# Á FOSSUM

## A NEW SETTLEMENT ON TOP OF THE WATERFALL

# ABSTRACT

This booklet contains a thesis for a design proposal for a new housing settlement Á Fossum in Klaksvík, Faroe Islands. The project is called Á Fossum, which means "on top of the waterfall". The name has its origin in the project site location, which is on top of the waterfall.
The thesis takes its departure in the notion of that housing conditions are one of the prime assumptions for growth in the Faroe Island in the past years. The municipality of Klaksvík has experienced a signified demand for housing opportunities. Therefore they have decided to develop and plan a new settlement - Á Fossum.

The object of the project is to implement an integration of engineering techniques on how to maintain/handel rought climatic conditions and process the landscape in relation to urban design studies in a new residential settlement in Klaksvík. A new settlement, which will bond to the inner city and reinterpret the norms of living together in the fierce nature in the Faroe Islands in 21st century.

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|---|---|
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| AUTHORS | Charlotte Gissel<br>Sonja Nygaard Thomsen |
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# PREFACE

This booklet is carried out by; Charlotte Gissel and Sonja N. Thomsen from February 1st to the submission May 18th, on 4th semester of the master's program in Urban Design at Aalborg University 2017

The project is developed with the purpose to create a masterplan for a new settlement in Klaksvík on the Faroe Islands, in cooperation with the municipality of Klaksvík. The final proposal is carried out throughout theory, analysis and a longer design process.

The booklet is divided into six chapters, splits with own pictures from the Faroe Islands.
Chapter one consist of a introduction where the readers get a historical perspective into how the evolvement of the society in the Faroe Islands and Klaksvík has been and is today.
Chapter two presenteds the theoretical concept of the project, where it is based in a theoretical summary of the two subjects; landscape and affordance.
Chapter three contains registrations and analytical part of the project. The majority of analyses and studies state their base in a study trip to Klaksvík where the focus was to inspect the surroundings, thus to be able to get a clear picture of the site and the city of Klaksvík. These are presented by pictures, diagrams, tables and illustrations.
The project's scope is presented in chapter four. Presenting the project's vision and problem statement. This is done after the analyses and theoretical framework to give the reader a common perception of the base of the project
This leads to chapter five - the presentation of the project, which contains visualisations, diagrams and text presenting the final result.
The project is summed up in chapter six, the epilogue chapter, where the conclusion and reflections throughout the process are discussed and evaluated. Followed by a list of references and illustration at last. Appendix can be found in the main folder.

All references thoughtout the booklet are stated after the The Harvard Reference Method. Each chapter starts with a short presentation of the content.

In the main folder there is a drawing folder that consists of larger maps, detailing plans and section and renderings.

We want to thank our two supervisors Ida Sofie G. Lange and Jes Vollertsen for guidance throughout the projects process.
Also thanks to our collaborations partners at Klaksvíkar Kommunu, Gunnleyg K. Dánjalsson and Heri Hammer for their support in providing data and sharing the municipalities thoughts and visions.

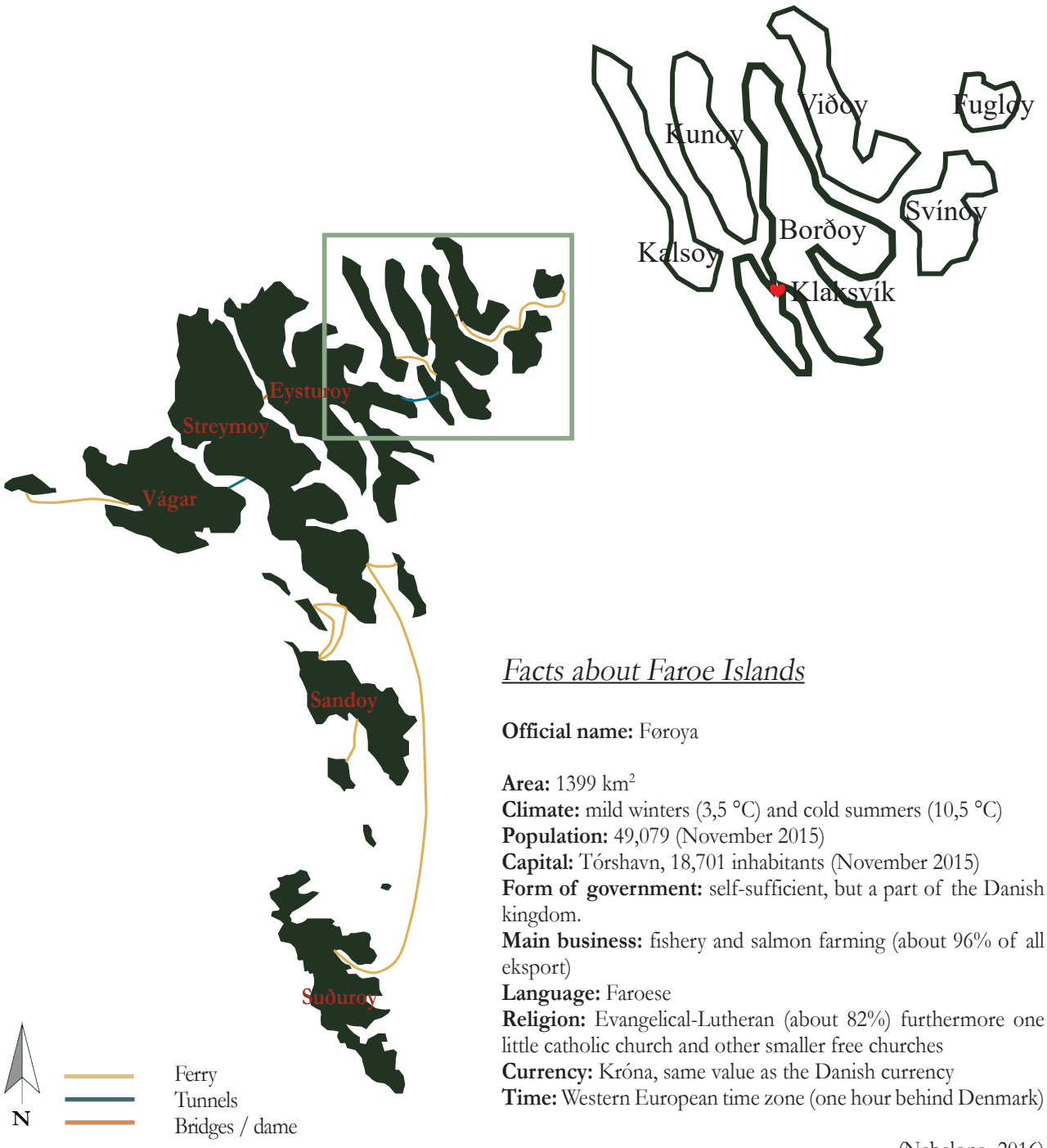
# INDEX

# INTRODUCTION

*This chapter includes an introduction to the Faroe Islands history, society and nature. The city Klaksvík and the site - Á Fossum, will be presented throughout our phenomenological observations and pictures.*

*Chapter 1*


PROJECT SITE




*Ill 1: Maps showing the Faroe Islands and the northern islands*

## *Facts about Faroe Islands*

**Official name:** Føroya

**Area:** 1399 km$^2$
**Climate:** mild winters (3,5 °C) and cold summers (10,5 °C)
**Population:** 49,079 (November 2015)
**Capital:** Tórshavn, 18,701 inhabitants (November 2015)
**Form of government:** self-sufficient, but a part of the Danish kingdom.
**Main business:** fishery and salmon farming (about 96% of all eksport)
**Language:** Faroese
**Religion:** Evangelical-Lutheran (about 82%) furthermore one little catholic church and other smaller free churches
**Currency:** Króna, same value as the Danish currency
**Time:** Western European time zone (one hour behind Denmark)

(Nebelong, 2016)

# *INTRODUCTION TO FAROE ISLANDS*

## *Rise of the Faroe Islands*

*The year is 825 and an Irish monk Dicuil and his crew took off to explore and made the rest of the world Christian. After several days in a curl-prowed ship, they arrived to the Farore Islands (Wylie, 1987). They were met by the sea cliff, the steep hills and the ocean headland. When the untamed water is crossed - the voyage has come to an end. They arrived to a Treeless land there seems bleak and small hidden villages at sea level. Weather is foul, never seldom warm, just windy and rainy - an inhospitable place in a nook of the great Atlantic ocean.*
*This is how the first people in the history books arrived to the Faroe Islands and shortly afterwards the Norwegian immigrated and they built the small villages near the ocean and shelters for animal in the fells. Their diet was sheep, pigs, seals, pilot whales, guillemots, razor bills, cormorants, seagulls and cod. And their main occupations was spinning and weaving. The Faroese traded their wool with Norway and the British isles for corn, soapstone, timper and luxury as glass, amber beads and hazel nuts. They did not have their own raw material so the trade with the Nordic and British countries was necessary for living. So once a year a ship from Bergen sailed to the Faroe Islands with the raw materials* (Wylie, 1987).

Under the little ice age (Late Middle Ages – 19th century) the farms were less productive because of soil erosion due to overgrazing. And in the 20th century when the farming was to uncertain they start using most of their energy on fishing. The Faroe Islands fishing culture will be described in more detail in this chapter (Hamilton, Colocousis, & Johanse, 2012).

From 1397 to 1940 the Faroe Islands where under Danish regime, until the Second World War and Germany occupied Denmark, meanwhile Great Brittan occupied The Faroe Island. After the war Lagtinget (home rule government) could not decide whether they should be Danish or detatch, so Denmark forced them into election. The turnout was low (67.5%) and only 32.3% had voted for secession and 31.4 against. In 1948, the Faroe Islands turned into a self-governing community within the Danish kingdom and Merkið became their officiall flag. Even today there Faroese are not agreeing if they should be self-governing and from time to time there are discussions about a new election (Hamilton, Colocousis, & Johanse, 2012).

# *Forese Society*

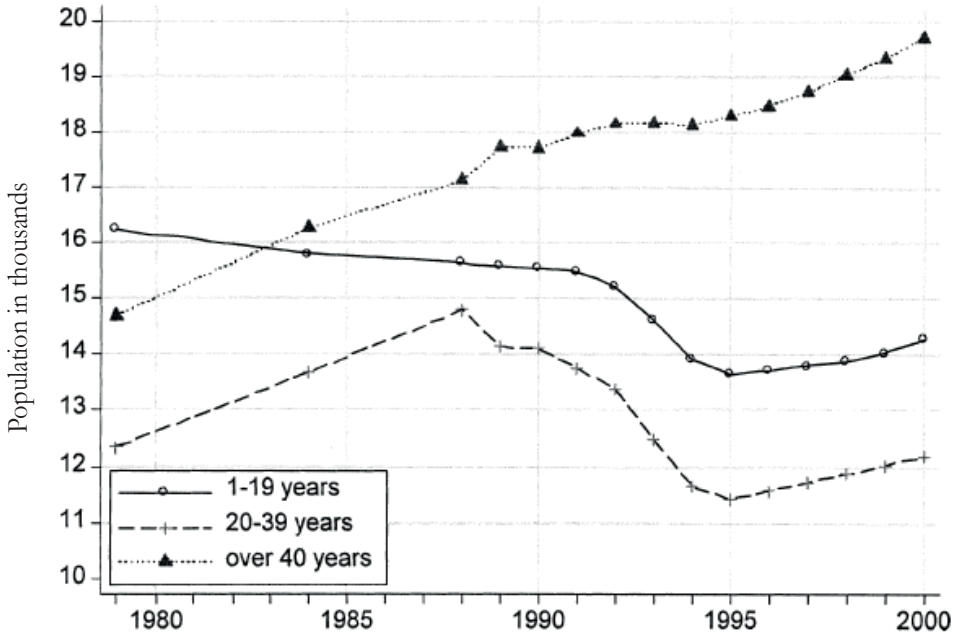
Drudgery has always been a part of the existence of the Faroe Islands. After the Irish monk Dicuil discovered the islands the money and later the machine and last auditors on the heels of businessmen and politicians appeared. In the 20th century Faroe Islands developed from a farming community into a fishing community (Hoydal, 1995).
The Faroese is a little society which is timbered together against natural forces. The community is manageable and can be perceived by all. It is possible because everybody knows everyone/all families. Geographically, historically and linguistically it is one unit which is defined and identified by its own. As Gunnar Hoydal describes so well:

"*Our biggest limitation is meanwhile our biggest privilege. Location and size*"
[Translated from Danish, Hoydal, 1995, page 294]

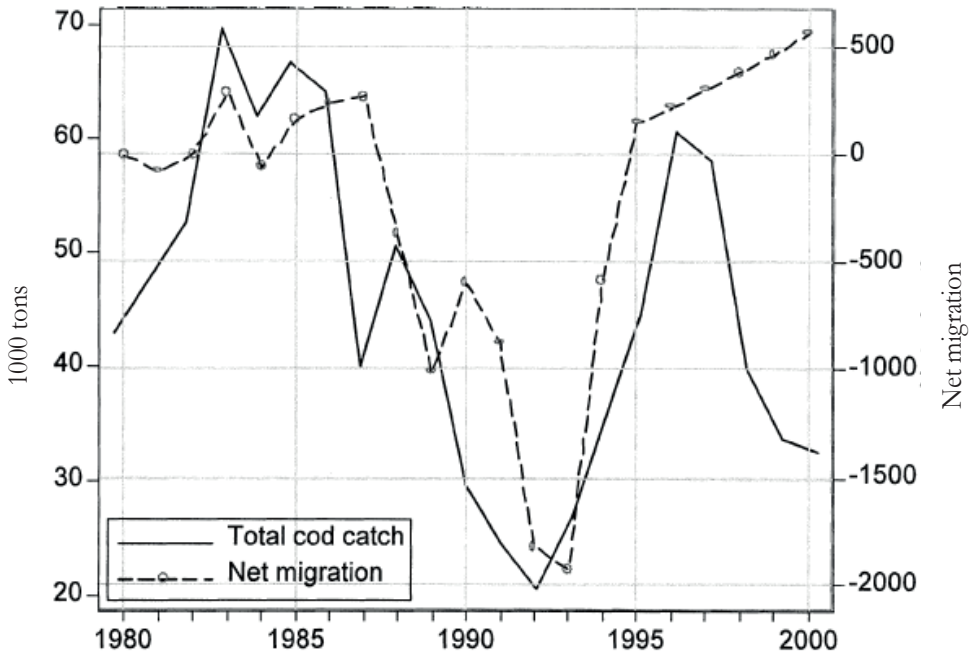
In Denmark, you often only socialize and associate with the people most similar to yourself, whether it is profession, age or race. This can create class distinctions between different groups of people in a city. However, in the small societies where everybody knows everyone, Eg. the journalist can be stopped on the street by local stranger, "what did you mean by that in your recently letter?". The community and fellowship is the most important force, and is called samleiki (Dirckinck-Homsfeld, 1995 & Hoydal, 1995).

As mentioned earlier under the little ice age, the farms were less productive and Faroese started to use most of their energy on fishing. It turned into a fishing community and later in between 1996-2000 was approximately 95% off the exports was fish. In the 1970s and 1980s the fishing industry had a really good period and the population increased by 23%. The fishing affects the population structure, and opposite to the good period, the 1990s turned into a fishing crisis and the population decreased, see illustration 2 and 3 on the next page. the two illustrations show how the fishing industry affects the population by migration of the able-bodied between 20-39 yers. Women were only offered low-paid and increasingly undesired fish-processing work, which turned into the female flight, where most of them left the Faroe Islands to get a job or an education in larger metropolitan areas, and most of them to Denmark (Hamilton, Colocousis, & Johanse, 2012).

That crisis is a reminder of how important the fishing industry is to the Faroe Island. When it goes well for the fishing industry, it goes well for the Faroe Islands. But in the last 10-20 years the fishing industry has experienced a developement where the small ships are replaced with larger and more optimized ships. That means that there is not the same demand for working hands. Meanwhile the larger cities as Tórshavn and Klaksvík have turned into more modern metropoles which offers new jobs for the old fishermen/women.
Today the fishing industry is still important and a large part of the Faroe Islands identity. With the development in the ships technology, there is not the same need for workers, because the machines are more efficient. Even though are the unemployment still very low compared to other countries.




*Ill 2: Faroe Islands population by age group, 1979-2000.*
*Data source: Statistics Denmark 2002*




*Ill 3: Faroe Islands cos catch and net migration, 1980-1999*
*Data source: Statistics Denmark 2002*

# Architectural History

The architectural building code and tradition for handeling their materials wisely at the Faroe Islands has not changed much over the last centuries. Their small and human-scale buildings are placed carefully in the landscape and construction is used as a contrast to the natural landscape. At the Faroe Islands there are two characteristic elements when thinking of living and cityplanning; The two words are *sethus* and *bygd* (Dyreborg, 1995).

## Set house

Looking up the definition of *Sethús* ('set' house), it is defined by; *residential property, dwelling house* (sprotin.fo, 2016,a). The word (red. set house) is used in plural which tells that one residence is perceived as consisting of several residences with a well (sea) in the courtyard. All set houses exploits the sea as well as the landscapes opportunity in a strong and integrated unit with a strict balanced relationship to natural resources.

Landscape large lines are transferred into the set house, not necessarily against the compass rather the local location and always with a view over the sea. The houses rests against the landscape with their low building body and the heavy grass roof. Settlements are turned so their long side follows the terrain. The foot of the house records the changes in the terrain so there are a half to one floor remaining under the highest part of the house. If the settlement are turned south-west there are opportunities for good sunspots and the house will take most of the wind so the spot are sheltered by the house. (Von Jessen, 1995).

*Ill. 4: Bygden Funningur at the Northeasten Island Eysturoy and a set house with belonging fish hosues*

# *Bygd*

Looking up the definition of *Bygd*, it is defined by; *village; settlement; (small village)* (sprotin.fo, 2016,b). It is the stems from the set houses, which define the bygd (village) when several set houses are coupled together and they become a settlement, mostly named after the location, a mountain or a fjord. Many of the bygds are characterized by the 20th century fishing industry. The set houses have their orientation around a little harbor where all connections to the rest of the islands takes place.

Around the bygds there are often kilometres of stone-fence which emerge in the landscape, that surrounds the small bygd in the magnificent mountain sides, see illustration 5. Throughout generations, the stones have been stacked by the inhabits of the bygd, defining the edges of the bygd.

The familiar relationships in the small bygds are often very close. Many generations stay and live there, troughout their whole lifes. Often you stay in the bygd that you are born in, even though your work or go to school in another bygd. This is one reason why the infrastructure is so important for the Faroe Island, because many people commute from bygd to bygd to work or study (Dyreborg, 1995). Many small bygds see the consequences of not having good infrastructure or not having a big stabile labour market. The result is that many people choose to leave and move to bigger cities, and the small bygds feel the vacancy.

*Ill. 5: Stone fence in the bygd Viðareiði.*

# Architectural Timeline

## The Stone house - Before 1600

*Stone and soil were the typical building materials, which could be found on the islands. Wood was used sparingly, as it mostly appeared as driftwood. Wood was only used indoors for post construction in larger and more expensive buildings. Out , fishing- and dry houses were in the simplest form and were also used as settlement for the average family. The roof were straw cultivated and he walls was made of stone and filled with soil.*

## The wooden House - 1600

*With a better connection to Norway and Great Brittan the import of wood was raised which resulted in more houses being built of wood, but most of it was used to maintain the already existing wood houses so there was still a huge demand for wood. On the average their house had no windows, only a small hole in the roof, so the smoke from the fire place could escape and a little sunlight and only little rain could find its way in.*

## The typical Faroese house - 1600-1900

*The trade relationships in these centuries were getting better, so the stone – and sodhouses were replaced by set houses. Now the houses were black- or brown tarts with white windows and a green planted roof. The foundation are bricked of boulders and basalt and with a whitewashed foot.*

## Space for details - 1900

*The set house were panel- corrugated iron cladded. Knee wall, and attic, windows and doors with carved details was added.*

## Concreate houses - 1930's

*The modernism arrived, and the old set house of wood was replaced with concrete. In the beginning they were standing raw, and later it was painted colorful. Meanwhile H. C. W. Tógard published the book Færoysk hus, which is a guide for new settlements on how to maintain and develop the architectural heritage.*

## Wooden frame construction - 1950's

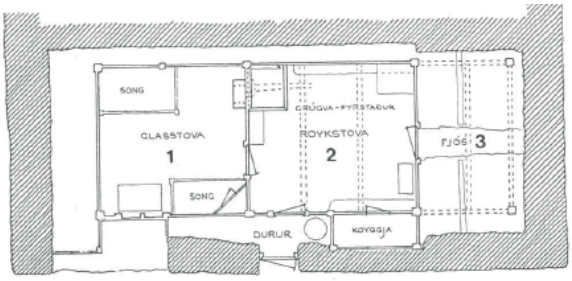
*The single-family house was returning to wood with a wood construction placed on the foot made of concrete.*

## Combining tradition and knowledge - 1960's

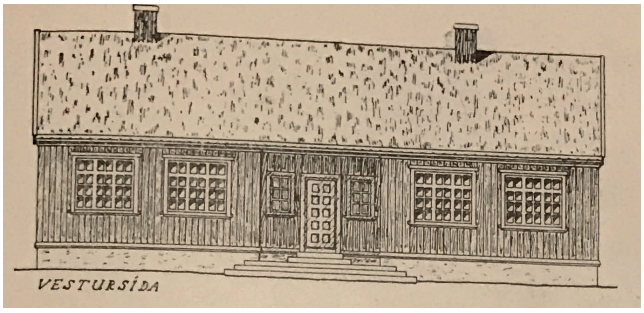
*In the early 60s Føroya Sparkasi published a competition for a single-family house with a fixed price in a quality so it was possible to lend more money. The winner was inspired by the old traditional set house.*

*Late 60s: A new Nordic competition was published, the old city center of Tórshavn should be renovated. The result was to maintain the old set houses, and add new settlement in agreement to the old soft buildings. This way of mixing new and old became a common method on the Faroe Island when new and old were to melt together.*

*Ill.6: A brief architectural history of the Faroe Island from before 1600 and until today. (Von Jessen 1995 and Tórgarð 1932)*




*Ill.7: 1:150 siteplan of a 1700s house*



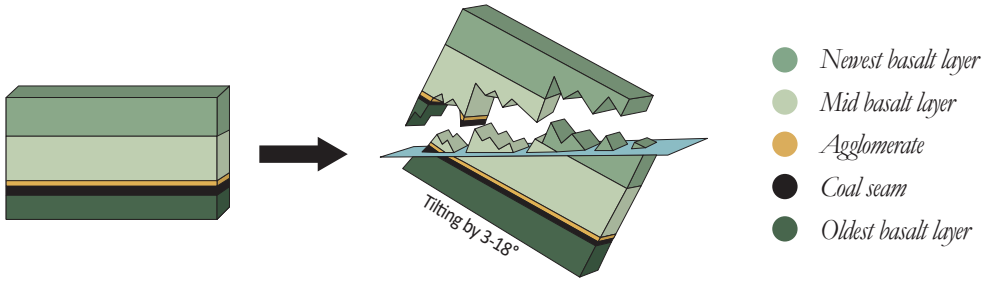

*Ill.8: Hands sketch of H.C.W. Tógard from 1929*

*Ill. 9: Family house with iron plates*

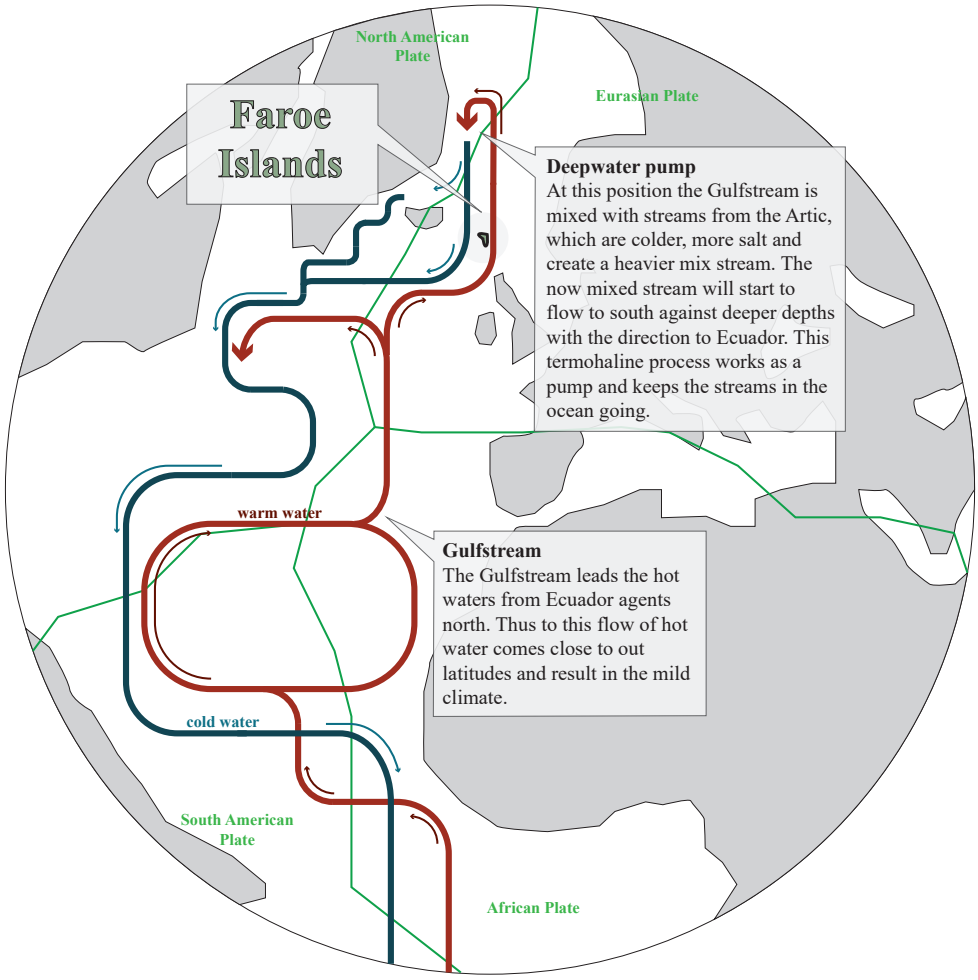
*Ill.10: House with imported Norwegian timber*

# Geology of the Faroe Islands
## How and why?

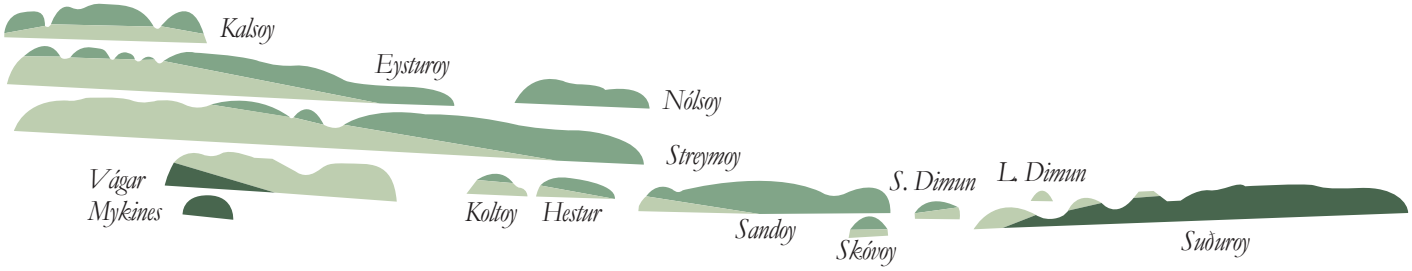
The Faroe Islands are located between Scotland, Norway and Iceland, but for many thousands of years ago they were located close to the gap between the Eurasian and North American tectonic plate. Because of their exposure to volcanic eruptions and throughout time and evolution the Faroe Islands have moved away from the volcanic region and moved further on to the Eurasian plate, and are now not in danger of volcanic eruptions (See illustration 12. on page 19)(Rasmussen, 2001).
Looking at the overall picture of the Faroe Islands in a geological mater, the 18 islands has their origin in volcanic eruptions, which occurred several million years ago.
The islands are build up in mainly three layers of basalt. After these years of evolution from the tectonic plates and glacial periods is the reason why the islands are placed as they are and why they are tilting to the East, around 3-18° from islands to island (See illustration 11 and 13). On some islands it is very clear to see how the landscape is tilting. All these processes over time have molded the Faroe Islands into the landscape we see today (Rasmussen, 1998)
After the first eruption, which formed the first layer of basalt, it was several years until the next eruption, so vegetation had started to evolve and nourish. Thereafter came the second eruption and the third shortly after. Because there was a long quiet period, where vegetation had started growing, a layer of coal between the first and second layer of basalt. When traveling in Suðuroy one can easily spot the coal layer in the terrain (Rasmussen, 1998).
When traveling from West to East you can clearly see the lowest layers dominate in the nature especially in Suðuroy, Mykines and Vágar, while in Streymoy og Eysturoy it is the middle layers which dominates and where the newest layer forms the rock ledge. In the northern islands it is the newest layers which dominates with almost horizontal rock ledges also known as *hamari.* (*hamari*: Outcrop a rock formation that is visible on the surface (Oxforddictionaries.com,2017), steep ledge in sloping hillside (Sprotin.fo, 2016,c)) (Nebolong, 2016).




