice, this means that the robust city is a settlement which is built in such a manner that it can handle whatever challenges comes its way, whether that be environmental, social, or economic challenges. Urban planner Tony Hall (2015) argues that the robust city must be designed in a way so that, "as circumstances change and new generations take over, they need minimal alternation of their existing form in order to accommodate changes in use, increase in intensity of use, and expansion of size" (p. 1). Based on this, the robust city is therefore a resilient city that can adapt to changes over time and is planned for further development. If the city is not originally planned as a robust structure, there is most likely a need for upgrades and changes later, to create and design a city that can handle changes in a sustainable way going forward.

Zooming in, the robust city consists of several robust urban spaces and streets, that in themselves can adapt to changes and contribute to the robustness of the city. The use of urban spaces will alter over time, affected by many things, for example surrounding buildings and their functions, and the population's use of the city. In pursuit of the robust city, it is therefore important to design urban spaces in a robust physical form, which seeks human quality of life and a sustainable environment (Hall, 2015).

THE CULTURAL ENVIRONMENT

Many cities have important cultural and historical layers that create the city's identity today. There might be general city structures that date many hundred years back. Some of these structures and spaces have endured the passing of time, while others may have been demolished, replaced, or forgotten along the way. The historical city therefore consists of both historically robust urban spaces and not so robust urban spaces. There will oftentimes be a certain story in the structures surrounding these spaces – for example, the network and correlation between spaces, historical buildings, use and functions, or a cultural landscape. This cultural historical context is usually called a cultural environment, often protected through various preservative regulations and laws (Riksantikvaren, 2020).

BALANCING ROBUSTIFICATION & PRESERVATION

Today, there are new challenges to our urban and cultural environments, with the climate challenges being a significant one. The old city spaces were not made to handle the increasingly bad weather and our modern habits, and the current state of many urban spaces does not necessarily contribute to the liveability and durability of the city. The question is then, how to combine the need for new, robust spaces with the need to preserve and maintain a certain cultural environment? Will the need for robustification pollute the cultural environment and its authenticity, or is there a way to balance the need for new with the preservation of old? How can the historical city spaces follow the changing environment in which they are located, without losing their soul and identity?

Project Location

To investigate the making of robust urban spaces in a cultural environment, a case from the coastal town Bergen in Norway has been chosen. The case builds on a current municipal project, where the overall goal is to make a city district, named Vågsbunnen, more robust. Vågsbunnen is part of several defined cultural environments in Bergen, with structures dating back to the Medieval Ages.

The project will focus on the redesign of the main urban space in Vågsbunnen, here referred to as "allmenningen". Bergen, Vågsbunnen and allmenningen will be introduced in more detail later on. Please also note that the project boundary is not identical to that of the municipality (appendix 1).

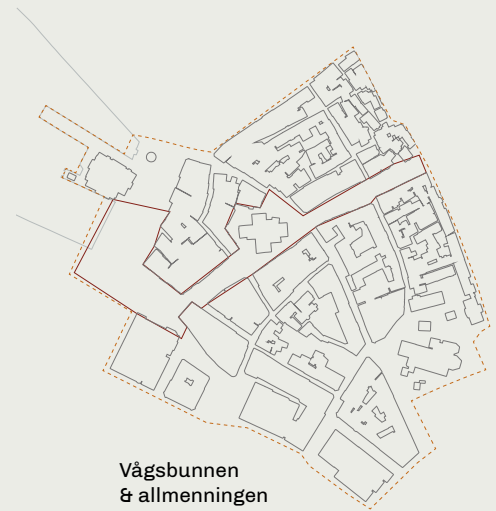


Illustration 4. Project location:
Norway - Bergen Municipality -
Bergen City Centre - Vågsbunnen



Illustration 5. The UNESCO World Heritage Site in Bergen, Bryggen

Why Bergen?

Bergen is a Norwegian city of great national value, regional importance, and international recognition. It is a city with rich history and an ambitious vision for a sustainable future. Vågsbunnen is located at the core of Bergen inner city and has been a crucial part of the city for a long time, making both Bergen and Vågsbunnen a great case study in terms of looking at robust urban spaces in a cultural historical context.

UNESCO WORLD HERITAGE CITY

In 1979, Bergen was enlisted on the UNESCO World Heritage Convention, for the old wharf area called Bryggen. Bryggen's structures date back to the 14th century, and it bears the traces of the social organization and the way of life of Hanseatic merchants, who dominated the trading port in Bergen for several hundred years. As a result of the UNESCO listing, Bergen has committed to preserving heritage as part of their city- and regional planning and policy making. In practice this means that the city has to preserve all archeological findings and structures, like the city plans, street structures, property patterns, and historical buildings (UNESCO World Heritage Centre, no date).

Bergen has also been a member of the network UNESCO Creative Cities of Gastronomy since 2015 and has here committed to preserving the local food tradition and culture. Furthermore, Bergen is also a gateway to the West Norwegian fjords. Several of the fjords are on the UNESCO World Heritage List as well ('Bergen, Bryggen and UNESCO linkages', 2016).

URBAN DEVELOPMENT PLANS

Bergen's urban development has historically followed similar patterns as other cities, with the mass-ownership of private vehicles, population growth and suburban expansions, industrialization and new technologies permeating city planning the last 100 years. Today, Bergen is working to reverse many of these trends, through new policies and an increased focus on sustainable development. The political will to adapt is very much present, and the municipality is working toward the sustainability goals set by the UN in 2015. They have ambitions of making Bergen the greenest city in Norway - both physically and figuratively - by implementing more nature, but also through other sustainability measures, such as increased focus on walkability, bikeability, public transport, city and business life, and densification. The goal is to reach net-zero by 2030 (Bergen kommune, 2019b). The political ambitions are ultimately pushing Bergen towards being a more robust city that can handle the challenges of our current and future society.

In this regard, there are many projects ongoing in the city. The current biggest city planning projects include:

- The expansion of the light rail (Bybanen), to improve connectivity and promote sustainable and smart travel in and out of the city
- The transformation of the harbour area (Dokken) into a new city district with diversity in functions, housing, businesses, culture and recreation
- The creation of a new city beach park (Lunegårdsparken Bystrand), to provide the city with an accessible green lung for recreational, marine activities in a closed bay

There are also smaller yet important projects ongoing, such as the case this thesis is working with.

Case Introduction

“Gateopprustning” in Vågsbunnen

As mentioned, the thesis is based on a municipal case, where the goal is to make the district Vågsbunnen, more robust. As part of the ambitious urban development plans in Bergen, there is an ongoing upgrade of the underground infrastructure in the entire city centre. The municipality is establishing new underground renovation systems, and simultaneously, they wish to upgrade the streets and urban spaces above ground, as the general condition in many urban areas is low. The aim is to provide a general improvement of the city centre's public space, and to make the city adjust to modern needs, above and below ground, in pursuit of sustainable development. Vågsbunnen is part of the second area in the city undergoing this upgrade, and the case builds on the so-called ‘gateopprustning’ of Vågsbunnen.

The overall goal for the gateopprustning in Vågsbunnen is to strengthen the quality of the streets and urban space, and make the area more attractive and accessible for pedestrians. Additionally, there is a need to consider that Vågsbunnen is part of a cultural context, and that the upgrade must be done in accordance with Vågsbunnen's historical identity. The municipality has several different themes they want to investigate in this regard, to create a ‘pre-project’ for the gateopprustning (Bergen kommune, 2021a):

- Open and inclusive urban spaces made for diverse use
- Visualisation of the historical development of the area
- Accessibility for pedestrians, through universal design
- Activity and stay in streets and places, with a focus on kids and youth
- Parking-free area, but with necessary everyday and sustainable goods delivery allowed
- Mobility pattern and street dimensions, with opportunities for pedestrian, bike or shared spaces
- Location of technical infrastructure, such as renovation and recycling bins, goods delivery, bike parking and possible shared mobilities
- Principles for climate adaptation and rainwater management
- Standardisation of materials, furniture, greenery and lighting

The thesis project has its point of departure in this case of Vågsbunnen in Bergen, and the upgrade of the streets and urban spaces of the area. The thesis goal is to produce a project that taps into many of the themes from the municipal plan, but the thesis will not dive into all of them in detail. There will also be a more significant focus on the cultural heritage. The hope is that the thesis will work as a source of inspiration in the municipality's further work. Bergen Municipality aims to start their planning of the streets and spaces in Vågsbunnen in the last quarter of 2023.

OPPRUSTNING - WHAT IS IT?

In the description of the project, an interesting Norwegian word is used to explain the transformation needed in Vågsbunnen: ‘gateopprustning’. This wording is peculiar, as there is no direct equivalent in the English language. Keeping the underlying meaning of the word, it would be translated to be a transformation or improvement of the streets. However, ‘opprustning’ is a word typically used in relation to warfare, meaning to increase war preparedness and armament (Det Norske Akademi for Språk og Litteratur, 2023).

There is therefore a duality to the project, where the municipal project implies both **a transformation and a preparedness for the unknown**. An opprustning is thus understood as making something more resilient and adaptable to future changes through different preparatory measures and can in many ways be understood as a way to make the streets “strong and unlikely to fail”; more robust.



FROM UNMAINTAINED, FRAGMENTED & INACTIVE ...

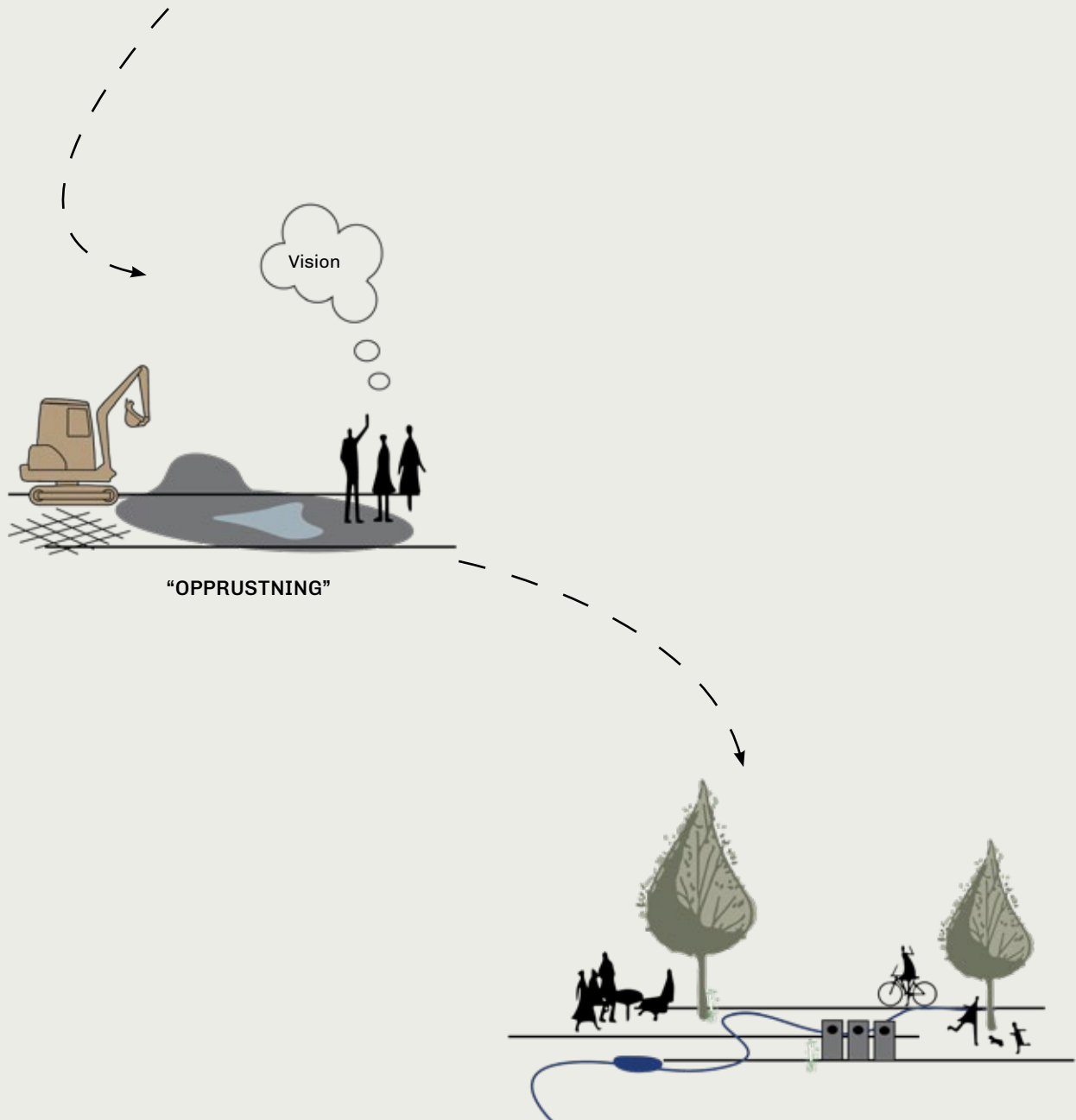


Illustration 6. The process of the opprustning in Vågsbunnen



The Medieval City

Early Urban Settlement
"Fjellsiden"

The Medieval City Grounds

UNESCO: Bryggen



Illustration 7.
Cultural Environments in Bergen
1:10,000

Cultural Environments

Part of choosing the case of Bergen and Vågsbunnen is the cultural heritage connected to the site. Cultural heritage has many connotations and is a complex variable, that covers both material and intangible topics. According to UNESCO, "cultural heritage includes artefacts, monuments, a group of buildings and sites, museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance" (UNESCO Institute for Statistics, 2009). In practise, this means that singular objects can be cultural heritage, but entire city districts can also be part of the cultural heritage.

The Norwegian Directorate for Cultural Heritage (Riksantikvaren) separate between a cultural environment and a cultural monument or site. A cultural environment is defined as an area where cultural monuments and sites are part of a bigger context or coherence, that tell the story of societies before us. Cultural monuments or sites are all the physical traces after human life, for example buildings, graveyards, boats or human interventions in the natural landscape (Riksantikvaren, 2020). In Vågsbunnen there are occurrences of both, and the map shows the location of the project area in and between three defined cultural environments in Bergen (Kulturminnesøk, 2023):

- The Medieval City Bergen ("Bergen Middelalderbyen"). A cultural environment of national interest.
- The Medieval grounds ("Middelalderbygrunn"). Archeological site, containing the memory of the early urban settlements in Bergen. Automatically protected by law. This means that it is forbidden to commence with any activities that can harm, destroy, move, change, cover, hide or deface the cultural heritage that may be located in the archeological layers underground.
- The Mountain Side Settlement ("Bergen Fjellsiden"). A cultural environment of national interest.

Being part of a cultural environment means that there are regulations and laws for preservation of certain aspects of the area. In *Heritage Futures*, Harrison et al. (2020), state that preservation of cultural heritage is done primarily for future generations, and cultural heritage is often framed as something for the future. Preservation is here understood as the action we take to keep something from decaying or preventing it from being damaged. Often, when talking about cultural heritage, we usually think of preservation of buildings or objects, i.e., cultural monuments or sites. But how can we work with preserving a cultural environment, which consists of several monuments, sites and structures, and has a certain atmosphere that we want to bring into the future?

WORKING WITH CULTURAL ENVIRONMENTS: THE CLIMATE PARADIGM

According to (DeSilvey, Bartolini and Lyons, 2020), contemporary public discourse frame cultural heritage through a reference to a narrow range of attributes, looking at the built, natural and intangible heritage. Traditionally, the value assigned to cultural heritage has been related to the understanding of preservation previously presented; as keeping something from decaying or preventing it from being damaged, to preserve the future value. Working with the uncertainty of preserving for the future is difficult, and mitigating threats are usually done by protection from further change. This causes the heritage to become a static element, kept in a box for safekeeping, separate from the rest of the development in society.

The balance of protection and preservation of the old, against the desire for renewal and change, can oftentimes be a field of tension within urban development. DeSilvey, Bartolini and Lyons (2020) suggest that the time has come to embrace a more adaptive and expansive view on preservation, where change and transformation is seen as an integral element of heritage. They are not alone in this thought. Riesto and Stenbro (2021) look at the role of cultural heritage in relation to the climate challenges and urban development of coastal cities. They claim that due to new urban challenges, there is a paradigm development where the cultural heritage is no longer viewed as something threatened by change, but as something that can contribute positively to a better future. Kasper Albrektsen (2020), PhD-fellow at Aarhus School of Architecture researching cultural heritage as action, also published an article stating that cultural heritage is dynamic, containing both object and action, product and process.

The paradigm implied by Riesto and Stenbro (2021) is called the Climate Paradigm. The changing climate is seen as a catalyst for looking at the cultural heritage as something dynamic that must change accordingly, and it can thus be a contributor to sustainable development. Considering Bergen Municipality's current sustainability ambitions, it makes sense to re-evaluate what is important in the development of the cultural environments in Bergen, and to assign new value to the existing cultural heritage in the city. Harrison et al. (2020) also argue that cultural heritage is only relevant if it has a value and a role in the future as well as now. Preserving something for the future is therefore pointless if we don't continually adapt new methods for the threats, challenges and uncertainties that arise.

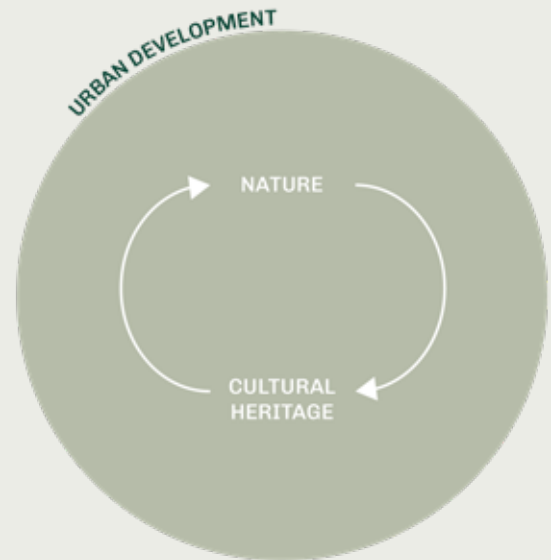


Illustration 8. The Climate Paradigm: Urban development as a balance between nature and cultural heritage. Inspired by Riesto and Stenbro (2021, p.31)

ROBUST CULTURAL ENVIRONMENTS

What then happens if we apply the robustness/opprustning thinking to a cultural heritage environment, through the climate paradigm lens? We want to transform our cities so they can handle whatever challenges come, and development of sustainable and robust cities is ultimately creating cities that can last for future generations. We also want to preserve the cultural heritage of the cities in the best possible way, to protect important cultural values for future generations. The end goal of the two is thus ultimately the same: creating value for the future.

The climate paradigm will therefore support a change of cultural heritage if it contributes to the future value and helps in preserving the value in the present and future. This might seem like a contradictory thought; wanting to change so we can preserve, but **preservation** is only a small part of working with cultural heritage – if we are to believe the paradigm many academics are talking about. It is necessary to submit to change, and thus, **adaptation** of cultural heritage to meet new challenges is just as important.

The climate paradigm shares many similarities with the thoughts of the robust city, and it can directly relate to the goals of the Vågsbunnen case and 'opprustning'. The approach used in this thesis will therefore build on this paradigm's understanding of working with cultural heritage as something dynamic, where there is a need to both preserve and adapt to ensure future value when developers and planners of our cities are pushing for transformation.

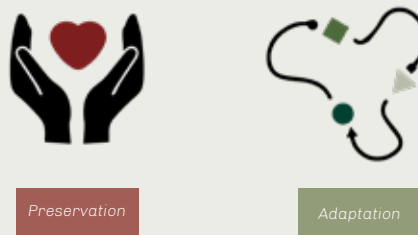


Illustration 9. Preservation and adaptation as parameters for working with cultural heritage

Problem Statement

Bergen Municipality has identified a need to improve the urban spaces and streets of Bergen and Vågsbunnen. Creating a robust city for all, that can handle the future challenges at hand, has never been more important. Simultaneously, Bergen is a city with traditions and history, and a big part of the city is part of defined cultural environments.

Building on the case of Vågsbunnen, the aim is to investigate how to make robust urban spaces in a cultural environment. The thesis will tap into the balance of new versus traditional, dynamic versus static, and aims to work with cultural heritage through a dynamic approach built on the Climate Paradigm defined by Riesto and Stenbro (2021). The research question is formulated as such:

"How can Vågsbunnen become a district with robust urban spaces, where the cultural heritage and identity is preserved and adapted to tackle current challenges?"

SUB-QUESTIONS

To answer this problem, the following sub-questions have been formulated:

1. What characterizes Vågsbunnen's identity?
2. What provokes the need for an opprustning in Vågsbunnen, and what are the current challenges of the site?
3. How can we design for robust urban spaces, socially and physically?

“How can Vågsbunnen become a district with robust urban spaces, where the cultural heritage and identity is preserved and adapted to tackle current challenges?”

Methodology

Urban design as an academic field consists of different types of methodologies. Traditionally the field can consist of methods from technical engineering fields, design and architecture to more sociological fields. Some methods are also the same across these fields. This means that the range of methods can vary much, depending on the given project, the site and the task at hand.

In this project, the methods will mostly consist of methodologies typical for design and architecture. The aim of the methods has been to identify the characteristics of the project site and its potentials and problems, in order to incrementally develop a redesign of the site. Qualitative and quantitative site and desktop analysis, in combination with literature review, create the foundation for the project methodology. Further, unstructured interviews with relevant stakeholders and academics have been conducted, providing qualitative insights. The design builds on this knowledge and has been created incrementally through an integrated design process, ongoing from project start to finish.

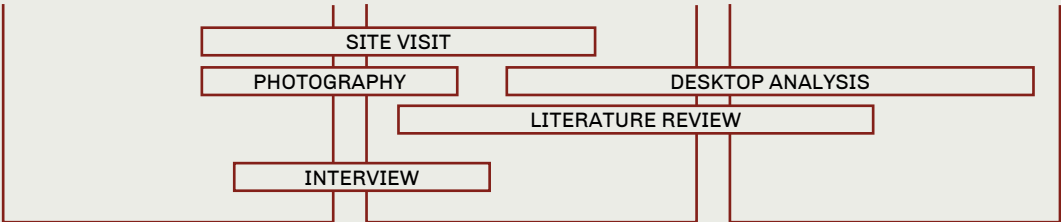
REPORT STRUCTURE



INTEGRATED DESIGN PROCESS



APPLIED METHODS



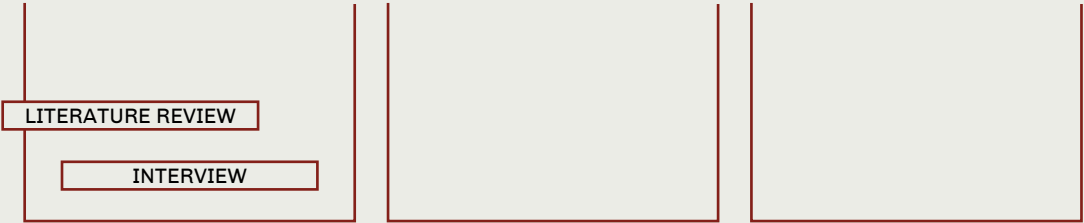


Illustration 10. Methodology diagram



Illustration 11. Coffee break during the site visit in Bergen

Integrated Design

The integrated design process is the foundation in the work done at Aalborg University. The methodology is developed by Mary-Ann Knudstrup (Knudstrup, 2004). It is a way to simplify the work done as a designer. In theory it can be put into five principles: Problem, Analysis, Sketching, Synthesis, and Presentation. However, in reality this is by no way a linear process and as demonstrated on the diagram before the design process is in fact very complicated. It will now briefly be explained how this master thesis has been developed through the use of Knudstrup's methodology.

PROBLEM

The project starts by identifying a problem and thus creating a problem statement. This problem will be the base for the rest of the Integrated design process. The problem statement is important in the entire project as it is the baseline for the analysis, the sketching, synthesis, and presentation. This problem is what in the end should define the project, and in the presentation a solution to the problem will be put forth. However, everything within this method is tentative, and in this project the problem statement has evolved throughout. From the beginning the project was focused on the problems Bergen Municipality put forward. However, as new knowledge was gained the problems that we as urban designers discovered changed, and thus made the problem statement differ more from the original presented by the municipality.

ANALYSIS

The analysis phase is where most new knowledge towards the problem statement is found. This is where the first lines of ideas start to appear. Generally, analysis can be both desktop analysis and on-site analysis. Both has been used in this project and will be elaborated on further.

SKETCHING

As an urban designer sketching is an important tool in order to gain new knowledge and develop ideas. Sketching has in this project been used as a core structure for the entire project. In the beginning of the project, the sketches were looser, and based on rough ideas. However as the project developed these sketches became more refined, and through the sketching it became possible to discover weaknesses and strengths in our designs when reflecting on them through the lense of our problem statement and our analysis.

Sketching is also an important tool in order to visualize ideas and concepts, and in this project sketching has been done both by hand and in the 3D modelling program Rhinoceros/Enscape, in order to gain a spatial understanding of spaces. Further, sketches have been both in plan, sections and perspective in order to find different nuances of a given design.

SYNTHESIS

In this project our design has simultaneously with the other phases of the integrated design process been evaluated. In the synthesis phase the project is evaluated and compared to the problem statement, the analysis, theory, and similar criteria, to realise whether a design uphold against the problems and challenges at hand. This however is by no means a linear process. The evaluation of designs has been an ongoing job, that has lasted all till the end.

PRESENTATION

As the design process cannot be seen as a linear process, the presentation of project becomes very important. In order to gain an understanding of the project, is must be conformed into something that somewhat seems like a linear process, in order for the reader to understand the project, and the thoughts that has formed the project. In the presentation phase it is then important that the right information is presented in the right order. In this project this has been tried achieved by dividing the project into several chapters. From theory, to analysis, to design. This however can by no means be seen as the project has been developed in this structure as in reality, all of the phases of the integrated design process have been happening simultaneously.

Literature Review

In this project we have been doing literature reviews. In order to do so, it has been important to find relevant literature. This literature has been focussing on different topics that has had relevance to the project framework of the robust urban space in a cultural environment. Some of the key thematic in the literature is thus 'Robust Cities', 'Cultural Heritage', 'Urban life', and 'Urban space'. In this process different literature has been analysed, however, as the project developed it became clear that different theorists has more important statements towards the solutions in our project. In terms of the Robust City, Tony Hall (2015) has been a core academic resource, in order to understand how to design towards robust cities – both physically and socially. Similar in our research towards Cultural Heritage, Kasper Albrektssen has been a contributor with inputs and literature in our research. We have further conducted an unstructured interview with Kasper Albrektssen to gain a better understanding on how to design with Cultural Environments. This was when the contributions to the Cultural Heritage thematic in this thesis were put forth, as he recommended a list of academic papers and publications, that could help us in our understanding of cultural heritage. Most notably were Riesto and Stenbro (2021), Harrison et.al. (2020), and The Norwegian Directorate for Cultural Heritage (Riksantikvaren). In terms of understanding the public domain and social spheres and to design for humans several academics can be mentioned: Hajer and Reijndorp (2001), Gehl (2016), Jacobs (1961), Sim (2020), Hall (2015) and Sirowy (2015). However, there is plenty research available on either of these matters, and these academics are the ones we have chosen as contributors to this thesis. If different viewpoints were chosen, the resulting theoretical background and thus the resulting design might have been different.

Desktop Analysis

This thesis has been analysing the urban spaces through a combination of spatial experiences through a site visit, however some of the analysis that has been made, has been conducted as so-called desktop analysis. These analyses are characterised by the fact that they can be investigated from any given place in the world, as long as you have accessibility to the right resources.

HISTORY REVIEWS

One of the main analyses were to gain an understanding of the history in Bergen, as it is important to understand the history that has created the cultural environment the site is located in. This has primarily been done by conducting research and finding the right resources. Especially Hans-Jacob Roald's book *Byplanen* (2015), telling the story of the evolution of Bergen's urban plans and its development as a city. Additionally, the digital encyclopedia of Bergen Municipality, the "Bergen Byleksikon" has been helpful with more specific information about the design site.

MAPPINGS

Another important part of the analysis is the mappings. Some mappings require one to visit the site, however, many mappings can be conducted as desktop analysis. Bergen Municipality provided the GIS data for creating vector base maps over Bergen, with data such as topography, infrastructure, and buildings. Furthermore, various digital maps, such as Google Maps, Norgeskart, and Bergenskart have been used as a secondary research method for gathering mapping data. Other resources such as books and web pages has also been used to do the mappings presented in this thesis.

Site Visit

As an urban designer one must experience a site. In order to feel comfortable jumping into the design phase, it is important that the designer has a great understanding of the site. Not just the visual or on top view of a site, but the in depth understanding. A site visit can in these matters be a great tool, as it is possible to experience different feelings that otherwise would have been impossible; sounds, smells, atmospheres, and everyday encounters. In this project, the group visited Bergen in late February. This was early in the project and the site visit was conducted in our analysis phase and was focused around gaining new information about the site. The site visit included different analysis that in this chapter will be elaborated on further. It would have been preferable to visit the site a second time later into the project, as the project developed. This would have made it possible to do further analysis and more investigations into the structure of the site and bring more design thinking into the visit.

Photography

An important methodology from our site visit has been documentation of the experiences, materials, atmospheres, encounters, buildings, and urban structures. These images have been used as a phenomenological approach, in terms of understanding and referring to different design problems and challenges that was discovered. However, they were also an important tool, as it was only possible to visit the site once as it is in another country. The photographs have been a core in understanding our site and will throughout this project also be present in order for the reader to gain a better understanding of our site and its complexities. The photographs that are being used in this project have also been used, both in order to demonstrate different design analysis, design proposals and for our final visualizations.

Interview

During the site visit in Bergen, we had several meetings with different actors in our project. As the thesis is based in the case presented by Bergen Municipality, a meeting was arranged with 'Plan og bygningsetaten' – the planning department, who oversee the project. They were kind enough to meet and unfold the problem further and this gave a better understanding of the challenges that was at hand. These meetings were however informal, and we decided not to record them or in any other way document them, other than a couple of scribbles in our notebooks and from memory. During the site visit we also talked with Byantikvaren (The Directorate for Cultural Heritage's local department in Bergen), who were able to provide us with additional information in relation to cultural heritage and important notes about different aspects of the site. Later in the project we had an online interview with Kasper Albrektsen, PhD Fellow at Aarhus Arkitektskole, in order to gain a better understanding of how urban designers can work with cultural heritage sites. This interview was also informal and was simply meant as a method to gain more understanding of working with cultural heritage.

Designing For Robust Urban Spaces



Illustration 12. The
roof tops at Bryggen

Building on the thoughts presented in the framework and the problem statement, this chapter will further introduce and examine the core ideas regarding how to design an urban space, seeking design objectives for robustness through a focus on social and physical dimensions.



O2

“As circumstances change and new generations take over, they [robust cities] need minimal alternation of their existing form in order to accommodate changes in use, increase in intensity of use, and expansion of size”

(Hall, 2015, p.1)

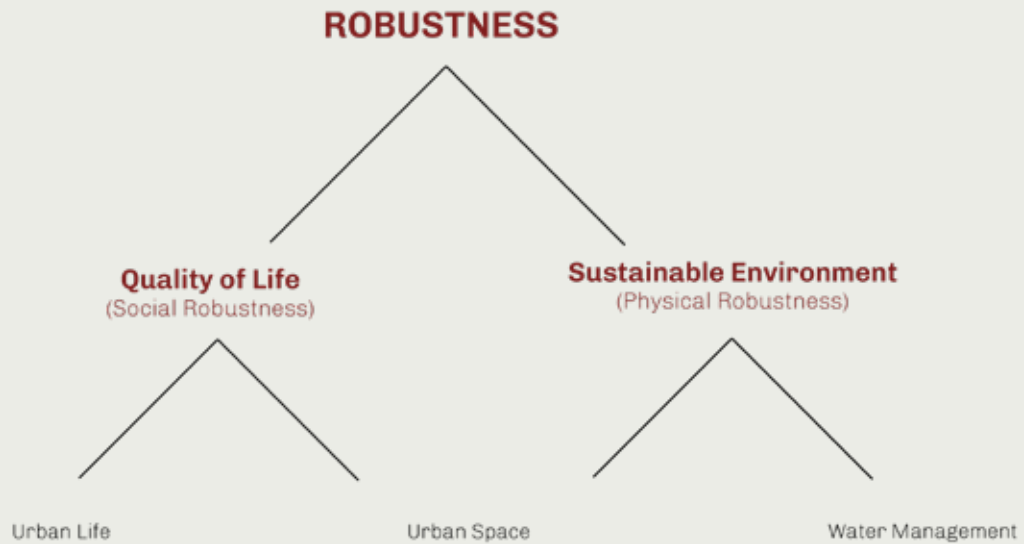


Illustration 13. Reading map for the theory chapter: Understanding of robustness.

Designing for Robust Urban Space

Investigating how to create robust urban spaces in the cultural environments of Vågsbunnen requires a general look at what a robust urban space is and figuring out the needed design objectives. However, to understand robust urban spaces, there is a need to first look at the robust city and its ambitions.

