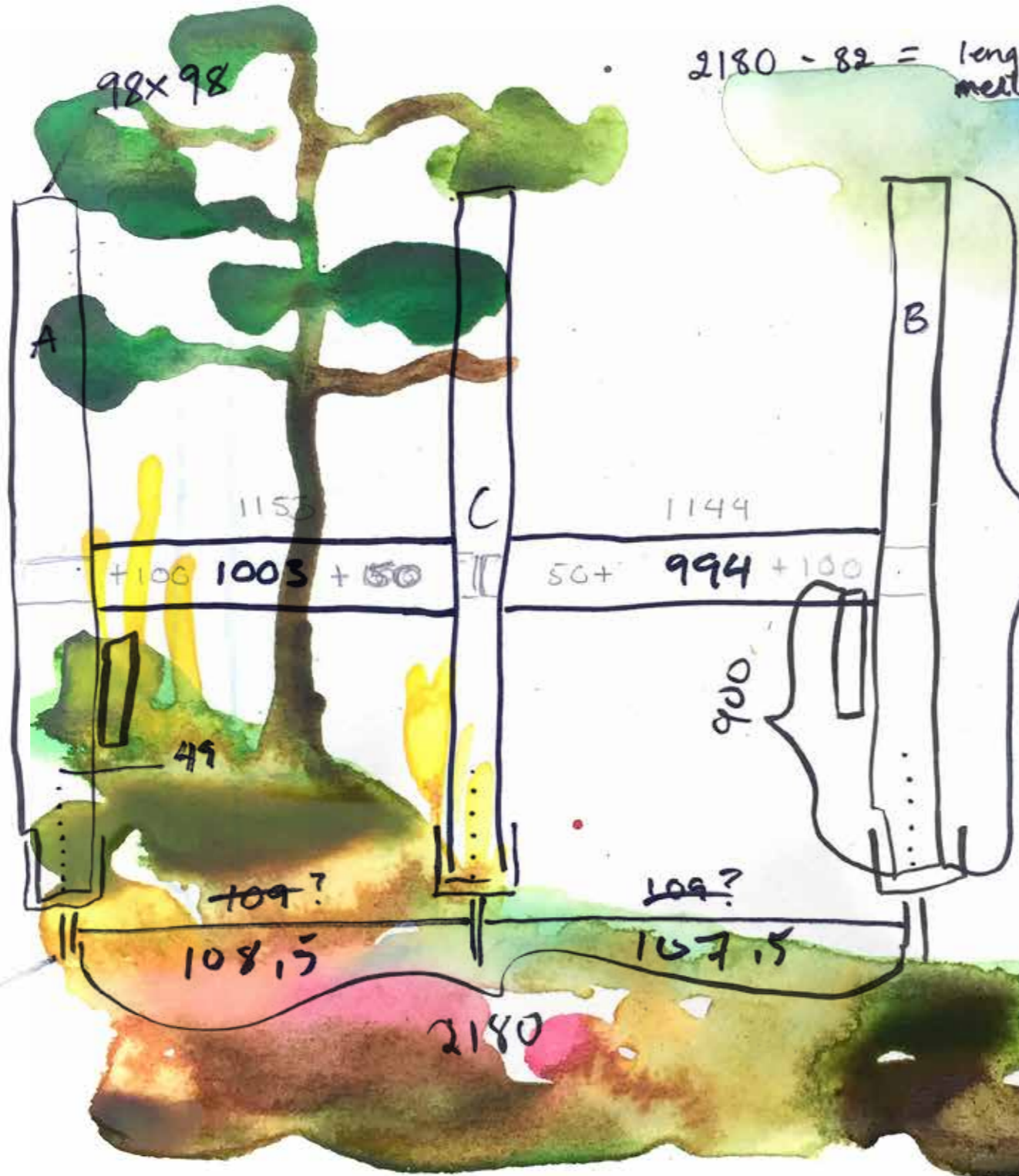


Prosjektfakta
Som bygget
Brukermanual
Dagbok

Project facts
As built
User manual
Diary

SDR

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2180 - 82 = lengde bjelle mellom A & B

Utedoen

Hanna Lie Bakken
Kine Nordgård Ugelstad

Utedoen

Diploma
2022

Supervisors
Petter Kveseth
Matthew Dalziel

Students
Hanna Lie Bakken
Kine Nordgård Ugelstad

AHO

Hanna Lie Bakken
Kine Nordgård Ugelstad

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Prosjekt-informasjon

Prosjekt: Utedo
Type prosjekt: Toalettrom
Adresse: Besøk gjerne utedoen
Sandrettveien 26,
1455 Nordre Frogn

Planlagt og bygd: 2022
Kostnad materialer: 2 800,- Kr
(Kostnader hvis nytt i butikk: 47 000,- Kr
Arkitekt og snekker: Hanna Lie Bakken &
Kine Nordgård Ugelstad

Project facts

Project: Outhouse
Type of project: Toilet room
Address: Visit the utedo at
Sandrettveien 26,
1455 Nordre Frogn

Planned and built: 2022
Material cost: 2800,- Kr
(Material cost as new in store: 47 000,- Kr
Architect and carpenter: Hanna Lie Bakken &
Kine Nordgård Ugelstad

Scenarier

Scenarios

Utsikt ned mot bekken
View to the stream

Oppleve sesongene
Experience the seasons

Et lite stykke å gå fra huset
A walk from the house

Flere doseter – se på sittestilling
Multiple seats - look into sitting position

Se ville dyr
See wild animals

“Nærme naturen”
“Close” to nature

Mulig å gå flere stier
Alternative routes

Høste fra hagen på veien
Harvest from the garden on the way

Ta en pause
Take a break

Ha alenetid
Alone time

Skjernet fra huset
Hidden from the house

Mulig å justere innsyn
Adjustable inview

Gjenvinne regnvann for håndvask
Reuse rainwater for hand washing

Lokalt kretsløp
Local circuit

Lite og intimt rom
Smal and intime room

Solide materialer
Robuste materials

Håndverktøy brukt i prosjektet

Sag	Spett
Hammer	Vinkel
Drill	Tommestokk
Vinkelsliper	Blyant
Stemjern	Hyssing
Kappsag	Kritt
Bandsag	Kniv
Høvel	Øks
Fresemaskin	
Slegge	
Stikksag	
Kubein	
Vater	
Spade	
Greip	
Kost	
Rake	
Skrutrekker	
Multitool	
Japansag	
Avbitersaks	
Tvinger	
Jekkestropp	
Tau	
Motorsag	
Gressklipper	
Ljå	

Handtools used during the build

Saw	Spit
Hammer	Angle
Drill	Ruler
Angle grinder	Pencil
Stem iron	String
Cut saw	Chalk
Band saw	Knife
Planer	Axe
Milling machine	
Sledge hammer	
Jigsaw	
Crowbar	
Vater	
Shovel	
Grasp	
Broom	
Rake	
Screwdriver	
Multi tool	
Japanese saw	
Cut-off scissors	
Compelling	
Jack strap	
Rope	
Chainsaw	
Lawnmower	
Scythe	

Læringsverktøy brukt i prosjektet

Håndtegning
Maling
Skrive
Papir
Digital tegning
3D tegning
Hoderegning
Kalkulator
Lister
Bygging
Bruke tid på et sted
Diskusjoner
Diskutere med bekjente
Råd fra fagfolk
Youtube
Google
Prøve og feile
Teste
Undersøke

Learning-tools used during the process

Hand drawing
Paint
Write
Paper
Digital drawing
3D drawing
Mental arithmetic
Calculator
Lists
Construction
Spending time in a place
Discussions
Discussions with acquaintances
Advice from professionals
Youtube
Google
Try and fail
Testing
Survey

Materialer

Brukt

98x98 konstruksjonsvirke (00 meter)	Pris,-
40x70 konstruksjonsvirke, trykkimpregnert (00 meter)	Pris,-
48x98 konstruksjonsvirke (00 meter)	Pris,-
38x148 konstruksjonsvirke (00 meter)	Pris,-
15x98 panel (00 meter)	Pris,-
Vinduer 3 doble	Pris,-
Stålplater 6 stykk	Pris,-
Glassfiberplater 4 stykk	Pris,-
Dybel	Pris,-
Spikerplate 8 stykk	Pris,-
Søylesko	Pris,-
Teglstein	Pris,-
Naturstein	Pris,-
Maling	Pris,-

Nytt

Skruer	Pris,-
Vinkelbeslag	Pris,-
Søylesko 2 stykk	Pris,-
Bjelkesko 7 stykk	Pris,-
Sement 1/2 sekk	Pris,-
Vinduskitt	Pris,-
Fugemasse	Pris,-

Materials

Brukt

98x98 konstruksjonsvirke (00 meter)	Pris,-
40x70 konstruksjonsvirke, trykkimpregnert (00 meter)	Pris,-
48x98 konstruksjonsvirke (00 meter)	Pris,-
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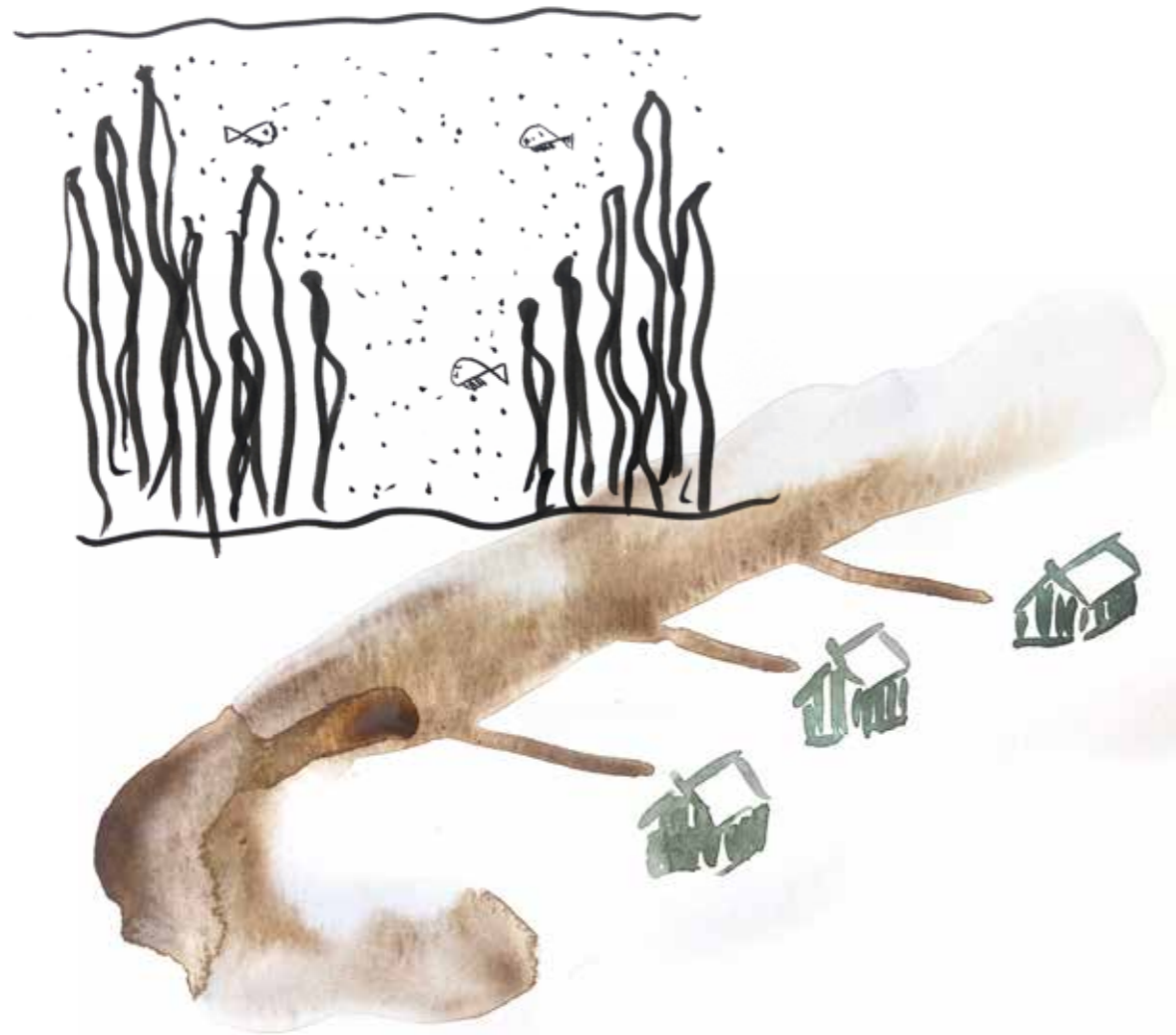
Essays

Sewage systems
On compost and Humanure
From squatting to sitting
Rules and regulations
A trip to Åros

Essays

Sewage systems
On compost and Humanure
From squatting to sitting
Rules and regulations
A trip to Åros

Sewage systems



The city of Oslo has roughly 2250 km of sewage pipes, many of them close to 100 years old. In Norway as a whole the needed maintenance of water and sewage pipes is estimated to cost the municipalities 332 billion kroner in the next decades¹. Climate change with flash floods and increased precipitation gives this maintenance challenge an urgency. Our current infrastructure is not built to deal with the heavy rains we are experiencing more and more, and although new technology makes maintenance easier than 50 years ago, we have definitely given ourselves some big problems by putting all our shit in the ground.

Bekkelaget renseanlegg is the main facility for treating and cleansing sewage in Oslo. Sewage from approximately 500 000 inhabitants can be treated here. The intention of the treatment of sewage is to remove nutrients, waste and other polluting elements from the water before releasing it back into larger bodies of water. One problem with collection of sewage in a big system is that everything is mixed together. Black-water and grey-water from households, wastewater from institutions, factories and gas-stations will in many countries end up in the same pipes which makes the process of separating the elements we want to keep, from the elements we need to eliminate, more complex.

¹ Bruaset, "VA-infrastrukturen utgått på dato: Må oppgraderes for enorme beløp" 24.02.21
<https://www.sintef.no/siste-nytt/2021/va-infrastrukturen-utgatt-pa-dato-ma-oppgraderes-for-enorme-belop/>

In modern systems sewage is treated in three steps. The first step is *mechanical cleansing* where the sewage is sent in to big pools where the bigger particles and sediments of the sewage sinks to the bottom and is then scraped out as sludge. Norsk Vann write in their leaflet on the treatment of sludge that approximately 95% of the sludge from treatment plants in Norway is turned in to dirt/fertilizer. The 95% equals 86 000 tons per year².

The second step is biological cleansing. In this phase the bacteria in the sewage get their living conditions enhanced to make them able to eradicate organic pollution. Ammonium, phosphorus and nitrogen can also be removed in this process.

Phosphorus is a limited resource that is an important ingredient in fertilizer. If left in the sewage and eventually released into rivers and fjords/oceans it can lead to unwanted flourishing of algae.

Nitrogen is also an important ingredient in modern fertilizer. When not controlled and contained from treatment plants it can turn in to unwanted fertilizer for the entire surrounding area and in the same manner as phosphorus, lead to unwanted flourishing of algae in water.

The third step is *chemical cleansing*. Salts of aluminum, iron or calcium is added to the water to again remove organic substances and phosphorus.³

² Blytt, Line Diana. For Norsk Vann. "Bruk av avløpslam, informasjonsbrosjyre"

³ Store Norske Leksikon/snl.no. "Vannrensing". Lasse Vråle, Haakon Thaulow. 24.04.22. <https://snl.no/vannrensing>



Over: 300 million liters of sewage went in to the Oslo fjord untreated because of a short circuit due to flooding.

Under: 17 million liters of sewage in the Oslofjord due to power outage.

The remaining water from Bekkelaget renseanlegg is released into the Oslo fjord at a depth of 50 meters. Although treatment plants are getting better and better unwanted events with severe consequences still happen.

A sewage utopia?

Although we live in a time where conspiracy theories flourish and people tend to believe in the craziest things, we are also living in a time where we have and share more knowledge, on all things, than ever before. The history of how we shit has been dealt with in another text, but the simple and logic knowledge that human and animal waste is a resource, must have been obvious to the first humans that were able to connect cause and effect.



Our modern-day sewage systems, in the western world, are based on the water toilet. We sit on a porcelain “chair”, our waste lands in a body of water and is then flushed with some additional water down into sewage pipes. The pipes allow the sewage to flow, and where the terrain limits that possibility a pump-station is set up to move the sewage to the nearest sewage treatment plant. In the book “The

TOILET PAPERS - Designs to Recycle Human Waste and Water: Dry Toilets, Greywater Systems & Urban Sewage” architect Sim Van der Ryn paints a picture on the absurdity of this system.

“Mix one part excreta with one hundred parts clean water. Send the mixture through pipes to a central station where billions are spent in futile attempts to separate the two.”⁴

We continue to use this system although it requires a lot of digging, the pipes in the ground are a challenge to maintain, leaks are hard to locate and the treated water that is released is polluting our oceans, rivers and fjords. To make matters even more stupid the nutrients that are polluting our waters are important ingredients in fertilizer, one of them is a limited resource and the other is being artificially produced for agriculture.

Is it possible to imagine a sewage utopia? If we imagine a blank slate, where we never started mixing our shit with our drinking water, and we didn’t put pipes in the ground and under our houses where they are hard to reach. A blank slate for the toilet and its infrastructure and also for its space inside (or outside?) people’s homes with all the knowledge of today. What would this utopia look like? For private homes, for apartment buildings, for cities, for suburbs, for small towns, for Norway, for other parts of the world?

⁴ Van Der Ryn, The Toilet Papers (Santa Barbara: Capra Press, 1978) Introduction.

Which solutions already exist?

Development of toilet and sewage technology has come a long way in countries where water is a limited resource and crowded cities demand clever solutions. There are stories of success and stories of failure when it comes to reinstating “old” technology and a sewage system that requires a bit more than just pressing a button from the people using it. The Erdos project in China is a good example of how a project can be seen as both success and failure.

Dry, urine-diverting, toilets were installed in 832 apartments in 4-5 story buildings in a new urban area in northern China. Ventilation is key when installing a dry toilet in apartment buildings. In the case of Erdos it seems like poorly managed construction of ventilation systems, and the lack of maintenance of it was partly to blame for the complaints on smell from some residents. The apartments reverted back to flushing toilets when more water became accessible through a new water-pipe in the area. The project was deemed a failure by some because of this, but to the researchers behind it all, the knowledge collected will help propose better solutions in the future⁵.

The Arborloo (Arbor - the latin word for tree combined with loo) is a pit composting toilet where humanure is used directly as fertilizer for a tree. Arborloo is widely implemented in African countries according to Engineering for Change. A hole is dug and a movable outhouse and concrete slab is placed on top of it. When the hole is full,

⁵ Environment Stockholm Institute, “Doomed eco-toilet scheme was “valuable experience”. China Dialogue. 5.11.22. <https://chinadialogue.net/en/cities/5088-doomed-eco-toilet-scheme-was-valuable-experience/>

a new one is dug and the structure is moved. A tree, often a fruit tree so that the nutrients from the compost goes via the tree and into the fruit, is planted directly in the pit⁶.

After an increase in population and tourism in Kenya, the team behind Sanivation found a solution for dealing with large amounts of sewage that didn’t require large infrastructural interventions. Instead of the common



pit latrine dug into the ground, container-based toilets were implemented. Because of the lack of infrastructure for transporting sewage and gas, and the cultural norm of cooking with coal and firewood (not gas) the idea of manufacturing fertilizer and biogas was discarded. Then when they found out that the prices for wood and coal had

⁶ Engineering for change, “Arborloo”.

risen in the past years and that valuable trees were cut down for firewood, the idea of turning the waste into fuel came to mind. Mixed with the fiber-rich leftovers from local rose-production, the shit from quite a few Kenyans is turned into fuel-logs.⁷

At the Ulsan National Institute of Science and Technology in South Korea professor in urban and environmental technology Cho Jae-Weon has developed what he has named the “BeeVi-toilet”. The system takes advantage of the methane emitted from the waste to make energy, and the remaining sludge is used as manure.

“The BeeVi toilet - a portmanteau of the words bee and vision - uses a vacuum pump to send feces into an underground tank, reducing water use. There, microorganisms break down the waste to methane, which becomes a source of energy for the building, powering a gas stove, hot-water boiler and solid oxide fuel cell.”⁸

Students who use the toilet get paid for their contribution in a virtual currency that they can use on campus to buy student related things ranging from coffee to books. These thoughts are not new for this part of the world. In the eighteenth century in Japan, the dealings of humanure were strictly regulated by local city guilds and the following statement from American Zoologist Edward Moore, tells us something about its worth.

“In Hiroshima, in the renting of poorer tenement houses, if three persons occupied a room together the sewage paid the rent of one, and if five occupied the same room no rent was charged.”⁹

A similar system has been applied closer to home and at a bigger scale. The Kaja student housing project at Ås (The Norwegian University of Life Sciences) uses vacuum toilets, they separate black- and grey-water and produce energy from the black water in a biogas-reactor. The remaining sludge is used as manure in a local greenhouse. The grey-water (from taps and showers) is cleansed in an infiltration system. Former professor at Ås, Petter D. Jenssen has played a major role in pushing this technology and these ideas forward. The same system was intended for a big housing project in Fredrikstad (Cicignon Park) with almost 1000 residents, but unfortunately it didn't happen, reason unknown. In multistory buildings or in densely populated areas the vacuum toilet seems to be a solution to continue working on in the future. A vacuum toilet can reduce the use of water from 6-8 liters per flush to 0.5 liters. Separating black- and grey-water, and sewage in general, will make re-use of the resources in our sewage easier.

Being a people that love leaving everyday life behind and going to “hytta” every weekend, Norwegians have been at the front of developing toilet solutions that don't require water and/or electricity. The same is true for

⁷ Zeldovich, *The other Dark Matter* (Chicago, University of Chicago press, 2019) p. 102-107

⁸ Park. “South Korean toilet turns excrement into power and digital currency”. Reuters.com. 07.09.21. <https://www.reuters.com/world/asia-pacific/south-korean-toilet-turns-excrement-into-power-digital-currency-2021-07-09/>

⁹ Zeldovich, *The other Dark Matter* (Chicago, University of Chicago press, 2019) p. 30

our Scandinavian neighbors. When it comes to the “no-water” toilets there are solutions ranging from freezing to incinerating your shit (although it seems a waste to use one resource to destroy another). Our experiences with the traditional outhouse and no water/no electricity toilets should put us at the forefront of pushing this technology further, but it seems like our desire for comfort and minimal maintenance lives, and the shame and stigma connected to the topic, gets in the way of considering other solutions than the flushing toilet.

Is there a perfect system?

There is no one answer for all. Sanitation and sewage systems, like so many other things, has to be adapted to local conditions and culture. Climate, ground conditions, available resources and the people who are going to use it needs to be considered when going for one system or the other. The answer will be different for private homes, apartment buildings, cities, small towns, for Norway and for other parts of the world. But there are a few things that should be universal.

1. Reduce (preferably stop) the amount of (drinking) water flushed down the drain.
2. Put the manure from humans back onto the land and into the loop.
3. Reparate sewage. Grey-water, black-water and industrial wastewater should not end up in the same system.

With these things in mind, we can question the intention of spending more than 300 billion kroner on upgrading

water and sewage pipes all over Norway. Maybe some of those kroner could be put to better use and to develop new, local and closed loop systems. Smaller and local systems for treating and reusing sewage can reduce encroachment on nature by eliminating the need for pipes to a central treatment plant. The ideas of Swedish architect Bengt Warne’s Naturhus is a source of inspiration. Naturhus is a house within a greenhouse, generating its own ecosystem and sustaining itself¹⁰. Which can mean that solutions for producing energy are implemented, for instance with solar panels and/or a biogas-reactor. Rainwater is collected and filtered and goes back to water the plants in the greenhouse after being used within the house. The sewage is composted and used as manure to boost the plants that feed the humans.

Looking forward

The toilet- and sewage system technology that require less water and puts resources back into the loop, where they belong, do exist. And they are getting better and safer. What is lacking is the will to test and implement this technology at a bigger scale. What will it take for a contractor to consider implementing a closed loop system (like at Kaja) in a planned apartment building? And what does a potential buyer need to know in order to go for it?

Climatic and environmental challenges are pushing us towards change, but to get companies, municipalities and people on board we first need to acknowledge that we are pawns within a system where money rules. To make a

¹⁰ Wikipedia, s.v. “Bengt Warne”

change from the current sewage systems happen, we need laws and regulations that encourage it. It must be made economically beneficial to go for a “greener” solution.

Maybe something similar to the BeeVi-toilet in South-Korea, where some kind of compensation is made when you deposit your shit is the way to go to get the general public on board. In an article from MinMote.no (a fashion and trend section of the Norwegian newspaper, VG), a “plantfluencer” states that she uses “Gold-water” (gullvann), urine mixed with water, as fertilizer for her plants. If the trend of having and caring for green plants can make the use of gold-water mainstream, then maybe the public isn’t that hard to convince when it comes to introducing humanure¹¹ in the future. We have no issues using manure from animals in our gardens and on our plants, maybe we’re forgetting that humans also belong to the animal kingdom.

Maybe an occupation that will consider both the technological and the esthetic aspects of the toilet and its room needs to be involved to push better solutions forward. When designing a house, an apartment or an office, the flushing toilet is the default. Architects, who are tasked with seeing the whole of a project, could surely make an impact on which technologies are pursued or not. The bathroom has in many cases become the turf of a specialized discipline of plumbers, but why shouldn’t architects be involved in creating the room where we spend approximately a year of our lives, sitting on the toilet. We

¹¹ Term combining the words human and manure, manure made from human feces, explained further in the text on compost and humanure.

need to get over the “dirtiness” of the toilet and see it, and its infrastructure as something worth including in the totality of a design.



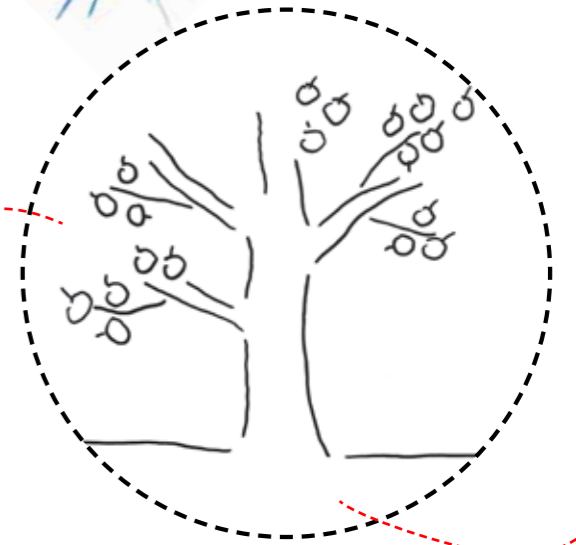
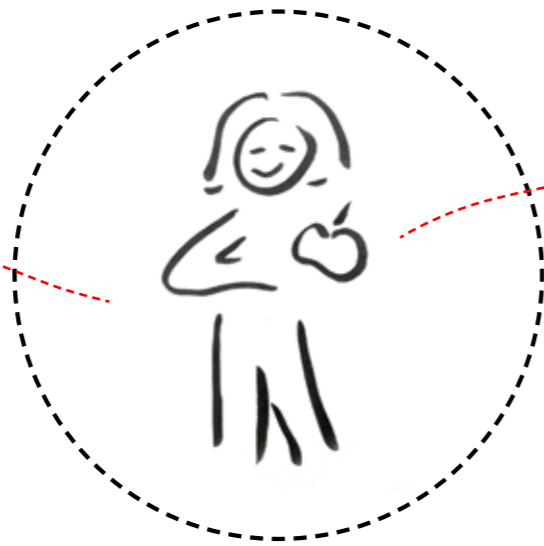
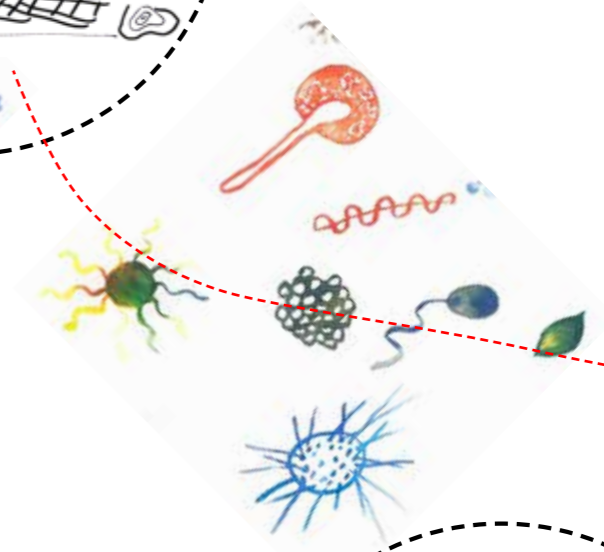
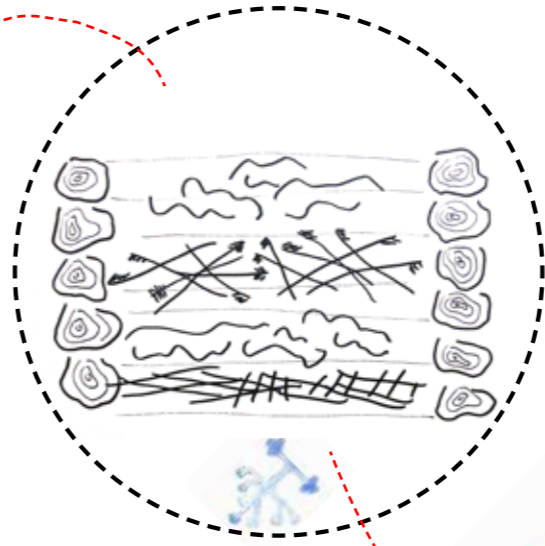
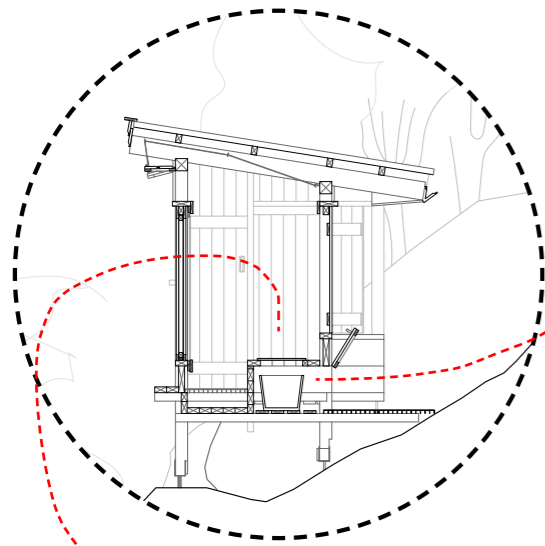
“... no architectural treatise declares the toilet as the primordial element of architecture, but it might be the ultimate one... once part of a communal experience, the toilet gradually became privatized, enclosed within architecture, plugged into plumbing, placed in counterintuitive proximity to showers and baths, enshrined in a private retreat that proliferates within wealthier houses everywhere... and eventually transformed by digital technology into a diagnostic apparatus... the toilet is the existential zone of interaction – on the most intimate level – between humans and architecture... we can imagine

buildings without almost any of the other elements of architecture but not without the toilet... life, especially in the urban context, is difficult to sustain without the toilet; a comfortable and regulated life demands it... but at the moment when the global triumph of the Euro-American toilet is triumphant, the infrastructure it depends on – abundant water, sophisticated plumbing, large scale sewage systems – is increasingly unsustainable...”¹²

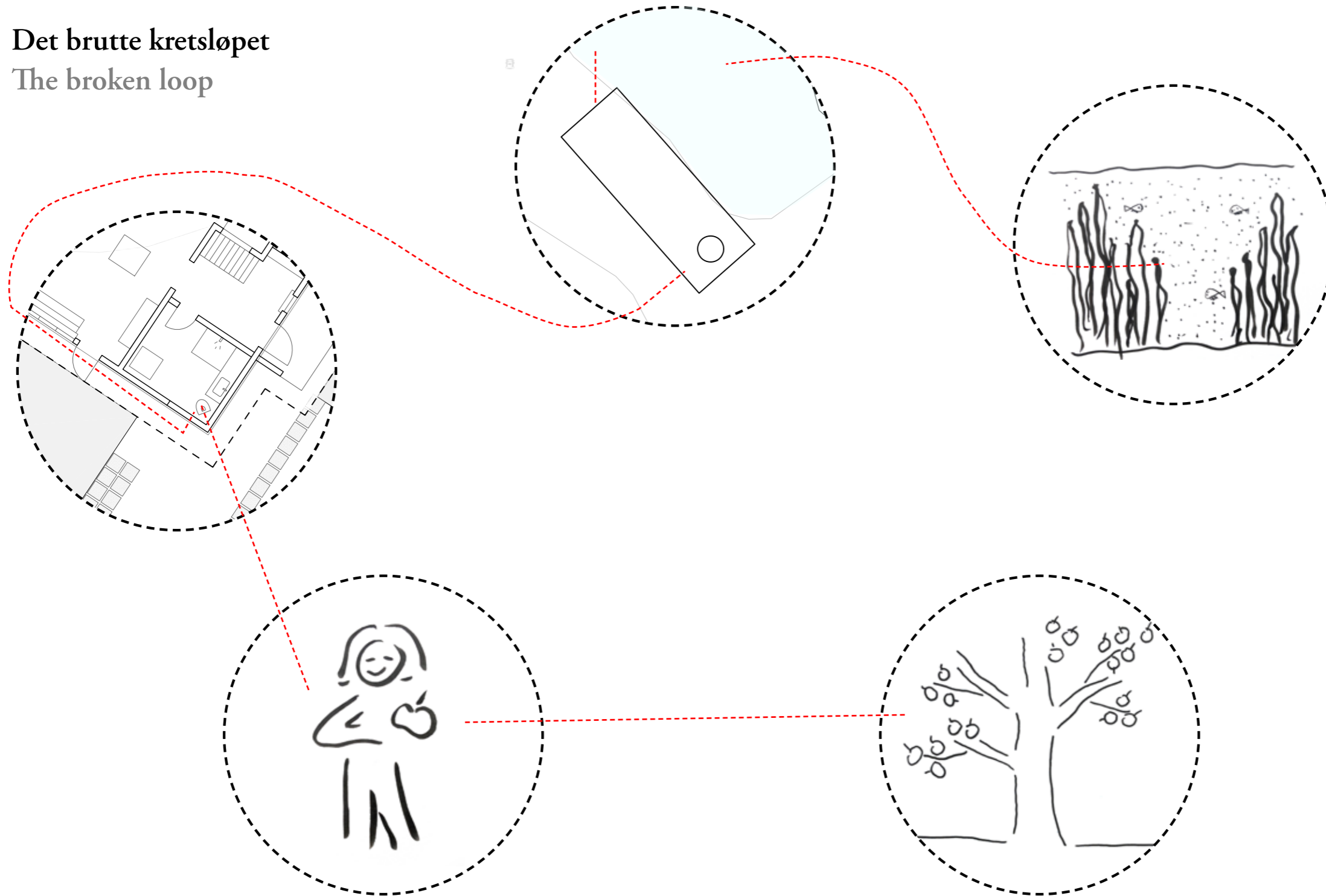
12 Koolhaas, Elements of Architecture. Köln: Taschen, 2018. P. 1557

Kretsløpet

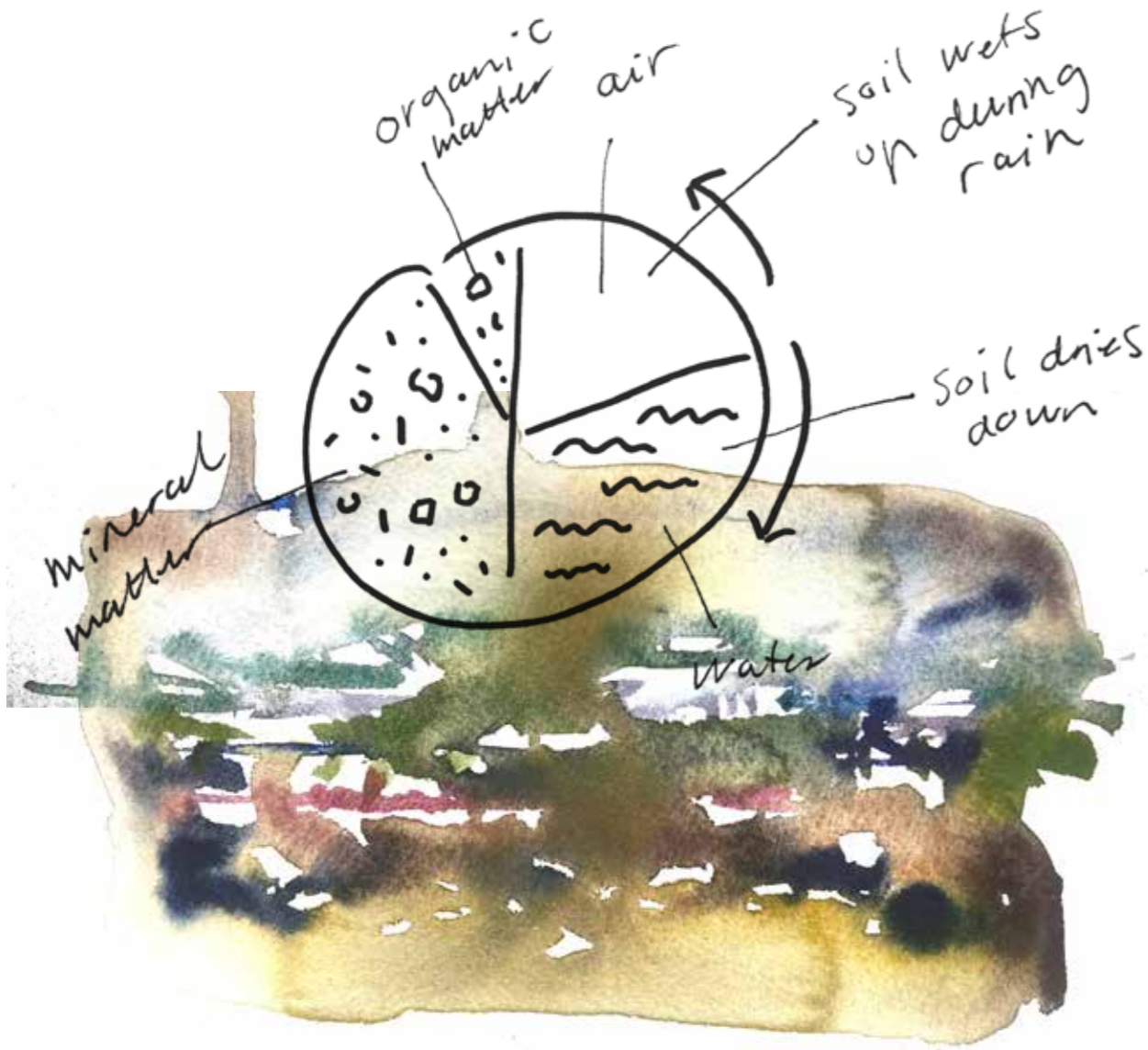
The loop



Det brutte kretsløpet
The broken loop



On compost and Humanure



Like with most things that can be done in different ways, there is also a whole world of information and opinions when it comes to compost. In this text some general knowledge on compost is explained as well as our intentions of using human waste from the outhouse as compost for the garden at Holtberget.

By the Norwegian encyclopedia compost is defined as *decaying organic matter*, and the *end-product* of the process of composting¹.

Composting is reliant on three basic elements, air, fluids/humidity and the composition of nutrients. Most of us know the effect of a composting process where air-flow is insufficient. Instead of composting we get rotting and fermentation, and the result is a really bad smell. If any of the three conditions for composting is off balance the result will be a foul stink, which makes for an easy indicator for when you have to take action. With a bit of experience, it isn't too hard to detect if the compost needs more or less air, more or less fluids or more or less nutrients added. Air is added by stirring the compost or building it up with layers of differently sized weeds, twigs, branches and so on, fluids are just a pour (or pee) away and if the mix is

¹ "Kompost" in Store norske leksikon at snl.no. Looked up 27. oktober 2022 from <https://snl.no/kompost>

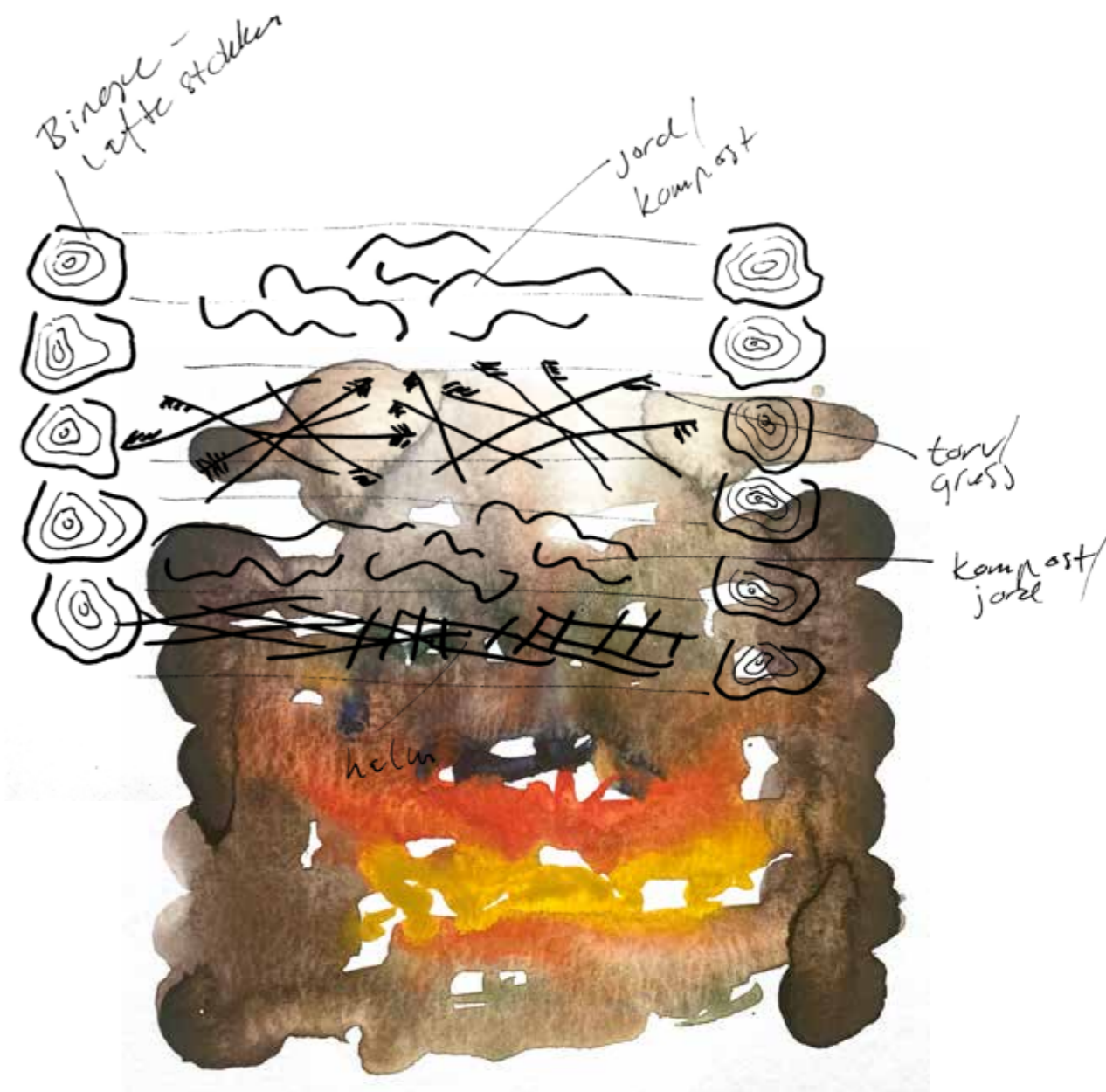
to wet, add more dry nutrients, for instance sawdust. *The goal is to generate the best possible living conditions for microorganisms that feed on the organic matter, which then, in return, slowly turns food scraps, grass, leaves and so on, into humus.*

In general, we separate warm and cold compost, and the main difference is, as the words suggest, the temperature inside the compost. A cold compost is usually just made up of grass, weeds, twigs and branches from the garden, left to decompose in a pile, or for more organized people, inside a bin made up of for instance pallets. The process happening inside a cold compost mimic what happens in nature every second of every day.

A warm compost box is insulated to be able to maintain its heat during winter. Usually, the activity in a compost will generate its own heat, but in our climatic conditions a compost might freeze and the process will stop or slow down considerably during winter season if not insulated. This is not a problem as things will get going again when temperatures rise. The Norwegian Food Authority (Mattilsynet) recommends having a warm compost for food waste. They also have some rules regarding composting and the general saying is as follows:

The compost you make for yourself can be used in your own garden and on your own crops. If you're part of a gardening community, an agricultural coop or similar, other rules might apply².

² Mattilsynet. "Privat kompostering og bokashi." November 12th 2022. https://www.mattilsynet.no/planter_og_dyrking/gjodsel_jord_og_dyrkingsmedier/organisk_gjodsel_jordforbedringsmidler_og_dyrkingsmedier/privat_kompostering_og_bokashi_hva_bar_du_lov_til_aa_gjore_hjemme.44440



Humus er en bestanddel i jord, en blanding av organiske forbindelser som blir igjen etter mikrobiell nedbrytning av planterester. Generelt gir humus jorda mørk farge, og den øker jordas evne til å holde på næringsstoffer og vann. Humus har også positiv innvirkning på strukturen i jorda, ved at den blir løsere og har bedre tilgang til luft.



Meaning that as soon as some of the compost or produce made with the compost will go somewhere else or feed someone other than you and possibly spread or cause illness, the rules are quite strict. Each municipality can also have individual rules complying with their waste and recycling system. Being an official authority, Mattilsynet has to make sure they are on the safe side of things when making recommendations and rules.

When we say we want to use our own waste in the compost for the garden at Holtberget many might start wrinkling their noses. There are so many stigmas and bad connotations connected to human waste that we understand why. This hasn't always been the case, and if you've read the text on the history of how we shit you know that the resource human waste actually is, has been valued like gold in some parts of the world throughout history.

After diving in to the world of compost and human waste the name Joseph Jenkins quickly appears. He is closely connected to the term *Humanure* which is a word based on the two words *human* and *manure* (gjødsel). Jenkins has published a book on the subject called "The Humanure handbook – Shit in a nutshell". In 2019 the 4th edition of the book was published. Jenkins has applied methods of composting human waste in his own home and garden for more than 30 years.