*Ill.11: The many layers of the Faroe Islands*




*Ill.12 Gulfestream*




*Ill.13: Concetual section of the many layers of the Faroe Islands*

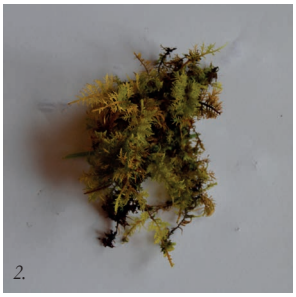
# *Fauna & Flora*

The first impression of Faroe Islands vegetation is that it is very uniform with hillsides full of grass, and no trees. There is around 400 different plant species – dominated with alpine plants, wildflower, grasses, moss and lichen. Most of the plants that are growing at the Faroe Islands are plants arrived after the ice age 10-20,000 years ago (Faroeisland.fo, 2016).

Animal life is reflected by the islands remoteness with few terrestrial species, but plenty of seabirds and marine animals. Most of the land animals are introduced by humans. In 1999 a football pitch needed new grass, and accidentally 91 spices of spider and wasps was introduced to the Faroese. Only three species of wild land mammals lives on the Faroe Islands – Hare, brown rat and the house mouse, which all are introduced by humans. While most of the mammals are foreigners, most of the seabirds and marine animals are endemic. The earliest documentation of fauna at Faroe Island is the Irish monk Dicuil who wrote, “the Faroe Islands were full of a variety of seabirds” (Wylie, 1987).

The sparse variety of fauna and flora must be a result of location and climate. The Faroe Islands are so isolated in the North Atlantic Ocean making it impossible for mamals to imigrate. However the islands are placed right where the Gulfstream circulates (see illustratin 12 on page 19); which has an important impact on the climate, resulting in very steady land and sea temperatures, which has an impact on the well-being of flora and fauna on the islands (Faroeisland.fo, 2016).


1.


2.


3.


4.


5.


6.


7.


8.


9.


10.


11.

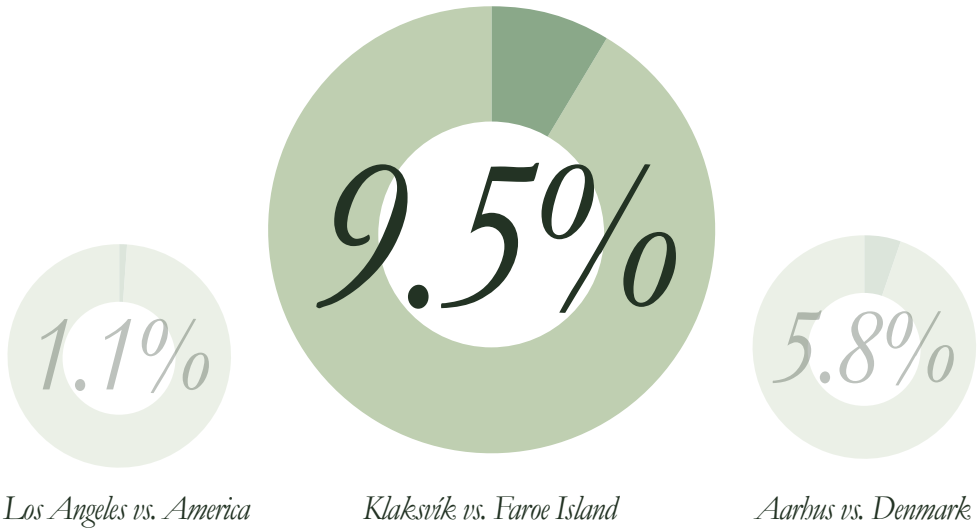
*1.Sometimes you win sometimes you lose – Horn from a ram / 2. Moss / 3. Leaf / 4. Heather / 5. Grass. / 6. Leaf / 7. Moss / 8. Moss / 9. Dark Faroese stone / 10. Dark Faroese stone/ 11. Withered heather*

*Ill.14*

# KLAKSVÍK

## The Seaport

Klaksvík is known to be the fishing capital in the Faroe Islands and with its 5.000 inhabitants it is the second largest city in the Faroe Islands. They represents approximately 10% of the population in the Faroe Islands, which is a large percentage seen in relation at other second largest cities in other countries. The population percentage in other cities can be seen in the illustration 15 in the bottom of the side. Klaksvík stands for 30% of the export value in the Faroe Islands mainly fish industry both on sea and fishing processing factories. This shows how big influence Klaksvík has on the country's economy.
In old days (1700's) Klaksvík was divided into four district, Vágur, Biskustød, Gerðum and Uppsalir which later on merged into one (Klaskvík.fo, 2017). The city has grown through the years. Today it's seen as the mother of the northern islands, where many of the private and public services and functions such as education, health department, sport and work are located (Føroyar í dag, 2008). However, the majority of the citizens work within the fishing industry on land or at sea can be seen in appendix page .
The latest event in urban planning in Klaksvík is the development of the masterplan for the city center. The masterplan is a result from a competition in 2012 where architect firm Henning Larsen won and has later been in collaboration with the municipality and other local entrepreneurs (Henninglarsen.com, 2013). (The new masterplan for Klaksvík can be found in appendix 2.




*Ill.15 Showing the populaiton distribution from the second largest city in a country.*

*Ill.16 Picture 1-10 on page 23, is a few sample of pictures from Klakvík.*

*1. The small industrial seaport*

*2. The beginning of the materplan for Klakvík´s inner city*

*3. Fishing boats*

*4. Røstur fiskur*

*5. Post office*

*6. The iconic church "Christian´s kirkjan"*

*7. Remainings from the roayal trader*

*8. Old trading hosue - now a historical museum*

*9. Large chessboard in the inner city*

*10. A typical suburban street*

# THE SITE: Á FOSSUM

## A Brief Overview

The project site is located in the southern part of Klaskvík. The city is located on Borðoy, which is one of the northern islands. The northern islands are a common name for the islands there are located north east for Eysturoy.
The islands Borðoy seen from above sea level consist of basalt from the latest eruption and therefore is newest. Illustration xx on page 18 shows the layers.What categorises this type of terrain is a rock ledges (*hamari*: Outcrop a rock formation that is visible on the surface (Oxforddictionaries.com, 2017), steep ledge in sloping hillside (Sprotin.fo, 2016,c)) and steep ridges.
Cross-through the site there is a rock ledge (See illustration 18) which characterizes the site. In the west part of the site ledge is very steep, dramatic with rough edges while in the east end the hammer is very flat and the vegetation has taken over and created soft edges.
When rock ledges occur in the nature, there often is a 0,5-1m layer of tuff as the next layer. Tuff is a mixture of soft porous basalt, water and metal elements such as iron. A layer such as this is seen on the site, where it looks like a wound in the landscape. The tuff has a red color because of the iron in the soil (See illustration 17) [Rasmussen, 2001].
Covering all the layers of the basalt is a green blanket; vegetation consisting of a mix of wild grown grass, flowers and moss, also small streams which are splitting and puzzling the site into zones.


*Ill.17 Red tuff*
*Ill.18 Rock outcrop*

# Survey from Á Fossum

*When arriving to the site it is clear to see how mighty Mother Nature is and how she embraces you with her rows of mountains enclosing you with the high mountains in the outskirts, but still manages to stage an open appearance of the city facing the whole city and two fjords.*

*The untamed nature characterizes the site – where ever you look you see the grass green colors, almost placed as shattered mosaic pieces creating a plate of green colors. If you look down to the city you will see how the terrain is decreasing, you can see pieces of the hammer glazing in between the grass, making a visible edge against the cliff and city. Even so, the city is not that far away, it is quiet, the only noise is from the animals nearby, sheep, geese and small birds singing, and the chatter from the stream and wind flowing along the site.*

*Ill.19 Á Fossum seen from the city*

*1. Lower part of site seen from the road, Klakkur and Hálvgafelli in the background*

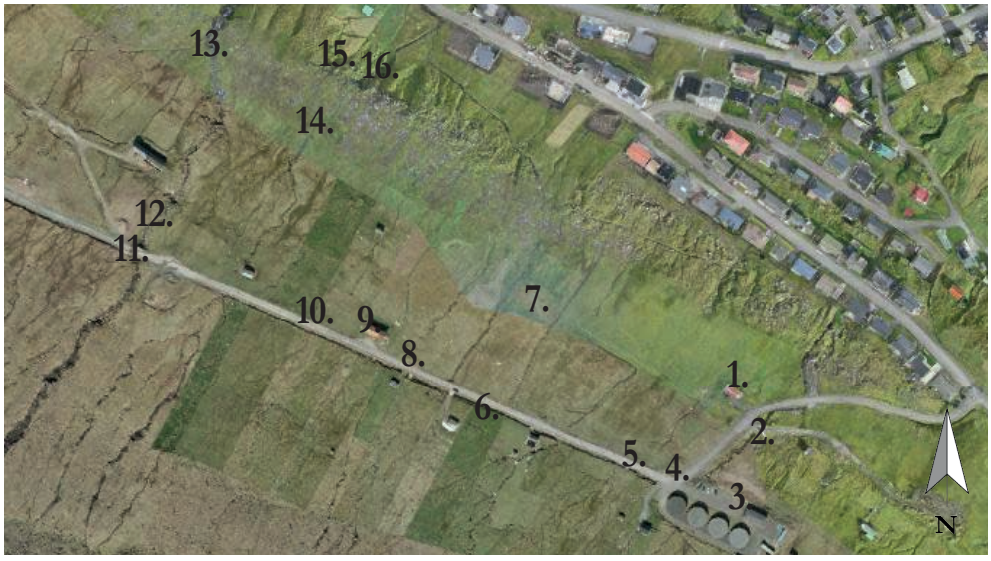
*2.The road niðan Horn and stream*

*3. Water feility*

*4. Upperpart of site seen from the road*

*5. The road Niðan Horn and stream, furthest to the right is the site*

*6. Old sheep shed is getting renovated*




*Ill.20 Site, á Fossum*

*7. Small ditch where vegetation has overruled.*

*8. The edge between existing road and field*

*9. Sheep house*

*10. Curious chicken*

*11. Cattle grid ensuring the cattle escape*

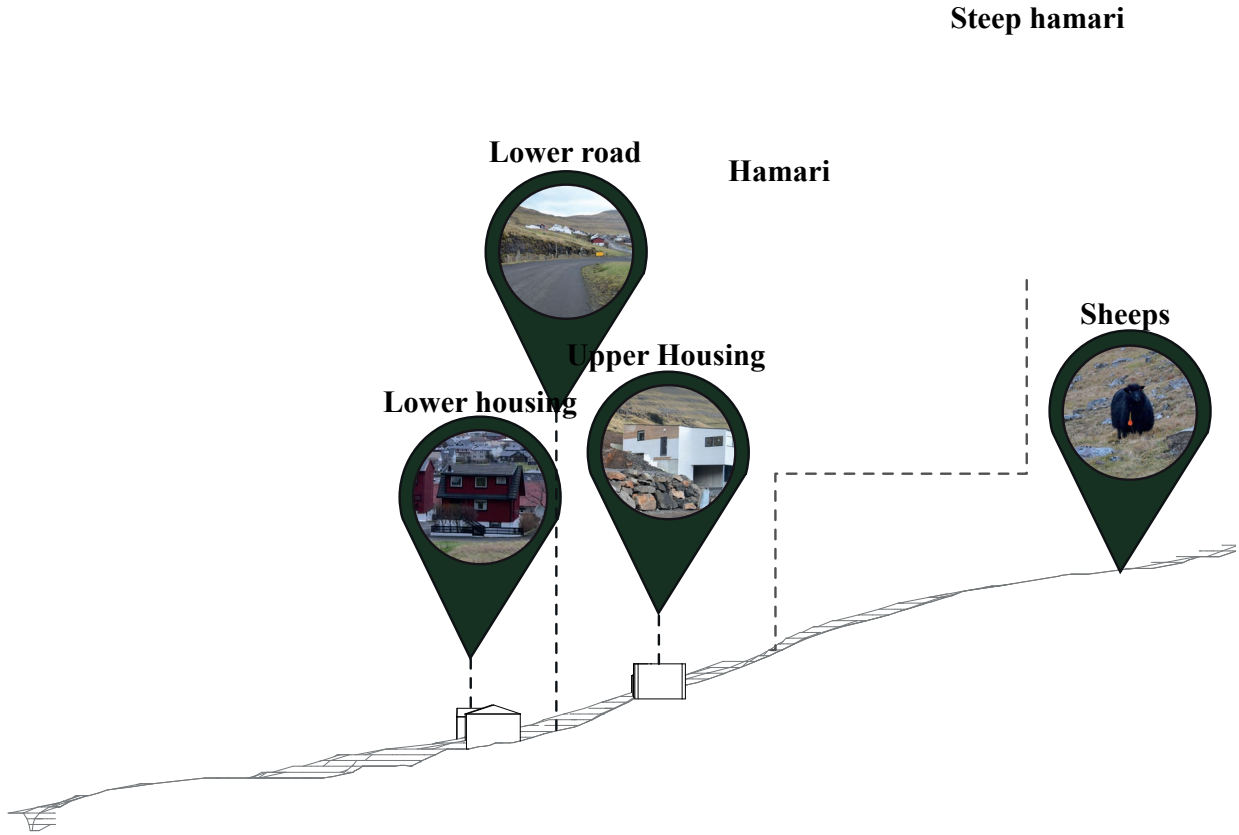
*12. Vágsá*

*13. Vágsá*

*14. Remains from an old fox farm*

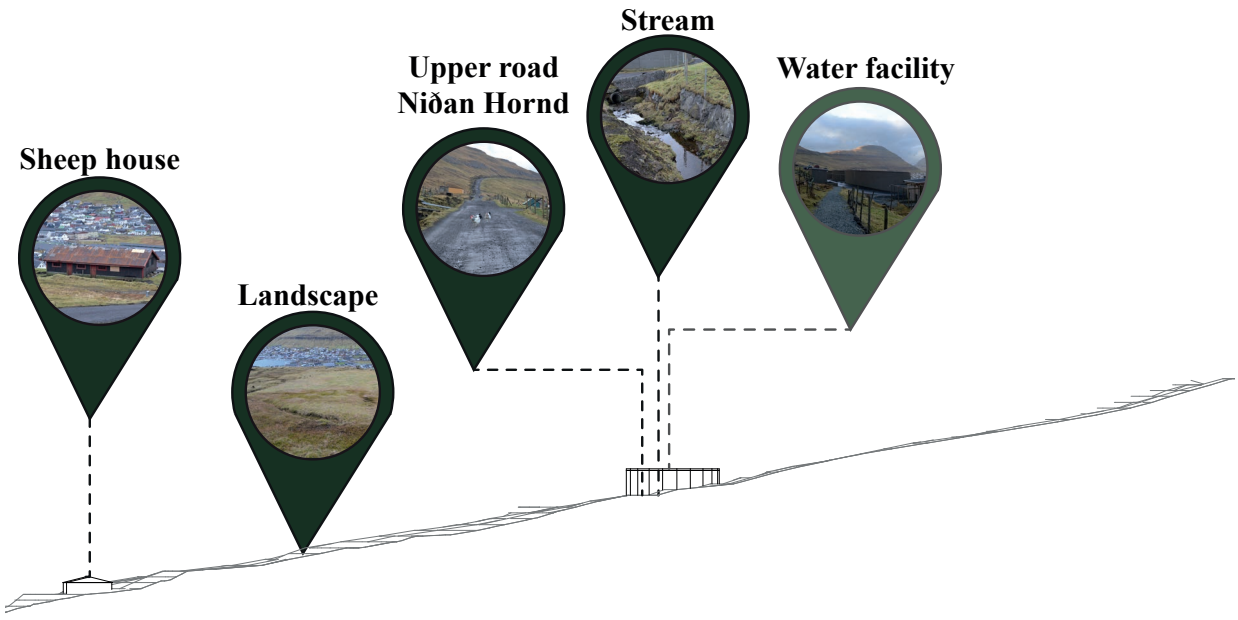
*15. View over the city and the fjord, Vág*

*16. View over Bordoyavík*




*Ill. 21 Section of the project site Á Forssum*

0 10 20 30m

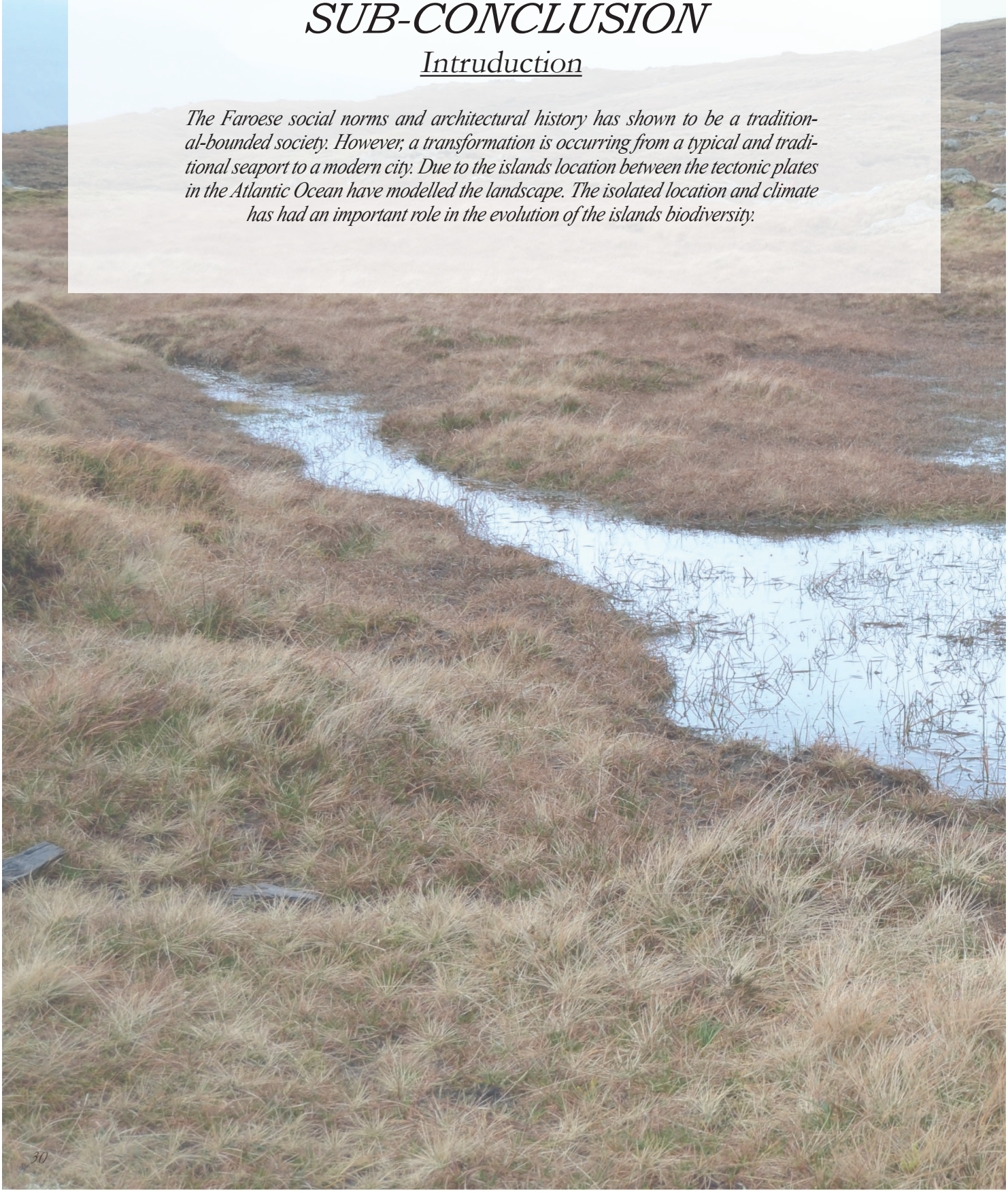


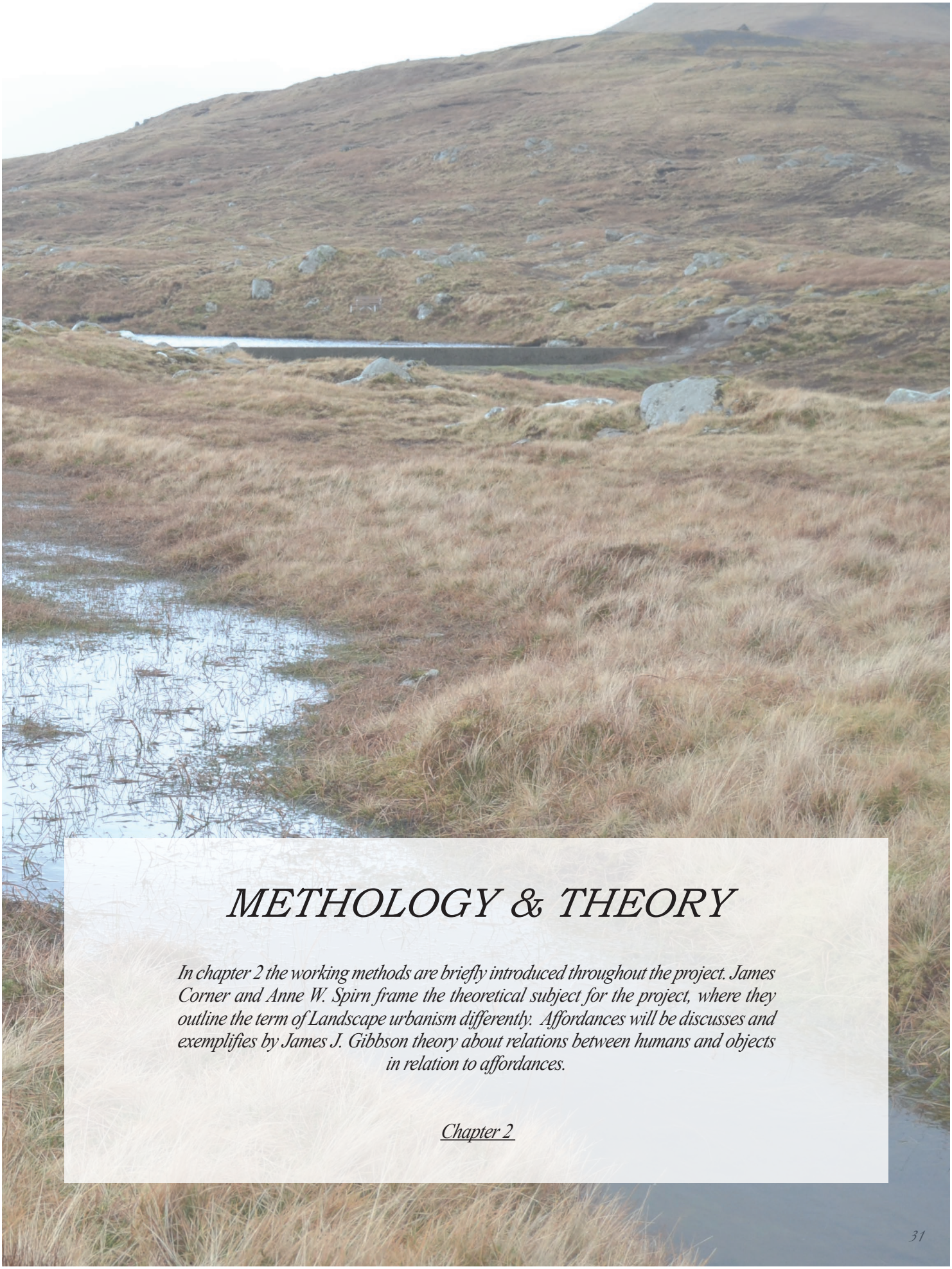

Á Fossum is at Faroe Islands standards flat, with 35 meters from the top of the outcrop to the main road, Niðan Horn. The landscape is characterized by the keeping of animals. Most of the surface is covered with grass, the animal are eating. Small streams and homemade fences divide the surface into land of ownership. Small sheep houses stand as a majestic sculpture in the landscape. Just outside the site in the south eastern part are four water facilities placed to distribute the whole city. A map of land register and section line (AA) can be found in appendix 3.