As mentioned initially in the report, the robust city is a settlement which is built in such a manner that it can handle whatever challenges come its way, whether that be environmental, social, or economic challenges. Seeking a robust urban form, Tony Hall (2015) presents the robust city in two dimensions: the social robustness and the physical robustness, each important for creating an overall robust city. The urban fabric and economic and social trends will change over time, and physically our city must be designed to facilitate these changes in activities. Based on the two dimensions, Hall proposes two overall goals for the pursuit of the design of the robust city:

1. The pursuit of quality of life
2. The pursuit of a sustainable environment

The pursuit of these two goals will, according to Hall, ultimately lead to a specific type of urban form and design emphasizing how to design the robust city (2015, p. 36-37).

Based on Hall (2015), the understanding is that a pursuit of quality of life can be investigated through looking into urban life and people's needs, and pursuit of sustainable environment can be investigated through looking at features for climate resilience and adaptation. Urban space is the common denominator between the two, as urban life and climate resilience can both be sought in and through the creation of urban spaces. The argument is that robust urban spaces can be designed by looking at the structures needed to achieve social and physical robustness in an overall robust city.

"the level of satisfaction and comfort that a person or group enjoys" (Cambridge Dictionary, 2023)

The Pursuit of Quality of Life

As humans we have both physical, social, and personal needs. Looking to psychology, Maslow's Hierarchy of Needs (McLeod, 2023) states that we can focus on our social and personal needs only when our physiological needs are met. Hall (2015) claims that the way to pursue quality of life, is through responsiveness to these needs; by investigating people's needs and attempting to respond accordingly. But what are the human needs for a good, socially robust urban life in the city, and how are urban designers responding to this?

Urban design as a theoretical and practical field is typically concerned with the liveability of the city, and many urban theorists and practitioners have preached the importance of creating urban spaces with a focus on human qualities and needs (Gehl, 2010; Sim, 2020). Others also emphasize the importance of designing for different uses and user groups, leaving urban spaces open for impulsiveness, individual creation and democratic exchanges (Hajer & Reijndorp, 2001; Jacobs, 1961; Sennet & Sendra, 2021; Sirowy, 2015). Through their lenses, the city consists of multiple different spheres where various social activities and interactions between people take place over time, the use and user groups ever-changing.



Illustration 14. Maslow's Hierarchy of Needs. Inspired by McLeod (2023)

CITIES FOR PEOPLE

Personal needs are diverse and involve a nuanced balance between outward and inward relations, framed by our physical environment. As urban designers, we work with this physical frame, ultimately trying to meet people's most basic needs for a safe and pleasant environment to live their lives. Our physical surroundings are the frame for everything we do, and the public spaces are the lived spaces of the city. It is where we find a sense of belonging. Constructing urban landscape should thus not be taken lightly. It impacts the everyday life of people, and consequently it is a parameter affecting whether the city is a good place to live or not. Jane Jacobs famously wrote: *"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody."* (Jacobs, 1961, p. 238). She was early in pointing out the flaws of her society; ambitiously car-oriented, segregated, and modernistic, the cities had little regard for urban life and the humans living in it. Jacobs was among the first to advocate the importance of again creating cities for people, and she was focused on including all inhabitants in the designing of public space.

Since Jacobs' time, the research have developed, and many architects, urban planners and urban designers have been investigating how to design cities for people, focusing on the physical environment and human-friendly architecture. In *Byer for mennesker* (2010) (UK: *Cities for people*), Jan Gehl presents twelve criteria for how to shape and form spaces where people feel comfortable and safe. His criteria aim at responding to the human need of feeling physically protected, comfortable and safe, ensuring that we as individuals feel as though the space is a good space to be in. Through eliminating various threats, offering options for sitting and walking, and creating a varied beautiful space with different functions nearby, the human experience will ultimately be positive. It is crucial for the functionality and quality of an urban space that we feel comfortable, with various opportunities to activate different senses and movements. Sitting in a warm sunny corner looking at people, or strolling through the urban space admiring the architecture, should be activities promoted in urban spaces. Hall (2015, p.41) also states that we should not be afraid of the aesthetic and picturesque when designing: *"People like the picturesque and it is important to respond to this desire as long as it's understood that it is not the only aesthetic quality involved."* The feeling of well-being and relaxing due to a pleasant environment is important for our physical health and efficiency. Gehl further argues that quality is made in the small scale; the city in human dimensions, with a focus on high sensory and aesthetic quality where the city's buildings and spaces interact with the human body. He states that if there are good opportunities to move freely and our senses are stimulated, there will be room for all possible combinations of activities and thus good urban life will follow accordingly. Neglecting the human scale and the human preferences, will lead to poor urban space, according to Gehl (2010).

David Sim's (2020) observations complement Gehl's. In the book *Blød by* (2020) (UK: *Soft City*), Sim investigates how a well-designed, dense city can be people-oriented and improve quality of life. Sim's focus is on a slightly bigger context than that of Gehl, and it includes the social and environmental impact dense cities have on the human experience. Looking at the urban structure more than the urban space, Sim suggests that diversity in building shapes and diversity in the typology of urban spaces, in combination with flexibility in use, will contribute to a varied and dense structure where people have access to most functions within walking distance (Sim, 2010). Despite not using the exact words, Sim's suggestions correlate to the understanding of a robust city as a city which can manage change and adapt to future challenges.

Even if the city is physically designed 'correctly' according to Gehl and Sim, people will regardless have different needs and interests that cannot all be met simultaneously. As humans we

also apply different value to the city and understand it differently depending on what is important to us. Local inhabitants might value their privacy, a close-by grocery store and intimate places to meet friends. They have a strong sense of belonging to their city and might have emotional connections to urban spaces. On the other hand, tourists might value picturesque surroundings, available destinations, free seating areas and authentic restaurants. They are curious about the local vibe and wish to experience something different than normal. These needs and different values assigned, will impact how the city is utilized and understood. While pursuing quality of life through the physical quality of urban spaces is one thing, having high quality urban social life is another. Both are important for quality of life but connect to different levels in Maslow's hierarchy. Where the physical urban spaces primarily interact with the base levels, the social urban life tries to fulfil the upper levels concerned with spiritual and social needs.

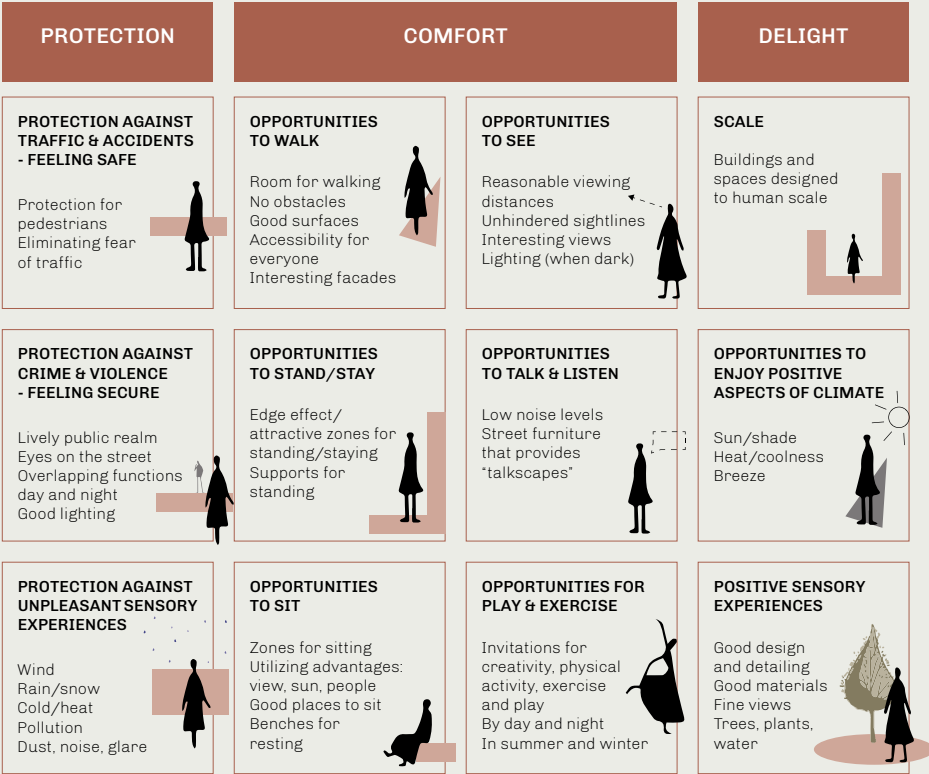


Illustration 15. Gehl's 12 criteria for quality in the urban space. Based on Gehl (2016, p. 249)

THE SOCIAL SPHERES

How can we then create a physical environment, that facilitates a social environment where most people's needs can be fulfilled and where the spaces are flexible to make room for different activities?

Richard Sennet and Pablo Sendra (2021) suggest that the city must be built as an open system, in the vision of Jane Jacobs. Creating democratic and open, public urban spaces will aid in the creation of a diverse city, which provides something for everybody. Beata Sirowy (2015) writes that today's tendency in urban development is creating mostly pretty, modern, and safe outdoor spaces, but most of the spaces probably aren't *truly* public. According to her, there is a need for conscious effort from planners and developers in creating true diversity: in shape, use, functions, price, and so on. This way, the public spaces of the city will offer something to everyone, regardless of social class or income level (Sirowy, 2015). Further, Sennet and Sendra (2021) highlight the importance of interaction with and between people, and they see this as crucial in understanding urban space. The urban crowd consists of multitudes of people, each with a specific need and wish for their city. The public spheres are therefore everchanging, as user groups will oftentimes come and go. Gehl also talks about this, but in terms of the urban spaces attracting different people due to affording different activities. Some urban spaces make room for the necessary activities, such as going to work, grocery shopping and so on, and other spaces make room for the voluntary leisurely activities. Creating urban spaces in the city is thus about creating spaces in accordance with the desired activity, that can manage diverse use and a changing public sphere. It then becomes clear that for urban designers, there is a particular task in the creation of these meeting points between the different spheres of user groups, with competing ideas and preferences, and the activities to be performed in the urban space.

Sendra (2021) suggests 'designing for disorder' as a solution; to design for uncertainty, spontaneity, and democracy by leaving urban spaces open and undefined but with the necessary infrastructural elements in place. This way, there is room for improvisation and the public space has not one function but various functional capabilities. Hajer and Reijndorp (2001) also point out that the city consists of multiple public spheres, where one group can dominate a particular spot, while elsewhere there are opportunities for other groups to dominate. It is not necessarily the shared use of a singular space that creates a successful public sphere, nor the meeting and exchange between different users. It has, according to Hajer and Reijndorp, more to do with the proximity of different perspectives and different public spheres.

In terms of designing for these spheres, it mostly comes back to providing spaces that feel flexible and open for different users, so there is a sense of belonging and inclusivity. The urban space should be a stage open for different types of artists. One must however be aware of the separation of spheres. Richard Sennet notes: *"Opening up borders means people of different strengths are exposed to competition. Borders can serve as tense rather than friendly sites of exchange – evoking some of the predatory quality of border conditions in natural ecologies."* (Sennet and Sendra, 2021, p. 31). However, Sennet points out that the erasure of the borders is a necessity in order to create the right conditions for a socially sustained collective life within cities, where we meet and interact with people different than ourselves. Attractive urban, public spaces have a huge potential to strengthen the social sustainability of cities, and a good public sphere is necessary in order to achieve future social value.

DESIGN FOR QUALITY OF LIFE

In pursuit of quality of life, urban design today knows a lot about how to physically create spaces that fulfil our most basic human needs. Through Jacobs, Gehl and Sim, we understand that there is a need to be human-oriented and focus on the local impacts of our design solutions, with a focus on the physical experience. The goal is creating a comfortable, enjoyable, and protected environment where basic human needs are met. A focus on pleasant, sensory experiences and different opportunities for movement and activities, will ultimately contribute to creating urban spaces we would want to stay in and use. Additionally, through a particular focus on public spheres and the differentiating needs of people, creating a coherent and diverse network of urban spaces will make the city available for everyone, by providing something for everyone. Facilitating urban life and pursuing social robustness, and thus quality of life, is in many ways about encoding what people need and want in their city, while still ensuring room for flexibility and changes over time. Constructing true diversity in all aspects through design comes from a dynamic approach where there is room for change and flexibility, both in functions and use, in user groups and privacy levels, and in access and availability. The approach of Gehl and Sim, together with inputs from Sennet and Sendra, Hajer and Reijndorp, create the needed physical frame for making a socially robust space, while also tapping into the individual needs and common needs of people. The pursuit of quality of life is ultimately a combination of pursuing high liveability, flexibility, and inclusivity through the design of our physical surroundings, thus adapting the urban spaces for changing social needs.

“The quality of an urban area must be evaluated based on its ability to deliver a higher quality of life to the people living there, and on its durability and adaptability for the changes which constantly happen society, environment and economy.”

[Translated from Danish] (Sim, 2020, p. 212)

"causing, or made in a way that causes, little or no damage to the environment and therefore able to continue for a long time"
(Cambridge Dictionary, 2023)

The Pursuit of a Sustainable Environment

Moving forward to the second leg of Hall's goals for the robust city, is the pursuit of a sustainable environment. Together with the social robustness and the challenges of meeting individual and social needs, there are challenges to designing robust cities that relate to our changing climate. Since the 1990's, sustainability has been on everyone's agenda, and there is a common understanding that it is crucial to strive for sustainable development to limit the negative impacts of climate change. The climate is troubled by more extreme weather incidents, and Norway and Bergen are no exception to this. The challenges of a new climate lead to an increased natural vulnerability, due to long-term changes like for example more rain, rising sea levels and unpredictable events like storms and flooding (Hanssen and Hofstad, 2015). The weather incidents are getting more extreme, and the city must be built to ensure the physical structures also in the future. How can we as urban designers try to adapt to these challenges, and design our urban environment to make spaces both physically robust and pleasant?

In the pursuit of a sustainable environment, Hall (2015) sees two aspects: conservation and management of resources, and minimisation of negative externalities, normally pollutants. For the sake of simplification (as sustainability is a large topic), Hall's aspects will in the following be narrowed in to primarily focus on management of water, above and below ground, in accordance with the relevant climate challenges for Norway and Bergen.

MANAGING RAINWATER IN URBAN AREAS

Issues related to water in dense urban areas are primarily connected to the city's ability to manage rainwater efficiently. If the city is not built with the proper infrastructure, the rainwater will simply lead to urban flooding. A high degree of hard and impermeable surfaces forces the water to run on the surface and into our sewer systems, which often do not have the proper dimensions for managing large amounts of water during short time spans (Hanssen and Hofstad, 2015). Consequently, the system is overloaded, and rainwater is mixed with sewage, running unfiltered into our environment, and spreading toxins. Flooding can also have unwanted consequences for buildings and infrastructure, leading to costly repairs.

Managing rainwater through local measures in urban areas are known as Water-Sensitive Urban Design (WSUD) or Sustainable Drainage Systems (SuDs), and it is by now a common combined urban design and engineering approach for dealing with rainwater in cities. The approach consists of a set of principles for managing water sustainably, while simultaneously achieving more liveable cities. One of the main aspects of the principles are implementation of more permeable surfaces and structures that can withhold larger amounts of water, slowing it down and preventing bigger floods. The use of more permeable surfaces will aid in managing rainwater, as more water will be absorbed into the ground (Sim, 2020). Hanssen and Hofstad (2015) also suggest solutions such as reopening and maintaining natural water ways, such as rivers and streams, incorporating various forms of detention ponds holding the water back, and using more green structures on vertical and horizontal surfaces. Hall (2015) further stress the importance of managing rainwater locally, and not simply leading it away into other urban areas as this is just

moving the problem elsewhere. With each urban development, rainwater should be managed in all private and public spaces, minimising runoff, and thus reducing chances of urban floods. When managing water in urban areas, there is also a huge potential for not just seeing water as an issue to be dealt with, but as an active resource.

PERMEABILITY & GROUNDWATER

Permeability is one of the important principles when managing rainwater runoff, primarily to prevent large water collections on the surface. Permeability is understood a material's ability to let water pass through it, and discussing permeability in urban spaces is related to paving materials and absorbent structures like vegetation. Porous materials like gravel and cobble stone are efficient in managing rainwater and leading it into the ground, while certain types of concrete and asphalt are usually impermeable and simply aids in leading the water away to somewhere else. Usually, permeable paving materials are used for streets and public spaces, to prevent larger puddles and water build-up. Infiltration of rainwater into the ground is also important for maintaining or recharging groundwater levels.

The groundwater is the fresh water that exists in the soil and layers below ground, and the water table varies depending on the season, absorption, and human activities. Heavy rainfall and infiltration into the ground, will cause the groundwater level to rise, and worst case this could lead to increased vulnerability for landslides and floods. Oppositely, if there is a drought or the groundwater is pumped away due to e.g. construction work, the water table will decrease and consequently the water supply may be at risk and our geotechnical foundation could become compacted (Tollan, 2023). The decrease of groundwater levels will in other word impact archaeological layers below ground. Especially wooden foundations or other organic materials underground are oftentimes dependent on water for preservation, as this reduces the diffusion of oxygen. If the groundwater is then reduced, these organic materials will decompose and the foundation will therefore sink (de Beer and Seither, 2015).

THE IMPORTANCE OF VEGETATION

Another important principle in managing water is the implementation of more green structures and vegetation. They have proven effects also on the health and well-being of citizens, biodiversity, and the local climate. The microclimatic conditions in dense urban areas are important, as the climate provide good conditions for human health and wellbeing, through access to cool, light and airy spaces ensuring good local quality. David Sim (2020) suggests measures that work as local climate and wellbeing solutions, such as planting of smaller green patches and street trees wherever possible. The placement of more greenery and vegetation in our urban spaces, especially trees, are very effective against the factors surrounding our microclimate.

Street trees are beneficial both in terms of creating shade, blocking against the wind and to absorb water from the ground,

and evaporating and cooling the urban environment (Sim, 2020). The trees further have a great potential as sensory elements to create smells, sounds and movement that we as humans interact with physically. Even to reduce carbon dioxide in the cities, trees have a great potential, as trees are natural air filters. They gather dust and other particles from the air, and helps to remove unpleasant smells and gasses (Sim, 2020). Urban trees are miracle workers in creating a pleasant urban environment, and their multifunctionality make them a great asset in terms of creating a robust urban space. Their sensory and environmental impact are also in accordance with many of the more social and aesthetic qualities that are desired in urban spaces, such as for example Jan Gehl's criteria for delight.

Other patches of green, from forests to planted gardens, will also contribute with many of the same effects as trees without needing the same type of root systems underground. Rain gardens in cities have in recent year become well-known; a landscaped depression with vegetation that retains rainwater, filters it, and connects to the groundwater below.

DESIGN FOR SUSTAINABLE ENVIRONMENT

Designing for a sustainable environment is complex, as sustainability holds many dimensions. In terms of creating robust urban spaces, sustainability is here about understanding how we as urban designers can create spaces that causes little to no damage, while also providing positive effects to the local environment. To manage the climate challenges in Bergen, there is mostly a need for looking at how to manage water efficiently. Through well-known solutions such as more greenery and permeable surfaces, rainwater can become an asset in the urban spaces, helping in creating a pleasant and comfortable environment, with sensory qualities. Simultaneously, these solutions can aid in recharging and maintaining groundwater levels, crucial for water supply to buildings and for power generation. A sustainable environment can be designed for through a combination of pursuing durability in the urban spaces, through adaptation of the existing environment to new climate conditions. This means that there might be a need to add new structures or improve existing structures in the urban spaces.

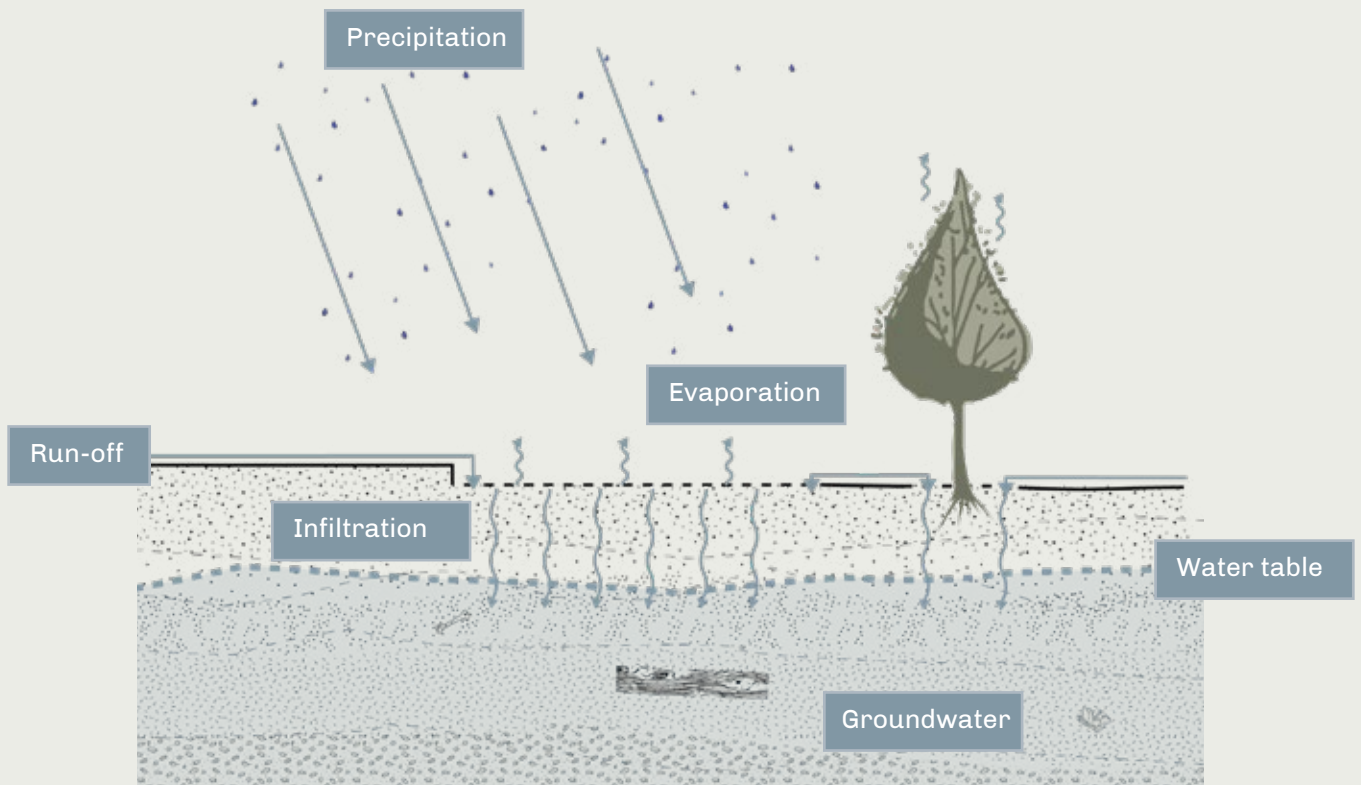


Illustration 16. The cycle of rainwater

Generating Design Objectives

To create a robust urban space, a space strong and unlikely to break or fail, there is a need to relate to the social, but also the physical challenges of the robust city and its spaces. According to Hall (2015), the robust city is a city which needs minimal physical alterations to accommodate new uses. In other words, the spaces of the city have been designed in such a way that they can handle change sustainably. Through the lens of Hall's two goals for the robust city, this chapter have attempted to create design objectives, of the general type.

The suggested is that the creation of robust urban spaces can be achieved through **adaptation** to social and physical needs, and the **addition** of new structures. Interestingly, the design objectives needed to create robust urban spaces are very much in accordance with the themes Bergen Municipality themselves wish to investigate for the opprustning of Vågsbunnen.

As urban designers, we must find the balance between protecting urban spaces, making them comfortable and safe for all people, and letting the urban spaces and its users decide for

themselves what activities should happen. Ensuring that there is sufficient aesthetic, functional and technical qualities will ultimately help move urban spaces forward towards a robust design. The theoretical discussion also implicitly suggests that the solutions towards social and physical challenges might not be separate. In fact, it seems that the solutions to the creation of urban life and water management are very much intertwined. The greenery and vegetation in cities have a huge potential to handle the more extreme weather the climate crisis brings, but it also has a huge potential to create attractive urban spaces for the people, making urban recreative spaces to stay and play and thus promoting urban life. Additionally, many of the solutions and thoughts are similar to that of the Climate Paradigm, working to **adapt** and **preserve** the cultural heritage.

To oppruste Vågsbunnen, it is therefore important to focus on **adaptation, preservation and addition for a robust design**. The design objectives are guiding, and must be made site specific through analysis, thus applying them to the relevant characteristics and problems of the site.



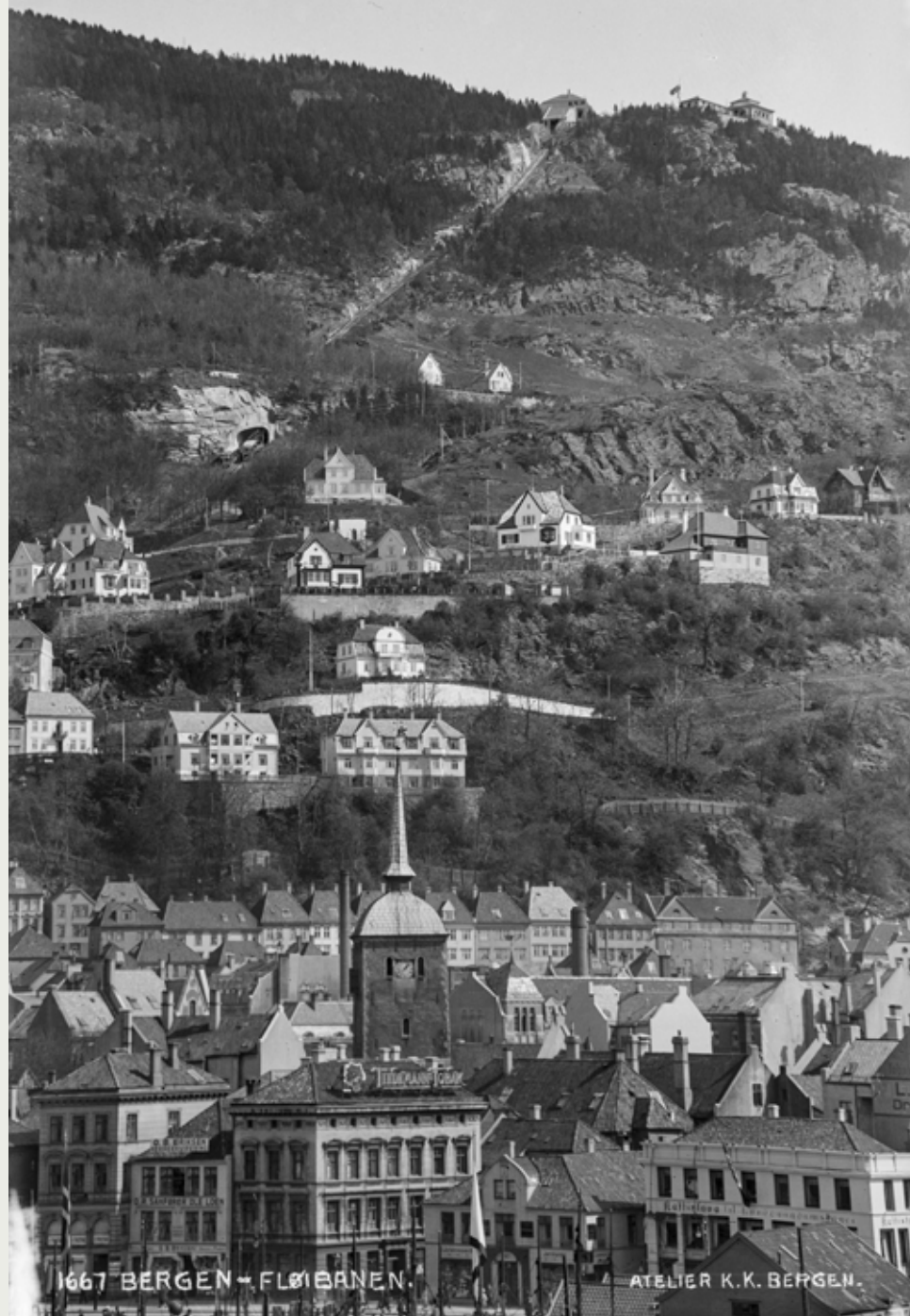
Illustration 17. Preservation, adaptation and addition as design parameters for working with robust urban spaces in a cultural environment

To understand the specific characteristic of the Vågsbunnen case, the following chapter presents an extensive analysis of Vågsbunnen. The analysis is separated into sub-chapters based on a scalar approach: first looking at the entire Bergen Municipality and the natural conditions, then diving into Bergen inner city, then the city district of Vågsbunnen, and lastly the urban spaces along the defined structure 'allmenningen'. The change in scale and theme will be marked with a new headline, in bold red text. The goal of the analysis chapter is to find out why there is a need to 'oppruste' Vågsbunnen, figure out what characterizes the district and its cultural heritage, and identify where there are potentials for robustification. Along the allmenning, the urban spaces will be analysed in terms of making them ready for design, looking at what is needed to make them robust.



03

Unfolding Vågsbunnen



1667 BERGEN - FLØIBANEN.

ATELIER K.K. BERGEN.



Illustration 19.
Shadow map of Bergen
Municipality, showing the terrain
in Bergen Municipality

Understanding The Landscape

“Bjørgvin”

Bergen is said to be founded in the year 1040 by King Olav Kyrre. In the Medieval Ages, the city was known as Bjørgvin, meaning the green meadow between the mountains (Loodtz, 2010). The name was an accurate description of the city's natural landscape features. This landscape is a vital part of Bergen to this day, and it has been one of the reasons why Bergen developed into one of the main European harbour cities after its establishment. Nestled in a bay by the fjords on the west-coast of Norway, the city lies safely in a valley between two mountain ranges. There are in total seven mountain peaks surrounding the inner city. The surroundings have historically provided protection against potential attacks and from the harsh weather from the North Sea. This creates a safe, mostly ice-free harbour, close to the continent, international waters, and the Norwegian fjords. The central harbour bay, named Vågen, was an also important prerequisite for Bergen's growth as a city (Hartvedt, 2013b). Even to this day, Bergen is still known as being the city between the mountains and the fjords, despite having expanded beyond the natural landscape boundary of the mountains.fjords, despite having expanded beyond the natural landscape boundary of the mountains.

The Seven Mountains

The city centre of Bergen is still today located between the mountains, and the mountains enclosing the city has made a natural physical boundary for the expansion of the city centre. The mountains surrounding Bergen are Sandviksfjellet, Fløyfjellet, Rundemanen, Ulriken, Løvstakken, Damsgårdsfjellet and Lyderhorn (Visit Bergen, no date). The mountains are popular hiking routes and most of them are today available either by trail or by cable car or funicular. The largest of the mountains is Ulriken, and it rises 643 meters above sea level. Ulriken is connected to the city by the largest gondolas in Norway (Visit Norway, no date). Fløien or Fløyfjellet is likewise one the main tourist attractions in the city. It is connected from the city centre by a funicular to the mountain peak. Despite this mountain only being the 3rd smallest, it is the mountain with the biggest impact. Fløien is in many ways the gateway to the hiking paths, and it is daily being used by many locals as well.

The restrictions that the landscape provides create a unique situation in Bergen, where the city centre area never will be physically bigger despite an increase in population and density. This, together with municipal merges over time, has led to an expansion beyond the landscaped borders that these mountains create. Today, Bergen is connected wide beyond the mountain ranges with several suburban centres located on the other side of the mountains.

From Fjord to Mountains

The mountains surrounding Bergen create a dramatic effect, where the mountains are hovering over and protecting the city. When walking through the city, there is always a visual connection to one of the many mountains. These mountains are also the main green structures in the city. Within the city itself there are a few defined park spaces with green structures, in addition to planted trees around the city. Among the city parks the most popular are Byparken by Lille Lungegårdsvannet, Nordnesparken, and Nygårdsparken. Looking at the green structures in the city, it is clear that Vågsbunnen is a mostly grey area with no defined green spaces. Along some of the main roads a couple of trees has been planted. However, as in the rest of Bergen, the visual connection is evident, and in every direction there is a mountain peaking above the building roofs. From Vågsbunnen, you can reach the start of the mountain trails within a few hundred meters.

The lack of green structures in the city is first and foremost due to the Norwegian relationship to the mountains. The mountains are in many ways the green structures that the Bergensere use. This is due to the proximity and to the freedom that these hiking trails provide. This is also the reason why many different hiking paths have been established on the mountains. This particular relationship to the mountains may provide a reason to why the city of Bergen does not have many large green structures within.

Another feature that is particularly important in Bergen is of course the fjord. Byfjorden leads into two separate waters: Vågen and Puddefjorden/Lungegårdsvannet. Vågen reaches all the way into the area by Vågsbunnen and is a key feature in Bergen. As the following chapters also will highlight, the relationship to the water has been important for the development of Bergen.