In the book he explains all the processes going on in the compost as well as its many beneficial aspects. Like how bacteria and virus can be killed in a compost with

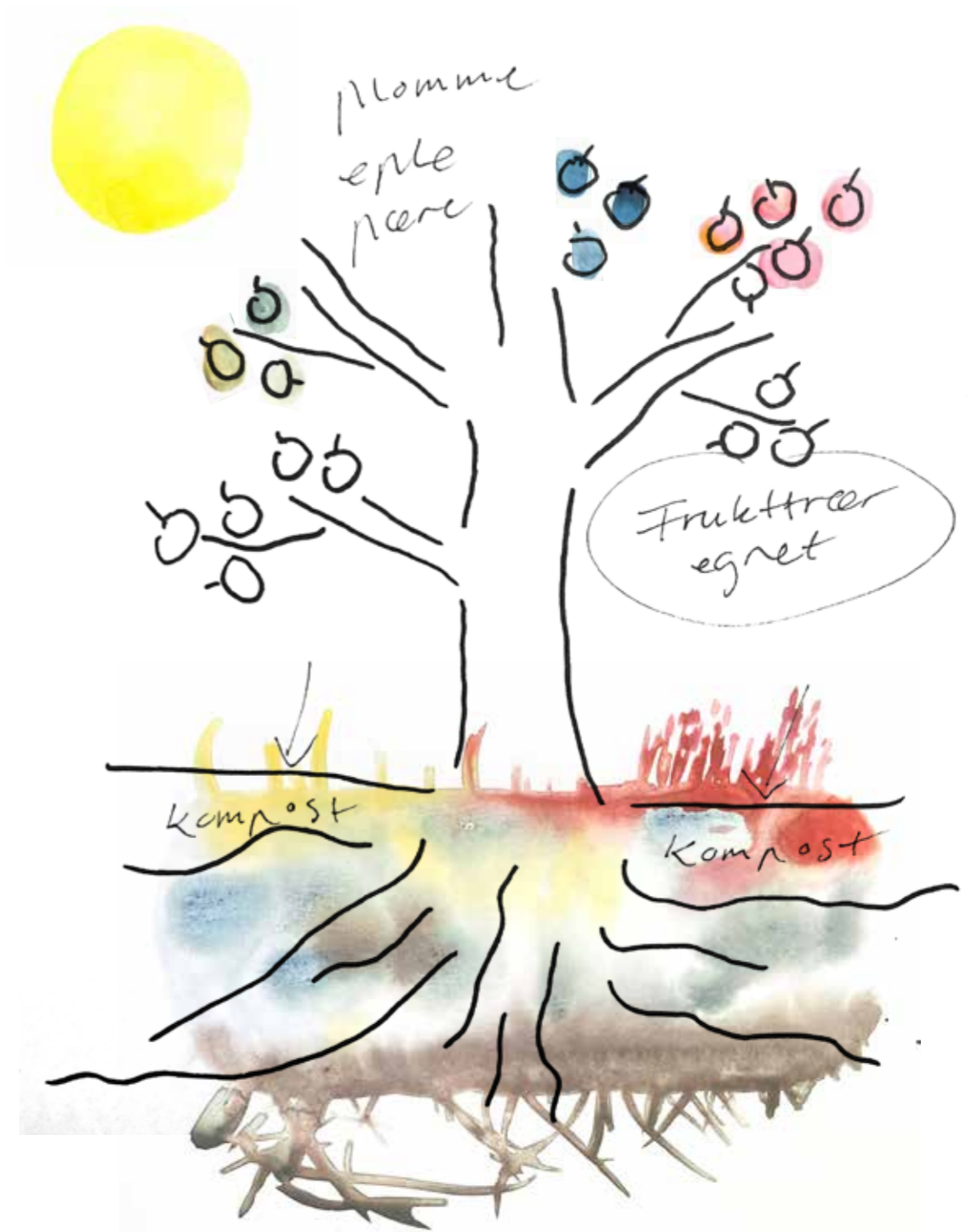
a temperature of 55-60° after a few days, toxic chemicals can be broken down into harmless organic molecules after a few months and that compost can be used to filter air and water in biofilters³. A recipe for how to build and use composting toilets and compost bins is also included in the book. A mantra forwarded by Jenkins is that our logic thinking and intuition can take us a long way, we don't need to complicate things with special tools or knowledge. Our method for composting will be based on his thoughts.

In the text about Åros sewage treatment plant you can read that the sludge from there is transported to Lindum for sanitizing. Sewage is a mix of a lot of things, it doesn't just consist of the things you and I flush down the toilet, but also wastewater from factories, hospitals, gas-stations and so on. This sewage water can contain for instance heavy metals, bacteria and medicine residue and because of this the sludge goes through a sanitizing process called thermal hydrolysis⁴. A sort of pressure cooking of the sludge. It can be compared to a composting process on steroids.

In our outhouse there will be no other added sewage. Human feces, toilet-paper and different kinds of organic matter as cover will be the only things going in to the bin, meaning that we can be pretty sure there are no scary chemicals or toxins present. We will start with one composting container and fill it up as the buckets in the outhouse needs emptying. The container will be lined with organic matter, making a "bed" for the contents of the buckets, a layer of organic matter (straw, grass, sawdust, whatever you have accessible) is put on top. The process is repeated for every bin emptied into the container. When the container is full it is left to compost, maybe for as long as 2 years to be absolutely sure there are no remnants of bacteria or

³ Jenkins, "Kunsten å gå på do" (Bergen: Stiftelsen Museumsvokterne. 2007) p. 37-38

⁴ Lindum. "Biogassanlegget." October 10th 2022. <https://lindum.no/biogassanlegget/>



virus we want to avoid. In the meantime, a second compost bin is set up and filled in the same way, after a few years we can alternate between the two (maybe three) containers, where compost from one is used in the garden while the other one is silently working on turning “waste” into gold.



From squatting to sitting

How we shit is a story as old as the story of humankind. Although we can't know exactly what the first humans did, we can most likely say they did their deed while squatting as it's what babies and kids instinctively do when they have to go. We must assume that feces never smelled like roses and that even the Neanderthals had a sense of smell and preferred to shit at least a few meters away from where they slept.

Throughout history we've moved from squatting to sitting, and from outside to inside, becoming creatures of comfort who desire as little maintenance as possible when it comes to dealing with our own shit. Today we can simply press a button and our waste disappears into what for most people is the unknown¹.

Several primitive constructions have made the going more pleasant. Simply digging a hole made it possible to conceal the waste and dispose of it further away from your behind. A log or thick branch to sit on, fastened between two trees, could take some of the weight off if you suddenly had to stay a while. The latrine, a trench dug into the ground, was likely one of the first common places to empty your bladder or bowels. The common latrine has survived millennia's and developed from a trench you had to stand or squat over, to a building or shed with a common bench. Like this example from Ephesos (1st century CE) showing a roman latrine



¹ A general explanation on how sewage systems work is offered in the texts "Åros" and "Sewage systems, infrastructure and architecture"

with (if symmetrical) probably 15 + seats. The gutter in front of the bench could have been for running water and the possibility to dip a common sponge (or other weapon of choice) to wipe your butt.

In western parts of the world we seem to have abandoned the squatting position quite early, the remnants of benches and seats date all the way back to the oldest traces of sewage systems (3600 BCE). The reason for this is unclear, but a desire to create more comfortable conditions is likely. In many Asian countries however the tradition of squatting is still common, at least in rural areas, even though the “western method” is expanding. Not at all to anyone’s advantage it seems. In the book “Gut” (“Sjarmen med tarmen” in Norwegian) Giulia Enders write about all the things that go on in our bowels, including the fact that “Hemorrhoids, different bowel diseases and constipation exists almost exclusively in countries where you sit on some form of chair when you shit”².

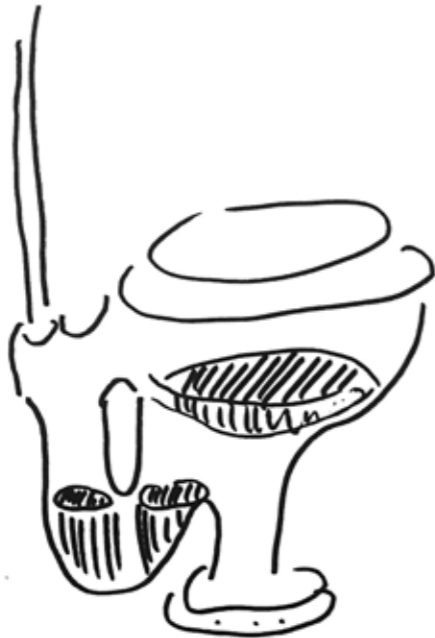
The number of seats of the common latrine eventually diminished and in the first centuries CE we find examples of the first single or individual “chairs” for defecation³. This coincides with the expansion of Christianity and the introduction of shame through the stories of the Fall of Man in the Old Testament⁴. We can even find a “recipe” for how and where to go in the Old Testament;



² Enders, Gut (Oslo: Cappelen Damm, 2018) p. 30

³ Koolhaas, Elements of Architecture. (Köln: Taschen, 2018) p. 16 (1572)

⁴ The fall of man, the fall of Adam, or simply the Fall, is a term used in Christianity to describe the transition of the first man and woman from a state of innocent obedience to God to a state of guilty disobedience.[1] The doctrine of the Fall comes from a biblical interpretation of Genesis, chapters 1–3.[1] At first, Adam and Eve lived with God in the Garden of Eden, but the serpent tempted them into eating the fruit from the tree of knowledge of good and evil, which God had forbidden.[1] After doing so, they became ashamed of their nakedness and God expelled them from the Garden to prevent them from eating from the tree of life and becoming immortal.



12 Thou shalt have a place also without the camp, whither thou shalt go forth abroad:

13 and thou shalt have a paddle among thy weapons; and it shall be, when thou sittest down abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee:

14 for Jehovah thy God walketh in the midst of thy camp, to deliver thee, and to give up thine enemies before thee; therefore shall thy camp be holy, that he may not see an unclean thing in thee, and turn away from thee.

(Deutoronomy 23: 12-14)

The introduction of the single chair/toilet was also closely connected to more prominent members of society and their demands for exclusivity and safety. The common latrine remains the standard for the common and poor folk in many years to come. You can still find outhouses with two or more seats in the mountains and rural areas of Norway, and surely in other parts of the world as well. If they are still used by two or more people at the same time is a question that remains to be answered...

The one-person toilet, usually a movable, chair like structure with a pot inside or underneath has been subject to quite a few different designs before ending up as today's white porcelain chair. In 1596, John Harington, a writer from England, invented the first flushing toilet, the first iteration of the toilet we know. His invention eventually made the outhouse redundant for most people, and we never went back to squatting.

..and from land to water

When humans started settling in communities and eventually cities with several thousand and later, millions of inhabitants, human feces became a big problem. The sheer amount of feces was a problem, the rodents it attracted, the diseases it spread and of course, the smell. A system to deal with it all was needed, and at some point, someone figured out that washing feces away with water was a good solution to remove it from their immediate surroundings. Systems with gutters, trenches and wells for transporting waste and water to bigger cesspools or bodies of water became common.

The first traces of a sewage system, that we know of, dates to 3600 BCE and was found at an Uruk settlement close to the Euphrates River in today's Syria. Pipes were used to discharge wastewater into wells, trenches, and street gutters⁵. Due to the sewage system, it was possible to move the latrine inside, and buildings and rooms for latrines became common in the first cities and bigger settlements. Some of the common latrines had room for up to 90 people according to various sources⁶.

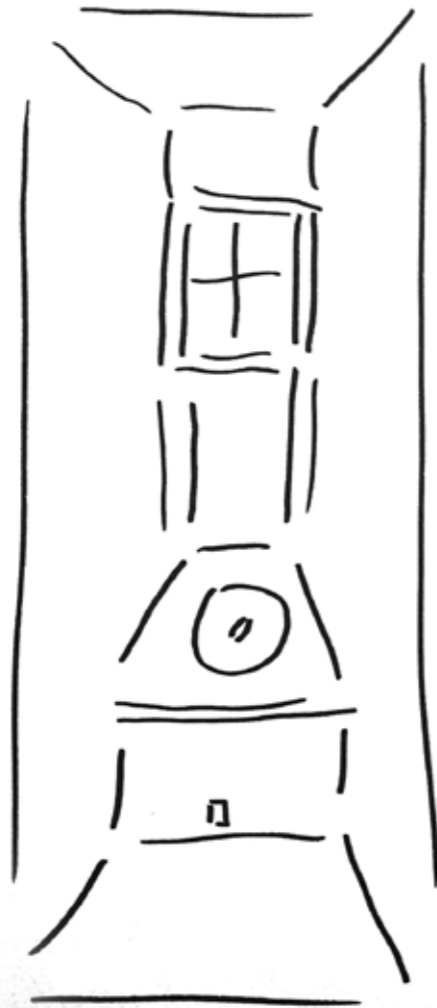
In medieval castles the latrine, the garderobe, the privy (the room and its deeds go under many names) is in many cases visible on the castle walls. Either as a chamber protruding (most likely for one person) from the wall or as a hole/chute where waste could drop down to the ground or into a surrounding moat. This picture shows several chutes from a common latrine inside the Portchester castle walls in England⁷.



⁵ Koolhaas, Elements of Architecture. (Köln: Taschen, 2018) p. 8 (1564)

⁶ Gotaas, "Norske utedøer". Gyldendal, Oslo. 2019. p. 9

⁷ Koolhaas, Elements of Architecture. (Köln: Taschen, 2018) p. 18-19 (1574-75)



Although the inventiveness of the early European civilizations is impressive, it is the predecessor of a system we should question today. In the beginning it solved a big problem of sewage flooding the streets and diseases spreading because of it, but it became clear rather quickly that the problem was not solved, only moved. Sewage was as mentioned, often transported into the nearest body of water and thus contaminated the main source of water for the city and started spreading diseases all over again. This was the case in 1800's London and the extreme pollution of the river Thames. The contamination finally caused an uproar amongst the population in the summer of 1858 when the hot weather caused water levels to drop and the shores of the river started emitting harmful gases like ammonia, methane and hydrogen sulfide. An incident later referred to as The Great Stink⁸. The solution to this was to transport the sewage all the way to the ocean and dump it there. The predecessors of modern sewage treatment systems started emerging in the late 19th and early 20th century.

In other parts of the world human feces have been dealt with in a completely different way. Author Lina Zeldovich writes in her book "The other Dark Matter" that the geological and agricultural conditions of different parts of the world play a major role as to why. Japan is used as an example.

"Unlike European countries, Japan was not blessed with an abundance of natural resources and large swaths of fertile land. As a little country spread over a few small islands where mountain ranges occupied three-quarters of

⁸ Zeldovich, The other Dark Matter (Chicago, University of Chicago press, 2019) p. 48

the landmass, Japan had to make do with what it had.”⁹
(This point is also used to explain the view most Europeans had (and still have) in regards to their own feces, there was no need for it, so it was considered waste.)
Manure from humans was valued like gold because it was vital for agriculture and the prospects of sustaining the people of the country. A trade and exchange economy developed as farmers got the contents of people’s toilets to use on their crops (after some sort of composting), and the people got a part of the produce in return. Later it turned into an economy where money was involved and official rules regulated the business. Stealing shit was punishable with a prison sentence¹⁰.

The major problem of sewage systems that use water for flushing and that transports waste to sewage treatment plants is the displacement of nutrients. In the Japanese system mentioned above the land was fertilized with manure created from the very same plants that previously grew there. The nutrients that are withdrawn from the soil by plants go back to the soil via manure. With a system like ours, the soil is depleted and chemically produced fertilizer is needed to make up for the nutrients lost. This is one of the things modern sewage systems are trying to fix by introducing processes where phosphorus and nitrogen (two important ingredients in fertilizer) is removed from the sewage. In most parts of the world sewage systems are not that advanced and nutrients from sewage end up in lakes, rivers and oceans where they are not needed, causing flourishing of algae and eventually suffocating other species

9 Zeldovich, The other Dark Matter (Chicago, University of Chicago press, 2019) p. 26
10 Zeldovich, The other Dark Matter (Chicago, University of Chicago press, 2019) p. 28-31

living there.

It is no longer humans that get sick from sewage, we have transferred the problem to our waters and all the creatures living in it¹¹.



11 This point is made from a western and Norwegian point of view. Quite a lot of people still get sick due to poor sanitary conditions. The United Nations write that roughly 50-60% of the world’s population have access to safely managed sanitation.

A trip to Åros

To learn more about the sewage system and infrastructure we use today we made an appointment to visit Åros sewage treatment plant in Asker.

Åros sewage treatment plant receives sewage from approximately 5000 people. It is a small facility which is going to be discontinued in the future and the waste will go to the big VEAS (Vestfjorden avløpsselskap) facility 15 km further north. To compare the two in size, VEAS treats approximately 110 million cubic meters of sewage in a year, and Åros approx. 365 000 cubic meters a year.

In a day about 1000 cubic meters of sewage makes its way to Åros through pipes in the ground. The day before we visited there was flash flood rain and as a result Åros received 3000 cubic meters of sewage. This happens because the sewage pipes are leaking, which means that sewage can leak out, but on days with heavy rain, water leaks into the pipes which in turn can lead to untreated sewage being released. Another aspect is the unnecessary use of energy on cleaning “clean” water and more chemicals being used because the amounts of clean rain water added changes the PH-levels in the sewage.

One of the biggest issues at all treatment plants is that we as users throw so much other shit than shit in our toilets. The simple rule is that only poo, pee and toilet-paper go into the toilet. Informing people of this is a task that some municipalities, like Asker, have taken on.



Although the message is simple, it doesn't seem to stick. It is a challenge to make people understand that we all have a responsibility for what we flush down our drains. And when we don't listen, or don't care, our irresponsibility comes back to bite us in the ass in the form of higher costs for water and sewage maintenance.

The first step at Åros is separating solids and liquids. In this process waste is also separated from human feces. Our experience there was that the waste was the only really bad smelling thing at the plant. At Åros approximately 4-5 tons of garbage is separated from the sewage every year. (If you'd forgotten to look at the calendar, you would still know that school had started by looking at the sewage because every August it fills up with rags and mops)

Chemicals are added as the sewage flows to three big pools where the sludge sinks to the bottom and the water is released through pipes into the Oslo-fjord. This facility does not have biological cleansing like mentioned earlier, so the water released from Åros has more nitrogen and phosphorus than water from for instance Bekkelaget and VEAS. This is one of the main arguments for treating more sewage at the bigger plants, because they have more advanced technology which will result in cleaner water being released into the fjord.

Knowledge about what's going on the fjord should be known to all occupants of Oslo, but it might not be, so here is a simplified version. Emissions from sewage treatment plants, as well as runoff from agriculture, is

causing abnormal levels of phosphorus and nitrogen in the water. As we've read earlier, these are two key ingredients in fertilizer. This leads to flourishing of algae and unwanted species, which suffocate the indigenous plants in the fjord. This again results in less fish because their habitat and main food sources are destroyed⁵. (We could keep going as the result of less fish is less food for the birds and so on, and so on...)

It is worth mentioning that the sludge which is left at the end of the process at Åros cannot be used as it is, rules and regulations in regards to health and safety demands that it is sanitized. The sludge from Åros is transported to Lindum facility in Drammen which offers this service. The main reasons for sanitation of the sludge are removal of heavy metals, bacteria and medicine residue⁶. This is also an issue when wanting to use humanure⁷ from for instance an outhouse. You need to have some knowledge of what the users of the outhouse have, or has put, in their bodies before utilizing their waste on your crops.

Rules and regulations

Water and sewage

Plan- og bygningsloven and Forurensningsloven are the two main laws that homeowners need to relate to in order to know what they can and cannot do regarding sewage infrastructure for their homes.

In *Plan- og bygningsloven* chapter 27-2. Drainage, it is explained that before establishing or changing a property, or building something new a proper method of removing waste water (in compliance with *Forurensningsloven*) needs to be established.

It also states that if a public sewage pipe is on, or near the property, the building on the property has to connect to the public system. Meaning that if you want to build a house with a closed loop system (For instance *Naturhus* mentioned in the text “Sewage systems and infrastructure”) you might have a hard time convincing the municipality to let you do so. There is also a rule stating that if your house is connected to a water pipe, public or from a private well, you must have a system for treating the wastewater, you cant just let ut run off into the ground.

§ 27-2. Avløp

Før opprettelse eller endring av eiendom til bebyggelse eller oppføring av bygning blir godkjent, skal bortledning av avløpsvann være sikret og i samsvar med forurensningsloven. Rettighet til å føre avløpsledning over annens grunn, alternativt til å knytte seg til felles ledningsnett, skal være sikret ved tinglyst dokument eller på annen måte som kommunen godtar som tilfredsstillende.

Når offentlig avløpsledning går over eiendommen eller i veg som støter til den, eller over nærliggende areal, skal bygning som ligger på eiendommen, knyttes til avløpsledningen. Vil dette etter kommunenes skjønn være forbundet med uforholdsmessig stor kostnad eller særlige hensyn tilsier det, kan kommunen godkjenne en annen ordning.

Kommunen kan i andre tilfeller enn nevnt i andre ledd, kreve at bygningen skal knyttes til avløpsledning når særlige hensyn tilsier det.

Reglene i andre og tredje ledd gjelder også for eksisterende byggverk.

Før oppføring av bygning blir godkjent, skal avledning av grunn- og overvann være sikret. Tilsvarende gjelder ved vedlikehold av drenering for eksisterende byggverk.

Forurensningsloven helps us understand what is meant when we talk about pollution. It is defined as the addition of substances, fluids and/or gases to air, water or the ground, noise and tremors, light and effects on temperature that can harm or put the environment at a disadvantage. It is our duty to avoid the things stated above, and to stop, remove and limit the effects of pollution if something has already happened. One could think that our own sewage systems should be affected by this law to a higher degree than they are today..

§ 6.(hva som forstås med forurensning)

Med forurensning forstås i denne lov:

1. *tilførsel av fast stoff, væske eller gass til luft, vann eller i grunnen,*
2. *støy og rystelser,*
3. *lys og annen stråling i den utstrekning forurensningsmyndigheten bestemmer,*
4. *påvirkning av temperaturen*
5. *som er eller kan være til skade eller ulempe for miljøet.*

Som forurensning regnes også noe som kan føre til at tidligere forurensning blir til økt skade eller ulempe, eller som sammen med miljøpåvirkning som nevnt i nummer 1 til 4, er eller kan bli til skade eller ulempe for miljøet.

§ 7.(plikt til å unngå forurensning)

Ingen må ha, gjøre eller sette i verk noe som kan medføre fare for forurensning uten at det er lovlig etter §§ 8 eller 9, eller tillatt etter vedtak i medhold av § 11.

Når det er fare for forurensning i strid med loven, eller vedtak i medhold av loven skal den ansvarlige for forurensning sørge for tiltak for å hindre at den inntreffer. Har forurensningen inntrådt skal han sørge for tiltak for å stanse, fjerne eller begrense virkningen av den. Den ansvarlige plikter også å treffe tiltak for å avbøte skader og ulemper som følger av forurensningen eller av tiltakene for å motvirke den. Plikten etter dette ledd gjelder tiltak som står i et rimelig forhold til de skader og ulemper som skal unngås.

Bestemmelsen i annet ledd gjelder også forurensning som er tillatt etter § 11 dersom det er åpenbart at vedtaket kan omgjøres etter § 18 første ledd nummer 1 eller 2. Tilsvarende gjelder dersom det av samme grunner er åpenbart at det etter § 9 tredje ledd kan gjøres unntak fra forskrift som tillater forurensning.

Forurensningsmyndigheten kan pålegge den ansvarlige å treffe tiltak etter annet ledd første til tredje punktum innen en nærmere angitt frist.

In chapter 26 of Forurensningsloven the Utedo is mentioned, or here referred to as a “Privet”, perhaps a more suitable name for the academic language used in “Norske Lover”. The word stems from German, meaning private, and has been used in Norway for a long time. The law states that the municipality is responsible for retrieving sewage from privets in densely populated areas, but that each municipality can decide for themselves whether they will do it or not in more rural areas.

What we can derive from this is that it's not illegal to have or to build an outhouse today. Many might think it is seeing as our environmental laws are becoming more and more strict as well as laws from food- and health departments to avoid spreading of diseases and unwanted species. We have to abide by Forurensningsloven and avoid pollution from an outhouse, so a closed system like ours, where no waste lands directly on the ground but in buckets which are later emptied into a compost should be sufficient. The Norwegian Food Authority (Mattilsynet) has some rules regarding composting, but none that specify what applies to human waste in compost. The reason for this is most likely that so few people do this today as our waste is seen as just that, waste, and not the resource it can be. However, the ones that do, and have made compost with human waste for a long time all state that as long as you let the compost sit for longer period of time almost anything you put into to it can be broken down and “disappear”. The compost will “eat” even the most dangerous chemicals and toxins.

§ 26.(kommunal tømming av slam fra slamavskillere (septiktanker), privet m.v.)

Kommunen skal sørge for tømming av mindre renseinnretninger som slamavskillere og samlekkummer for avslamming av sanitært avløpsvann og overvann. Det samme gjelder for oppsamlingstanker med ubehandlet sanitært avløpsvann.

Kommunen skal også sørge for nødvendige anlegg for tømming av avløpsvann fra bobiler, fritidsbåter m.v. Kommunen skal sørge for tømming av privet i tettbygd strøk, og utenfor tettbygd strøk i den utstrekning kommunen bestemmer det.

Reglene i § 30 om kommunal avfallsinnsamling og i § 34 om avfallsgebyrer får tilsvarende anvendelse ved tømming av slamavskillere, privet m.v. Kommunens plikter etter første ledd skal likevel gjelde både i og utenfor tettbygde strøk.

Blir sanitært avløpsvann ledet gjennom slamavskiller til renselanlegg, kan forurensningsmyndigheten kreve slamavskilleren utkoblet.

Sources

Sewage systems

- Blytt, Line Diana. For Norsk Vann. “Bruk av avløpsslam, informasjonsbrosjyre”
https://www.mattilsynet.no/planter_og_dyrking/gjodsel_jord_og_dyrkingsmedier/bruk_av_avlopsslam_informasjonsbrosjyre.2051/binary/Bruk%20av%20avl%C3%B8psslam,%20informasjonsbrosjyre
- Bruaset, Stian. Sintef. “VA-infrastrukturen utgått på dato: Må oppgraderes for enorme beløp”
Hentet 26. April 2022 fra <https://www.sintef.no/sistenytt/2021/va-infrastrukturen-utgatt-pa-dato-ma-oppgraderes-for-enorme-belop/>
- Environment Stockholm Institute, “Doomed eco-toilet scheme was “valuable experience”. China Dialogue. 5.11.22. <https://chinadialogue.net/en/cities/5088-doomed-eco-toilet-scheme-was-valuable-experience/>
- Koolhaas, Rem, Irma Boom, and Taschen GmbH. “Elements of Architecture”. Köln: Taschen, 2018.
- Park, Minwoo. “South Korean toilet turns excrement into power and digital currency”. Reuters.com. <https://www.reuters.com/world/asia-pacific/south-korean-toilet-turns-excrement-into-power-digital-currency-2021-07-09/>
- Van Der Ryn, Sim. “The Toilet Papers : Designs to Recycle Human Waste and Water ; Dry Toilets, Greywater Systems, & Urban Sewage”. Santa Barbara: Capra Press, 1978.
- Store Norske Leksikon/snl.no. “Vannrensing”. Lasse

Vråle, Haakon Thaulow. 03.07.18. <https://snl.no/vannrensing>

- Zeldovich, Lina. “The Other Dark Matter : The Science and Business of Turning Waste into Wealth and Health”. Chicago, Illinois: University of Chicago Press, 2021.
- Engineering for change, “Arborloo”. 29.11.22. <https://www.engineeringforchange.org/solutions/product/arborloo/>
- Engineering for change, “Sanivation”. 29.11.22. <https://www.engineeringforchange.org/solutions/product/sanivation-container-based-sanitation-cbs-waste-collection-service/>
- Wikipedia, s.v. “Bengt Warne”. 01.12.22 https://sv.wikipedia.org/wiki/Bengt_Warne
- Pictures/Screenshots
Poster <https://doguiden.no/aktuelt/dovett-pa-norsk-og-engelsk/>
- Aftenposten <https://www.aftenposten.no/oslo/i/xP5IX/300-millioner-liter-kloakk-gikk-rett-i-oslofjorden>
- NRK <https://www.nrk.no/osloogviken/17-mill.-liter-kloakk-i-oslofjorden-1.15492502>
- NRK https://www.nrk.no/rogaland/soppelklump-pa-24-tonn-i-kloakktunnel.-inni-var-vatservietter_-tamponger_-truser-og-en-mobiltelefon-1.16112161
- VG https://www.minmote.no/interioer/innredning/a/xgRQ0B/ekspertene-dette-er-sesongens-it-plante?utm_source=vgfront&utm_content=hovedlopet_row12_pos1&utm_medium=df-86-p07c64d5

On compost and Humanure

Almås, Åsgeir Rossebø: “Humus i Store norske leksikon”

på snl.no. Looked up 27. november 2022 from <https://snl.no/humus>

“Kompost” i Store norske leksikon på snl.no. Looked up 27. oktober 2022 from <https://snl.no/kompost>

Lindum. “Biogassanlegget”. October 10th 2022. <https://lindum.no/biogassanlegget/>

Mattilsynet. “Privat kompostering og bokashi – hva har du lov til å gjøre hjemme?”. November 12th 2022. https://www.mattilsynet.no/planter_og_dyrking/gjodsel_jord_og_dyrkingsmedier/organisk_gjodsel_jordforbedringsmidler_og_dyrkningsmedier/privat_kompostering_og_bokashi_hva_har_du_lov_til_aa_gjore_hjemme.44440

Jenkins, Joseph. “Kunsten å gå på do - uten å belaste moder jord: Hjemmekompostering av menneskegjødelse.” *Oversatt av Trude Lyngby*. Bergen: Stiftelsen Museumsvokterne. 2007.

From squatting to sitting

Gotaas, Thor. Vingelsgaard, Roar. Norske utedoer. Gyldendal, Oslo. 2019.

Koolhaas, Rem, Irma Boom, and Taschen GmbH. Elements of Architecture. Köln: Taschen, 2018.

Zeldovich Lina. 2021. The Other Dark Matter : The Science and Business of Turning Waste into Wealth and Health. Chicago: University of Chicago Press.

Online Bible. “Deutoronomy 21-25”. Oktober 16th 2022 http://www.readbibleonline.net/?page_id=107

Wikipedia. “Fall of Man”. November 30th 2022. https://en.wikipedia.org/wiki/Fall_of_man

Rules and regulations - Water and sewage

Lovdata, *Lov om planlegging og byggesaksbehandling (plan-*

og bygningsloven) Fjerde del: Byggesaksdel Kapittel 27. Tilknytning til infrastruktur. 23.II.22 https://lovdata.no/dokument/NL/lov/2008-06-27-71/KAPITTEL_4-8#%C2%A727-1

Lovdata, *Lov om vern mot forurensninger og om avfall (forurensningsloven) 23.II.22* <https://lovdata.no/dokument/NL/lov/1981-03-13-6?q=forurensning>

Mattilsynet, *Privat kompostering og bokashi – hva har du lov til å gjøre hjemme?* https://www.mattilsynet.no/planter_og_dyrking/gjodsel_jord_og_dyrkingsmedier/organisk_gjodsel_jordforbedringsmidler_og_dyrkningsmedier/privat_kompostering_og_bokashi_hva_har_du_lov_til_aa_gjore_hjemme.44440

Om oss

Til venstre: Hanna Lie Bakken
Til høyre: Kine Nordgård Ugelstad

Left: Hanna Lie Bakken
Right: Kine Nordgård Ugelstad

About us



Takk til

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dette er et realistisk prosjekt som er verdt å
satse på i fremtiden.

Wenkai Xu for glassmaleri

Kari Ekerholt for omvisning og nyttig
informasjon om dagens avløpssystemer

Åge Sten Randem for materialer.

Åsmund Holm for lån av verktøy, kapping av
trær og diverse tips og råd til byggingen.

Ole Morten Braathen for ingeniørhjelp.

Jon-Anders Martinsen for dronefilmer.

Thank you

Petter Kveseth and Matthew Dalziel
for supervision.

Petter D. Jenssen for information about that
this is a realistic project that is worth investing
in the future.

Wenkai Xu for stained glass painting

Kari Ekerholt for the tour at Åros and useful
information on today's sewage systems

Åge Sten Randem for materials.

Åsmund Holm for borrowing tools, felling trees
and various tips and advice for construction.

Ole Morten Braathen for help with the
construction.

Jon-Anders Martinsen for filming with drone.

Som bygget

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C10 - Nordvegg og 4x15
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As built

A - Basic Drawings

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B - Process

B01 - Starting point
B02 - Resources and materials
B03 - Site analysis
B04 - Preparations
B05 - Drilling part 1
B06 - Testing

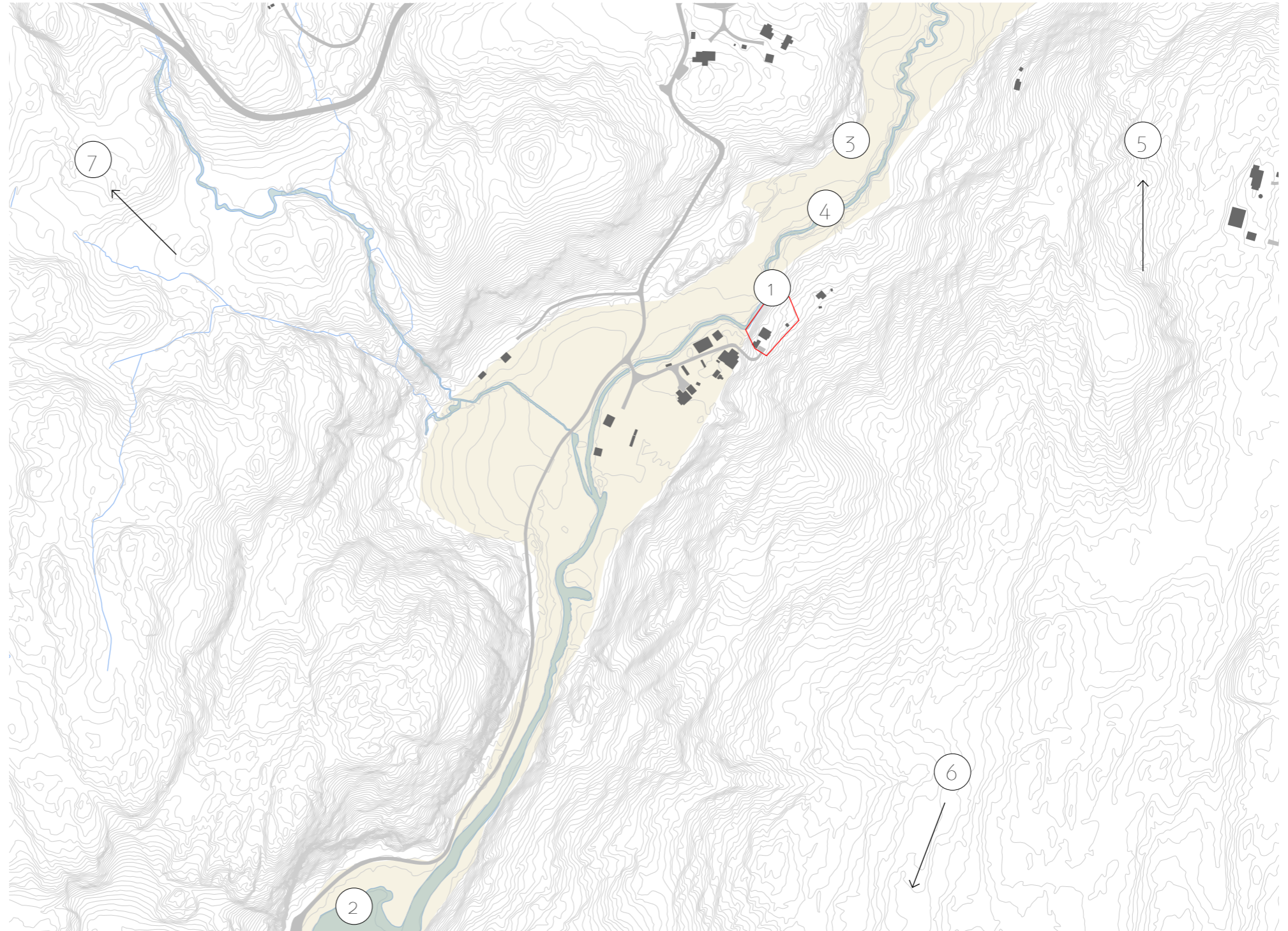
C - Construction

C01 - Foundation
C02 - Frames
C03 - Floor beams
C04 - Bench and connector
C05 - Roof Beams
C06 - Secondary roof construction
C07 - Roof
C08 - Floor and bench
C09 - Windows
C10 - The north wall and 4x15
C11 - Floor and bench
C12 - Hatches and doors
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D - Photos

D01 - Finished building
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D04 - Path
D05 - Foundations
D06 - Frames
D07 - Floor
D08 - Walls
D09 - Roof
D10 - Details

A01 - Situasjon (1:5000)
A01 - Site (1:5000)

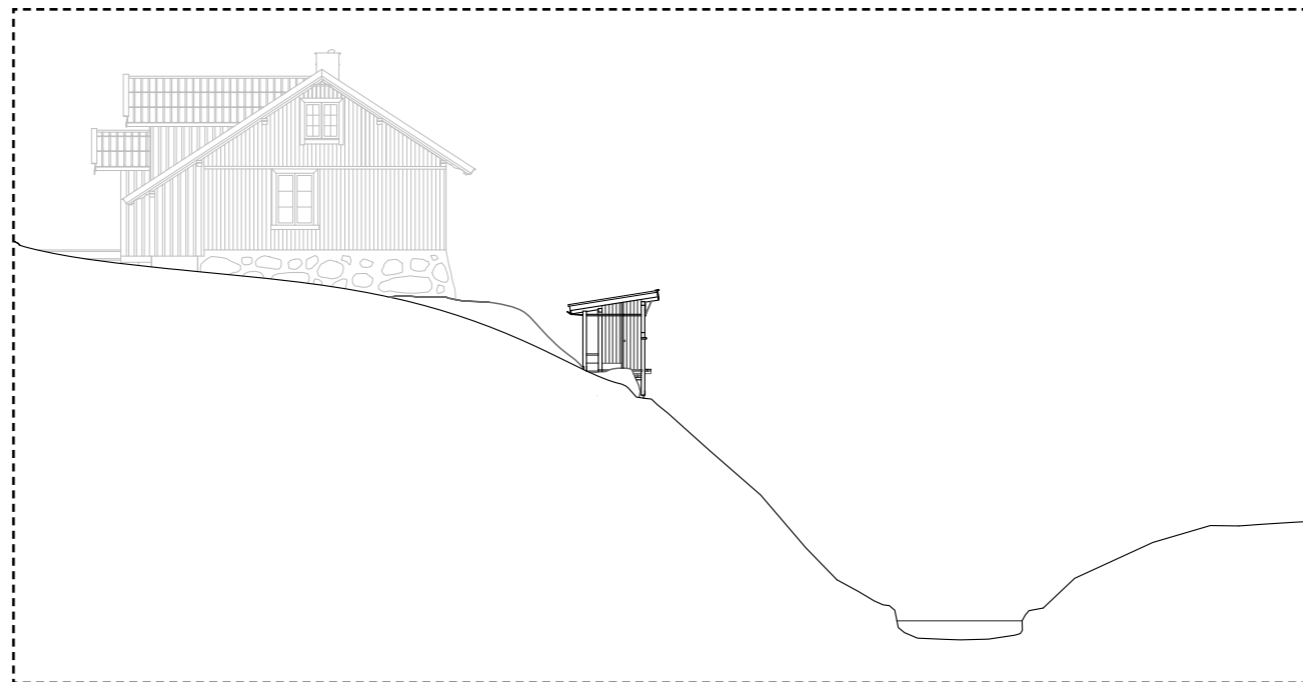
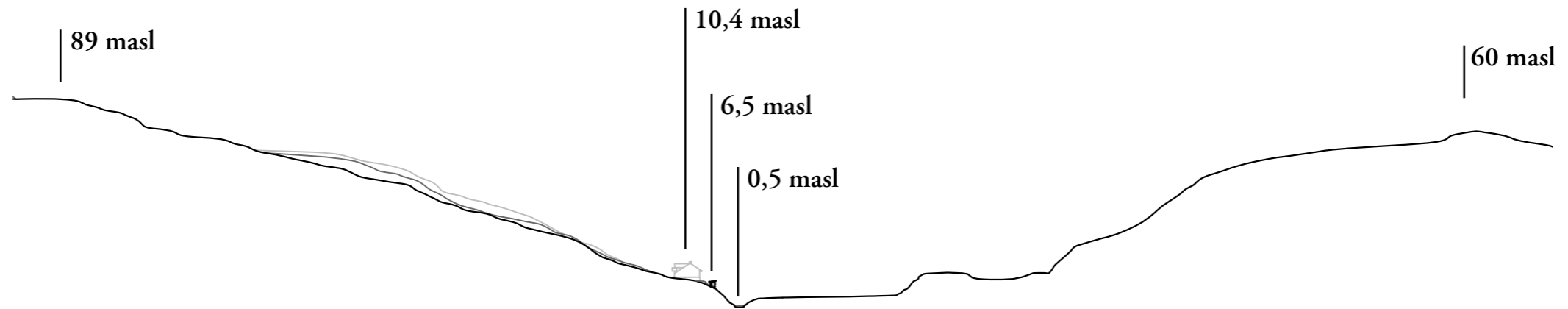


- 1 Tomten
- 2 Hallangspollen
- 3 Havsjødalen
- 4 Havsjødalsbekken
- 5 Til Oslo (30 km)
- 6 Til Drøbak (10 km)
- 7 Til Fagerstrand (5 km)

- 1 The site
- 2 Hallangspollen
- 3 Havsjødalen
- 4 Havsjødalsbekken
- 5 To Oslo (30 km)
- 6 To Drøbak (10 km)
- 7 To Fagerstrand (5 km)

A02 - Situasjonssnitt Havsjødalen (1:2000)

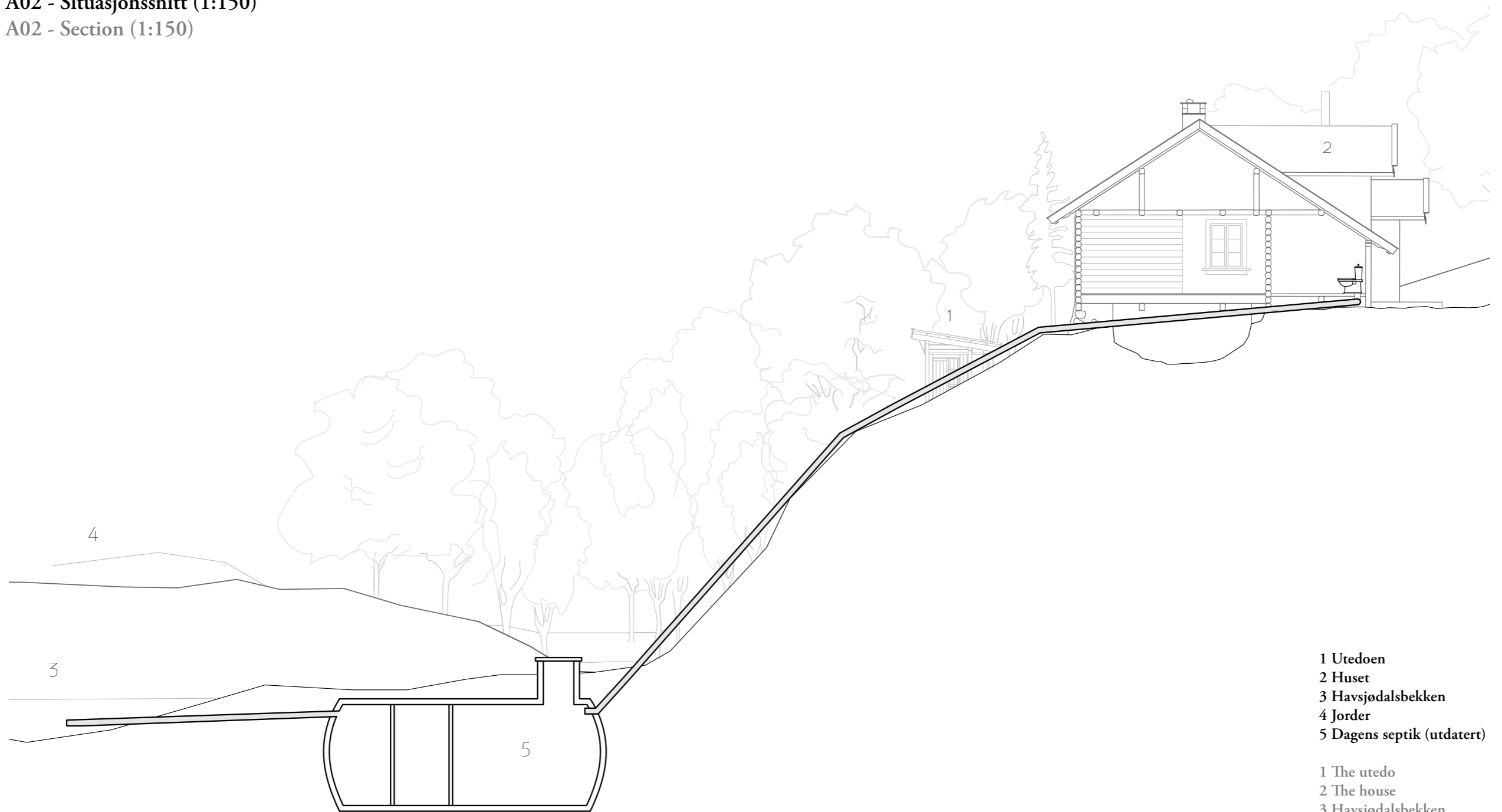
A02 - Section Havsjødalen (1:2000)



Retning
mot sør

Direction
towards south

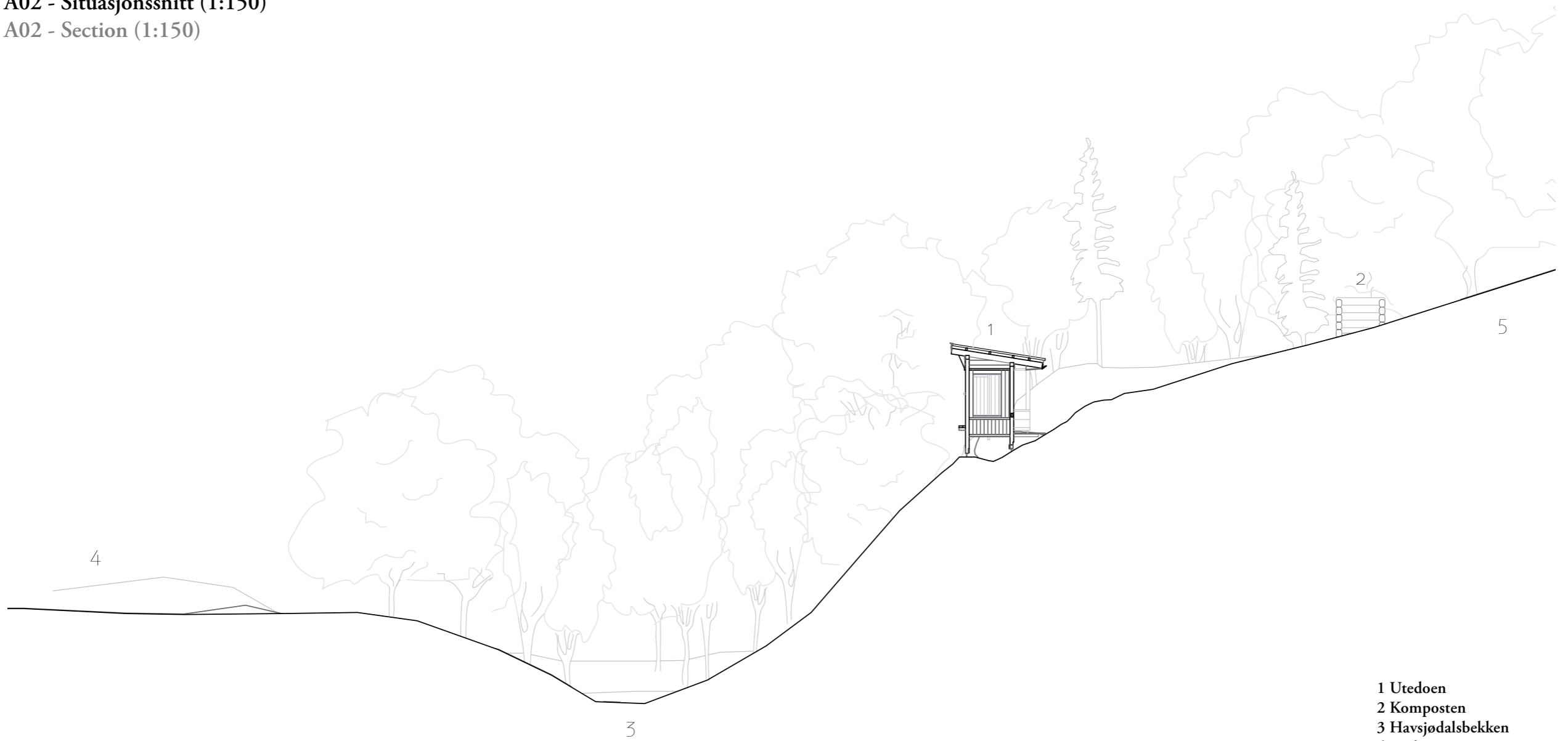
A02 - Situasjonssnitt (1:150)
A02 - Section (1:150)