# SUB-CONCLUSION

## Intruduction

*The Faroese social norms and architectural history has shown to be a traditional-bounded society. However, a transformation is occurring from a typical and traditional seaport to a modern city. Due to the islands location between the tectonic plates in the Atlantic Ocean have modelled the landscape. The isolated location and climate has had an important role in the evolution of the islands biodiversity.*





# METHOLOGY & THEORY

*In chapter 2 the working methods are briefly introduced throughout the project. James Corner and Anne W. Spirn frame the theoretical subject for the project, where they outline the term of Landscape urbanism differently. Affordances will be discusses and exemplifies by James J. Gibbson theory about relations between humans and objects in relation to affordances.*

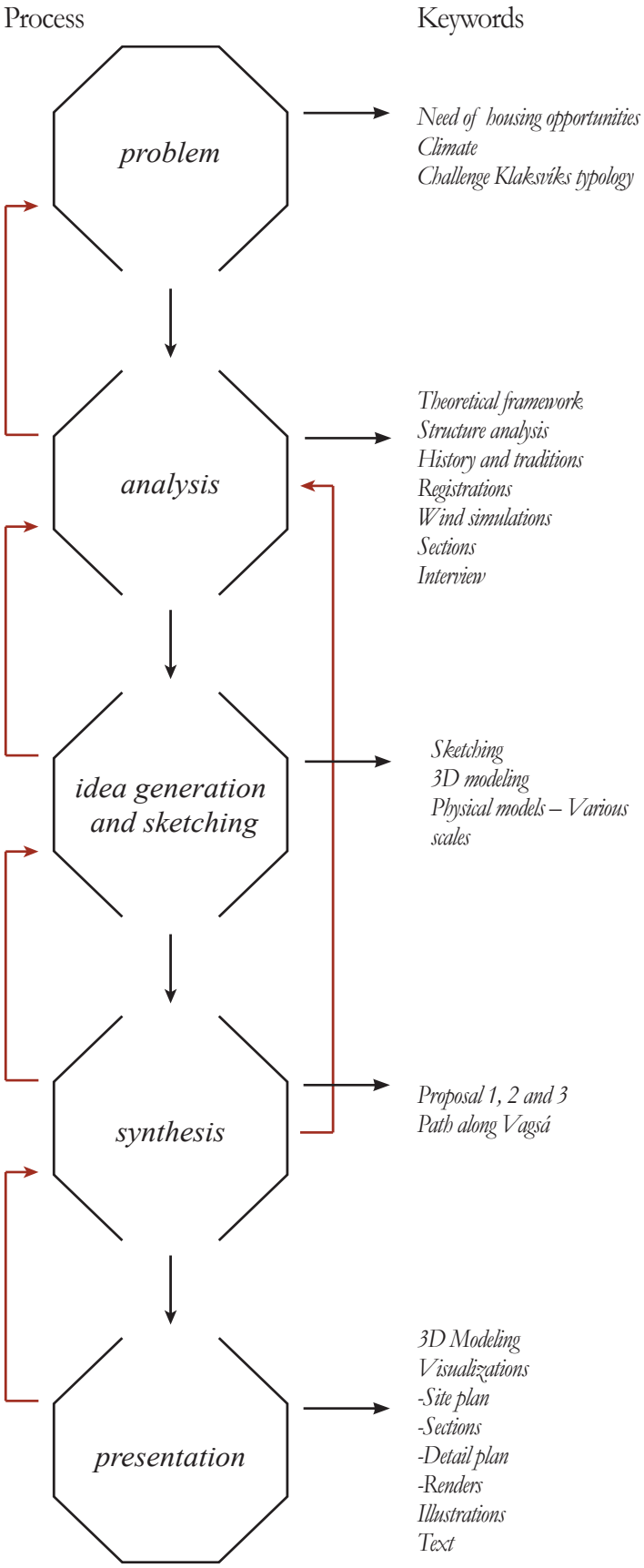
*Chapter 2*

# METHOD

The ground stone of this thesis was laid in the beginning of the semester, when the project period started, there was planned a study trip to the Faroe Islands, to experience the site and interview our collaboration partner, The Municipality of Klakavík. On the trip we collected data based on the phenomenological studies and registrations of the site was done, with the purpose of getting a better understanding of the site and its context. Also collecting qualitative data, in answers to our structured interview with the municipality.
These studies and registrations laid the base for the concept and final design. Besides analyses and registrations, a theoretical framework was formed by theories of Anne Whinston Spirn, because of her technical approached and understanding for tactile details, along with James Corner, the father of landscape urbanism, and James J. Gibson on how he sees affordances in terrestrial environments.

The process of the project has been characterized by a hermeneutical perspective, to get a wide knowledge of the process throughout the project period, especially in relation to its many elements; from the small details to the big picture.
The structure of the project may seen linear, however it has been worked out as an iterative nonlinear process, of going two steps forward and one back. Working iterative with the integrated design intertwined between every phase of the project leading to the final proposal.
Many different platforms and medias were used throughout the process. Sketching, physical modelling, 3D modelling and 3D simulations have been used frequently going back and forth in the different phases of designing the final proposal, but also to see the design in differnt scales – detailing and structural.
In the process there were two pinups between fellow students and subervisors where problem statements and processes were discussed and constructive feedback was given.

In the illustration 22 on the next page, the work in keywords can be seen in different processes.




*Ill.22 Shows diagrammatically how the design process has been*

# *LANDSCAPE, URBANISM OR BOTH?*

**What** is landscape and urbanism - and **when** is it landscape, urbanism or both? In the essay Terra Fluxus James corner presents his idea of landscape and urbanism, which has its similarities but also their differences. Landscape urbanism is a non-separately element and as he mentions:

*"...the total dissolution of the two terms into one word, one phenomenon, one practice. And yet at the same time each term remains distinct, suggesting their necessary, perhaps inevitable, separateness... In other words, the union of landscape with urbanism promises new relational and systematic workings across territories of vast scale and scope, situating the parts in relation to the whole, but at the same time the separateness of landscape and urbanism acknowledges a level of material physicality, of intimacy and difference, that is always nested deep within the larger matrix or field".*

[Corner, 2006, page 24, and 33]

He describes the concept of landscape urbanism as two terms which are connected, but still so different from each other that there is a need for both, when they have a different point of focus. With landscape urbanism, a new term is created, where different fields can connect in a new way. Anne W. Spirn is a professor of Landscape Architecture and Planning who works with the technical and aesthetical aspects of nature. James Corner describes the concept of landscape urbanism in four provisional themes: Processes over time, the staging of surfaces, the operational or working method, and the imaginary.

**1. Processes over time**

Landscape / nature are dynamic, evolving and continuous in time – it is never complete! Derived from ecology, our lives should be involved with the environment around us. We must respect this when we create an urban environment. Every city adapts to the existing nature (soil, foundation, water, plants etc.), and when a city arise, the natural processes will change. Anne W. Spirn describes the city as.

*"... the city is more than a text, and more than an artistic or technological artifact. It is a place where natural forces pulse and millions of people live – thinking, feeling, dreaming, doing."*

[Spirn, 1988 Page. 108]

That is why it is so important for urban design to think the normal processes of nature and living into the design through function, meaning, feelings and enhance the senses and mind. The beauty of nature and the natural processes are the combination of order and disorder, harmoniously arranged and if we neglect the natural processes we will lose the connection to the big whole and ourselves.

Identity, both individual and as a group, as an important, meaningful and pleasing unity are essential to the psychological growth and health. Design that enhances the natural and the cultural rhythm of a place contributes to a sense of rootedness in space and time. The identity and the sense of belonging to a place is an understanding of how we dwell. When the design permits the individual to shape their own environment and express the values of a culture then the design facilitates the sense of dwelling. Anne Whinston Spirn describes it in the The poetics of City and Nature: Towards a new aesthetic for urban design (Corner, 2006 & Spirn, 1988).

*"I am because I dwell; I dwell because I build"*
[Spirn, 1988, Page. 115]

and

*"We are what we built and, in that building, we come to know who we are."*
[Spirn, 1988 Page. 110]

The first quote describes how important it is for "us" human to build and create, towards a sense of identity - Not only our home but also our cities. A city´s natural environment and its urban form is an interaction between natural processes and human purpose over time. Composed it gives the city a unique identity, tells the story of failure and achievements of the past and the opportunity for the future. (Spirn, 1984 & Spirn, 1988)

## 2. The Staging of Surfaces

Staging the surfaces are about to emphasizing the horizontal surface, the ground, and the field of action, instead of the more dominating vertical structure. It includes different scales from the sidewalk, the street, and the larger infrastructure. The surface can irrigate territories and therefore demand more strategic planning. E.g. the camp area at Roskilde festival that consist of one large tight grid, which is easy to organize. Individuals can design and plan inside the gird in a non-structured surface.

*Ill.23 Tent camp at Roskilde festival*

Considering that life is lived at the streets, so the working surface is not as much a design object but more various systems and elements in a network of intersections where the tactical work of choreography of materials are important for the statement (Corner, 2006).

The surface can be adapted so it can afford different kinds of interaction. Not all surfaces afford standing and walking. Extended surfaces that are nonrigid like a stream or a lake, can afford something else like swimming or floating. Locomotion on a surface is defined and guided by the perception of obstacles and barriers. Slopes between horizontal and vertical surfaces are created to avoid the barrier. Civilized people have created stairways to afford stepping ascent and descent (Corner, 2006).

## 3. The Operational or Working Method

Development of a new mode of representation that requires new techniques, architects should be able to adapt their techniques to the context and environment that they are working on. There are a lot of fields and the best result is when different fields are combined in a symbiosis. An example is the way Anne Whiston Spirn asks questions as why the city is set against the nature, and why can they not be in symbiosis? Through examples and her knowledge as a landscape architect she tries to explain, in the granite garden, why it is so important to combine nature into the city (Corner, 2006).

In the 19th century parks were teared down so there became more space for building. The parks were replaced with large blocks, and concrete parks. This resulted in problems as: heating spots, wind tunnels, soil erosion, water pollution and water flood all around the world. In the late 19th century the problems were noticed and small parks (the loung of the city) are created as an utopia, that also has the function to lead water and trash from the roads. A good example where landscape design and sewage treatment are combined into one is Olmsted´s basins in the Riverway, Boston. It is a green recreational area, which connects the different regions of the city. The Riverway contains water all the time and when there is flood the water will flood other planned areas. The plants that were planted these places where specific choice because they could handle the proportions. The design is based on the location and the facilities. As many other sewage treatments, the Riverway connected to other green and recreational spots, because the problem do not necessarily come from the exact place where the problem has to be solved (Spirn, 1984).

## 4.The Imaginary

The imaginary consist of two themes. The first about the public space in the city. There should be more than infrastructure and vessels, it has to be a common desire and memory. Desire for the new and unexplored and the memory of the old and traditional. The second is the geographical - physical environment and landscape as an element. Materials, presentation of a place (image) and ingenuity are not three separate parts. All three parts has an impact of a sites perception and in the way it will be occupied.

*"And so it seem landscape urbanism is first and last an imaginative project, a speculative thickening of the world possibilities".*

[Corner, 2006, page 32]

Basically this fourth part imagination means less construction of traditionally urban infrastructures and more public space where the senses can be challenged.

*"... the urban landscape, must provide satification on multiple levels of the senses aroused, the functions served, the opportunities for "doing" provided, and the symbolic associations engendered. These multiple layers of meaning, when congruent, will resonate, combining complexity and coherence, amplifying the aesthetic experience of the city."*

[Spirn, 1988, page 125]

Landscape urbanism is a very complex but necessary phenomena in the present, where the cities are expanding, which affect the untimely nature and processes. Therefore urbanism and landscape can not be seperated, when these two terms often become a unity in the modern society. Urbanism is often associated with the city center, while the landscape is the wild nature outside the city. In the denser and growing city it becomes more and more important to implement nature in the right way so they will continue to be the green lung.
Urbanism and landscape cannot be seen separately and when they become one, they suddenly has to contain each other's qualities, and then an even more complex system accur.

# *AFFORDANCE*

James Gibson is known to be the first one to put words on the noun affordance and to study what is behind the term. Additional to the big nature impact on the site Á Fossum it is conspicuous to look at Gibsons thought about affordances based on the terrestrial environment.

General definition of affordance:
*"The qualities or properties of an object that define its possible uses or make clear how it can or should be use."*
[Merriam-webster.com, 2017]

James Gibson see an affordance as:
*"a resource or support that the environment offers an animal; the animal in turn must possess the capabilities to perceive it and to use it" .*
[Merriam-webster.com, 2017]

The perceptions of affordance and what kind of affordances objects give, is extremely various. There are no rules, however to try to understand it, it is possible to cut down and categorize the object. Only look at the object, which are belonging to nature – the furniture of nature so to say, stones and branches. To distinguish the affordances they are often divided into two terms, the detached and the attached. Moreover, one must for every object consider the user, animal person, size etc. Because we as individuals see and experience the surroundings differently, an affordance is therefore an invariant combination of different variables depending on the user perceiving it (Gibson, 1986).

Due to the sites location and unspoiled green character in the mountainside, it lays in the landscape as an open corridor between the mountain and the city. The presence of air (wind) in the corridor is very present, and a main element such as air is often not acknowledged as an affordance. However it is a good example of a medium in nature which can contribute to an affordance – It affords breathing or specifically respiration. It also affords a flow of invisible movements on top of the ground which cannot be seen but sensed. When in its clearest form with no disturbances it affords visual perception. On the other hand it can also change into a more visual state creating an enclosed bobble of fog or forming itself as a blanket of fog covering the ground. Not only the visual perception is present but scents are transported in the air. Some which we connect with perceptions, while others a negative perception, such as pollution. Summing up on air, it is everywhere, it is the medium; the path, the space between every obstacle and object where the behaviour occurs (Gibson, 1986).

A surface can be defined by many things – If it is vertical, horizontal, gigged, a slope, a solid or unstable. One thing they all have in common is that it depends on the users' perception of affordance. The case is often that the surface is the platform where the encounter of an object and users occur. In some cases the state of the surface has a fundamental role in the situation.

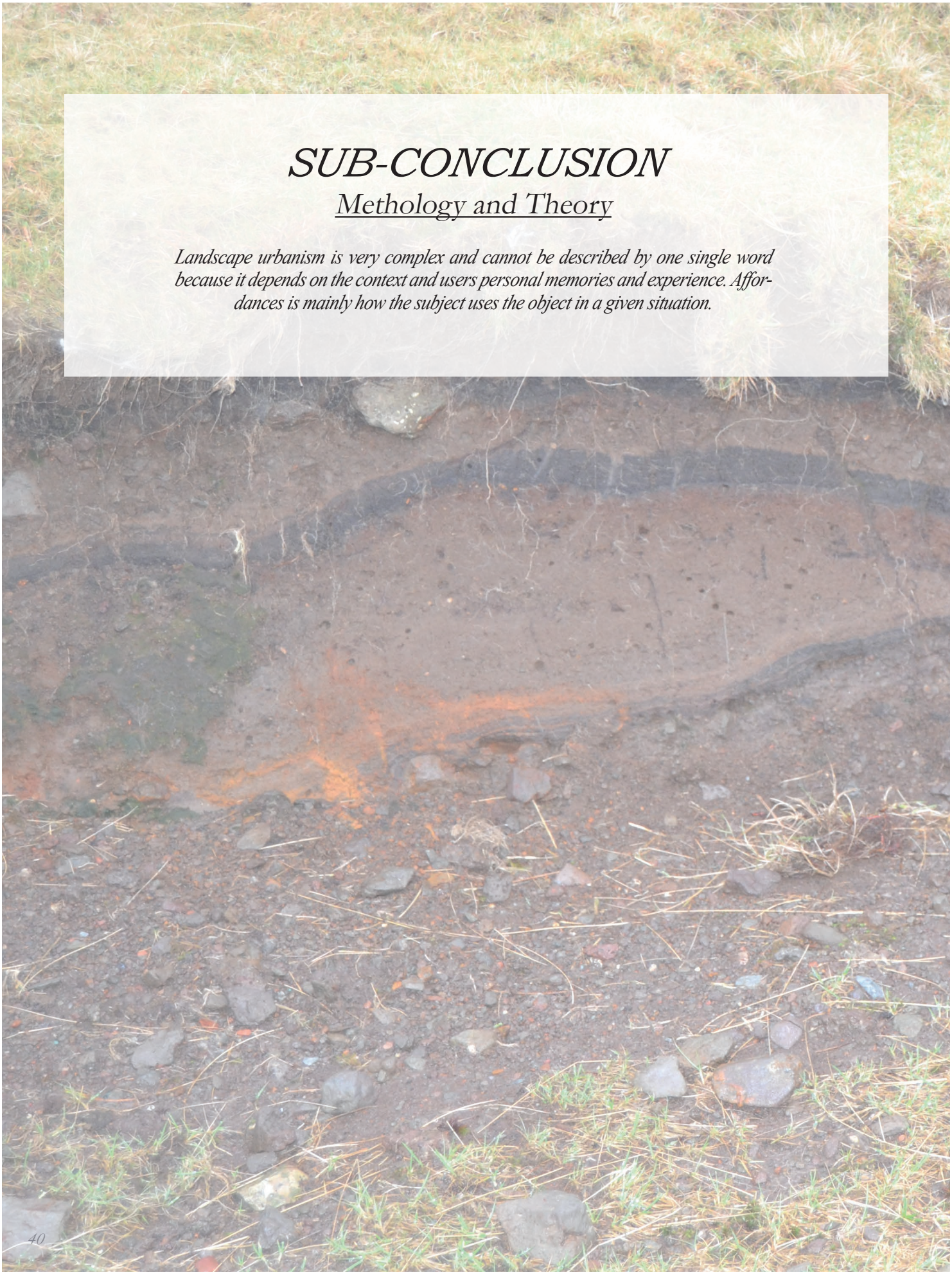
A bike lane needs to be smooth and solid to give an affordance for the traveller and the commuter needs a place for shelter while waiting for the bus. Or in our case it is the state of the landscapes surface which can influence the experience. Where there are places where it is torn and springs occur and create wet areas, which can be unfortunate for the traveller and seen as a bad surface to walk in (Gibson, 1986).

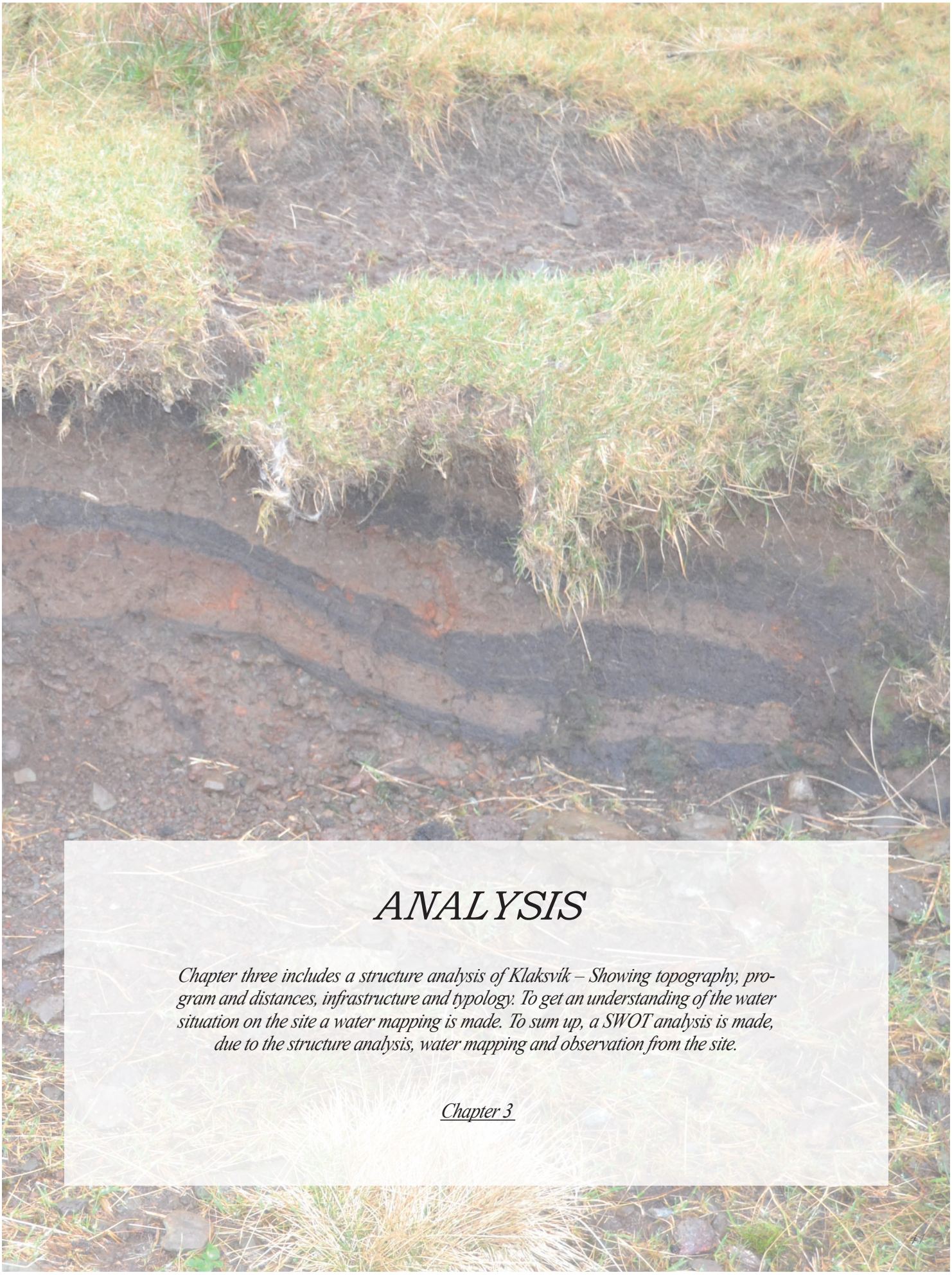
A certain place or district can give an affordance, however it depends on the user – A typical example is animals perception of affordances. Some places are more fitted for nesting and finding enclosure, finding food, places where they can store food, find shelter and hide from predators lurking, also places where they can act as predadors hunting. These behaviors are also seen á Fossum. The sheep know the field: some places are good for shelter and protection, while others are related to nourishment. Seen at Á fossum people have it the same way, maybe not as clear as with the animals but we are good at reading a place, the nature or an object and then creating our own guidelines on how to experience the affordance (Gibson, 1986).

# SUB-CONCLUSION

## Methology and Theory

*Landscape urbanism is very complex and cannot be described by one single word because it depends on the context and users personal memories and experience. Affordances is mainly how the subject uses the object in a given situation.*





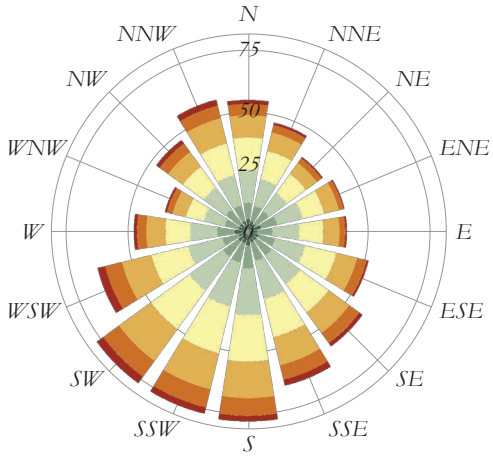
# ANALYSIS

*Chapter three includes a structure analysis of Klaksvík – Showing topography, program and distances, infrastructure and typology. To get an understanding of the water situation on the site a water mapping is made. To sum up, a SWOT analysis is made, due to the structure analysis, water mapping and observation from the site.*

*Chapter 3*

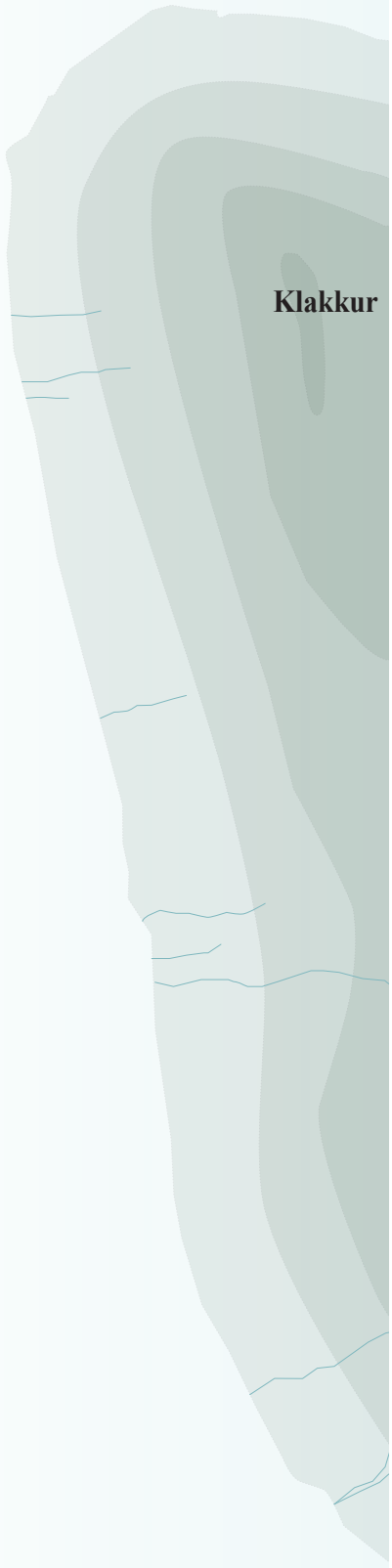
# Wind & Heights in Klaksvik

Norðan and Sunnan also translated to the northern- and southern wind in English. It is the two most common winds in Klaksvík. The two fjords and mountains accumulate the wind in between like a large wind tunnel.
The wind rose shows the strongest wind comes from south west. While we know the wind from north is not so common but carry the cold temperature (Meteoblue.com).