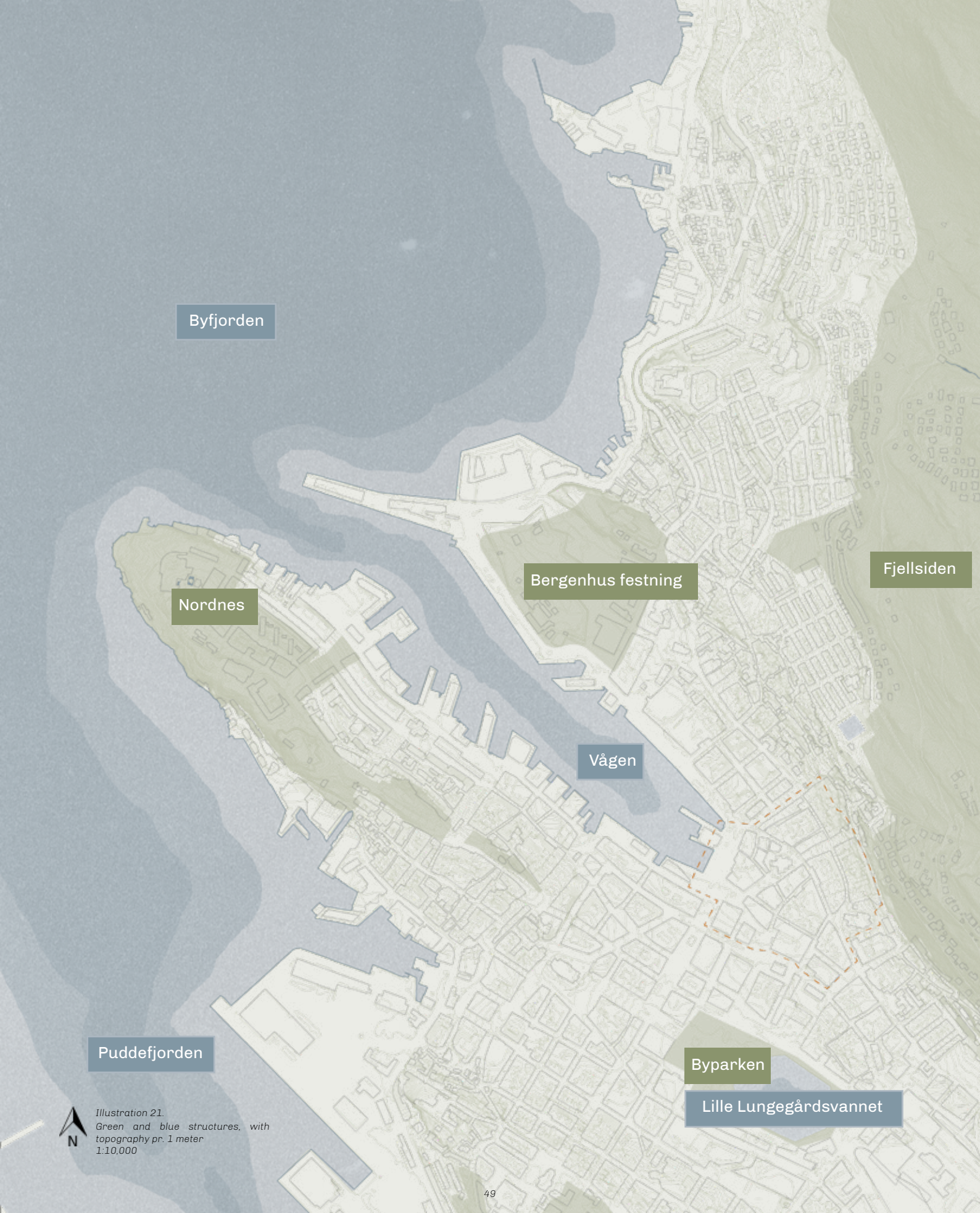
Climate & Natural Conditions

Bergen is known for its rainy days. The topography of Bergen makes it the perfect valley for rain heavy clouds to settle. Statistics shows the annual precipitation is 2250 mm and that there on average is 213 rainy days a year. The fjords usually have temperate water, which limits the cold winters. The average air temperature is 7.6°C, which makes the weather in Bergen relatively mild (Loodtz, 2022). This is due to Bergen's close location by the Golf Stream, and usually temperatures are relatively stable throughout the year, though with seasonal variations. Often it rains for days on end, with rain heavy clouds trapped between the mountains, continuously drizzling until they're light enough to escape the mountain trap. Bergen is nestled between the mountains and is relatively protected from the harshest winds from the North Sea, but the areas by the fjord are oftentimes windy.

Another important notion is the seasonal variation in sun hours, due to Bergen's location in the northern hemisphere. December only provides an average of 13 hours of sunshine for the entire month and a sun height at only 8 degrees. This means that during winter times, the mountains are blocking much of the sun, limiting the sun light in the city. In summer times, June is the sunniest month with an average of 193 sun hours per month and a sun height at 53 degrees (Timeanddate, no date). This seasonal variation impacts the use of the urban spaces in the city.

Illustration 20. Conceptual section of the rainy city between the mountains and fjords





Byfjorden

Nordnes

Bergenhus festning

Vågen

Fjellsiden

Puddefjorden

Byparken

Lille Lungegårdsvannet



Illustration 21.
Green and blue structures, with
topography pr. 1 meter
1:10,000

Becoming Bergen: The City Between the Seven Mountains

Developing from Vågen

The harbour bay Vågen was an important prerequisite for Bergen's growth, and it would become the pivot point for Bergen's development from the Medieval Ages and forward. The city developed first from the east side of Vågen, the Bryggen side, and the harbour would become an important meeting place, for both domestic and international trade in Bergen. The Bryggen side today contains some of the oldest settlements in Bergen, with The Church of Mary (Mariakirken) to the north and The Church of the Cross (Korskirken) to the south (Hartvedt, 2013a).

With the city growing, the west-side of Vågen, known as Strandsiden, also became part of the city and with time the settlement grew to enclose Vågen entirely. It would also expand into Vågen, making the bay narrower (histos.no, no date). Much of the foundation is therefore today landfill, consisting of old constructions and historical waste. This landfill is part of why the entire area and foundations around Vågen is categorized as a cultural environment, as the historical waste is an important source of knowledge about the Medieval period in Bergen, providing insight into development and use back in the days (Byantikvaren, 2021). As a natural consequence of the expanding settlement, the bottom of Vågen became the new central meeting place, with a market square and administrative buildings located in this area (Roald, 2015). This area is what is known as Vågsbunnen.



Illustration 22. Bryggen as a place of trade (Atelier KK, 1800-1890)

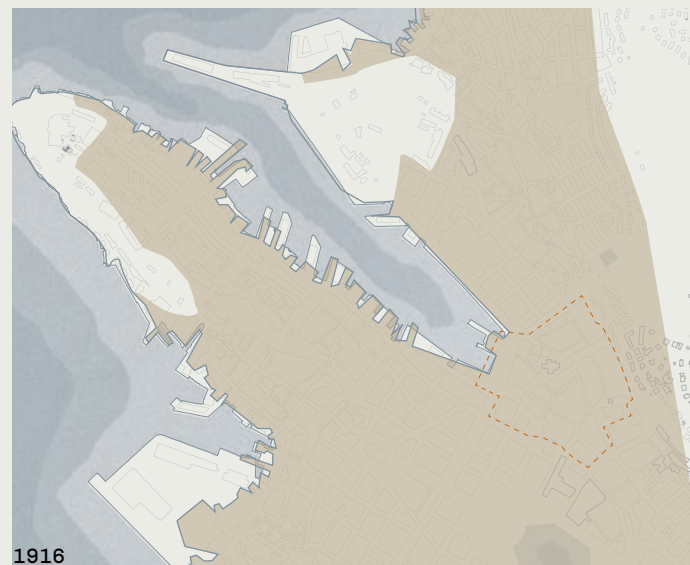
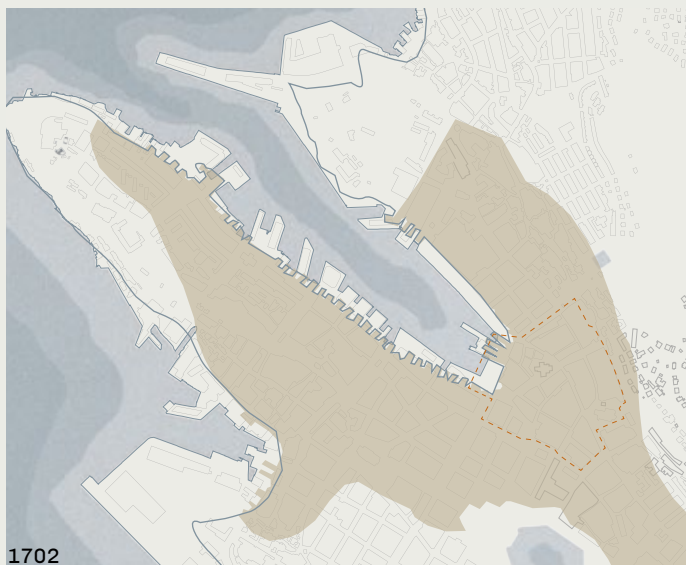
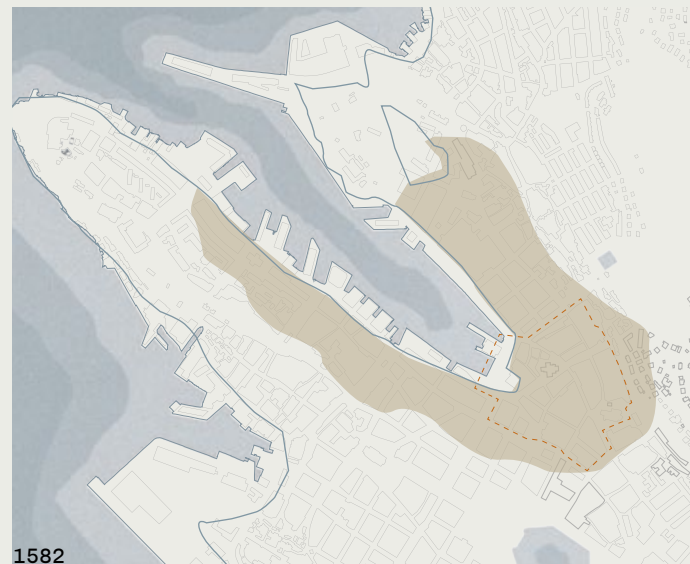


Illustration 23.
Historical shoreline and built area from 1170 to
1916. Based on mappings from histos.no
1:20,000

- Estimated built area at the time
- Estimated shoreline at the time
- Today's built area



Illustration 24. Trading fish from the shore line in Vågen (Knoop, 1890)



Illustration 25. Fisketorget a rainy day (Olsen, 1920)



Bergen as an international city for trade, culture, and tourism

Illustration 26. Map of Europe, showing Bergen's trading connections

Norway's Main Trade City

The trade in Vågen, with import and export of goods, created the foundation for Bergen and contributed to it quickly becoming a well-known Nordic settlement. While the first trade primarily was local between the islands and Bergen, it only took a couple of hundred years for the city to connect to other foreign settlements. Already in the 1100's, there was an established relationship to different European towns, but also to settlements far up north in Norway.

Interestingly, the connections out into the world were stronger than to the other parts of Norway (Hartvedt, 2013a). This was also related to the strong relationship with the Hanseatic League, a North-German group of merchants. In the 1300's, the Hanseatic League established a trading office in Bergen, one of four in Northern Europe, and for almost 400 years, the Hanseatic merchants had a heavy influence on the trade and life in Bergen. They owned many of the harbour houses by Vågen and controlled most trade in and out of the city. They had mostly

their own secluded society, with a separate language, laws, and administration. Their contact with the inhabitants in Bergen was mostly cooperative, but it was also troubled by conflict and competition (Hvem var hanseatene?, no date).

Many foreign merchants settled in the city during the Hanseatic times and ran their businesses from Bergen. The cobblers ('skomakere') were the largest and most influential group. In the 1400's, the cobbler's quarter was located in Vågsbunnen, around a street known as Skomakerstretet, which today carries the name of Skostredet.

Bergen's status as a center for trade, culture and administration naturally had an impact on the physical and cultural development of the city. As a result of the foreign influence, the local culture would become a blend of a variety of cultures and the Bergen dialect is today still heavily influenced by the Hansa language (Loodtz, 2010).

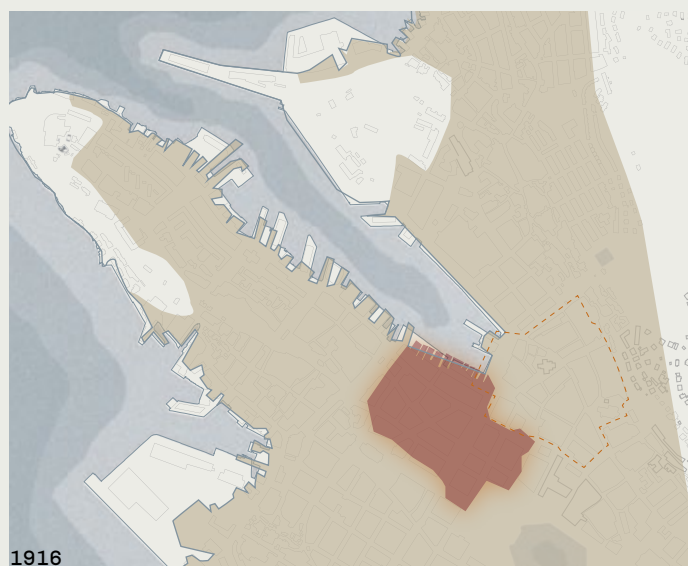
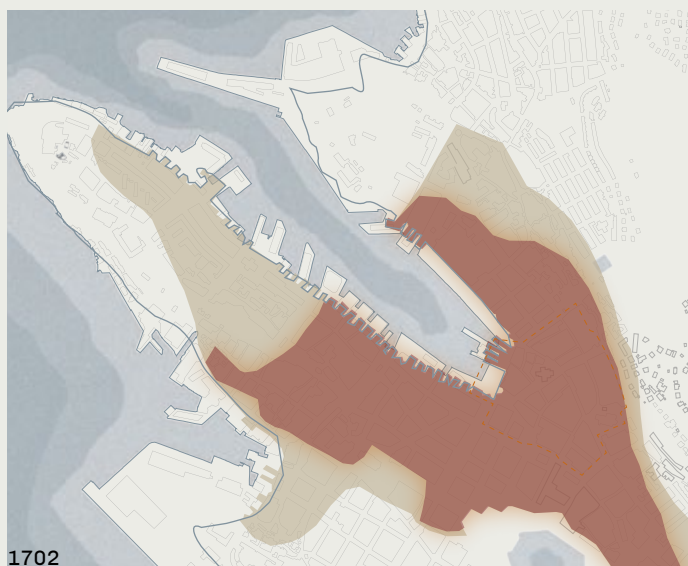
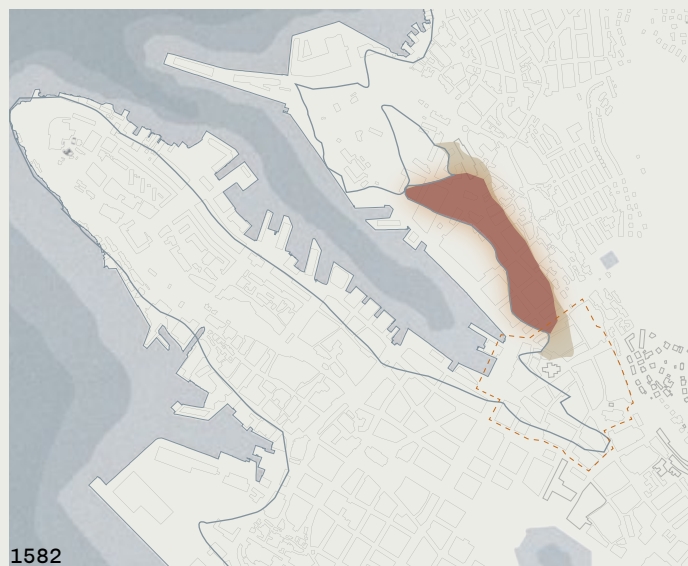
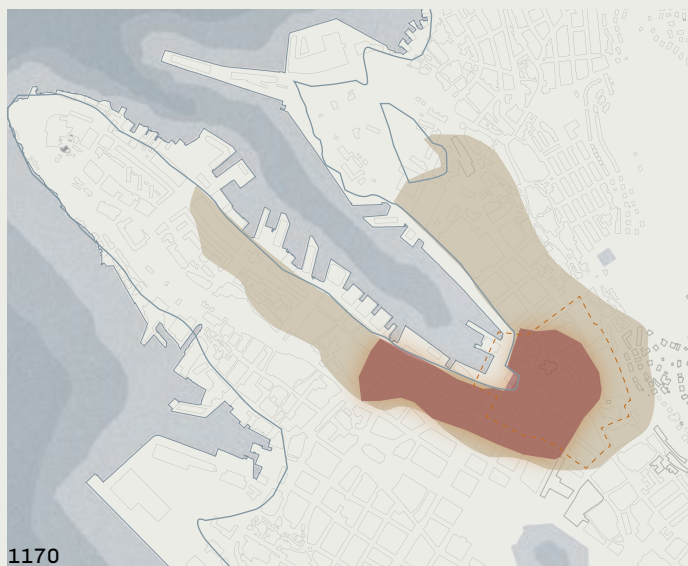


Illustration 27.
Extent of fires in Bergen, combined with the historical shoreline and built area from 1170 to 1916. Based on mappings from histos.no
1:20,000

- Estimated extent of fires
- Estimated built area at the time
- Estimated shoreline at the time
- Today's built area

Bergen Burns

Bergen has historically been a wooden town, with houses built of local materials. This, in combination with high activity along the harbour, has been one of the main causes for some of the bigger disasters in Bergen. Substantial parts of the city have burned to the ground several times, and Bergen has been haunted by fires. Most of the fires have been on the west side of Vågen, but the biggest fires took out huge built areas all along the harbour. The development of Bergen has been defined by these fires, as the city has been destroyed and rebuilt numerous times.

The infill of Vågen is also primarily due to the high activity and fires in the built area enclosing Vågen. The foundation, especially in the inner part of the bay, are primarily landfill, with waste from fires, construction, household and trade activities.



Illustration 28. Destructions after the fire in 1916. From *Torgallmenningen* (Svanøe, 1916)



*Timeline of fires
in Bergen*

Allmenningen

Old town laws and property rights has led to the general structure of the city remaining relatively similar through time despite the many fires, as houses would be rebuilt within the existing property boundaries. King Magnus Lagabøte also established a law for all trade towns in Norway in 1276, with specific instructions to for example the look of buildings and dimensions of streets. According to the town law, there should be a hierarchy of streets, each type with a specific purpose (Roald, 2015). Experience showed that there were some of these street types that worked to prevent the spread of fires. This type of street is known as an 'allmenning'.

The allmenning was a wide street, created for the common people to provide an efficient and open transport route from the living quarters to the harbour. It was one of the first urban spaces of its kind in Bergen.

The fire in 1582 took with it most of Vågsbunnen, and as a result a bigger city planning project to prevent future fires were set in order. Bergen was simply not robust enough to withstand the risk of fires. Following this work, the allmenning became an essential and integrated structure in the city, with the means to limit the spread of fires as well as still being important access points to the harbour. Three new allmenninger were established in Vågsbunnen during this time: Øvre and Nedre Korskirkeallmenning, Vågsallmenning and Torgallmenning (Roald, 2015). The allmenning is still a prominent element in the urban landscape around Vågen and has become a characteristic of Bergen's urban landscape.



Illustration 29. View from Øvre to Nedre Korskirkeallmenning, intersecting Vågsallmenningen



Toldbodallmenningen

Nykirkeallmenningen

Holbergsallmenningen

Østre Murallmenningen

Torgallmenningen

Dreggsallmenningen

Nikolaikirkeallmenningen

Vetrldsallmenningen

Øvre Korskirkeallmenning

Nedre Korskirkeallmenning

Vågsallmenningen



Illustration 30.
Today's allmenninger in Bergen
1:10,000



Illustration 31.
Morphology Map
1:10,000

Tradition & Continental Influences

As Bergen developed, it was the largest city in Scandinavia and Norway's main city for a long time. Since the Medieval Age it had had a strong status as a harbour of trade, and the population in Bergen was big compared to other Norwegian cities. Things were however changing nationally and locally in the 1800's, regardless of what Bergen might have been ready for.

In 1814, Norway became independent from Denmark after almost 300 years under Danish rule. The establishment of a new national government would come to down-prioritize Bergen. Even though Bergen was the biggest city and had been the most influential city in Norway for a long time, Oslo (then known as Christiania) was named capital in the new Norwegian country. The population growth spurted, and in 1900, Oslo's population was nearly three times as big as Bergen's. A newspaper article from a local paper in Oslo, gave Bergen the name of "The Still City" and reported that it had the same look as during the Hanseatic times, making it outdated and old (Roald, 2015). Bergen's important position as the main centre in Norway had been downgraded, and the deep-rooted traditions in life- and building style seemed to keep the city from evolving.

However, new forces would reach Bergen. The city fires had historically engaged multiple engineers, architects, and military officers, coming from Luxembourg, Germany, and the Netherlands. Their planning initiatives would often meet local resistance and had previously not been implemented successfully. However, many of the big urban structures we see today in Bergen were introduced by the continental planners. European ideas, with the focus on calm and order and simple geometrical grid systems, would in the 1800's and forward become important for the city's future expansion.

The architecture was now influenced by European ideas, and new buildings were beautiful and decorative, with ornaments and symmetrical geometry. The typology of small, self-grown wooden housing was changing, and The City Beautiful movement was very much alive. In 1848, a new building law also replaced the old one. It stated that all buildings facing allmenningen, were to be made of a brick or stone facade, to prevent fires from spreading (Roald, 2015).

The morphology is highly influenced by the city's history with fires, the landscape, and the different city planning incentives that have been implemented through the years. From the self-grown quarters of the Middle Ages to the single-family wooden houses spread throughout the mountain side and the City Beautiful movement with structured brick quarters in the city, Bergen has everything. The meeting of different typologies is especially evident when looking at Vågsbunnen. Its location between the old and new, creates an interesting dynamic. There has however been little changes in the structure in the city core around Vågen, as it hosts many of the historical buildings and structures that are part of the cultural environments – such as Bergenhus fortress, Bryggen, Korskirken and Domkirken (Hartvedt, 2013a). The historically important structures are still prominent elements in the cityscape of Bergen. Despite having expanded past Vågen, it is still evident that Bergen's city centre is compact, weaved together by narrow streets parallel to the water and wide corridors perpendicular to the water, in addition to new roads cutting into the city.

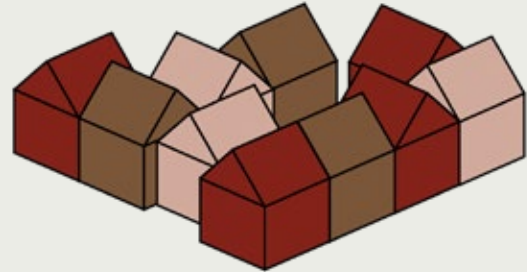


Illustration 32. Self-grown structure

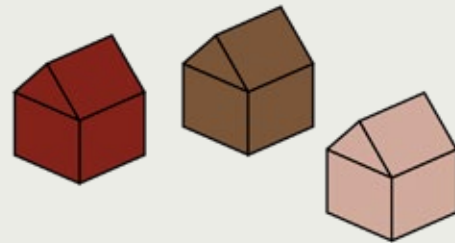


Illustration 33. Single family houses

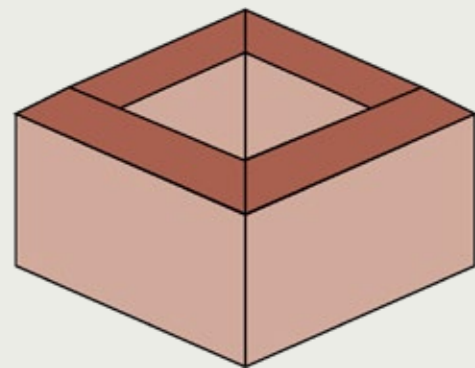


Illustration 34. City blocks (kvartalstruktur)

*“Bergensere is a
collection of all nations,
said Ludvig Holberg”*

Quote from Bergen Byleksjon, 2023



Illustration 35. People at Fisketorget (Wilson, 1900)

People in Bergen

BERGENSERE

As a result of Bergen's international position, many people living in Bergen originally came from other countries, such as The Netherlands, Germany, Denmark, Scotland, and England. At one point, there were more foreigners than Norwegians in Bergen, and the harbour has been a melting pot of nationalities. The rich history in the city embodies itself in the typical inhabitant in Bergen and it is still apparent that people from Bergen think of themselves as something else. There is a patriotism, not found in many other Norwegian cities. Bergensere are still carrying the weight of the city's lost greatness as a (inter)national centre and a melting pot of cultures. They are known as being somewhat unique – be it their dialect, proud attitudes, or self-patronising humour, and they are often the object of ridicule nationally.

Today, there are approximately 290 000 inhabitants in Bergen Municipality, with about 40 000 living within the city centre. Compared to the municipality as a whole, the number of young adults (20-29) in the city centre is quite high. Many of them are presumably students at the local universities in the city centre and live in apartments or shared housing. The number of children and elderly is also lower than the municipality in general. Around half of the elderly live alone. The age distribution is also visible in the income statistic, where it is evident that the inhabitants in the city centre have a significantly lower salary than in the suburban districts (Bergen kommune, 2019a).

TOURISTS & VISITORS

The combination of culture, history and nature attracts many tourists to Bergen each year, and Bergen is the biggest tourist destination in Western Norway. In 2018 there was about 3.3 million visitors to Bergen, where around 600.000 of them came by cruise ships. Most visitors are other Norwegians, as Bergen is an important city for business and culture nationally (Menon Economics, 2019). Of foreigners, the majority come from countries such as United States, Germany and Great Britain. The summer season is by far the more popular season, and tourists come to Bergen because of its rich history, beautiful nature, and its convenient location as gateway to the Norwegian fjords.

Bergensere mostly have a good relationship to the amount of tourists coming each year, and they have a positive view on the travel industry. However, inhabitants in Bergen living in the city centre think there are too many tourists, especially in summer, overfilling popular destinations such as Fløyen, Fisketorget and Bryggen (Opinion, 2022).



Illustration 36.
Functions in Vågsbunnen
1:2500

- Mixed (shops & housing)
- Service functions
- Housing
- Public institution
- Cultural institutions

Vågsbunnen: The Medieval District

In the previous, an overview of Bergen's general character and historical development has been presented. Diving into Vågsbunnen, the presented features will become specific, the history and identity unfolding itself in the district. Vågsbunnen has been located at the core of Bergen's historical development and the district is complex. Understanding the broad variety of functions, spaces and users, in combination with the natural conditions and cultural heritage, is not easily unfolded. In the following, the most important notions about Vågsbunnen are attempted communicated.

Urban Life

To understand Vågsbunnen's current situation, there is a need to first look at the overall use and functions of the existing structures. The functions of buildings create a frame for the activities in the urban spaces, and the interaction between building and space is important in understanding how edge zones and urban spaces are utilized by people. The user groups of Vågsbunnen are also varied and are highly influenced by the functions and activities available in the area.

THE BUILDING FUNCTIONS

The functions in Vågsbunnen are relatively mixed. Since the Medieval times, Bergen has been a diverse city with housing, business, shops and services, churches, schools, and other functions located in close proximity to each other in the city centre, and Vågsbunnen still has these characteristics. The many functions create a livable city, with short distances to everyday needs and wants. Consequently, there is also duality and balance between public and private functions, providing a diverse and open district with room for everyone.

Most of the buildings are municipally zoned as residential, but with public functions on the ground floor, creating mostly active facades for the people in the city. Lille Øvregaten is almost a neighbourhood in itself, with housing and the odd art gallery or alternative shop. Øvre Korskirkeallmenning is primarily housing with a few mixed functions and various shops and services, such as a café and a bookstore. Nedre Korskirkeallmenning has mostly a mix of restaurants and cafes, beauty services and a grocery store. This area feels more public due to the functions. Vågsbunnen also has one of the most popular restaurant destinations in Bergen, in Skostredet. Furthermore, you can find the old Hans Tank school, Bergen police station, and Domkirken. Korskirken is also prominent, and there are different initiatives related to the activity of the church in the area, such as The City Church Mission (Kirken bymisjon).

The area has many alternative shops and fulfils a different need than the other more commercialised areas and the shopping malls. Despite the variety in functions, Vågsbunnen is struggling with closing of shops, empty venues, and lower activity.

PUBLIC-PRIVATE DYNAMIC

The varying functions in Vågsbunnen create an interesting dynamic in the edge zones and transitions from building to urban space. There is a wide range of difference in publicity level, from facades that are entirely closed off and not interacting with the public, to open windows displaying different shopping options. Some of the buildings enclose themselves with more passive and private facades, not inviting the public in. This is first and foremost due to the functions of these buildings, which primarily contains housing. There are also facades that are experienced as the backside of a building. However, the edge zones are rarely coherently private, and sporadically small shops appear along these edges, creating a varying experience. Many of the residential buildings also have no defined edge zone, bordering directly into a public space. There seems to be a discrepancy in the edge zone between the function and the urban space in certain areas. The edge zone of a residential building is identical to that of a shop or service function. This creates an interesting dynamic, where people will stop right in front of people's main entrances.



Illustration 37. The discrepancy between function and edge zone

THE SOCIAL SPHERES

There is, as pointed out, not many edges in the urban spaces that are entirely private. Simultaneously the functions in the area attract different types of people, and the density of buildings make the urban spaces compact. This ultimately means that all streets are also interaction points and become urban spaces as their use is 'more than just street'.


Based on observations of the area, it became clear that there is a diverse public life in Vågsbunnen. It can be divided into smaller public spheres for specific user groups, spheres which continuously overlap and interact, but also spheres that are separate and repellent. Some spheres are more defined than others, but generally the area has many different types of people engaging with each other.

The main observation is the high amount of people who simply move through the different spheres, going from A to B – from fjord to fjell, from home to work, and from grocery store to home. The everyday public sphere is dominating the entire area, and it is clear that the functions in Vågsbunnen are utilized by people living close by. Additionally, another observed sphere is that of the tourists. They mostly move in smaller groups through the area – with a guide or self-guided and have a particular interest in the historical and cultural values in Vågsbunnen, such as Fisketorget and Korskirken. The area's history in itself is also an attraction. Furthermore, one particular sphere is inhabited by a group of vulnerable people, connected to the drug environment in Bergen. It was observed that this sphere is particularly singular, not interacting well with the other spheres in Vågsbunnen. There are also spheres that are emptier, as buildings are lacking proper functions.



Illustration 38. The coherence of different social spheres and the user groups




 Illustration 39.
 Functions map, with observed
 social spheres in Vågsbunnen
 1:2500



 Social spheres



Illustration 40.
Different urban spaces in Vågsbunnen
1:2500

- Harbour front (Fisketorget)
- Allmenning
- Gater
- Smau
- Church grounds
- Main traffic road (Torget)

Understanding The Urban Spaces

Understanding the complexities in building functions and the social spheres, it is clear that the urban spaces and streets are crucial in Vågsbunnen. Their functionality must be present, and they should offer something to various user groups. Furthermore, the building structure in Vågsbunnen has been the same for many centuries, and the dimensions and network of urban spaces is unique with general structures dating back to the Medieval Ages. This combination of a diverse urban life and old urban spaces with a particular atmosphere create an interesting set of conditions.

Differentiating between urban space and streets is therefore difficult. Due to Vågsbunnen's dense urban structure, the street spaces become the outdoor space for the people living, working, staying and passing through Vågsbunnen. There are really no garden areas or green courtyards available for recreational purposes. In the mapping of urban spaces, streets are therefore included as a type of urban space, as this is where the recreational area is located. The types of urban spaces in Vågsbunnen are thus the following:

- Harbour front (Fisketorget)
- Allmenning
- Gater
- Smau
- Church grounds
- Main traffic road (Torget)

To clarify, the spaces 'gater', 'main traffic road', and parts of the 'allmenning' are considered the traditional streets, open for cars. A 'smau' has also traditionally been considered a type of street, but the dimensions are restrictive. Further, the church grounds are related to the park-like area or graveyards surrounding the churches in the area.

*“Due to Vågsbunnen’s
dense urban structure,
the street spaces
become the urban
spaces for the people.”*

Quote from conversation
with Byantikvaren



Illustration 41. Parking



Illustration 42. City bikes



Illustration 43. Goods delivery



Illustration 44. Pedestrians

Mobility Between and In Urban Spaces

As many of the urban spaces are streets, the main functions in them will be movement and transportation. To understand how the urban spaces are connected to each other, it is necessary to investigate how pedestrians, and vehicles, today are moving between and in the spaces. In their new suggestion for a traffic plan for Bergen inner city (Bergen kommune, 2022), Bergen Municipality presents a new traffic and mobility pattern in Vågsbunnen, here visualized in the map. The municipality is working to reduce car traffic and parking in the area around Fisketorget and generally in Vågsbunnen. This opens for creating walkable streets and giving the urban spaces back to the pedestrians, in addition to prioritizing public transport. It is however worth mentioning that Vågsbunnen's many narrow streets are not suitable for modern vehicles, and thus much of the area is today primarily for pedestrians and micro-mobilities such as bikes and scooters.

URBAN SPACES AS CAR SPACE

Vågsbunnen will become relatively closed off for cars and vehicles, only allowing essentials, such as emergency vehicles, goods delivery and driving to housing properties. The drivable streets will be exclusively one-way streets, allowing a very strict driving pattern. All of the street parking in Vågsbunnen will also be removed, with the exception of possible parking for shared mobilities (Bergen kommune, 2022) and parking in courtyards/private housing. The driveable streets are marked as "local streets" in red. Furthermore, the light rail in Bergen will also expand and run along the harbour, taking the space from today's main road. A new public transport stop is thus also located centrally in Vågsbunnen.