- 1 Utedoen
- 2 Huset
- 3 Havsjødalsbekken
- 4 Jorder
- 5 Dagens septik (utdatert)

- 1 The utedo
- 2 The house
- 3 Havsjødalsbekken
- 4 Fields
- 5 Septic today (outdated)

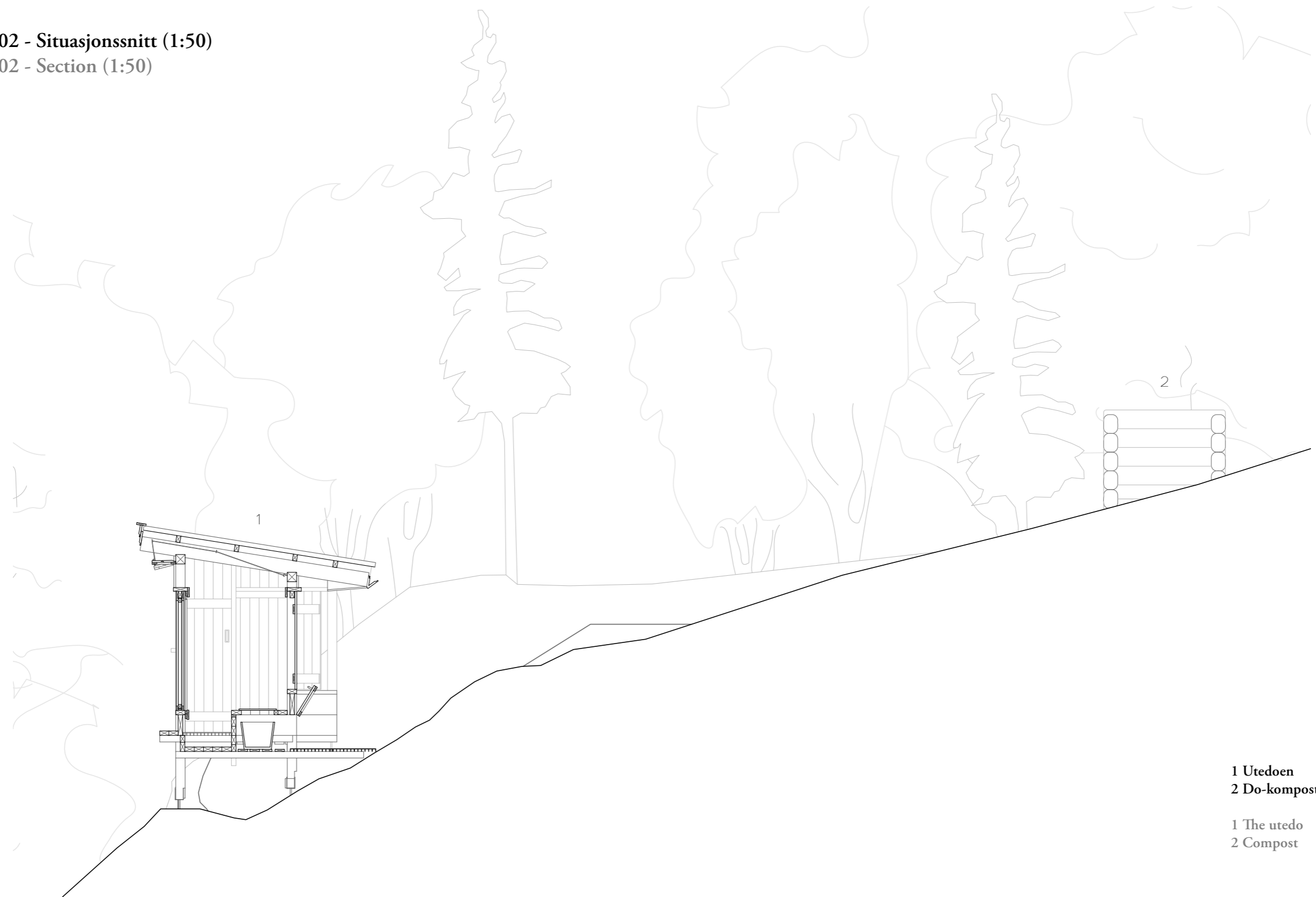
A02 - Situasjonssnitt (1:150)
A02 - Section (1:150)



- 1 Utedoen
- 2 Komposten
- 3 Havsjødalsbekken
- 4 Jorder
- 5 Næringsrik jord fra kompost

- 1 The utedo
- 2 The compost
- 3 Havsjødalsbekken
- 4 Fields
- 5 Nutritious soil from compost

A02 - Situasjonssnitt (1:50)
A02 - Section (1:50)



1 Utedoen
2 Do-kompost

1 The utedo
2 Compost

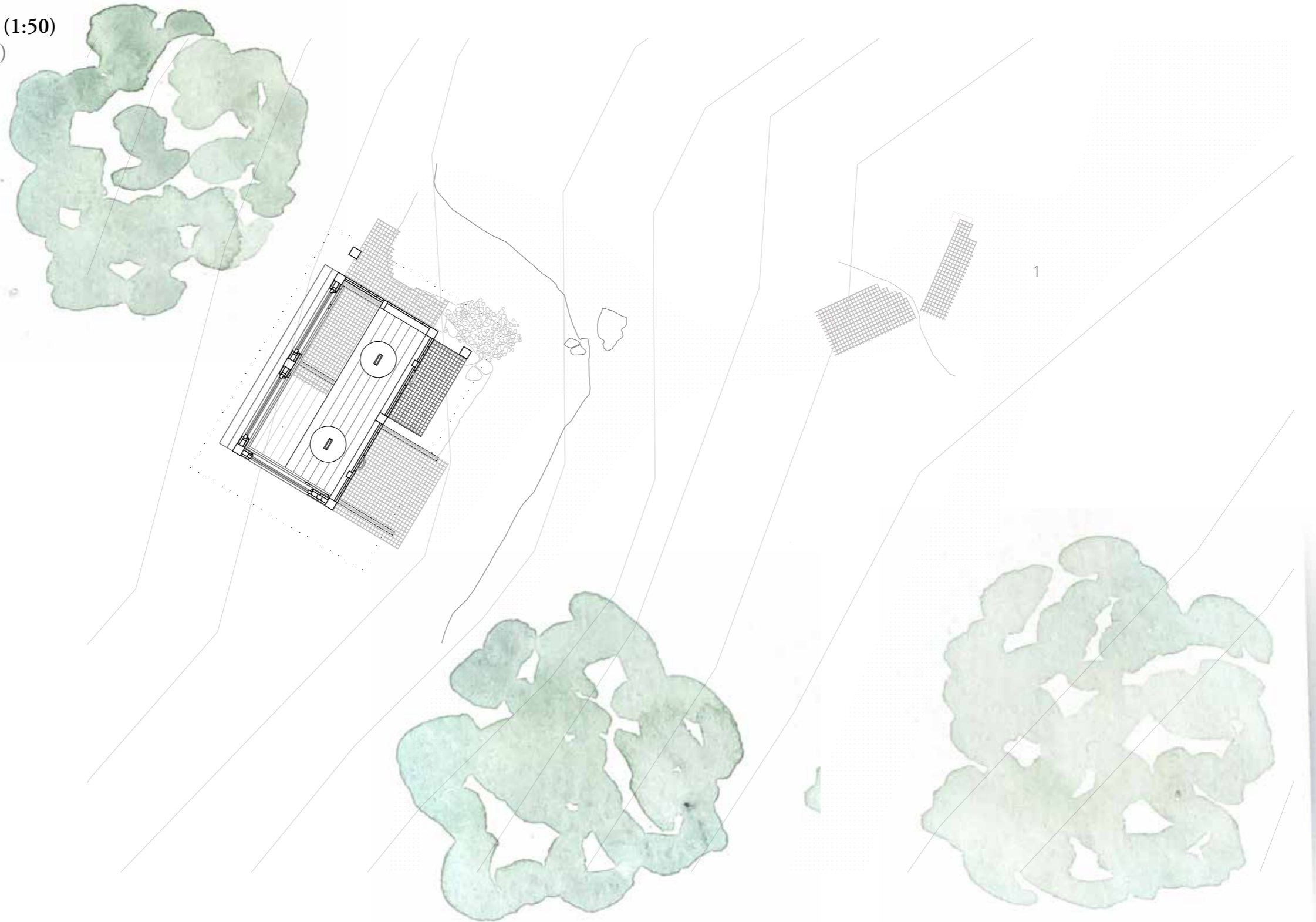
A03 - Situasjonsplan (1:200)
A03 - Site plan (1:200)

- 1 Utedoen
- 2 Tørkestativet
- 3 Huset
- 4 Jorder
- 5 Do-kompost
- 6 Matavfall
- 7 Havsjødalsbekken
- 8 Eple
- 9 Pære
- 10 Flekk for dyrking
- 11 Bringebær
- 12 Liljekonval
- 13 Einer
- 14 Sisselrot
- 15 Natt og dag
- 16 Furu
- 17 Bjørk
- 18 Ask
- 19 Solbær

- 1 The outhouse
- 2 The drying rack
- 3 The house
- 4 Fields
- 5 Compost
- 6 Food waste
- 7 Havsjødalsbekken
- 8 Apple-tree
- 9 Pear-tree
- 10 Spot for cultivation
- 11 Raspberries
- 12 Lily of the valley
- 13 Juniper
- 14 Polypod
- 15 Night and day
- 16 Pine
- 17 Birch
- 18 Ash
- 19 Blackcurrants

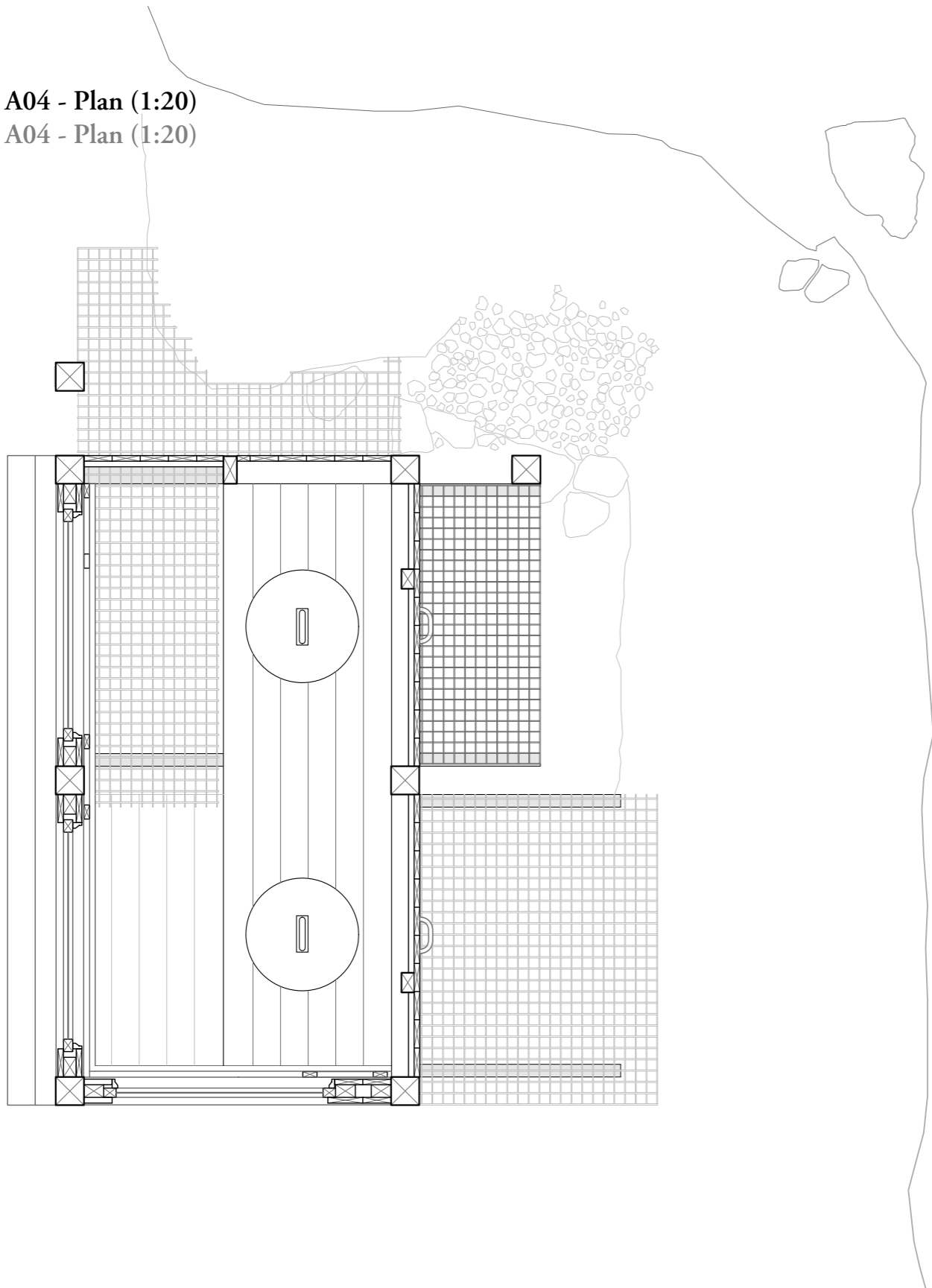


A03 - Situasjonsplan (1:50)
A03 - Site plan (1:50)

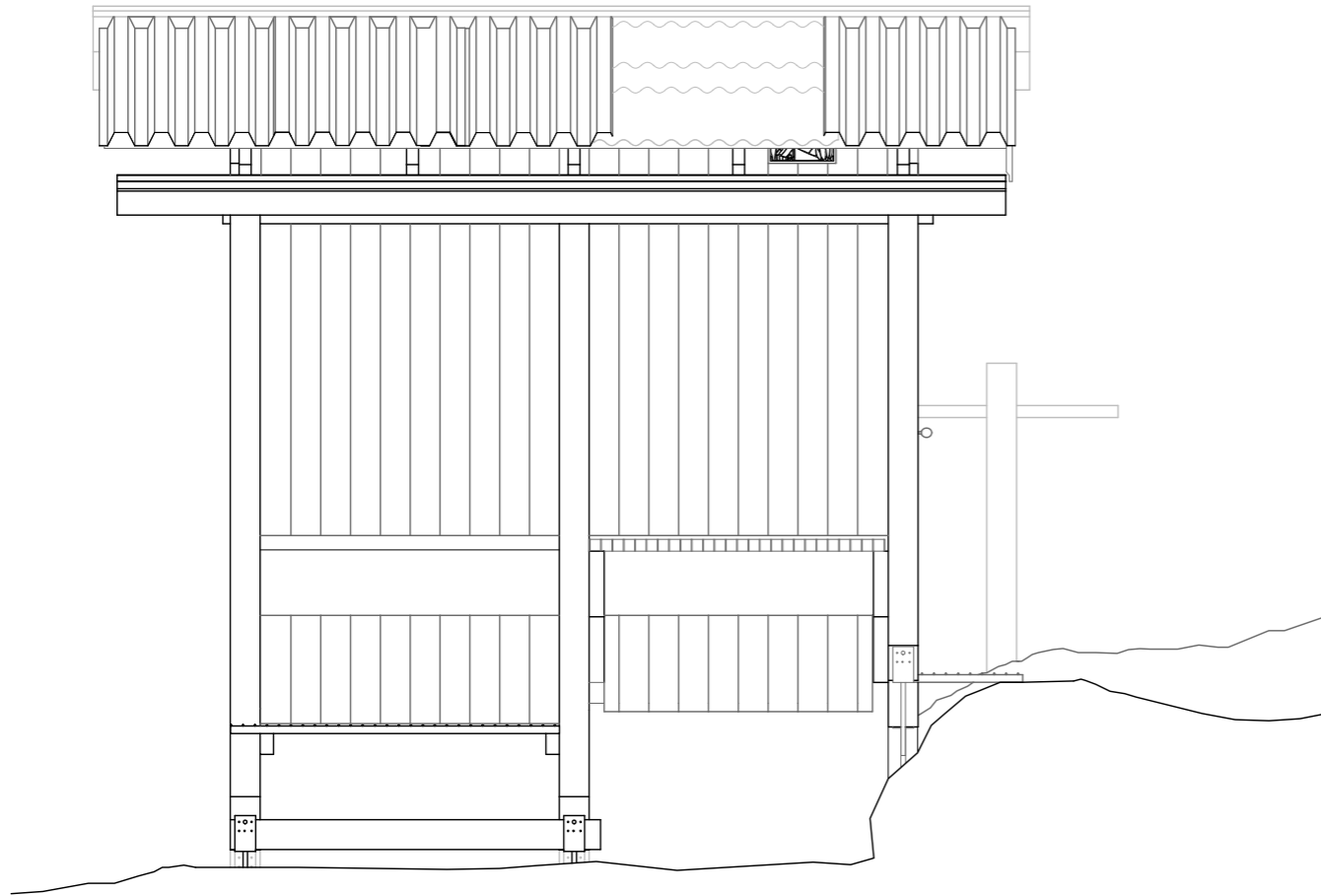


1 Sti
1 Path

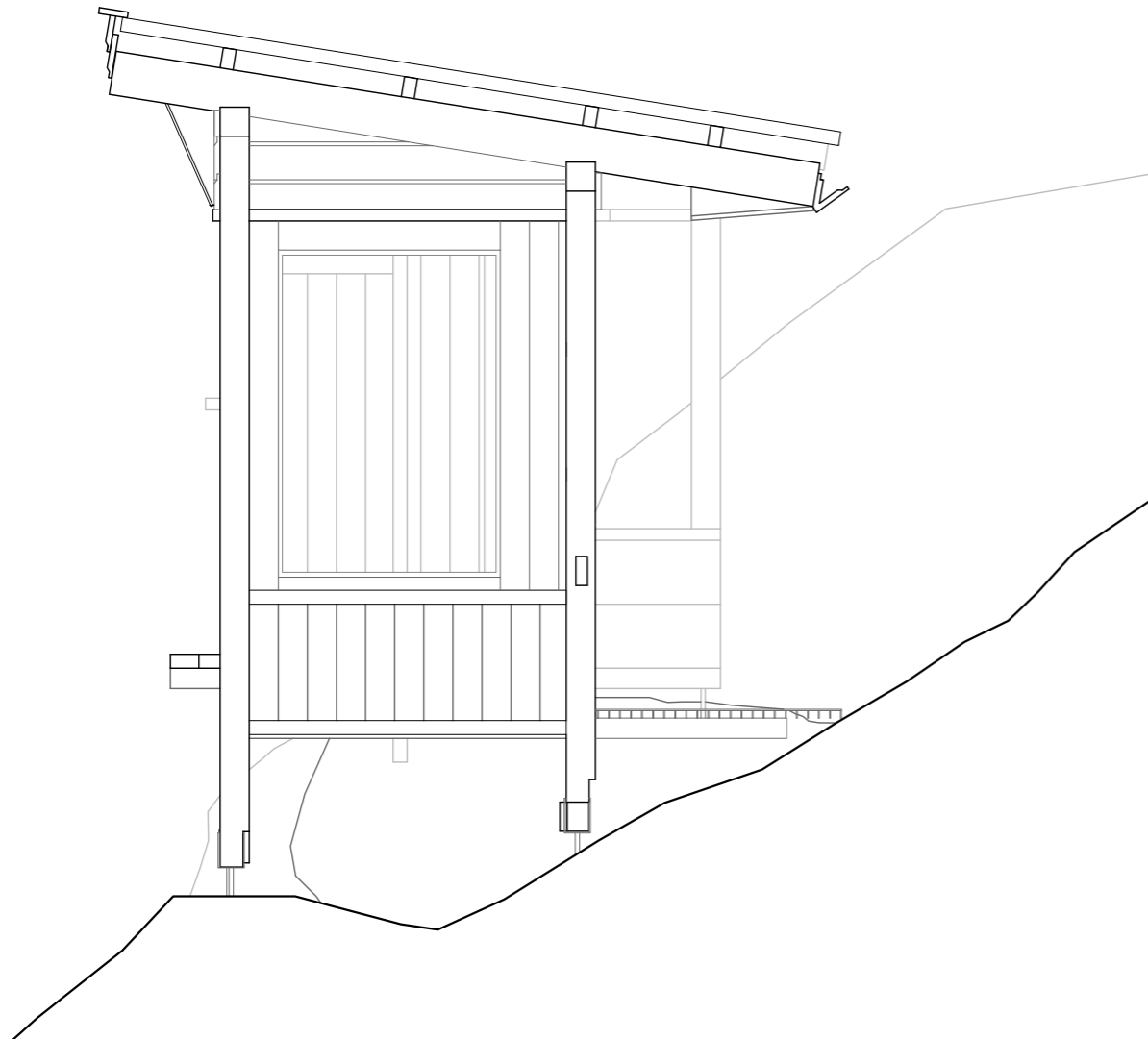
A04 - Plan (1:20)
A04 - Plan (1:20)



A05 - Oppriss øst (1:20)
A05 - Elevation east (1:20)



A06 - Oppriss sør (1:20)
A06 - Elevation south (1:20)



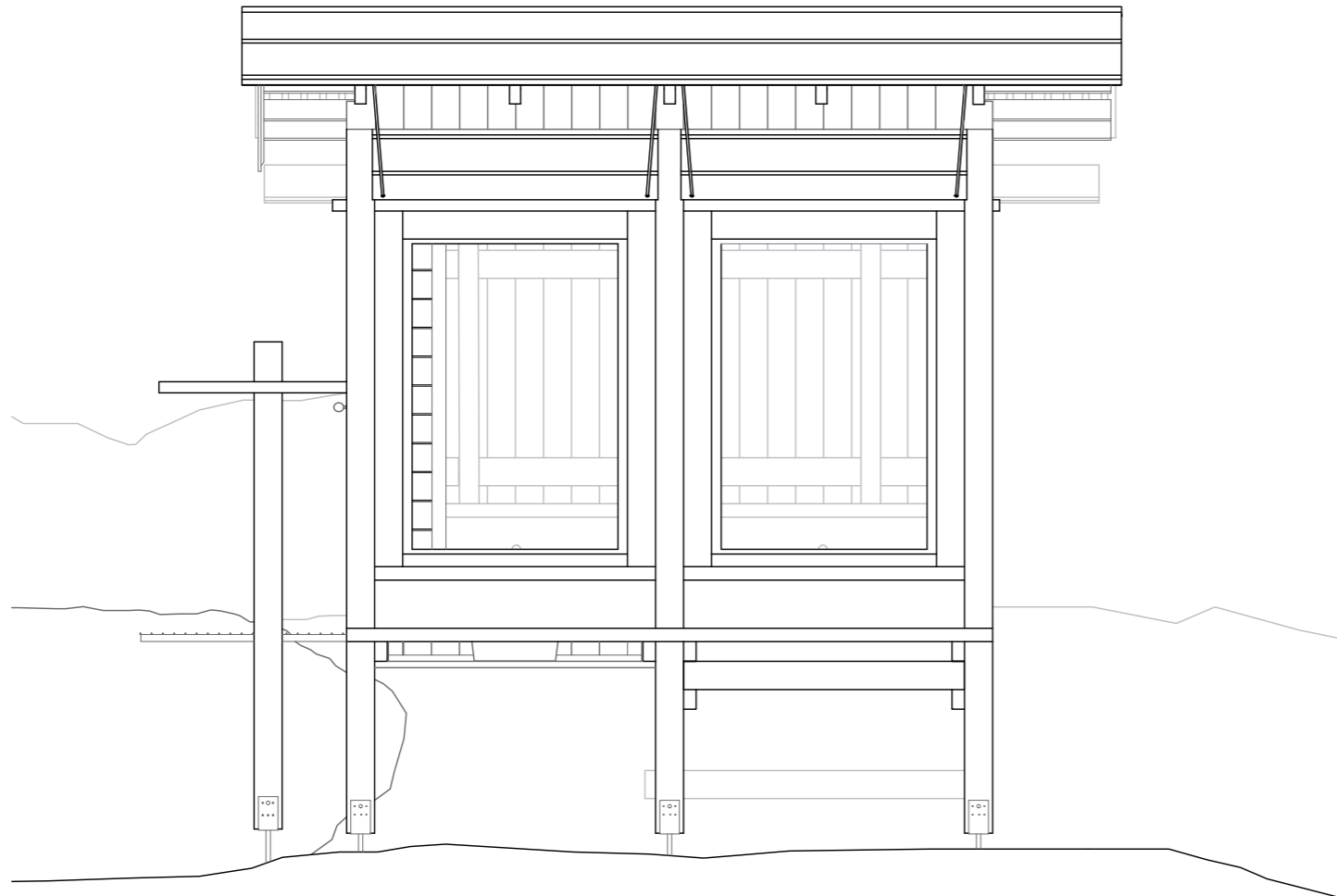
A06 - Oppriss sør
A06 - Elevation south



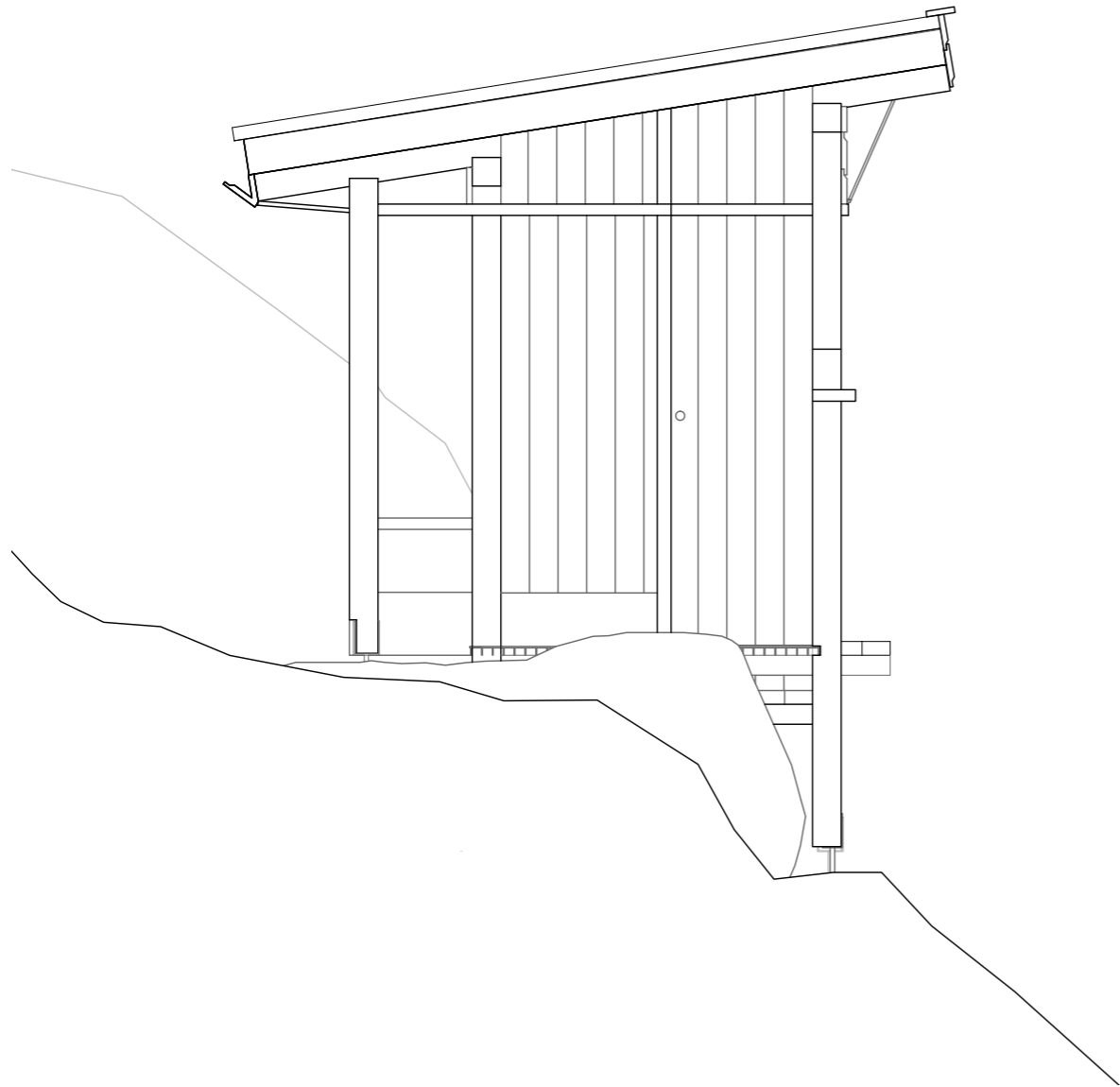
- 1 Vaskevann fra regnvann
- 2 Synlig konstruksjon inne
- 3 Vindu i sittehøyde
- 4 Tilgang til dobøtte
- 5 Hylle for vedlikehold

- 1 Handwash from rainwater
- 2 Visible construction inside
- 3 Window when sitting
- 4 Toilet bucket access
- 5 Maintenance shelf

A07 - Oppriss vest (1:20)
A07 - Elevation west (1:20)

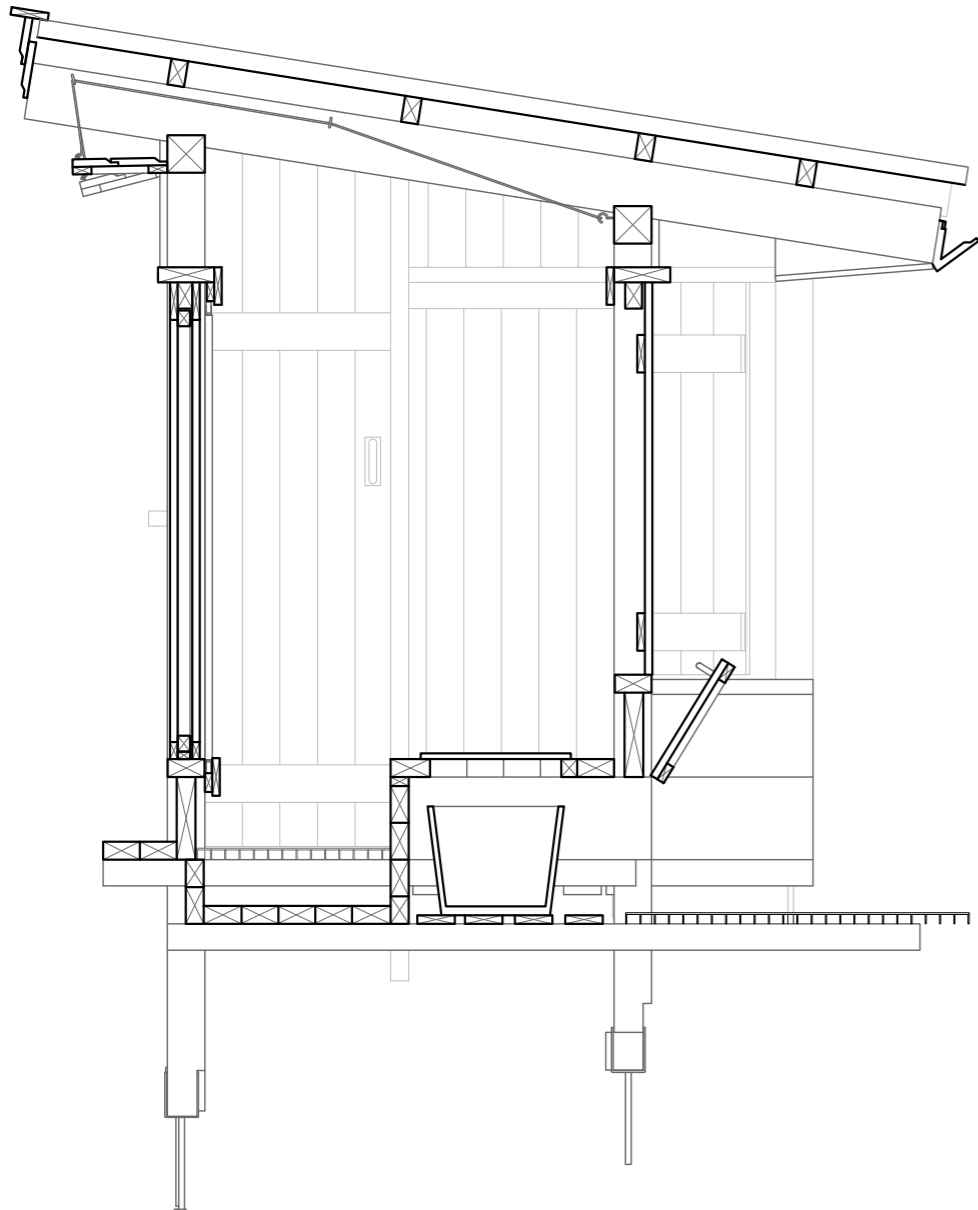


A08 - Oppriss nord (1:20)
A08 - Elevation north (1:20)

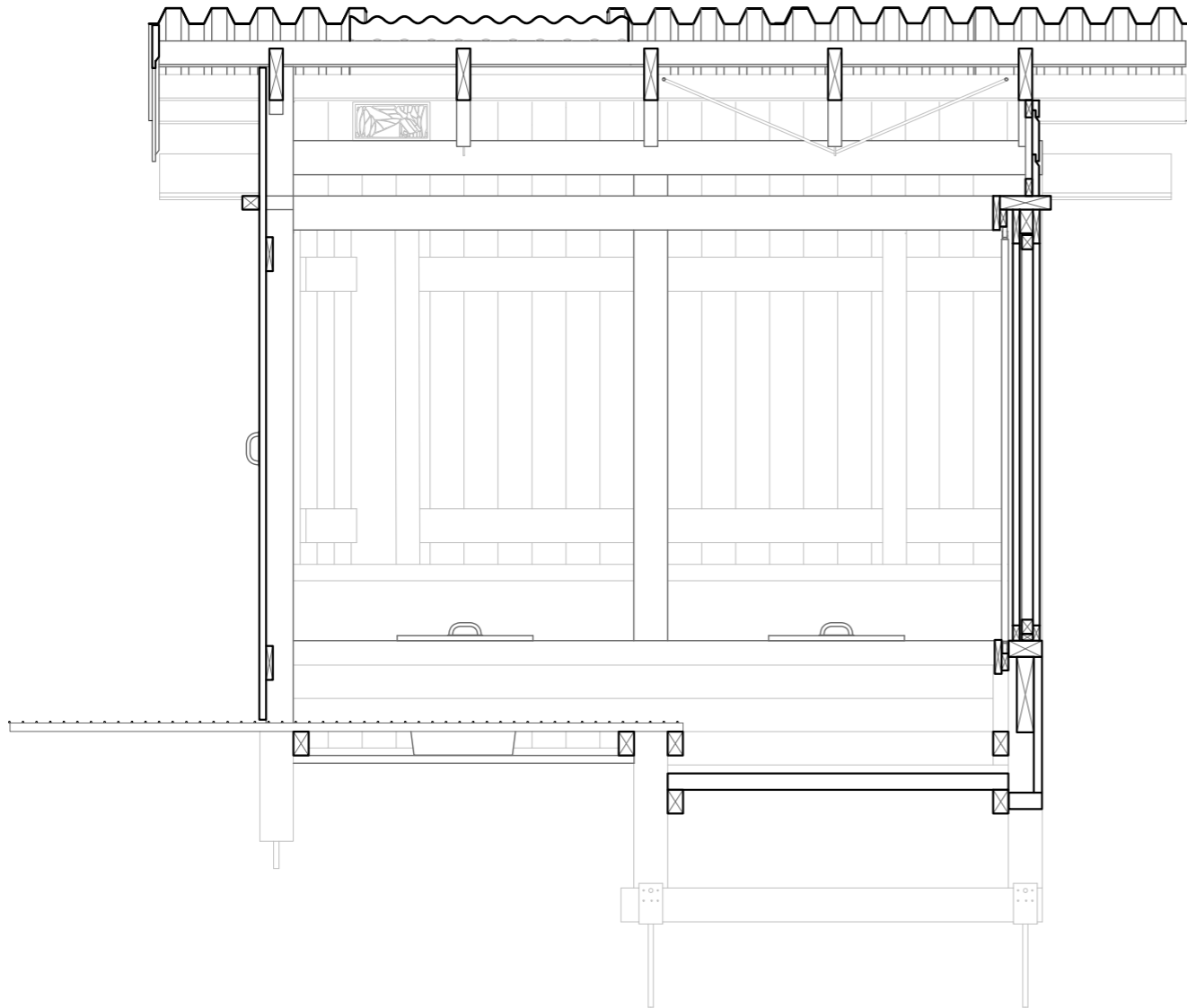


A09 - Kortschnitt (1:20)

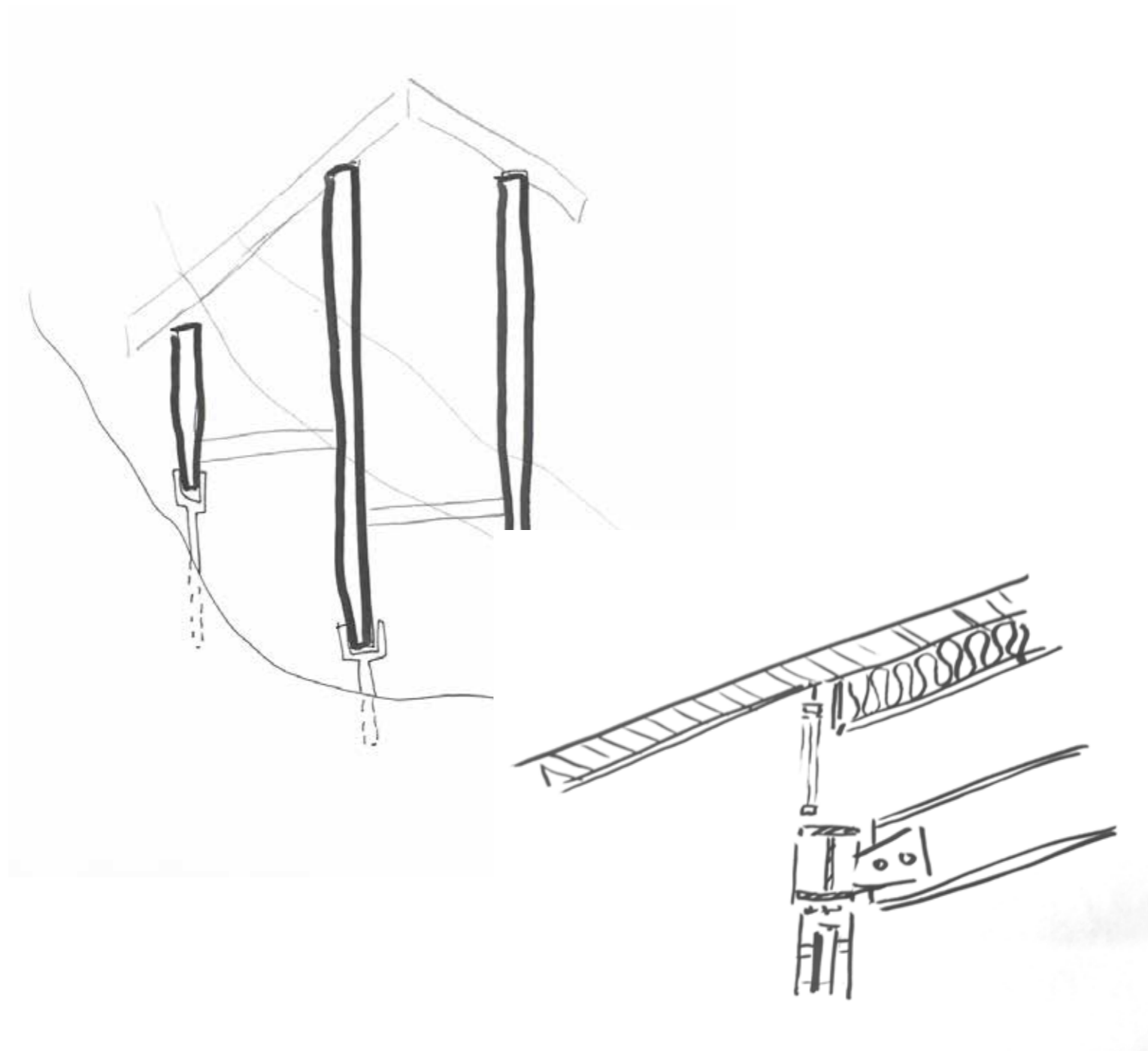
A09 - Cross section (1:20)



A10 - Langsnitt (1:20)
A10 - Longitudinal section (1:20)



B - Prosess



- B01 - Utgangspunkt
- B02 - Ressurser/materialer
- B03 - Tomteanalyse
- B04 - Forberedelser
- B05 - Boring del 1
- B06 - Testing

B - Process

- B01 - Starting point
- B02 - Resources/materials
- B03 - Site analysis
- B04 - Preparations
- B05 - Drilling part 1
- B06 - Testing

B01 - Utgangspunkt
B01 - Starting point



To masterstudenter med ønske om å bygge noe i 1:1. Et reelt behov for en alternativ do-løsning pga vann som fryser på vinteren og et pålegg fra kommunen. En overkommelig størrelse på et byggeprosjekt for et diplomsemester.

Two master's students with the desire to build something 1:1. A need for an alternative toilet solution due to pipes freezing in winter and an order from the municipality. A build that could be done within a semester.

digitalmuseum.no



Learning by doing
idea to find a proper
system architecture -
small scale buildings

Pålegg om opprydding i avløpsforhold - Gnr 62 Bnr 46 - Sandrettveien 26 - Mindre avløpsanlegg

Kommunen viser til skriftlig forhåndsvarsel datert 29.08.19 og mottatt svar på anmodning om informasjon den 09.09.19.

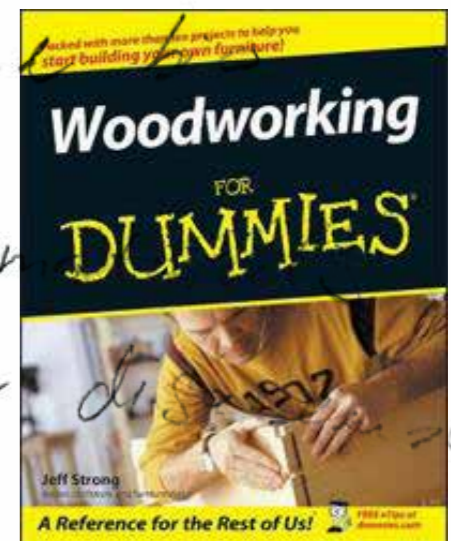
Av oppgitt informasjon fremgår det at du har slamavskiller som avløpsløsning på eiendommen. Denne løsningen tilfredsstiller ikke dagens rensekraft i lokal forskrift om utslipp fra mindre avløpsanlegg.

Vedtak

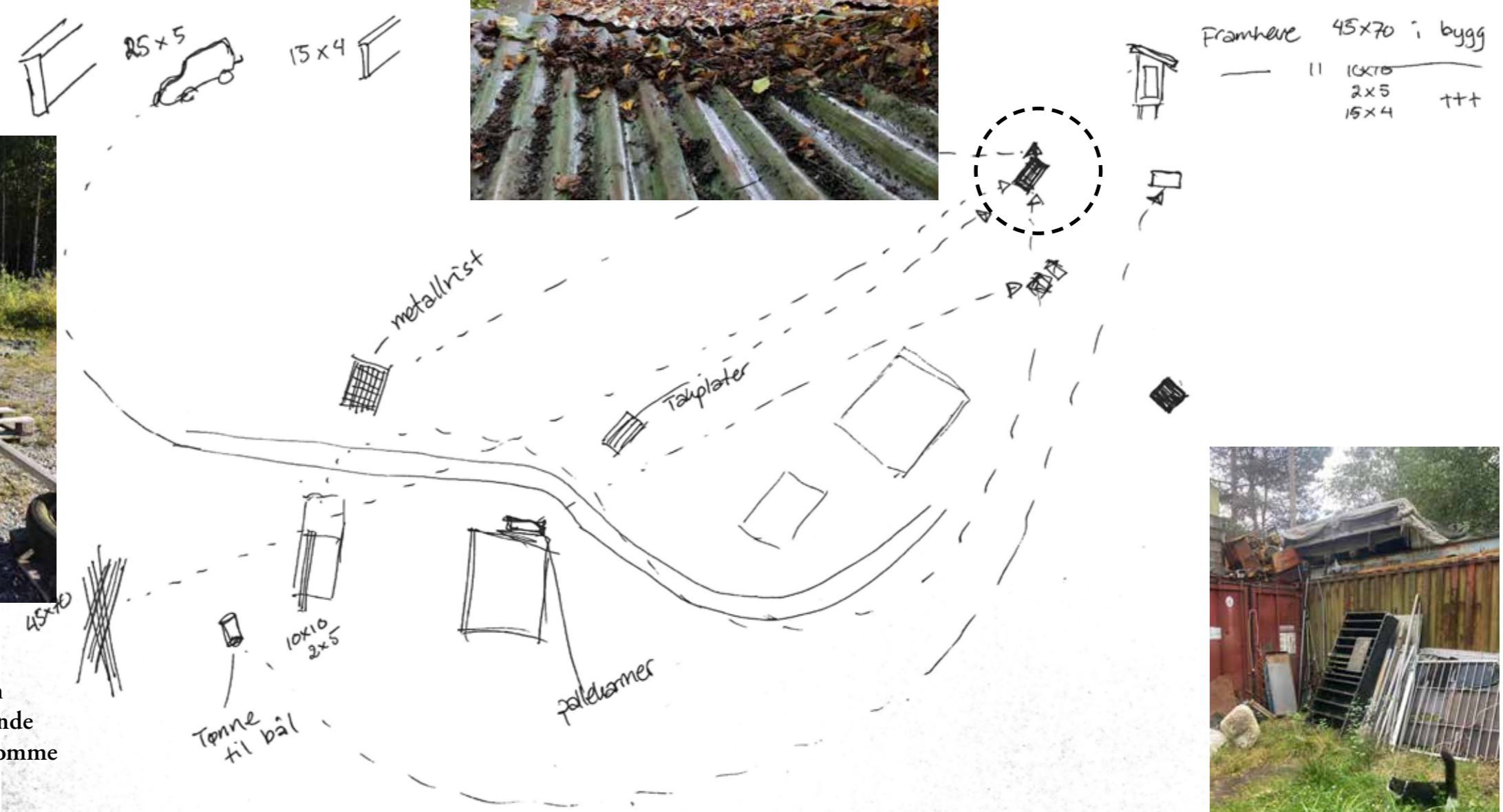
Du pålegges å rydde opp i avløpsforhold for boligen på eiendommen med adresse Sandrettveien 26 for gnr 62 bnr 46 i Frogn kommune. Hjemmelen for pålegget er forurensningsloven § 7.



and considerations
nature and
sustainability -
and design for

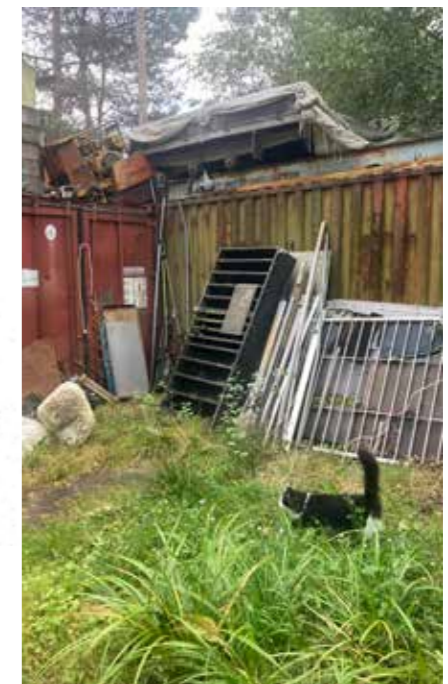


B02 - Ressurser
 B02 - Resources



Tomt. Mye verktøy. En nabo med mye spennende skrot. Finn.no. Hjelpsomme mennesker.