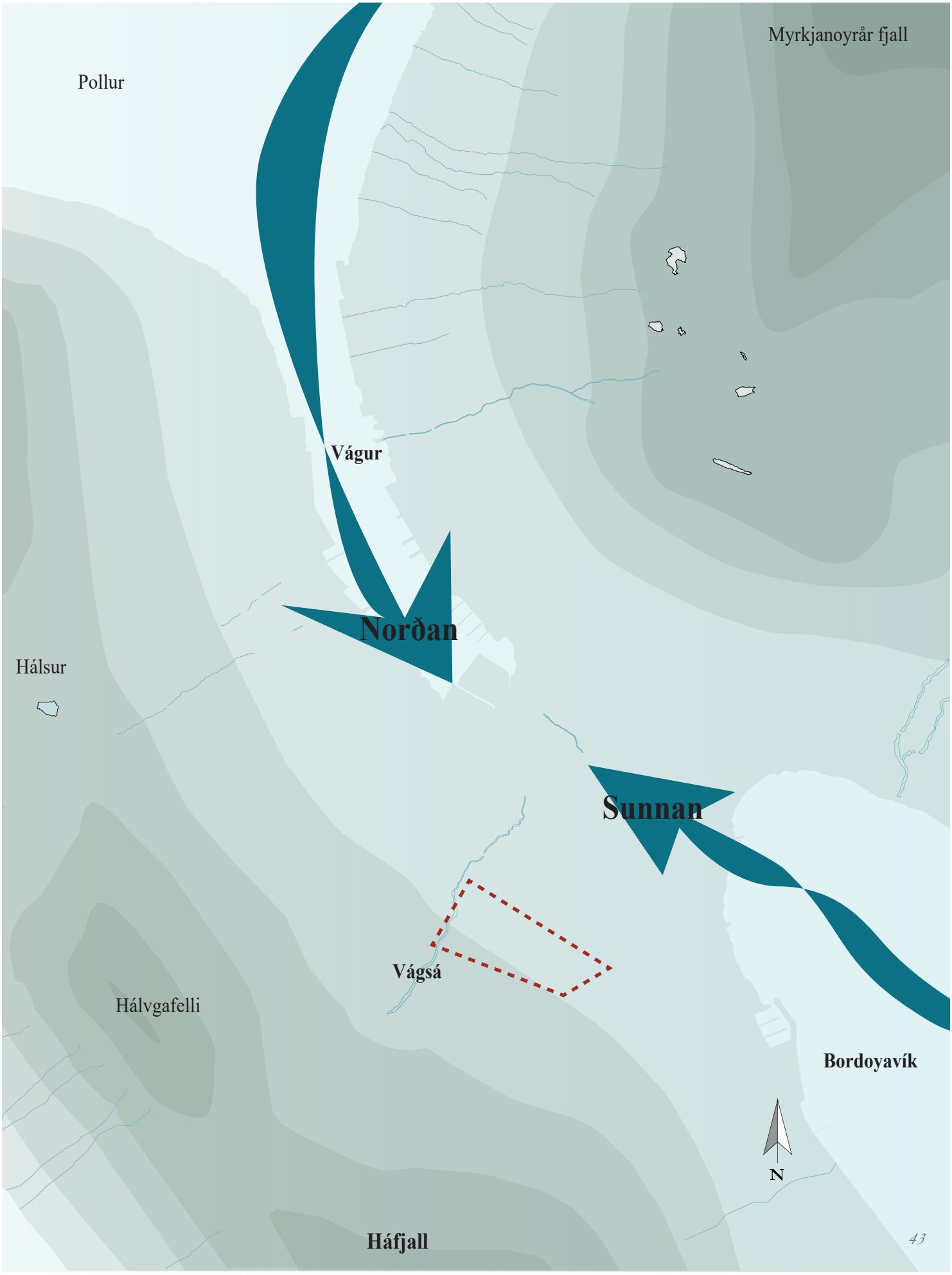

*Ill.24 Wind rose for Klaksvík shows how many hours per year the wind blows from the indicated direction*

0 km/h >1 km/h >5 km/h
>12 km/h >19 km/h >28 km/h
>38 km/h >50 km/h >61 km/h




*Ill.25 To the right a 1.1500 Map of Klaksvík showing the topography and two winds Norðan & Sunnan*

0m 100m 200m 300m 400m
500m 600m 700m



# Klaksvík's Structure

The project site Á Fossum is located in the southern part of Klaksvík, 300 above sea level. Close to the renewed and densified inner city. Klaksvík is a tiny metropole compared to "normal" conditions. Even though Á Fossum is located in the periphery of the city, are there only 1 kilometer to the most important facilities as convenience store, shopping, Kindergarten, schools, main roads, ect. From one end of the city to another it is possible to walk.

**0,5 km**
1. Water supply
2. Small farming

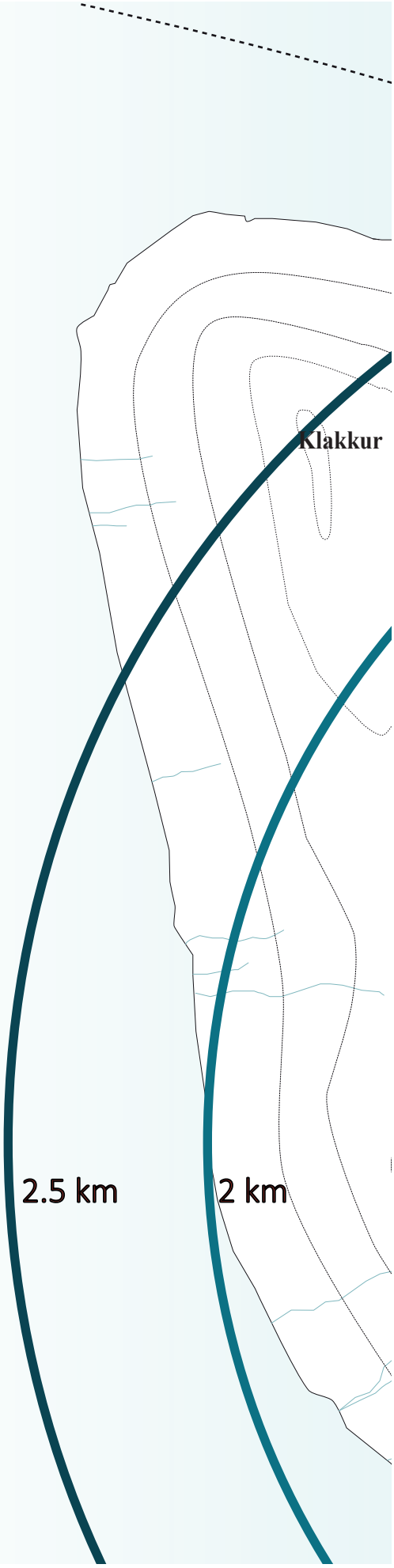
**1 km**
1. Helipad
2. Tunnel
3. Shopping area
4. High School
5. Sport area
6. Kindergarden
7. New city center
8. Church
9. School
10. Elderly home
11. Hospital
12. Harbor

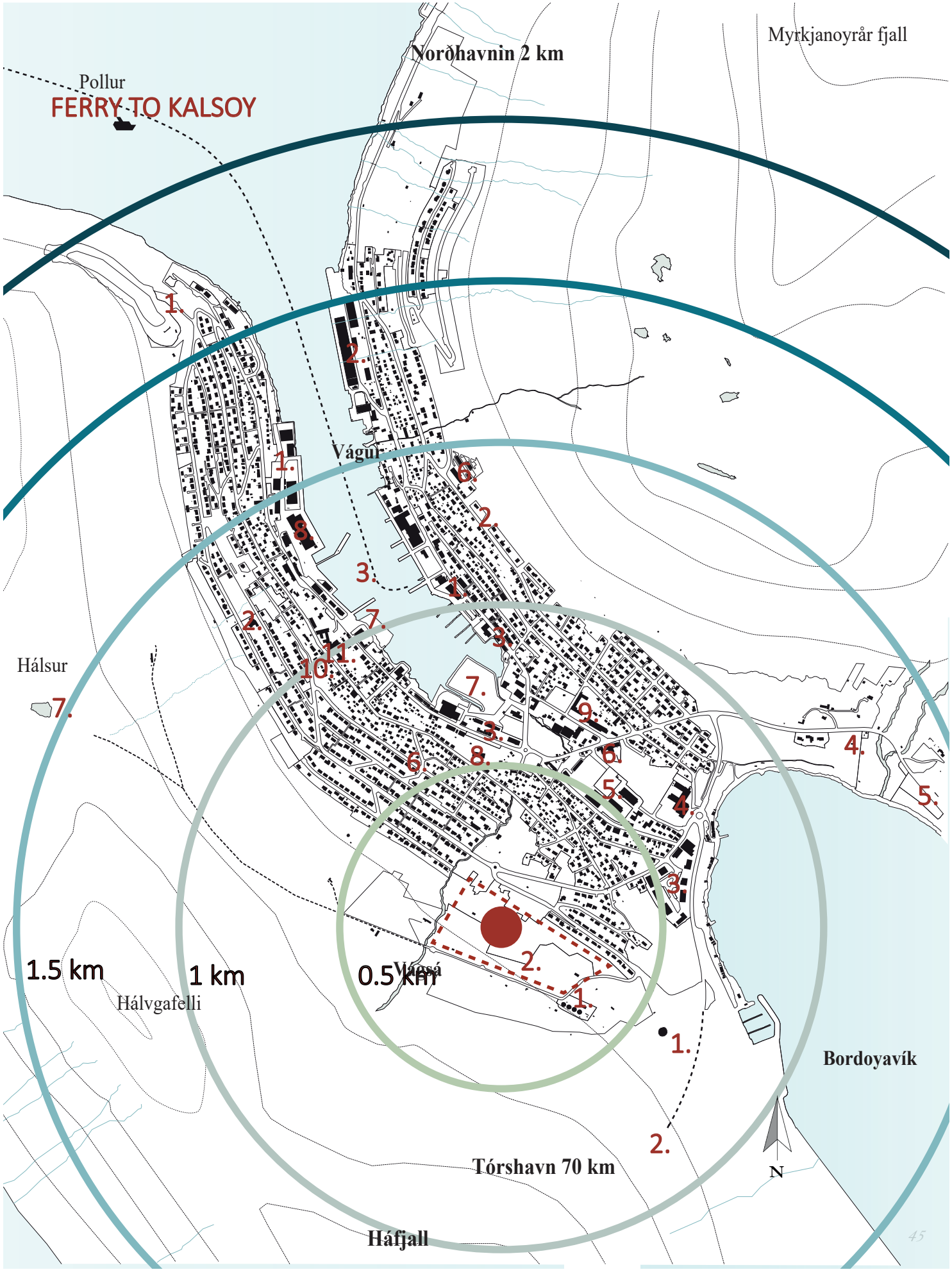
**1,5 km**
1. Municipality
2. Kindergarden
3. Harbor
4. Rekretivt area
5. Cemetery
6. Elderly home
7. Observation post
8. Industry area

**2 km**
1. Industry area
2. Fish factory

**2,5 km**
1. Industry area

*Ill.26 To the right a 1.1500 Map of Klaksvík showing the distance to the public activities*





# Infrastructure

In Klaksvík there is one main road (Ring road) which is connected to Norð havnin (The industry harbor) in north, and the tunnel (Norðoyatunnulin) which leads to Eysturoy and the capital Tórshavn in south. To connect the rest of the city there are minor roads slinging through the mountains. In Klakvík there are also two free bus routes there are following the ring road. The users are typically school children and retirees. From Klakvík there are also good connections to the nearby island Kalsoy by ferry and bus connections to northern and southern parts of the island.


*Ill.27 To the right a 1.1500 Map of Klaksvík showing the infrastructure*

# Typology

The main typology in Klakvík are single family houses. Like many other larger cities are the heavy industry from the inner harbor moved to the outskirt of the city. In the inner city are the public facilities like bank, schools, Town hall, sport facilities and the post office, where you pick up your daily mail. Around the harbor are the municipal developed a more dense city with shops and cafés.

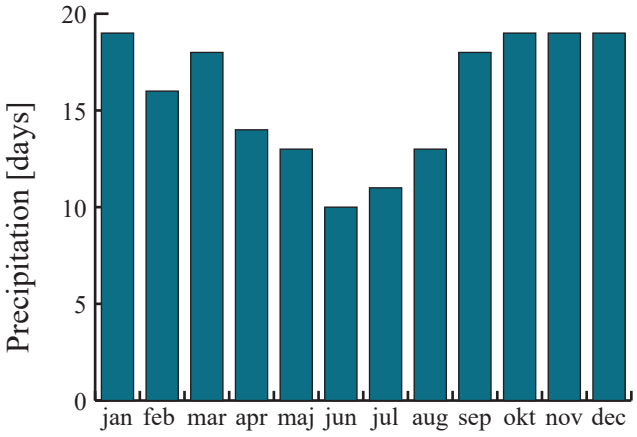

- Public facilities, hospital, kindergarten, elderly home, schools.
- Cafes, bars, restaurants
- Banks
- Shops, minor businesses
- Factories, industrial business
- Single family housing
- Apartments and row housing
- Sport areas, arenas
- Culture, religions facilities and cemetery
- Parking

*Ill.28 To the right a 1.1500 Map of Klaksvík showing the typology and functions*

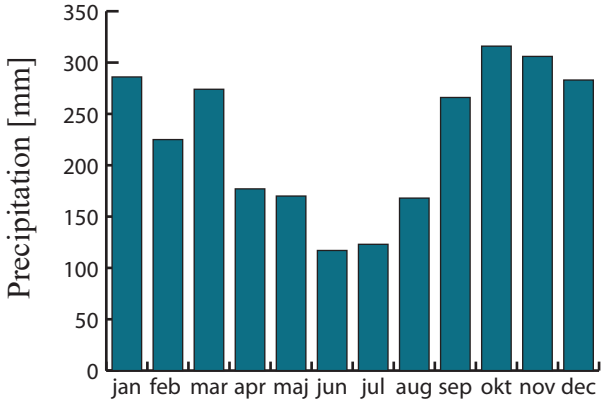
# Water Mapping

## Precipitation

In this part a water mapping of the current landscape is described - which lead to a description of how to manage the water in the masterplan Á Fossum. Faroe Island in general hava a very varied steep terrain, so the water will run of to the ocean - There are different things to manage compared to the context. 1/3 part of an year at Faroe Islands are rain days, which i.a. means that the rain has a long and constant duration (dmi.dk, a). Compared to Danish standards is there less rain days, but the precipitation is 1/4 less, so when it rains in Denmark it is more intense (dmi.dk, b), and the need for delaying the rain is more needed.




*Ill.29 Water percipitation over the year, raindays*




*Ill.30 Water percipitation over the year, mm*

**Stream by Niðan Horn**

Due to the origin of the Faroe Islands the landscape is very varied steep terrain, with mountains and large rocks. These rocks are very porous, so the water is able to soak through and run under the surface. It can be seen at the little stream beside Niðan Horn (main road). The water runs on top of the bedrock which lays underneeath the terrestrial layer. So the water leaks into the stream from the chracks where the bedrock meets the stream. This stream collects the water from the small springs from the mountain. The majority of spring water, rainwater and ditches coming from the mountain is maintained in the big stream Vágsá that lays in the northern end of the site and goes down to the city centre, where it is lead out to the ocean. The remaining water from the mountain is lead further south, along the road, where it is connected to the cities rainwater system and lead out to the ocean at Bordoyavík.

The streams physical shape is in a very bad condition. The soil around the river banks is in poor shape and in some places eruption has led to events where parts of the road are fallen into the stream and are now blocking the flow. However, along the streams riverbank are there some very charming and characteristic stonewalls which are worth preserving. By preserving the stonewalls, and to strengthen the stream would be an advantage for the streams character in the new development – now and in the future.

*Ill.31 The stream at Niðan Horn, and how the pipe leads the water uner the road and the low waterlevel there have space more*

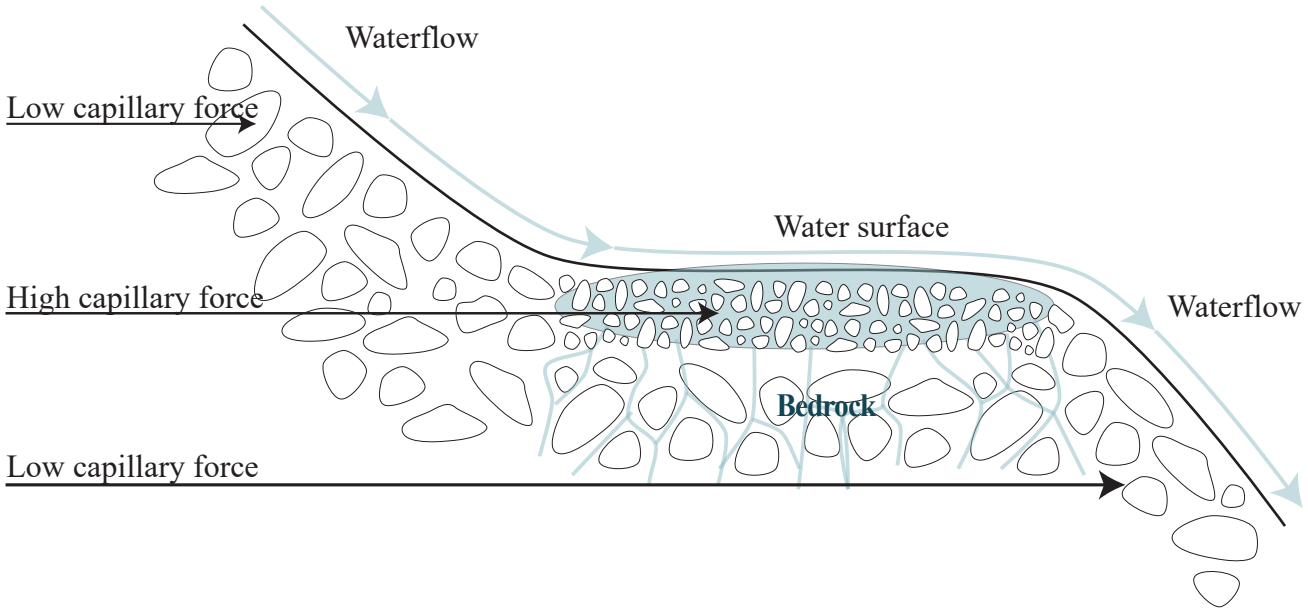
## Hammari

By the hamari or outcrop on the lower part of the site, the topography and type of soil leads to a swampy area. The water is collected there because slope is decreased and the terrain almost flat. Because of the natural force called capillary force. Capillary force describes how good a material can hold on to water. When the force is high is the material good to hold on to the water, which means that the material has a lot of small "pores". A good example could be sand. When the force is low, there are large "pores" and the material finds it difficult to hold on to the water. It could be gravel or stones (turfgrass.dk, 2010). Seen in relation to the layer of soil on top of the bedrock, we can assume that soil must be dens and have a high capillary force

*Ill.32 The wet area above the outcrop*

*Ill.33 The green ditch with a low waterlevel and a water pipe going throught*

The diagram belowshows how the material and the forces are on the site and why the water surface cannot soak further down. The only way it will slip away naturally is, if the force on the surface rise or the sun will evaporate the water (turfgrass.dk, 2010). In our case it is not a problem because we want the landscape as natural as possible. Today the ditches are overgrown with grass and mosses, which means that there are space for more water, but there are not enough water to run through. So if we should handle the swampy area it would be very expensive because pipes should be dug into the outcrop and in the bedrock (turfgrass.dk, 2010). We see the outcrop and the natural landscape, including the swampy area, as a strength. So we would like to maintain it as it is today.




*Ill.34 Show how the capillary force work, and why the water surface do not sock and run further down*

# *SWOT*
# *Strengths, Weakness, Opportunities and Threats*

To summon up on the analysis and registrations a SWOT analysis is made to show the strengths, weaknesses, opportunities and threats in Klaksvík as a city and the area á Fossum. Thus to give a brief view of the overall potentials and challenges which lay as the ground stones for the projects scope.

Below are the swot analysis of Klaksvik city, which are based on our analysis, registrations and interview with the municipality (See appendix 4 for summary of the interview). On the next page is the SWOT analysis of the site á Fossum.

## S

**Eysturoyartunnil** - The new tunnel (Eysturoyartunnil) will strengthen the infrastructural connection to the rest of the Faroes, especially Torshavn.
**Job** - Almost non unemployments

## W

**Homeless** - Lack of housing and building plots Satellite city
**Densify** - Can not expand the inner city - The inner city i located in between two bays.
**Climate** - Wind, low temperaturs, rain, snow.

## O

**Aha!** - A new way of living
**A City in growth** - More inhabitants
**Changes** - Klaksvík are under transformation - going from an older fishing city to a modern city
**A city with options** - Klaksvík municipal provide many activities to all ages
**Really happening** - Realise the new masterplan
**Gulf stream** - Gentle winters

## T

**The big rival** - Torshavn is expanding
**Depending on the sea** - A possible new fishing quota - fishing companies will close down and reduce their ships and employees = a need for new jobs.
**Scale** - Want to be a large city, but is Klaksvík ready?

*Ill.35 SWOT analysis of Klaksvík city*

# S

**View** - You get the view over the whole city and its surroundings
**Connection** - Close to the inner city
**Nature** - Green settings and animal life
**Streams** - The positive effect of living close to water (recreation)
**Flat** - compared to Faroe Islands standards
**Property** - Most of the cadastres are owned by Faroe island
**Attractions near by** - Close to recreational paths and often visited viewpoints
**Ringroad** - Near by existing road
**Lets do this!** - Klaksvík municipal goes ahead in the project - Political decision

# W

**Hamari** - Work as an edge and can be difficult to built on
**Climate** - Wind and low temperaturs, rain, snow, shadow.
**Swampy** - Verry wet land
**Angry farmers** - Keeping of animals close by
**Borderless** - Amost no borders only the hamar
**Open** - No spacial elements - almost no elements to create space and split the area

# O

**Identity** - Possibility to create a new identity
**City center** - Strengthen the already existing masterplan for Klaksvík - By connecting the by path.
**New impackt** - New interpretation of nature and landscape
**Branding** - Can contribute to a positive branding of Klaksvík

# T

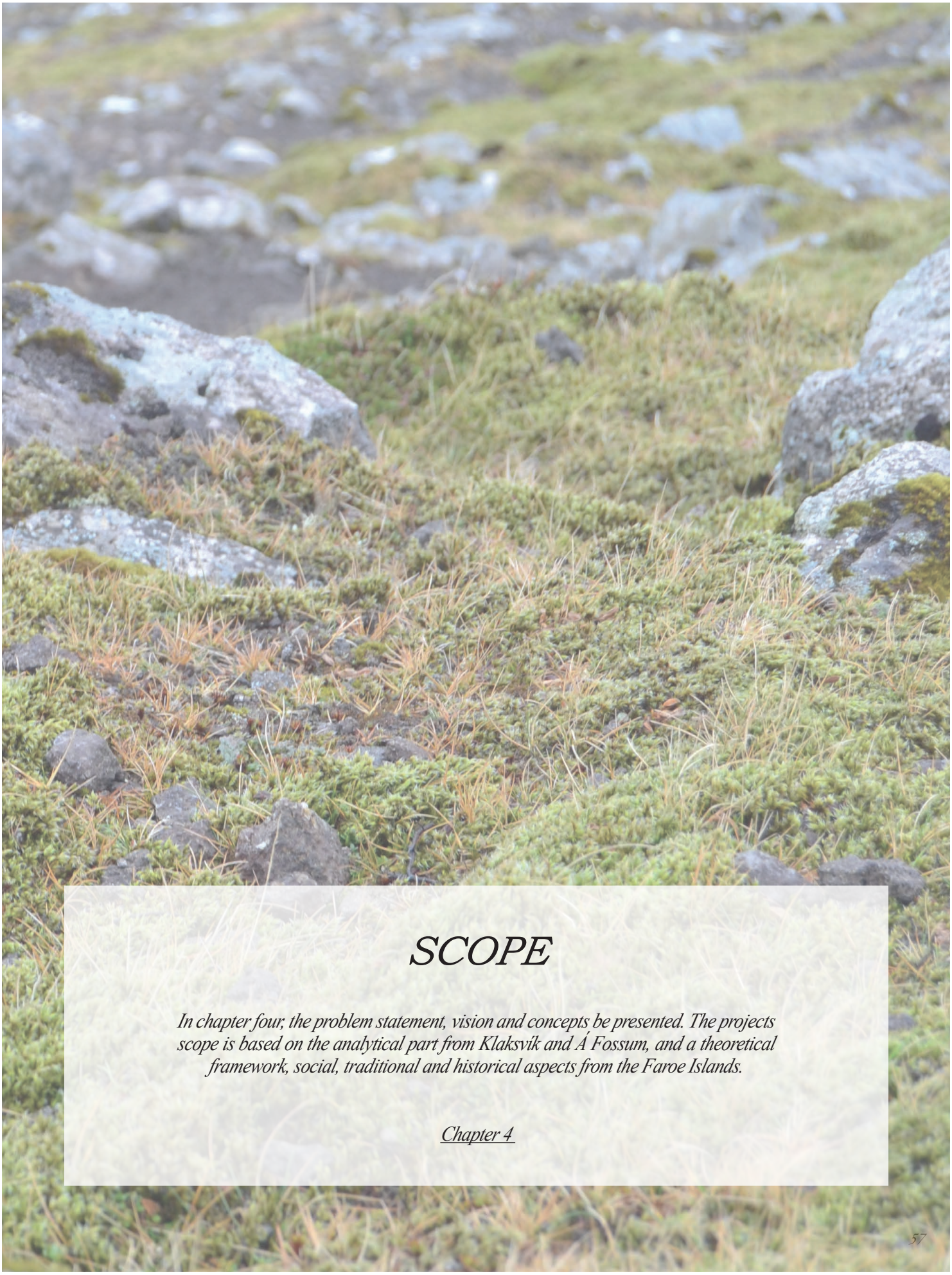
**Swampy** - Need for draining
**Private landowners** - Long and expensive process for the municipal to buy the land
**New times** - Are the citizens of Klaksvík ready for another way of living?

*Ill.36 SWOT analysis of á Fossum*

# SUB-CONCLUSION

## Analysis

*Klaksvík is a city in growth and development with big dreams. The city is dominated with monotonous typology consisting of single family houses placed in rows by the road. The car is a very important element in the everyday life, which is reflected in the infrastructure grid with wide and straight roads dividing the mountain in shelves. Due to all the raindays at the Faroe Islands are there a constant water flow in the streams and springs. The context is therefore characterized by wet areas, especially around the outcrops*



# SCOPE

*In chapter four, the problem statement, vision and concepts be presented. The projects scope is based on the analytical part from Klaksvík and Á Fossum, and a theoretical framework, social, traditional and historical aspects from the Faroe Islands.*

*Chapter 4*

# PROBLEM STATEMENT

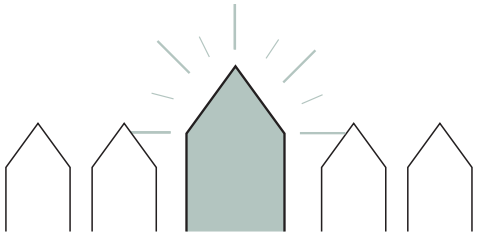
How can we create a new attractive and different settlement for Klaksvíks citizens, where there is space for social conventions and where climatic conditions are taken into account, in a context were nature and social life are the main objects.

The site is located at the western part of Klaksvík and will be located as the highest developed area in the city, and is characterized by its many fields with sheep and small sheds and where the characteristic landscape and nature of the Faroe Islands is dominating.
It therefore stands in front of challenges such as connecting the new part with the rest of the city and establishing its own identity, and elaborating the existing landscape to the norms of modern life.