URBAN SPACES AS PEDESTRIAN SPACE

Consequently, much of Vågsbunnen will be walkable. The streets and spaces not marked specifically in the map will all be primarily pedestrian space. The driveable streets should also be designed to make room for pedestrians first, turning the traditional mobility hierarchy around. Due to the short distances in Vågsbunnen, it makes sense to prioritize walking as the main means of transport from A to B. The central location by good public transportation options further supports this.

Additionally, new micro mobilities, such as electric scooters and shared city bikes are also popular in Bergen. They are a sustainable way to move around and should also be included as part of the 'pedestrian' group, moving through the urban spaces. The way the micro mobilities have been placed today gives a feeling of being temporary and accidental.



Illustration 45.
Traffic plan for Vågsbunnen (Bergen kommune, 2022)
1:2500

- Local streets
- Local streets, primarily for goods delivery, and property access
- Public transport, limited goods delivery, and property access
- Light rail (Bybanen)
- Light rail and public transport stop
- Local streets becoming pedestrian space
- Local streets, primarily for goods delivery, becoming pedestrian space
- X City bike stations, with number of bikes

Fisketorget

HARBOUR FRONT & MARKET PLACE

Vågen is the beating heart of Bergen, and together with the harbour, an important quality for urban space in Vågsbunnen. Ever since the 13th century, the iconic Fisketorget located on the edge of Vågen, has been a meeting place for Bergen residents and visitors. Due to the age of the location and its continuity of being a market for over 700 years, Fisketorget is considered an important cultural and historical feature in Bergen.

Today, the marketplace is an open urban space located by the fjord, but it is separated from Vågsbunnen and the rest of the city by a trafficked main road. It has a coherent urban carpet but is mostly an empty space when the market is not there. However, when the market is open, there are a number of tents from which fresh fish are sold, local food is served and can be enjoyed on any of the chairs and tables that are set up. The red tents are iconic, characteristic and have a special identity, and is, together with the smell of fish and food, the identifying elements of Fisketorget today. However, if you look closer, the tents are in fact of very varying quality and the space consists of several different kinds of small stalls with an expression that can seem messy, random and worn down. Despite its age, the market still has a rather temporary look.

Fisketorget is at its best during summer. The market is frequently visited as it is a huge tourist attraction. But hand in hand with the good atmosphere and the tourists, goes the prices. This, in combination with the large tourist crowds, is one of the reasons why local Bergensere no longer shop here. Fisketorget has gone from being a good local trade to an expensive tourist attraction. Bergen Municipality wishes for Fisketorget to again become more attractive for the locals, and are currently investing in promoting the area more positively (Eskeland, 2023).

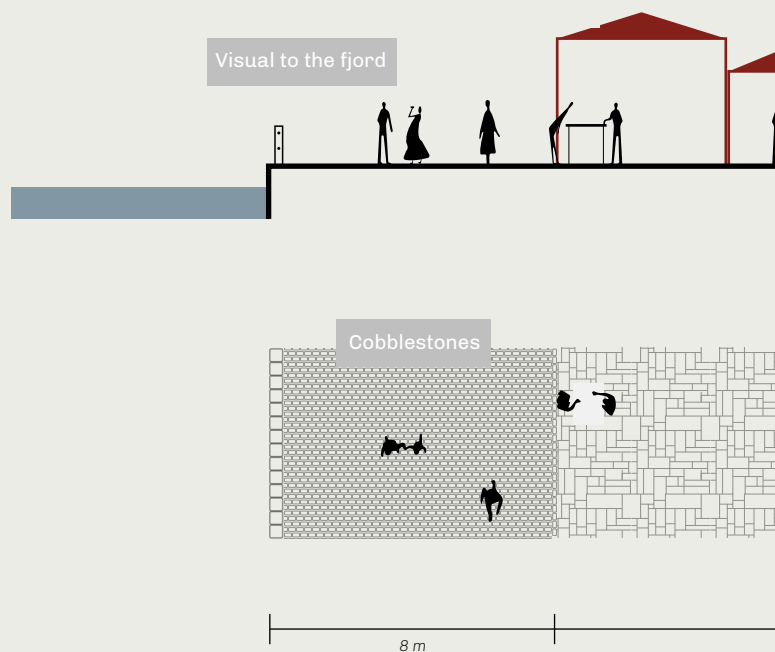
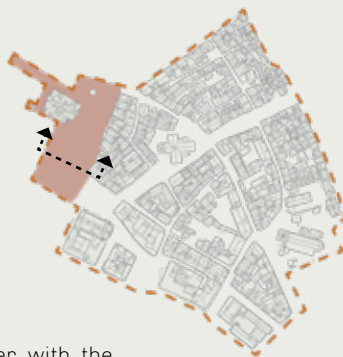
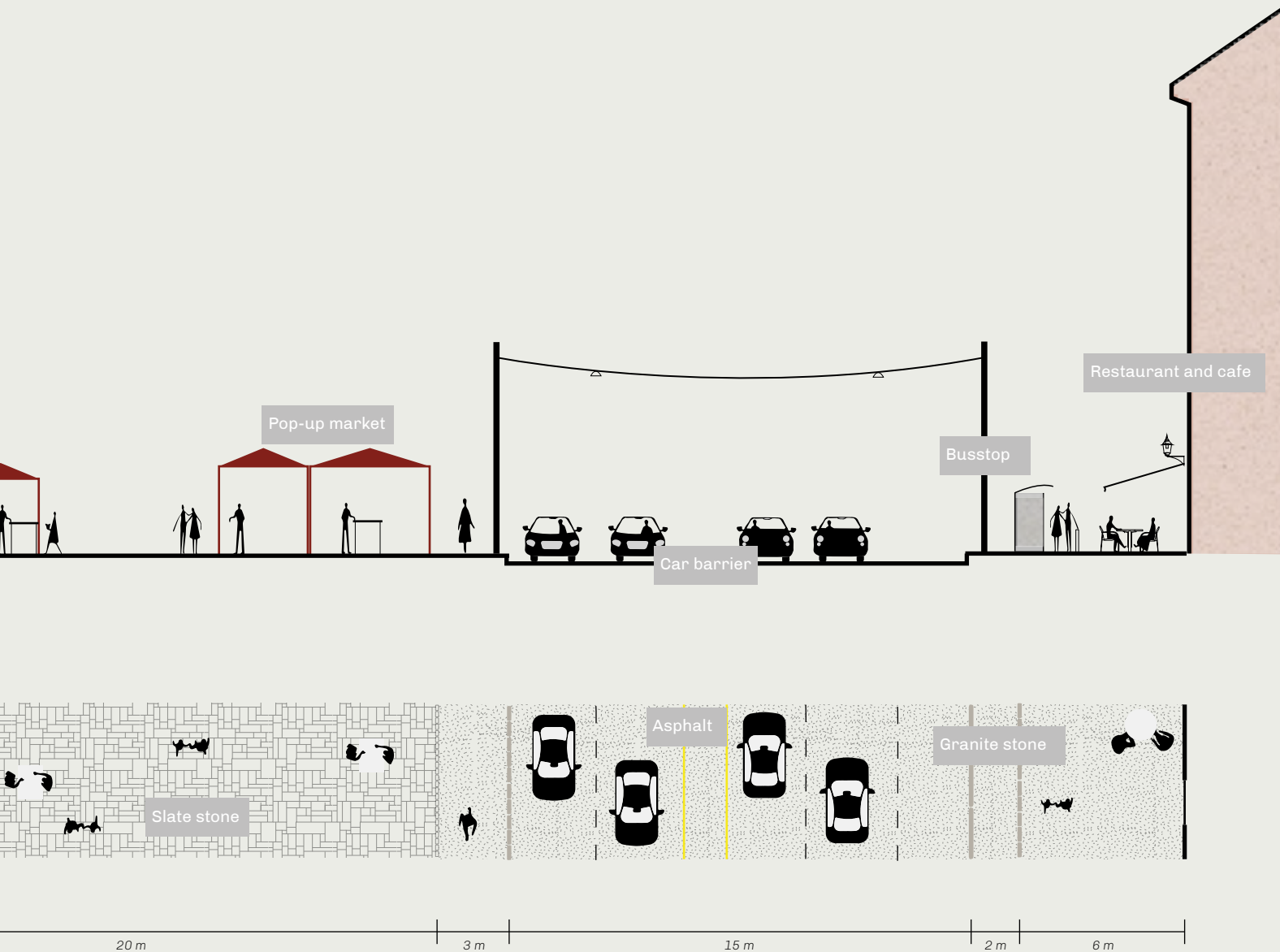


Illustration 46. Section of Fisketorget 1:200



ACCESSING FISKETORGET

When you are moving from Fisketorget into Vågsbunnen or vice versa, you must cross the four-lane road "Torget". This is currently the main car road through Bergen city centre, that connects all the way through the city and follows Vågen, past Bryggen out of the city to the north. The road is heavily trafficked with approximately 13 000 annual average daily traffic, and is a major barrier for pedestrians. It divides the harbour from the city by cutting of the connection to the other urban spaces.

In connection with the new traffic plans and establishment of the city light rail, the barrier effects of the road could potentially be minimized. The potential is great for creating greater cohesiveness between Fisketorget and the rest of Vågsbunnen.



Illustration 47. The road Torvet, between Fisketorget and the rest of Vågsbunnen

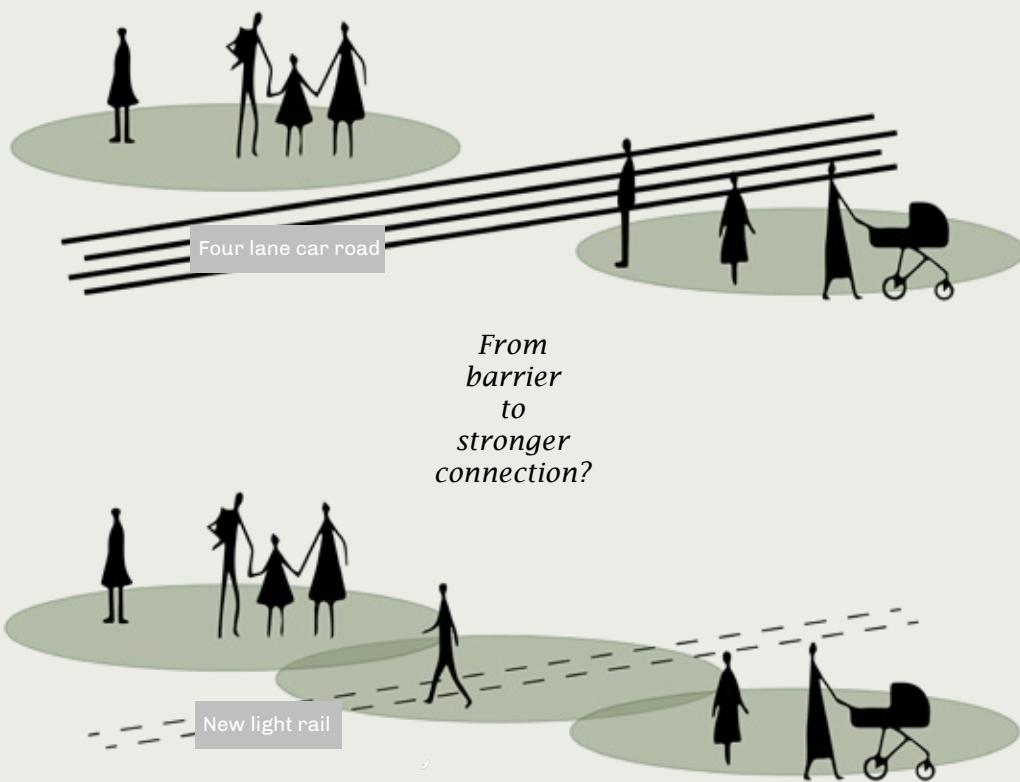
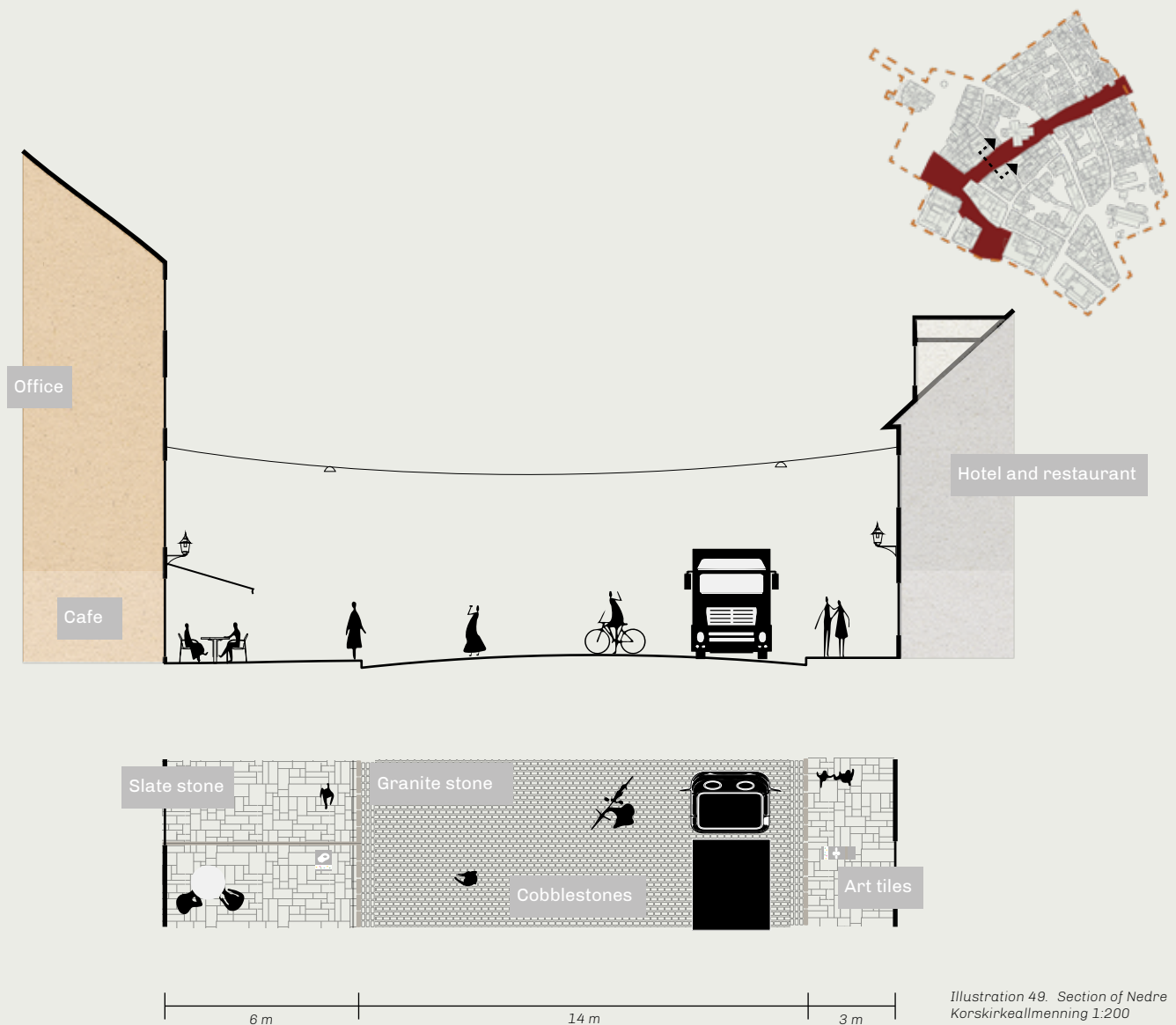


Illustration 48. Potential to connect social spheres, transforming the street from barrier to a stronger connection



Allmenningene

Historically, allmenningen was an important structure in the city to connect land and fjord and bring both people and goods back and forth. They have been through different identities as urban spaces and today they have varying characters. Within the allmenning itself there are also smaller urban spaces, differing in character. It is therefore extremely complex trying to navigate the allmenning as an urban space. The general characteristics of the allmenning will be presented here, and the urban spaces within the allmenning will be presented later on.

Vågsallmenningen was for years a heavy trafficked car road, but was initially intended as a means to connect administrative buildings closer to the harbour and Vågen. Recently it was transformed into more of a plaza, giving the allmenning back to the pedestrians. The northern plaza of Vågsallmenning has often also been used as an extension of Fisketorget, with various tents and small pop-up shops. Øvre and Nedre Korskirkeallmenning were established primarily as fire prevention streets. Obviously, this is still an important characteristic, but because fire prevention was the main function, Øvre and Nedre Korskirkeallmenningen has never had a defined identity. They have been used as parking area for horse and carriage, now for cars, for many years, and today there are mostly used as spaces for transportation, going from A to B. It is also peculiar that even though almenningen is one of the largest spaces within Vågsbunnen, it is also one of the emptiest.



Illustration 50. Nedre Korskirkeallmenning (Knudsen, 1870)



Illustration 51. Øvre Korskirkeallmenning (Svanøe, 1900)



Illustration 52. Nedre Korskirkeallmenning (Norvin Reklamefoto, 1962)



Illustration 53. Øvre Korskirkeallmenning (Brosing, 1950)



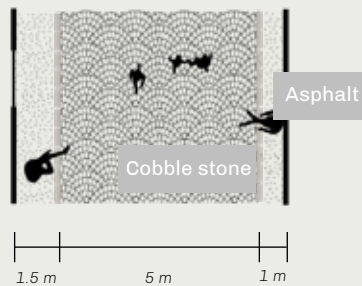
Illustration 54. Nedre Korskirkeallmenning February 2023



Illustration 55. Øvre Korskirkeallmenning February 2023



Illustration 56. Section of Lille Øvregaten 1:200



Gater

The streets in Vågsbunnen are story-telling elements in the area's development. The road structures are important in terms of the cultural history, and the integrity of the road structure is almost identical to the road structure of Medieval Bergen. Hollendergate, Kong Oscars gate, Bankgaten, Sparebanksgaten, Skostredet, and Lille Øvregate were all important roadways historically. Especially Hollendergaten is important, as it was established before the expansion of the shoreline in Vågen. As the shoreline moved, new streets were established to maintain access to the water, and the current street structure is mostly the same as it was many years ago (Byantikvaren, 2021). Kong Oscars gate also used to be the main gateway into Bryggen and the harbour, for people coming from outside the city. The streets are relatively narrow and not really wide enough for two cars to pass one another. The old dimensions are meant for people and carriages, not our modern technology. As a pre-project to the opprustning of Vågsbunnen, Kong Oscars gate recently had a major facelift. It is renovated with new paving and traffic hierarchies, giving the street slowly back to pedestrians.

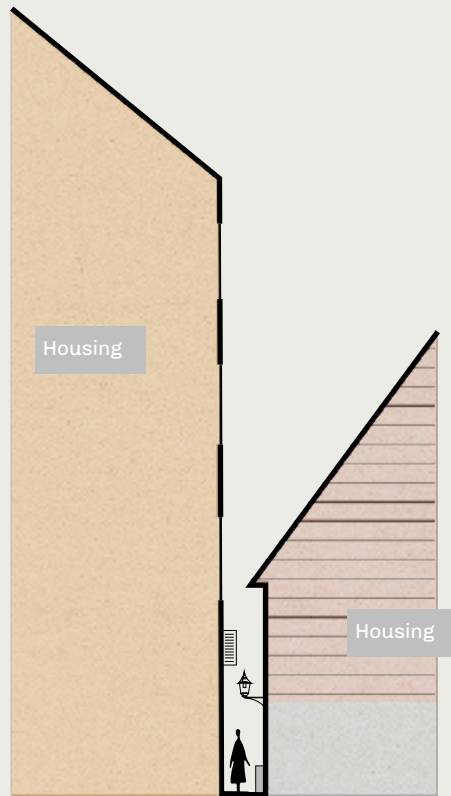


Illustration 57. Section of Magdalenagangen 1:200



Smau

As a result of the dense, self-grown structures, Bergen today has extremely narrow openings between some of the houses called locally for 'smau'. These narrow structures are an important part of the cultural environment, and would never exist today due to building regulations. These small passageways have a tendency of being dark and uninviting. Some of them are so narrow that two people cannot cross one another in the passages. Today, these streets are not commonly used, as most people prefer walking in the wider streets. This might be due to the size; the smau feels creepy and uninviting, and it can be difficult to have a visual connection, thus making these passageways feel unsafe.





Illustration 58. Obvious foundational issues in the street Sparebanksgate

The Sinking District

Observations of the streets and urban spaces in Vågsbunnen show that many of the 'gater' have a rough surface, with uneven terrain and varying slopes. The look is worn, and it is apparent that the spaces need an upgrade. Investigations also show that Vågsbunnen has issues related to the groundwater levels, as the levels are getting lower. The reasons for the groundwater disappearing are complex, but it is most likely due to groundwater pumps in the buildings that pump the water away, to prevent flooding of basements. It can also be due to different excavation work or simply the weight on the subsoil pushing the water away and thus compressing the foundations. In all cases, oxygen is supplied to the subsoils. The consequences of this are apparent on the surface, as the picture shows.

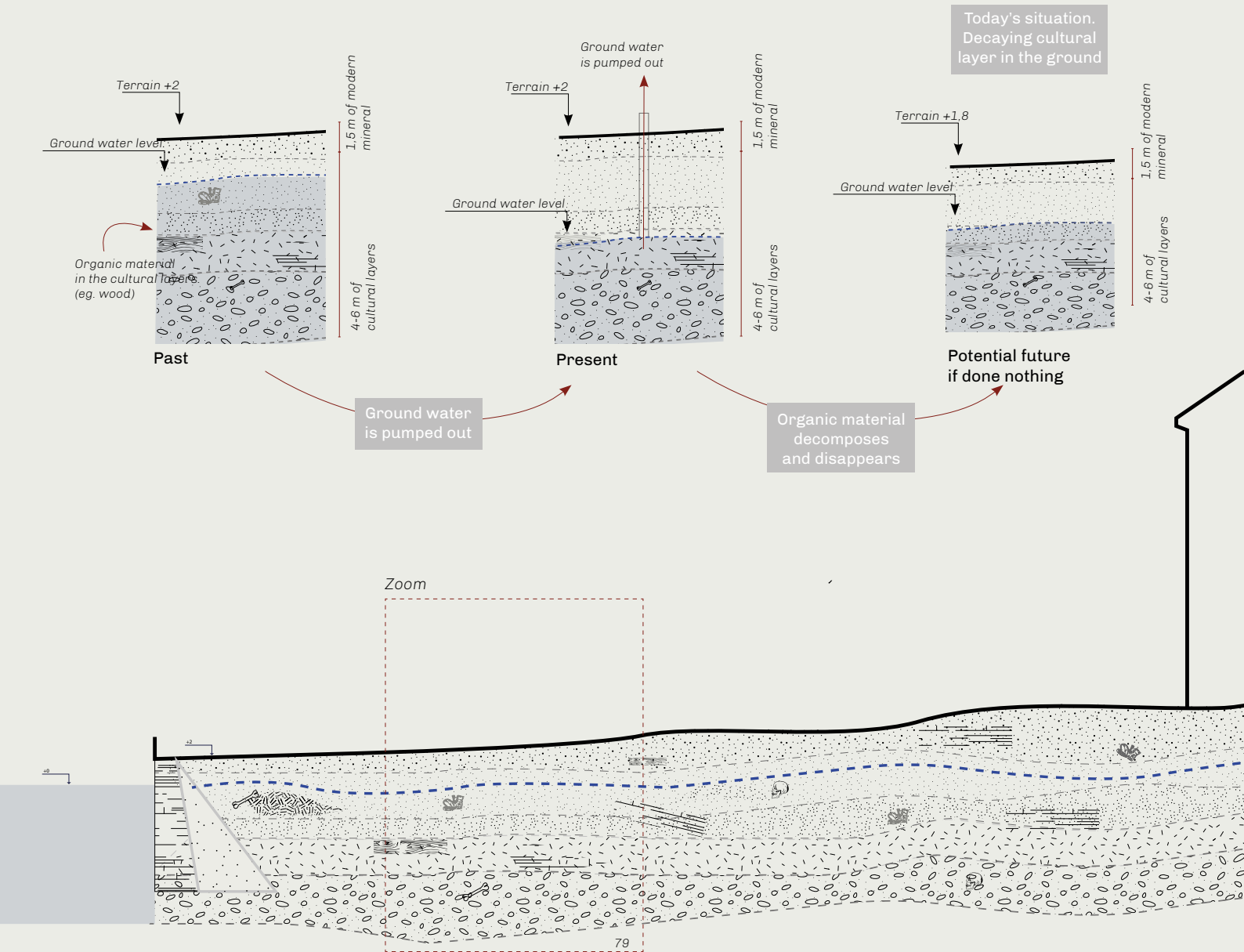
However, there is important cultural heritage located underneath in the soil of Vågsbunnen and the consequences of lower ground water levels can become more severe than 'simply' sinking urban space.

DECAYING CULTURAL HERITAGE

The shoreline was once further into Vågsbunnen, and the subsoil below Vågsbunnen consist at the bottom, of large deposits of clay, marine clay small stone sand and moraine. On top is the cultural deposits that are protected by the Cultural Environment zones – here referred to as cultural layers. The cultural layers consist of a range of organic materials such as peat, roots and wood, household rubbish and old constructions, which were thrown into the fjord after the many fires. This cultural layer can be found already 1.5 m below ground level and varies between 4 – 6 m thick. On top, there is a thin layer of modern mineral fill. The groundwater in the Vågsbunnen area is recorded to be between 1 and 3.7 m, with 2 meters on average (Norconsult, 2013). The sinking of groundwater levels and thus oxygen supply to the subsoil, will kickstart the decomposition process and lead to drying out, breakdown and compaction of organic deposits

and thus cultural layers in the ground. As a result, a reduction of groundwater will mean a huge loss of cultural heritage, as the cultural heritage in the underground contains important knowledge and tell stories about the past that are worth protecting. Above ground reduction of groundwater means - in the long term - settlement damage to buildings and the pavement. The municipality has focus on the cultural layers in the underground and on the groundwater, and it is recommended and seen as important to maintain the groundwater level in Vågsbunnen to preserve the area. The Norwegian Directorate of Cultural Heritage has published guides concerning how to preserve the underground cultural layers. Among the recommendations is an increased focus on rainwater infiltrations into the underground (Riksantikvaren, 2022).

Illustration 59. Diagram showing the process of groundwater reduction and decomposing cultural layer



The Historical Identity

Vågsbunnen has historically been a busy area with a strong connection to the activities along Vågen. Today, the activities and functions are new and different, but the structures and the soul of the Medieval district can still be felt. What is Vågsbunnen's physical identity today, and how are the historical significance and cultural heritage visible in today's structure?

BUILDING ARCHITECTURE & TYPOLOGY

Vågsbunnen is an area with a fantastic mix of typologies and architectural styles. The morphology is as previously presented mainly dense, with self grown quarters and stand-alone monumental buildings, and it also reflects the current architectural environment in Vågsbunnen.

Historically, Bergen was a city of wooden houses and the oldest part of Vågsbunnen are still small, wooden houses painted in a variety of colours (Melien, 2019), with gables typically facing the streets. The wooden houses are an important characteristic in Vågsbunnen, and the wood material and scale of the small houses complement one another and provide an intimate atmosphere in contrast to the large, hard mountain side. The current oldest wooden houses in Vågsbunnen are from the 1700-1850's, built after the fire in 1702. Especially the houses along Lille Øvregaten are well-preserved, and show the life of the many craftsmen living in this street (Bjørkhaug and Skagen, 1997).

Due to new building regulations and European influences, many of the new buildings in 1650 to 1850 were made of brick or stone. Traditionally, it was only buildings of power, like churches or fortifications that were built of stone, but due to extensive fires, many buildings especially facing allmenninger were built with brick. This is still visible today. For example, the brick buildings at Nedre Korskirkeallmenning and Hollendergaten were built in the 1700's due to fires.

After 1850, the continental influence was apparent, and many monumental buildings were built in Bergen during this time period. Buildings are drawn in the Italian renaissance style, classicism, Medieval historicism, new renaissance, jugend, and newer contemporary (Bjørkhaug and Skagen, 1997).

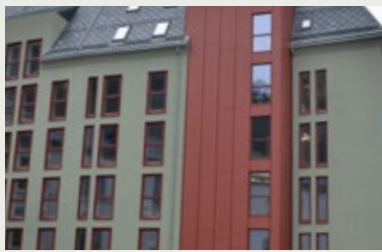
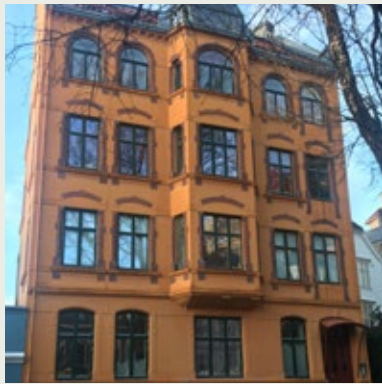


Illustration 60. Collage of some of the architectural styles in Vågsbunnen



COLOURS & MATERIALS

The colours of the area today are primarily tones of red, white, green, blue and yellow and shades of earthy tones (Melien, 2019, p. 59). The materials mixed with the many different colours of the buildings, gives a diverse and dynamic identity which is interesting to move through, and is seen as a special characteristic of Vågsbunnen (and Bergen and Norway). The materials are also a story-telling element, where the older buildings are wood and the newer ones are primarily stone, brick, or concrete. New buildings are also coloured in a manner that complements the existing palette.

However, when moving through the area it becomes evident that some of the buildings haven't stood the test of time, as they have started to fall away, and the store fronts seem empty and abandoned, and street artists have begun tagging and spray painting on the buildings. This study of buildings and materials highlights that even though the area has a great identity, many of the buildings are in need of a loving hand, an opprustning.

Illustration 61. Collage of different materials and colours on building facades in Vågsbunnen

URBAN FURNITURE

There is a duality to the urban furniture in Vågsbunnen – with something older and traditional, and something new and temporary.

Building on the Bergen traditions, the look of the older urban furniture in Vågsbunnen is very much in accordance with the historical design. The fire hydrants in Bergen are specifically coloured in 'Bergen green', and the color is only used in Bergen. Typically, fire hydrants were red. As a result of the green fire hydrants, other urban furniture was also painted in the same colour, for example benches and light posts (Bergen kommune, 2021). This particularity can also be said to be part of the cultural heritage in the area.

Generally, there is a great lack of urban furniture meant for stay and interactions between people. Along the edge zones and facades of the buildings there are benches, but they are located in relation to the functions in the building, and thus demands that you are a customer. There is an evident lack of public, free seating and for example playgrounds or furniture for different user groups.



Illustration 62. Selected urban furnitures observed in Vågsbunnen

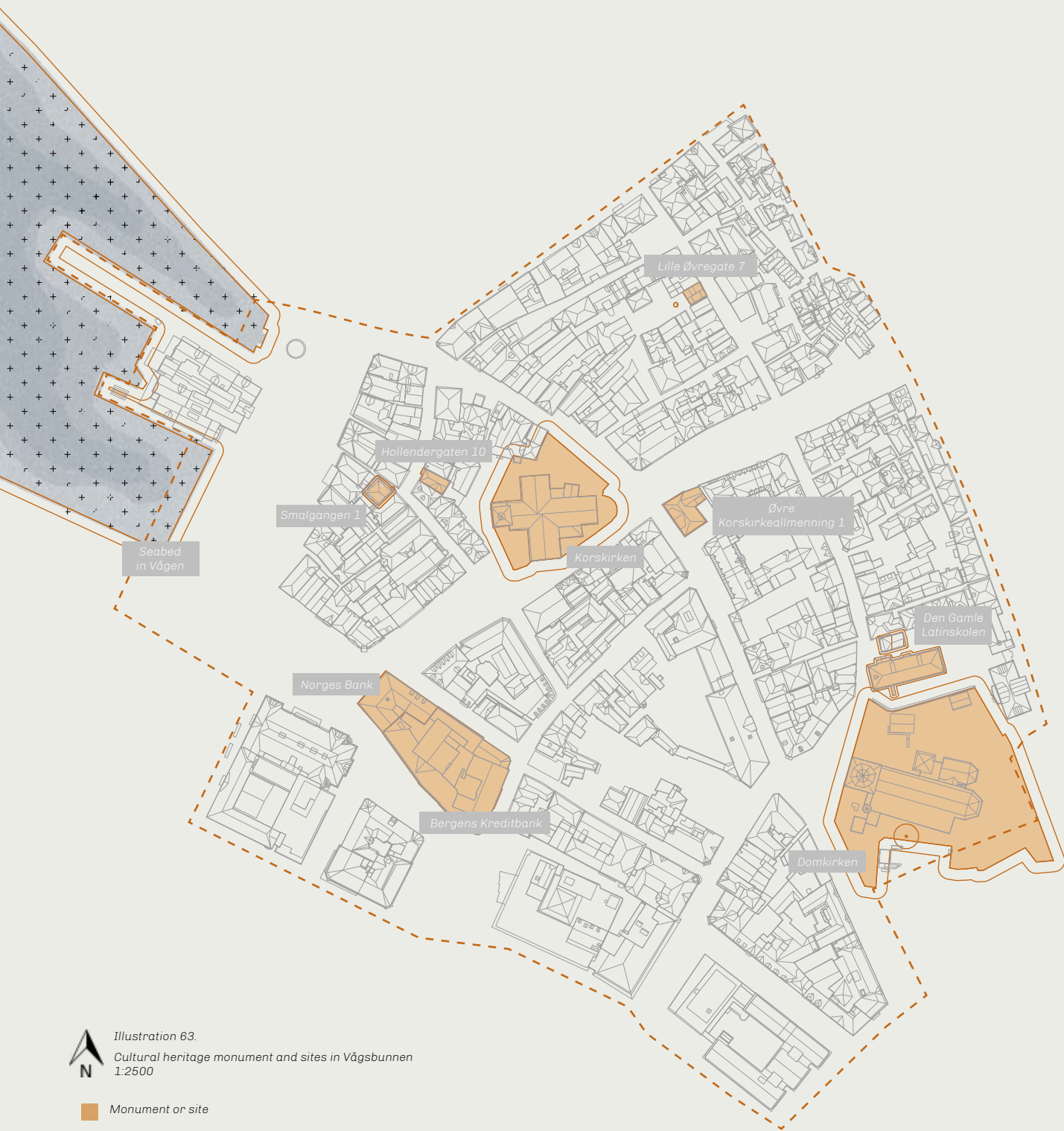


Illustration 63.
Cultural heritage monument and sites in Vågsbunnen
1:2500

- Monument or site
- Site protection boundary
- Protected seabed

CULTURAL HERITAGE SITES

In the cultural environment Vågsbunnen is a part of, there are several buildings that are protected because of their significant cultural value, some connected to the architectural styles, other connected to their use or story-telling value. This means that they have regulations and laws of various degrees that will impact what one is allowed to change with the buildings and how they must be preserved. North of Vågsbunnen the Bryggen UNESCO World Heritage Site is prominent with its many cultural heritage buildings, but within the project area there are single buildings or structures that are protected. The seabed in Vågen is also a protected site.