Plot. Tools. A neighbor with lots of exciting junk. Finn.no. Helping people.



B03 - Tomteanalyse
 B03 - Site analysis



Utsikter, solforhold, stier, terreng, plassering i forhold til huset. Flora. Grunnforhold.

Views, sun conditions, paths, terrain, placement in relation to the house. Flora. Ground conditions.



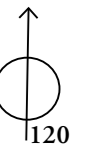
B03 - Tomteanalyse
B03 - Site analysis

Situasjon august 2022

- 1 Huset
- 2 Tørkestativet
- 3 Naturlig nedtrapping
- 4 Jorder
- 5 Forlatt bygning
- 6 Materialer fra rast bygg
- 7 Septiktank (må byttes)
- 8 Borrevann (40 m ned)
- 9 Til jolle (300 m)
- 10 Til Oslo (30 km)
- 11 Havsjødalsbekken
- 12 Bratt skog
- 13 Sti til forlatt hytte

Situation August 2022

- 1 The house
- 2 Drying rack
- 3 Steps in the terrain
- 4 Fields
- 5 Abandoned building
- 6 Materials from old house
- 7 Septic tank (must be replaced)
- 8 Water well (40 m down)
- 9 To small boat (300 m)
- 10 To Oslo (30 km)
- 11 Havsjødalsbekken
- 12 Steep forest
- 13 Path to abandoned cottage



B03 - Tomteanalyse
B03 - Site analysis



Når solen går ned kryper tåken ofte innover langs jordene.
Den kommer som regel fra sør, fra fjorden og Hallangspollen.



When the sun sets the fog comes creeping in over the fields. It usually comes from the south, from Hallangspollen and the fjord.

B03 - Tomteanalyse
B03 - Site analysis



Utedo-tomten er et av stedene på tomten der solen skinner lengst ut på ettermiddag og kveld i sommerhalvåret. I vinterhalvåret går solen ganske tidlig ned bak åsene mot vest.



In summer the sun shines on the utedo-plot late in the afternoon and evening. In the winter the sun sets quite early behind the hills towards the west.

B03 - Tomteanalyse
B03 - Site analysis



Mengde vann i Havsjødalsbekken varierer med årstider og flo og fjære. På sommeren blir den nesten helt skjult av blader på trærne.



The amount of water in Havsjødalsbekken varies with the seasons and tides. In summer it is almost completely hidden by leaves on the trees.

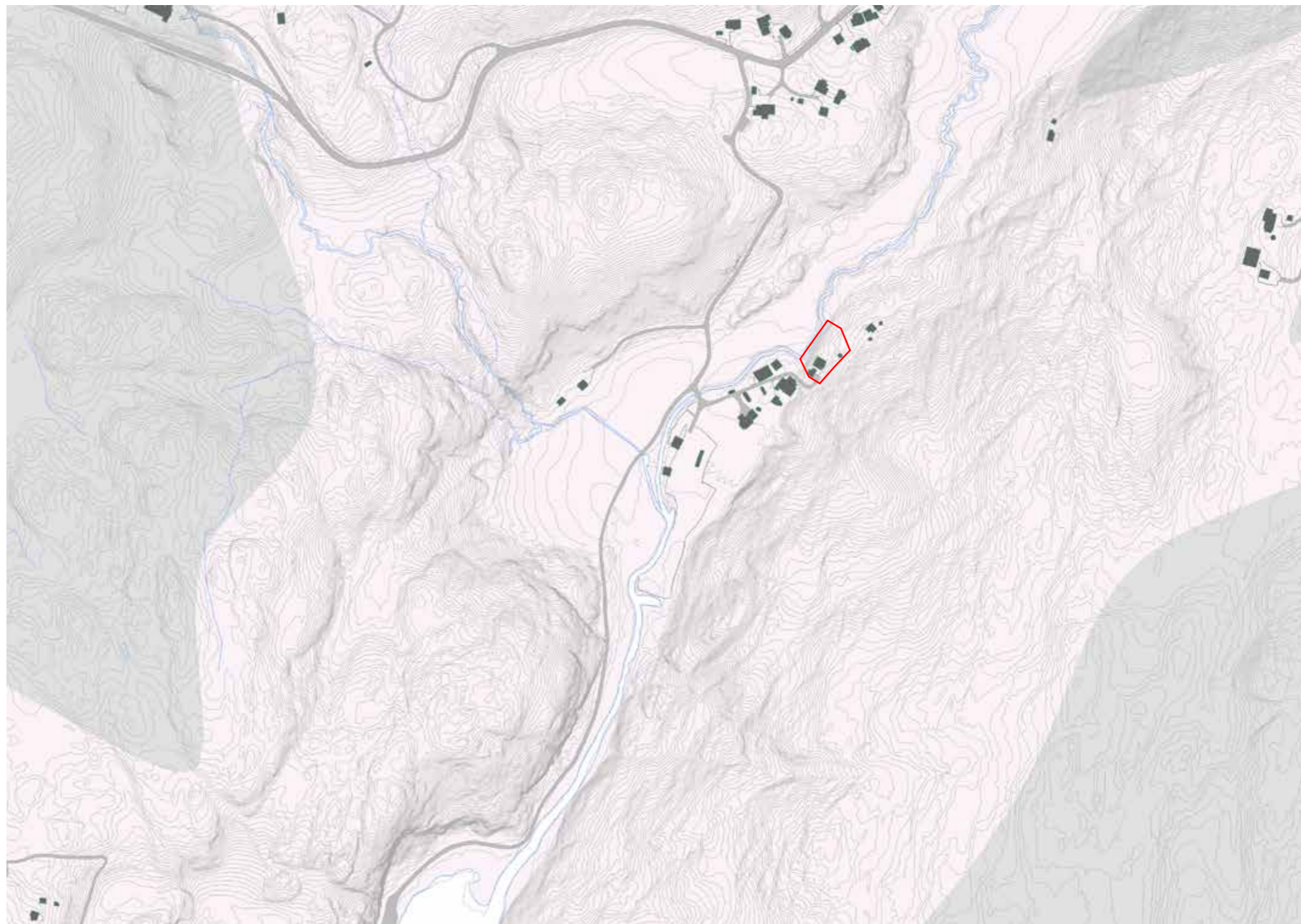
B03 - Tomteanalyse
B03 - Site analysis

Berggrunn
Granittisk gneis
Sandstein

Granittisk gneis er en hard bergart som egner seg til boring og punktfundamenter.

Bedrock
Granitic gneiss
Sandstone

Granitic gneiss is a hard rock which is suitable for drilling and point-foundations.



B04 - Forberedelser
B04 - Preparation



Rydding utthussneven



~~Bene laftestolter~~

Ring Åge Feil



Håll og
plank



Rydding av tomt og innhenting av materialer og skaffe oversikt over hva vi har tilgang på.

Clearing the site for storing materials and obtaining an overview of what we have access to.

B04 - Forberedelser

B04 - Preparation

1. Laftestokker

Ulike lengder

2. 48 x 148

Ulike lengder, noe råte

3. Panel

Ulike lengder. Noe avflassa maling og løse not og fjær

4. Takstein

Nok til et tak, solide.

5. Murstein

Mye, men må graves frem

6. Glassbyggerstein

24 stykk, nye.

7. Div edelt tre

Mye forskjellig, ikke veldig lange.

8. Bambusrullegardin

Mye, forskjellige kvaliteter og lengder/bredder

9. Stein

Mye og ulike størrelser

10. L stål

div lengder, 10 stykk 1700 m

11. Vaier

Rullen som vist.

12. Div behandling

Maling, lakk, farger etc

1. Logs

Different lengths

2. 48 x 148

Different lengths, some rot

3. Panel

Different lengths. Some flaking paint and

4. Roof tiles

Enough for a roof, solid.

5. Brick

A lot, but must be dug out

6. Glass building stone

24 pieces, new.

7. Various precious wood

A lot of different, not very long.

8. Bamboo roller blind

Lots of different qualities and lengths/widths

9. Stone

Lots and different sizes

10. L steel

various lengths, 10 pieces 1700 m

11. Cables

Roll as shown.

12. Miscellaneous treatment

Paint, varnish, colors etc



B04 - Forberedelser
B04 - Preparation



Vi ønsket å se fasongen på fjellknausen før vi skulle bygge.
Tilsynelatende så det ut som lite som måtte fjernes, mens i bunn av
gropa var det mye stein og jord.



We wanted to see the shape of the bedrock before we started to build.
It looked like little needed to be removed, while in the middle of the
pit there was more rock and soil.

B04 - Forberedelser
B04 - Preparation



Etablere kompost
Build compost

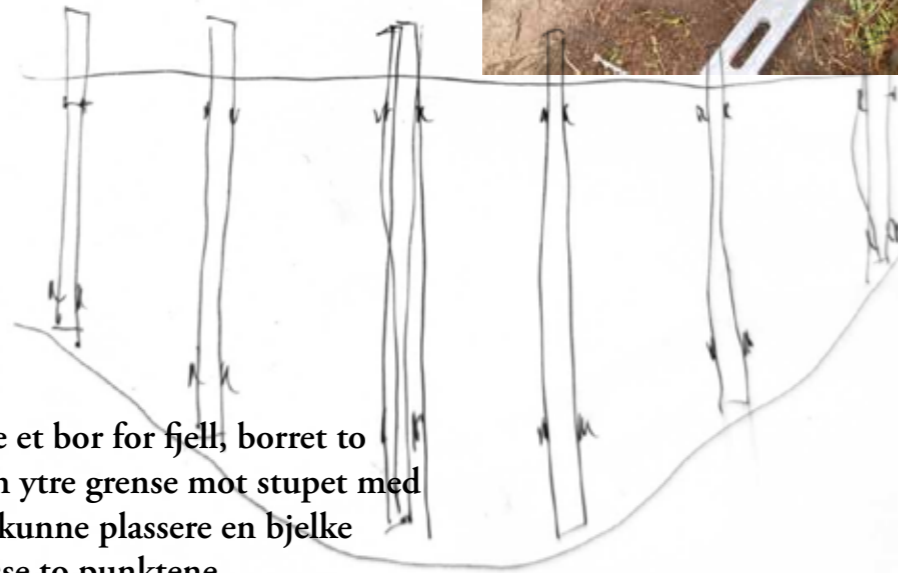
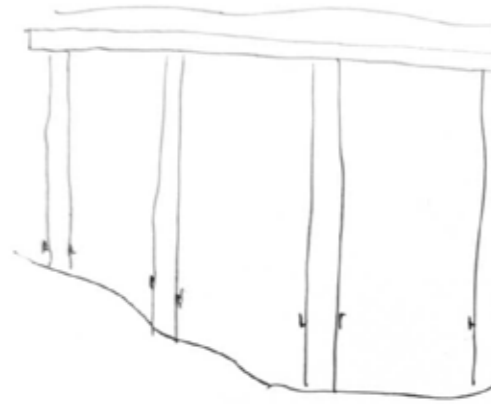


Funnede ting
Found objects



Sortere jord
Sorting soil

B05 - Boring
B05 - Drilling



Vi fikk låne et bor for fjell, borret to hull som en ytre grense mot stupet med tanke på å kunne plassere en bjelke mellom disse to punktene.

We got to borrow a drill hammer and drilled two holes as an outer perimeter towards the cliff with an intention of placing a beam between these two points.



etter bar
nagel
utt å
rett



B06 - Testing
B06 - Testing



Kun de
sem holder
process



Testing av teknikker,
materialer og rom i 1:1.

Testing of techniques,
materials and rooms in 1:1.

B06 - Testing
B06 - Testing



Testing på tomt
Testing on site

B06 - Testing
B06 - Testing

1. Hylle(r)

Dopapir, funnede ting etc.

2. Tegl+panel

Bak vask? Ustabil? Tidskrevende?

3. Laft

Konkurrerer med allerede massiv konstruksjon? Mulig tidskrevende.

4. Rullegardin

Bra størrelse. Kaldt. Gennomsiktig.

5. Liggende panel

Raskt. Kjedelig?

6. Glassfiberplate

“Plastikk” uttrykk? Kaldt? Fint lys.

7. Glassbyggerstein/Tegl

For “nytt” uttrykk?

8. Stående panel

Malt? Samme farge som huset? Mangler noen linjer/formater for å stramme opp uttrykk.

1. Shelf(s)

Toilet paper, found things etc.

2. Brick+panel

Behind the sink? Unstable? Time consuming?

3. Lafted logs

Competing with already massive construction? Possibly time-consuming.

4. Roller blind

Good size. Cold. Transparent.

5. Horizontal panel

Quickly. Boring?

6. Fiberglass plate

“Plastic” expression? Cold? Nice light.

7. Glass building stone/Brick

Too “new” expression?

8. Standing panel

Painted? Same color as the house? Missing some lines/formats to tighten up expressions.



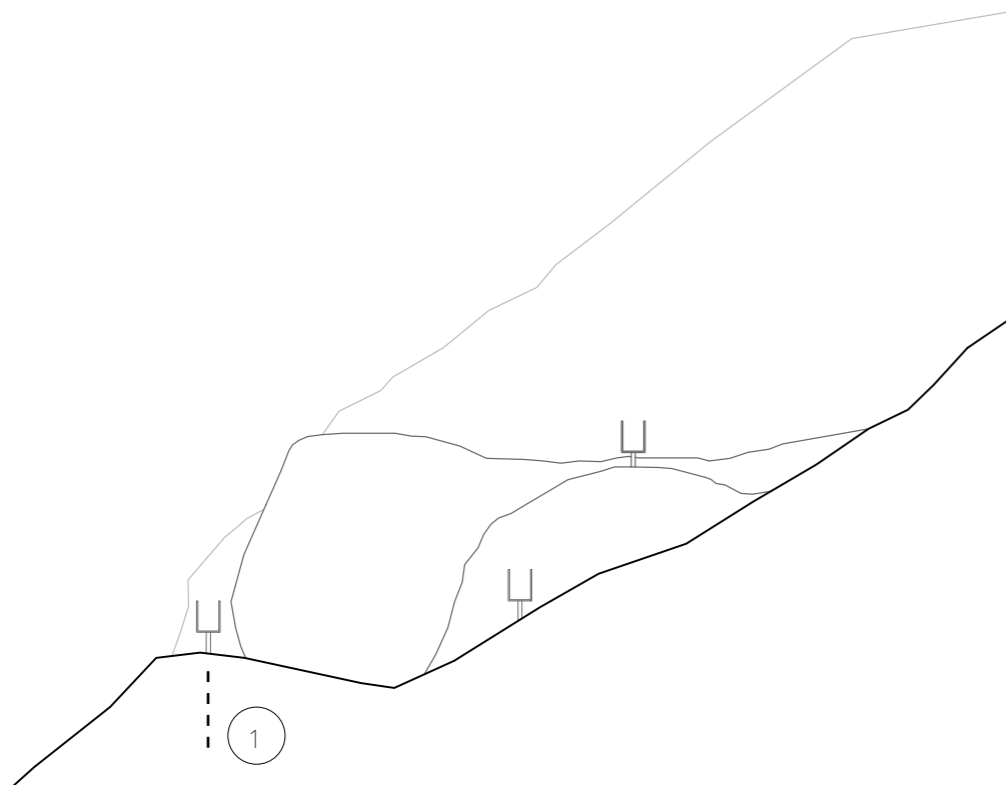
C - Konstruksjon

- C01 - Fundament
- C02 - Rammer
- C03 - Gulvbjelker
- C04 - Benk og kobling
- C05 - Takbjelker
- C06 - Lekter tak
- C07 - Tak
- C08 - Gulv og benk
- C09 - Vinduer
- C10 - Nordvegg og 4x15
- C11 - Kledning
- C12 - Luker og dører
- C 13 - Planlagte elementer

C - Construction

- C01 - Foundation
- C02 - Frames
- C03 - Floor beams
- C04 - Bench and connector
- C05 - Roof Beams
- C06 - Secondary roof construction
- C07 - Roof
- C08 - Floor and bench
- C09 - Windows
- C10 - The north wall and 4x15
- C11 - Cladding
- C12 - Hatches and doors
- C 13 - Planned, not built

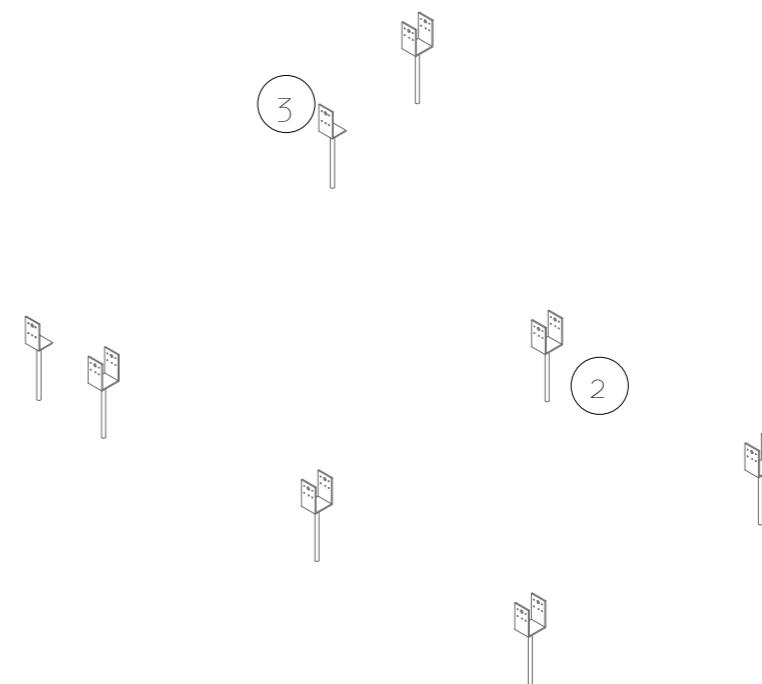
C01 - Fundament
C01 - Foundation



1. Støping av stolpesko. (se dagbok: *Mandag, 17 Oktober*)

2. 6 sykk stolpesko U-form 117x96 fra Biltema. 324,-kr.

3. Den L-formede stolpeskoen fungerte bedre der søylen kom nært fjellet. 2 stykk stolpesko L 100x70 fra biltema. 80,- kr.



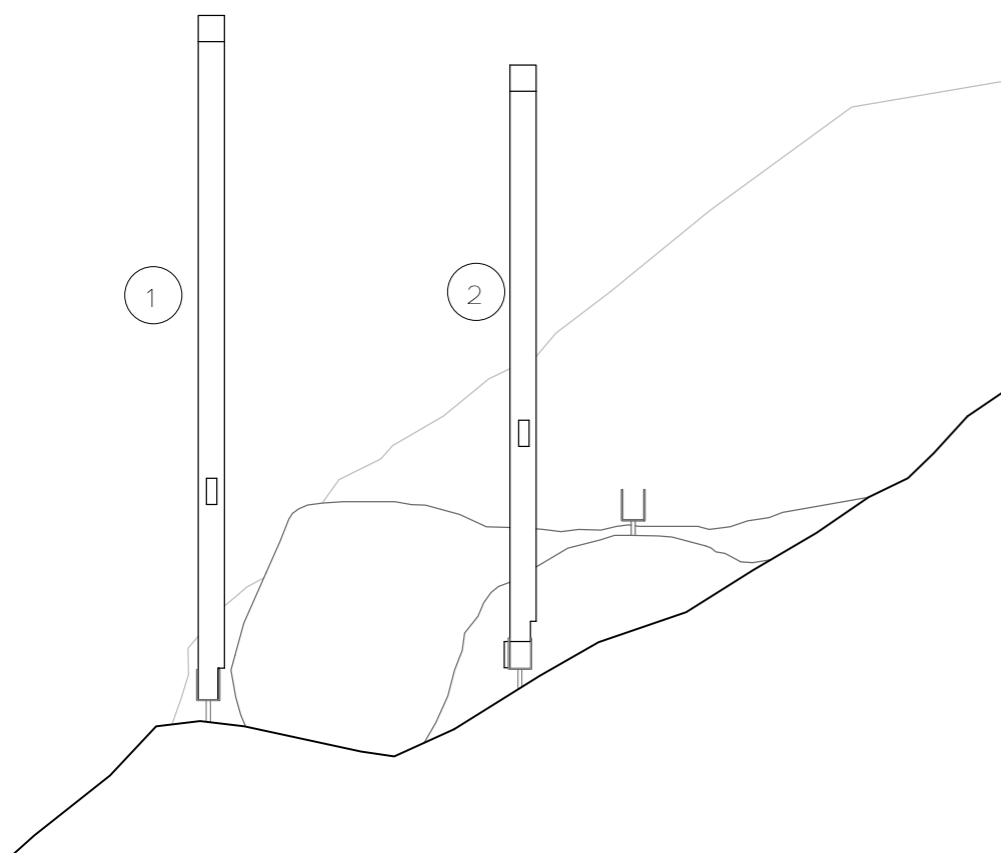
1. Casting the pins. (see diary: *Monday, October 17th*)

2. 6 pins U-shaped 117x96 from Biltema. NOK 324

3. This pin was better suited where the the column was closer to the rock. 2 pins L-shaped 100x70 from Biltema. NOK 80

C02 - Rammer

C02 - Frames



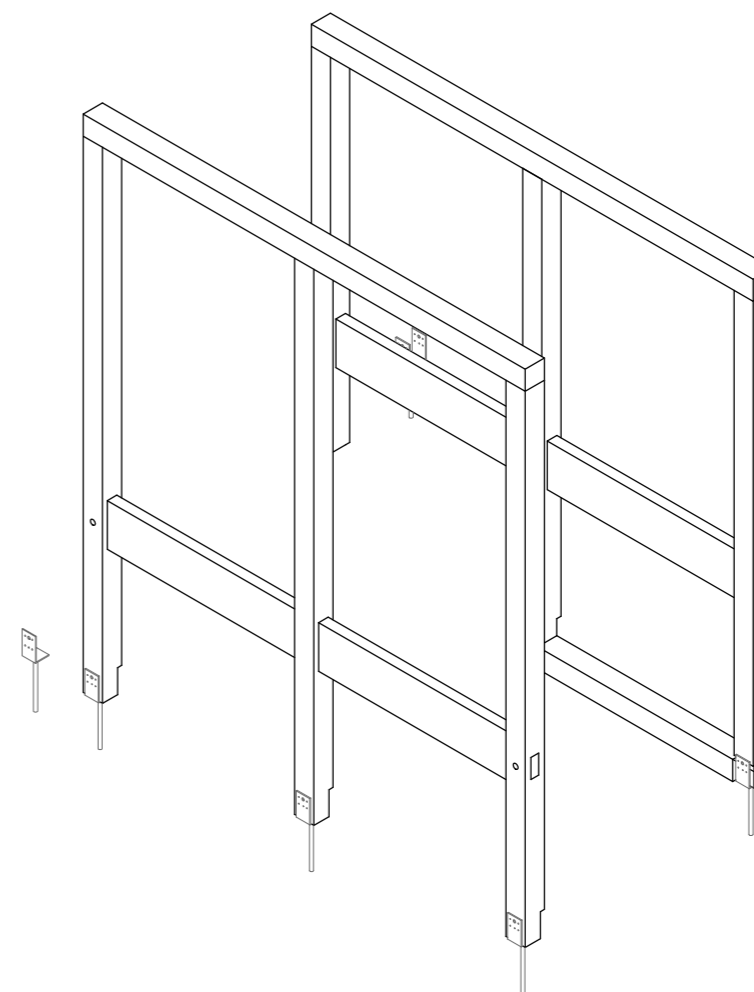
1. Ramme 1 har den innfelte bjelken på nivå med bergknausen i bakkant for å kunne legge tverrgående bjelker til gulv, mellom rammene på høyde med knausen.

Ramme 1 er høyere for å legge til rette for det skrå taket som skal åpne seg mot utsikten.

2. Ramme 2 har bjelken plassert høyere opp for å justere seg etter terrenget som også stiger.

På grunn av utfordringer med terrenget måtte ramme 2 få en bjelke nederst for å kunne justere stolpene på linje med ramme 1

Materialer brukt i rammene er 10 x 10 cm og 5 x 22 cm.



1. The embedded beam in Frame no. 1 is at the height of the little rock between the frames, to accommodate for floorbeams at the height of the rock.

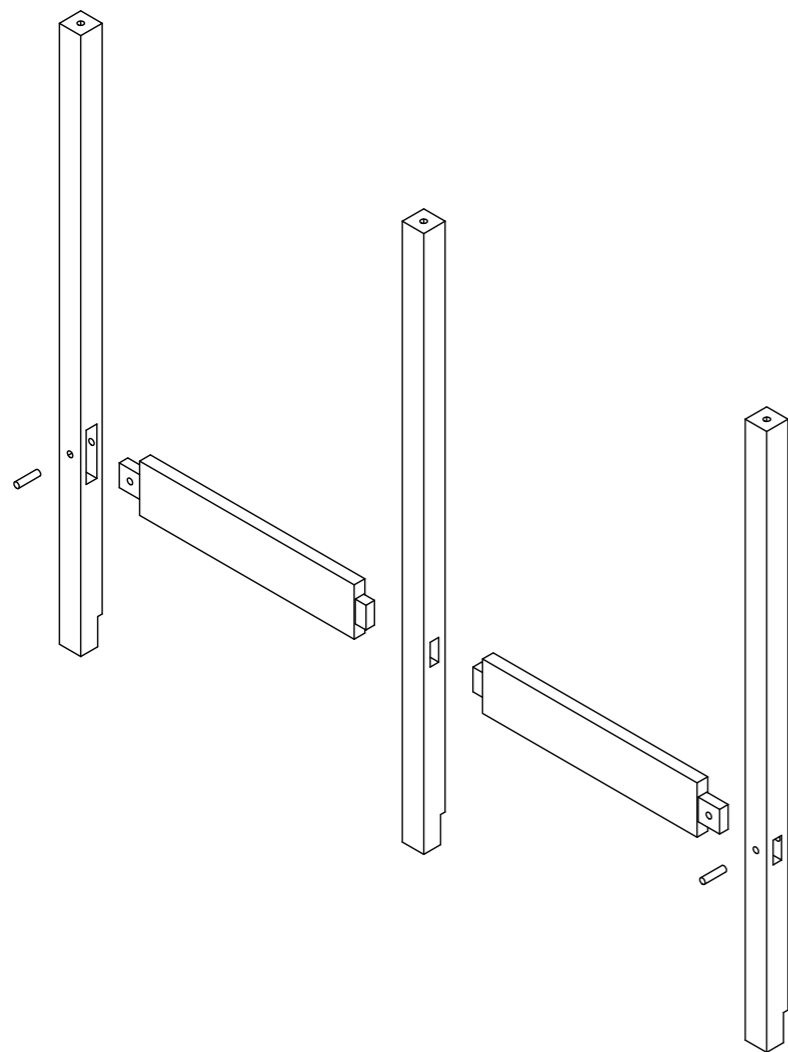
A sloping roof opening up towards the view and the creek is the reason for frame no.1 being taller.

2. The embedded beam in frame no.2 is a little higher up to adjust to the terrain. Because of challenged of

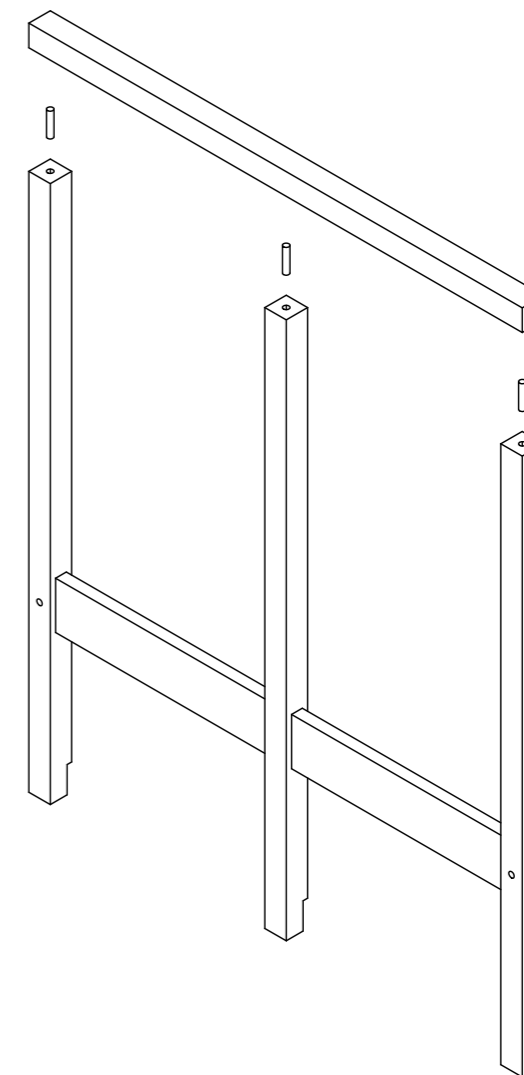
getting everything straight, fram no. 2 sits on a beam to be able to adjust its position according to fram no. 1.

Columns are 10 x 10 cm, embedded beams are 5 x 22 cm.

C02 - Rammer
C02 - Frames

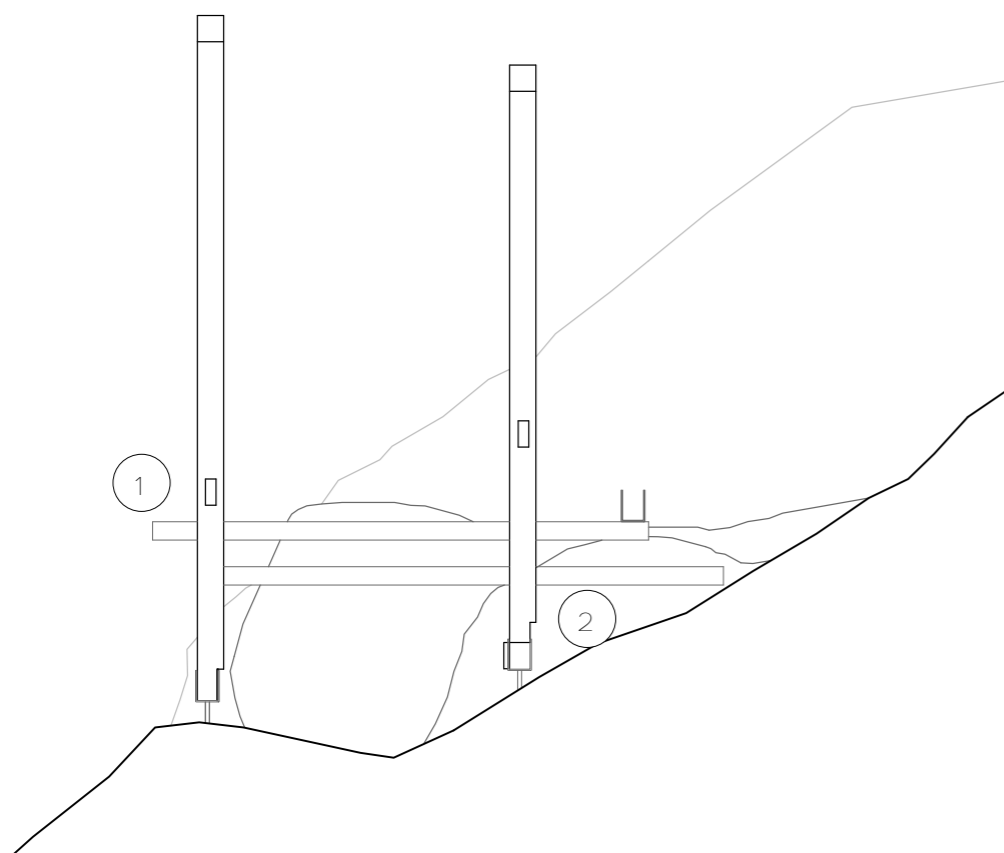


1. Rammenes deler er felt inn i hverandre og sikret med dybler. Bjelken på toppen har spikerplater (ikke på tegningen) i skjøten mellom søyle og bjelke i tillegg til dybelen.



1. The Beams in the frame are embedded in the columns and secured with dowels. The beam on top is secured with steel plates (not on the drawing) as well as a dowels.

C03 - Gulvbjelker
C03 - Floor beams



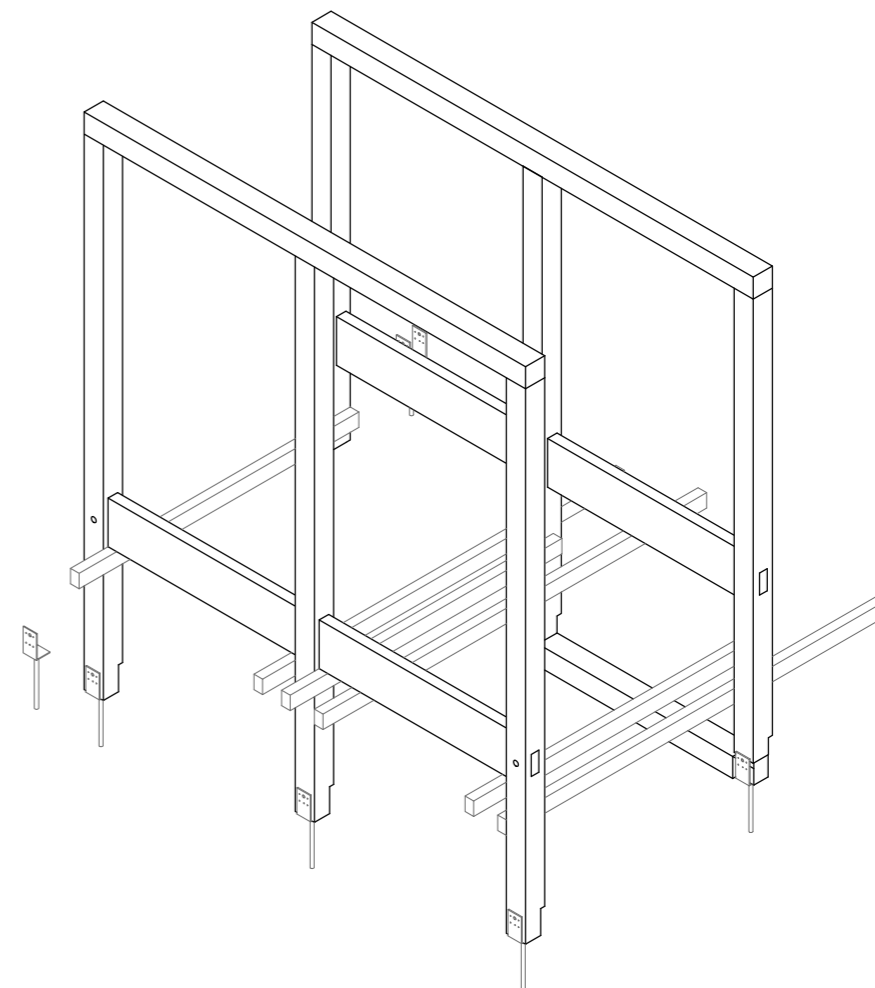
1. Øvre gulvnivå. De tverrgående bjelkene er skrudd inn i søylene under bjelken i ramme 1

2. Nedre gulvnivå. De tverrgående bjelkene er skrudd inn i søylene 10 cm under underflaten av bjelkene over.

Dette ble gjort for å kunne justere gulvhøyde med

tanke på sitteposisjon og for å kunne ha en sammenhengende sitteflate på benken, uten forhøyninger.

Materialene har dimensjon 45 x 70 mm og er funnet hos naboen.



1. Upper level. The beams for the floor are attached to the columns underneath the embedded beam in frame no. 1.

2. Lower level. The beams are attached to the columns 10 cm underneath the lower surface of the beams above.

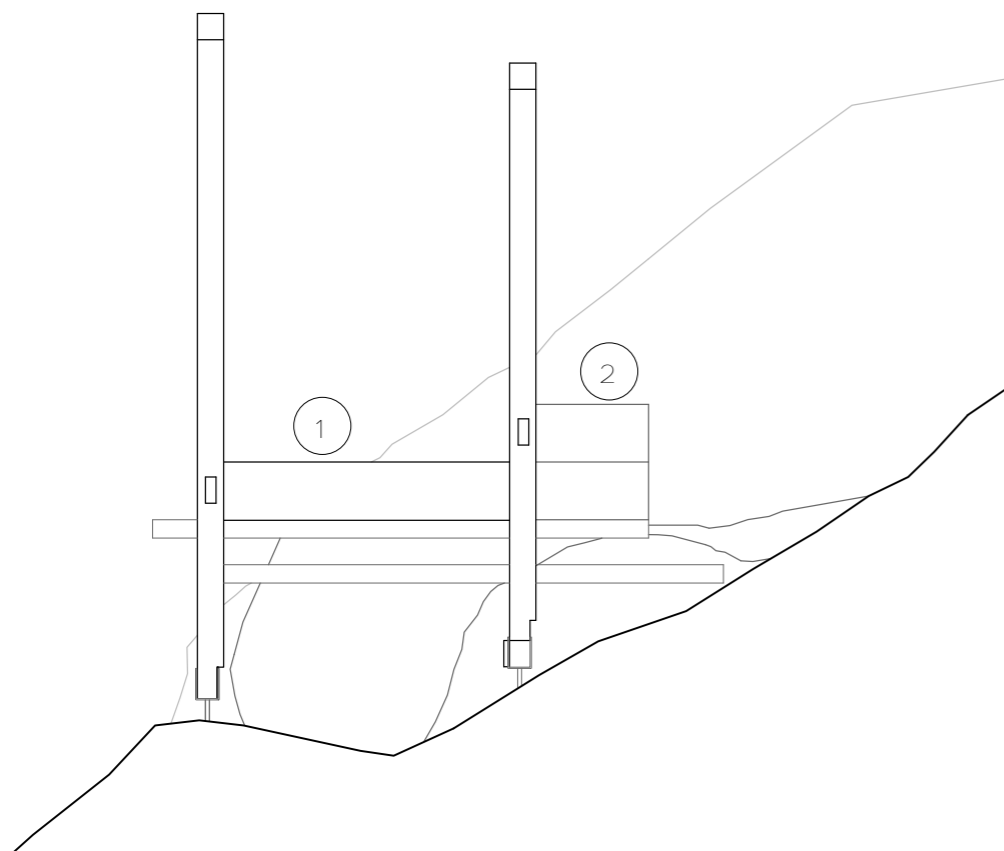
We wanted to keep the toilet-bench straight, with no elevations, and to be able to adjust the height of the feet

while sitting, we made two floor levels.

The materials are 45 x 70 mm and found at the neighbor.

C04 - Benk og kobling

C04 - Bench and connector

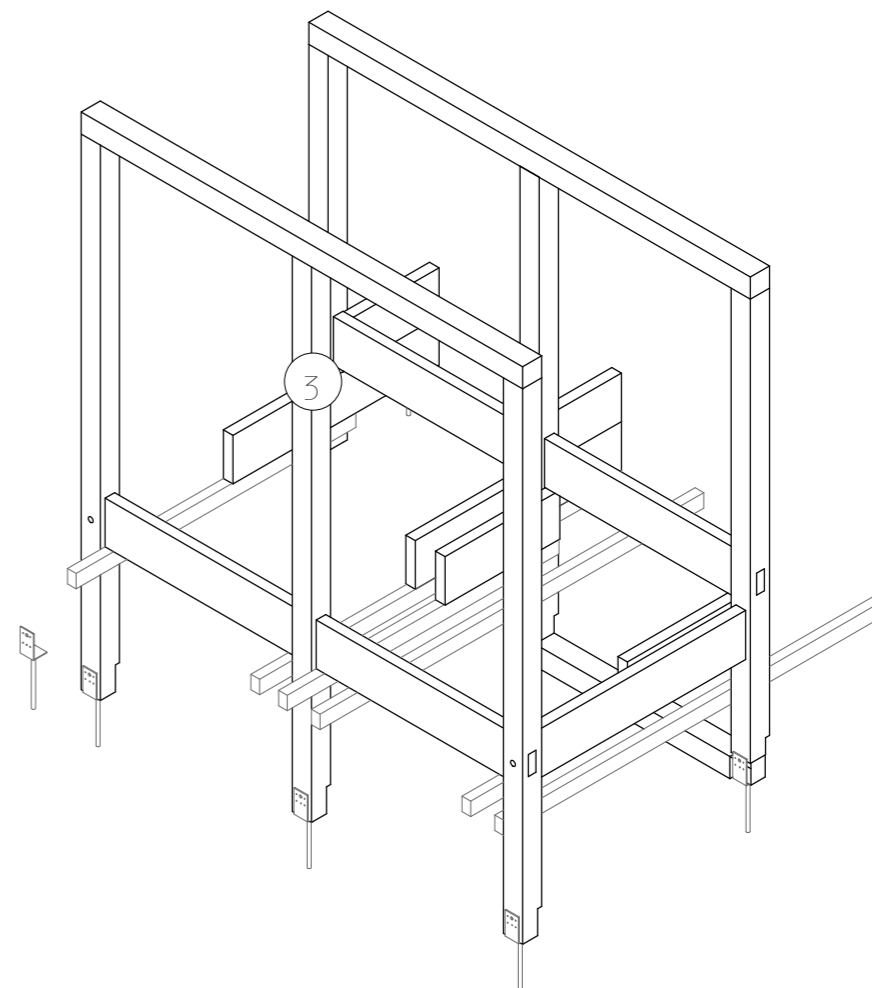


1. En 5 x 22 cm bjelke plasseres mellom ramme 1 og 2 for å koble dem sammen.

2. To høyder av 5 x 22 cm bjelkebiter plasseres oppå

hverandre for å legge til rette for en vaskestasjon bak utedoen.

3. Fire stk. 5 x 22 cm bjelker plasseres oppå gulvbjelkene som underlag for toalettbenken.

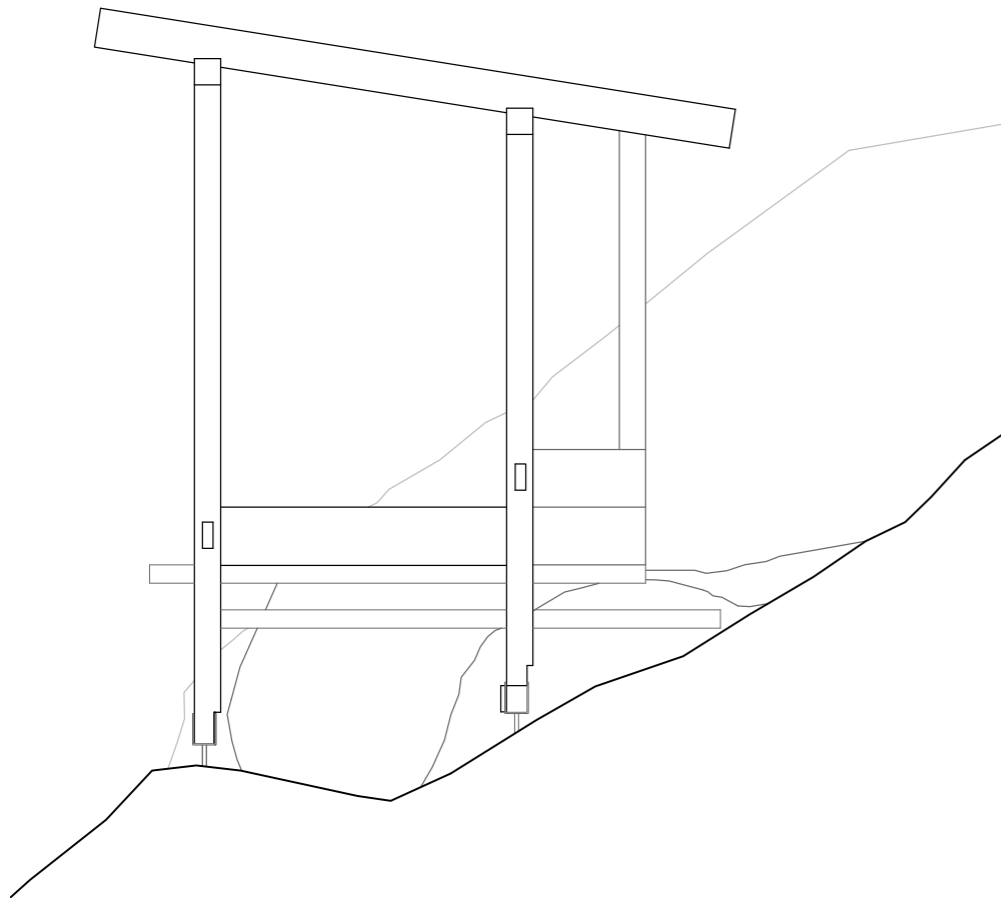


1. A 5 x 22 cm beam is placed between fram no. 1 and frame no. 2 to connect them.

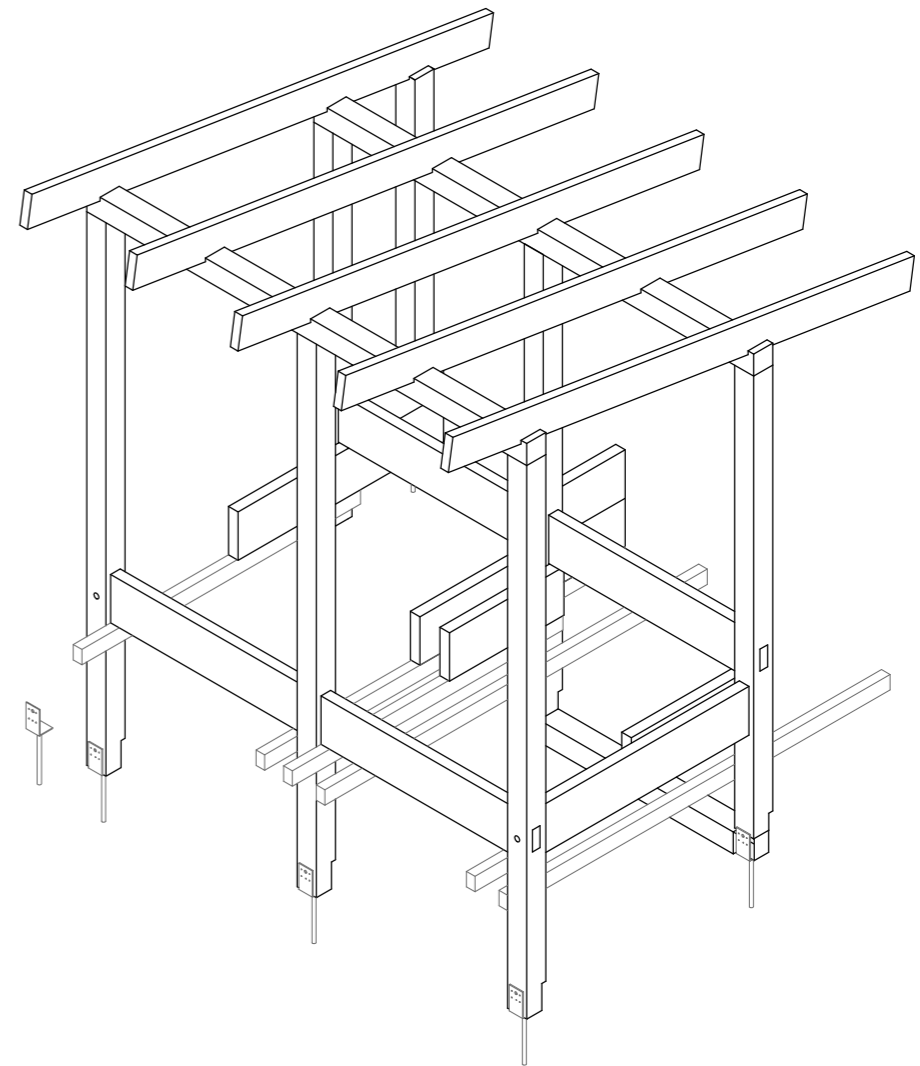
2. Two 5 x 22 cm are placed on top of each other to make a spot for washing hands.