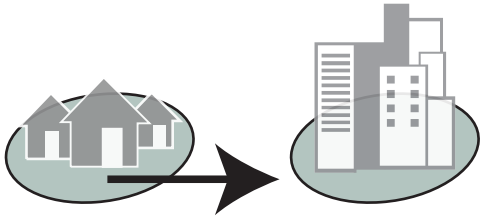
Klaksvík is located between two fjords and surrounded by mountains, which leads to a lot of wind turbulence. The climate in the Faroe Islands is also very rough so most of the year it is not pleasant to stay outdoor in longer periods. With the new settlement, we will investigate how the buildings shape and placement can affect the wind so it can be possible to create a social gathering point for the inhabitants.

# *VISION*

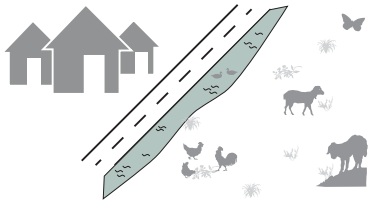
## *We want to create a;*



New settlement which is different from other living forms in Faroe Islands



Better connection into the inner city of Klaksvík



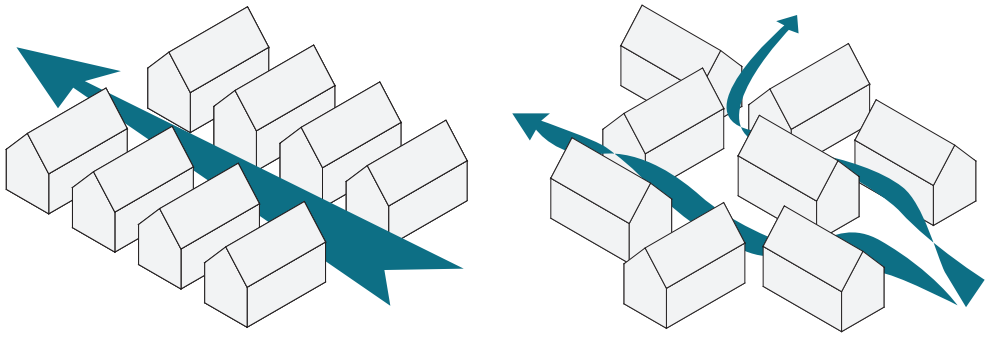
Place where the nature and cityscape are combined.

*Ill.37 Vison*

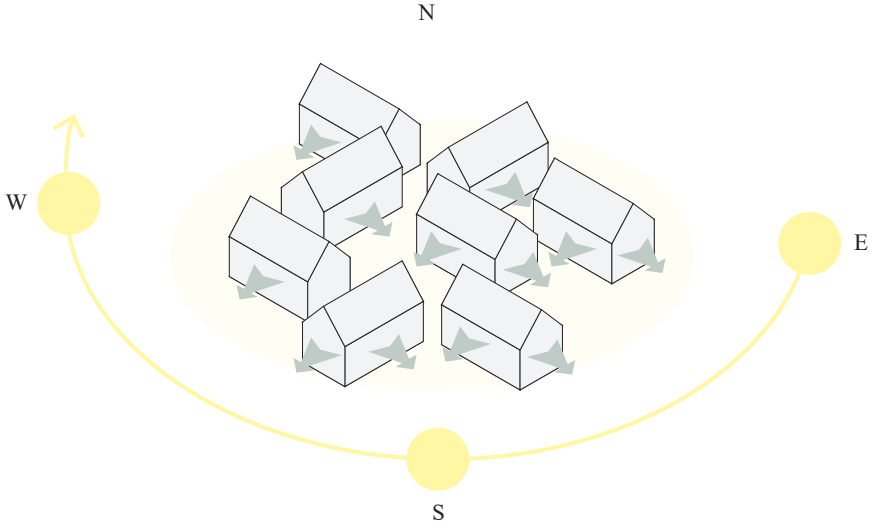
# CONCEPT

## Buildings Placement

Looking at the new traditions by placing the houses just as soldiers in a row, is a very abnormal way of planning. Seen from the old traditions where the ideal way of building, was to built close and narrow, where climate and especially wind was taken into account (Tórgarð, 1932). The Faroese architect H.C.W Tórgarð is critical of the tendencies of the building methods, which have accorded in the Faroe Islands in 1900-1930. The new settlement will be placed according to divide and lead the wind away, and to get the best sun conditions as possible.



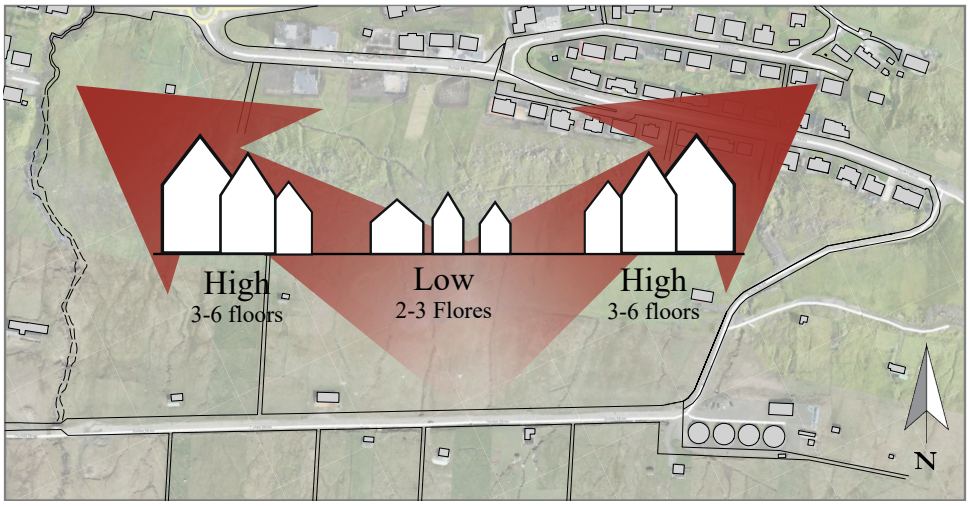
*Ill.38 Place the houses in relation to wind - To create sheltered between the houses*




*Ill.39 Place the houses in relation to sun and view*

# Buildings Height

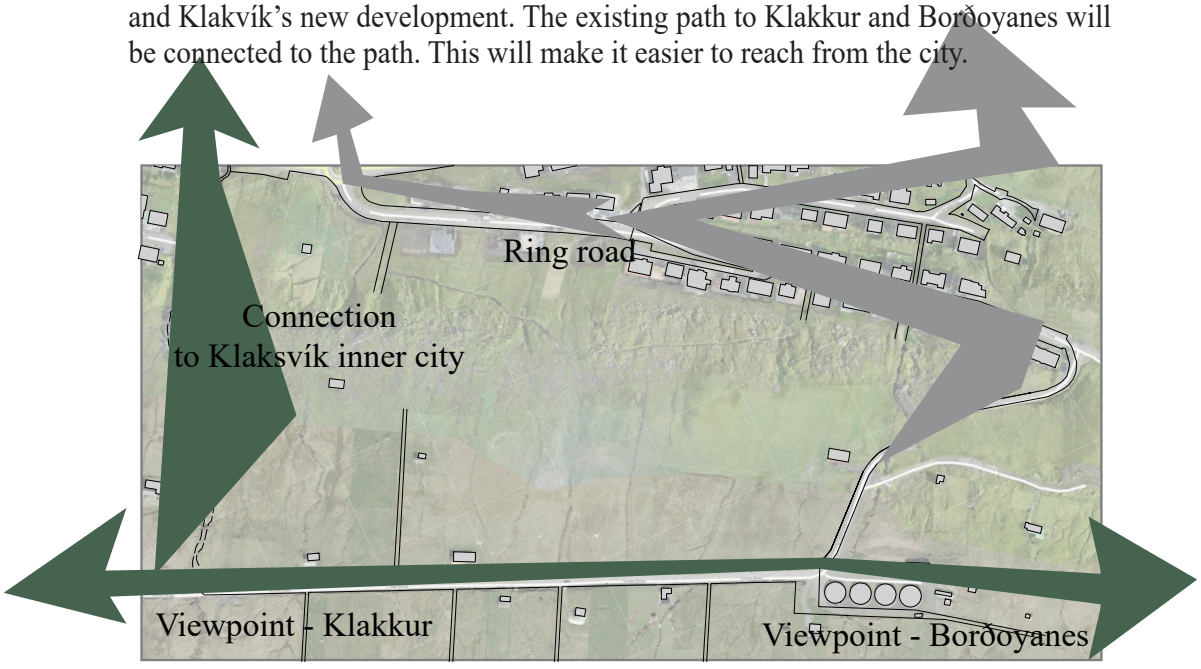
From the wind simultions seen in the design process in appendix 5 no.3 page 17, and the wind investigation on page 42-43. The building heights will be higher against northwest and southeast so the wind will fly over the rooftops.



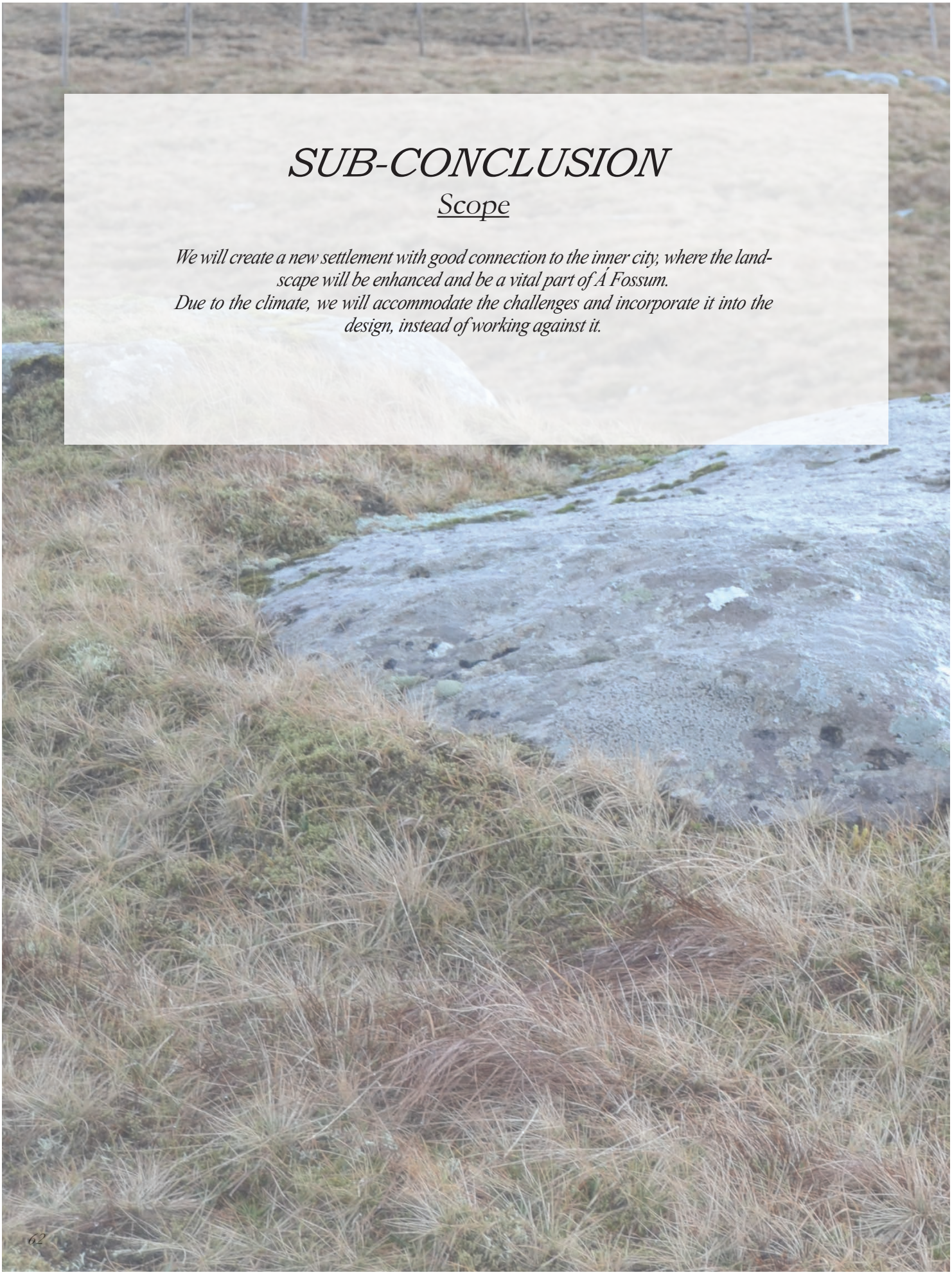

*Ill.40 Concept map for building heights*

# Connections

Connections to the city will be strengthening with a recreational path to the inner city and Klakvík's new development. The existing path to Klakkur and Borðoyanes will be connected to the path. This will make it easier to reach from the city.



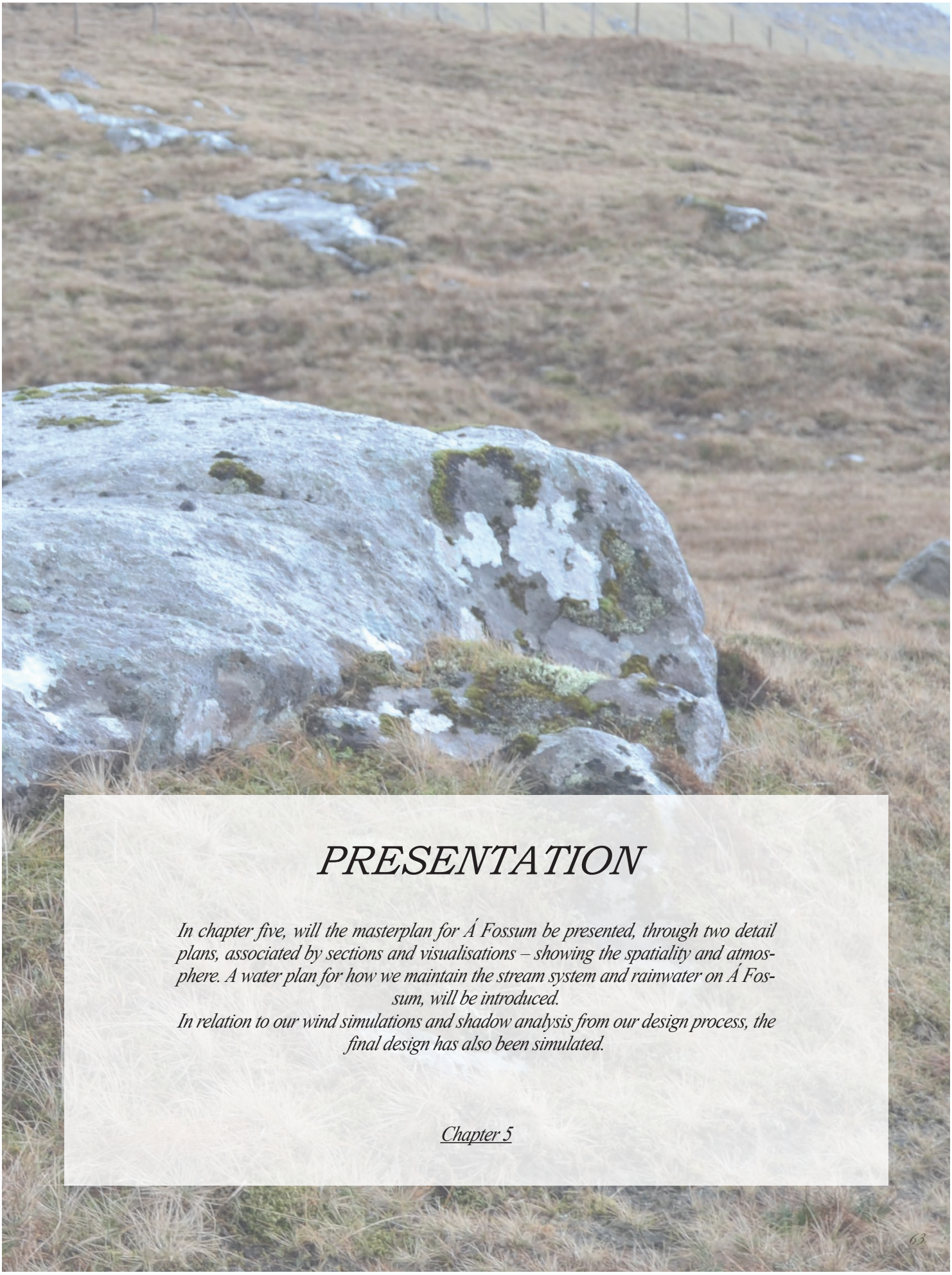

*Ill.41 Concept map for connections*



# SUB-CONCLUSION

## Scope

*We will create a new settlement with good connection to the inner city, where the landscape will be enhanced and be a vital part of Á Fossum.*
*Due to the climate, we will accommodate the challenges and incorporate it into the design, instead of working against it.*



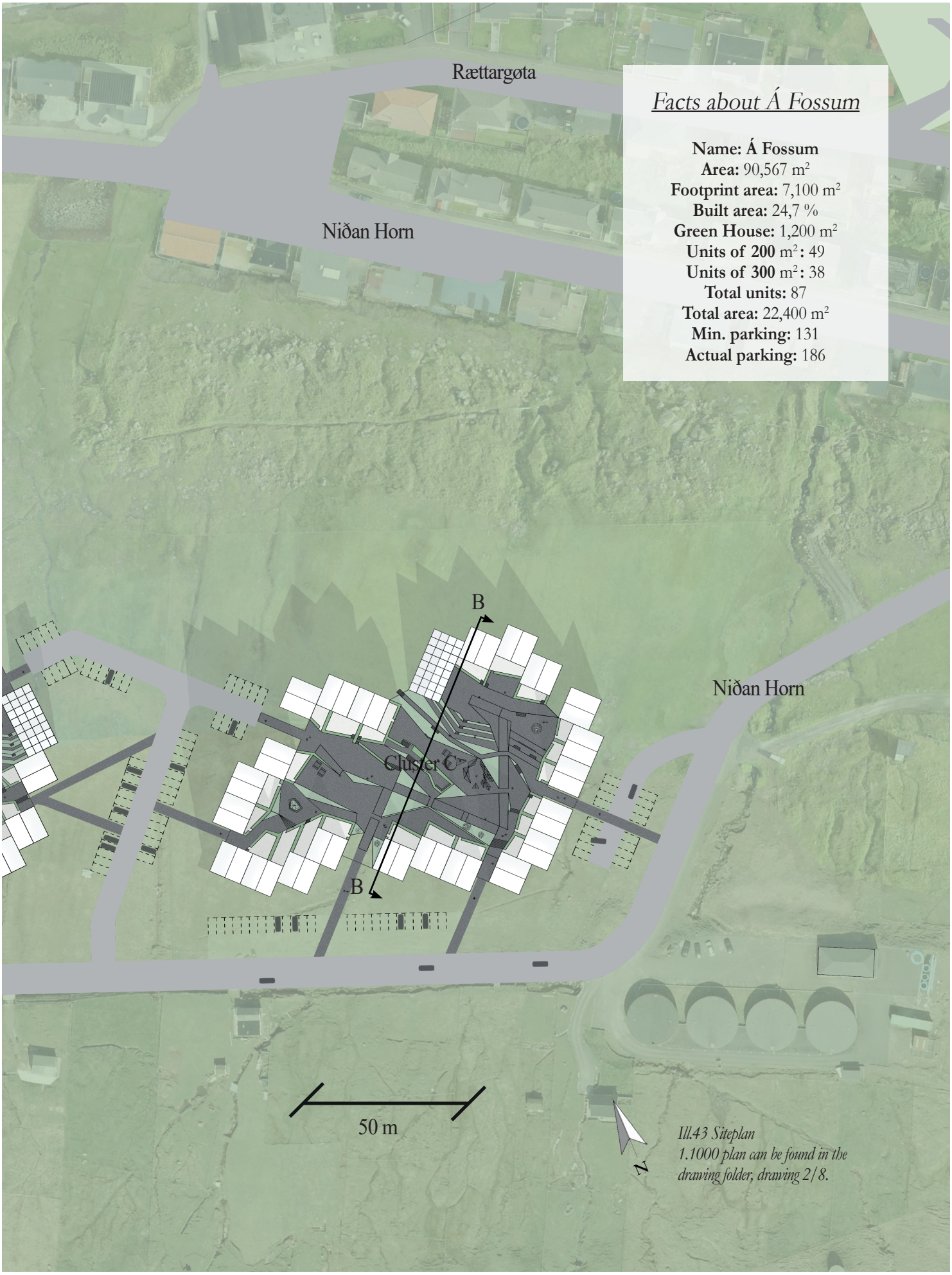
# PRESENTATION

*In chapter five, will the masterplan for Á Fossum be presented, through two detail plans, associated by sections and visualisations – showing the spatiality and atmosphere. A water plan for how we maintain the stream system and rainwater on Á Fossum, will be introduced.*
*In relation to our wind simulations and shadow analysis from our design process, the final design has also been simulated.*

*Chapter 5*

*Ill.42 Visualisation showing á Fossum from the city at night. A print can be found in the drawing folder, drawing 1/8.*


Vágsá
Niðan Horn
Vágsá Path
A
A
Cluster A
Cluster B
Niðan Horn
Vágsá




## *Facts about Á Fossum*

**Name: Á Fossum**
**Area:** 90,567 m²
**Footprint area:** 7,100 m²
**Built area:** 24,7 %
**Green House:** 1,200 m²
**Units of 200 m²:** 49
**Units of 300 m²:** 38
**Total units:** 87
**Total area:** 22,400 m²
**Min. parking:** 131
**Actual parking:** 186

*Ill.43 Siteplan*
*1.1000 plan can be found in the drawing folder, drawing 2/8.*

# PRESENTATION

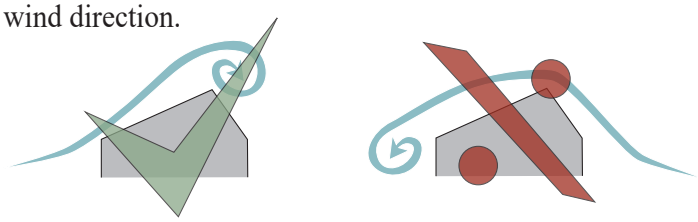
## Huldufolk

In the Faroe Islands there are many folk lords about a certain kind of supernatural people called Huldufólk, also known as an elf (Sprotin, 2016,d).
The stories says that huldufolks are larger than we humans, they have gray skin and wear gray or dark cloths and have black hair. Some also say they have cold blood and where very evil and muscus. They hate the church and electricity so when the villages got electricity the huldufolk stayed out of the villages.
The stories also say that the huldufólk live just as we humans, have homes, go fishing and have sheep. But they live in a parallel existence with the humans and therefore walk among the humans however sometimes they showed them self while they were destroying or stealing from the humans and got into fight with them.
However their homes where not shaped as normal homes, they lived in big boulders and hills in the mountains (Orkneymagic.com, 2013).
They have had a very large impacted on how many of the Faroese roads are planned today, because when planning the planners avoid certain places, thus not to interrupt the huldufolk.

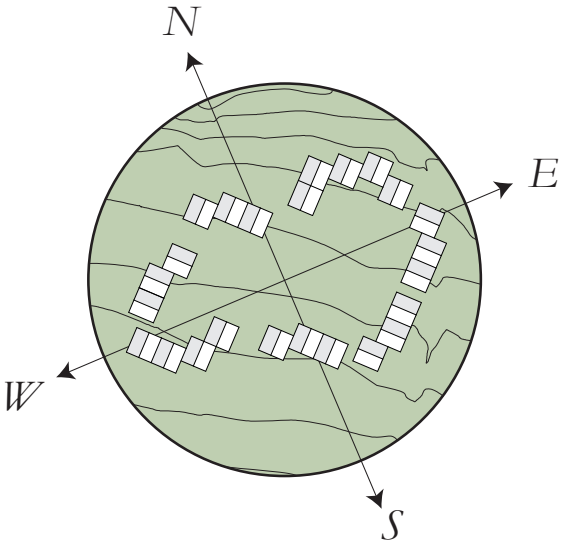
This was where the inspiration to the clusters states, to see the clusters as huldusteinar. Seeing the clusters abroad they seem very monumental standing alone in the landscape, just as a huldusteinur. However, when entering the courtyard of the clusters you will enter another dimension. Where the layers of the landscape are merged into platforms, flowsystems, and spaces for various social functions. Thereupon to design and stage; frames for social conventions, in addition to the very social culture of the Faroese people and break the contemporary mindset of living now a days.
The flow inside the clusters will be in a calm tempo, where materials will contribute to this also wipe off to a calm and relaxed atmosphere, thus to it is a car free zone. To enhance the lively society inside the clusters, all car traffic is kept outside. According to the Danish architect Jan Gehl, the removal of cars near houses will create more pedestrians and each inhabitant will use the space for a longer time (Gehl, 2006).

## Building

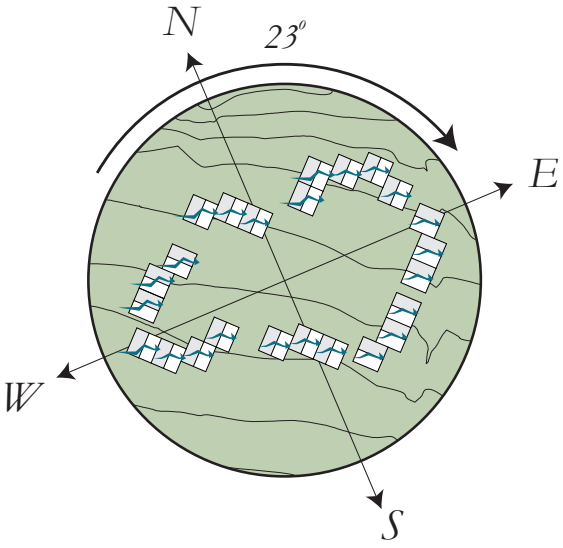
To adapt and work with the climate and nature at Faroe Islands other solutions have been studied see appendic 5, no. 1, page 12. There have been made several wind simulations to help create the best conditions inside the clusters. A short selection can be seen in the design process in appendix 5, no.3, page 17. Results showed that the wind travelled much smother along the rooftops when the roofs had a larger surface and smaller slope then when they had a smaller surface and higher slope, facing the wind direction.