Norges Bank
Two-story brick building from the 1840's, influenced by the City Beautiful movement



Bergens Kreditbank
Valuable part of the City Beautiful architecture in Bergen



Lille Øvregate 7
Typical Bergen residential house in wood



Øvre Korskirkeallmenning 1
Residential house of stone from the 1700's, new facade in the 1860's



Den Gamle Latinskolen
The Old Latin School



Hollendergaten 10
Residential house from early 1700's, with decorated rococo entrance



DRUG ENVIRONMENT



Illustration 65. Situation around Korskirken, February 2023

THE MEDIEVAL CHURCHES

There are two Medieval churches located in Vågsbunnen: Korskirken and Domkirken. They were first mentioned in the history books in year 1181, and the church sites have a long history in the area (*Kulturminnesøk*, 2023). Both churches have a complex story, with fires, reconstructions, and various add-ons and new architecture, but are today built primarily of stone with symbolic towers, hovering over Vågsbunnen. The churches and the surrounding church grounds are in their entirety cultural heritage sites.

Vågsbunnen is an area primarily dominated by hard, grey surfaces and greenery is not that common, but the church grounds are one of the few green 'parks' open to the public. There used to be gigantic chestnut trees by Korskirken, but they were removed recently due to difficulties with maintenance. The last few years, both churches have been under renovation, as the general quality was decaying. This work is demanding, slow and expensive, as the churches have important historical value and are protected by law (Aalvik, 2019). Both churches are still active as religious, Christian buildings.

The area around Korskirken is today particularly worn down, with fences and walls covered in graffiti and trash everywhere. The closed off space by the inner corner of the church is dominated by a specific user group, with people from the drug environment in Bergen. Entering the area feels unpleasant, especially during nighttime. It was observed that many tourists wandering the area, enter the street and quickly turn around, due to uncomfortable encounters with drug and alcohol abusers. The smau leading into Korskirken are also closed off by this user group.

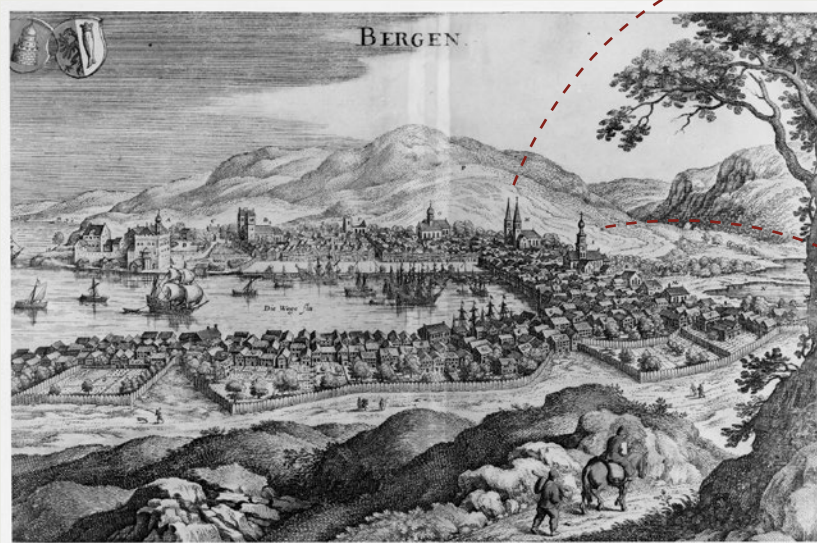


Illustration 66. The first known illustration of Bergen. Version of Hieronymus Scholæus from 1688 (BS Samlingen, 1588)



Illustration 67. Rainwater running down Øvre Korskirkeallmenningen



Illustration 68. Drain



Illustration 69. Street water channel



Illustration 70. From building roof

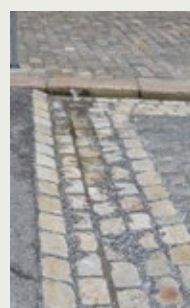


Illustration 71. In cobblestone

Managing Rainwater

With the topography in mind and by looking at the rainwater flow, it becomes clear that the rainwater in Bergen for the most part naturally follows the terrain from the mountain side into the fjord, via the defined streets. The map shows that the allmenning is one of the main routes for water. The stream Sjørelven used to run where the Fløien funicular goes, through Vetrilidsallmenningen and Øvre Korskirkeallmenningen, into Vågen. Today, the water mostly runs in underground pipes, and on the surface (Hartvedt and Skreien, 2009).

Bergen has over the years developed several urban structures that aid in efficient water management. Typically, there are specific drains for the water, guiding it from the roof tops to the closest sewer. Additionally, the traditional cobble stone pavement is also rooted in a water management need. In Vågsbunnen however, many of the surfaces are uneven and the surface slope is not ideal for water management. This causes the water to gather in puddles and create an unpleasant environment. This also related to the geotechnical issues in the area. Due to the low maintained paving, they have started to pour asphalt over the cobbled surface, thus enhancing the effect of these puddles that gather on the surface.



Illustration 72.
Water flow map
1:2500

- Primary water flow
- - - Secondary water flow
- Terrain

PAVEMENT

Bergen has a long tradition for using cobble stone, and there has commonly been used a couple of different types of patterns. The cobblestones were placed in both an arched pattern and a straight pattern. This tradition is still strong, but new pavement materials are also introduced. Today the pavement is mostly a mix of cobble stone, granite, slate stone, and asphalt. Observations show that typically areas meant for walkability are in slate, whereas areas for driving are in cobble stone. Main roads are all in asphalt. Additionally, granite stone is often used for edges, for example as a separation between the sidewalk and the road.

Similar to some buildings, the paving is also worn. In some areas old cobble stone has been covered with asphalt as a temporary fix, due to the low maintenance of the area. Today the urban carpet is a mixture of all sorts of pavements.

At Vågsallmenningen and the lower part of Korskirkeallmenningen, a project has been implemented, where a series of art installations has been put into the existing paving. These were placed in the renovation of Vågsallmenningen in the late 90's. These can be seen as the colorful stones that are embedded in the paving around the entirety of Nedre Korskirkeallmenningen.

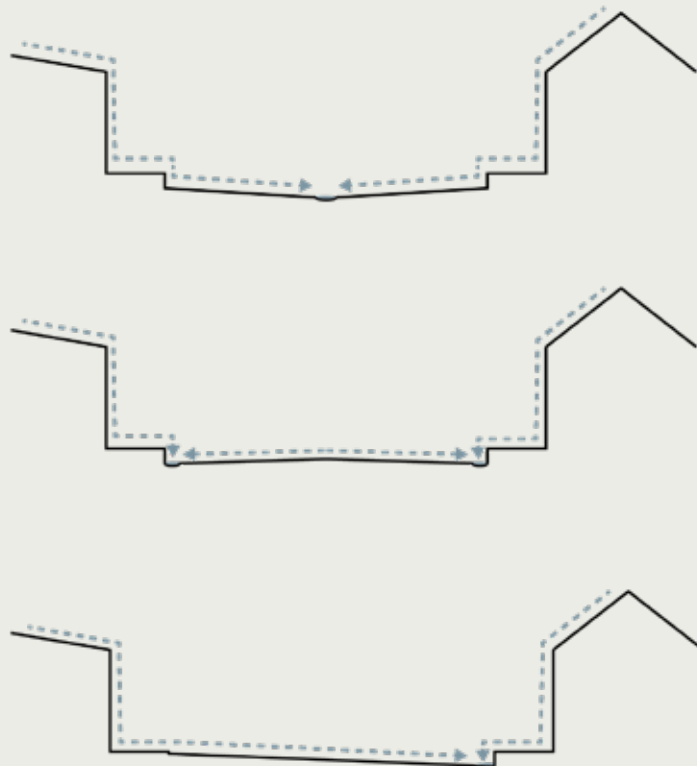


Illustration 73. The street profiles in Vågsbunnen and how they manage rainwater



Illustration 74. Collage of different paving materials in Vågsbunnen

Vågsbunnen's Identity

The goal of the analysis chapter was to find out why there is a need to 'oppruste' Vågsbunnen, figure out what characterizes the district and its cultural heritage, and identify where there are potentials for robustification. As Bergen Municipality also has identified, there is room for improvement and a robustification is necessary for several reasons.

WHAT CHARACTERIZES VÅGSBUNNEN?

Vågsbunnen is in many ways a typical district in an old city, and generally, there is a huge variety in Vågsbunnen. Variation is definitely one of the defining traits of the area. It is clearly defined in its identity, but the atmosphere is divided. On the one hand, there is the historical and cultural, with its beautiful buildings and architecture, charming smau, and unique small shops, all telling the story of a district with much depth and character. There is a particular atmosphere, where the structure with historical streets, old and picturesque buildings, and the mighty Medieval churches all contribute to bringing the past into the present. The history is apparent in the many layers that exist. There are many things to observe and look at, and the diversity is part of what makes the area so interesting to move through. On the other hand, there is the worn-down look, buildings abandoned, and functions lost, showing the lack of maintenance and active use. There is a duality in the area, which makes it complex, static and dynamic at the same time.

WHY OPPRUSTE?

There are both physical and social reasons for an opprustning in Vågsbunnen. Physically, there are issues with maintenance, decay of cultural heritage, water management and car-prioritization. Socially, there is a lack of urban furniture and urban spaces affording different types of interaction. The accessibility and inclusivity can be improved, to invite a more diverse user group into the area and create more life.

Maintenance

Vågsbunnen is generally facing a lack of maintenance, both visual and non-visual. Despite the area being authentic and beautiful, these small maintenance issues have a big impact on the general impression of the area. Among the easily identifiable issues are the fading, graffitied buildings and facades, with the old Hans Tank school, the buildings facing Korskirken, and Korskirken itself being the more prominent. There are also structural maintenance issues on certain buildings. The worn, temporary solutions for pavements, with patchy asphalt and wobbly cobble stones, also create an unpleasant look. The pavement is also uneven and not always universally designed. Furthermore, there are issues with trash management, and there are various types of trash bins located around in Vågsbunnen, where much of the trash falls on the surface and creates an unpleasant smell.

Decay

The decreasing groundwater, issues with the sinking foundation and decomposition of cultural layers below ground are at this point visible above ground, with uneven pavement and an evident change in terrain certain places. Especially the decomposition of the cultural heritage is critical, and something must be done in order to keep the important historical value and prevent further sinking of the district.

Water management

In correlation to the sinking groundwater and Bergen's infamous 213 rain days per year, rain management must be considered. The system today is based primarily in leading the water away, primarily through somewhat permeable pavements and drainage leading to underground pipes. It will however become more important that more of the rainwater can infiltrate the ground, and more water is being handled locally instead of just being led away. At the moment, the water is treated as an issue, something to just be dealt with, instead of a resource.

Inclusivity & Accessibility

The lack of publicly accessible urban furniture is a critical lack in Vågsbunnen. There are very few seating options and activities available for people who are simply enjoying the area, and not taking part in the activities happening at ground floors of buildings. Outdoor seating is typically related to cafés and restaurants, and if you are not a paying customer, they are not accessible for you. This is generally a problem both in terms of creating a diverse and inclusive city, but also in order to creating an active space that functions regardless of the functions surrounding it.

Furthermore, there is an interesting dynamic between user groups, where you have, simply put, the Bergensere moving through their everyday, the tourists visiting the area, the people working in Vågsbunnen, and the drug environment by Korskirken. Right now, these user groups rarely interact, and there seems to be an invisible border between them.

Cultural heritage information

The analysis show that even though the history is rich, the story of the area is not self-apparent when moving through the district. This means that tourists and locals walking in the area, must have a large knowledge base beforehand or be informed, in order to accurately identify the historical and cultural reminiscence of the past. There are very few wayfinding and informative signs, telling interesting information about Vågsbunnen's particular story.

POTENTIALS FOR OPPRUSTNING

Based in the argumentation for why Vågsbunnen needs an opprustning, there are many potentials for creating a new, robust district, ready to move into the future. However, there are also constraints, especially in terms of needing to preserve cultural heritage and adapt to the existing situation.

Looking at the main challenges identified from the analysis, the main potentials lie in the following:

- Low maintained pavements, facades, and surfaces
- Lack of public and accessible urban furniture, inviting stay and recreation
- Lack of structures that aid in local rainwater management during extreme rain and activates the water in the urban space
- Decomposing underground cultural layers, causing foundational issues and loss of important cultural heritage
- Lack of clear communication around the cultural heritage
- Car-heavy urban spaces and lack of universal design
- Lack of interactive functions in the urban spaces, inviting various user groups to interact and relate

The potentials for an opprustning in the urban spaces in allmenningen are logically many of the same as the potentials for opprustning generally in Vågsbunnen.

From Analysis to Design



Illustration 75. The Old Hans Tank School, and a new hotel

This chapter aims to create a bridge between the main findings from the analysis and the thoughts regarding robustness and cultural heritage, to the redesign of allmenningen. Allmenningen will be further presented, combining the findings from the analysis with theoretical arguments for a design. Further, introducing the vision for the design, and establishing specific design criteria, the chapter will be the foundation for understanding how the design has come to life. The design criteria are based on three themes, founded in the analysis: urban life, climate and water, and cultural heritage. Lastly, the concept for the design is presented.



04

Redesigning Allmenningen

Bridging Theory, Analysis & Design

When discussing how to design for robust urban spaces, many parameters were mentioned. Building further on the design objectives of preservation, adaptation, and addition, how can the general theoretical reflections be applied to what we learned about Vågsbunnen and the allmenning in the analysis?

As presented at the start of this thesis, the result will be a redesign of an urban space. Looking at the urban spaces that exist in Vågsbunnen, we see potential in the allmenning as a catalyst for an opprustning of Vågsbunnen. From the fjell, all the way to the fjord, the allmenning consists of several urban spaces of varying character, connecting the district together and making it the place where different social spheres collide, and people interact. The allmenning is also representative for the general character of Vågsbunnen, with different characters all the way through.

The urban spaces along allmenningen have in this chapter been separated into smaller zones, based on identified characteristics and the physical separation that exists between them. In addition to Nedre and Øvre Korskirkeallmenning and part of Vågsallmenningen, Fisketorget, Korskirken, and the upper part of Øvre Korskirkeallmenning, here called Korskirkesvingene, are included as well, to emphasize the allmenning's function as bringing people from fjord to fjell.

Working with an opprustning of an urban space located in a cultural environment means that there are general structures, sites or atmospheres that must be **preserved**. Furthermore, based on the Climate Paradigm and the current climate challenges Bergen is facing, we know that there is a need for **adaptation**, to adapt to new challenges, socially and physically, and ensure that the cultural heritage will be preserved for the future as well. Additionally, the analysis of Vågsbunnen as a district, showcases that there also is a need to **add** new structures, to achieve physical and social robustness. Building on the presented analyses of Bergen and Vågsbunnen, in the following the aim is to identify what the allmenning's different urban spaces offer today and analyse them in the light of the theoretical discussion previously presented. The urban spaces will be analysed to be 'made ready for design', in terms of specifically identifying what elements in the urban spaces must be **preserved, adapted, or added** to achieve social or physical robustness. Additionally, the chapter will provide insight into the design process and thoughts behind each urban space.



Preservation

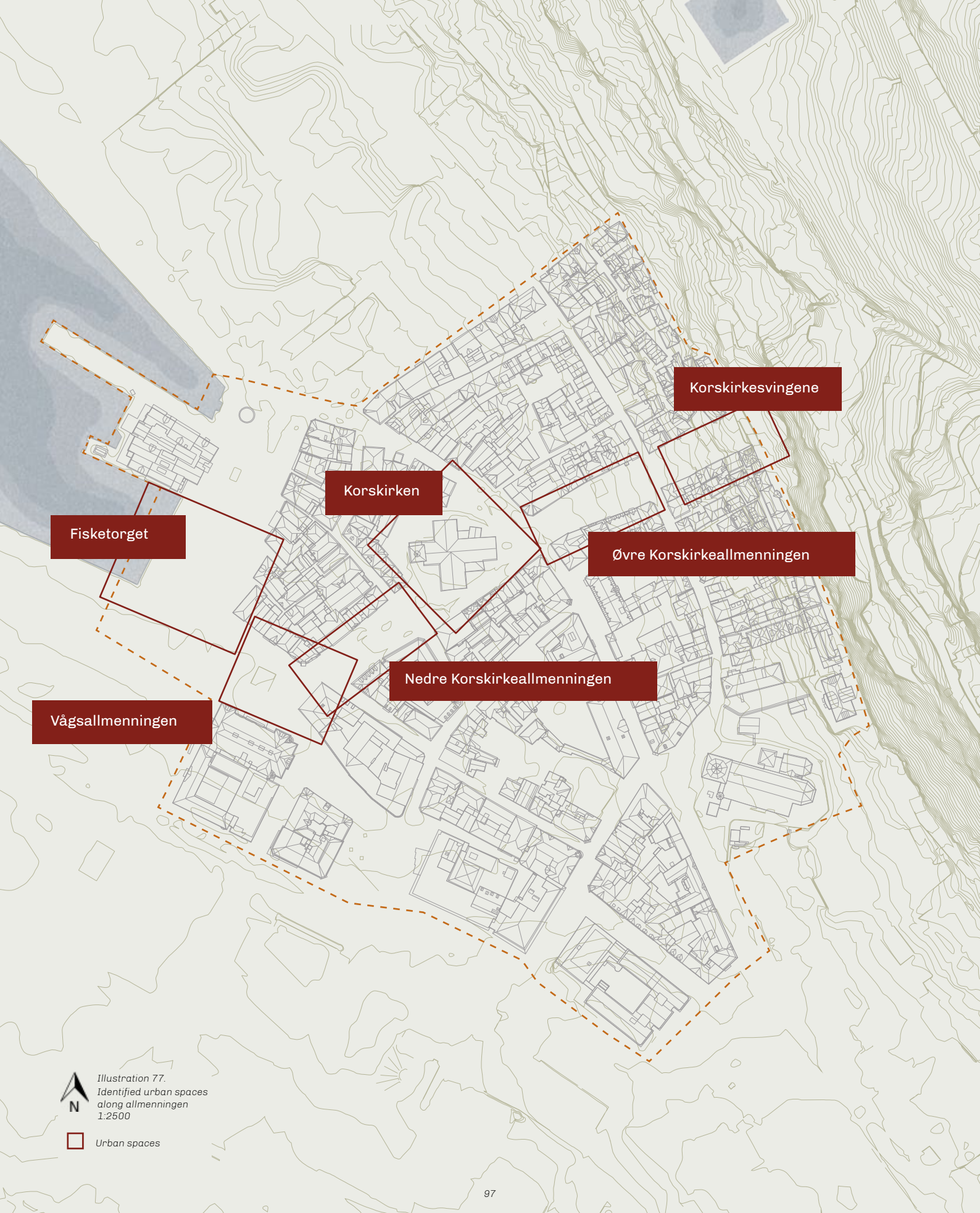


Adaptation



Addition

Illustration 76. The design parameters: Preservation, adaptation and addition



Fisketorget

Korskirken

Korskirkesvingene

Øvre Korskirkeallmenningen

Nedre Korskirkeallmenningen

Vågsallmenningen



Illustration 77.
Identified urban spaces
along allmenningen
1:2500



Urban spaces

Fisketorget

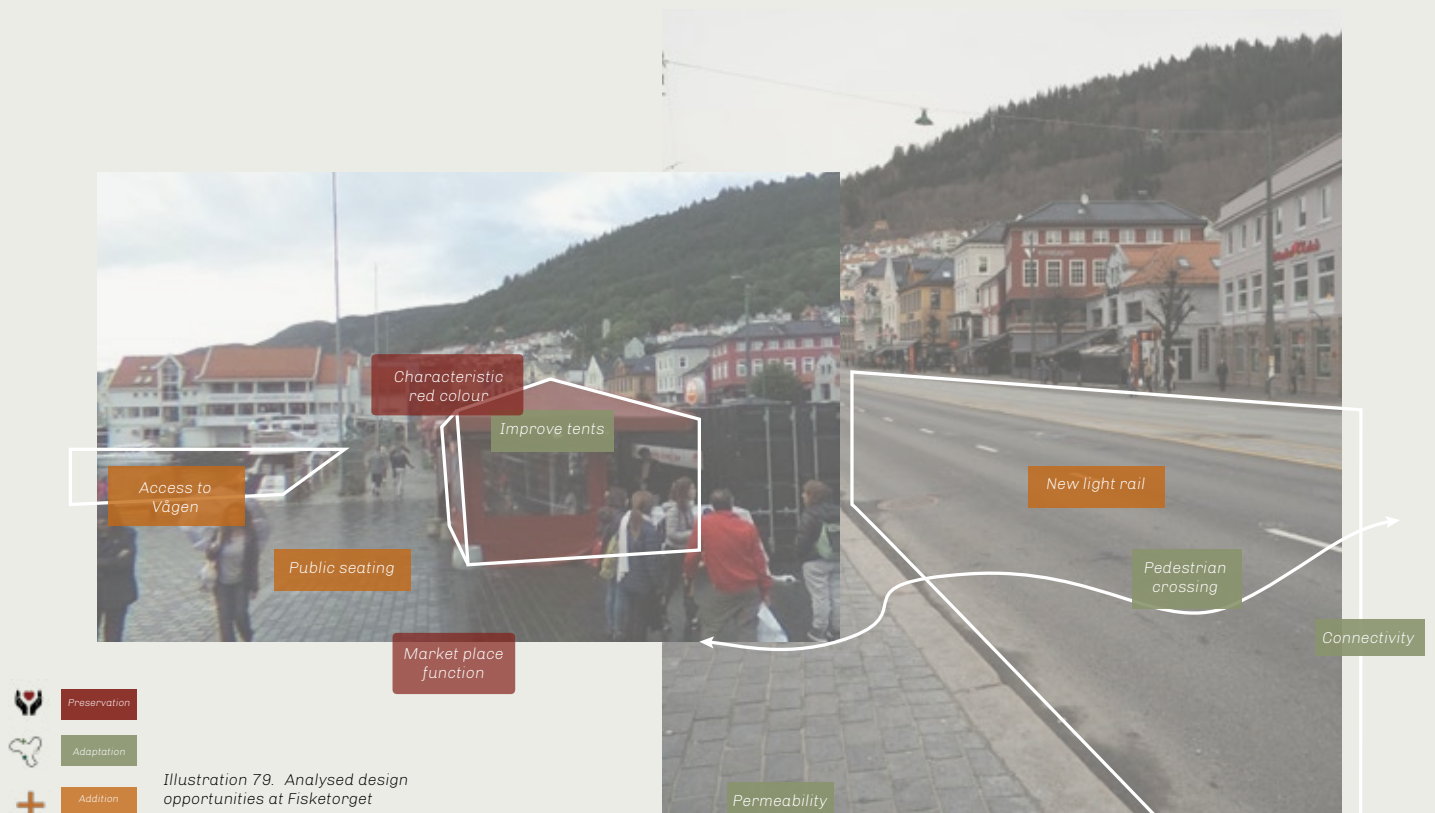
PERMANENTLY TEMPORARY

From the analysis we know that Fisketorget is an identity-giving, characteristic place in Bergen, and it is visited by many tourists and locals every year. It has for a long time been a temporary marketplace, and this is still part of its function. The permanent temporariness is seen as a particular quality, and the redesign should preserve this, to preserve the authenticity and history of the site. According to Sennet and Sendra (2021), this flexibility of a place is particularly important because it provides the place with different functionalities and different uses that can be orchestrated by local actors. A redesign must then include a similar flexibility. However, the analysis also identified a need for a better solution for the temporary tents. The general condition of the tents is varying and gives Fisketorget a worn-down look. Tony Hall (2015) and Jan Gehl (2010) both argue that it is important that urban spaces are aesthetically pleasing, and adding new tent structures have a great potential in becoming a characteristic element as a brand for Fisketorget. Additionally, there was historically a stronger connection from the marketplace into Vågen and often goods were sold directly from the shoreline. In reminiscence of the past, there should be an improved connection to Vågen. In order to do so, it is thus important to take into consideration the key points of the Climate Paradigm. In this mindset the harbour front must be protected to ensure that it is robust towards rising sea levels and more extreme weather.

Building on the new plans for the Bergen light rail, there is also potential in making the barriers around Fisketorget smaller and improving the connectivity in and out of the space. According to Sim (2020), improved connectivity through coherent paving and readability will make the city more walkable, and thus promote sustainable transportation. Additionally, as Fisketorget often is filled with people, there should be a focus on safe and accessible mobility for all, in accordance with Gehl's (2010) criteria for protection and comfort.



Illustration 78. Observed flow patterns at Fisketorget



Vågsallmenningen

THE LONELY STATUE

Vågsallmenningen connects Fisketorget to the administrative buildings and Byparken in Bergen. It was renovated some years ago, and today it is mostly an open public space for pedestrians, with little functionality other than pedestrian mobility and access to buildings. In the redesign, only the northern plaza of Vågsallmenningen is included, to connect Nedre Korskirkeallmenning and Fisketorget.

The plaza is framed by historical buildings and beautiful facades, with appropriate dimensions for creating a human-friendly place. These facades have a great potential for preservation, and the old building of Norges Bank is a listed cultural heritage building. Likewise, the functions today are primarily shops. These are likewise worth preserving as this is a mobility node in the entire district. Kasper Albrektsen (2020), among others, argue that these functions however should be able to adapt to changing demands, and it is thus important that the buildings are able to adapt to changing needs becoming dynamic in there functions. The microclimate can be rough, with the Northern wind coming in from Vågen. Still, many of the building functions on the ground floor expand into the urban space during summer, primarily for outdoor serving. Gehl (2010) argues that it is important that there are outdoor seating in pleasant microclimatic environments. These spaces must then be included in the design of Vågsallmenningen. The iconic statue of Ludvig Holberg, a Norwegian-Danish writer born in Bergen, has also been located at the plaza since 1884. Together with the statue, there are concrete benches at the plaza and art installations connected to the renovation done in 2000/2003.

More importantly, the northern plaza of Vågsallmenningen is located solely on landfill and it used to be part of Vågen many years ago. This means that the plaza's foundation consists of cultural layers, and this affects the possibilities for design interventions. For example, there will be issues with digging too far down into the ground and there should be sufficient permeability to ensure preservation of the cultural heritage below.

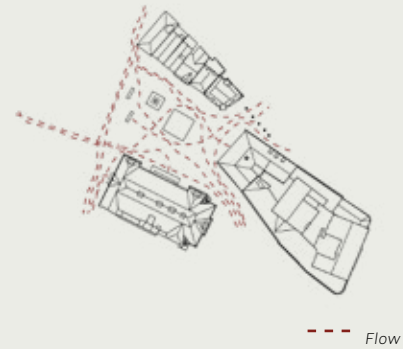


Illustration 80. Observed flow patterns at Vågsallmenningen

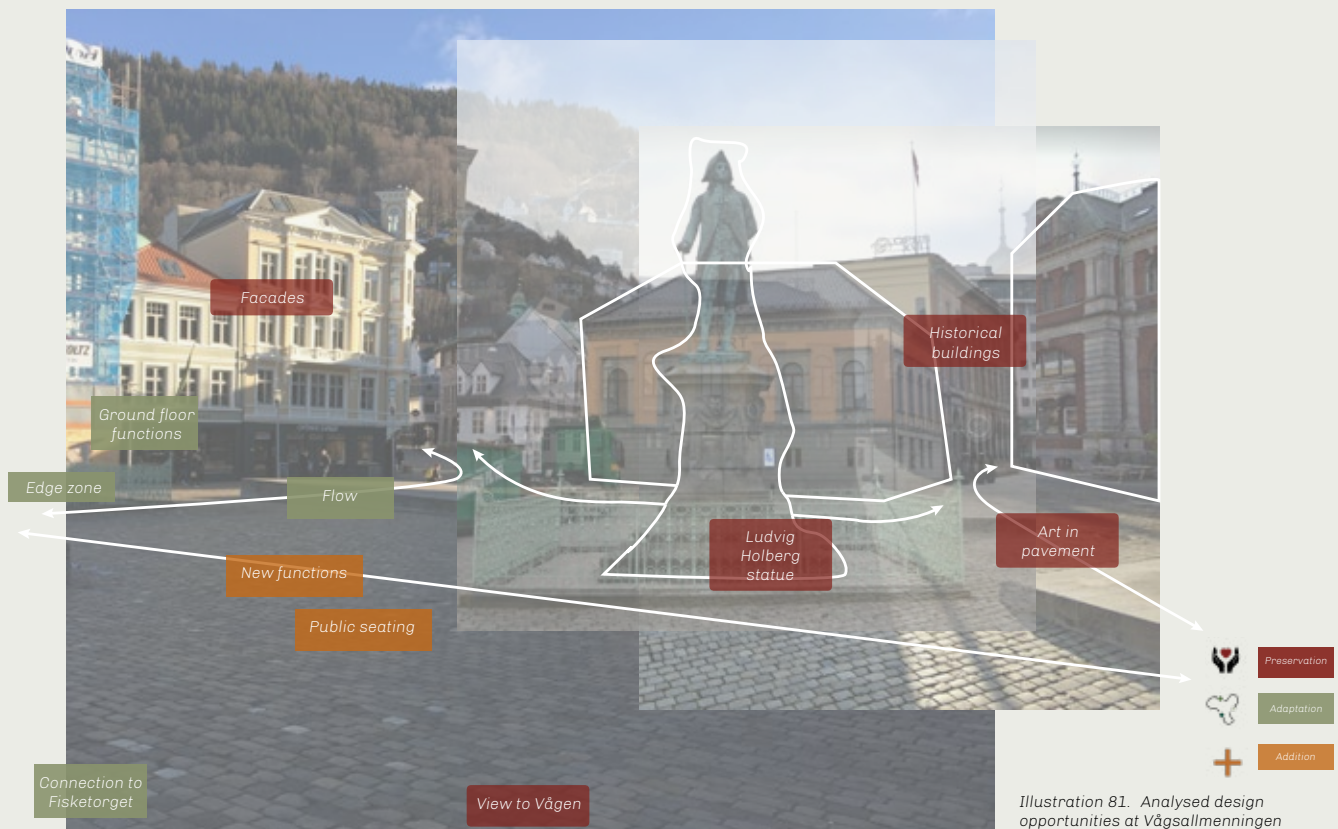


Illustration 81. Analysed design opportunities at Vågsallmenningen

Nedre Korskirkeallmenning

THE EMPTY FRAME

Nedre Korskirkeallmenningen has a public character, framed by buildings with active ground floors and various functions – from restaurants and café to grocery store, hotel and hairdressers. The buildings are historical, ranging from older wooden houses to beautifully ornamented stone houses, and the dimensions of both the buildings and the urban space create a pleasant atmosphere with good conditions for stay. The allmenning is somewhat hidden away from the noise and activity at Fisketorget, and there is a view to the mountain side and church as well. These characteristics are positive, and according to Gehl's criteria, Nedre Korskirkeallmenning fulfils many of the basic physiological demands of an urban space. However, the space is today rather empty and grey, with bike parking and the edge zones being the only active element. There is therefore potential in activating the urban space. Beata Sirowy (2015) suggests consciously diversifying in shape, use, functions, and prices to make it more inclusive. Furthermore, as this part of the allmenning will become closed off for vehicle traffic, there is also potential in making the urban space even more pedestrian friendly as Sim (2020) proposes, through implementation of more activities and functions. However, similarly to Vågsallmenningen, Nedre Korskirkeallmenning is also built on landfill, and therefore has cultural layers underneath that must be preserved. Having sufficient permeability to recharge the groundwater levels is therefore extra important.