3. Beams with dimensions 50 x 220 mm are placed on top of the floor beams as foundation for the bench inside the utedo.

C05 - Takbjelker
C05 - Roof beams



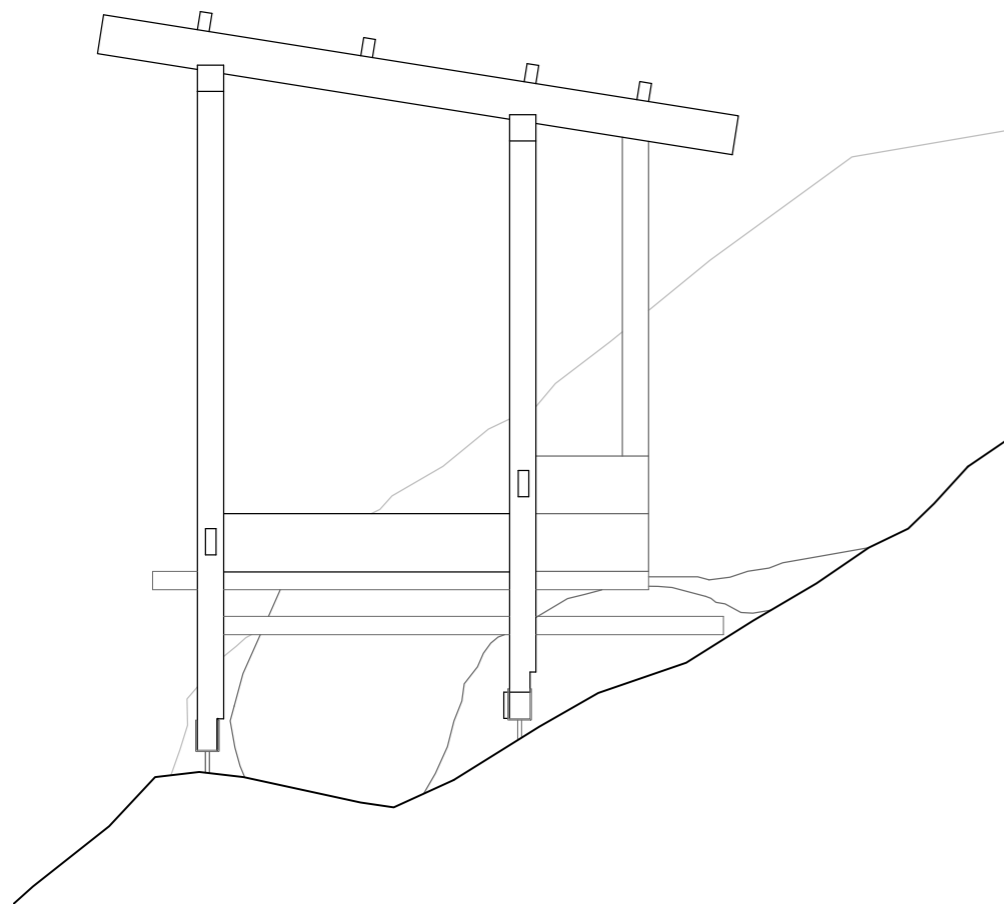
1. 5 takbjelker med
dimensjon 4 x 15 cm
felles ned i toppbjelken på
rammene.



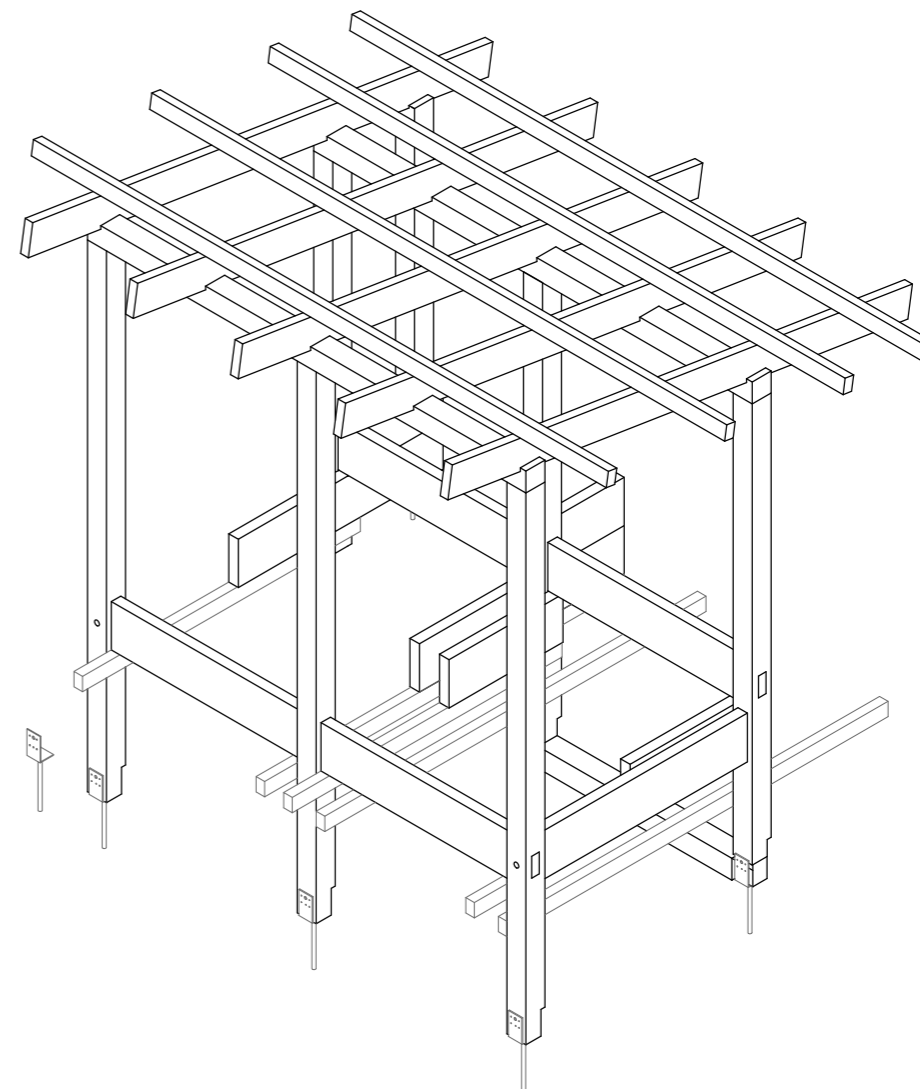
1. 5 roof beams, 4 x 15 cm,
are embedded in the top beam of
the frames.

C06 - Lekter tak

C06 - Secondary roof construction

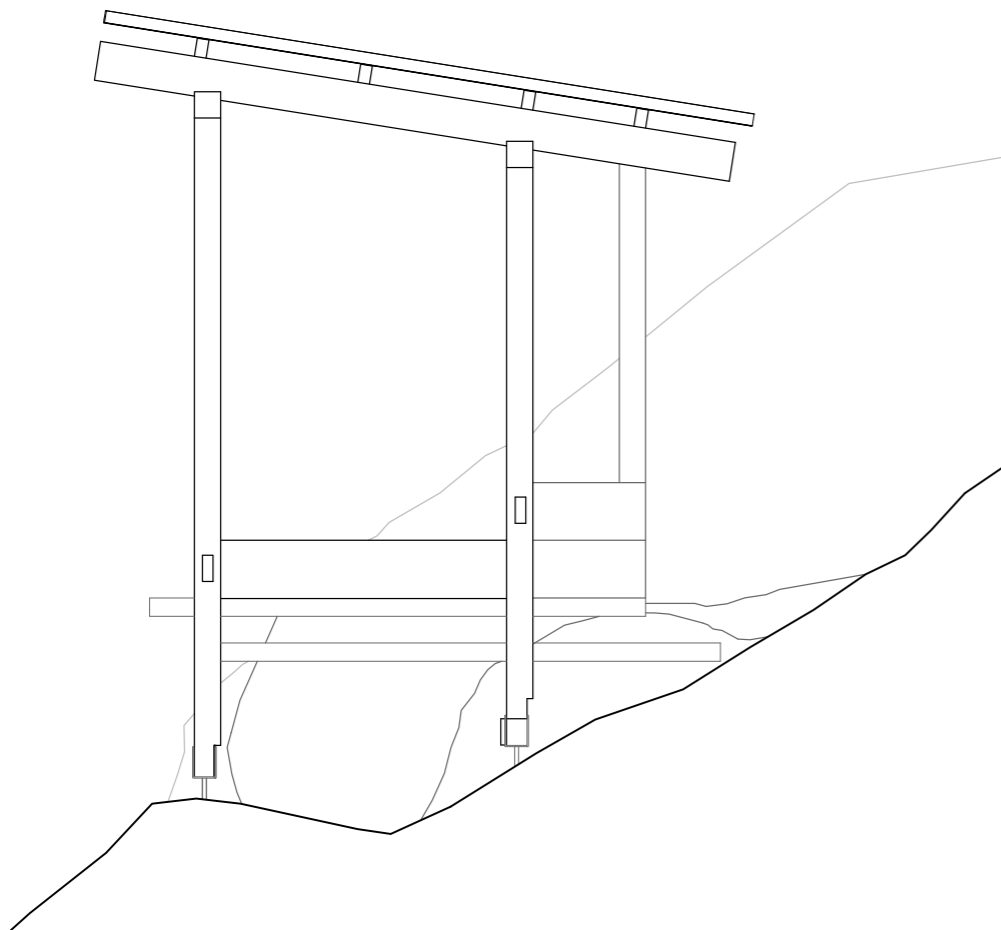


1. Lektene (45 x 70 mm) er skrudd fast i takbjelkene og stikker ut ca 50 cm i hver ende for at takplatene skal kunne krage ut og beskytte fasaden.



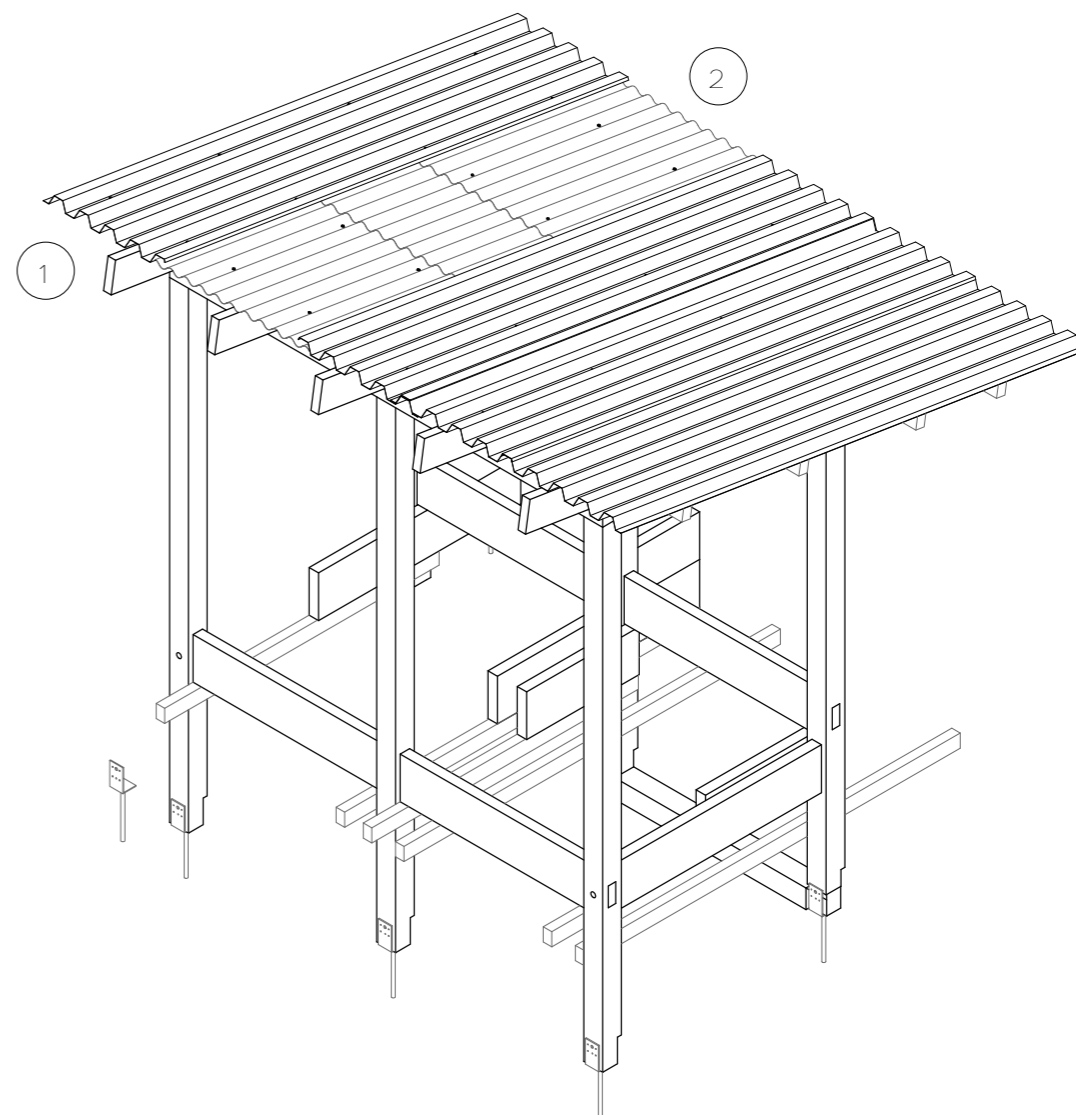
1. The secondary construction made by 45 x 70 wood is protruding the structure approximately 50 cm in each end. This is done to allow the roof to protrude as well, to protect the facade.

C07 - Tak
C07 - Roof



1. Det er brukt fire takplater av korrugert stål, funnet hos naboen. Opprinnelig var de 5 meter lange, de er kuttet i to for å passe til bygget. Bredden er 65 cm per plate.

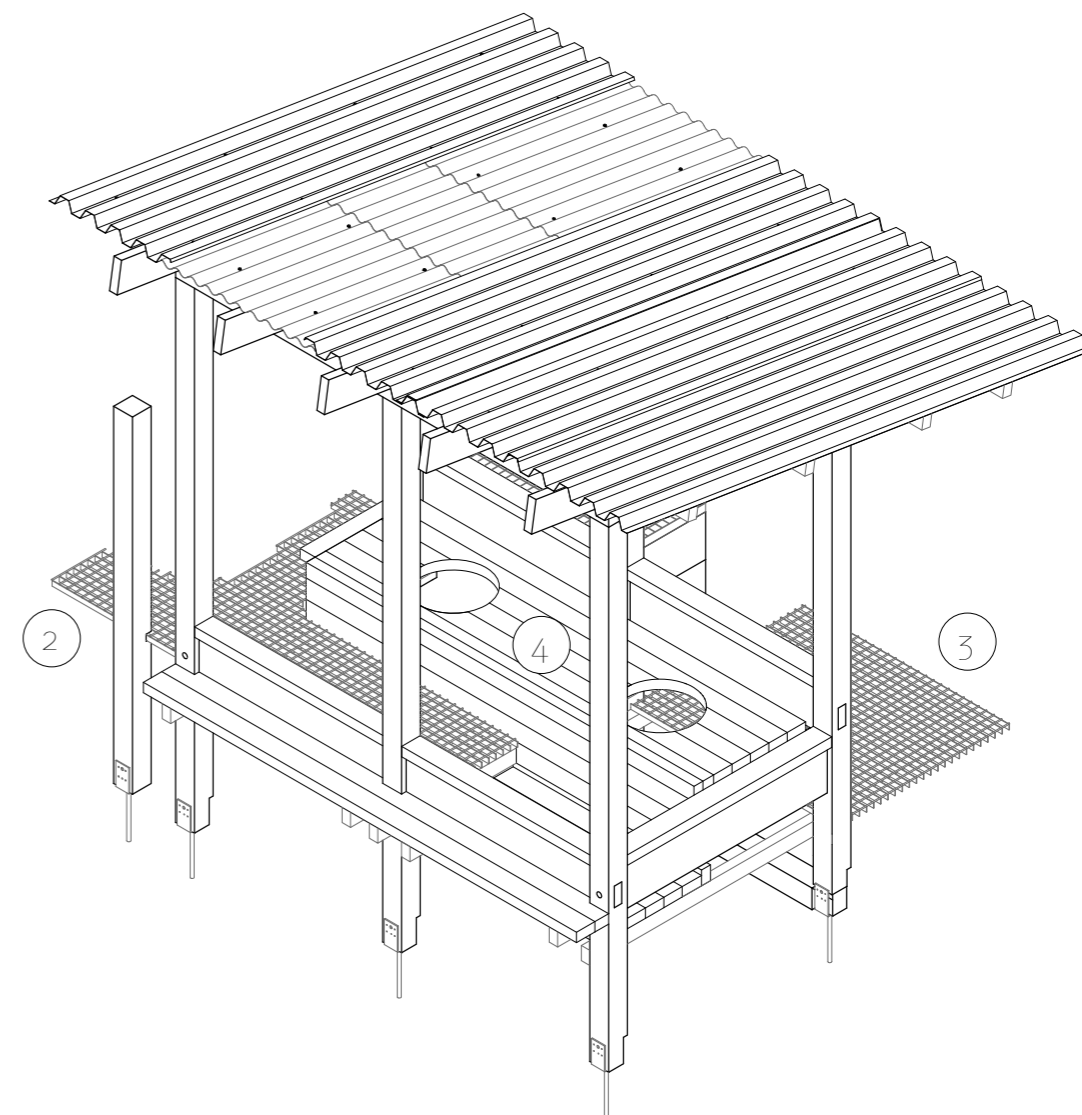
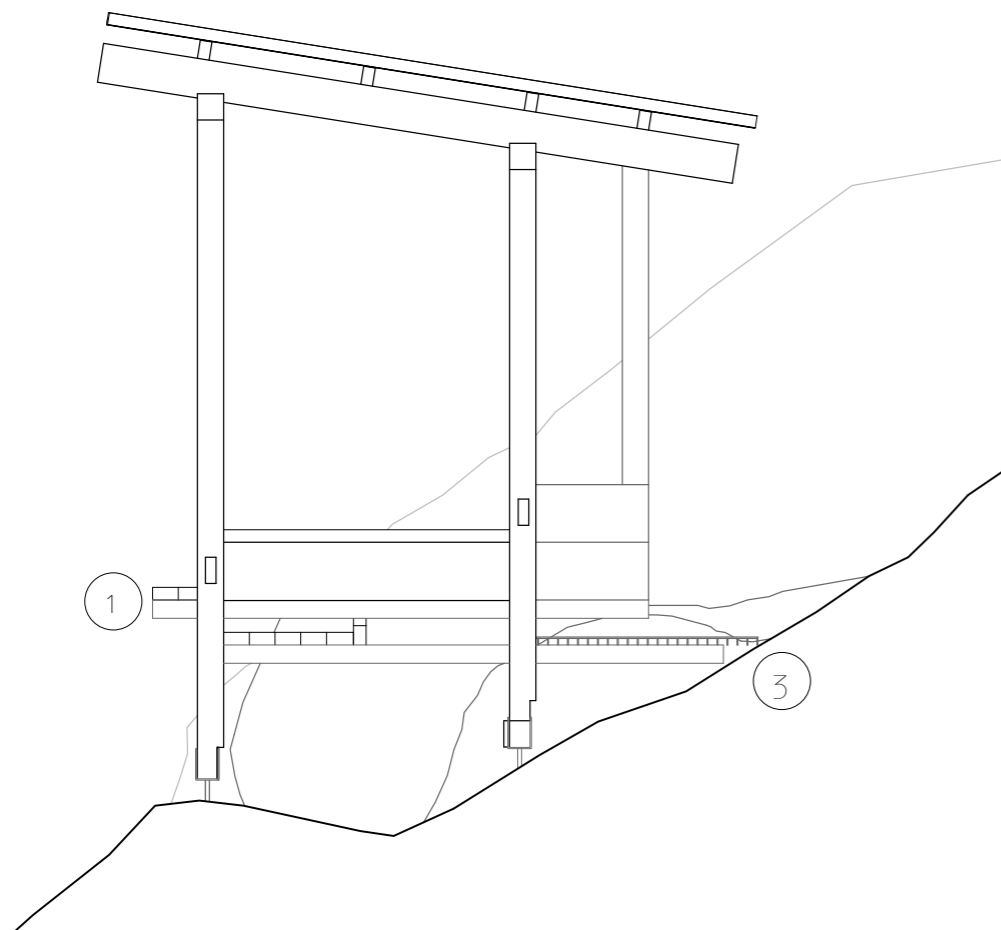
2. Tre overlappende plater av translucent glassfiber utgjør et felt i taket. Plasseringen er bestemt med tanke på å gi lys til det mørkeste hjørnet av rommet, mot nord-øst.



1. Four sheets of corrugated steel make up the roof. They we're found at the neighbor's place. They were 5 meters long originally and cut in half to fit the utedo. The width of each sheet is 65 cm.

2. Three overlapping sheets made from glassfiber make a translucent part of the roof. They are placed towards the north to give light to the darkest are of the room.

C08 - Gulv og benk
C08 - Floor and bench



1. Gulvbjelkene stikker ut fra bygget på begge sider. Mot skrenten blir de underlag for to 48 x 98 som blir en liten hylle. Hyllen var nyttig underveis i byggeprosessen og kan også brukes til vedlikeholdsarbeid.

2. Første del av gulvet som er delvis inne, delvis ute er laget av en funnet elefantrist. Den er tilpasset bygget og steinformasjonen utenfor. Den holdes delvis opp av den ekstra søylen utenfor.

3. En del av risten som ble til overs passet perfekt oppå bjelkene på baksiden og lander så vidt på terrenget.

4. Do-benken er laget av 48 x 98 konstruksjonsvirke, det er også gulvet et nivå ned fra risten.

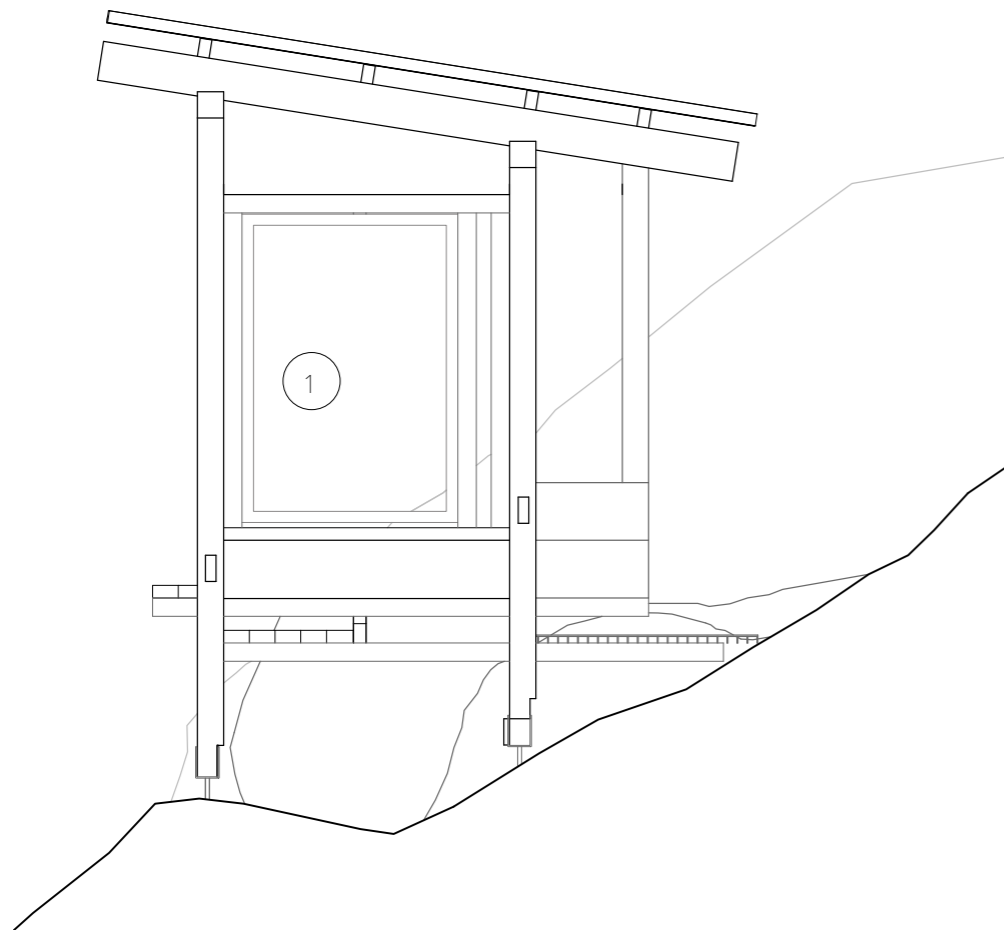
1. The floor beams protrude from the frames on both sides. Towards the cliff a small shelf is made from two 48 x 98 on top of the beams. The shelf was very useful during construction and is also great for maintenance.

2. The first level of flooring partly outside/partly inside the utedo is made from a 2 x 1.3 meter elephant grate cut to fit the building and the terrain. The grate is embedded in the fourth post which is placed in line with frame no. 1.

3. A left over part of the grate fits perfectly on the protruding beams that face the rock.

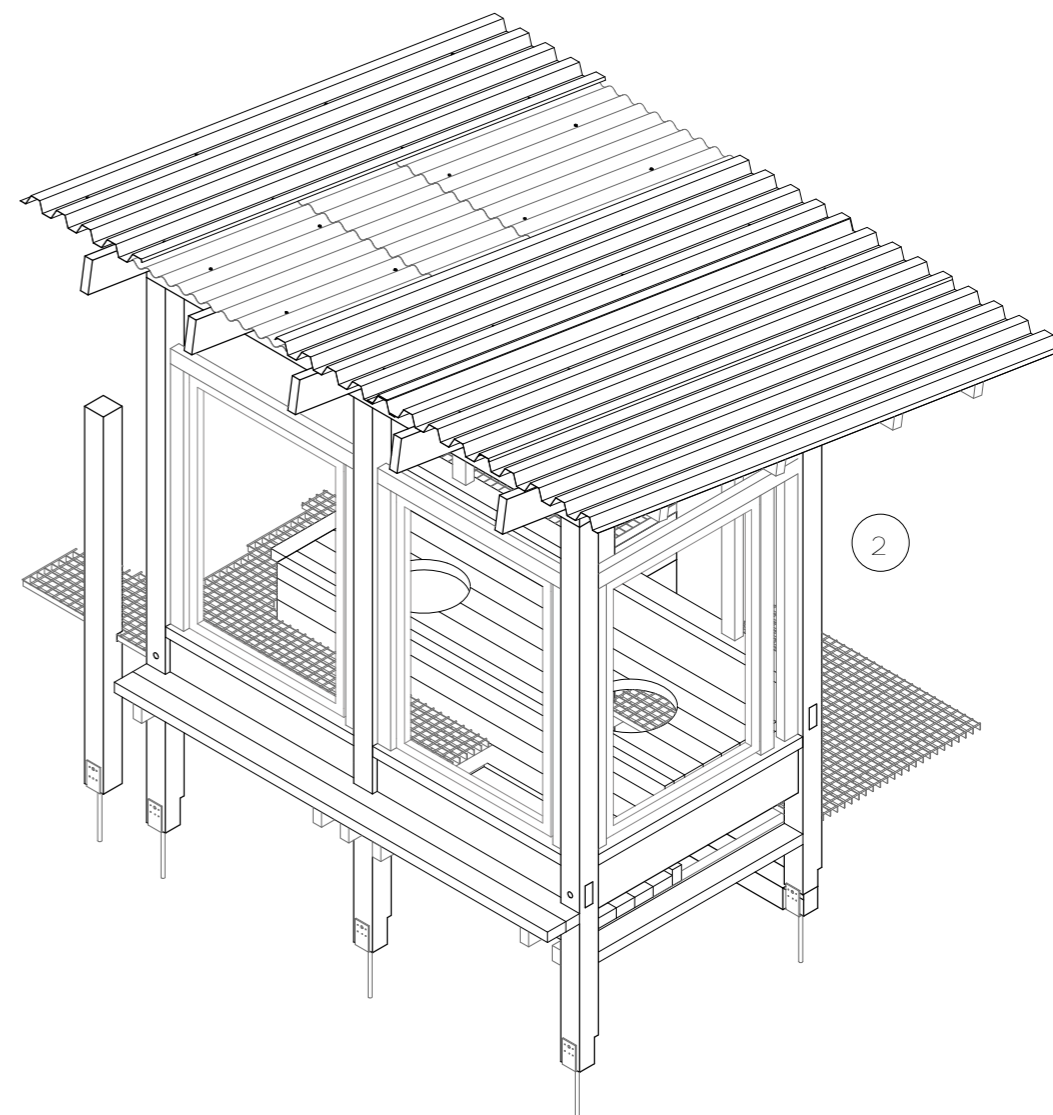
4. The toilet bench is made from 48 x 98 mm wood, so is the second level floor, below the grate.

C09 - Vinduer
C09 - Windows



1. Vinduene rammes inn av konstruksjonsvirke. En bearbeidet (med helning for vannavrenning) 48 x 98 under og 45 x 70 på sidene og over.

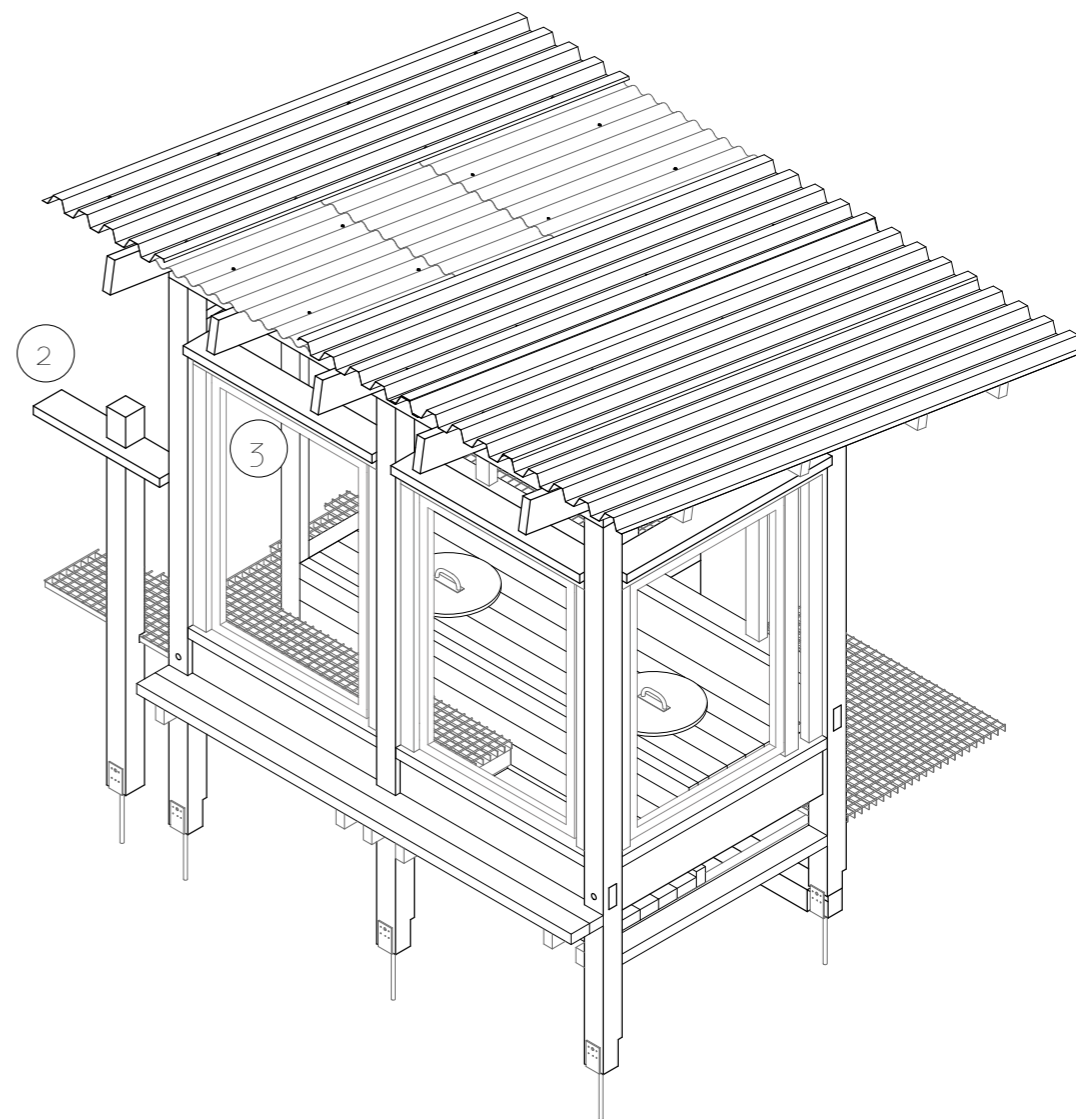
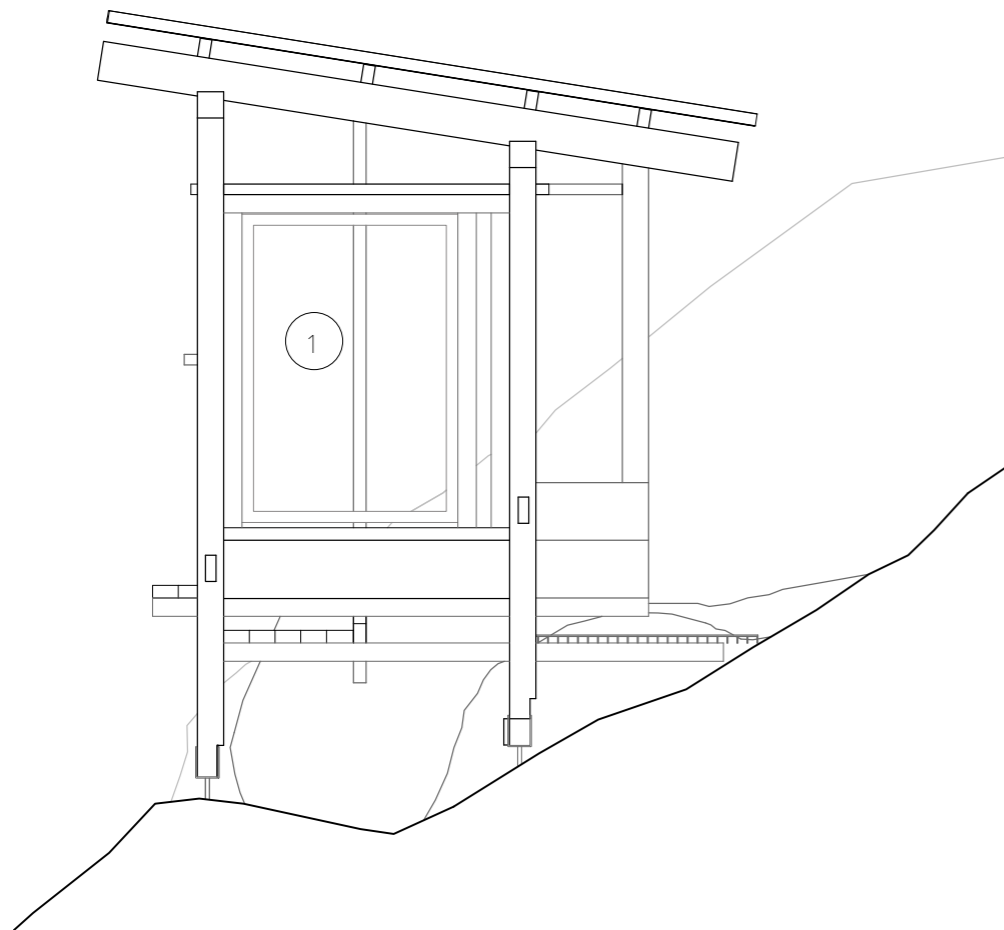
2. Trevirke på 45 x 70 brukes også i bakvegg som feste for panel.



1. The windows are framed by wood. A slightly sloping 48 x 98 is placed below the window. 45 x 70 wood is used on the sides and top.

2. 45 x 70 wood is also used in the back wall as anchor points for cladding.

C10 - Nordvegg og 4 x 15
C10 - The north wall and 4 x 15



1. En stolpe laget av 48 x 98 deler opp nordveggen og markerer møtet mellom døren og veggen.

2. Stolpen som støtter opp elefantristen fungerer også som rekkverk mot skrenten.

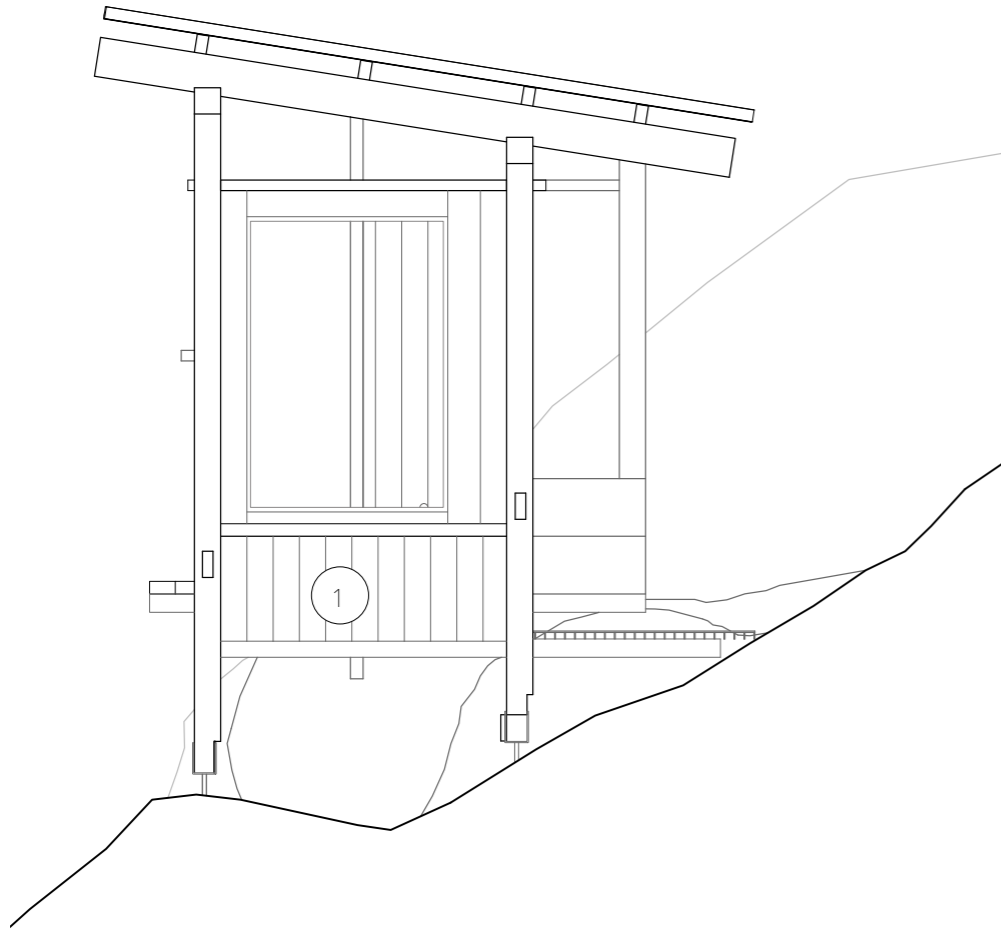
3. Trevirke med samme dimensjon som takbjelkene (4 x 15 cm) legges oppå vindusinnrammingen, og også inni rammen på bakveggen. Dette skaper en horisontal linje rundt hele bygget.

1. A post made by 48 x 98 wood, marks the divide in the northern wall where door and cladding will meet. Stolpen lander på fjellet.

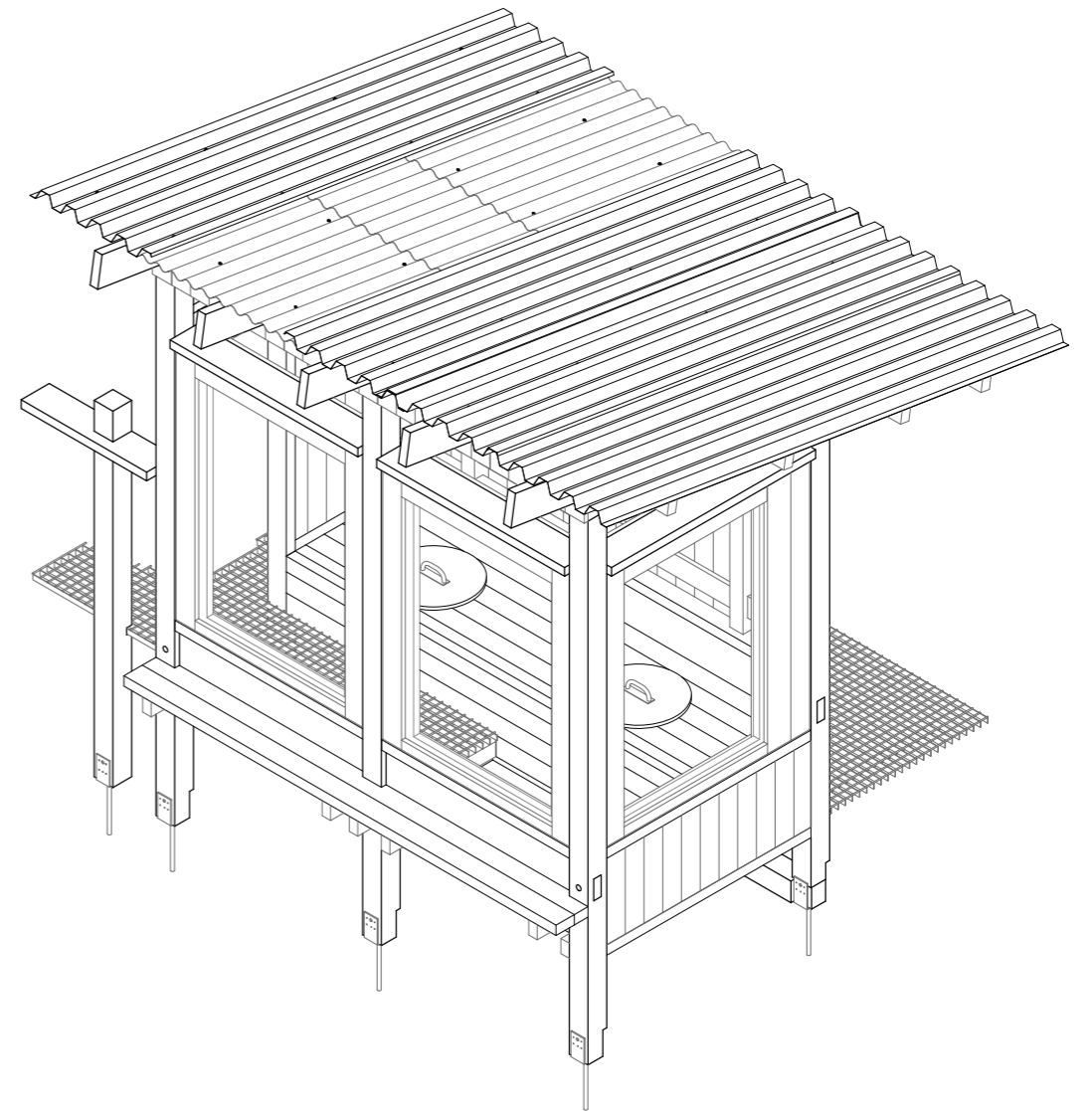
2. The column that supports the elephant grate has a second function as railing by the entry, towards the cliff.

3. Wood the same size as the roof beams (4 x 15 cm) is placed on top of the framing of the window, and at the same height in the back wall, creating a horizontal line all around the building.