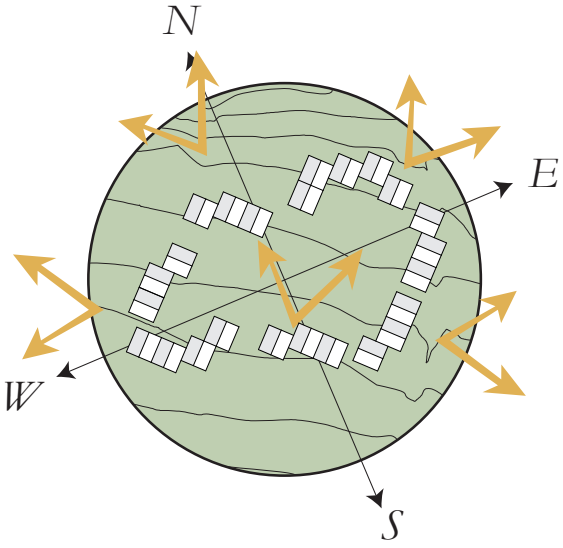
*Ill.44 The main strategy for shaping the houses, according to create the best conditions inside the clusters.*




*Buildings and terrasses are placed so they follow the elevation of the landscape.*




*Houses are rotated 23 degree so the corner is straight north so the wind can flow over the rooftops*




*Buildings are moved so every unit has an overview of the city or fjord*

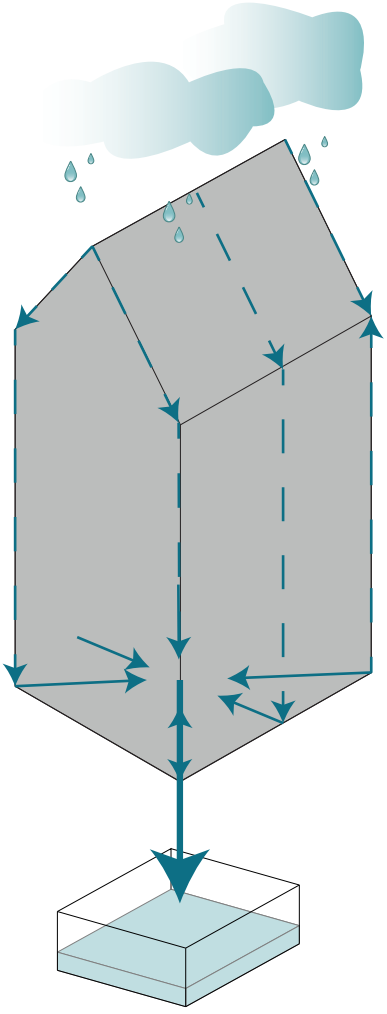
*Ill.45 Concepts for placing the buildings*

According to being true to the Faroese traditions and the results of the wind simulations, the shape of the houses is inspired by the memory of the “old” and traditional fishing house. A clear shape in one material makes it possible to put them together in clusters without overcrowding it.

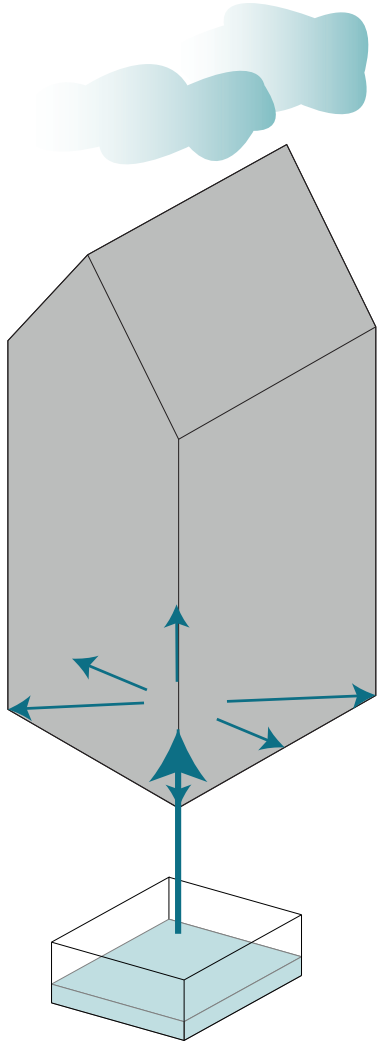
*Ill.46 Old fishing houses in Bø*

**Benefits from all the rain**

To benefit from all the rain, the rainwater is gathered in reservoirs in the basement of the houses, so it can be reused for flushing in toilets and for washing machines. The volume of the reservoir for single family houses are 5 $m^3$ to ensure that all the water is used during a year. See appendix 6 for explanation of calculations.



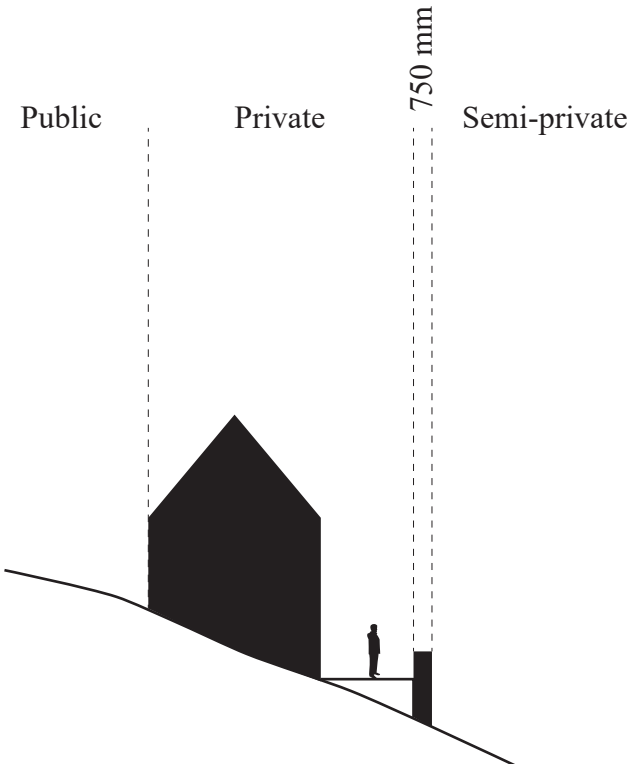
*Ill.47 The rainwater will be lead to the reservoir in the basement*



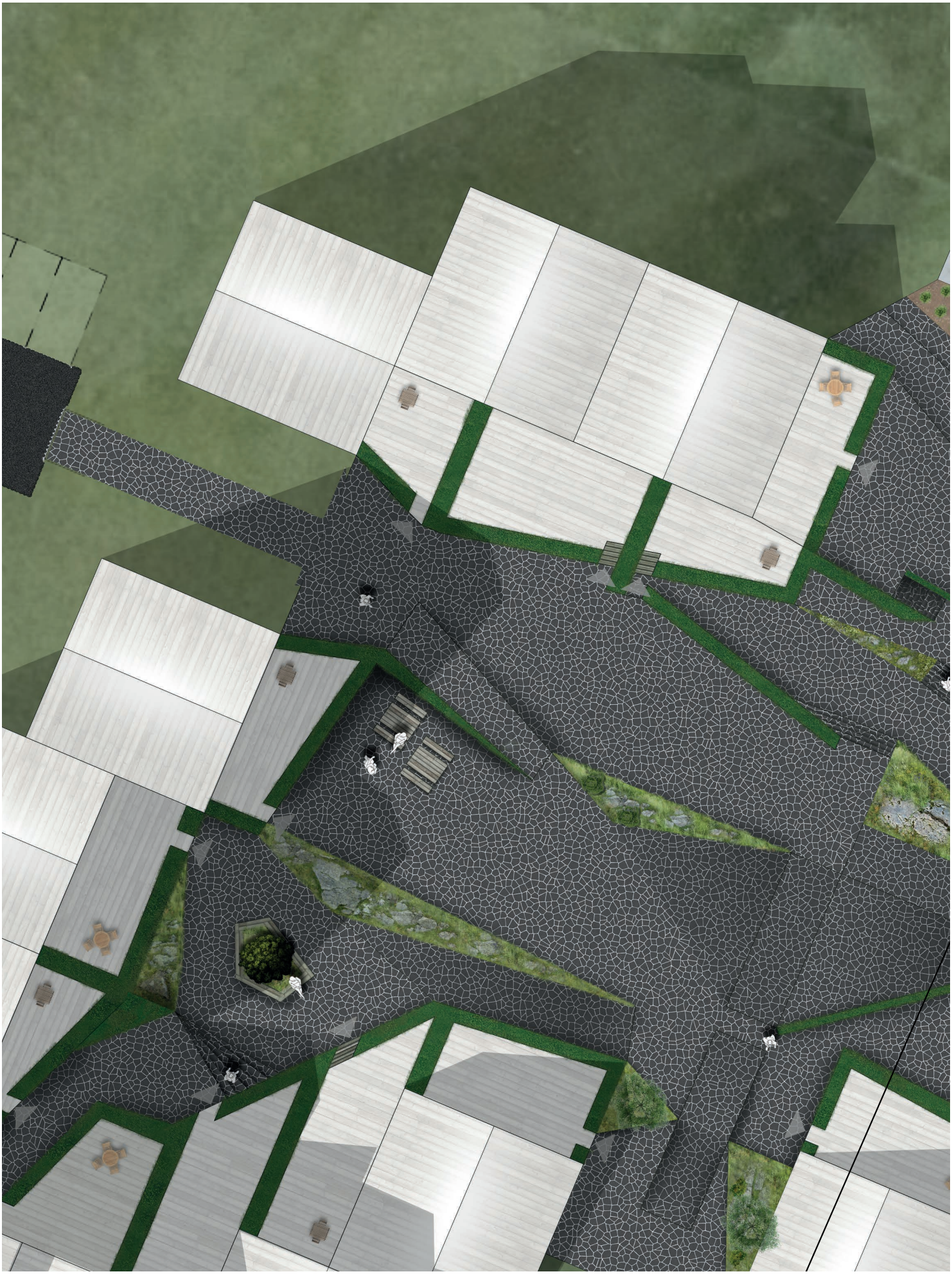
*Ill.48 The rainwater will be reused in the houses*

The size of the houses differs from 200-300 $m^2$ and some of the largest has two apartments in one unit. This will result in various target groups and contribute to a better understanding of other people and strengthen the social community.

In order to create more contact and communal activities between the neighbors there is a need for a common denominator for interests and problems. By placing the buildings and the terraces and entrances facing the clusters heart. There is created a clear division of private, semi-private and public areas (See illustration 49). This will provide a higher degree of contact between the inhabitants and it will help them to know which people they "belong" with and improve the possibility to solve problems concerning the cluster (Gehl, 2006).




*Ill.49 The divison between private and public, and the wide bush there create the edge between private and semi-private*



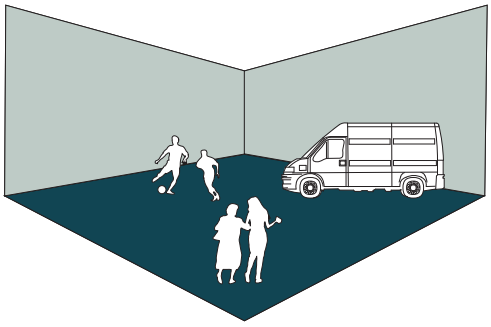

*Ill.50 Detail plan 1.250*
*Cluster C*
*Detail plan can be found in drawing folder, drawing 3/8*

*Ill.51 Detail section BB, 1.250*
*Cluster C*
*Can be found in drawing folder, drawing 4/8*

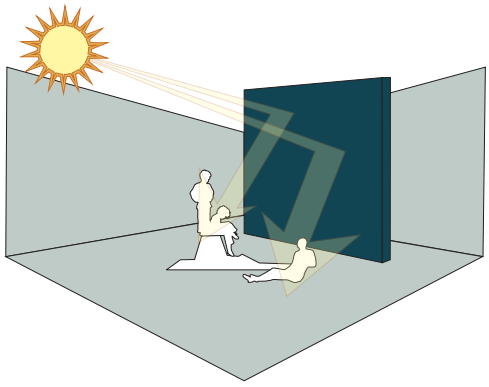
# *Clusters*

In each cluster there are between 23-24 houses including a greenhouse.
With respect for the existing nature, the three clusters are placed directly in the landscape where the beauty of the natural processes can continue without any interference from the humans. And as a contrast to the untamed nature outside the clusters, a more harmoniously and artificial landscape will be arranged to be dominant on the inside. The artificial landscape is a perception of the flow of the natural landscape and it is inspired by Chinese rice paddies which are lying as shelves in the mountains. The shelves irrigate territories in the way some of them are soft and contribute to the beauty of nature, while others contribute to high speed activities and interactions.

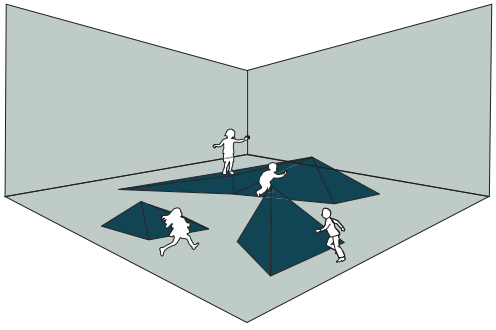
Considering that the life is lived in the street the surface should provide a system of connections where the tactical work of choreography and materials stage the infrastructure. All hard surfaces are faced with the dark Faroese stone. In the hard horizontal surface, which provides the possibility for activities like walking, errand running and more high speed playing, the stone is used in a practical manner. In contrast to the practical use the stone in the vertical surface is used in a climatic way. It radiates the rays of the Sun and it can hold on to the heat. In the sunny days it will result in a micro climate that affords the possibility for the people to use the outdoor spaces. In each cluster there is placed an imaginary playground inspired by the northern islands. These surfaces afford the possibility of skating, climbing, playing and what else the children can come up with. The playground does not provide something exact, the children can use what the landscape and the site has to offer. The artificial material is used to enhance and dramatize the unique qualities of playing outside.
In contrast to the artificial hard landscape there are created smaller “natural” shelves to provide the nature and beauty that touches our senses and our minds, so the human body can interact with the natural processes.
The other soft surface is the gardening layer, where the inhabitants can grow their own vegetables and use it in their households.



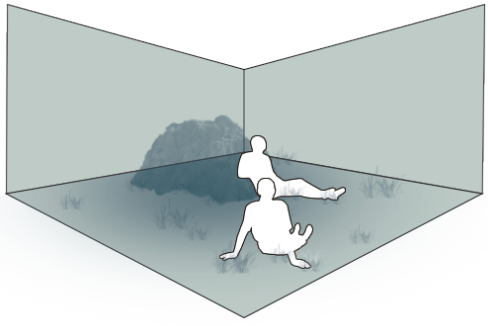
*Horizontal surface provide walking, running and for errand driving*



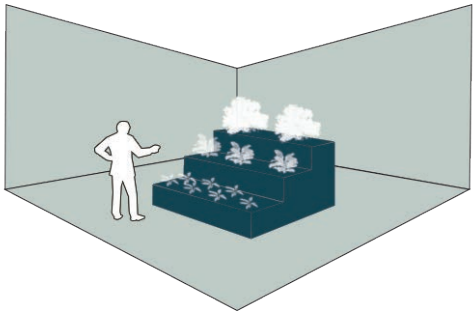
*Vertical surface provide shelter and contribute to an heat islands due to radiation*



*Inclined surfaces work as playgrounds for childrens play, it proide skating, climbing ect. - only the imaginatin stops the affordances*



*Soft surface provides relaxation - laying and sitting, if the weather permit it*



*Food layers provide cheap vegetables*

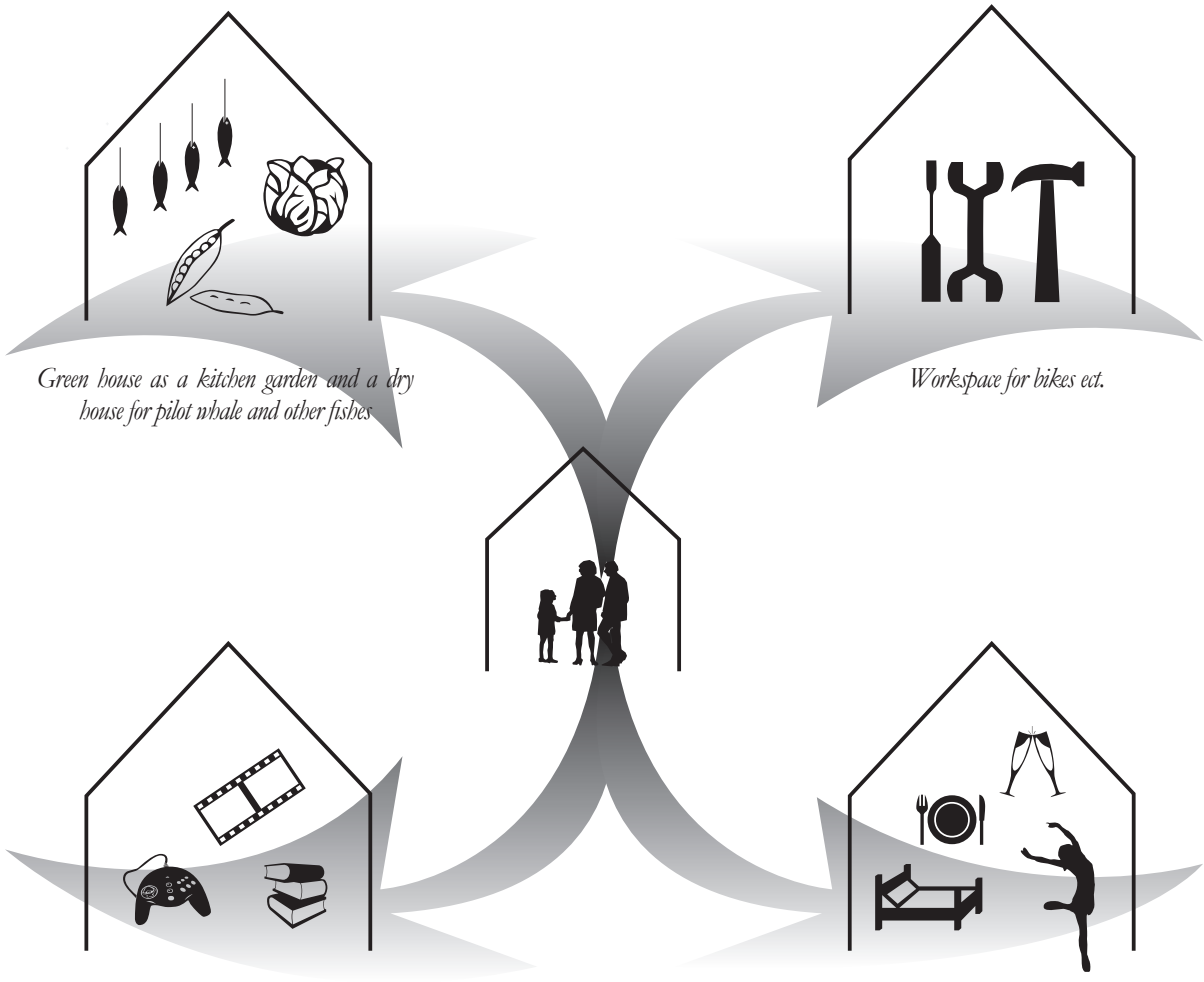
*Ill.52 Afforfances inside clusters*

*Ill.53 Visualisation of cluster C from below. Can be found in drawing folder, drawing 5/8*

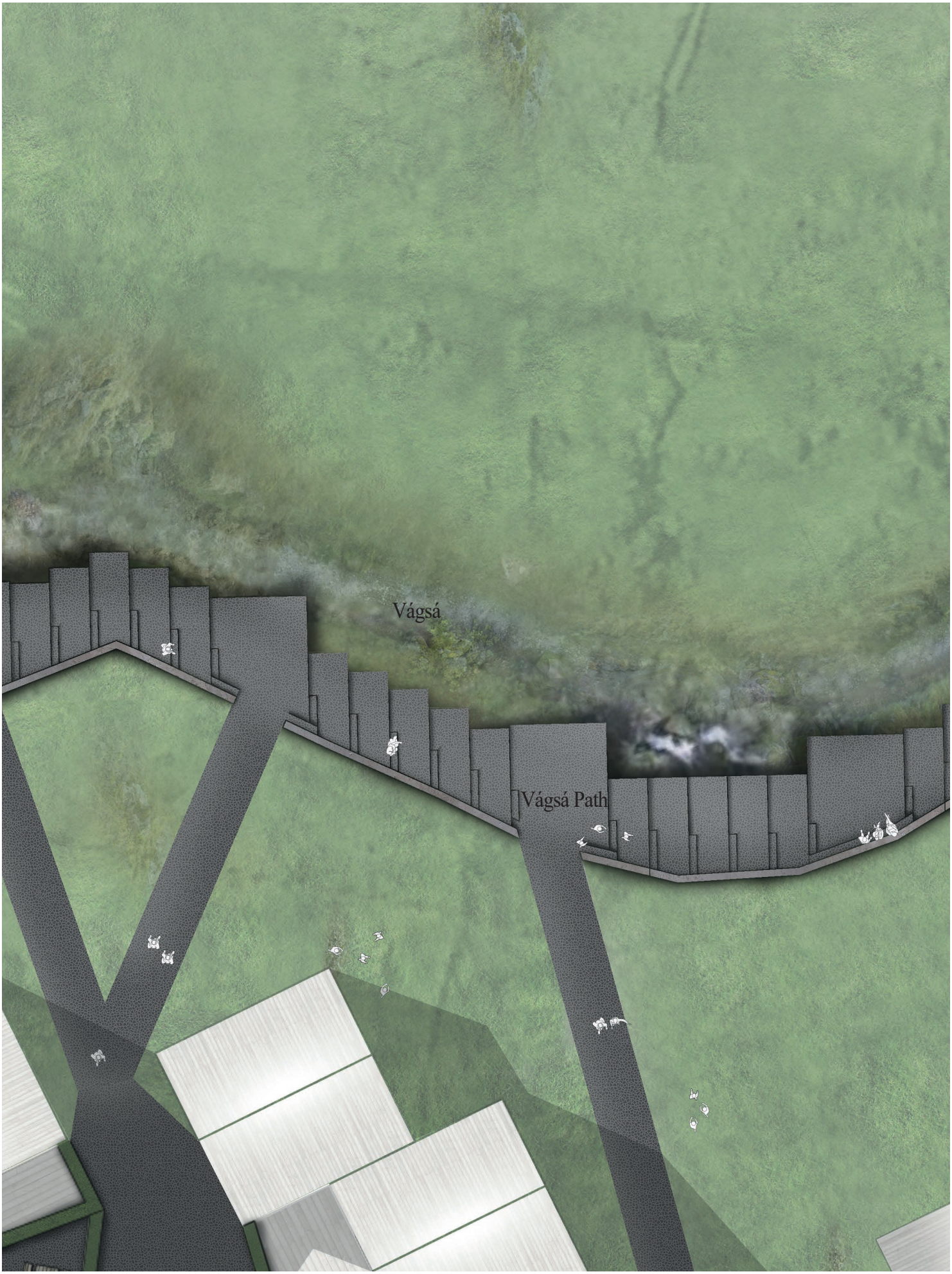
# *Green House*

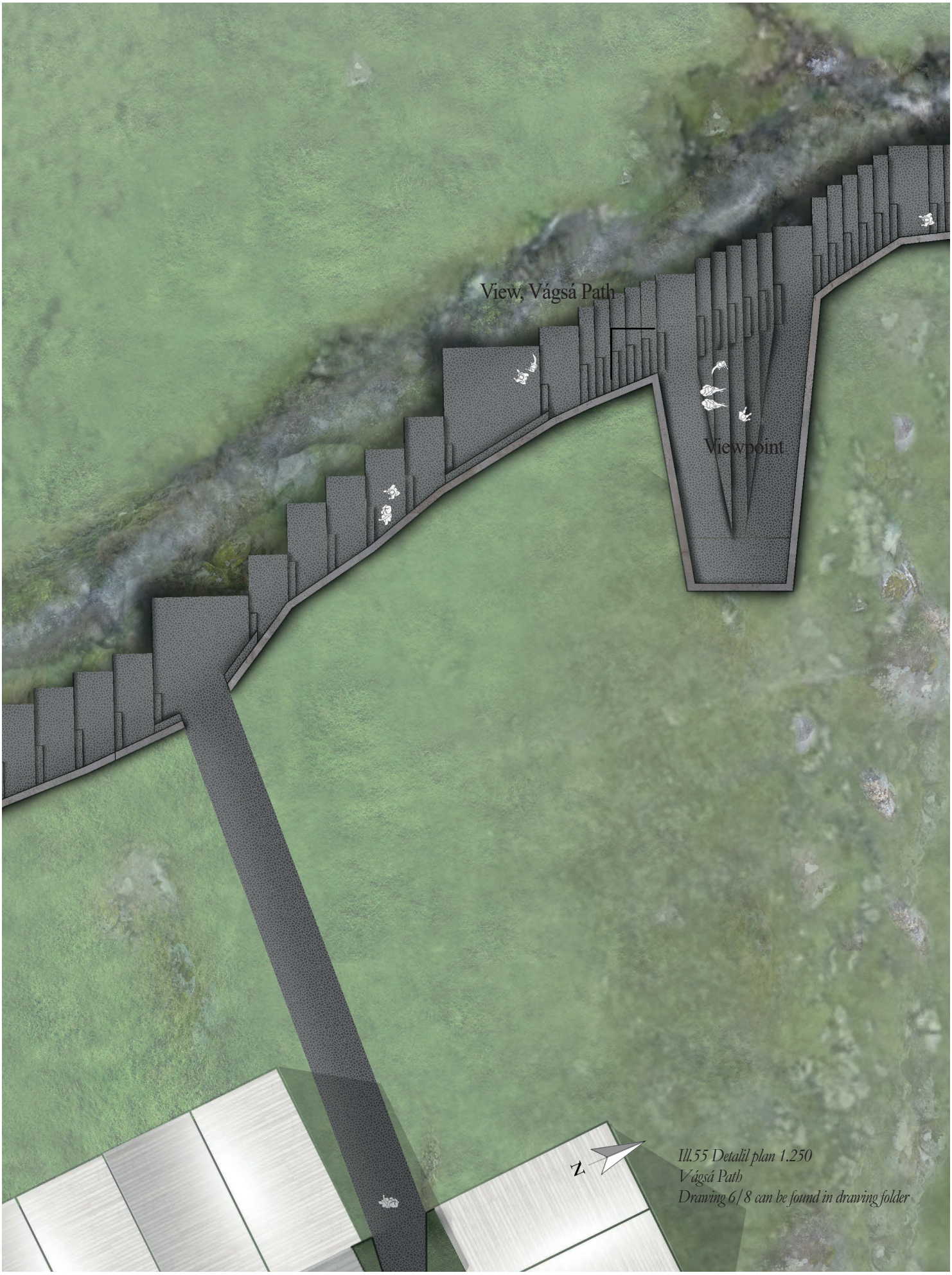
As mentioned earlier there is a green house and commonhouse in each cluster with an area of 400m$^2$. Seen at Iceland these houses are a common place where people meet. Eg. the greenhous Friðheimar outside Reykjavík where organic farming and social cohesiveness is highly valued (iheartreykjavik.net,2014). Due to the climate the green houses are able to provide an indoor climate where it is comfortable to stay for a longer time, considering the altitude where Iceland and Faroe Islands are located.
The houses are divided into two floors. Due to less square meters in the houses the first floor in the greenhouses will provide the "normal" facilities, which are not used every day, such as a guest room with toilet and bath, extra room for creativities. On the second floor is the actual greenhouse, where it will be possible to grow vegetables that cannot grow outside due to the climate.
Like the normal houses there are placed a 8m$^3$ reservoir in the basement, which collect rainwater. The reused water will be used for watering the plants and for toilet flush in the guest room.