Illustration 82. Observed flow patterns at Nedre Korskirkeallmenning

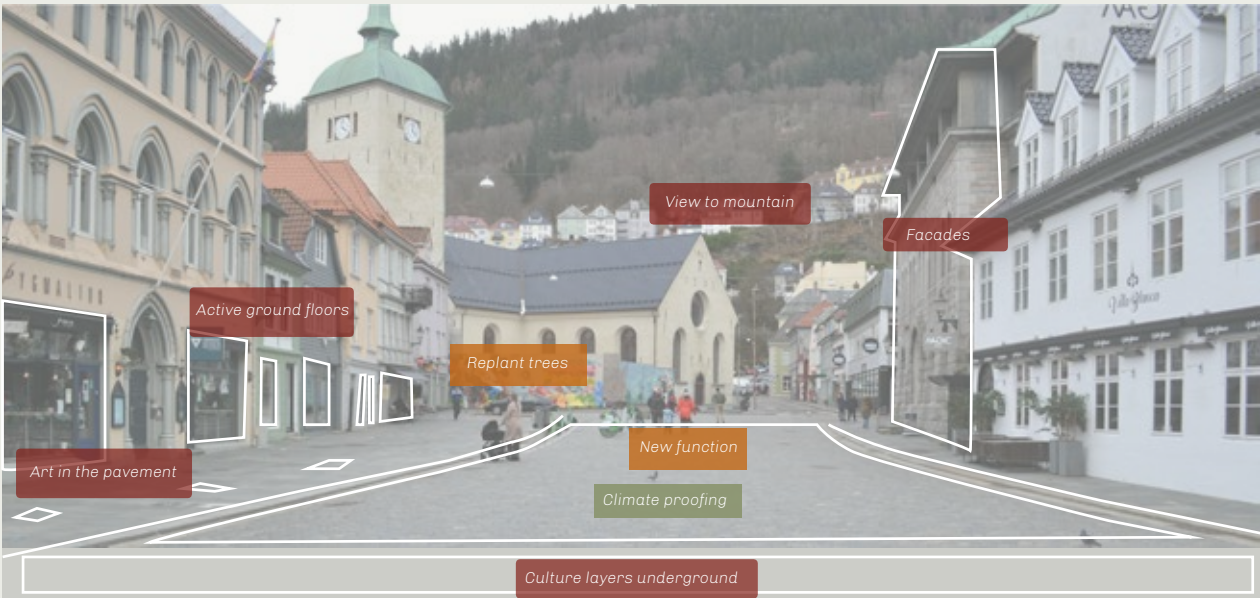
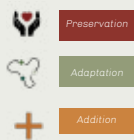


Illustration 83. Analysed design opportunities at Nedre Korskirkeallmenning



Korskirken

THE CORNER STONE

Korskirken is one of the corner stones of Vågsbunnen, and it is a landmark in the city, with the tower being visible and prominent in the landscape. It is an important piece of Vågsbunnen's history, and the church and graveyard are listed as a cultural site. However, the long history of the church is by no means apparent today. Whether that is due to the extensive reconstruction or bad communication around culture, is difficult to say. The redesign should enhance the story of Korskirken and communicate the historical importance of the site in a better way.

Generally, the area around Korskirken is low quality, due to lack of maintenance of roads and facades, removal of greenery, construction works, and the drug environment in Bergen being located here. Thinking forward, as the construction works are done, the church should become an integrated part of the urban space and connect especially to Nedre Korskirkeallmenning. It is difficult to predict how the drug environment will be affected by a redesign, but the user groups should be included in the design, building on Hager and Reijndorp's (2001) thought regarding multiple public spheres and their proximity. Sennet and Sendra (2021) also highlights this interaction between different user groups. They see it as crucial in order to create good meeting points between the drug environment and other user groups. What is important however, is creating safety and predictability for the other user groups, such as tourists and locals. As activities commence in the church, it will also be important to include them in the urban space around the church, providing outdoor opportunities for stay and a welcoming entrance area.



Illustration 84. Observed flow patterns by Korskirken

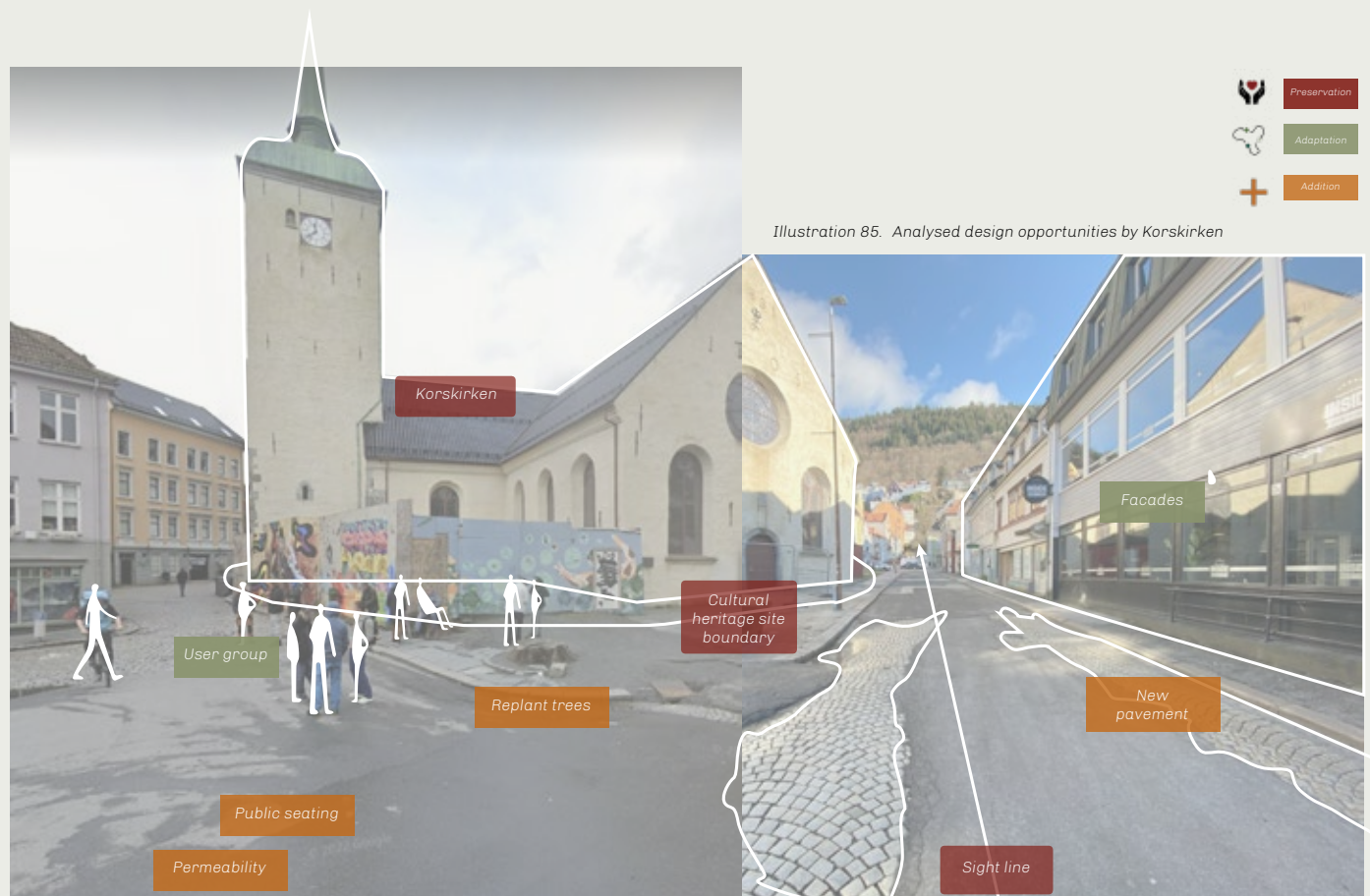


Illustration 85. Analysed design opportunities by Korskirken

Øvre Korskirkeallmenning

THE CAR PARK

Øvre Korskirkeallmenning has been a car park for many years and remains one to this day. The new traffic plan wants to remove parking in the area and this part of the allmenning will be a one-way street, accessible by car for goods delivery and essential traffic. The municipality has also planned placement of new renovation system here, indicating that there also is a practical character.

This opens for introducing new functions and establishing activities in the urban space. Today the building functions are varied, with some public functions like a café, tattoo parlour and a bookstore, but the main function is housing, which gives this part of the allmenning a more private character. The apartments and housing here do not have any private backyards or courtyard, so the allmenning is part of their immediate outdoor space. It is therefore important that the redesign leaves room for flexibility in the edge zones, so residents have opportunities to expand into the urban space and put their own print on the city. This is one of the key points from both Jane Jacobs (1961) and Jan Gehl (2010), but also Sennet and Sendra (2021) has some interesting points towards a flexible urban space, where the people can reform them to their own needs.

Furthermore, Øvre Korskirkeallmenning is where the terrain of the allmenning starts to become steeper, being closer to the mountain side. Consequently, much of the rainwater runs down this allmenning. Today, the space is covered in asphalt, and no green structures and the water is not prioritized as a resource. Managing the rainwater through implementation of more greenery, trees and elements from water-sensitive urban design will help in activating the water (Sim, 2020). The old stream Sjurelven also used to run along Øvre Korskirkeallmenning, and in accordance with Hanssen and Hofstand (2015) the wish is to investigate the reopening of this natural waterway.



Illustration 86. Observed flow patterns at Øvre Korskirkeallmenning

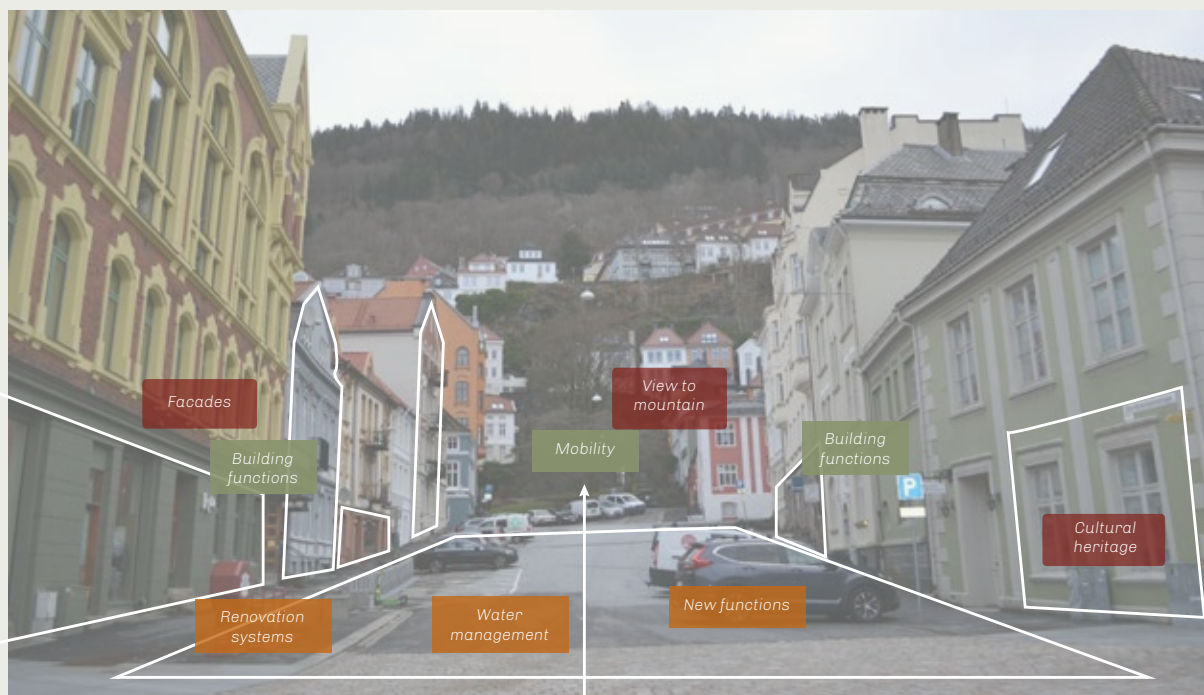
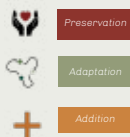


Illustration 87. Analysed design potentials at Øvre Korskirkeallmenning



Korskirkesvingene

THE BENDY BACKYARD

In the last part of the allmenning, you find the more traditional layout – like many of the other allmenninger in Bergen. The terrain is steep and brings you from Vågsbunnen up unto the mountain and Fjellsiden. This is an alternative route up to mount Fløyen, if you do not wish to go via Vetrilidsallmenningen where the funicular stop is located. The structure in this area can be dated back a long time, and it thus worth preserving. In order to create flexible spaces that can be used by the private owned houses, while it is still possible to navigate through it as pedestrians.

There are large trees, creating a particular atmosphere where you become mindful of entering a new landscape. The buildings framing Korskirkesvingen are residential, and this last part of the allmenning is their outdoor space. There is parking here today as well, which in accordance with the traffic plan will be removed. This also leaves space for something new.



Illustration 88. Observed flow patterns at Korskirkesvingene

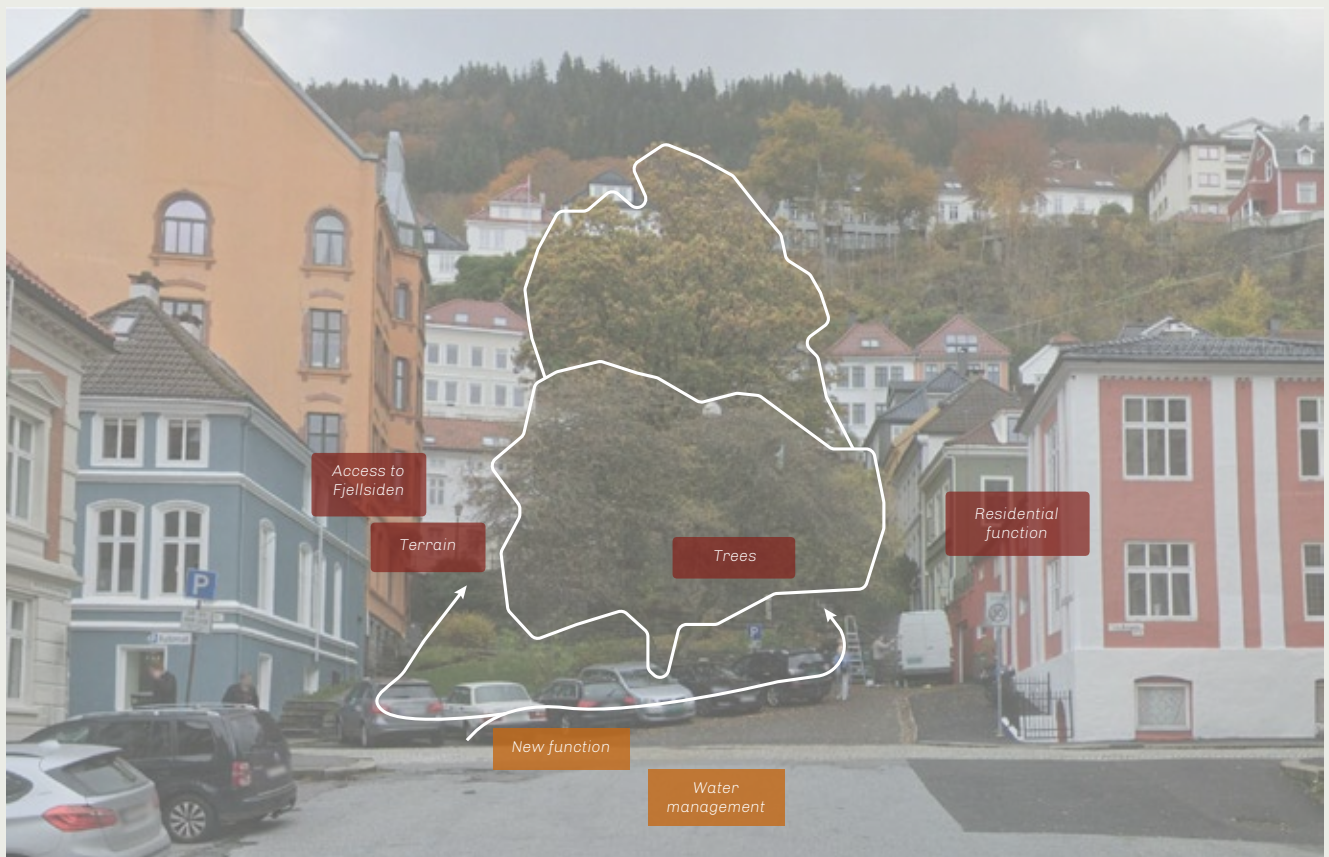
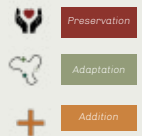


Illustration 89. Analysed design potentials at Korskirkesvingene

Summarizing the Thoughts for Design

In the previously presented the aim was to identify the elements in allmenningen's urban spaces that should be either preserved, adapted, or added, and discussing based on the theoretical insights how to best redesign allmenningen.

Generally, it is the cultural heritage and the landscape in allmenningen's spaces that should be preserved. From the historical identity-giving red colour of the tents at Fisketorget, the protected cultural heritage buildings, to the cultural layers below ground, there are many physical elements that should be preserved. The views from fjord to fjell are also important to preserve when designing, from Vågsallmenningen to Fisketorget and Vågen, and from Korskirken to the mountains.

Even though the preservation of physical elements is important, the opprustning however mostly taps into the physical quality of the urban spaces. The physical elements in the urban spaces vary, both in terms of the framing buildings and dimensions of the spaces, the urban furniture, greenery and vegetation, pavement materials, and water management structures. The adaptation of structures mostly relates to these physical elements. This is due to the low physical quality in certain areas. The pavement by Korskirken for example, is both impermeable, uneven and patchy, and there is a general lack of greenery in the urban spaces. The physical structures should also be adapted to manage rainwater more efficiently. The only existing water management structures are underground, the terrain and road profiles leading water into drains. There are few management structures providing any quality to the urban spaces, other than leading water away. Furthermore, the redesign of allmenning should adapt to the existing mobility and flow patterns of the area, ensuring that there is accessibility for different types of users. Adaptation to existing functions and user groups will also be important.

In terms of addition, several needs were identified. There is a general lack of publicly available seating areas along the entire allmenning, with most seating being in direct relation to functions requiring payment. Furthermore, there is a need to add new functions to the urban spaces, as many of them are simply empty and offering little to the public. Structures for water management and ways to interact with water should also be added.



The **vision** is that Vågsbunnen will be a **robust district** in Bergen, uniting the city's **past, present and future**. The district will consist of the cultural building structures and a series of robust urban spaces, that invite **diverse user groups** into the area to experience a range of **liveable places**. With the allmenning between Vågen and Fjellsiden as the main driver, Vågsbunnen will again become an **attractive and inclusive district** in Bergen, offering **something to everyone**. The authenticity and identity of Vågsbunnen must be enhanced and seen as a quality, to promote the area's **storytelling** features. Through a mix of **preservation, adaptation, and addition** of new, the area will become a district where inhabitants can live a modern everyday life in a historical context, while the historical district still can be enjoyed and experienced as a cultural site for tourists. The new features will in a dynamic way be integrated into the **cultural environment**.

The allmenning will be the renewed **common street space** of Vågsbunnen, a meeting place available for all and once again connecting the living quarters to the lively public market through a **shared identity**. Considering the particular challenges of Vågsbunnen, the spaces along the allmenning must be able to manage increased **rainwater** locally, in a way that activates the urban spaces and contributes to preserving the **cultural heritage underground**. The urban spaces must be able to function regardless of the building functions surrounding the space, and the intended use must afford free activities and stay, with the appropriate **private-public balance**.

Design Criteria

In order to fulfil the vision for Vågsbunnen, the main actions points needed are in the following pinpointed. There are three main themes: urban life, climate adaptation and water, and cultural heritage. The themes can be traced back to the municipal description of the Vågsbunnen case and are further supported by the analysis findings. In the analysis, several needs were identified in terms of why Vågsbunnen could use an 'opprustning': the general lack of maintenance (buildings and urban spaces), sinking ground water levels and decomposing cultural heritage, car prioritized spaces, and general low activity and opportunities for stay, all open for a potential to improve Vågsbunnen.

The goal is to unify the cultural heritage with the physical opprustning to make Vågsbunnen a more inclusive and attractive area, for all people. The main emphasis will be on the physical dimension and how to create urban spaces that are open and liveable, while managing the existing and future challenges of the area. Based on the constraints and potentials identified through the analysis, in combination with the theoretical reflections around robustness and cultural heritage, several design criteria for how to make robust urban spaces in a cultural environment have been formulated. The design criteria build on the three themes and will be applied to the redesign of allmenningen.

The design criteria are meant to be general for the entire area of Vågsbunnen, and can also be used in the further opprustning of the area.

*“[...] What is needed
are proactive
principles of the type
‘A is sought therefore
B is required’”*

Hall, 2015, p.35

URBAN LIFE

To generate activity, the urban life in Vågsbunnen must be vitalized through an increased focus on liveability, inclusivity and diversity. The urban spaces must offer experiences for all people, and through universal design be made accessible and inviting. In order to revitalize Vågsbunnen, there is a need for re-establishing a social culture internally and locally between inhabitants. An important part of the authentic vibe is the locals, and their use the area. Additionally, tourists should feel welcome, and there should be opportunities to enjoy the picturesque and historical atmosphere.



CLIMATE ADAPTATION & WATER

The existing environment must be adapted to handle the climate challenges. Managing rainwater locally will aid in this, while simultaneously boosting the recreative value and creating lively urban spaces. The cultural heritage underground also needs a maintained groundwater level, in order to keep the cultural layers from decomposing and ultimately keeping Vågsbunnen from sinking. Building on existing features, such as pavement and furnishment, in the urban spaces should be permeable and use water as a resource.



CULTURAL HERITAGE

The cultural heritage in Vågsbunnen must be preserved and adapted, in order to keep its value also in the future. Both the cultural environment, but also the cultural heritage sites, must be an integrated part of the design and the history of Vågsbunnen should be visible in the urban spaces. The cultural heritage should have a story-telling value, and should be made accessible, physically, but also through information and communication.

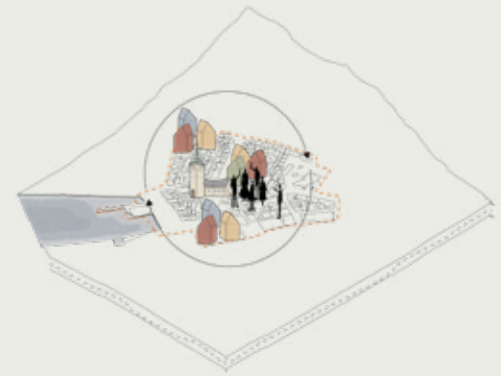


Illustration 90. Design criteria

- Urban spaces must be inclusive and promote different interactions between people,
- Urban spaces must be flexible to handle changes in functions and city life,
- Water must be used as a recreational element in the urban spaces, to promote play, activity and health,
- The visual connection between fjord and mountain must be maintained,
- Urban spaces must feel safe and open,

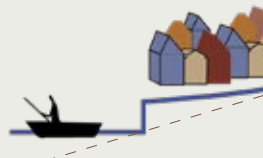
- Rainwater must be seen as a resource and be managed locally through rain gardens and urban pools, in addition to being led safely to Vågen,
- Existing pavement materials must have a sufficient degree of permeability,
- Green structures in the urban spaces must be improved, for local climate management, recreational value, and beautification,

- Urban spaces must adapt to the existing building structure,
- Vågsbunnen's existing qualities must be preserved to keep the area's authenticity,
- The cultural heritage must be seen as dynamic and adaptable to new needs,
- The cultural heritage below ground must be protected through sufficient permeability and maintained groundwater levels,
- The history of important elements in Vågsbunnen, should be communicated clearly

Design Concept

The design concept for redesigning allmenningen combines the three themes from the design criteria. Using the rainwater, the thought is to reactivate and create new functions in the urban spaces with the water, while providing sufficient permeability to ensure the water table of the groundwater below, to preserve the cultural layers. This way the rainwater becomes a resource, providing value to climate and people.

Illustration 91. Design concept



The water from above ...

*activates the
urban spaces ...*

*and saves the
ground below*

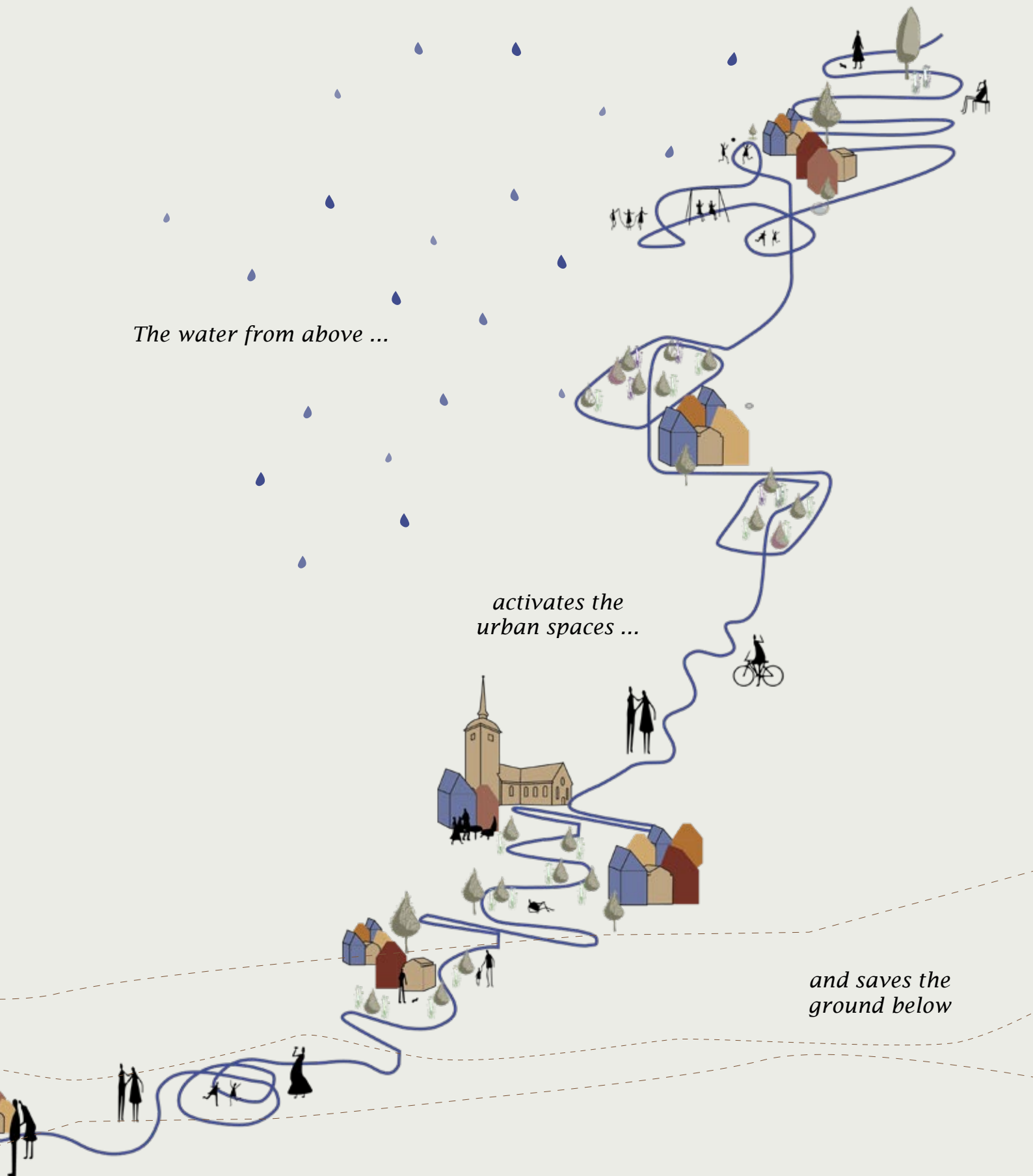




Illustration 92. Render showing the design at Nedre Korskirkeallmenning

Design Presentation

The design proposal for the urban spaces of allmenningen are in the following presented, going from fjord to mountain. The masterplan is first presented, together with the coherent elements of the design, before diving into each urban space. The design is founded in the existing environment and qualities existing in Vågsbunnen, but it also aims to adapt and add something new to ensure the robustness of the urban spaces. In the detailed maps of each urban space, the view points of the renders are marked with an orange > , indicating the sight line.



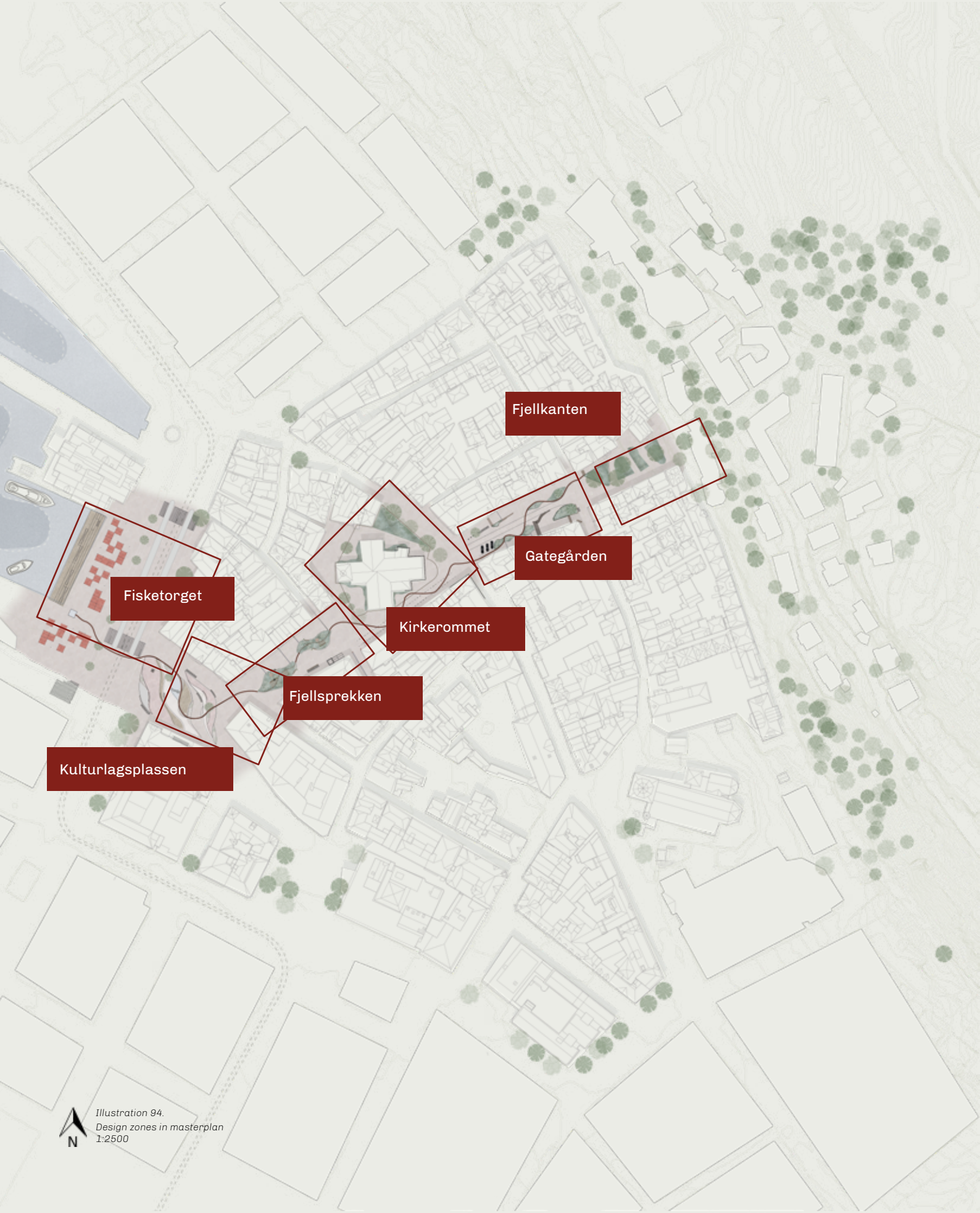
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Masterplan

The masterplan presents the design of the allmenning. Our proposal for opprustning pivots around the cultural heritage, climate and water, and urban life, in an attempt to find a balance between the three themes and ultimately create a robust district in Vågsbunnen. The cultural heritage in Vågsbunnen literally runs deep, and the cultural heritage below ground has been both a source of inspiration and a problem to be solved in the design. It has the potential to strengthen the local identity further and clearly tell the story of Vågsbunnen. Saving the decaying cultural layers has thus been important, and our design will take advantage of the water as a resource in preservation. The water will simultaneously activate the urban spaces, while saving the invisible cultural heritage.



Fjellkanten

Gategården

Kirkerommet

Fjellsprekken

Fisketorget

Kulturlagsplassen



Illustration 94.
Design zones in masterplan
1:2500

Connecting Fjord to Fjell

Six urban spaces were identified along the allmenning in Vågsbunnen. Each space already had its own character and identity, and in the design, they are still unique. They are here given new, Norwegian names, communicating the new design of the space. The urban spaces are connected together through a shared water channel and coherent choices for paving, greenery and materiality.

The water channel is a feature for water management and recreational purpose. It is designed as a modular system, with different looks and functions for transporting water and interacting with water along the allmenning. From being entirely closed to entirely open, the water channel is flexible and dimensioned to manage rainwater in the urban space. Some places, the channel is covered with either a fully closed or gridded cap, allowing people, bikes and cars to pass it safely. Other places it is open, and people will be able to watch, listen and touch the water. These features can also be combined with exits, managing the water level and bringing water into raingardens and retention ponds. The water channel modules can be changed endlessly, providing flexibility and variation in use while being easily adapted if needed. The goal of the coherent water channel is ultimately a combination of managing rainwater, activating the urban spaces and bringing fjord and fjell even closer together.