C11 - Kledning
C11 - Cladding

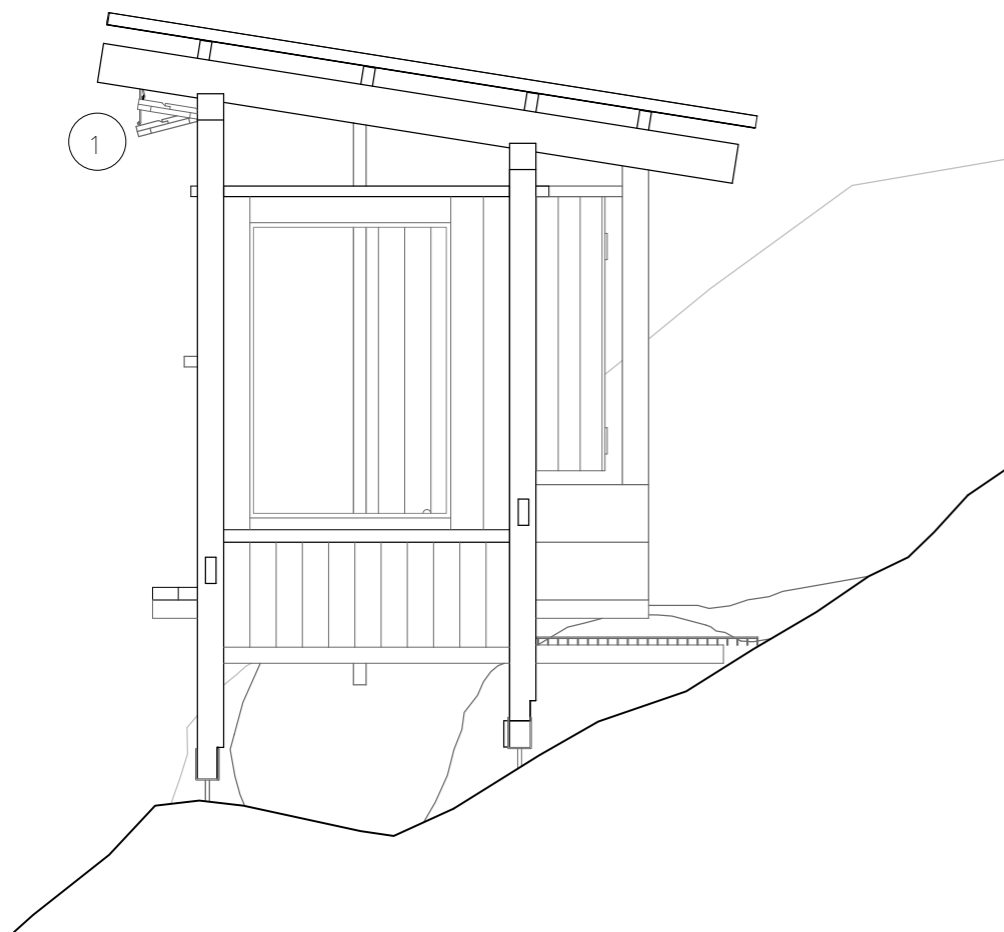


1. Stående kledning.



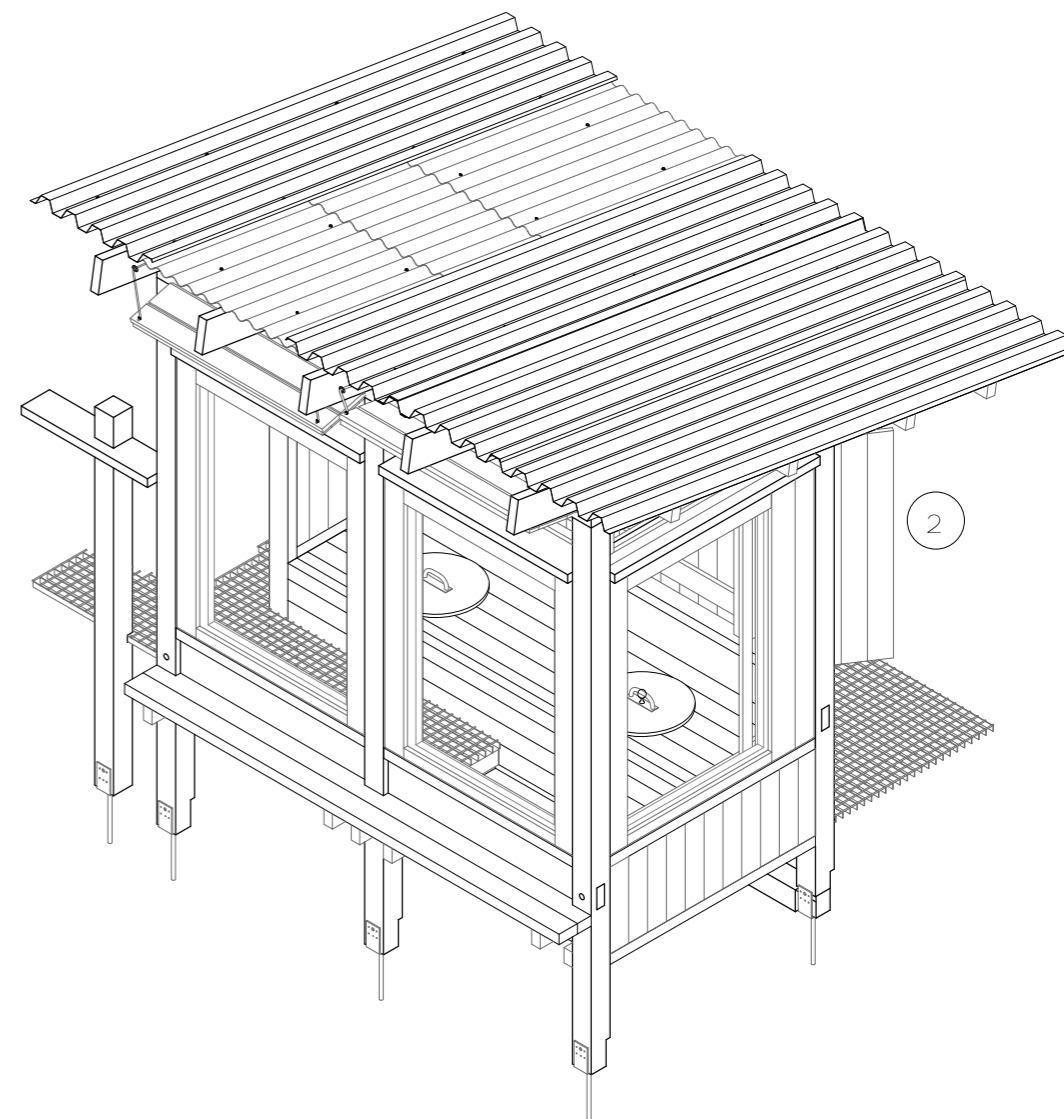
1. Vertical cladding

C12 - Luker og dører C12 - Hatches and doors



1. Over hvert vindu er en luke som kan åpnes ved å dra i et tau inne i bygget. Tauet kan festes i en krok på øst-veggen for å holdes oppe.

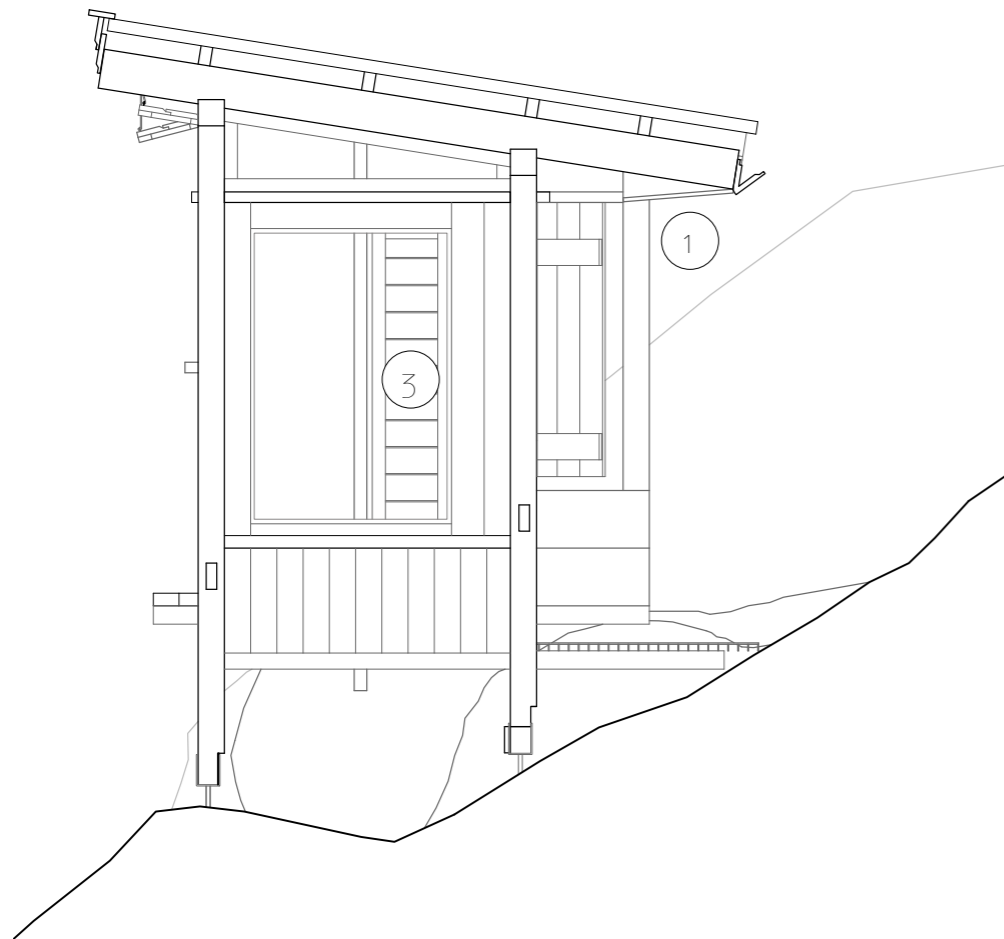
2. Øst-veggen har to dører som kan åpnes fra innsiden. Dørene kan åpnes ved behov for lufting eller for å se om det kommer noen på stien.



1. There are hatches above each of the three windows. The hatches can be opened by pulling a rope inside the building. The rope can be attached to a hook on the east-wall to keep the hatches open.

2. The east wall has two small doors that open from the inside. The doors can be used for increased air-flow or to check if someone is approaching on the path.

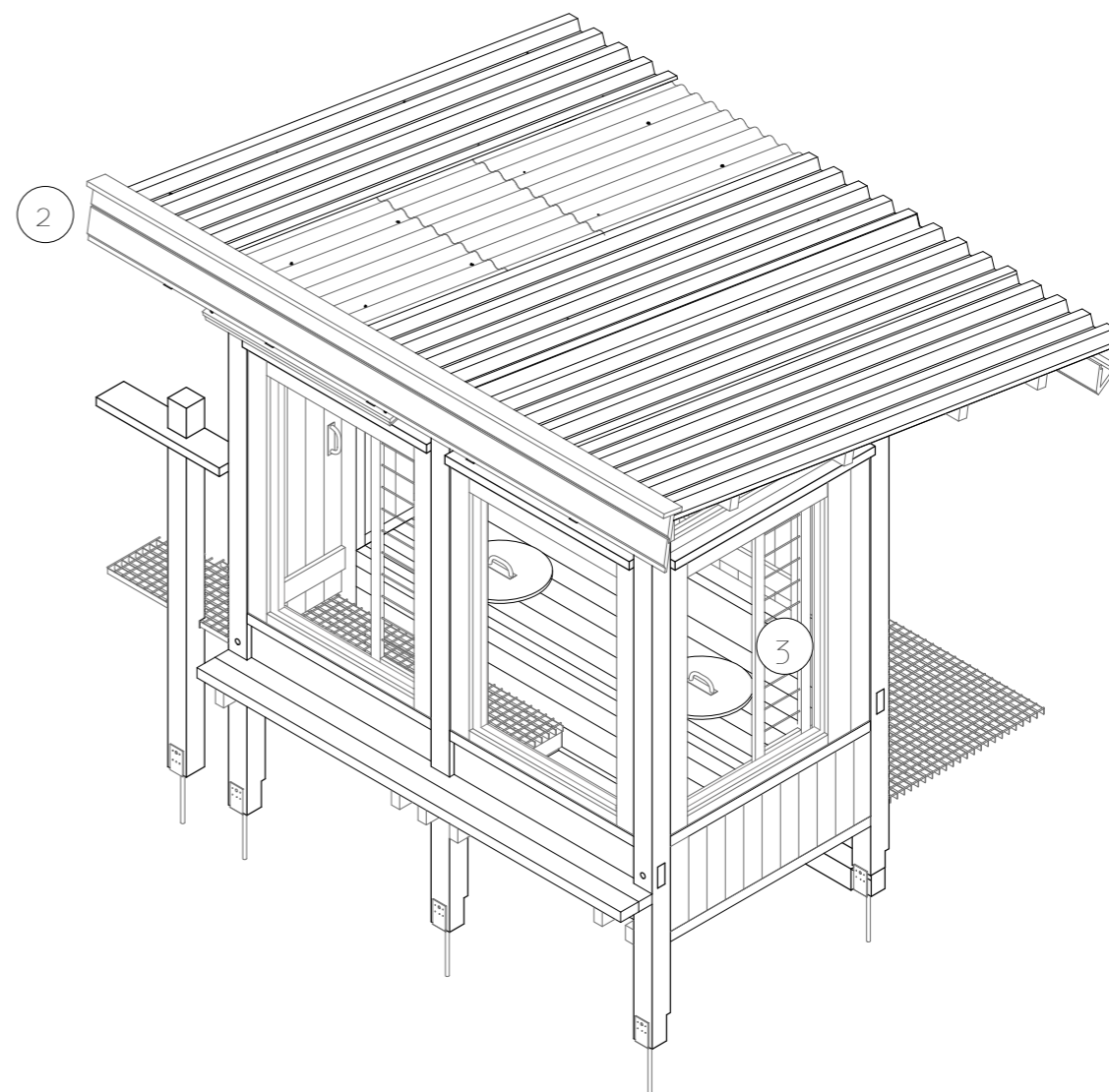
C13 - Planlagte elementer
C13 - Planned, not built



1. Takrenna er planlagt, men ennå ikke bygget. Ideen er at vannet skal slippes ut fra takrenna rett over risten der man kan vaske hendene. (Illustrasjon neste side)

2. Takskier er lagt på i front for å hindre at vann renner inn under takplatene.

3. Det er laget spor til flyttbare skjermer på innsiden av vinduene. Skjermene er ennå ikke bygget.

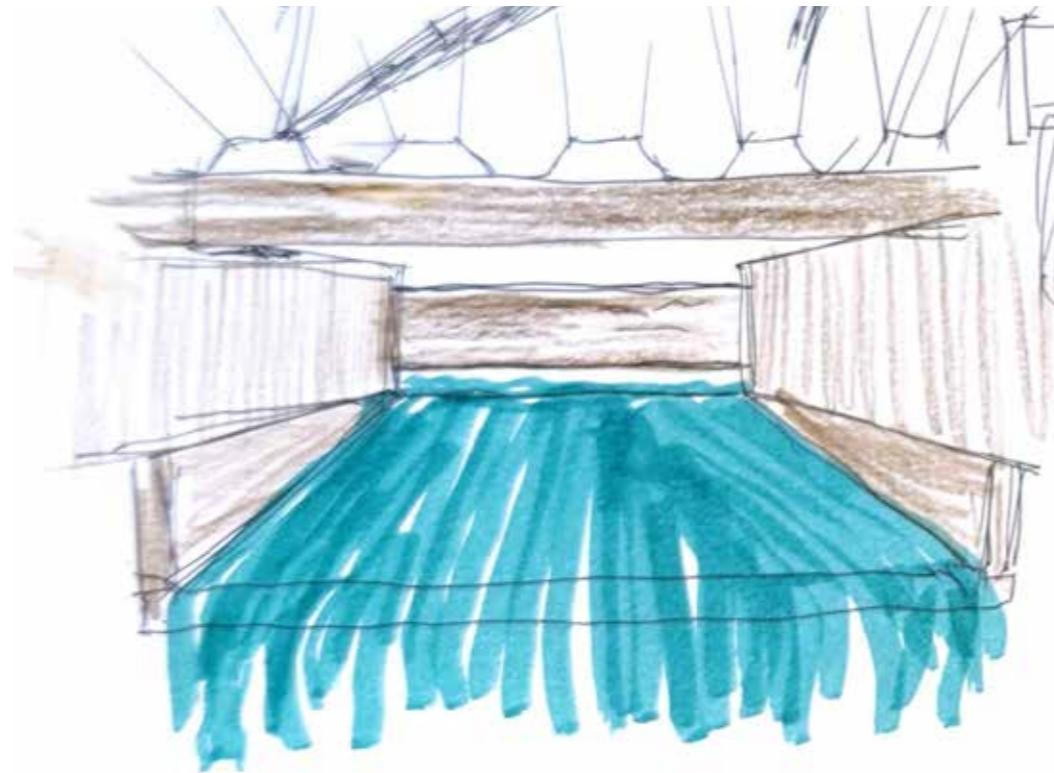


1. The gutter is planned, but not yet built. The plan is to let the water from the gutter pour down onto the grate below where you can wash your hands. (sketch on next page)

2. Boards are placed on the front end of the roof to avoid water running on the inside of the sheets on the roof. (In place, but could be improved)

3. We plan on making movable screens for the inside of the Utedo. A track to slide the screen is already in place.

C13 - Planlagte elementer
C13 - Planned, not built



Takrenna er planlagt, men ennå ikke bygget. Ideen er at vannet skal slippes ut fra takrenna rett over risten der man kan vaske hendene.

The gutter is planned, but not yet built. The plan is to let the water from the gutter pour down onto the grate below where you can wash your hands.



D - Bilder

D01 - Ferdig bygg
D02 - Tomt
D03 - Materialer
D04 - Sti
D05 - Fundament
D06 - Rammer
D07 - Gulv
D08 - Vegger
D09 - Tak
D10 - Detaljer

D - Photos

D01 - Finished building
D02 - Site
D03 - Materials
D04 - Path
D05 - Foundations
D06 - Frames
D07 - Floor
D08 - Walls
D09 - Roof
D10 - Details

D01 - Som bygget
D01 - As Built





Fra inngangen til tomten hvor man så vidt ser
utedoen på kanten av skrenten.

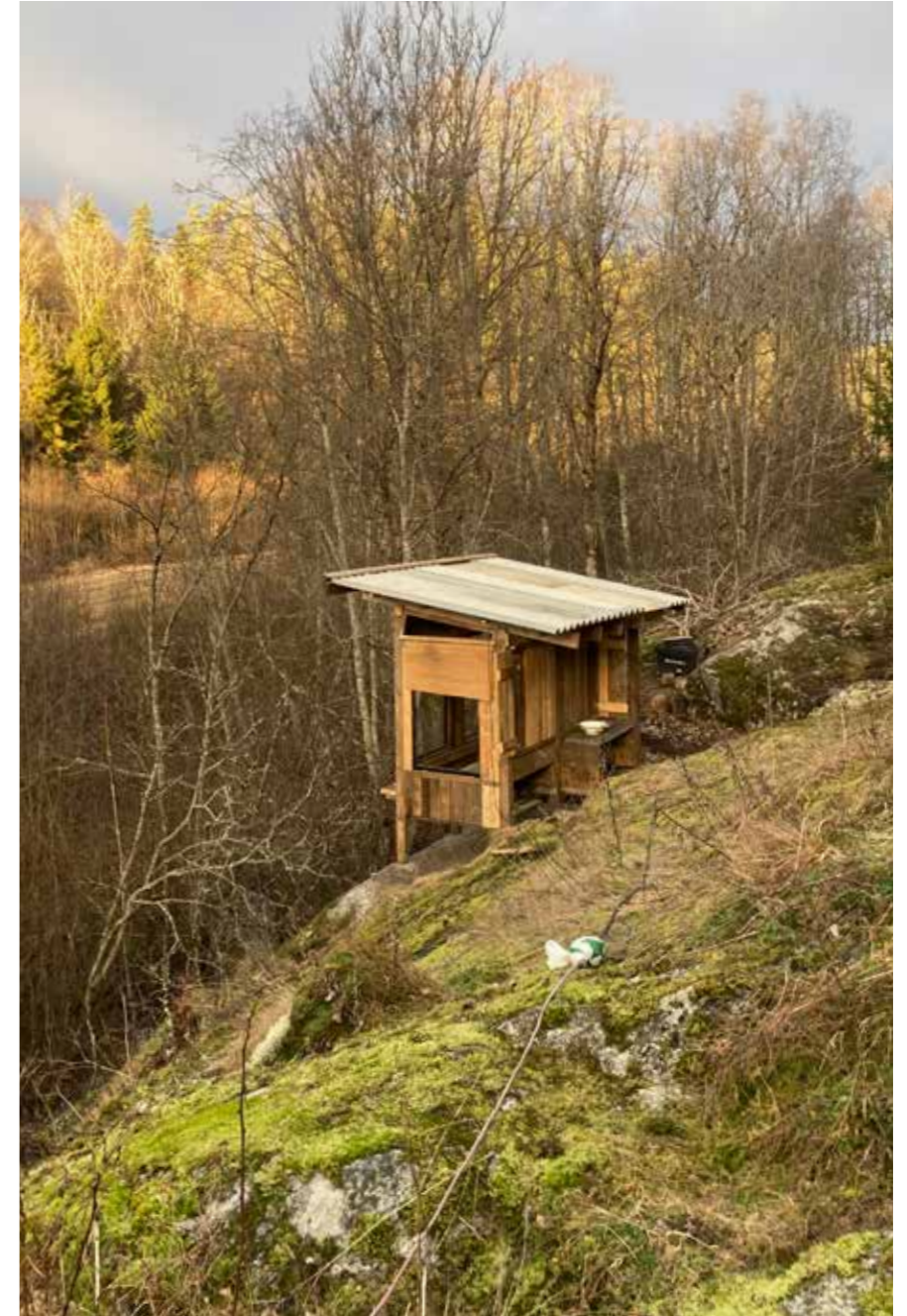


The utedoen on the edge of the cliff, visible from the entry to
the plot.

D01 - Som bygget
D01 - As Built



D01 - Som bygget
D01 - As Built



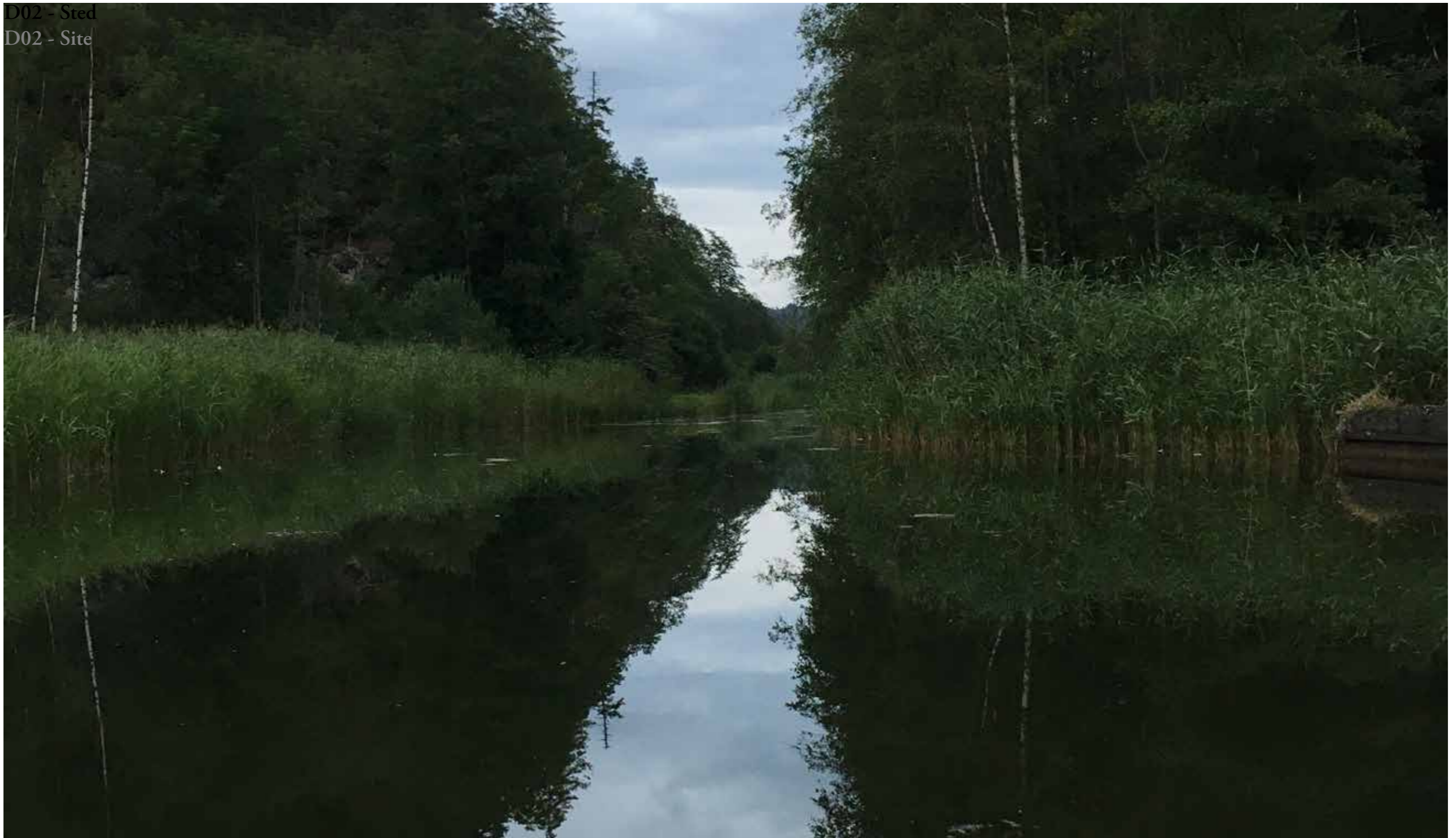
D02 - Sted
D02 - Site



Innover Havsjødalen mot nord.

Havsjødalen towards north.

D02 - Sted
D02 - Site



En bekk renner forbi huset og ut i Hallangspollen, en fjordarm av indre Oslofjord.

A stream runs past the house and into Hallangspollen, a part of inner Oslofjord.

D02 - Sted
D02 - Site



D02 - Sted



D02 - Sted



D02 - Sted
D02 - Site



*Øverst venstre: Mot Havsjødalen i nord
Nederst venstre: Mot skogen i øst
Øverst høyre: Mot jordet i vest
Nederst høyre: Mot Hallangspollen i sør*



*Top left: Towards Havsjødalen to north
Bottom left: Towards the forest to east
Top right: Towards the fields in west
Bottom right: Towards Hallangspollen to south*

D02 - Sted
D02 - Site



Fra kjøkkenvinduet, mot utedoen i nord.
Vinter, høst, sommer og vår

From the kitchen window towards the utedo to north.
Winter, autumn, summer and spring

D02 - Sted
D02 - Site



Fra kjøkkenvinduet, mot utedoen i nord.
Vinter, høst, sommer og vår

From the kitchen window towards the utedo to north.
Winter, autumn, summer and spring



Utedoen og stien blir til.
(Heggen ble klipt ned)

The utedo and the path is developing.
(The bird cherry was cut down)

D02 - Sted
D02 - Site



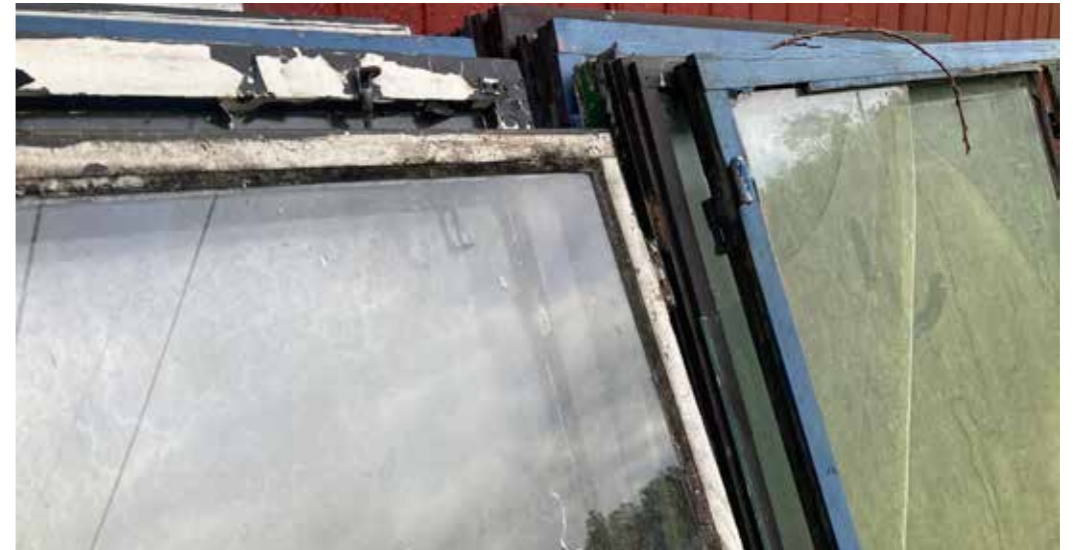
Utsikt fra tørkestativet mot utedoen i
norvest og ned på jordet.

View from the drying rack towards the utedo in the
north-west and down onto the field.

D02 - Sted
D02 - Site



D03 - Materialer
D03 - Materials



D03 - Materialer
D03 - Materials



D03 - Materialer
D03 - Materials



Fordeler med gjenbruksmaterialer *Benefits of using reclaimed materials*

Farge og tekstur ligner på omgivelsene de har vært i
Color and texture become more similar to the surroundings

Alder bekrefter materialets holbarhet/kvalitet
Age confirms the durability/quality of the material

De mest ødelagte materialene kan man bruke til testing
The most damaged materials can be used for testing

Gitte begrensninger - raskere beslutninger
Given constraints - faster decisions

Eldre materialer har ofte bedre holdbarhet enn hva man får tak i idag
Older materials often have better durability than what is available today

Billig/gratis
Cheap/free

Hver del har en historie
Each part has a story

Utfordringer med gjenbruksmaterialer *Challenges when using reclaimed materials*

Gamle spiker og skruer må kanskje fjernes
Old nails and screws might be removed

Hull i takplater må tettes eller nytt design må passe til gamle hull
Holes in roof sheets must be sealed or new design adjusted for old holes

Fuger må ofte byttes
Grouts often must be replaced

Design må tilpasses hva man har tilgjengelig; antall, størrelser og type
Design must be adapted to what is available; number, size and type

Varianter som har gått ut av produksjon kan være vanskelig å få tak i
Variants that have gone out of production can be difficult to obtain

D03 - Materialer

D03 - Materials



1. Taksperrer

Konstruksjonsvirke 150x38.
Fra finnannonse.

2. Søylar og bjelker (rammer)

Konstruksjonsvirke 100x100
Fra rast bygg på nabolamta.

3. Panel

Rupanel (?)100x25 fra nabolamten og
dobbeltsalset sveitserkledning 150x25
kappet til 100x25. Trolig fra det gamle
kjøkkenet i huset. Stabel bak huset.

4. Karmer under vinduer

Konstruksjonsvirke 48x98
Høvlet og frest til vannbrett. Funnet på
uthusmuren.

5. Karmer over vinduer

Konstruksjonsvirke 150x38.
Fra finnannonse.

6. Takleker

45x70 Impregneret konstruksjonsvirke
fra nabolamten, tidligere brukt til
båtstativer.

7. Rammesjelker

Konstruksjonsvirke 250x50. Fra
finnanonse. (Brukt som gulv i stilas)

8. Gulvsjelker

45x70 Impregneret konstruksjonsvirke
fra nabolamten, brukt til båtstativer.

1. Rafters

Structural timber 150x38.
From finn.no.

2. Columns and beams (frames)

Structural timber 100x100
From a fallen building on the
neighbor site.

3. Panel

Rupanel (?)100x25 from the
neighboring plot and double-
folded Swiss cladding(?) 150x25
cut to 100x25. Possibly from the
old kitchen in the house. Stack
behind the house.

4. Frames under windows

Structural timber 48x98
Planed and milled into water
boards. Found on the outhouse
wall.

5. Frames over windows

Structural timber 150x38.
From classified ad.

6. Roof battens

45x70 Impregnated construction
timber from the neighboring plot,
earlier used for boat racks.

7. Frame beams

Structural timber 250x50. From
finn.no. (Used as a floor in
scaffolding)

8. Floor beams

45x70 Impregnated construction
timber from the neighbor site,
used for boat racks.

D03 - Materialer

D03 - Materials



1. Hjørnebeslag

Ny fra biltema og gammel funnet i garasjen. Brukt på luker og planlagt å bruke på rammer for skjerming.

2. Stabelhengsler

To stykk, funnet i garasjen. Planlagt å bruke på dør.

3. Spikerplater

Ulike størrelser, funnet i garasjen.

4. Hengsler

Ulike typer og størrelser, funnet i garasjen og i huset. Brukt på luker.

5. Hjul

Funnet i huset og nye fra Biltema, til fremtidige rammer for skjerming.

6. Ringplater

Funnet i huset (båt) brukt på luker for å kunne lukke.

7. Vindushasper/stormkrog

Antagelig fra gamle vinduer i huset.

8. Skruer

For feste av konstruksjonsvirke. Nye fra biltema, noe gammelt fra huset.

9. Øyeskruer

Div størrelser fra huset til åpnemekanisme for luker.

10. Skåte

Div størrelser fra huset til luker.

11. Elefantrist

Fra nabotomten til gulv og benk.

1. Corner brackets

New from Biltema and old found in the garage. Used on hatches and planned to use on screens.

2. Door hinges

Two pieces, found in the garage. Planned to use on the door.

3. Nail plates

Different sizes, found in the garage.

4. Hinges

Different types and sizes, found in the garage and in the house. Used on hatches.

5. Wheels

Found in the house and new from Biltema, for future frames for shielding.

6. Ring plates

Found in the house (for boat) used on hatches to be able to close.

7. Window hasper/storm hook

Presumably from old windows in the house.

8. Screws

For attaching structural timber. New from Biltema and some old from the house.

9. Eye screws

Various sizes from the house to open mechanism for hatches.

10. Door bolt

Various sizes from the house to hatches.

11. Elephant grate

From the neighboring plot to the floor and bench.

D03 - Materialer
D03 - Materials



Funnede ting

1. *Flaskehals*
17 stykk i ulike farger
2. *En snodig stein, eller noe annet*
Det er en stripe på midten som kan se ut som en skjot
3. *Div stein*
Mange ulike former, farger og størrelser
4. *Sikring*
Med tekst: Drøbak
5. *Keramikk*
Ulike biter med og uten glasering
6. *Apotekerflaske*
Gjennomsiktig og hel
7. *Div jern*
Verktøy ++
8. *Glassbiter*
Mange bøtter med glass

Found objects

1. *Bottlenecks*
17 pieces in different colours
2. *A whimsical stone, or something else*
There is a strip in the middle that may look like a joint
3. *Different rocks*
Many different shapes, colors and sizes
4. *Insurance*
With writings: Drøbak
5. *Ceramics*
Various pieces with and without glazing
6. *Apothecary bottle*
Transparent and whole
7. *Various iron*
Tools ++
8. *Pieces of glass*
Many buckets of glass

D03 - Materialer
D03 - Materials



1. Taksperrer og karmner
Konstruksjonsvirke 150x38.
Fra finnannonse.

2. Søyler og bjelker (rammer)
Konstruksjonsvirke 100x100
Fra rast bygg på nabolamta.

3. Panel
Dobbeltfalset sveitserkledning 150x25
kappet til 100x25. Trolig fra det gamle
kjøkkenet i huset. Stabel bak huset.

4. Karmner under vinduer
Konstruksjonsvirke 48x98
Høvlet og frest til vannbrett. Funnet på
uthusmuren.

5. Taklekter
45x70 Impregnert konstruksjonsvirke
fra nabolamten, tidligere brukt til
båtstativer.

6. Lister til vinduer
Avkapp fra sveitserkledningen.

7. Stålplater
5000x700 kappet i to, fra nabolamten.

8. Glassfiberplater
Ulike størrelser, fra nabolamten.

1. Rafters
Structural timber 150x38.
From finn.no.

2. Columns and beams (frames)
Structural timber 100x100
From a fallen building on the
neighbor site.

3. Panel
Double-folded Swiss cladding(?)
150x25 cut to 100x25. Possibly
from the old kitchen in the house.
Stack behind the house.

4. Frames under windows
Structural timber 48x98
Planed and milled into water
boards. Found on the outhouse
wall.

5. Roof battens
45x70 Impregnated construction
timber from the neighboring plot,
earlier used for boat racks.

6. Skirting
Leftovers from the Swiss cladding.

7. Steel sheets
5000x700 cut i two, from the
neighbour site.

7. Glasfiber sheets
Different sizes, from the
neighbour site.

D04 - Sti
D04 - Path



Stien fra huset til utedoen har blitt til underveis. Stein fra rydding av tomten og biter fra elefantristen har vi lagt til etter behov.



The path from the house to the utedo has been created along the way. We have added stone from clearing the site and pieces from the elephant grate as needed.

D04 - Sti
D04 - Path



Stien fra huset til utedoen har blitt til underveis. Stein fra rydding av tomten og biter fra elefantristen har vi lagt til etter behov.



The path from the house to the utedo has been created along the way. We have added stone from clearing the site and pieces from the elephant grate as needed.

D04 - Sti
D04 - Path



Stein fra rydding av tomten har vi brukt for å jevne ut inngangspartiet hvor elefantristen strekker seg ut av bygget og treffer fjellet.



We added stone from clearing the site to level the entrance area where the elephant grate extends out of the building and hits the bedrock.

D05 - Fundament
D05 - Foundation



Resultatet av boring i eksisterende hull.
Sement før stolpesko ble feil rekkefølge.



A star-shaped hole is the result of drilling in an existing hole.
Pouring the concrete before placing the pin was the wrong order of doing things.

D05 - Fundament
D05 - Foundation



Stolpeskoene mot bekken er plassert nesten helt ute på kanten av skrenten. Det ujevne og stigende underlaget gjorde det vanskelig å borre hull som var nøyaktig parallelle. Vi løste det med en bjelke i bunn.



The pins for the frame towards the creek are placed on the edge of the cliff. The uneven surface made drilling parallel holes a challenge. The beam helped us correct errors.

D06 - Rammer
D06 - Frames



Bjlkene i rammene er felt inn i søylene med tapper og låst fast med en dybel.

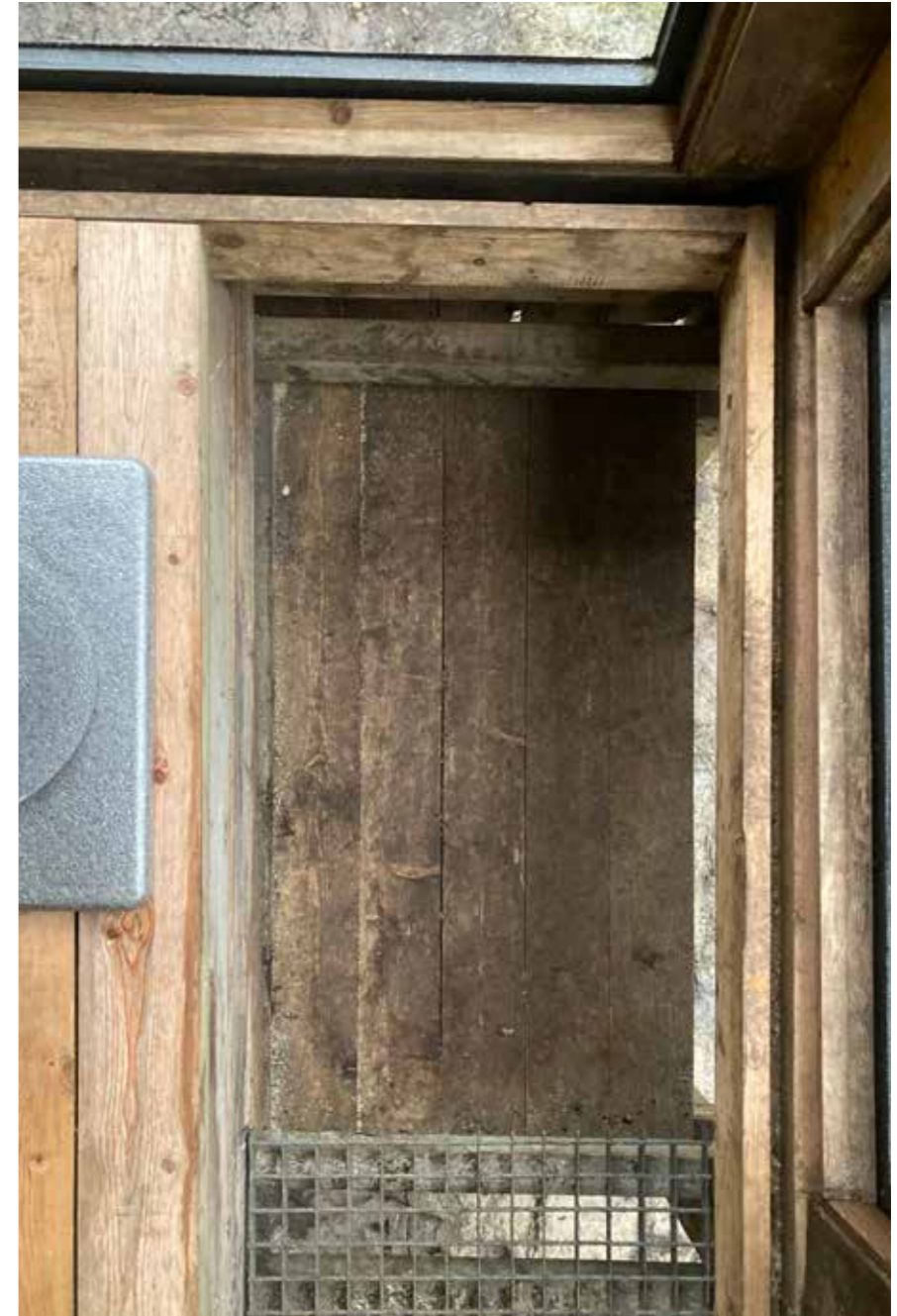


The beams are embedded into the columns and secured with a dowel.

D07 - Gulv
D07 - Floor

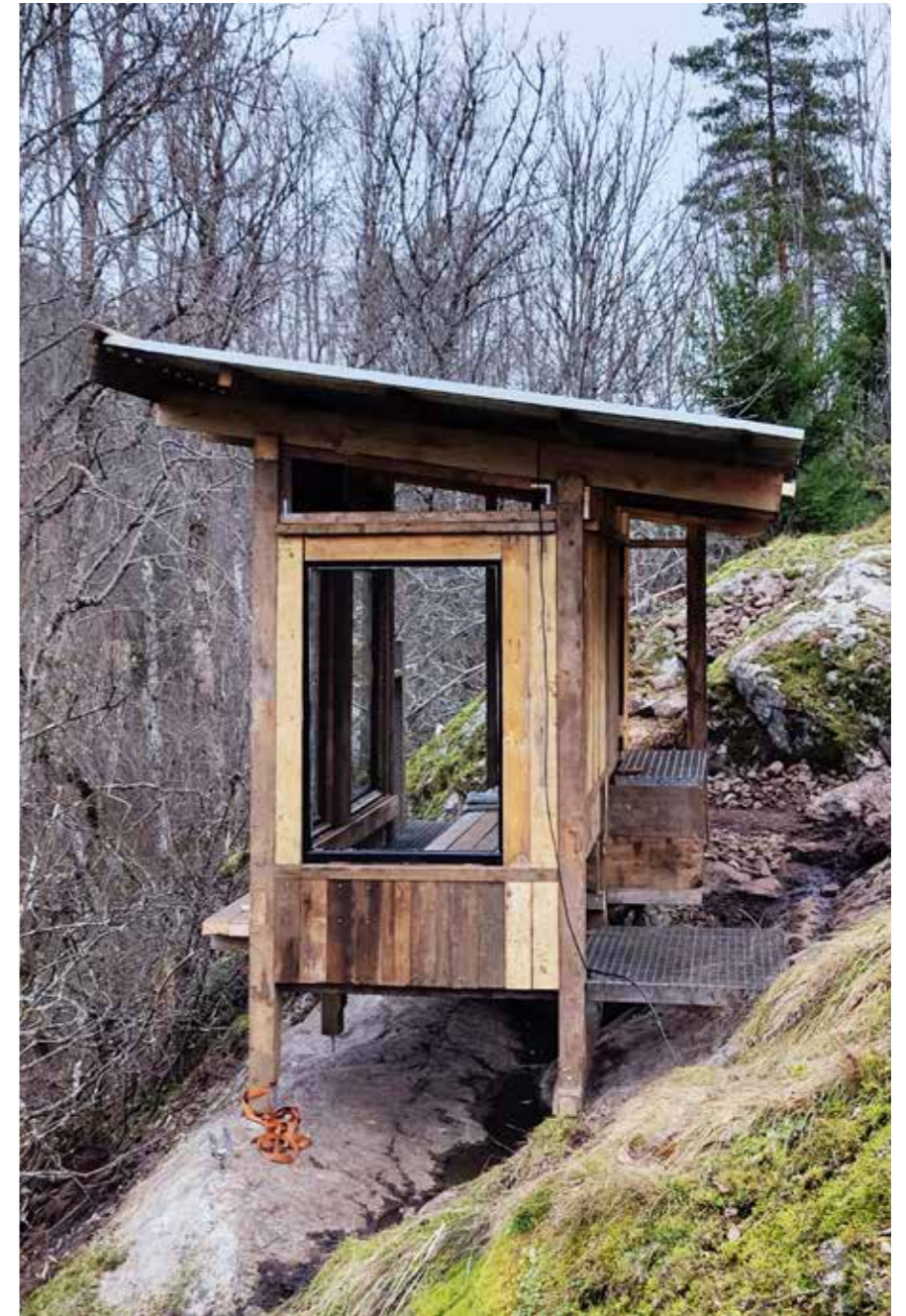


Elefantristen ligger som gulv i første del av utedoen.
I innerste del av utedoen ligger det tregulv.



The elephant grate makes the first part of the floor.
In the inner part of the utedo the floor is wooden.

D08 - Vegger
D08 - Walls



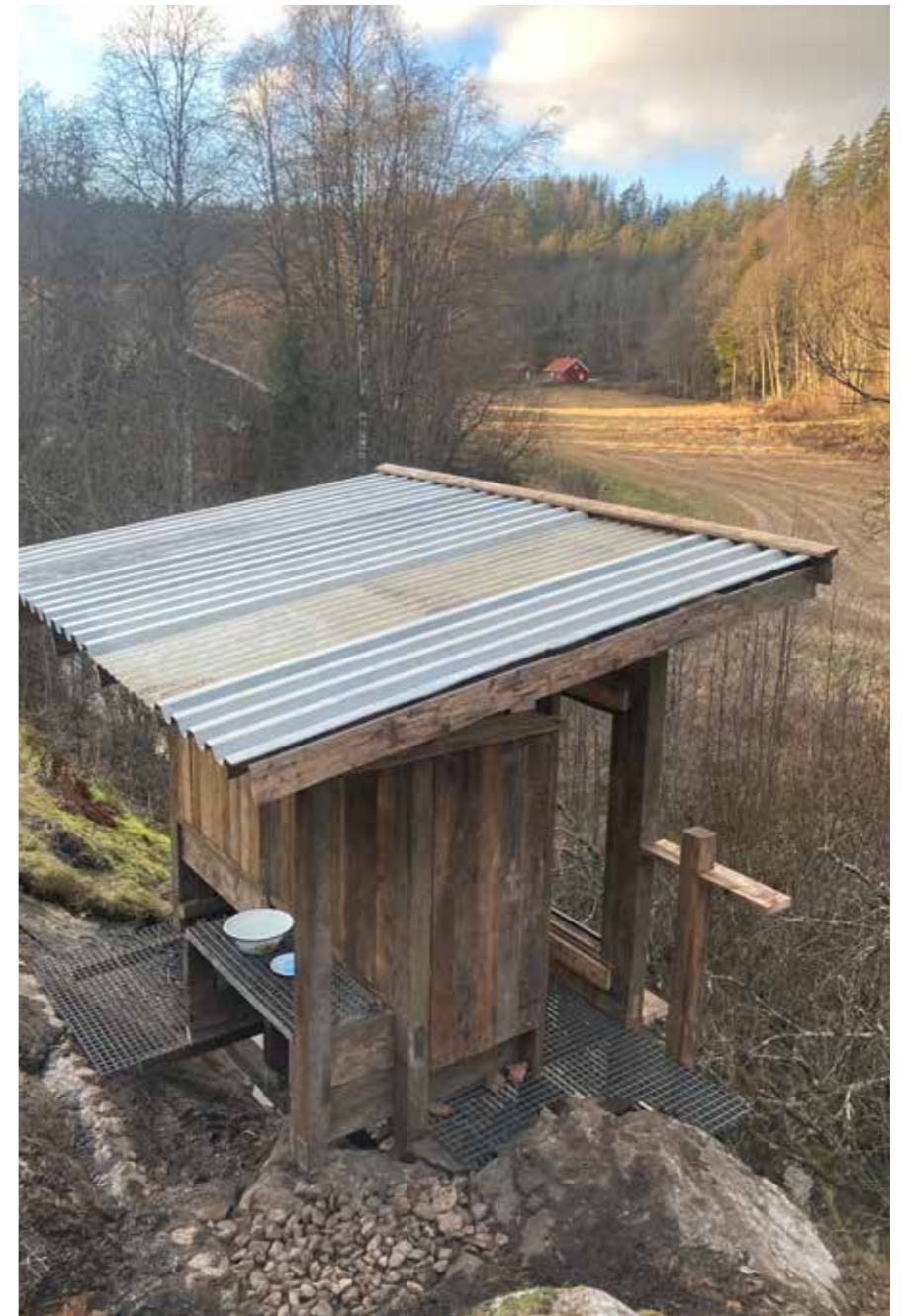
D08 - Vegger
E08 - Walls



D09 - Tak
D09 - Roof



D09 - Tak
D09 - Roof



D10 - Detaljer
D10 - Details



D10 - Detaljer
D10 - Details



D10 - Detaljer
D10 - Details



D10 - Detaljer
D10 - Details



Stein fra klargjøring av tomten brukt for å rette ut inngangspartiet. Risten fungerer som en vask, hvor vann renner gjennom og ned under bygget.