With the greenhouses and the urban gardens the inhabitant's lives are involved with the nature, and they become a part of the processes where they can contribute to the rhythm over the year. From the theory by Anne W. Spirn we know that when the individual people can shape their own environment and express their value of a culture, the design facilitates the sense of dwelling. When people dwell they got a feeling of belonging to a place which contribute to their identity (Spirn, 1984). And that is why the green houses and the urban gardens are so important to the society in the clusters.




*Ill.54 Program for the community house and greenhouse*






*Ill.55 Detalil plan 1.250*
*Vágsá Path*
*Drawing 6/8 can be found in drawing folder*

*Ill.56 Detail section AA, 1.250*
*Vagså Path*
*Drawing 7/8 can be found in drawing folder*

# Vágsá Path

*" Water is a source of life, power, comfort and delight, a universal symbol of purification and renewal. ...Water pulls at a primitive and deeply rooted part of human nature".*

*[Spirn, 1984, page 142]*

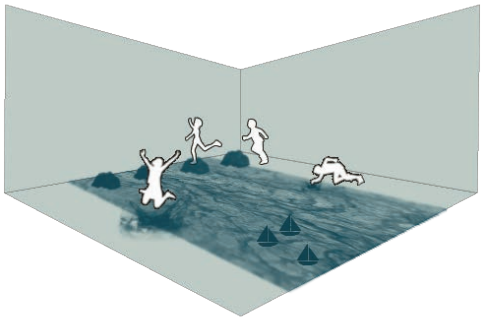
Water is a necessary resource, it shapes the landscape and it has a great potential to link man and nature (Spirn, 1984). The stream has cut through the landscape and created a small cleft. The cleft is less visible, when the water flow is higher in the Spring, when the snow is melting from the mountains – so the experience will be different from time to time and from season to season.

Water is a magnet for everyone and especially children (Bell, 1997), and some places the path will be closer to the stream, so the children have the opportunity to use it as an extended playground. Due to Simon Bell, the social and cognitive aspects are important and kids typically find it more fun to play with natural objects rather than objects there are provided. Playing away from home gives the children the opportunity to explore new environments, qualities, materials and wild animals and plants (Bell, 1997).

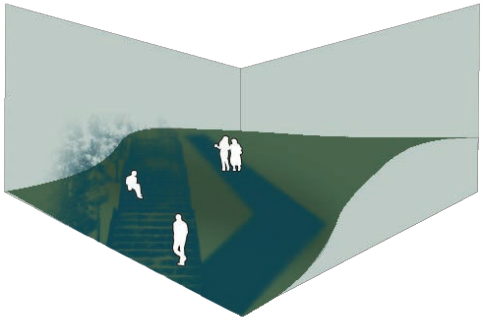
In connection to the stream there are created a recreational path with a direct connection to the inner city. It should make it easier to find the further path to the two mountain tops Háfjall and Klakkur. The path will make it possible to use the active horizontal surface for walking and the vertical surface for shelter. It will also radiate the rays of the Sun, which makes the microclimate comfortable to relax in, on one of the smaller niches. Three lookout points will also work as ramps or relaxing spots if the stairs are too tough. The design is kept simple so it does not take away the attention from the view over the city.

The whole area is one large playground for children; inside the clusters there are a lot of corners to be explored, niches for a quiet moment, and different places to separate the smaller children from the older ones. Outside the clusters the existing landscape is maintained and larger rocks can be used for sitting, supply hiding holes, shelter, imaginary defenses, castles or dens. Smaller stones can be moved and used to build with. The grass can supply running games, lying or roll a hill.

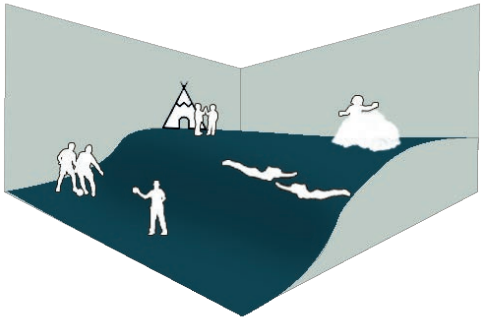
The path is functional and makes it possible for grownups to relax while the children are having fun.



*Water as a playground can provide, jumping, touching, splashing, sailing, ect.*

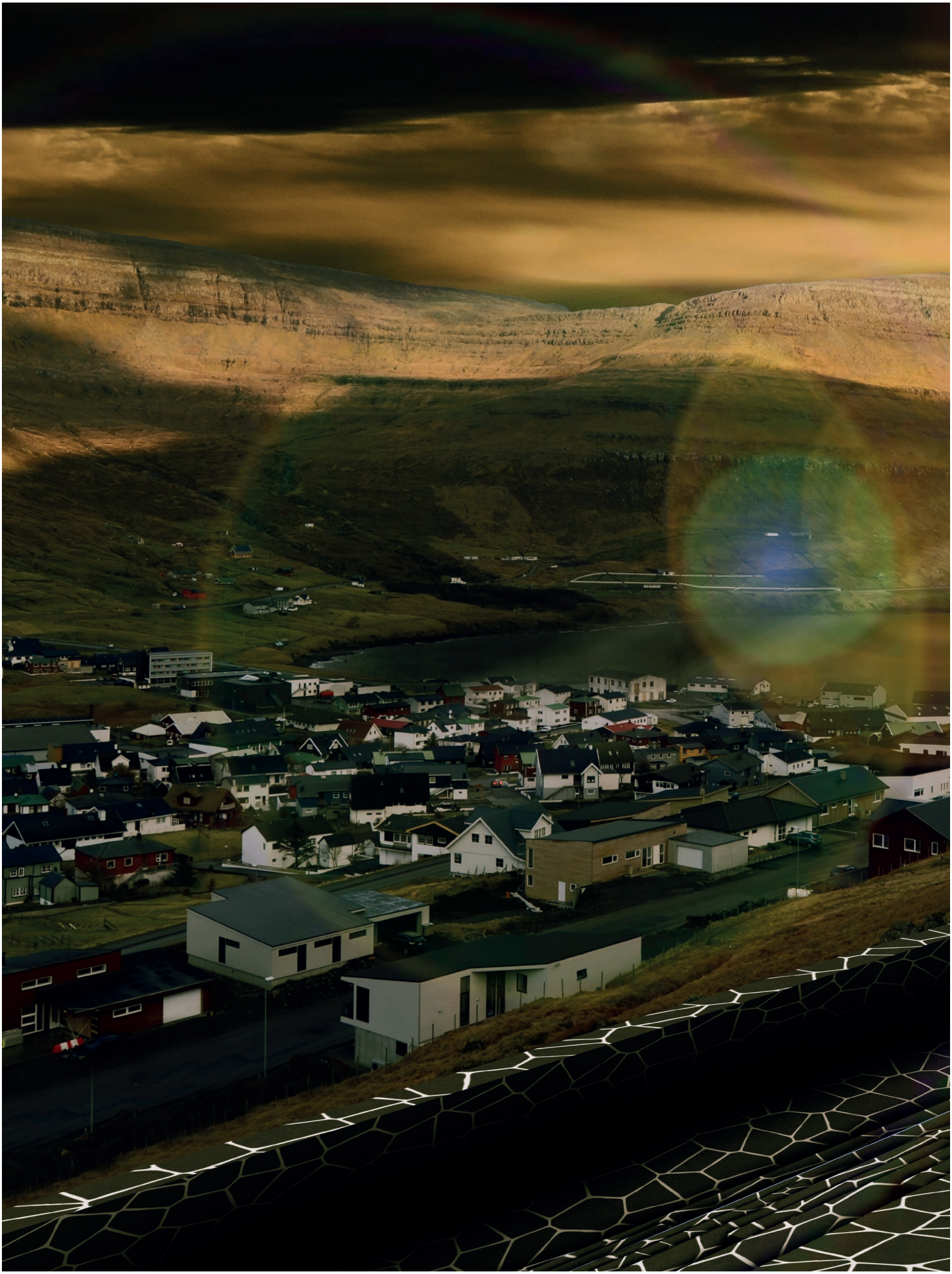


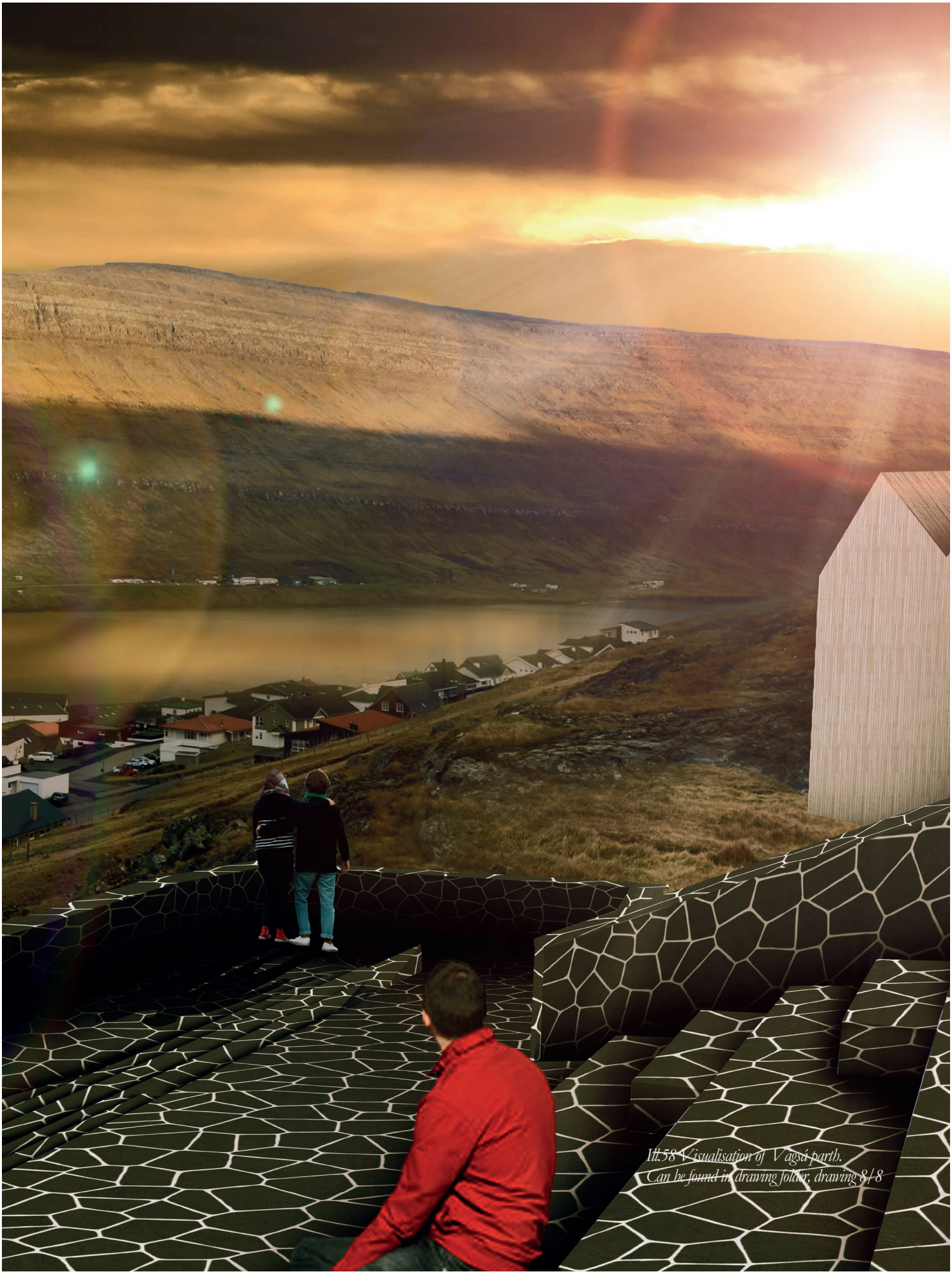
*The Vágsá path will provide walking on stairs, gentle slopes when it is really steep and viewpoints over the city and the two fjords*



*"Natural" nature provide games - with or without a ball, lying, roll a hill, ect., larger rocks can be used for hiting while smaller ones for building or throwing*

*Ill.57 Affordances by Vágsá Path*



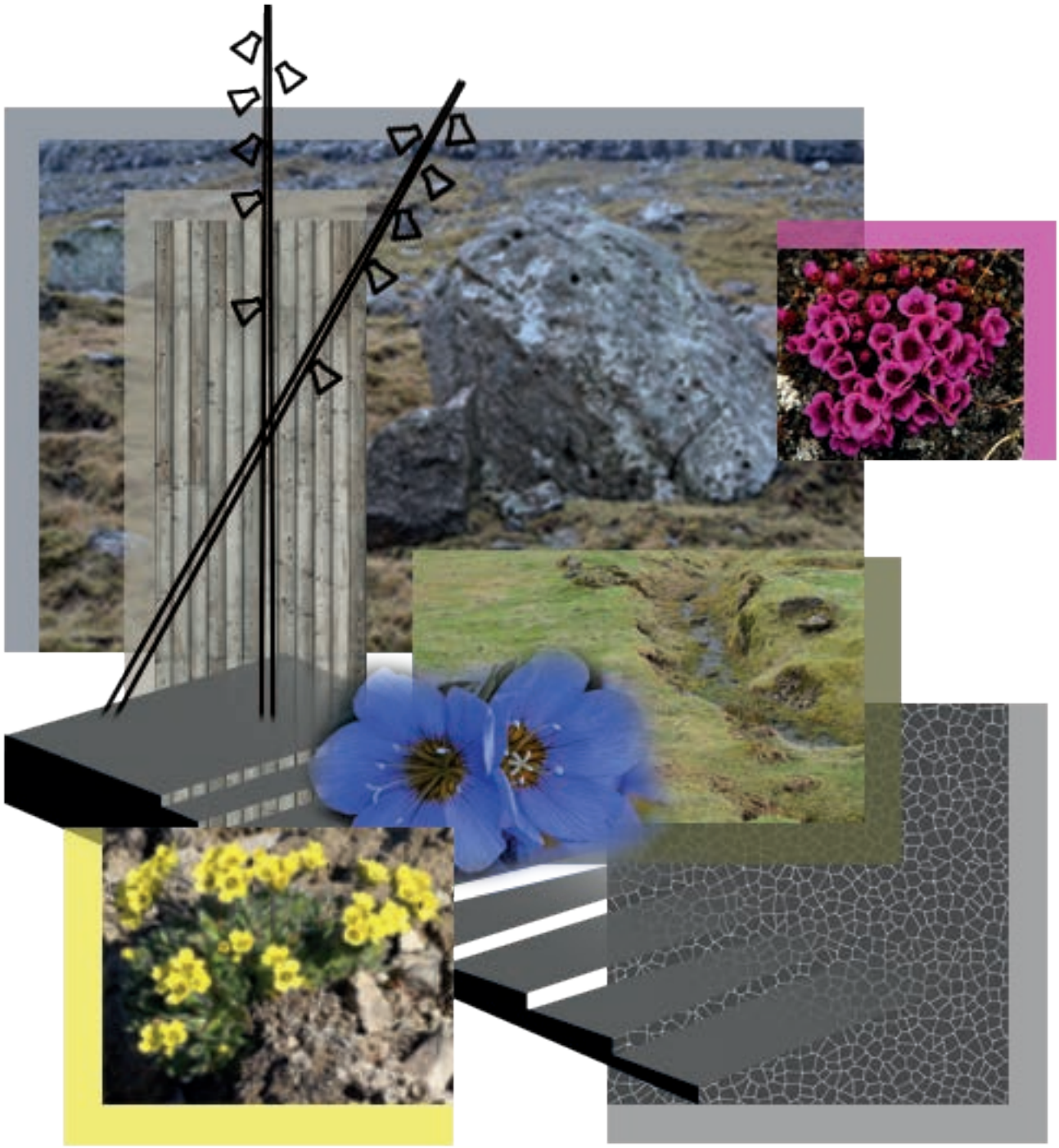


*Ill.58 Visualisation of Vagsá parth. Can be found in drawing folder, drawing 8/8*

# *Materials*

Local materials as the dark tiles, plants from the surroundings and common used pine wood for facades, are picked out specifically to enhance the identity of the area.

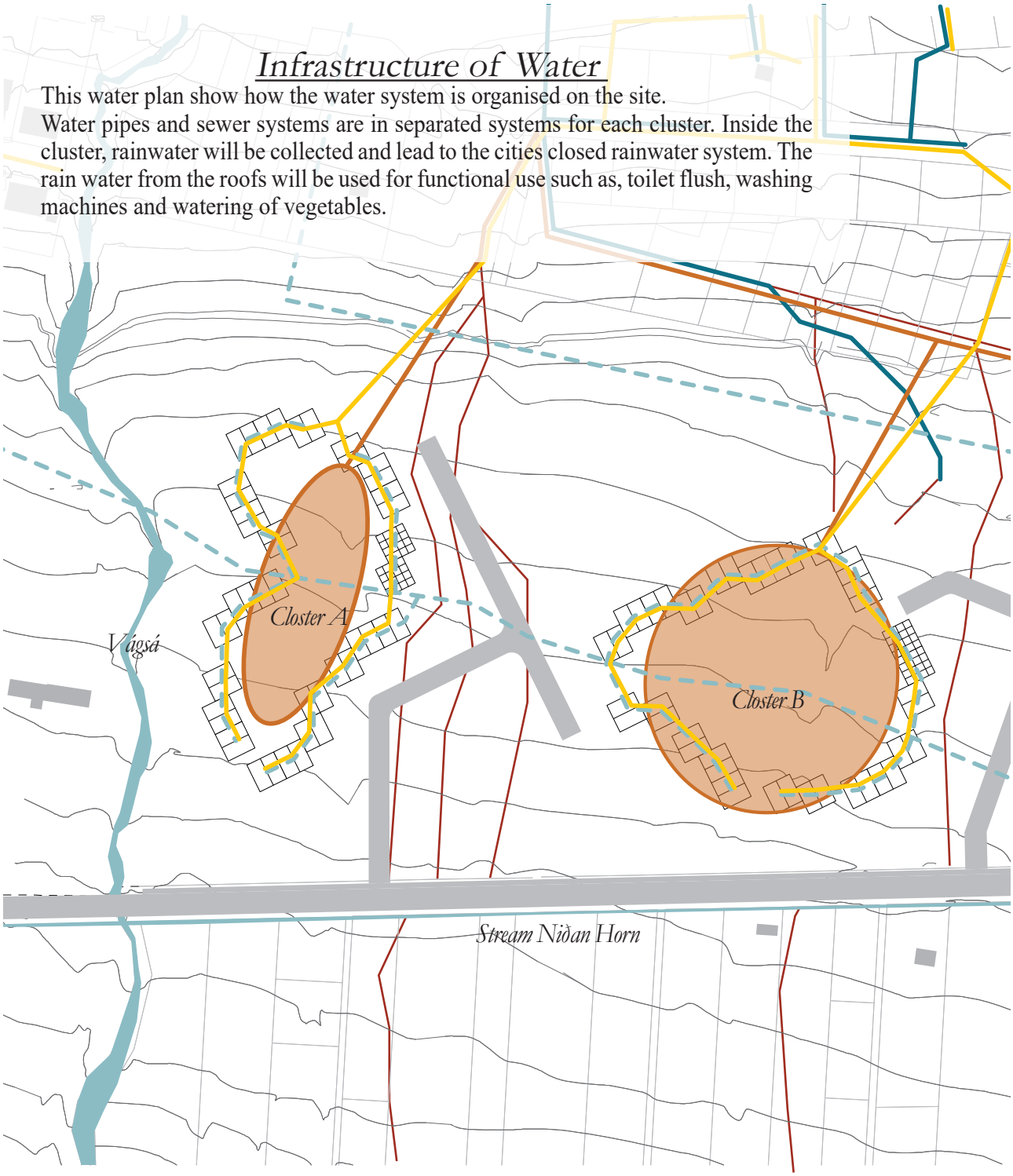
In the city we are overstimulated, because we have to concentrate about all the activities. Nature provides activities where no effort is required. Colors from the grass (green), the water and sky (blue) have a calming effect (Bell, 1997). That is among others why people will move to these clusters and the citizens will use the path and the nearby areas as a break from busy city life.



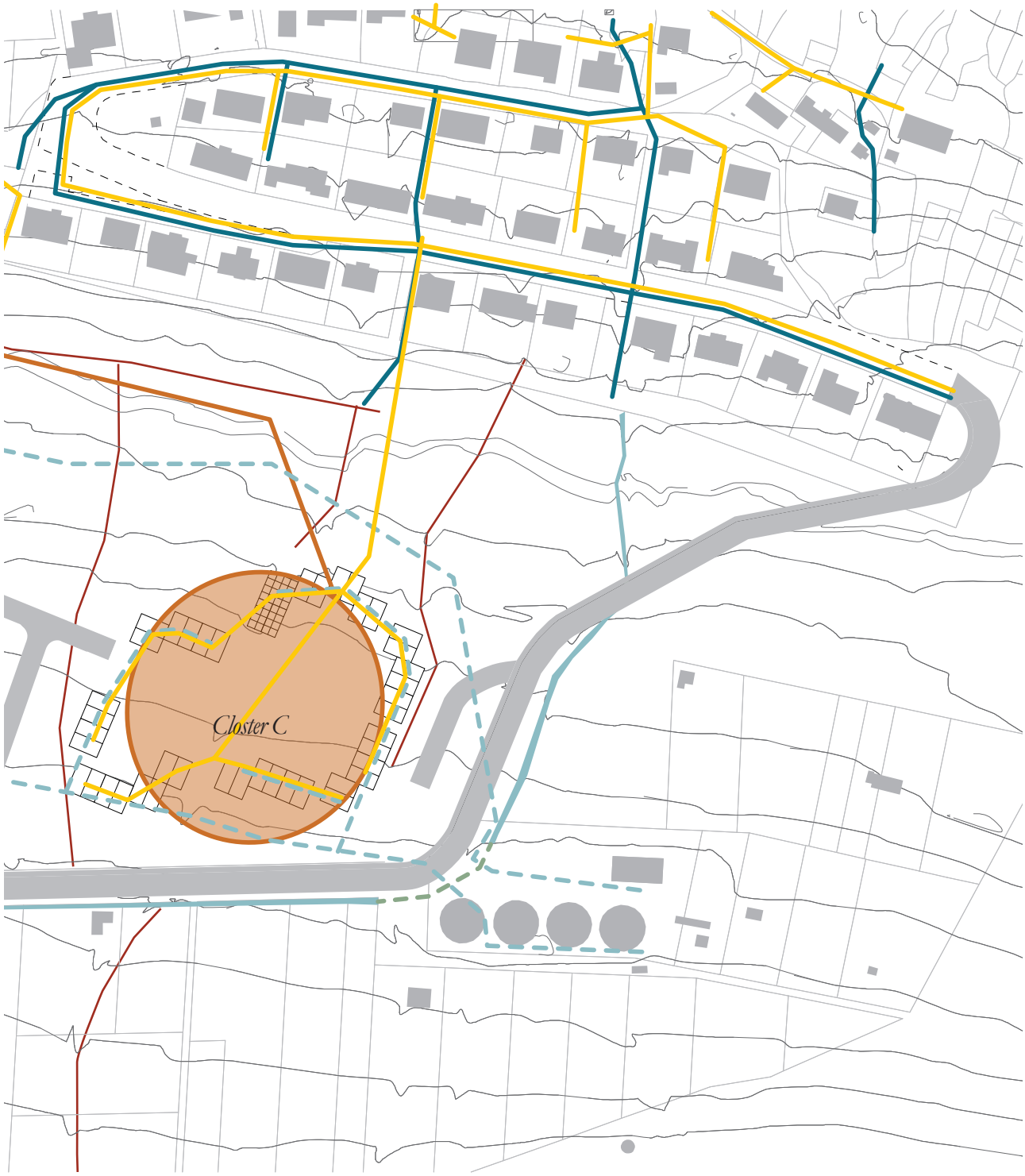
*Ill.59 Collage showwing materials.*

# Infrastructure of Water

This water plan show how the water system is organised on the site.
Water pipes and sewer systems are in separated systems for each cluster. Inside the cluster, rainwater will be collected and lead to the cities closed rainwater system. The rain water from the roofs will be used for functional use such as, toilet flush, washing machines and watering of vegetables.