In addition to the water channel, the urban spaces all have a type of water managing structure; from raingardens and trees, to permeable paving and water pools. These are included in the design to aid in rainwater management, but also to increase quality in the urban spaces. Each urban space will in the following be presented more in detail, starting from Fisketorget and up toward the mountain side.

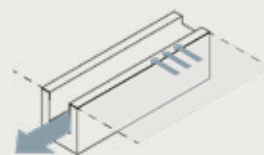


Illustration 95. Open and impermeable channel

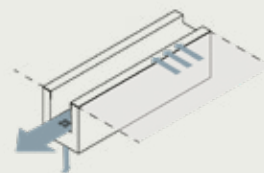


Illustration 96. Open and permeable channel

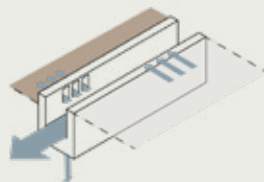


Illustration 97. Open and permeable channel with exits



Illustration 98.
Detailed plan of Fisketorget
1:300

Fisketorget

Starting from the fjord, the first destination is Fisketorget. Fisketorget has been designed to handle a large quantity of different user groups, from the Bergenser to tourists. This destination has a high attraction value, and it is thus important that the urban space can handle this. By creating a wooden staircase into Vågen, the area for occupation becomes larger, and it provides more space for seating. As the connection to the fjord historically has been significant, it also has an underlying importance in the design. The staircase has potentials in the making of a robust harbour front that can withstand some of the challenges that the climate changes may bring.

The urban carpet is an important characteristic of Fisketorget, and the marketplace itself has been designed with the characteristic cobbled paving, similar to the entire area of Vågsbunnen. This has two important functions. First, it is a permeable surface, that can handle the everyday rain. However, along the edges a granite stone marks the zones for transition, with people moving from A to B. Fisketorget is also an important place that in the future will have a close proximity to Bybanen. This presumably will make it easier to cross the street, as two traffic islands has been placed, and thus the barrier effect is reduced. This is important in order to guide people further into Vågsbunnen and increase the feeling of safety and security.

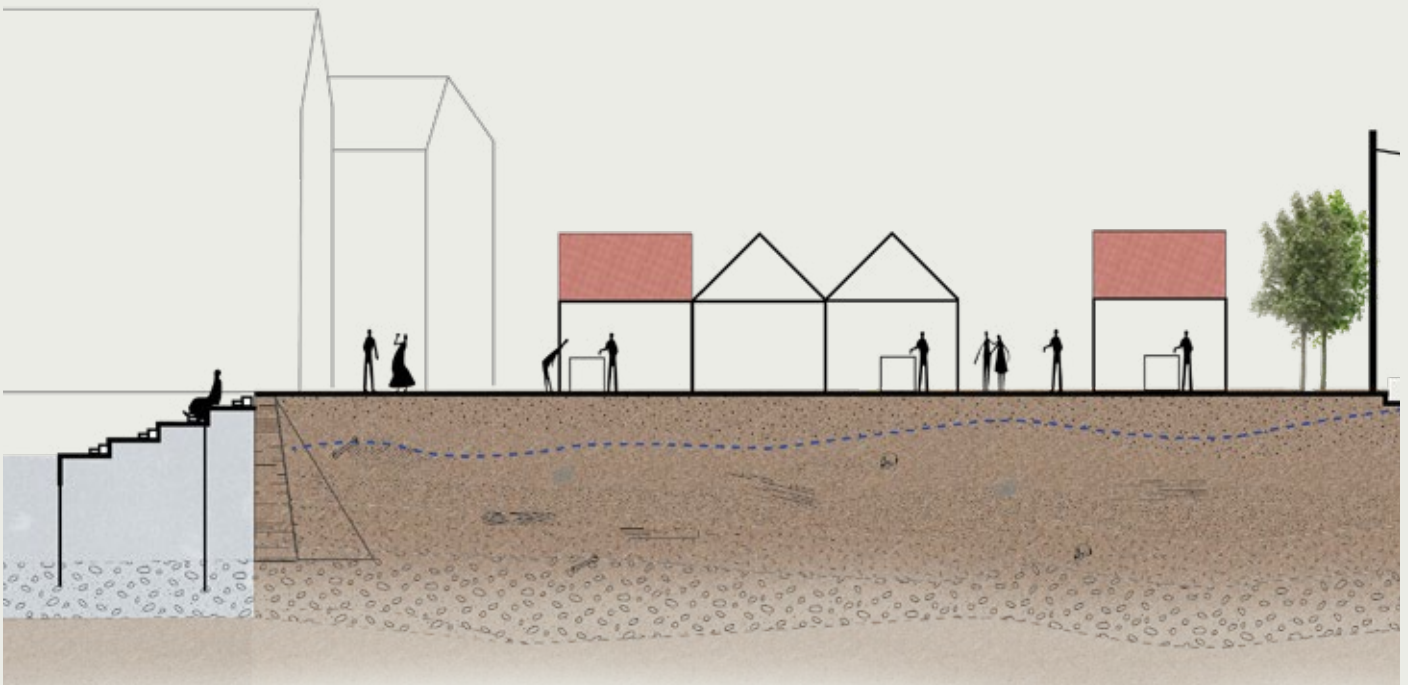


Illustration 99. Section A-AA of Fisketorget, 1:200

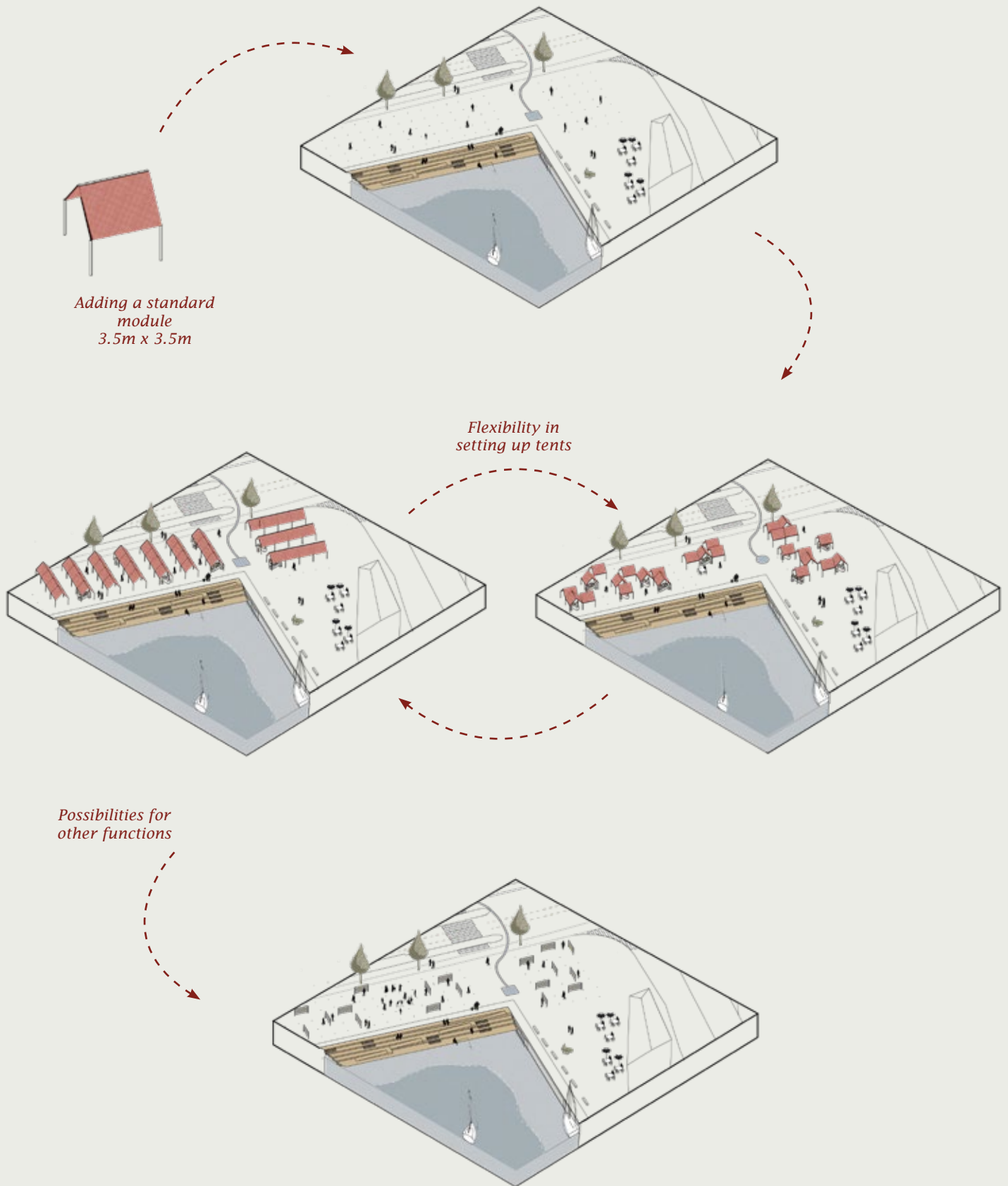


Illustration 100. The possibilities for different functions at Fisketorget

The Flexible Square

One of the important characteristics of Fisketorget is the fish and food markets that occur. However, as this activity is relatively seasonal, and much dependent on a specific type of user group, this design proposes to incorporate the square in a more flexible manner. In order to create a more permanent atmosphere, it becomes important to create a stronger coherence throughout the square. In this design proposal this has been created by making a standardised tent that is flexible in new ways. This means that the placement of the tents has a high potential of being reorganized depending on the different events that Fisketorget shall host at a given time. This flexibility is also important in terms of the use. This creates a more robust urban space, as it becomes more flexible and, in some ways, more temporary dependent on the use. By standardising the tent modules, it also becomes possible to incorporate them more directly in the square. The design proposes bases for the tent posts, that are placed in a grid in the paving. When the square is not in use for markets, these can be covered by a cap that protects the holes from dirt and rain. The flexibility of the square is an important element in creating attractive spaces. The users can use it in many different ways, and even have impact in the use themselves.



Illustration 101. Paving detail, showing the base for tent post - not used and used.







Illustration 103.
Detailed plan of Kulturlagsplassen
1:300

Kulturlagsplassen

Moving across Bybanen, the new Kulturlagsplassen – “the cultural layer square” - on Vågsallmenningen has been opprustet and tells the important story about the layers located below the ground. The history below tells many stories of the lives that has occurred at this particular place, and it is thus important that the square in the future has the possibility of creating new stories. The square is now mirror of the ground below, and the different cultural layers below ground are illustrated as different layers on top of the ground in varying materials and varying heights.

Aiming at improving the urban life on the square it has been important to have defined edge zones, that in a robust way can handle the everyday interactions. The ground floor functions in this area thus have a dedicated edge zone, where it is possible to put out café tables and other urban furniture. Just as important is the flow through this space. As a part of the opprustning, a new mobility axis has been created crossing through Kulturlagsplassen towards Bybanen. This axis moves from the southeast to the northwest as a connection from the upper half of Vågsallmenningen to Fisketorget and is created as a small ramp, universally designed, and easy to move across. Likewise, Kulturlagsplassen has been designed with the possibility of moving across the square in the opposite direction, this however is not created as universal design, as it is meant as a more phenomenological route going through the cultural layers of the square. Along all the edge zones it is possible to move making the square stand as a centre piece.

Furthermore, the square has opportunities for stay and recreational use. With the different heights, each of the levels can work as seating. The water channel and the open pond centrally placed, creates a small open park within the busy city. The statue of Ludvig Holberg has also been integrated in the square, being placed on the tallest level, scouting out across the sea, greeting fishermen and sailors.

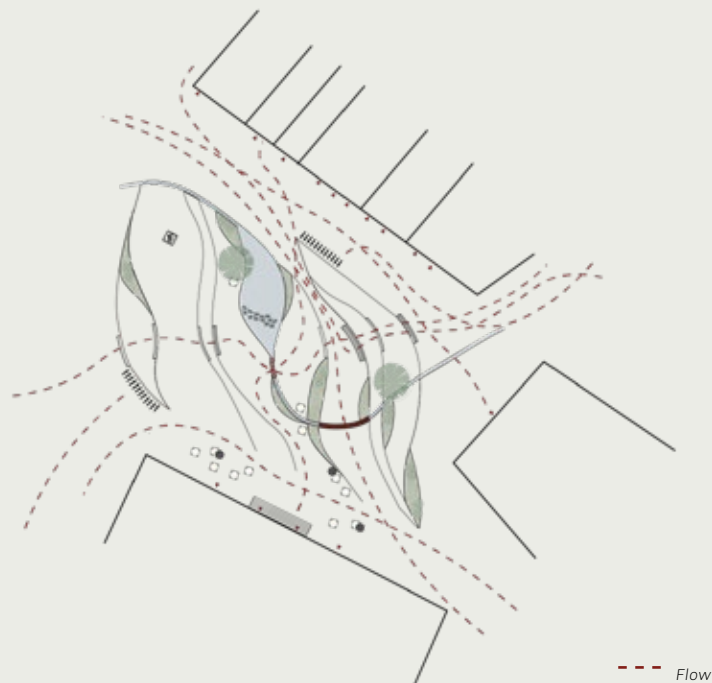


Illustration 104. Assumed new flow patterns at Kulturlagsplassen after the redesign

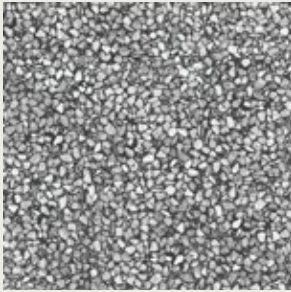
Pavement

Generally, three principles have been applied for the paving of Kulturlagsplassen. Surrounding the square along the edge zones, a non-permeable cobblestone is used. This paving is used to create a more stationary ground for the café environment and the stay that is supposed to happen along these edges. The remaining grounds are however all permeable. The main paving used permeable cobblestone. However, on Kulturlagsplassen itself the paving is a little different. This is mainly different types of stones in different colours, highlighting the cultural layers below ground. However, the mobility axes on the square itself has the same permeable cobblestone as the remaining square, except that the stone is rotated in the same direction as the stones at Fisketorget, emphasizing the connection to the old shoreline.



Illustration 105. Section B-BB of Kulturlagsplassen, 1:200

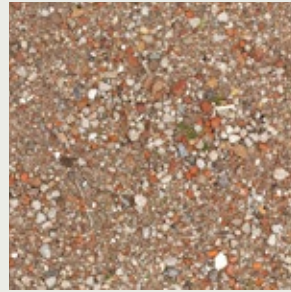
Illustration 106. Collage of the different paving materials used at Kulturtagsskassen. Pictures collected from textures.com



Grey pebbles



Gravel



Red pebbles



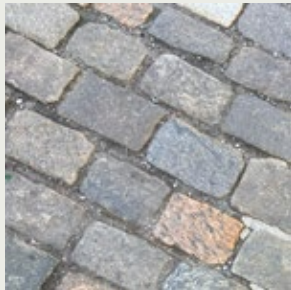
Brown pebbles



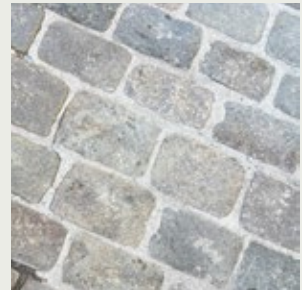
Coarse gravel



Slate



Permeable cobble stone



Impermeable polished cobble stone



Illustration 107. Collage of vegetation

Flora

In between the various raised cultural layers, green pockets with vegetation have been created to symbolize the organic material in the underlying cultural layers.

It is intended that the green pockets should be planted with plants that can assist the wind conditions, with a wind that primarily comes from north-west as well as stimulating our senses and enhancing the sensation and experience of the change of seasons.

The vegetation for the green pockets contains different types of grass, in addition to the flowering plants. The grass complement and fill the void between the flowers and add to the vegetation, both functionally and aesthetically. Many species of grass also have a strong root network, which provides a good effect in terms of purifying and retaining water. In addition, some larger trees of the species aspen have been replanted. It is a well-known species of tree throughout Norway and is easily recognizable in all seasons, as the leaves change colours. In the spring you see the long hanging flower axes. In the summer the sound of the round leaves rattling in the slightest wind is well known. In the autumn the tree turns into colours of yellow, orange and red, and in the winter the trunks are easily recognizable by their green colour.



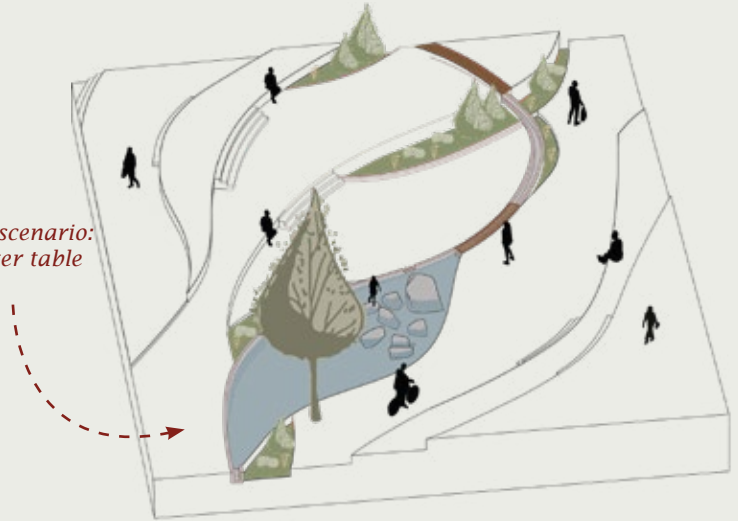
Illustration 108. Zoom of section, showing the rain gardens 1:100

Managing Water

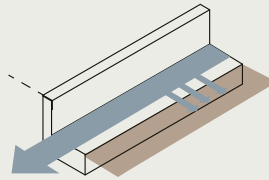
The water management system is important at this location, as it is at this location the water gathers before moving towards the fjord. As this is also the lowest point on the site, it has a great potential of retaining water. As the water moves through the site, it is transported in the channel going through the square. The water management comes in two forms through this square: open channel, and a pond system (in addition to permeable paving).

When the water reaches the central part of the square it gathers in a large retention pond, with a permanent water level. Within this pond, steppingstones are placed as a playful element for children and an alternative mobility route. In the case of extreme rain events a second basin next to the pond can be filled as a detention pond. In the case of both ponds being filled with water the remaining water is lead through the channel towards Fisketorget, where it is being filtrated before being led into the fjord.

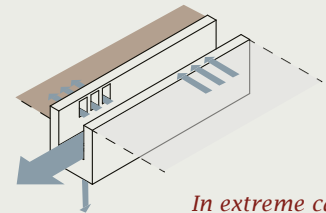
*Everyday scenario:
open water table*



*One side of the channel
disappears and is the
same level as the water
in the retention pond*



*In extreme cases,
excess water runs
into the extra water
detention pond*



*In extreme cases,
the water from the
primary retention pond
will both run into a
detention pond, and
further into the fjord*

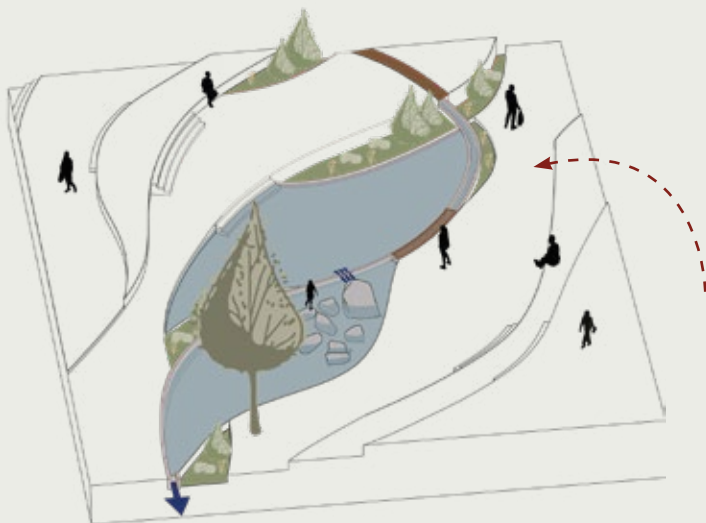


Illustration 109. Managing everyday VS extreme cases of rain

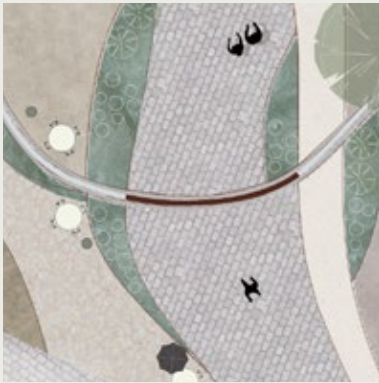
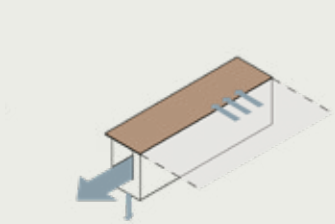


Illustration 110.

CAPPED



The capped channel is placed on top of the main transportation axes through the square. This cap is visible from the ground level as a brown steel cap protecting people from stumbling into the channel. The capped version is chosen in order to ensure the highest comfort when moving through.

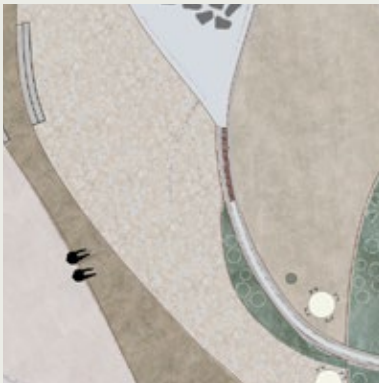
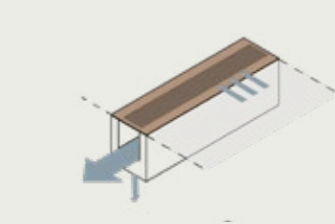


Illustration 111.

GRIDDED

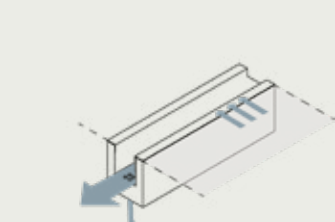


The gridded channel is used on the channel in order to be able to pass through. This channel still provides people with a connection to the water running below it. This is a more active element, both visually and sound wise; it creates much atmosphere in its surroundings.



Illustration 112.

OPEN



The open channel is the main part of the channel through this part of the design. This is important as the square here mostly functions as a recreational space with opportunities for staying. This channel is important as it makes the running water fully visible, and creates the opportunity for people to interact with it directly.

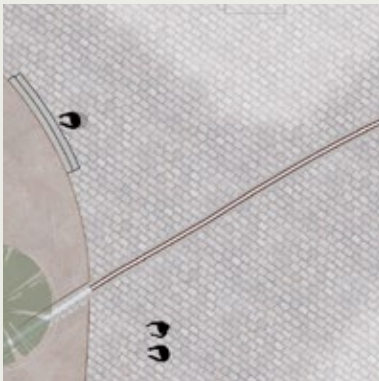
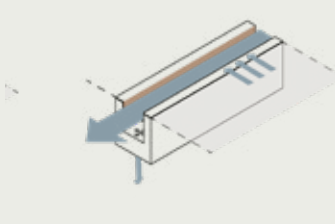


Illustration 113.

CAPPED OPEN



The capped, open channel is a combination of a fully open channel and a capped channel. The cap is here sitting further down in the channel, allowing for water to run both underneath it but also on top of it. If there are places where the water level in the channel is low, or there is a need to lift the water, for example for children to safely interact with it, the capped open channel is ideal.



Fjellsprekken



Illustration 114. Render of Fjellsprekken
(Nedre Korskirkeallmenning)

Fjellsprekken

Moving from Kulturlagsplassen towards the mountains, the next destination is Fjellsprekken. The concept here is based on the mountains reaching out of the ground giving a teaser to what is to come when moving towards mountain. This space promotes liveability and provides the opportunity for all people and user groups to interact and use the space, by preserving the everyday functionality as a mobility corridor and the many functions surrounding this site. Further it provides free seating, and provides small green pocket space to stay in. The edge zones are set to a standard of 4 meters, ensuring that no functions expand too far into the urban space, and preventing privatization. However, the edge zone has the possibility of changing depending on the functions of the buildings. In the design of this area it has been important that the edges are flexible and can contain different types of flow dependent on the use, as it is important that the everyday life can be a part of the opprustning. The rain gardens provide a visual and aesthetic zone, that gives quality both in terms of sounds and smells, but also has an important function in the creating of robust urban spaces, as they help infiltrate the water.

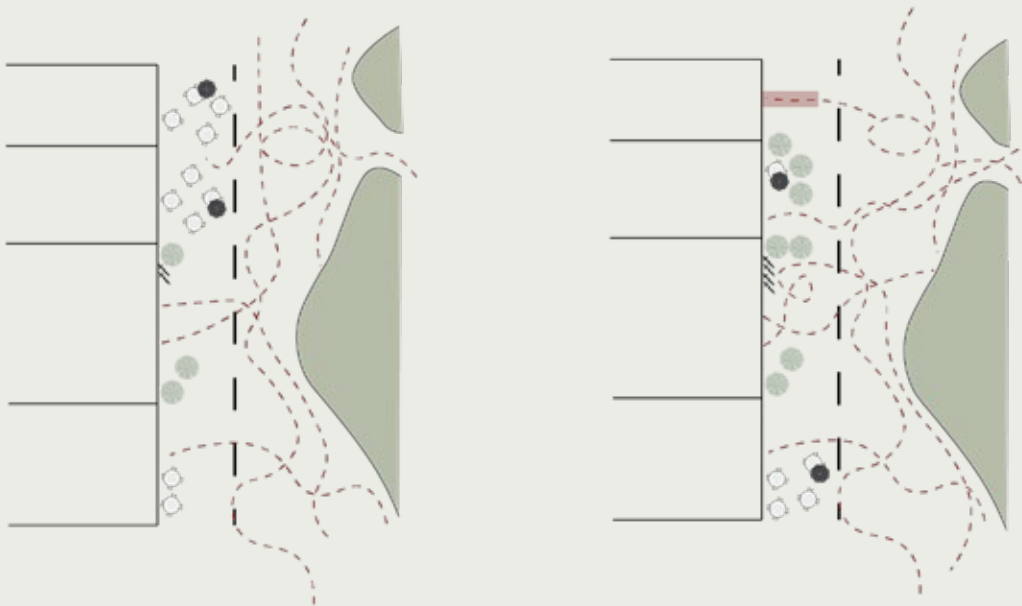


Illustration 115. Predictability in the size of the edge zone creates room for flexibility, while ensuring the accessibility for pedestrians moving along, through, and in the edge zone



Illustration 116.
Detailed plan of Fjellsprekken
1:300

The Pocket Rain Gardens

The rain gardens are a key feature in the redesign of Nedre Korskirkeallmenning. Besides the main function of these rain gardens which is their function in terms of rainwater management, the rain gardens have been designed so they contain smaller pockets of space.

At the start of the rain garden, the water channel ends, and a grid forms a path which allows the user to walk through the fjell-like landscape. The chosen planting has the character of the mountain and grows wildly around and will for the user bring associations to the mountain. The small pockets will by the vegetation embrace the user and make them feel protected, which gives the opportunity to sit down, take a rest and a deep breath and get a break from the otherwise busy everyday life.

While the rain gardens are built to handle water volumes during periods of rainfall, there will also occur periods of more dry weather. The choice of plants in the rain gardens is based on resilient species and varieties that have this part of the country as their natural habitat and are well suited for rain gardens. Most of the proposed plants have a history in Norwegian culture, which is an advantage, as they are then adapted to the local climate, the local fauna and insect life and thus have specialized in thriving well under growing conditions found in rain gardens. Surrounding the rain gardens, stones are placed in order to keep the shape of the garden, while also providing options for seating and stay and defining the boundary edges of the pocket parks.

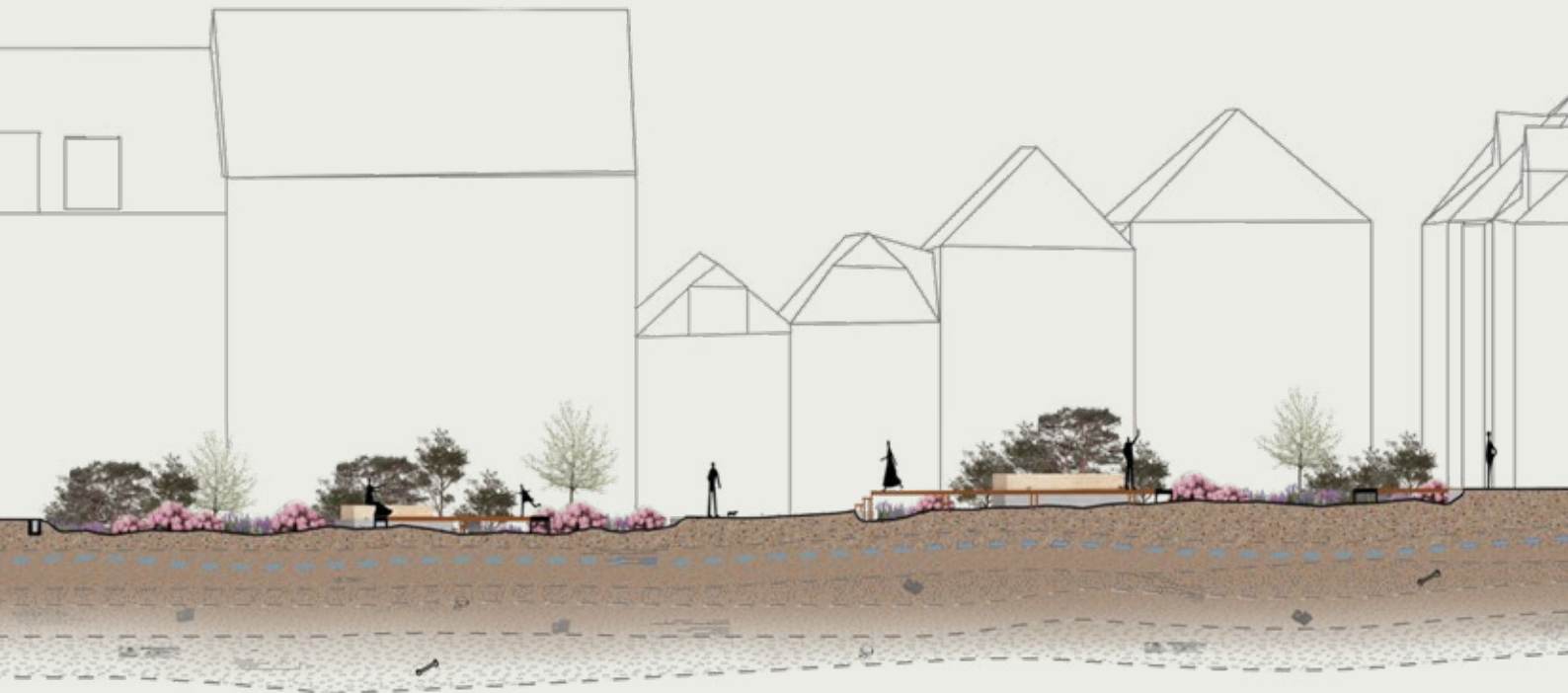


Illustration 117. Section C-CC of Fjellsprekken, 1:250



Illustration 121. Paving detail along the edge of the rain gardens



Illustration 122. Collage of vegetation

Managing Rainwater

As a solution to lead the water into the rain gardens, where a permeable surface where the water can infiltrate into the ground instead of running further, the channel opens up into the rain gardens. This is done to ensure maximum infiltration into the ground and sufficient water supply to plants. A passageway is however maintained with the gridded cap over the rain gardens, ensuring that people can move safely through the area while maintaining dry shoes. Crossing between the two rain gardens, the channel is fully capped in order to ensure free passage as this is one of the main flow lines on site.



in one of the raingardens in Fjellsprekken

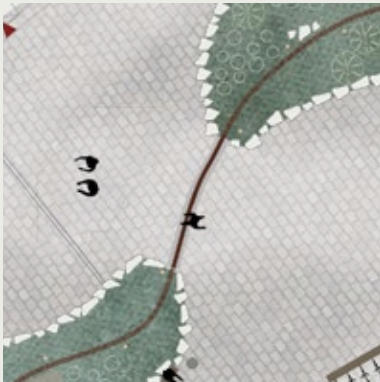


Illustration 124.

CAPPED

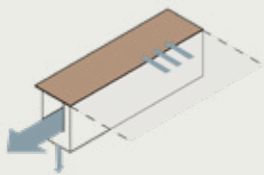


Illustration 125.

GRIDDED PATHWAY

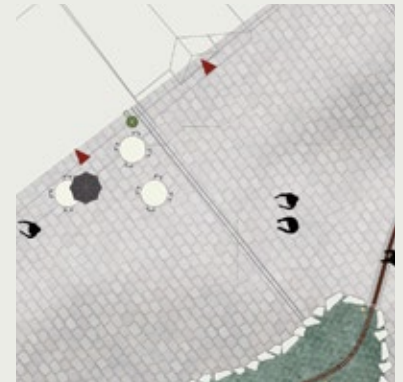
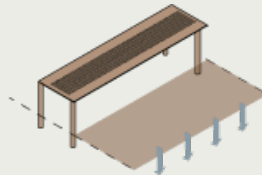


Illustration 126.