Stone from site preparation used to straighten the entrance. The grate acts as a sink, where water flows through and down under the building.

D10 - Detaljer
D10 - Details



Spor oppe og nede for planlagte skjermer som skal skyves frem og tilbake på hjul. For å regulere innsyn/sol.



Tracks for planned screens to be pushed back and forth on wheels. To regulate visibility/sun.

D10 - Detaljer
D10 - Details



Spor for planlagte skjermer som skal skyves frem og tilbake på hjul. For å regulere innsyn samt sol.



Tracks for planned screens to be pushed back and forth on wheels. To regulate visibility and sun.

D10 - Detaljer
D10 - Details



D10 - Detaljer
D10 - Details



D10 - Detaljer
D10 - Details



Ekstra

Extra

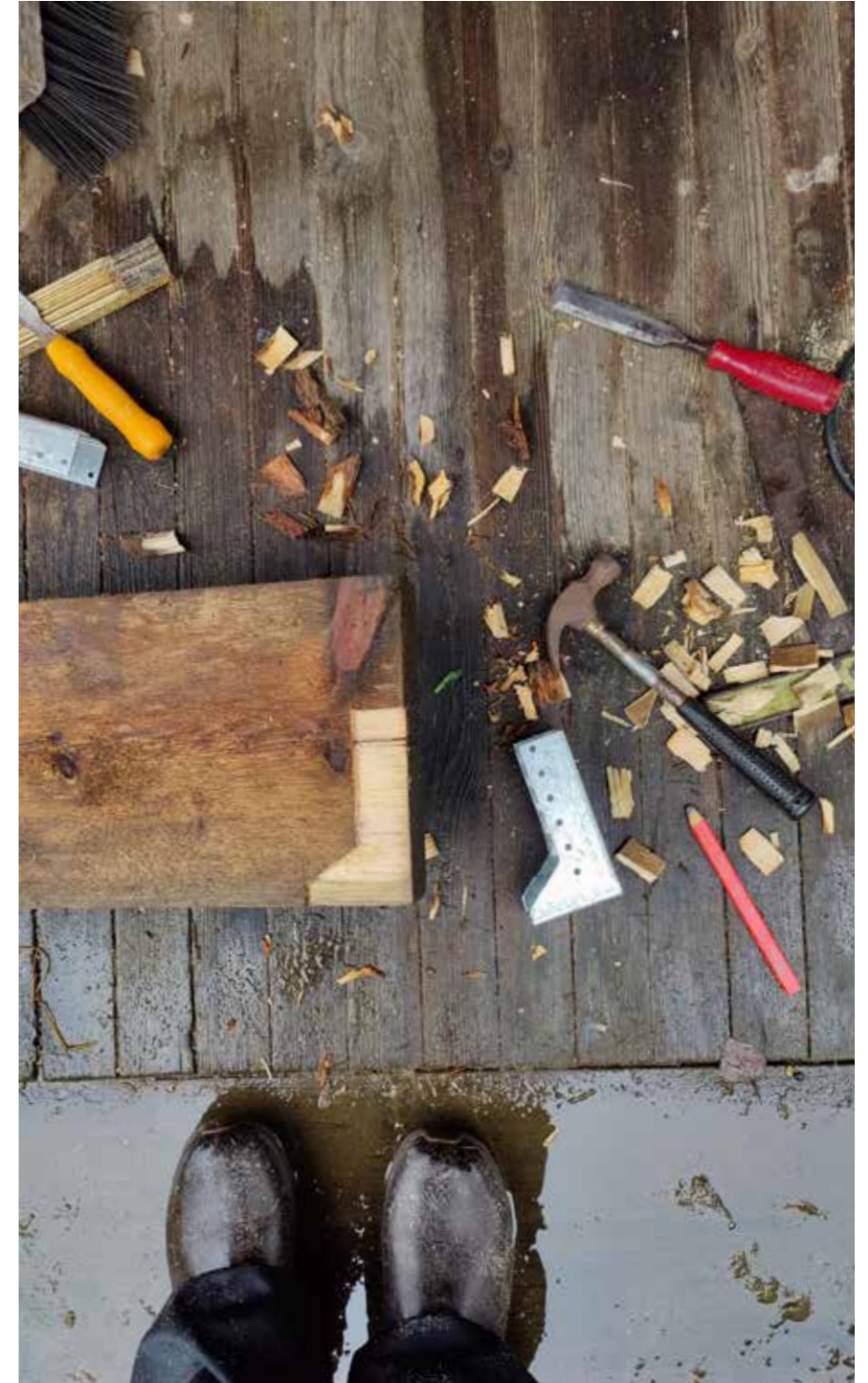














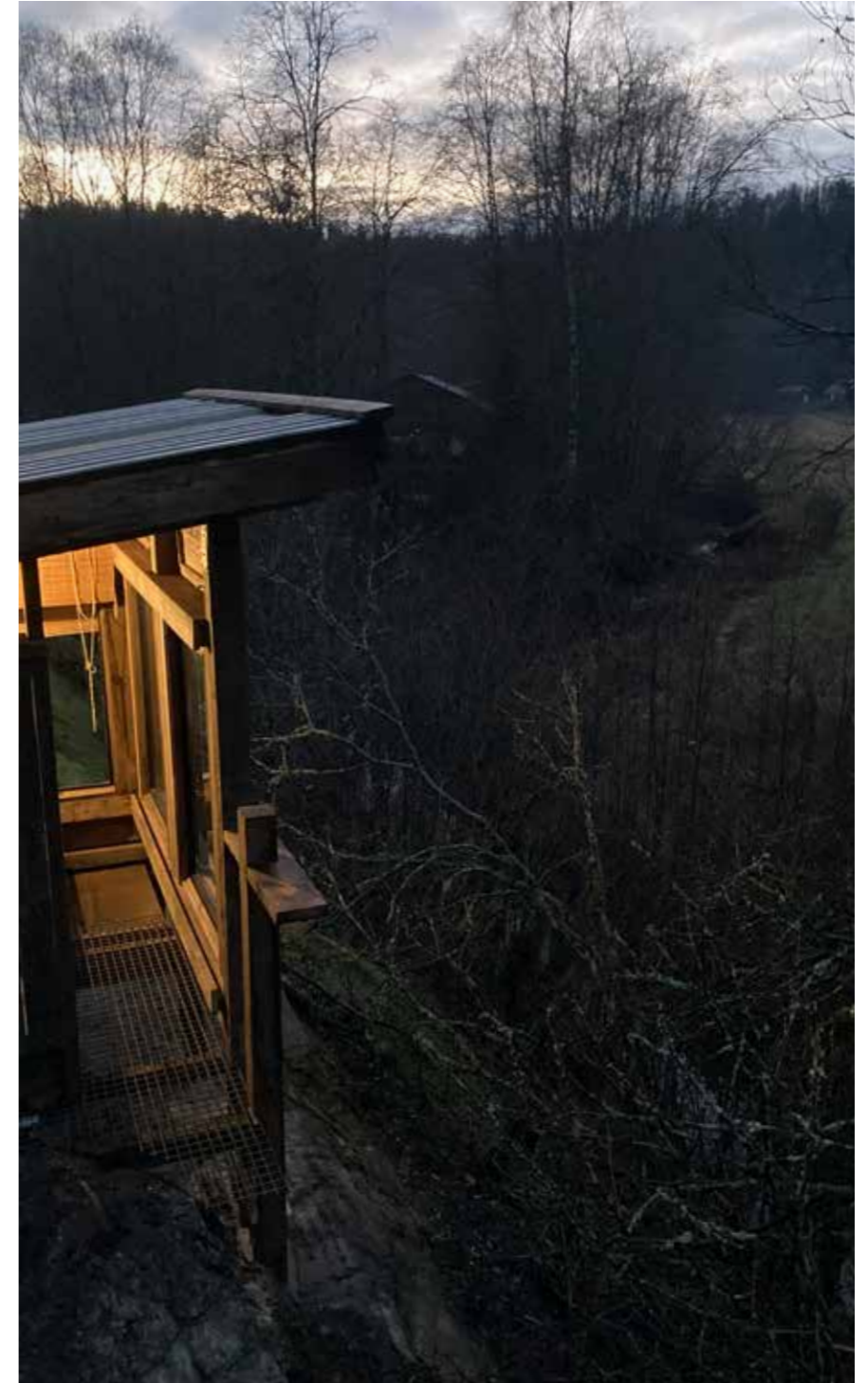


















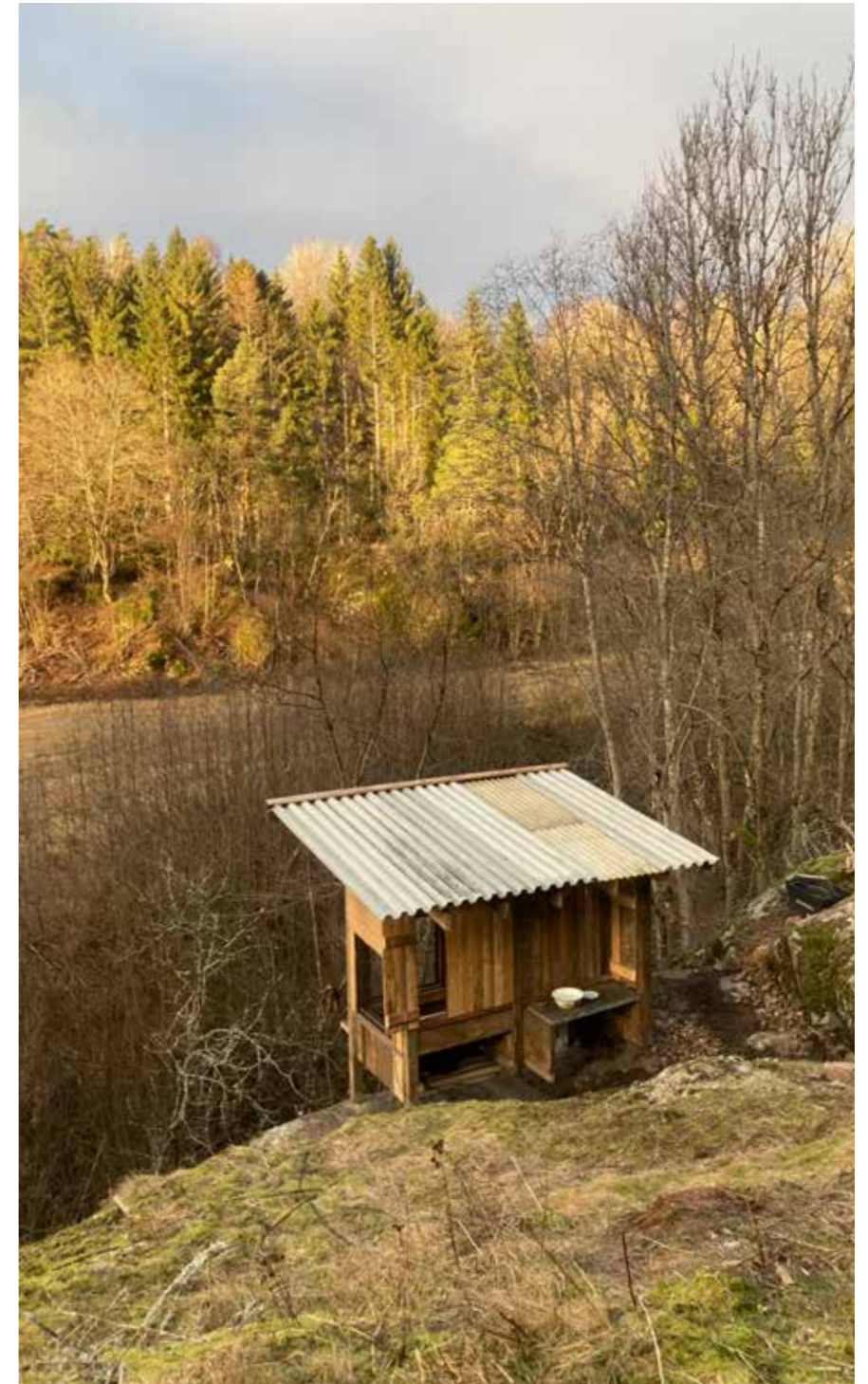
























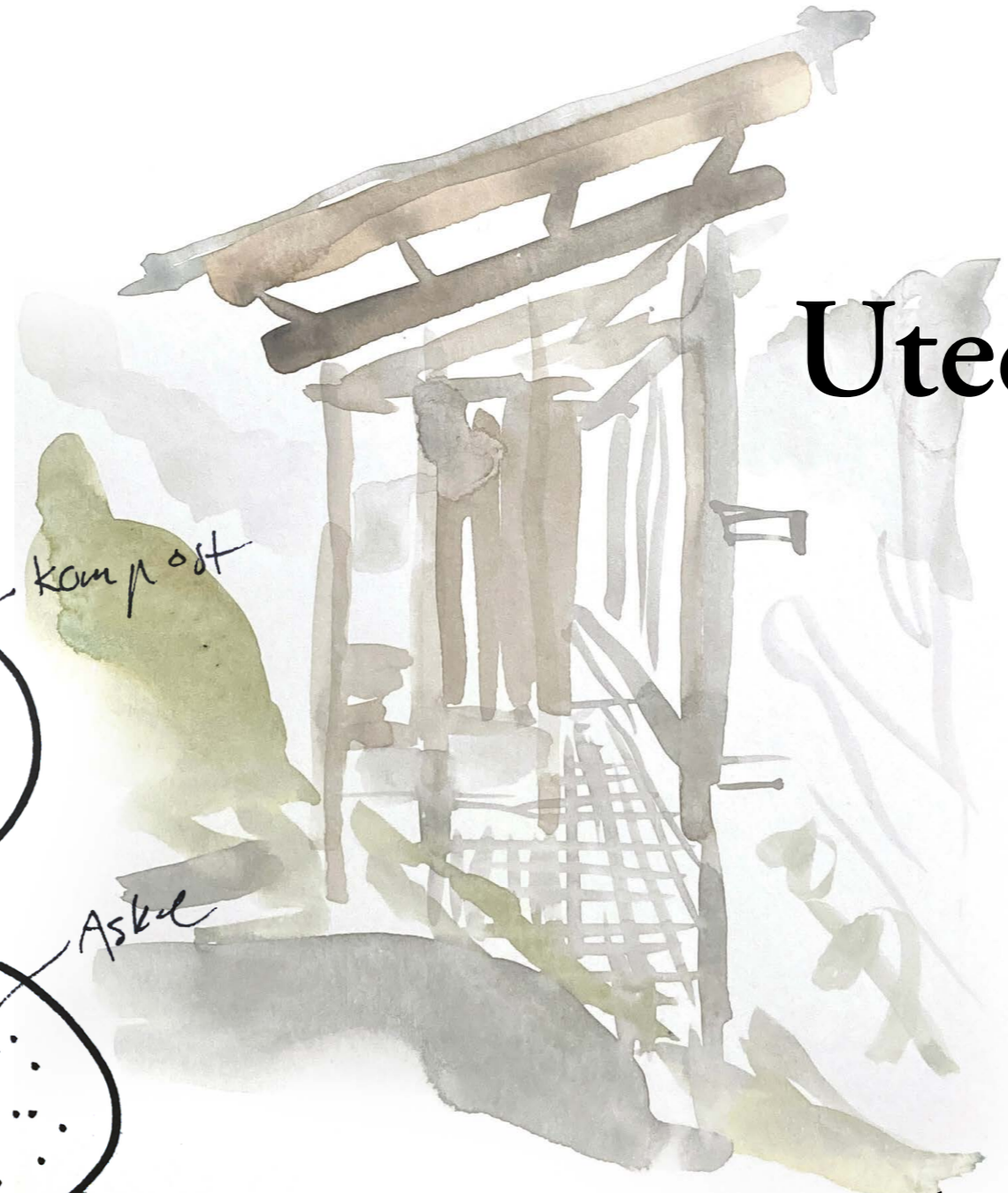
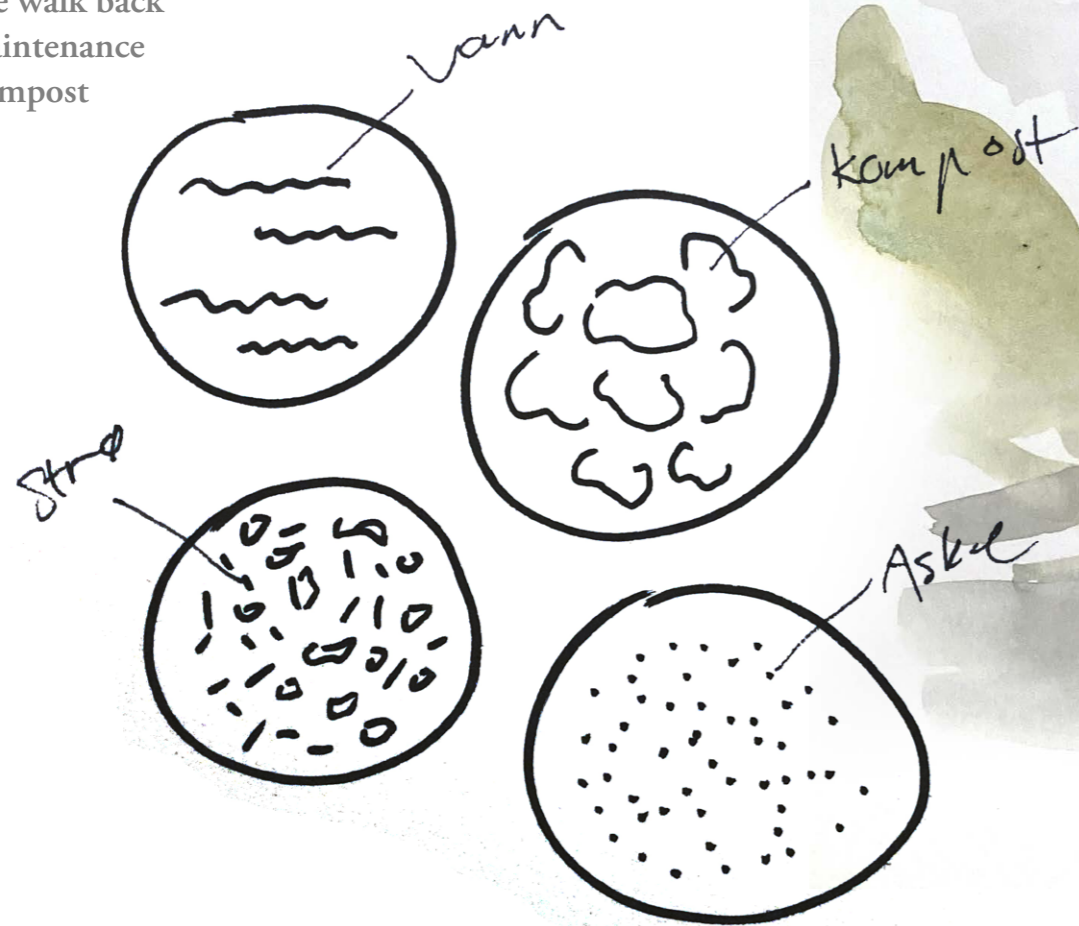






Fra huset
På doen
Etter besøket
Tilbake til huset
Vedlikehold
Kompost

The walk there
Using the toilet
After use
The walk back
Maintenance
Compost



Utedoen

Brukermanual
User manual

Do-regnestykket

En gjennomsnittlig person produserer omtrent 250 gram avføring hver dag, i tillegg kommer 1-1.5 liter urin.

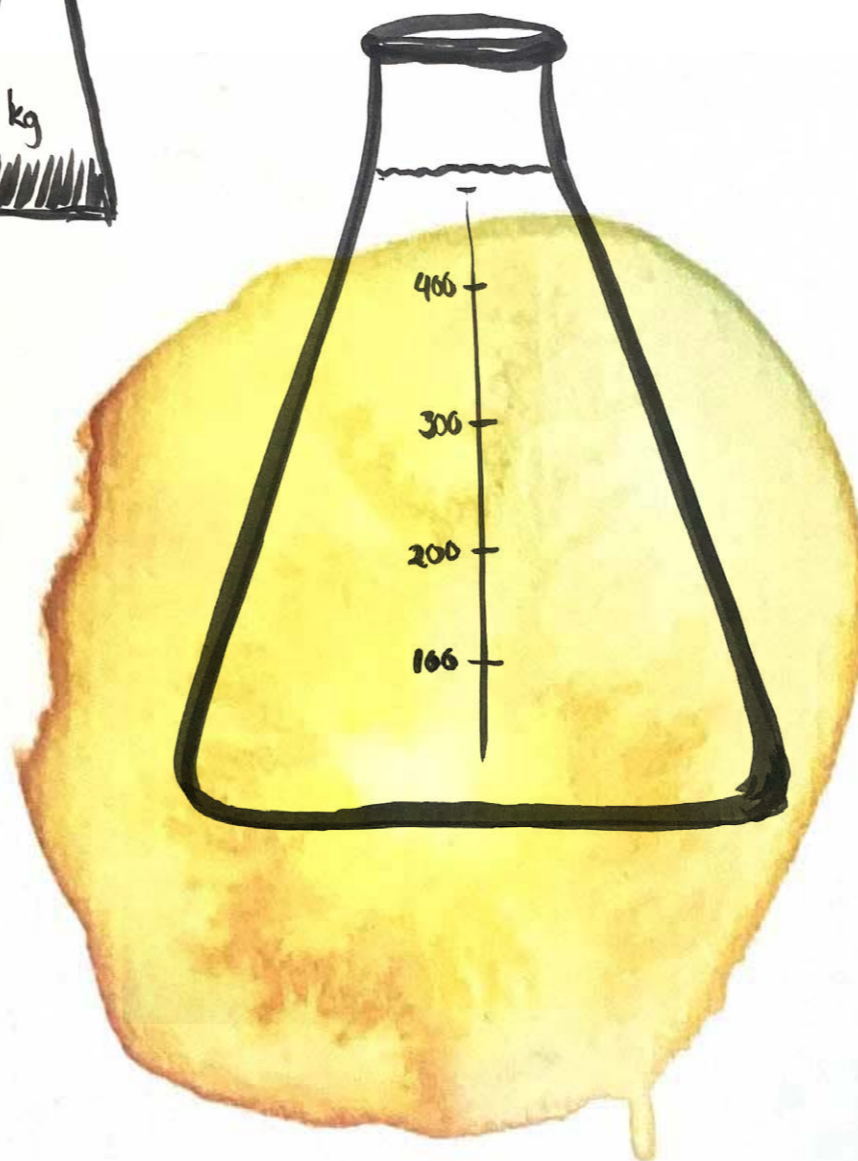
Dette gir en total på ca 91 kg avføring og 450 liter urin i løpet av ett år.

Tallene for hele Norges befolkning på ca 5.4 millioner mennesker er nær 500 millioner kilo avføring og 2.5 millioner liter urin per år.

Tallene for verdens befolkning som nå er på over 8 milliarder mennesker er umulige å forstå.

Det er vanlig å gå på toalettet mellom 3-7 ganger per dag. Med et gjennomsnittstolett som bruker 6 liter vann per spyling brukes det minimum 18 liter vann for å spyle ned 1 liter urin. Ved 7 toalettbesøk brukes det hele 42 liter vann for å spyle ned 1-1,5 liter urin i løpet av en dag.

Om vi er heldige og lever til vi er 80 år bruker vi omtrent 1 år av livene våre sittende på toalettet. (15 min per dag)



The maths of toilet use

The average person produces approximately 250 grams of feces each day, as well as 1-1.5 liters of urine.

For one person this adds up to 91 kilos of shit and 450 (avg) liters of urine in one year.

In Norway that will result in close to 500 million kilos of shit and almost 2.5 million liters of urine in total in a year.

For our now 8 billion world population the numbers are unfathomable.

We go to the toilet 3-7 times per day. With an average of 6 liters of water for every flush we use at a minimum 18 liters of water to flush down 1 liter of urine. On the opposite end of the scale one person can flush down 42 liters of water to get rid of 1,5 liters of urine during one day

On an average we spend (if we're lucky enough to live until we're 80) approximately 1 year sitting on the toilet. (15 minutes per day)

Utedo-regnestykket

Utedoen vil stort sett brukes av en person.

Utedoen har to seter med en 20-liters bølge under hvert av dem.

I tillegg til det en person tilfører bøtta vil det også tilføres strø av diverse materialer. (Kan være aske, sagspan, gress osv.)

Om utedoen blir brukt for alle do-besøk kan vi runde opp til en total på 2 liter som blir tilført doen hver dag.

Dette betyr at en 20-liters bølge blir full på 10 dager.

En kompostbølge på 1.2 m³ tar 1200 liter.

20% av de 1200 literene går bort til annet organisk materiale som skal kle inn kantene og legges over hver bølge som tømmes.

Det vil si at en kompostbølge kan fylles med omtrent 960 liter - 48 bøtter - bølgen vil være full etter ca 480 dager. Dersom ingenting skjer i komposten vel å merke, så fort komposteringsprosessen kommer i gang vil innholdet i komposten krympe merkbart etter relativt kort tid, og du kan fylle opp mer i samme bølge.

The outhouse maths

The outhouse will primarily be used by one person.

There are two seats with a 20 liter bucket underneath each of them.

In addition to what a person adds to the bucket a portion of organic matter will be added as well.

If the outhouse is the only available toilet and is used for all "deposits", an average total deposited each day is approximately 2 liters.

This means a 20 liter bucket will be full in 10 days.

A compost bin of 1.2 m³ holds 1200 liters.

20% of the volume of the bin is "lost" to more organic matter which will line the edges and be put between every bucket emptied as a top layer.

Meaning that the bin can be filled with approximately 960 liters - 48 buckets - the bin will be "full" in about 480 days. That is if nothing happens within the compost, but as soon as the composting process gets going the mass will be reduced in size quite quickly and you can add more matter to the same bin.

Daglig bruk *fra huset*

Behovet melder seg? Se deg rundt etter nyttelast, har du matavfall som skal tømmes? Trengs det mer toalettpapir på do? Se på termometeret, hvor kaldt er det? Blir det boblejakke og støvler eller holder det med genser og crocs?

Gå ut døra, kjenn den friske lufta strømme ned i lungene. Tøm matavfallet i komposten som du har anlagt langs stien til utedoen. Undre deg over hvilket tre hakkespetten hakker på. Kjenn sola/vinden/regnet/snøen/temperaturen virke på kroppen. Gå ned stien og inn døra til utedoen.



Daily use *the walk there*

Feeling the need to go? Look around, is the bin containing food scraps full? Did the outhouse need more toilet paper? Take a look at the temperature. Do you need a down jacket and boots, or will a sweater and crocs do?

Step outside, feel the fresh air streaming into your lungs. Empty the food scraps in the kompost that you've placed along the path to the outhouse. Try to figure out which tree the Woodpecker is pecking at. Feel the sun/wind/rain/snow and its impact on your body. Walk down the path and enter the outhouse.

Daglig bruk *på do*

Velg ett av to do-seter. Ta lokket av og sett deg ned. Ønsker du utsikt mot huset setter du deg innerst. Er det varmt kan du åpne lukene opp mot taket ved å trekke i tauet under takbjelken. Se og lytt etter biler langs veien på andre siden av jordet. De ser deg ikke, men du kan trekke et av panelene foran vinduet om du ønsker mer skjerming. Sett deg ned og finn roen til lyden av bekken som sildrer forbi. Nyt synet av hegren som letter fra krattet ved åkeren og bjeffene fra rådyret i det fjerne. Om du hører noe bak deg kan du åpne den lille døren i bakveggen for å se om du ser noe/noen.



Daily use *using the toilet*

Choose one out of two seats. Remove the lid and sit down. If you want a view to the house you choose the innermost seat. At high temperatures you can open the hatches over the windows by pulling the rope underneath the roof beams. Can you hear or see a car on the road across the field? They can't see you, but you can pull the sliding blind in front of the window if you want more privacy. Sit down and enjoy the sound of the trickling creek. Follow the heron taking off from the bushes below and listen to the barks of the deer in the distance. If you hear something behind you, you can open the small door in the back wall to check.

Daglig bruk *etter besøket*

Ferdig? Husk å trekke opp buksa så du ikke snubler på vei ut. Ta en kopp med strø fra boksen på benken og hiv ned i do-bøtta. Legg lokket på plass igjen. Vask hendene over rista på baksiden av doen. Regner det kan det hende at det renner nok vann til at du kan vaske hendene under vannet fra takrenna.

Begynte do-bøtta å bli full? Åpne luka og ta den ut. Bær den opp til kompost nummer to som ligger en liten avstikker fra stien, motsatt vei av huset. Tøm bøtta i komposten, dekk over innholdet med strå/grass/kvister og skyll bøtta med regnvannet som er samlet opp i tønna ved siden av. Tøm også slamvannet i komposten. Sett bøtta tilbake igjen. Vask hendene på nytt.



Daily use *after use*

Done? Remember to pull your pants up so you don't trip on your way out. Fill a cup of the organic matter of choice from the box on the bench and put it in the bucket. Place the lid back over the bucket. Wash your hands over the grate behind the outhouse. If it's raining the water running from the gutters might be sufficient.

Was the bucket starting to fill up? If so, open the hatch behind the outhouse and take it out. Carry it up to compost nr. 2, a small detour from the path, in the opposite direction of the house. Empty the bucket into the compost and cover the contents with straw/grass/twigs. Rinse out the bucket with the rainwater collected in the barrel next to the compost, empty the water in the bin as well. Put the bucket back under the outhouse and wash your hands again.

Daglig bruk *tilbake til huset*

Gå tilbake mot huset. Legg merke til hvor sola står på himmelen eller om månen og stjernene har begynt å dukke opp. Kanskje tåka har begynt å legge seg i dalen? Ta med deg beholderen til matavfallet. Plukk blomster/solbær/sukkererter/epler/ lag en snøball og kast mot bekken, alt etter sesong, med små 2-3 meters avstikkere fra stien på vei tilbake til huset. Pust dypt inn og fyll lungene med frisk luft før du åpner døra og går inn i huset igjen.



Daily use *the walk back*

Walk back towards the house. Notice the sun in the sky, or if the moon and stars have started to appear. Maybe the fog has started to settle in the valley. Pick up the container for food scraps. Pick flowers/ blackcurrants/sugar peas/ apples/make a snowball and throw it towards the creek, all acts depending on the season, with just 2-3 meter detours from the path. Take a deep breath before opening the door and entering the house.

Vedlikehold
generelt vedlikehold

Maintenance
general maintenance



Vasking
Påfyll av do-papir
Påfyll av "strø"
Tømming av do-bøtter

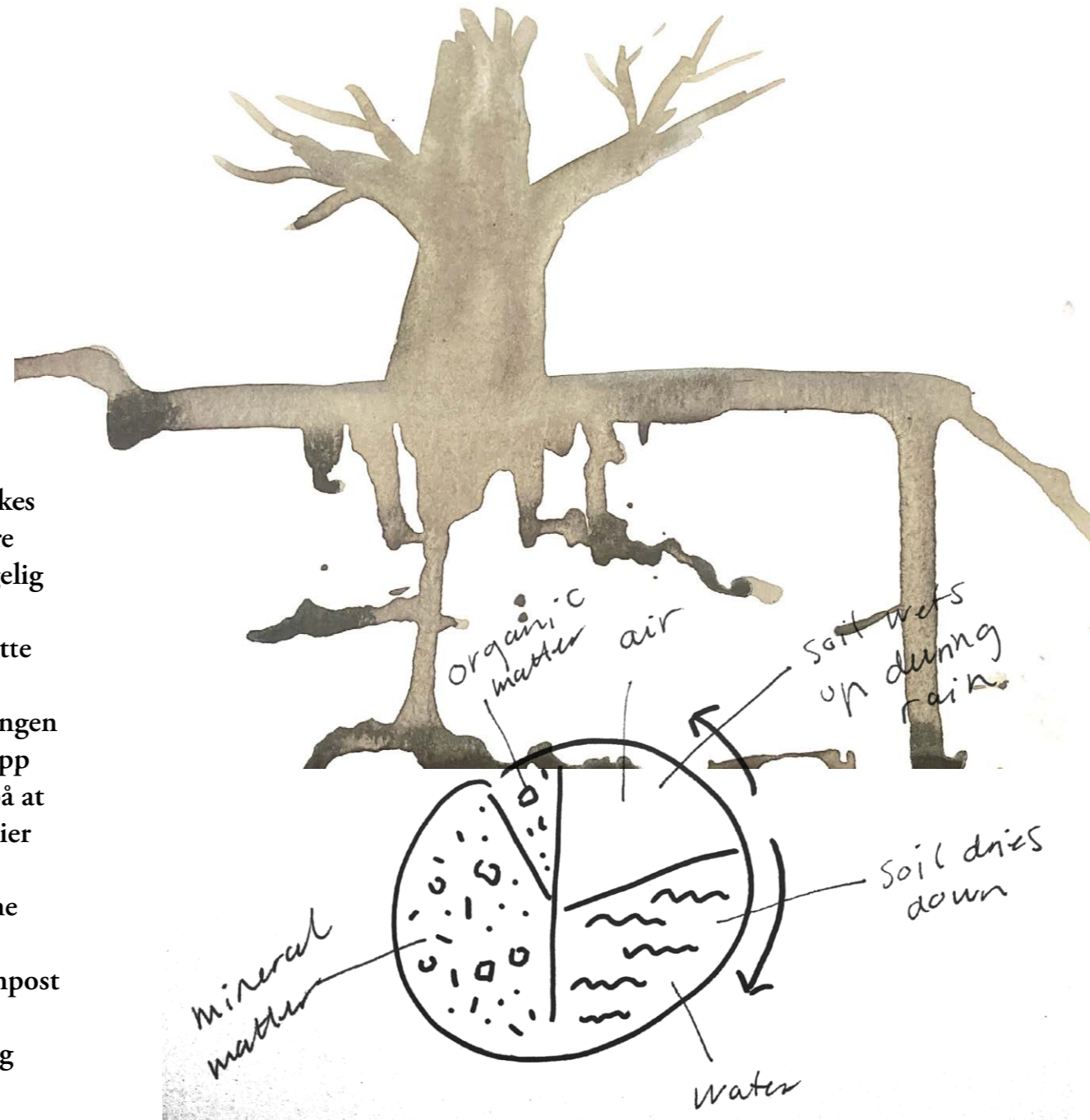
Inspiser og utfør vedlikehold på
treverket om nødvendig
Inspiser og utfør vedlikehold på
stien om nødvendig

Cleaning
Refill the toilet paper
Refill organic matter
Empty buckets

Inspect and treat the timber if needed
Inspect and repair the path if needed

Vedlikehold *kompost*

Innsiden av kompostbingen skal dekkes med organisk materiale. Det kan være strå, gress, sagflis, det du har tilgjengelig og som kanskje ellers ville havnet i hagekomposten. Etter hver tømte bøtte skal et nytt lag av organisk materiale legges på toppen som et lokk. Når bingen er full skal den stå og kompostere i opp til 2 år for å kunne være helt sikker på at det ikke er rester av virus eller bakterier i blandingen. Samtidig settes en ny kompostbinge opp og fylles på samme måte. Etter noen år kan man veksle mellom de to bingene og ta jord/kompost fra den ene og bruke i hagen mens den andre står og arbeider i stillhet og forvandler "avfall til gull".

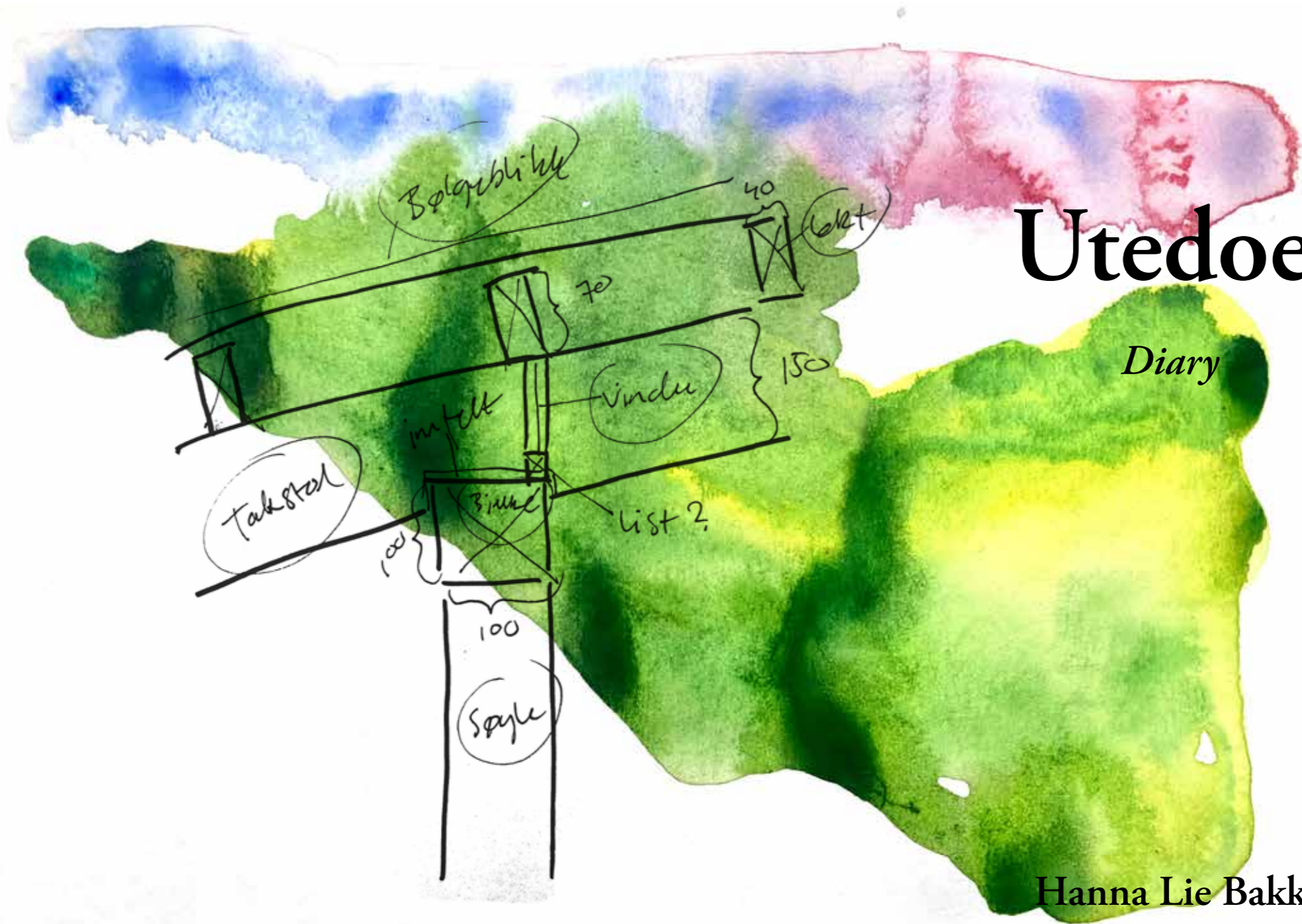


Maintenance *compost*

The composting bin will be lined with organic matter, making a "bed" for the contents of the buckets, a layer of organic matter (straw, grass, sawdust, whatever you have accessible) is put on top. The process is repeated for every bin emptied into the container. When the container is full it is left to compost, maybe for as long as 2 years to be absolutely sure there are no remnants of bacteria or virus in the mix. In the meantime, a second compost bin is set up and filled in the same way, after a few years you can alternate between the two (maybe three) containers, where compost from one is used in the garden while the other one is silently working on turning "waste into gold".

Januar
Februar
Mars
April
Mai
Juni
Juli
August
September
Oktober
November
Desember

January
February
March
April
May
June
July
August
September
October
November
December



Utedoen

Diary

Hanna Lie Bakken
Kine Nordgård Ugelstad

Dette er dagboknotater skrevet av
Hanna (H) og Kine (K)

Noen notater er hver for seg; Hanna på
hytta si i Finnskogen og Kine hjemme
på Holtberget. Når vi har hatt felles
arbeidsuker på Holtberget har vi stort
sett skrevet sammen.

These are diary entries written by
Hanna (H) and Kine (K)

Some notes are separate; Hanna at
her cabin in Finnskogen and Kine at
home at Holtberget. When we've been
together, working at Holtberget, we
have mostly written together.



Fredag, 12 Februar 2021

K: I dag frøys vannet. Siden det ikke frøys i fjor trodde jeg nesten ikke det kom til å skje. Litt panikkstemning først. Febrilsk koking av vann, helle ned i do og vask for å løse opp isen, men nei.

Friday, 12th of February 2021

K: Today the water froze. Since it did not freeze last year, I almost didn't think it would happen. A little panic at first. Feverish boiling of water, pour down the toilet and sink to dissolve the ice, but nothing happened.

Omlagging av infrastruktur. Finne frem bøtter og baljer til oppvask, skylling, håndvask. Do! Hvor er utedoen! Den var jo i det gamle uthuset. Jeg vil lage utedo!

Restructuring of infrastructure. Finding buckets and tubs for washing dishes, rinsing, hand washing. Toilet! Where is the utedo! There used to be one in the old shed, but it collapsed many years ago. I want to make an utedo!



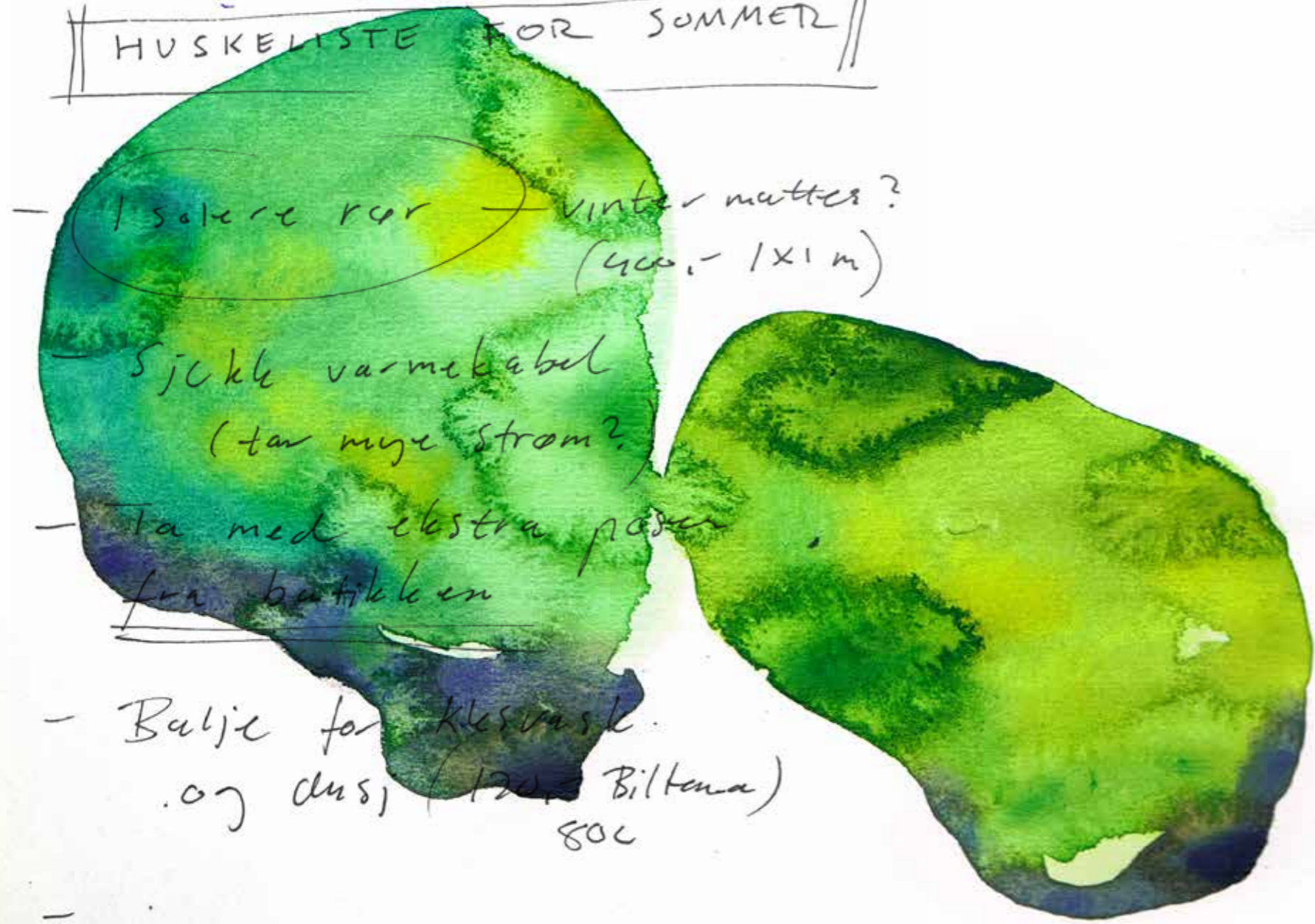
Det gamle uthuset som raste sammen
The old outhouse that collapsed



Utedo med utsikt. Sti til utedoen.
Alenetid på utedoen. Solnedgang fra
utedoen. Se på fugler fra utedoen. Høre
ugla bak utedoen. Utedo med flere seter!