Closed Rainwater system
Sewer system
Rainwater system
River
Pipes for river
Ditch
Water pipes

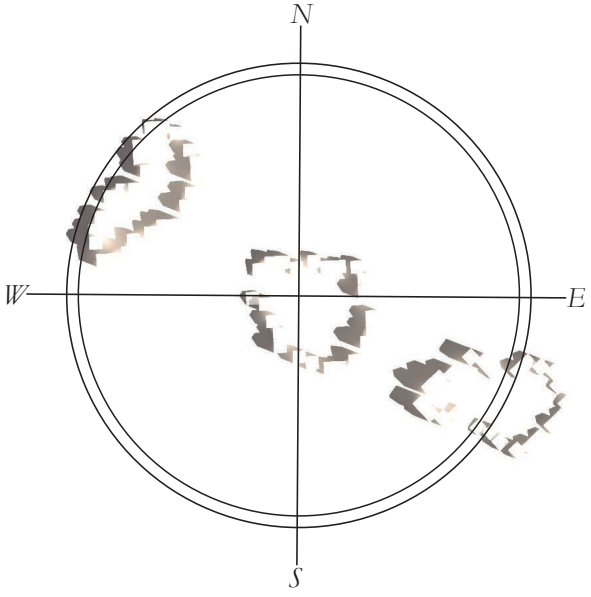



*Ill.60 Water mangement of siteplan ,1:2000*

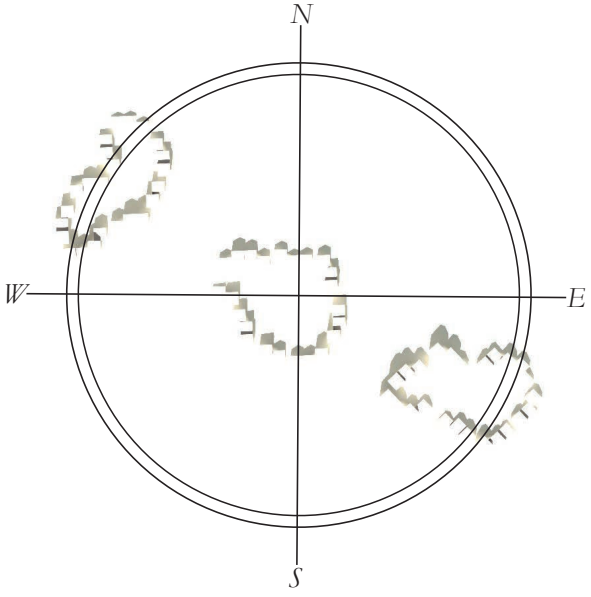
# SHADOW STUDY OF FINAL DESIGN

## Summer solstice 21 of June

*Sun up: 03.46 pm*
*Sun down: 23.10 am*

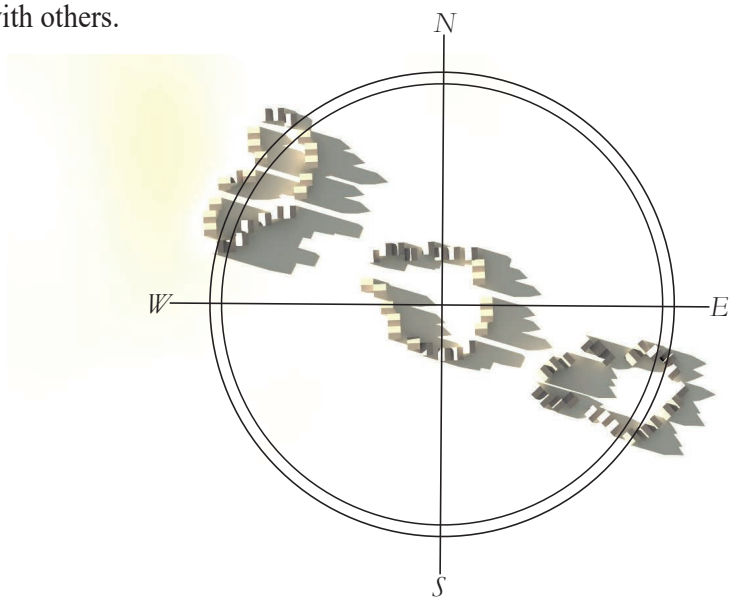



*Summer soltice 08.00 pm*

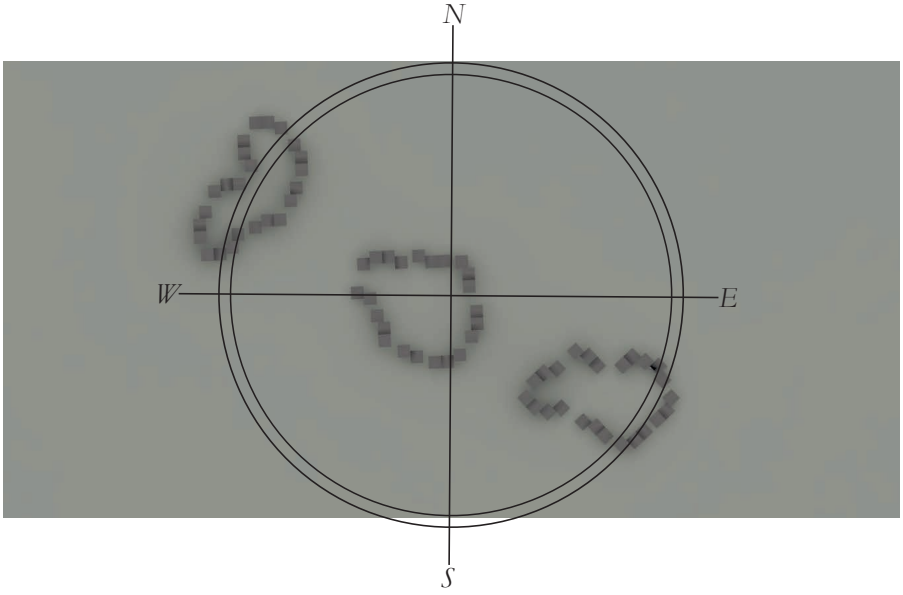



*Summer soltice 12.00 pm*

Shadow analysis where made on the final design in summer, winter and equinox situations - winter and equinox results can be found in appendix 7, together with the shadow analysis of existing context. These show that although some of the buildings are five floors they do not darken the whole courtyard. However, some places are more unfortunate in the daytime than others because they get a bigger shadow on the private gardens. On the other hand, there are many common areas with furniture for rest and play. These are located in areas that are not that influenced by shadow, these areas are for everyone to use. By placing and creating small niches in the courtyard in relation to the good sun conditions, small heat islands will occur and invite the user to stay and socially interact with others.




*Summer soltice 06.00 pm*




*Summer soltice 09.00 pm*

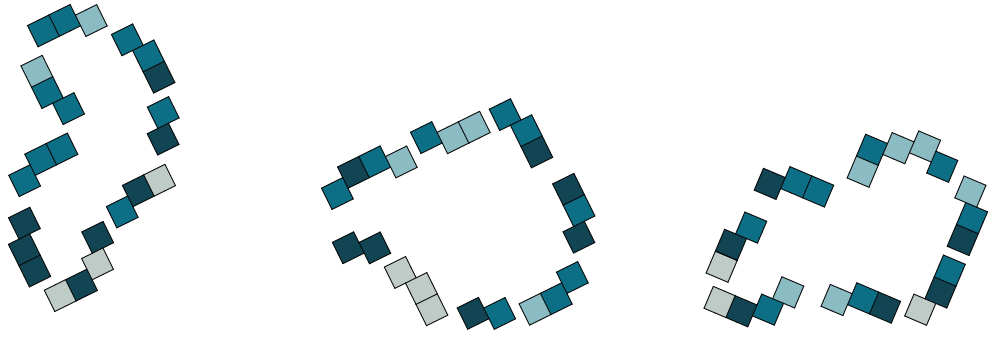
*Ill.61 Sun shadows*

# *WIND SIMULATIONS OF FINAL DESIGN*

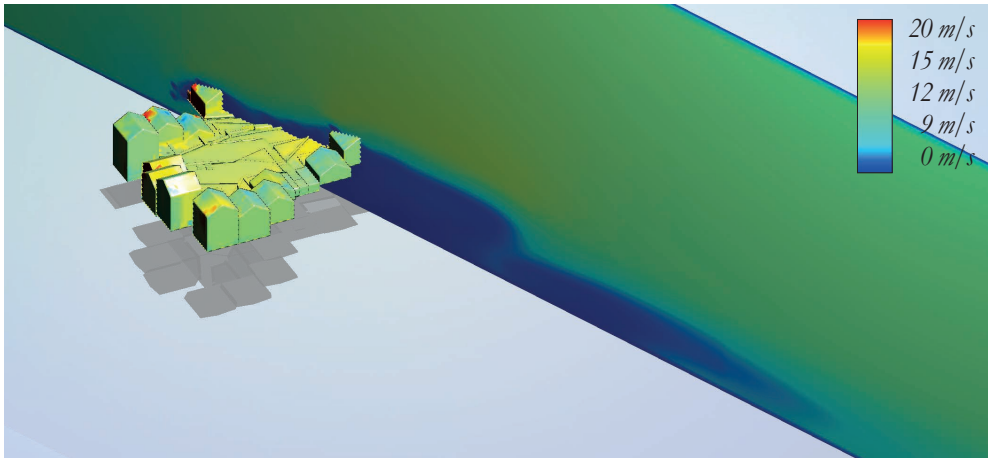
The simulations have showed that the strategy for the shaping the roofs and placing the units in groups rather than rows has proven that wind is lead over the roofs and around the clusters. Illustration 64 shows how the wind lines travel do not plunge down into the clusters and create turbulence.

After passing the cluster, the wind maintain a low steady flow, this can be seen in illustration 63. This means that the area in-between the clusters will not be influenced by hard wind and turbulence, which gives the inhabitants the affordance to use the green landscape and the path for recreational purposes.

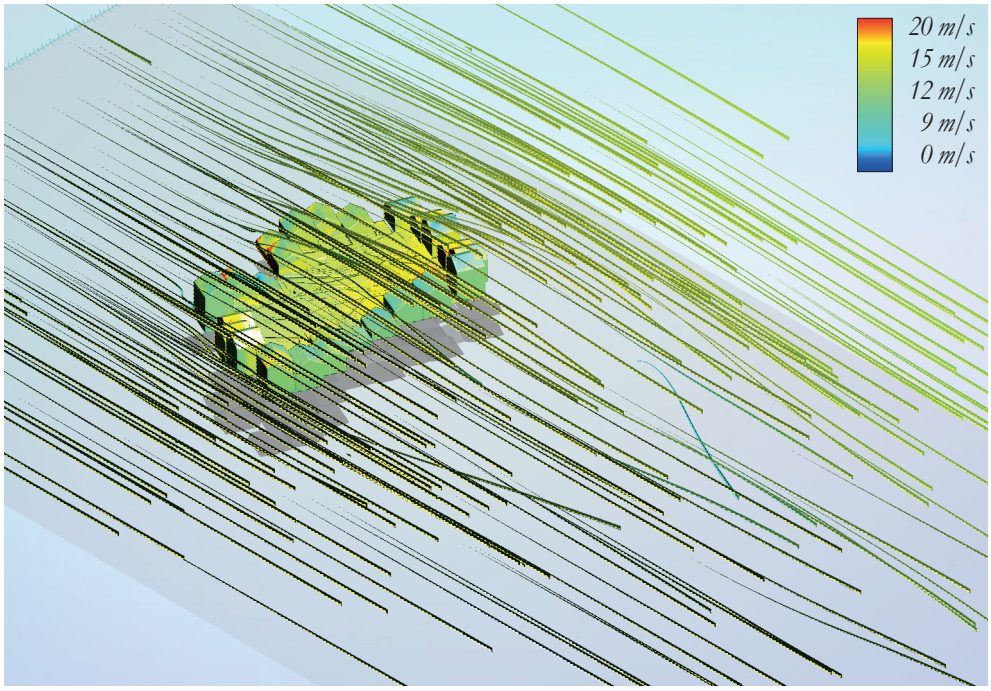
Due to our wind simulation are the highest buildings placed against the wind – too lead the wind above and beside the cluster.
The buildings heights are a reflection of the topography; The higher the landscape becomes, the higher will the building heights be, to stand up against the monumental mountains in the background, see illustration 62 below.



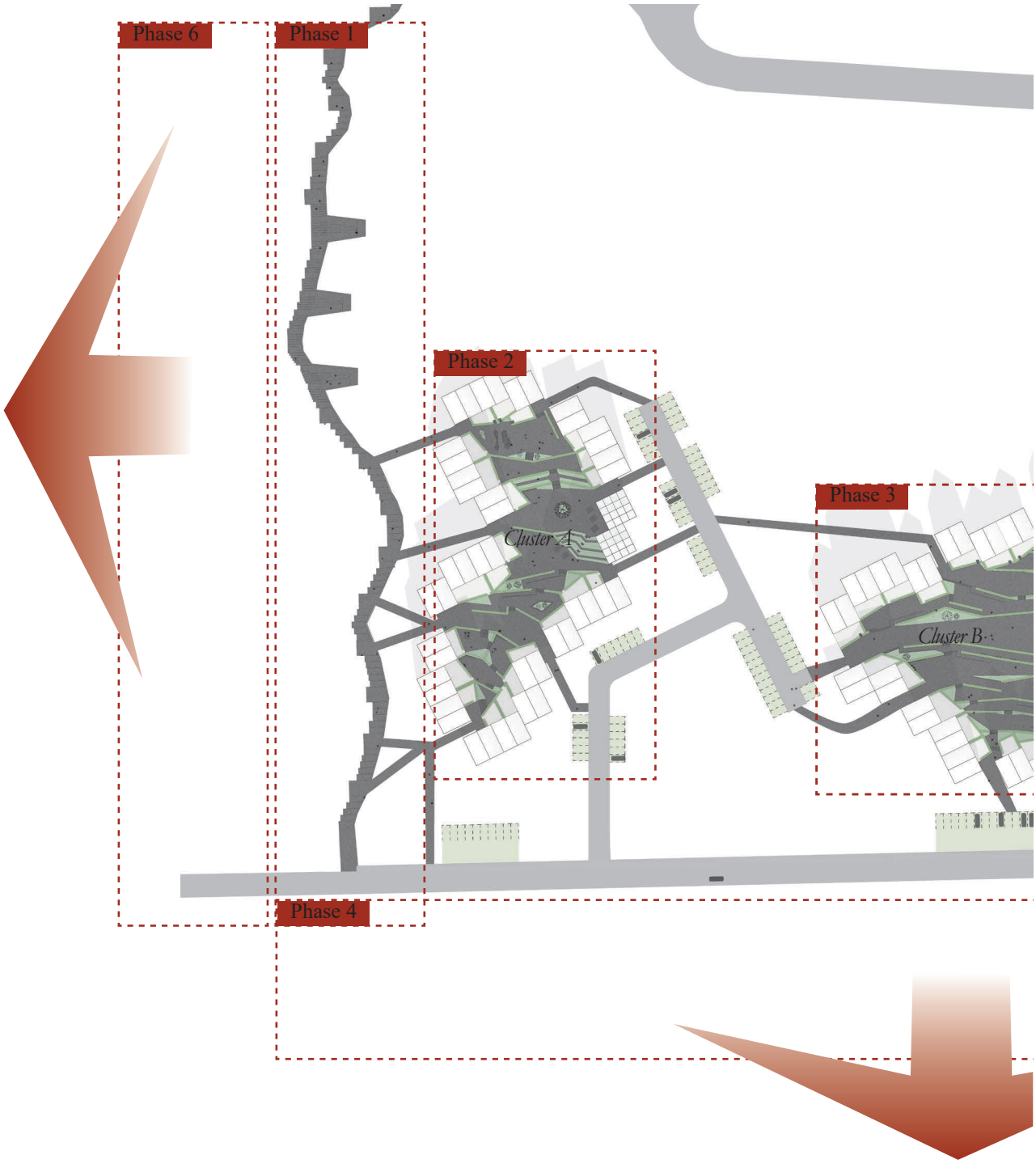

*Ill.62 Building heights*




*Ill.63 Sectionplane showinng the force of the wind*



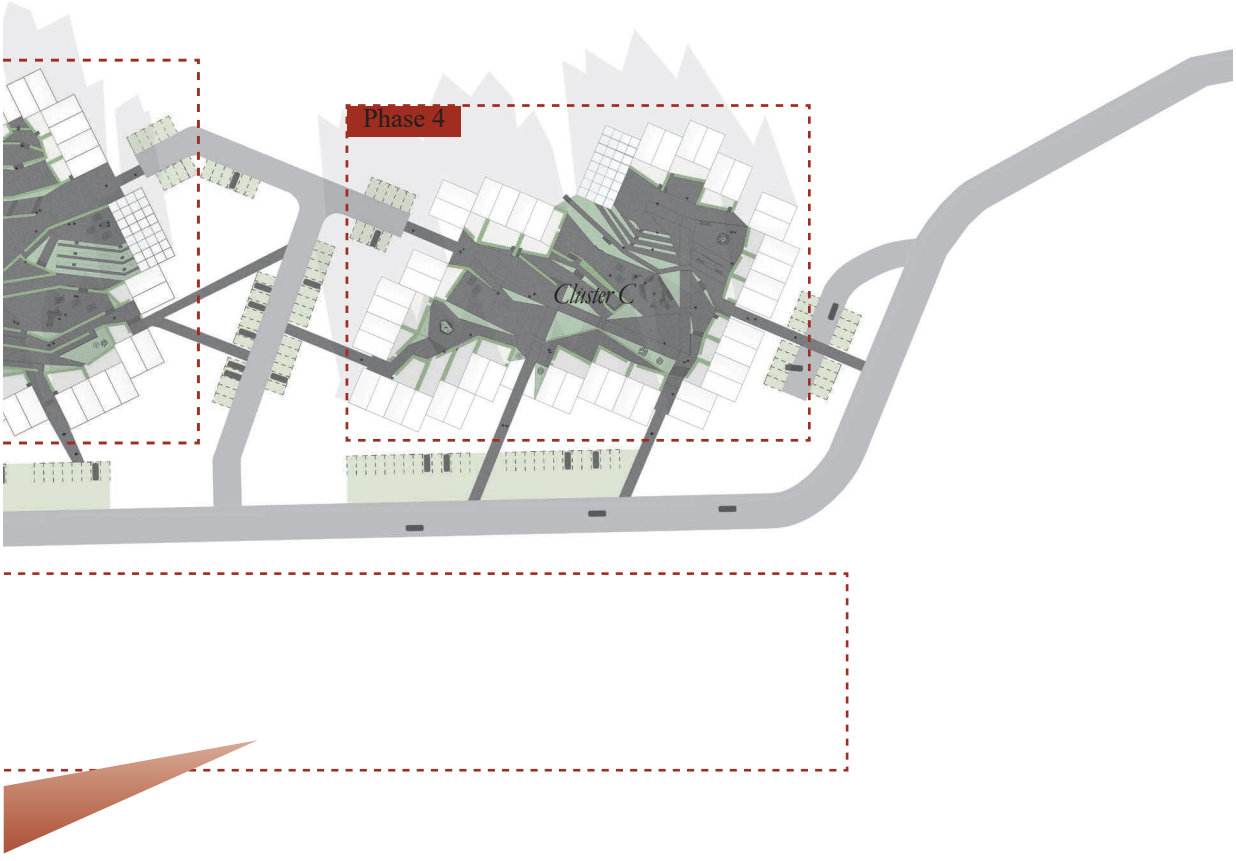

*Ill.64 Windlines simulate flow of the wind*



# Strategy for the Building Phases

In relation to the municipalities wishes for a strategy plan for the development of Á Fossum in phases. We have organised an overview of how the phases on Á Fossum could be developed, over time.

In the beginning the recreational path will be built to make an awareness of the area and to create a better connection from the city to the other recreational paths, which leads to the two mountain tops.
Then cluster A will be built as the first of the clusters and the inhabitants will move in right away and be a catalyst for the whole area. Afterwards cluster B and C will be built, so the area will be developed naturally. If needed the South-Eastern part of Niðan Horn can be subdivided into new units or used to expand the concept of the clusters.

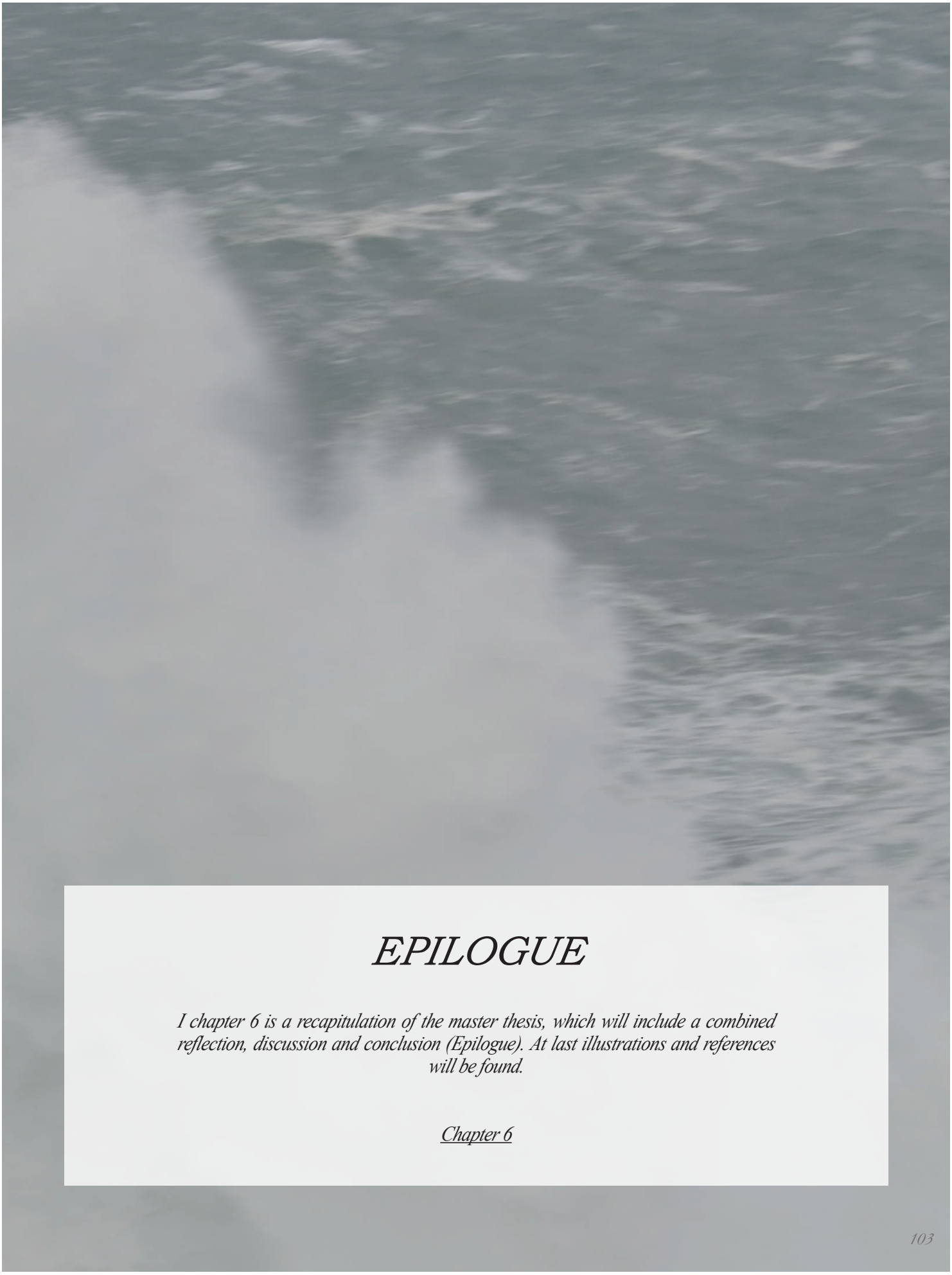



*Ill.65 Building phases*

# SUB-CONCLUSION

## Presentation

*A new, attractive and different settlement in Klaksvík give the inhabitant a new way of living and enhancing Faroese fundamental values, by integrating the nature- and climate challenges into the design.*



# EPILOGUE

*I chapter 6 is a recapitulation of the master thesis, which will include a combined reflection, discussion and conclusion (Epilogue). At last illustrations and references will be found.*

*Chapter 6*

# EPILOGUE

We hope that this has given the reader a insight in to our project and the final design of the new set-tlement Á Fossum. The goal of the project was to create a new attractive settlement in the outskirts of Klakvík – á Fossum, where a new typology should challenge Faroese's perception of living, by expanding Klaksvík and make it more urbanized. With the clusters we will hold on to the kind of community where people stay together and where there is room for all no matter gender, age, race etc.

## Method

We have worked iterative throughout the project. When applying this master thesis, the overall problem statement was set, but after our study trip, registrations and analysis, our problem statement became clearer. Two masterplans has carefully been worked out, beside the final proposal. All three suggestions fulfill our problem statement and our vision, but the first lack of climate perspective and the second did not challenge the society enough. It is always possible to find a weakness in a project and make it better, so it is a very fine line between knowing when to stop the design process and when to keep on developing.

## Study Trip

Before the study trip we had a perception of how Á Fossum, Klaksvík and the Faroe Islands was, but we experienced that it was difficult to imagine from the desk.
An example is how we had been preparing 20 sections so we could get an understanding of the topography at the site, but it turned out that the 20 sections was more or less the same. Another example is how we had an idea on how to handle all rain water. From university and media we have learned how important it is to handle the rainwater in a proper way. We had an idea how to solve it, which we learned from university, but then we arrived and saw how the nature almost did it by itself with smaller and larger clefts through the landscape. A few places where the settlement got in the way, pipes and new human made clefts where created.
At Aalborg University we learn about Danish standards and Danish problems, so it was these eyes we saw the problems with before we went to Faroe Island. With this project we got knowledge that every country and culture has different strengths and weakness.

**Weakness we got to deal with:**

- Climate, a lot of wind and rain throughout the whole year.
- The temperature is constantly low, which was a challenge when we wanted to activate the landscape.
- Only a few crops can survey the Faroese environment. Therefore we had to create the greenhouses where it is possible to grow crops – which we in Denmark take for granted.

**Strength at Faroe Island:**

- Small society, it is easy to get all on board.
- The weather is stable, without degrees below zero. Theoretically it makes it possible to also use the outside areas during winter time.
- Beautiful and majestic nature.

It is important to understand the culture and traditions to get at a proper understanding of a project. To be able to fulfil the target groups wises and get the inverters on board.

## *Clusters*

The new settlement Á Fossum is presented as a masterplan, where it is shortly described how it could be developed and expanded even further. In this case we go against the wishes from the municipal, who wish to build from the Eastern part. We believe that this project, the recreational path and cluster A has to work as a catalyst before the area can be a success, and you do not make a masterplan with the purpose to go for a plan b.
Is Klakvík ready for the new typology? YES! Because these clusters can offer more than the common single family house – better micro climate, places to meet and be part of a community. In Denmark and other larger countries you can live in a block close to other people without even knowing your neighbor. With this proposal we urge people to interact and contribute to each other and the community.

People at Faroe Island are very attached to their cars, and a normal household has in between two or three cars. When we reduce the parking space to one and a half per unit we challenge their everyday life. We believe that the people who will say yes to a life in harmony with nature and other people are willing to spare one car, for a better social environment, where the pedestrians have first priority.

The clusters might seem introvert for out standers, with their backs standing against the city, but the importance of this project is how the life inside the clusters is lived. And with these enclosed clusters there have been created a place to meet outside, or inside if the weather is bad, and a place where it feels safe to walk around.

In the 21st century there is a need to stand out as an individual, but in these clusters all units are the same, so the only way to stand out is by personalizing the interior and the terraces. It can intimidate some people, but in a larger context the clusters stand out as a sculpture in the landscape against the mountains in the background.

## *Theory*

Landscape urbanism is a wide concept, and the perception depends on the context and the person's experiences and memories. In the report we studied James corner, the father of landscape urbanism - who has a general approach to the concept. The other theorist is Anne W. Spirn, who is more technically and aesthetic – comes from her background as landscape architect (Spirn 1984). Corner and Spirn have given us an understanding of how the nature can be used and how natural processes work and how large impact it has on us humans.

This project have been challenging in the way, that we had to acquaint ourselves in to a whole new culture, where the perception of beautiful nature and landscape is very different from ours. Our biggest question throughout the project was; how can we frame the beauty in the rough and dominated landscape that these people take for granted?

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# *ILLUSTRATIONS*

Ill. 1:  Own illustration

Ill. 2 -3: Hamilton, L.C., Colocousis, C.R., Johanse, S. T. F.. 2012, *Migration from Resource Depletion: The Case of the Faroe Islands,* Society & Natural Resources, 17:5, page 443-453

Ill. 4-6: Own illustrations

Ill. 7-10: Von Jessen, C., 1995, *Det traditionelle Færøske hus*, Arkitektur DK, 6-7, page 314-327

Ill. 11- 13: Own illustration – inspired by J. Rasmussen, 1998, *Føroya Jarðfrøði*, Føroya Skúlabókagrunnur, Tórshavn

Ill. 14-22: Own illustration

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Ill. 24-65: Own illustrations

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