STREET GUTTER

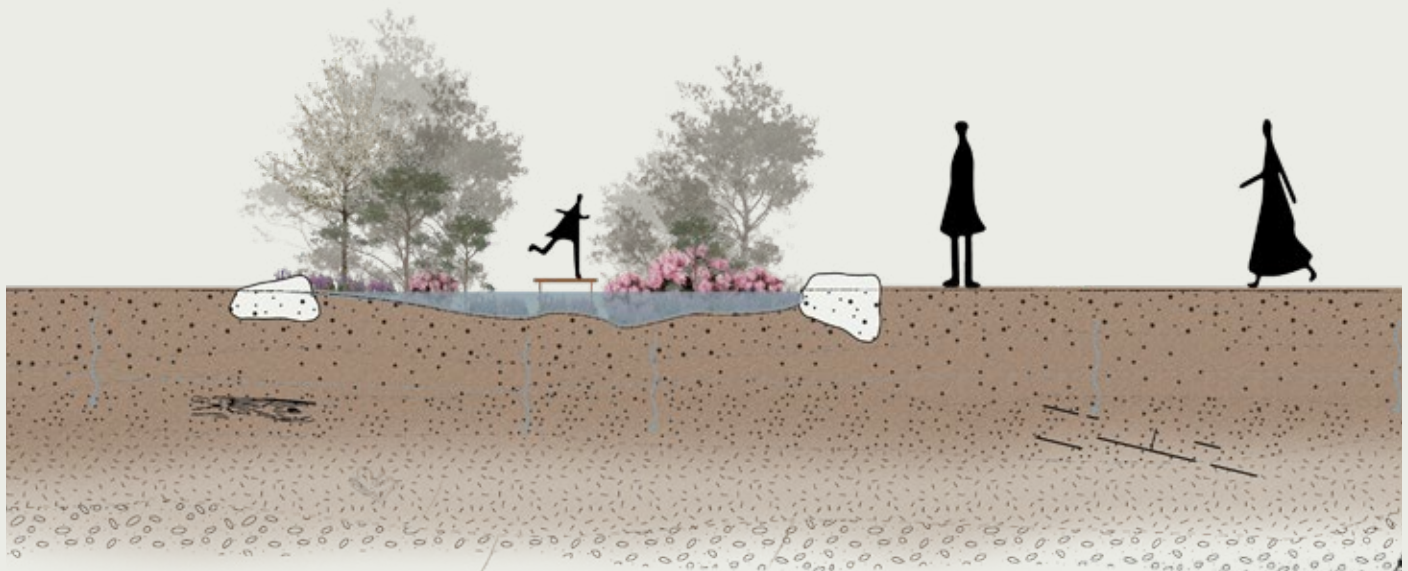
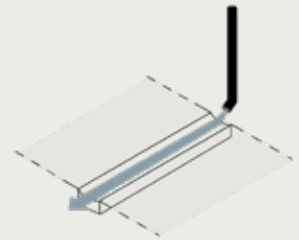


Illustration 123. Section D-DD through the rain garden at Fjellsprekken, 1:100

Kirkerommet

Kirkerommet is a gathering place, and in our design, it has been important that these interactions can occur, both in terms of the events in the church, but also with the everyday interactions. As the church has a large historical value, the opprustning aims to restrengthen the historical values and qualities. By replanting the chestnut trees surrounding the church and by physically visualising the historical cultural heritage preservation zone that the church has today. This has been done by adding a border stone around the church grounds in order to emphasise this zone. The barrier between the church and the urban spaces have thus been broken down, through coherent levelled paving.

Along the church, green patches have been planted that contains benches. This is to symbolize the burgeoning future of the church, that in future scenarios might host a variety of different events, than was churches do today. The church ground has been filled with a permeable cobbled paving to give the entire area a coherent look. This paving is thus the same as the surroundings, however the border stone differentiates the two paving materials.

The drug environment that exists in the back side of the church should get extra attention, and as this project has not used citizen involvement as a methodology or focused on safety in particular, this area has not been designed. The area is also related to the historical smau, that this design has not touched further upon either.



Illustration 127. The pavement around Korskirken, with slate indicating the cultural heritage site



Outdoor area
for temporary
church activities

Seating

Slate

Cultural
heritage
zone

3 m mobility zone

Permeable
cobble stone



Illustration 128.
Detailed plan of Kirkerommet
1:300

Gategården

Gategården has been designed with liveability in focus. It has been important that this part of allmenningen has a more private feeling, due to the private functions. This is based in the analysis as they showed that urban spaces in Vågsbunnen generally were lacking. Primarily the street spaces in Vågsbunnen function as the urban spaces, thus making them important for recreational use. In this design the edge zone has been created for the people living in the area, making it possible for the inhabitants to place their own furniture and plant pots. This leaves the center part of Gategården as the core mobility zone for both pedestrians, bicycles, and cars. The street has been made one way in order to limit the traffic on the street. Car parking for shared cars has been placed in the southern part towards Kong Oscars Gate as this is already a busy area. However, ordinary car parking is no longer possible. Plateaus has been placed along some of the functions that today requires more spaces. These are intended for the cafes to expand their tables and having a plane surface to place them on. However, in future scenarios the functions might change, and the spaces will be adapted accordingly.



Illustration 129. Assumed new flow patterns at Gategården (Øvre Korskirkeallmenning)



Illustration 130.
Detailed plan of Gategården
1:300



Illustration 131. Render from the top of Gategården, looking down toward Korskirken

The Public

As a part of the design of Gategården it has been important to have a great balance between the public and the private. The public sphere shall be able to contain both mobility and the everyday meeting. One of the key functions of the public zone, is room for interaction. In Gategården, this includes the café environment. This café is primarily used by the Bergenser and is thus a local meeting place. The plateau that has been placed outside the café environment can in the daily use become an extension of the serving area. Another part of the public sphere is the more mobility focused function. In this case the design proposes several new pathways for mobility for people to use. The core mobility zone is paved with curved cobblestone. This is done in order to connect it to Lille Øvregaten and further up to fjellet.

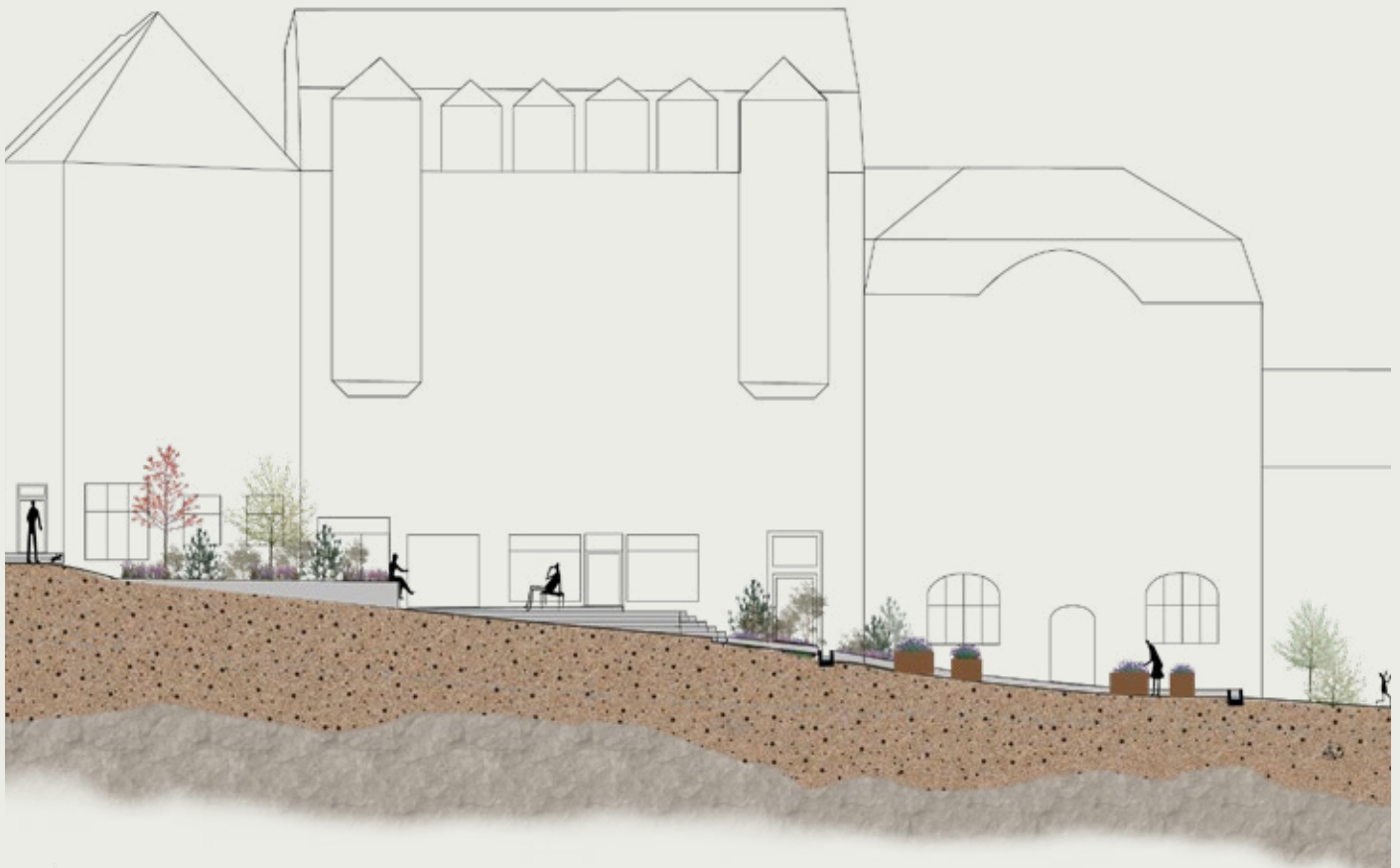


Illustration 132. Section E-EE through Gategården, 1:250

The Private

In the private zone the focus has been to create an urban courtyard in the street space. Thus, it has been important that the functions and interactions that can occur in the urban courtyards similarly can happen in these street spaces. Therefore, the urban space has been designed with the possibility of the users of the area to put out their own furniture, their own plant pots or other equipment, in order to reclaim the space. The channel varies throughout the design. Due to the terrain on this part of allmenning, the channel has been made as a staircase, where the water becomes a playable and interactive element. This has been done to focus more on children and families living in the area, and the water channel is a recreational element that interacts directly with the users. In the rain gardens utility plants have been planted in order to give more back to the citizens. The idea is that it could be comprised of different types of berry bushes, fruit trees, herbs and vegetables, that are free to pick. As a part of maintaining this area, the Norwegian "dugnad" (a Norwegian word for voluntary activities, for the common good) can be a common activity for the inhabitants, to maintain the areas.



Illustration 133.

CAPPED, PLANTED

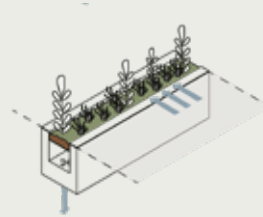


Illustration 134.

LEVELED CHANNEL

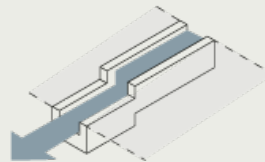




Illustration 135. Render from
the frontyards in Gategården

Fjellkanten

The last destination before reaching the mountains, is Fjellkanten. This is the transition zone from the urban to the mountain side. Historically, this has been an important passage way as it ensured people to move from the harbour to the country side. This function is preserved and tried emphasised. The design of this space has been limited, as this today already is a beautiful road, with narrow space due to the steep slopes and the sharp curves. This passage way is also the front gardens for the people living there, and similar to Gategården these spaces must be preserved in order to create liveable spaces. The zone's other function is primarily a zone for transfer. This is also another reason why the road has been preserved, as it also leads the water down the mountain side. Furthermore, this site is also an important place in terms of navigation, and thus new wayfinding signage is placed at this site to visualize the route to the mountains.



Illustration 136. Render of Fjellsiden (Korskirkesvingene)

Further Design Recommendations

The project is meant to break with the traditional urban spaces of Bergen and the thoughts around preservation of cultural heritage. In this project, allmenningen has been viewed as the main part of Vågsbunnen which needs opprustning, however, many other places in Vågsbunnen need this too. Allmenningen can thus in this project be seen as a catalyst for the renovation towards a robust district. The design of allmenningen proposes a way of making the spaces in Vågsbunnen robust, through looking at social and environmental factors. However, can the physical opprustning alone contribute to a better social and cultural environment, or what other measures can be taken?

To promote Vågsbunnen's position in the several cultural environments in Bergen, there is a potential in improving the communication around the district's cultural importance, for example by connecting it better to the story of Fisketorget and Bryggen. Today, many tourists visit the 'big sites' in Bergen, and Vågsbunnen and other important places are somewhat forgotten. One of the important measures here would be to communicate the historical importance of the site of Vågsbunnen. This could be done in numerous ways, from small to big interventions. Among the smaller interventions, the 'Blå skilt' (blue sign) concept can for example be expanded to the entirety of Vågsbunnen. However, this is not simply enough, as the 'Blå skilt' only communicates information regarding historical streets. More information must be implemented. The recommendations is then that a digital information system for cultural information is set up, providing virtual guides. This would preferably be part of a collaborations between relevant actors, such as VisitBergen, Byantikvaren and others. Eventually this system could be able to be expanded to the entire city of Bergen. The system could for example work through physical signs with wayfinding, informative signs, or QR-codes being placed around the city with important information in relation to the cultural environment, specific buildings, historical fires, streets etc. Moreover, generally there is a need to involve and engage the local community together with relevant actors in business, culture and tourism to promote Vågsbunnen as a part of Bergen's cultural history. It is important that the local inhabitants are integrated and interested in preserving the cultural heritage they are a part of, and actively participate to reach the goals of preservation – especially in terms of authenticity and local identity.

However, in terms of design of the cultural environments, a shift of mindset might be needed. Today, the urban spaces in Vågsbunnen are left rather empty. In terms of preservation, there might be arguments for this: historical use, difficulties implementing new functions, cultural heritage below ground and so on, and in many ways these empty urban spaces are robust in themselves. Yet, they bring little actual quality to the urban life in the area. As the climate paradigm suggests, a change of mind is needed in order to ensure the liveability within these spaces. There is therefore a need to create robust urban spaces that brings something back to the city and ultimately creates a more socially robust city in the process. The proposed themes of this thesis should then, to continually oppruste Vågsbunnen, be expanded to the remaining streets and urban spaces to continue the robustification. This is also important to strengthen Vågsbunnen's position in the cultural environment, for a stronger connection between the different cultural environments and their attraction points.

In terms of the general physical opprustning in Vågsbunnen, there are complex issues at hand. There is a need for a bigger strategic plan with an interdisciplinary approach where all relevant actors and specialists are involved. The individual needs of users must be met, but the bigger technical issues in Vågsbunnen must also be solved. The robustification is ultimately a very complex process, where there is a need for new initiatives. Furthermore, looking at the design, there is obviously a need to expand the physical design to also include the other streets and spaces of Vågsbunnen. Looking for example at gater and smau, and how to make them good urban spaces will here be crucial, as Vågsbunnen's urban space primarily is this street space. Skostredet is already a popular destination, and its identity is well-established. It should be emphasized, and it has potential for being one of the defined attraction points in Vågsbunnen – it is after all also an important cultural heritage street, only with new functions. Additionally, all the empty buildings in Vågsbunnen have unlocked potential. Especially old Hans Tank school has endless possibilities. The new function in this building should be one that creates life and a sense of belonging in the area, connecting to the existing inhabitants and increasing the liveability of the district. Generally, maintenance of facades and an established norm on the 'beautification' of the area, in combination with varied functions, will overall increase Vågsbunnen's attractiveness.

Lastly, the existing social environment is Vågsbunnen needs extra attention. The empty buildings are in need of new life, and there should be an overall strategy for how to increase the local life – inside and outside. This is obviously a bigger issue, also connected to for example the sprawling suburban centers, costly parking, and commercialisation of stores, but it should be a priority to make Vågsbunnen part of the 15-minute city, where functions are mixed and within walking distance. It is necessary to acknowledge that the physical design of spaces is not enough to overall make a district robust – despite it being a big part of it. There is also a need to look in several other directions, in order for Vågsbunnen to become a truly sustainable, robust district in Bergen. Other measures working on the cultural and social dimensions, through local and strategic levels, will be crucial. There is a need for plans regarding the strategic implementation, looking at how the local culture and heritage, social life and the physical design all play a critical role in the creation of Vågsbunnen's identity.



Epilogue

The epilogue concludes this master thesis. It aims to summarize the main points of the thesis, concluding and reflecting on how Vågsbunnen can become a district with robust urban spaces, where the cultural heritage and identity is preserved and adapted to tackle current challenges.



06

Conclusion

This thesis aimed to answer how Vågsbunnen can become a district with robust urban spaces, where the cultural heritage and identity is preserved and adapted to tackle current challenges. In this design proposal allmenningen has been identified as the main urban space in Vågsbunnen, needing an opprustning. This is primarily because of its central location in Vågsbunnen, but also because of its historical use as passageway from fjord to fjell. A redesign of allmenningen thus has the potential to create a wider opprustning as all areas surrounding allmenningen will be affected by the robustification. However, as the design proposal shows it has become clear that the individual sites along allmenningen has very different needs in terms of an opprustning. Though some of the needs are the same and can be collected as general principles, such as water management and preservation of cultural heritage, the individual sites still have different needs.

Generally, in order to create robust urban spaces, there is a need for both social and physical robustness. Pursuing these two goals, will ultimately create robust urban spaces. To achieve this, this design proposes the utilization of the three design objectives: preservation, adaptation and addition, in order to perform an opprustning in Vågsbunnen.

As Vågsbunnen is part of a cultural environment, there are generally a need to preserve many of the identity-giving elements in the district. The most important has however been the preservation of the cultural heritage underground, as decomposition of these will lead to severe consequences of the cultural heritage above ground. In order to preserve this, there was an evident need to adapt the urban spaces to manage rainwater more effectively. This has ultimately been done through adding rain gardens, permeable surfaces and a coherent water channel through the area. Furthermore, the design has been adapted to the existing built environment, as the built structures must be preserved as well. To achieve social robustness, there was also a need for adding urban activities and furniture, to create more inclusive, open and diverse urban spaces that breaks down the boundaries of the social spheres. The flexibility of the urban spaces is also important in terms of robustness, as it leaves room for self-expression and individual adaptation of the built environment.

Creating robust urban spaces in Vågsbunnen is no easy task, as there are many dualities, considerations, and complexities in the site. This thesis has investigated how to push the boundaries for how to design robust urban spaces in a cultural environment, and the design is a result of these investigations.

Reflection

The design starts a discussion around how to create robust urban spaces in a cultural environment. As argued throughout the report, robustness can be fulfilled through the pursuit of social robustness and physical robustness. In order to create overall robust spaces, it is therefore important that both of these are met.

In the design proposal, allmenningen was chosen as a particular point of interest in terms of creating robust urban spaces in Vågsbunnen. As allmenningen is a large, complex site, it was divided into smaller design sites, based on identified characteristics – from physical borders, different user groups with different needs, different functions, and overall different identities. The dualities that exist in allmenningen has led to many different reflections and thoughts around how to best design urban spaces, where both the social and physical dimensions are important. In the development of the design, both the social and physical aspects have had its challenges, in addition to the challenges regarding working with cultural heritage.

In terms of the physical robustness, one of the core elements has been the rainwater management and implementation of structures in this regard. Not simply because of the amount of rain days in Bergen, but because it early on became clear that the rainwater had the potential to increase the groundwater table and ultimately prevent the cultural layers below from decaying, thus stopping the district from sinking. This is indeed an important notion, as parts of Vågsbunnen today are facing a major problem with the foundational issues from compressed soil. In the future, if nothing is done to recharge the groundwater, the buildings have a potential of collapsing. This makes it very important that more water is allowed to infiltrate the ground, through permeable surfaces. This is by no means a miracle to the problem however, as one of the reasons for the decreasing groundwater is due to people pumping water away, in relation to construction and flooding of basements. In the future, it will be important that this is regulated, to ensure the stability of the groundwater level - saving the cultural heritage both below and above ground. The design also aims to activate the rainwater as a resource in the urban space, facilitating different interaction and play with the water in the channel. It is here extremely important that the runoff water is properly purified, for example by running through the rain gardens, before being utilized in kids

play or other interactions. Furthermore, part of the robustness of the physical design lies in how it facilitates social interaction and activities. Despite the flexibility and openness an empty urban space allows, it does not invite people to stay and actively participate in their surroundings – at least this is not the case in Vågsbunnen. The design has therefore been focused on implementing new structures for stay and engagement, pushing people to utilize the urban spaces in a new way.

However, as urban designers, the physical dimension is our expertise, but it is apparent that the opprustning of Vågsbunnen goes deeper than just a physical makeover. Generally, there are many opportunities to increase both the physical and social robustness of Vågsbunnen. As we have been working with the project, there have also been discussions in the local newspaper Bergens Tidende, regarding Vågsbunnen – from the terrible repercussions of the drug environment by Korskirken, to the death of stores and city life, to increasing publicity to attract more Bergensere to Fisketorget.

For example, for dealing with the closing of shops and the 'death of city life' in Vågsbunnen, the politicians suggest moving some of the temporary market tents previously located at Vågsallmenningen into the empty shop venues in Vågsbunnen. This is a very interesting viewpoint in terms of creating social robustness. These stores could benefit Vågsbunnen and the lives in the neighbourhood positively, and it would also create a stronger foundation for activities in and around the urban spaces. Activities afford for more activities, also pushing it out into the urban spaces. The idea of flexibility is in this regard again worth mentioning. In the proposed design an edge zone has been created where the store and café owners have a possibility of using the spaces to their needs. This is to give a more attractive urban space and to create further social interactions. As Hajer and Reijndorp (2001) states, it is important that one encounter the 'proverbial other', the person which you have nothing in common with. This is also why it becomes so important that the areas that are created in this design have the capability of providing something for as many people as possible. Instead of only having private seating along the edge zones, this design also provides more public seating in numerous of ways. This is important to create inviting spaces and break down the social spheres.

The social aspects of this design would however have benefitted in proactively working with the user groups that were on site through more citizen involvement. The drug environment on the backside of the church and its impact on both the local inhabitants, but also the tourists, would have been an extremely interesting set of challenges. It was however, from the start an active decision that we chose not to do citizen involvement, however, to design the area one must include the users in order to design for them. The tendencies and user groups drawn in this thesis, are due to the lack of citizen involvement, relatively general and thus some of the complexities of the social life in Vågsbunnen have faded. Solving the social issues in Vågsbunnen and performing citizen involvement, would have given the thesis a very different result and process. This also means that the sites where a specific user group is dominant, might be lacking in terms of design for specific needs. Parts of the proposed design have thus not been detailed in the level that it might need to be, as the sufficient information to actively argue for the 'right design' in this discussion was not produced.

Moving on, the last theme of the thesis has been the cultural environments. Saving the cultural heritage below ground is as mentioned important, but the cultural heritage above ground is also crucial in maintaining the cultural environment. In this thesis it has been investigated how to preserve the cultural heritage through the lens of the Climate Paradigm. It is however worth mentioning that this paradigm is not the only way to approach working with cultural heritage. The Climate Paradigm argues that the nature and the preservation are interconnected, thus the preservation of nature is also a preservation of the culture. Viewing cultural heritage through a different lens, would have altered the design, and the result would have been much different. However, the wish for this thesis was to inspire and provoke, showing that change is possible even in a static, preserved environment. This project thus also tries to push the boundaries of what is implementable in a cultural and historical environment such as Vågsbunnen.

Lastly, it must be mentioned that an opprustning of Vågsbunnen – a true physical and social robustification – will demand an interdisciplinary, cooperative approach between different actors. Solving the bigger issues are extremely complex and demands a high degree of specialist knowledge about water management

and preservation, and social exclusion and drug users. Different types of civil engineers, sociologists, designers and so on, must be incorporated in this discussion, however, much of it is also a political discussion. The politicians have a responsibility in order to create the regulations and initiatives towards saving these important historical spaces for future generations!

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Appendix

07

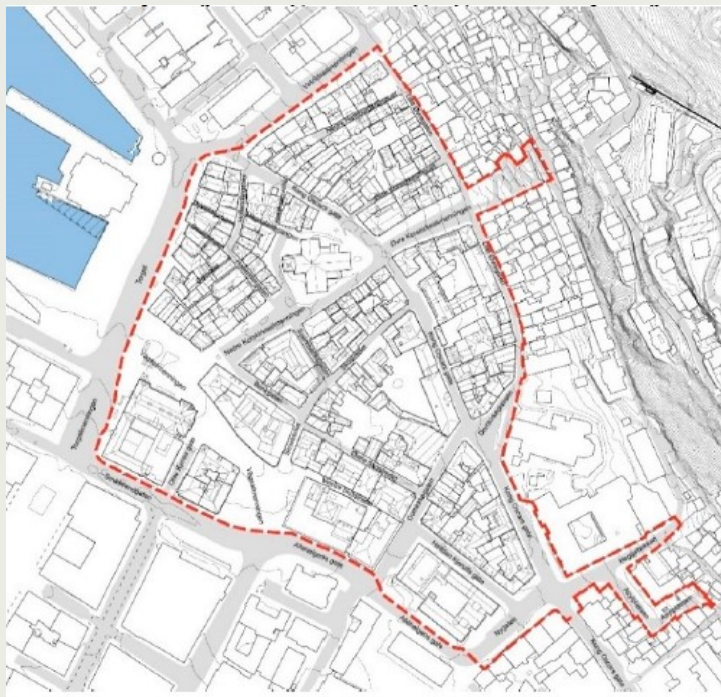
**Byrådssak /21****Saksframstilling**

Vår referanse: 2021/42438-2

Forprosjekt for gateopprusting - Vågsbunnen**Kva saka gjeld:**

Plan- og bygningsetaten (PBE) har utarbeidd forslag til oppstart av eit forprosjekt for gateopprusting i Vågsbunnen. Forprosjektet skal avklare premissa for korleis byromma i området skal opparbeidast. Bakgrunnen for oppstart av det planlagde forprosjektet er at BIR Nett og Graveklubben hausten 2020 starta opp arbeid med eit teknisk forprosjekt med tanke på å innføre bosnett og oppgradere eksisterande leidningsnett i Vågsbunnen. I samband med det har BIR Nett fremma ønske om eit samarbeid med Bergen kommune om plassering av synleg infrastruktur og å avklare korleis gatene i Vågsbunnen skal etablerast på nytt etter av gravearbeidet er ferdig.

Det planlagde forprosjektet skal utarbeidast i samarbeid med Bymiljøetaten, Byantikvaren, Byarkitekten og BIR Nett, under leiing av Plan- og bygningsetaten, og i tett dialog med Riksantikvaren. Det vil bli grunnlag for høyring og seinare prinsippvedtak, før tiltaka i prosjektet skal byggesaksbehandlast.

*Forslag til prosjektområde*

Prosjektet er føreslått avgrensa til offentlig gategrunn i Vågsbunnen mellom Torget, Vetrilidsallmenningen, Torgallmenningen og Småstrandgaten, inkludert Lille Øvregaten, Øvre Korskirkeallmenningen, Heggebakken, Asylplass, Kong Oscars gate til og med krysset i Nygaten og gangareal på nordsiden av Allehelgensgate.

Det er lagt fram forslag til følgande utgreiingstema:

- Skape opne og inkluderande byrom i Vågsbunnen, og legge til rette for mangfaldig bruk av desse.
- Synleggjere området si historiske utvikling.
- Betre forholda for fotgjengarar i området, og opparbeide gatene slik at dei møter dagens standard for universell utforming.
- Legge til rette for aktivitet og opphald i Vågsbunnen sine gater og plassar, med spesielt fokus på aktivitetar for barn og unge.
- Gjere tiltak for eit parkeringsfritt område samtidig som nødvendig kvardagslogistikk blir ivare tatt, og legge til rette for berekraftig varelevering.
- Avklare trafikkmonster og gatetverrsnitt, og vurdere eventuelle gå-, sykkel- og sambruks gater.
- Avklare plassering av teknisk infrastruktur med bossnedkast, returpunkt, varelevering, sykkelparkering og eventuelle mobilpunkt eller reserverte plassar for bildeling.
- Avklare prinsipp for klimatilpassing og handtering av overvatn, og standard for materialbruk, møblering, planting og lyssetting.

Etter at forslag til forprosjekt er klart, skal det leggst ut til høyring før det blir vedtatt. Etter vedtak vil Bymiljøetaten ta over for gjennomføring av prosjektet. PBE reknar med at forslag til forprosjekt vil vere klart 1 ½ til 2 år frå oppstart.

Fagetaten si vurdering og anbefaling:

PBE viser til at Vågsbunnen er eit sentralt og historisk viktig område i sentrum. Vågsallmenningen, Kong Oscars gate og Nedre Korskirkeallmenningen er rusta opp, men framleis er mange gater og plassar prega av stor slitasje. Det er lav standard på eksisterande toppdekke, gatene har smale fortau og det er dårlege forhold for fotgjengarar, syklistar og varelevering.

Området er utsett for setningsskader på bygg og infrastruktur på grunn av endringar i grunnvatn som tørkar ut dei arkeologiske laga i grunnen. Handtering av overvatn i dei sensitive kulturhistoriske omgjevnadane blir derfor ein viktig faktor for design av fysiske tiltak i området.

Arbeidet skal ta omsyn til Vågsbunnen sin stadidentitet, og at det må leggst til rette for aktivitet og opphald i gater og plassar med spesielt fokus på barn og unge. Det må òg ta omsyn til bybaneplanlegginga og framtidig trasé gjennom sentrum.

Forprosjektet skal sikre planavklaringar i tråd med ønska utvikling i Vågsbunnen. Det skal avklare premissa for korleis byromma skal opparbeidast etter graving. PBE viser til at kommunen har lang og god erfaring med utarbeidinga av forprosjekt i offentlig regi, og at dei fleste opprustingsprosjekta er gjort på denne måten.

PBE viser til at det oppstår eit unikt høve til å gjennomføre eit samla prosjekt når BIR Nett og Graveklubben skal gjere tiltak i området. Det vil kreve ein stor offentlig innsats både i plan- og gjennomføringsfasen. På den andre sida vil det gi større positive synergieffektar enn enkelttiltak, og gi høve til å gi ei «ansiktsløfting» for heile Vågsbunnen. Det vil gjere at kostnadene kan fordelast, slik at den økonomiske belastinga for kvar enkelt graveetat og bedrift blir redusert. Med eit samla forprosjekt for gateopprusting i Vågsbunnen som

grunnlag, kan kommunen sjølv definere kva for delområde som skal prioriterast for gjennomføring i takt med behov og høve. Forprosjektet er også eit verktøy for å gjere prioriteringar når det gjeld kvalitet og kostnader for utforming og materialstandard for byromma.

PBE anbefaler at dei leier forprosjektet, med ansvar for nødvendige formelle prosessar og politisk behandling. Bymiljøetaten, Vann- og avlaupsetaten og BIR Nett har ansvar for detaljprosjektering og gjennomføring. Det må opprettast ei arbeidsgruppe med ressursar frå PBE, Bymiljøetaten, Vann- og avlaupsetaten, Byantikvaren, Byarkitekten og BIR Nett. Det blir anbefalt at det blir oppretta ei kommunal styringsgruppe, og ei referansegruppe med deltaking frå råka etatar og offentlege instansar, lokalt nærings- og kulturliv, bebuarar og andre relevante aktørar.

Byråden si vurdering og anbefaling/konklusjon:

Byråden ser positivt på oppstart av forprosjekt for å ruste opp Vågsbunnen. Oppstart av arbeidet i samarbeid med BIR Nett og Graveklubben gir eit unikt høve til å ruste opp området på ein meir effektiv måte enn om prosessane skulle ha blitt gjennomført enkeltvis. Opprusting av området vil gi gater og byrom med betre kvalitetar og gjere området meir attraktivt og tilgjengeleg for gåande. På den måten vil det støtte opp om måla i Kommuneplanens samfunnsdel om den attraktive byen og gåbyen Bergen.

Det er vist til at arbeidet mellom anna skal sikre universell utforming, god handtering av overvatn og antikvariske verdiar i området. Det skal òg gjerast tiltak for at området skal bli parkeringsfritt. Byråden ser svært positivt på dette. I tillegg vil byråden peike på at det må leggst til rette for blågrøne kvalitetar, i form av til dømes plantar, tre og vatn. Det er viktig for trivselen i området, og som ledd i arbeidet med byrådet sitt mål om at Bergen skal bli den grønaste storbyen i Noreg.

Byråden anbefaler med dette at arbeidet med forprosjekt for opprusting av Vågsbunnen blir starta opp.

Vedtakskompetanse:

Byrådets fullmakter § 18 vedtatt av bystyret 16.12.2020 i sak 378/20:

Innenfor fagområdene klima, miljø, byggesak og byutvikling har byrådet fullmakter til å utøve myndighet med utgangspunkt i Plan- og bygningsloven og annet relevant lovverk.

Byråd for byutvikling innstiller til byrådet å fatte følgande vedtak:

Forprosjekt for gateopprusting i Vågsbunnen blir starta opp.

Dato: 19. oktober 2021

Erlend Horn
Settebyråd for klima, miljø og byutvikling

Dokumentet er godkjent elektronisk.

Vedlegg:

Brev frå Plan- og bygningsetaten datert 04.05.2021 med anbefaling om oppstart av forprosjekt for gateopprusting i Vågsbunnen