Outhouse with a view. Paths to the
outhouse. Alone time at the outhouse.
Sunset from the outhouse. Looking at
birds from the outhouse. Listen to the
owl behind the outhouse. An outhouse
with many seats!

|| HUSKELISTE FOR SOMMER ||



- Isolerte rør - vintermatter?
(400,- 1x1 m)

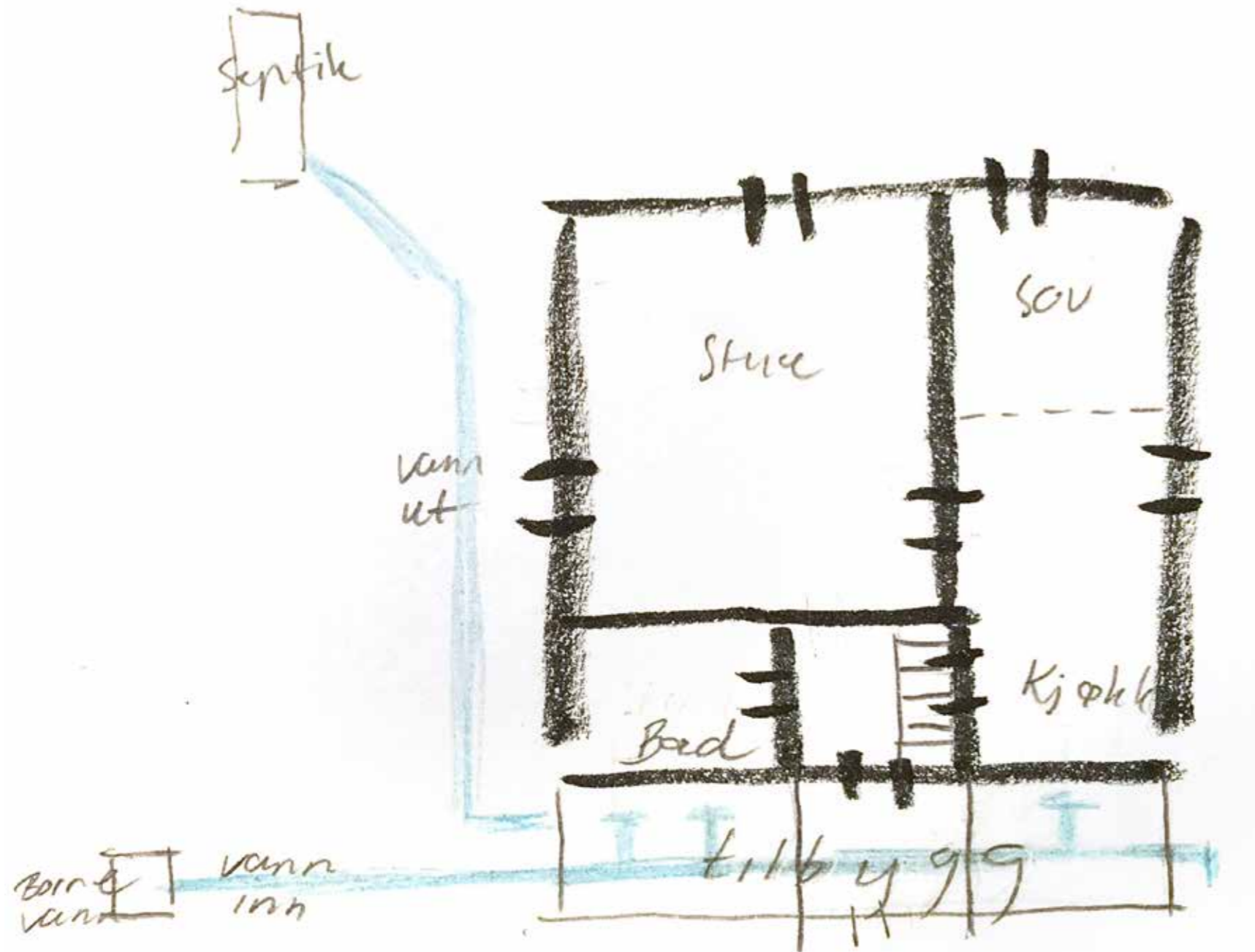
- Sjekk varmekabel
(tar mye strøm?)

- Ta med ekstra poser
fra butikken

- Balje for klesvask.
og dusj (120,- Biltana)
80,-

Siden bakken var frosset endte jeg opp med å bæsje i en pose som jeg plasserte under dosetet, for så å hive posen i søpla ute, som man jo gjør med hundebæsje på tur. Jeg begynte å tenke på hvor lite jeg vanligvis forholder meg til eget "avfall" – hvor havner alt til slutt og hvilke ressurser kreves egentlig for å kvitte seg med det. Og kan jeg egentlig bruke min egen bæsje som kompost og gjødsling til kjøkkenhagen?

Since the ground was frozen, I ended up pooping in a plastic bag that I placed under the toilet seat, and then I threw it in the trash outside, as we do with the dog poop. I began to think about how little I usually relate to my own "waste" – where does everything end up and what is actually required to get rid of it. And can I really use my own waste as compost and fertilizer for the garden?

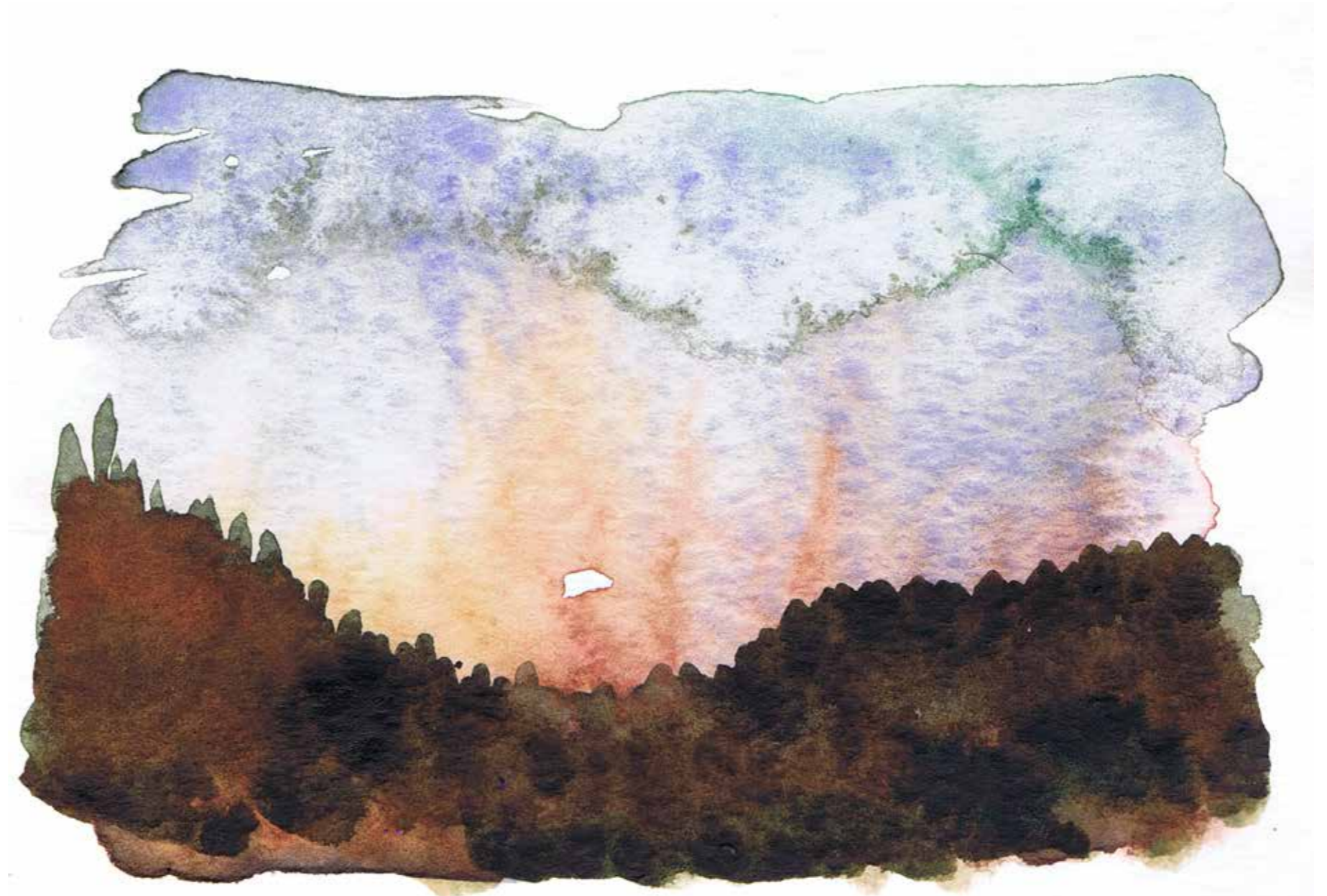


Etter en dusj i balje innså jeg at det varme vannet som vanligvis skylles ned i sluket og ut av huset også kunne brukes til å varme opp badet. Og jeg fikk sjokk første gang jeg satt på en klesvask og så hvor mange baljer med vann som gikk med. Et normalt program på vaskemaskinen brukte nesten 500 liter vann. Jeg ble raskt ganske sterk i arma da dette måtte bæres ut.

After a shower in a plastic tub, I realized that the hot water that is usually flushed down the drain and out of the house also could be used to heat the bathroom. And I was shocked the first time I did laundry and experienced how many tubs of water that was needed. A normal program on the washing machine used almost 500 liters of water. I quickly became quite strong in the arms when this had to be carried out.

Mange ganger i døgnet måtte jeg nå ut for å tømme ut bøtte på bøtte med vann og ofte ble jeg stående å se opp på stjernehimmelen eller månen, eller høre på en rar lyd fra et dyr i skogen. Og når det var snøvær eller kald vind så satt jeg pris på å kunne gå inn igjen i et varmt hus. Jeg ble bevisst på hvor stor del av dagen jeg tilbringer inne og hvor skjermet fra naturen jeg egentlig er inne i huset.

Many times a day I had to carry buckets of water out of the house and I stopped to look up at the stars and the moon, or listen to a strange sound from an animal in the forest. And when it was snowing or a cold wind came by, I appreciated being able to go back into a warm house. I became aware of how much of the day I spend inside and how separated from nature I really am inside the house.



Ønsker for utedoen

Wishes for utedo

Utsikt
View

Kjenne på været
Feel the weather

Oppleve sesongene
Experience the seasons

Se ville dyr
See wild animals

Høre på fugler
Listen to birds

Plukke blomster
Pick flowers

Våkne
Wake up

Ta en pause
Take a break

Bevege kroppen
Exercise

Få frisk luft
Get fresh air

Ha alenetid
Alone time

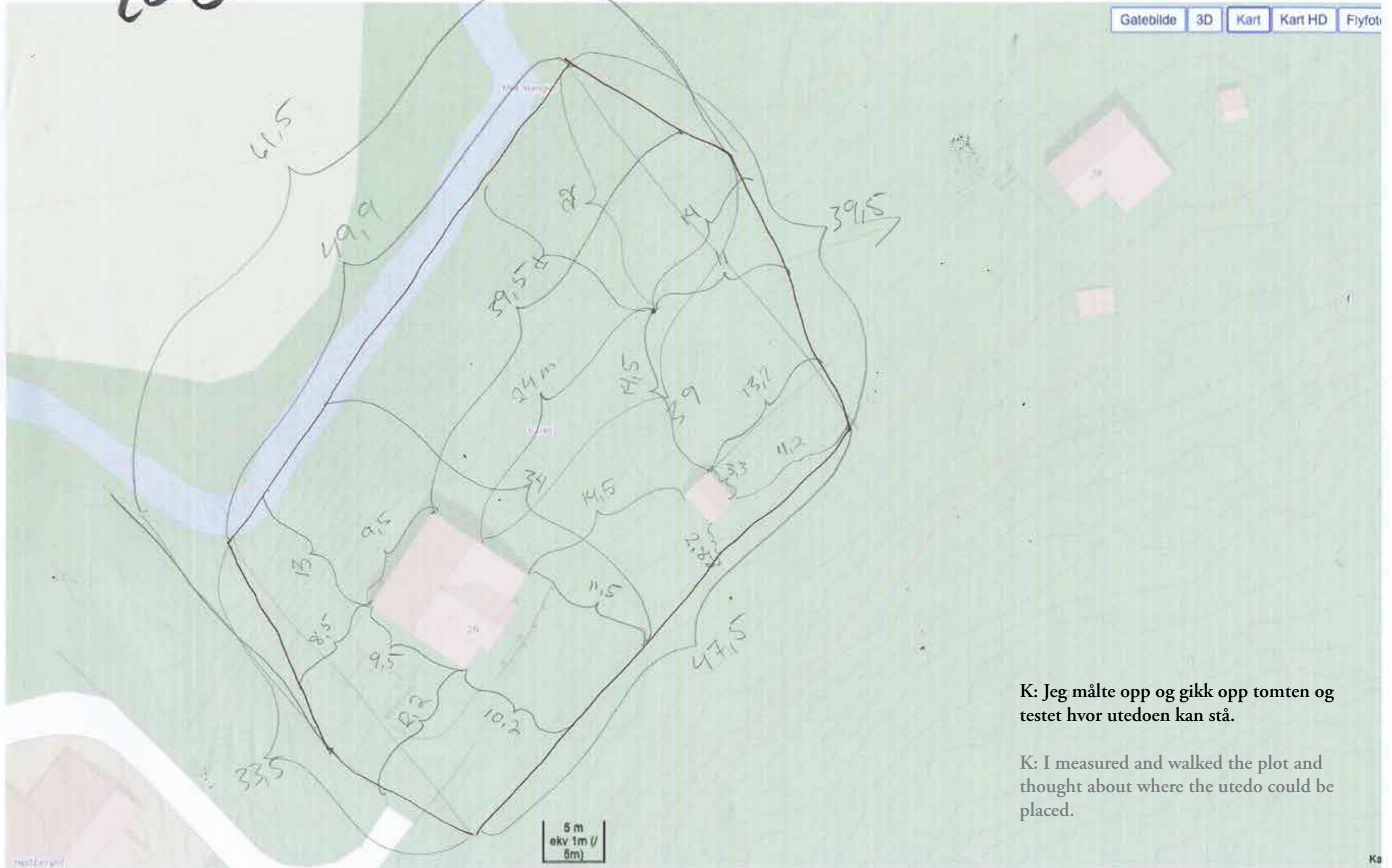
Tid til å tenke
Time to think

Gå en liten tur
Go for a walk

Se månen
See the moon

Bli inspirert
Get inspired

2020



K: Jeg målte opp og gikk opp tomten og testet hvor utedoen kan stå.

K: I measured and walked the plot and thought about where the utedo could be placed.



Tegning med venstre hånd
Drawing with left hand

K: Mulig plassering for utedoen, litt lavere enn huset, unngå å blokkere utsikt fra kjøkkenvinduet.

K: Possible location for the utedo, slightly lower than the house to avoid blocking views from the kitchen window.



Mot den nye utedoen og hytta til Ohta fra kjøkkenvinduet
Towards the new utedo and Ohta's cabin from the kitchen window



Utedotomten
The utedo plot

Skisse av utedoen mot sørvest
Sketch of the utedoen towards the southwest



Skisse av utedoen mot sørvest
Sketch of the utedoen towards the southwest





Mot den nye utedoen og tørkestativet fra kjøkkenvinduet
Towards the new utedoen and the drying rack from the kitchen window



Mot den nye utedoen og tørkestativet fra kjøkkenvinduet
Towards the new utedoen and the drying rack from the kitchen window



Utedo tilpasset omgivelsene
Utedo adjusted to the surroundings



Luke under utedoen
A hatch under the utedo



Laftet utedo med torvtak
Lafted utedo with a turf roof



Åpen utedo med trapp
Open utedo with stairs



K: Potensiell utsikt fra utedoen, ned på elva. Det skjer alltid mye spennende nede ved elva. Det er blant annet et hegre-par som har bodd der i alle år.

K: Potential view from the utedo, looking down to the river. There is always a lot of exciting things happening down by the river. Among other things, there are a couple of herons who have lived there for as long as I can remember.

Tirsdag, 15 Februar 2022

H: Skal du gjøre et praktisk prosjekt?

K: Ja, jeg har tenkt til å lage en utedo.

H: Gøy, det vil jeg også gjøre!

Tuesday, 15 February 2022

H: Are you doing a practical project?

K: Yes, I'm planning to make an outhouse.

H: Fun, I also want to do that!

- Learning by doing
idea to finished project
- System architecture -
small scale buildings
- Care and considerations
for nature and bio.
- Sustainability - materials
and design for disassembly

Mandag, 21 Februar

H+K: I dag bestemte vi oss for å gjøre diplomten sammen. Vi snakket om ulike vinklinger for prosjektet og mulighetene for å gjøre alt fra bunnen av, lage egne materialer. Vi innså også at vi i så fall måtte felle trær om ikke lenge hvis vi vil jobbe med tørre tre-materialer til høsten.

Monday, 21 February

H+K: Today we decided to do the diploma together. We talked about different angles for the project and the possibilities of making our own planks and construction materials from felled trees. We also realized that if we wanted to work with dry materials, we would have to cut down trees soon.

Torsdag, 24 Februar

H: Eg ringte til mor mi for å høyre om det var tre ved hytta som kunne fellast til eit potensielt prosjekt. Ho sa ja.

Thursday, 24 February

H: I called my mother to ask her if we could cut down some trees at our cabin to possibly use for a project. She said yes.



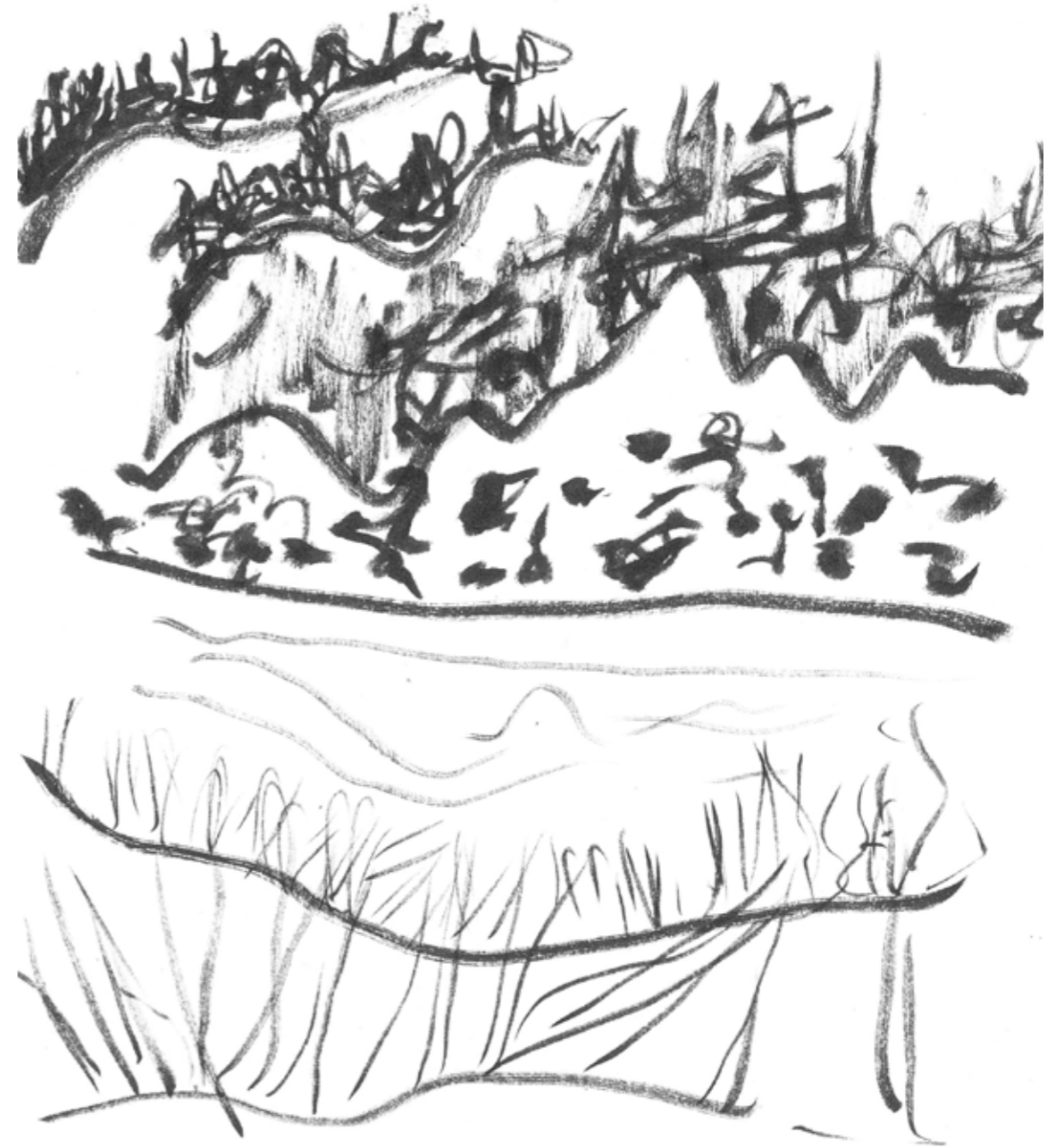


Lørdag, 19 Mars

H+K: I dag kjørte vi til hytta i Eidskog. Hannas far hjalp oss med å felle en bjørk, en gran og en furu. Vi brukte lørdag og søndag på å kutte, ta av grenene og barken og deretter legge de 3 meter lange stokkene til tørk dekket av en presenning.

Saturday, 19 March

H+K: Today we drove to the cabin in Eidskog. Hannas father helped us cut down one birch, one spruce and one pine. We spent saturday and sunday cutting, taking of the branches and the bark and then placing the 3 meter logs to dry covered by a tarp.



Tirsdag, 22 Mars

H: Eg besøkte Kine for første gong
og fekk sjå tomta.

Tuesday, 22 March

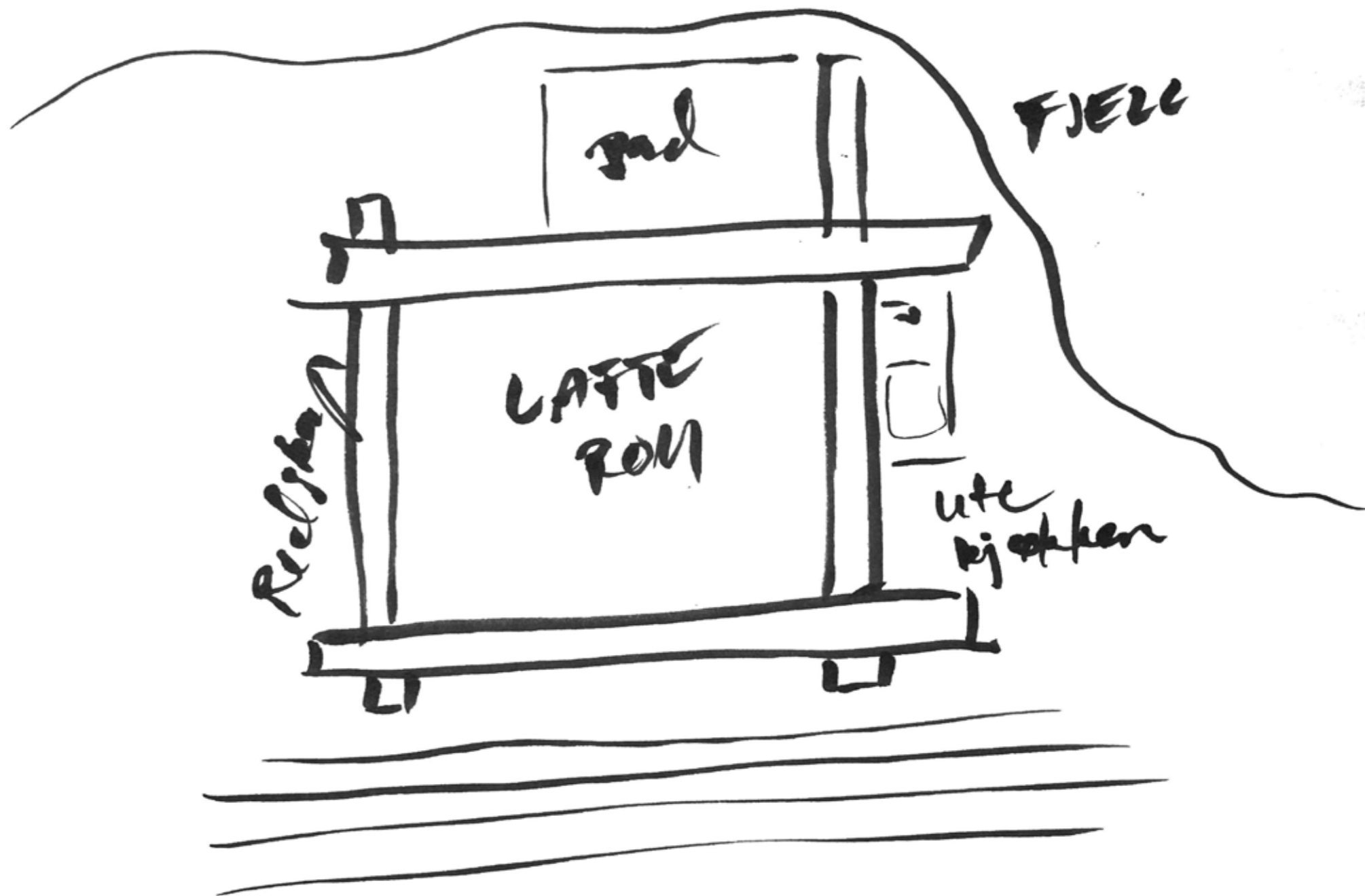
H: I went to visit Kine and to check
out the site.

Fredag, 25 Mars

K: I dag dro jeg for å se på Bodil Reinhardsens lafterom på Nesodden. Det var inspirerende å se hvordan hun har brukt laftveggene til å lage rom også ute ved å la stikkene stikke videre ut.

Friday, 25 March

K: Today I went to see Bodil Reinhardsen's lofted rooms at Nesodden. It was inspiring to see how she has used the loft planks to create rooms also outside by letting the planks continue further from inside to outside.





Søndag, 27 Mars

H: Smurte lim på enden av alle stokkane, det vart gløymd sist gong.

Sunday, 27 March

H: Today I put glue on the ends of 6 of the logs as we forgot to do it last time we were at the cabin.

“Vannklosettet er en bemerkelsesverdig kostbar måte å trekke ned ferskt drikkevann på, samtidig som man sløser med næringsstoffene som er avgjørende for å opprettholde fruktbarheten i jorda.”

“The flush toilet is a remarkably expensive way to pollute fresh drinking water, while at the same time wasting the very nutrients that are essential to maintain fertility in the soil.”

Lørdag, 16 April

K: Hjemme hos mor på påskeferie kom jeg over en bok hvor det sto: (oversatt av meg) “Vannklosettet er en bemerkelsesverdig kostbar måte å trekke ned ferskt drikkevann på, samtidig som man sløser med næringsstoffene som er avgjørende for å opprettholde fruktbarheten i jorda. Ett trekk i snora og avfallet blir noen andres problem. Vi betaler vår skatt og lar barna våre sitte igjen med arven etter all denne forurensningen.”

(John Seymour - Self-sufficient life and how to live it)

Saturday, 16 April

K: At my mother's home during Easter holiday, I came across a book that read: “The flush toilet is a remarkably expensive way to pollute fresh drinking water, while at the same time wasting the very nutrients that are essential to maintain fertility in the soil. One push of the lever and the waste becomes somebody else's problem. We just pay our taxes and allow our children to pick up the real inheritance of all this pollution.”

(John Seymour - Self-sufficient life and how to live it)



Tirsdag, 9 August

K: I havna på Hovedøya hvor jeg har båt, ble det i fjor installert offentlig kloakk, og i rekordfart bygde foreningen opp et hus med to vannklosetter og to dusjer. Inntil nå har det kun vært to utedoer. Jeg skulle for første gang bruke det nye "anlegget" og satt på do for å gjøre nummer en og nummer to, og merket raskt at lukten spredte seg i det nye rommet, selvom jeg dro ned flere ganger underveis. I løpet av tiden jeg satt der hørte jeg en som ble ferdig i dusjen, en som gikk ut og inn av døen ved siden av og noen som stille lukket opp og igjen døra.

Tuesday, 9 August

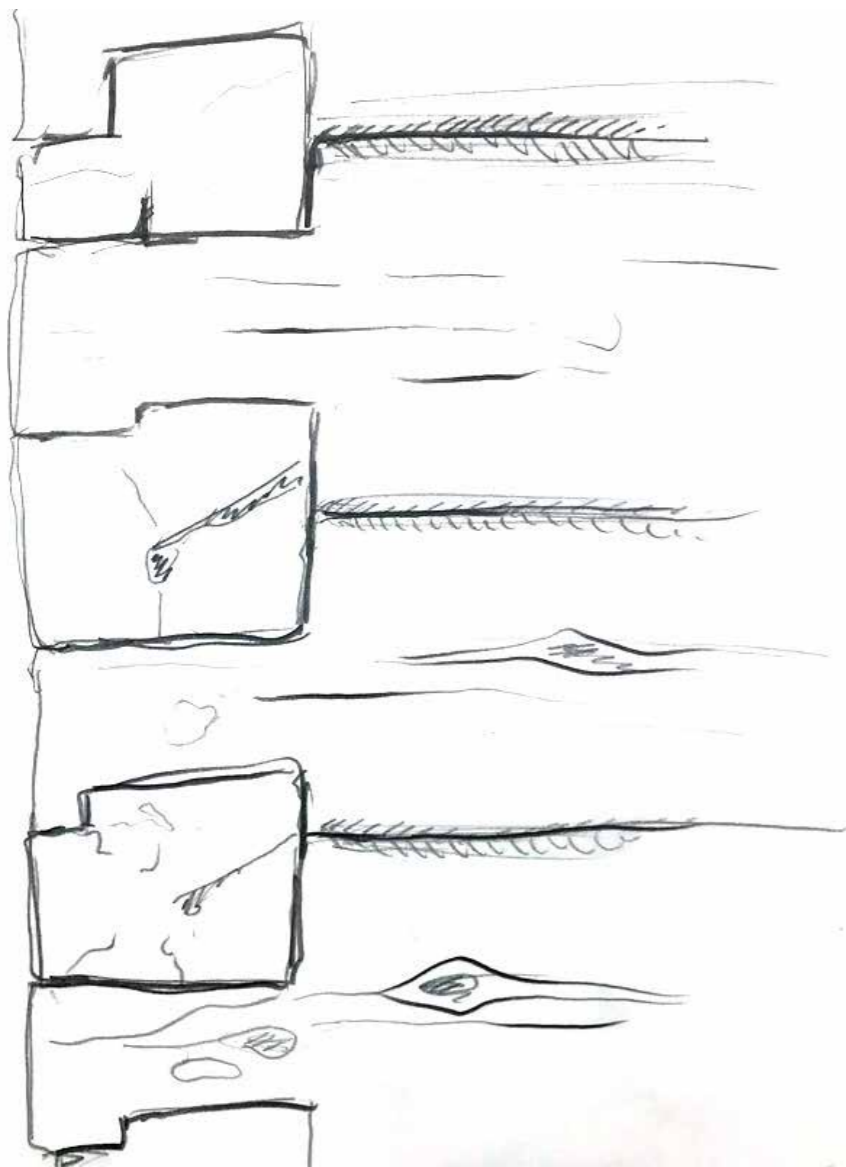
K: In the harbor at Hovedøya, where I have a boat, a sewage system was installed last year, and at record speed the boat community built a house with two flush toilets and two showers. Up until now there was only an outhouse. I was going to use the new "facility" for the first time and sat on the toilet to do number one and number two and quickly noticed that the smell spread in the new room, even though I flushed several times along the way. During the time I sat there I heard someone in the shower, someone going in and out of the toilet next door and someone quietly opening and closing the door.

Neste gang jeg måtte ordentlig på do gikk jeg tilbake til utedoen, som ikke hadde blitt fjerna enda. Der kunne jeg slappe av og bli ferdig med det jeg trengte i fred og ro, uten stress og flauhet. Lukten der er allerede ganske mystisk, dessuten trenger jeg ikke å legge papir nedi skåla for å hindre vann som spruter opp i rumpa og jeg kan bruke så mye papir jeg vil uten å være redd for å tette avløpet.

The next time I had to go, I went back to the outhouse, which hadn't been removed yet. There I could relax and finish what I needed in peace and quiet without stress and embarrassment. The smell there is already interesting, I also don't need to put paper down the bowl to stop the water splashing up, and I can use as much paper as I want without being afraid of clogging the drain.



Tilbake til den trygge utedoen
Back to the safe outhouse



Stokker fra kjøkkenet
Logs from the kitchen

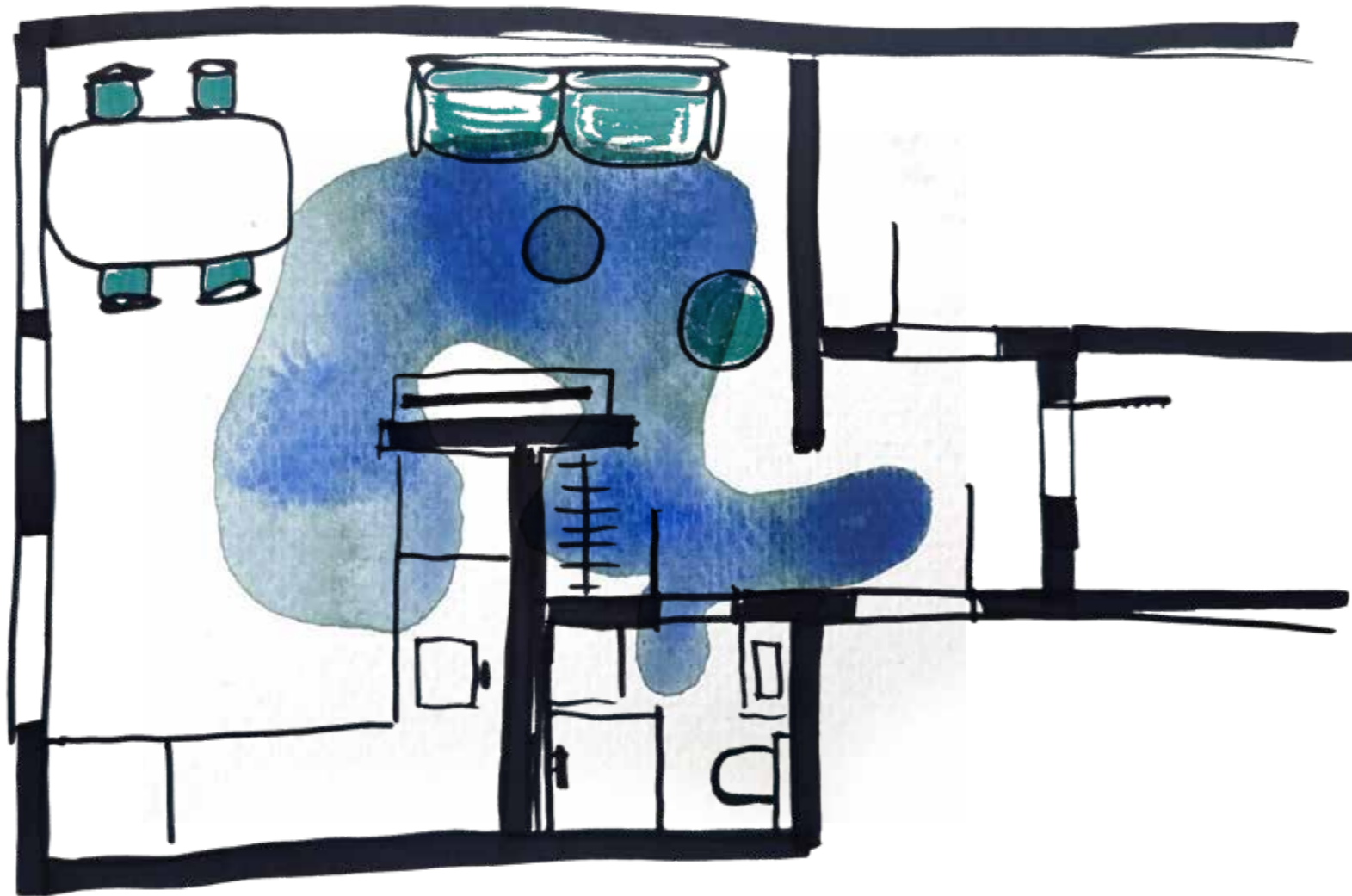


Onsdag, 10 August

K: Bak huset ligger det en liten haug med stokker som ble fjernet for å bygge ut kjøkkenet i 1986. En del er råttent, men de innerste kan fortsatt brukes.

Wednesday, 10 August

K: Behind the house there is a small pile of logs that were removed when the kitchen was expanded in 1986. A lot of it is rotten, but some of them can still be used.

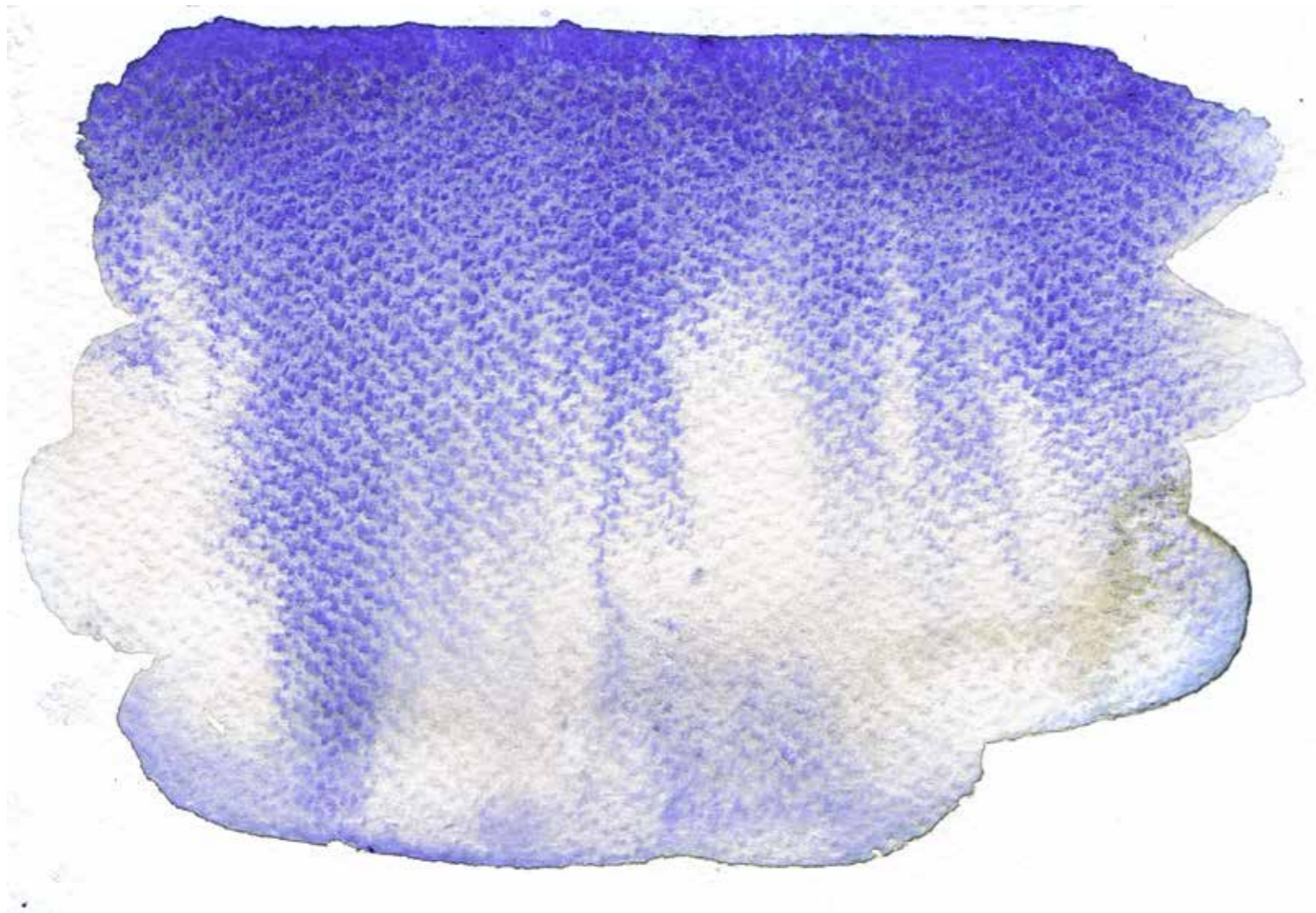


Fredag, 12 August

H: Planen for leigheita eg har budd i dei siste 5 åra. Badet og toalettet var ca 3 meter frå sofaen i stua, og 4 meter frå spisebordet. Frå badet kunne ein fint føre ein samtale med ein som satt på dei blå-markerte stadane..

Friday, August 12th

H: The plan for the apartment I've lived in for the past 5 years. The toilet is approximately 3 and 4 meters away from the main seating areas in the apartment. You could easily lead a conversation with someone in the spots marked with blue while in the bathroom, with the door closed..

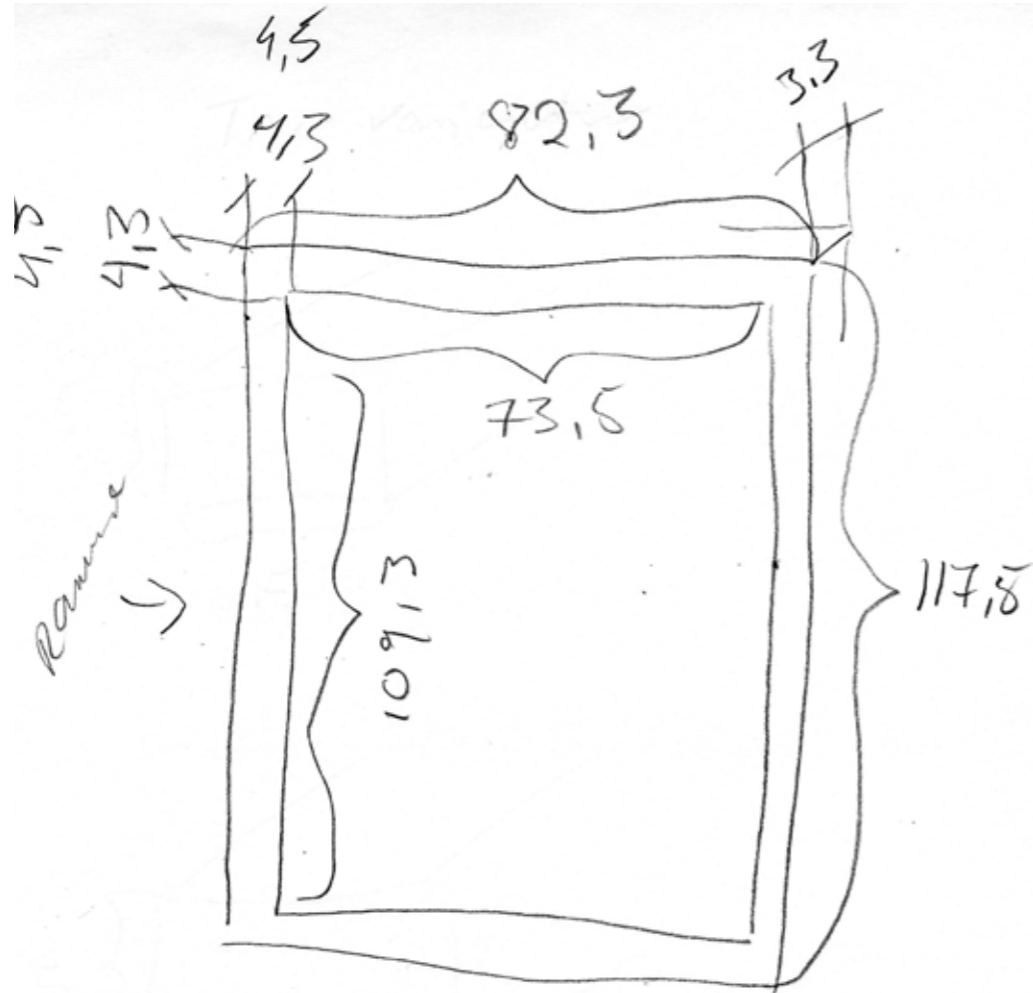


Mandag, 15 August

K: I dag har jeg funnet frem verktøy og testet maskiner, ryddet plass for materialer og klippet gress og kratt før styrtregnet som er meldt i morgen.

Monday, 15 August

K: Today I found tools and tested machines, cleared space for materials and cut grass and bushes before the torrential rain that is forecast for tomorrow.



Tirsdag, 16 August

K: Seks doble vinduer som står bak huset har disse dimensjonene.

Tuesday, 16 August

K: Six double glazed windows behind the house have these dimensions.



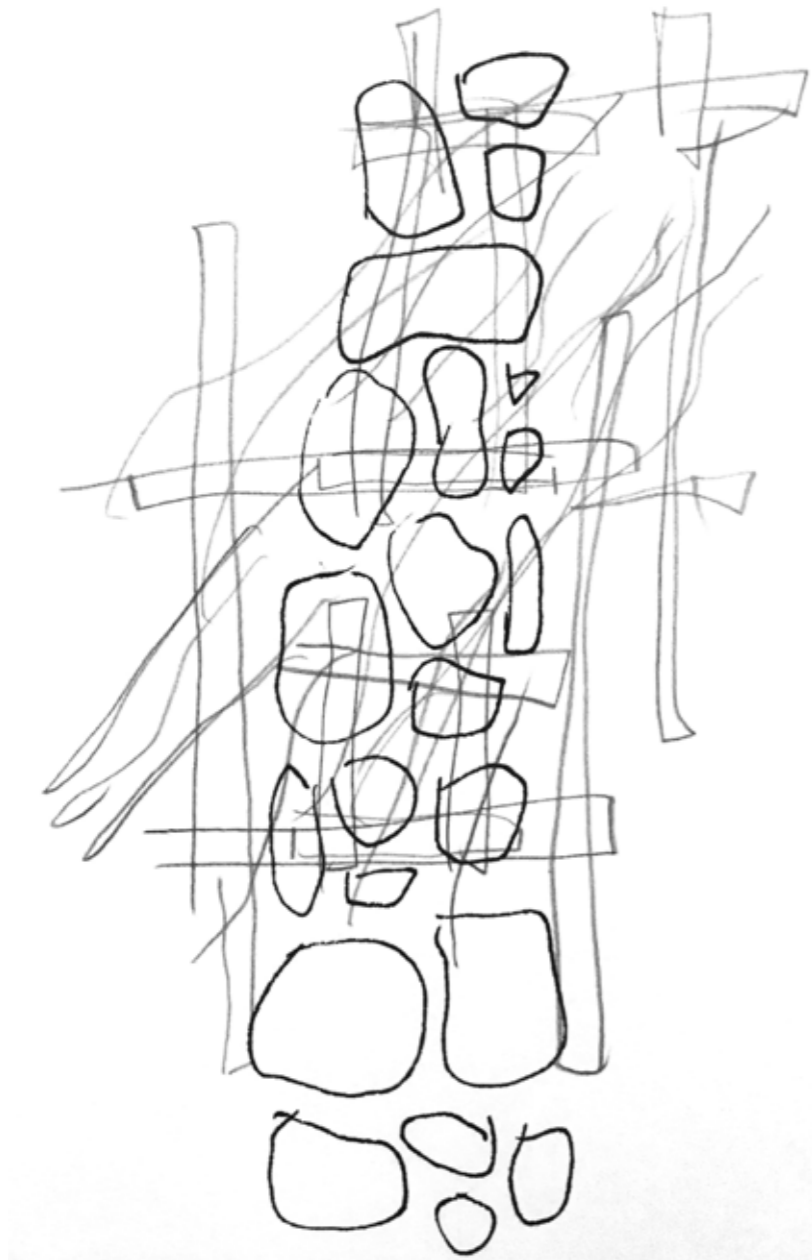
Fire esker med glassbyggerstein
Four boxes of glass building blocks

Torsdag, 18 August

H+K: I dag laget vi en liste over materialer som vi har tilgang på foreløpig og skiftet sagbånd på båndsaga. Etter mye googling fikk vi båndet på, men saga fikk en rar lyd etterpå.

Thursday, 18 August

H+K: Today we made a list of materials that we have access to, and changed the band on the band saw. After a lot of Googling, we got the band on, but the saw made some weird noises afterwards.



Oppbygging av vegger, kanskje det kan kombineres med å rydde bort kvist. Eller tørking av ved!

Can the walls be combined with clearing twigs and branches. Or drying wood!

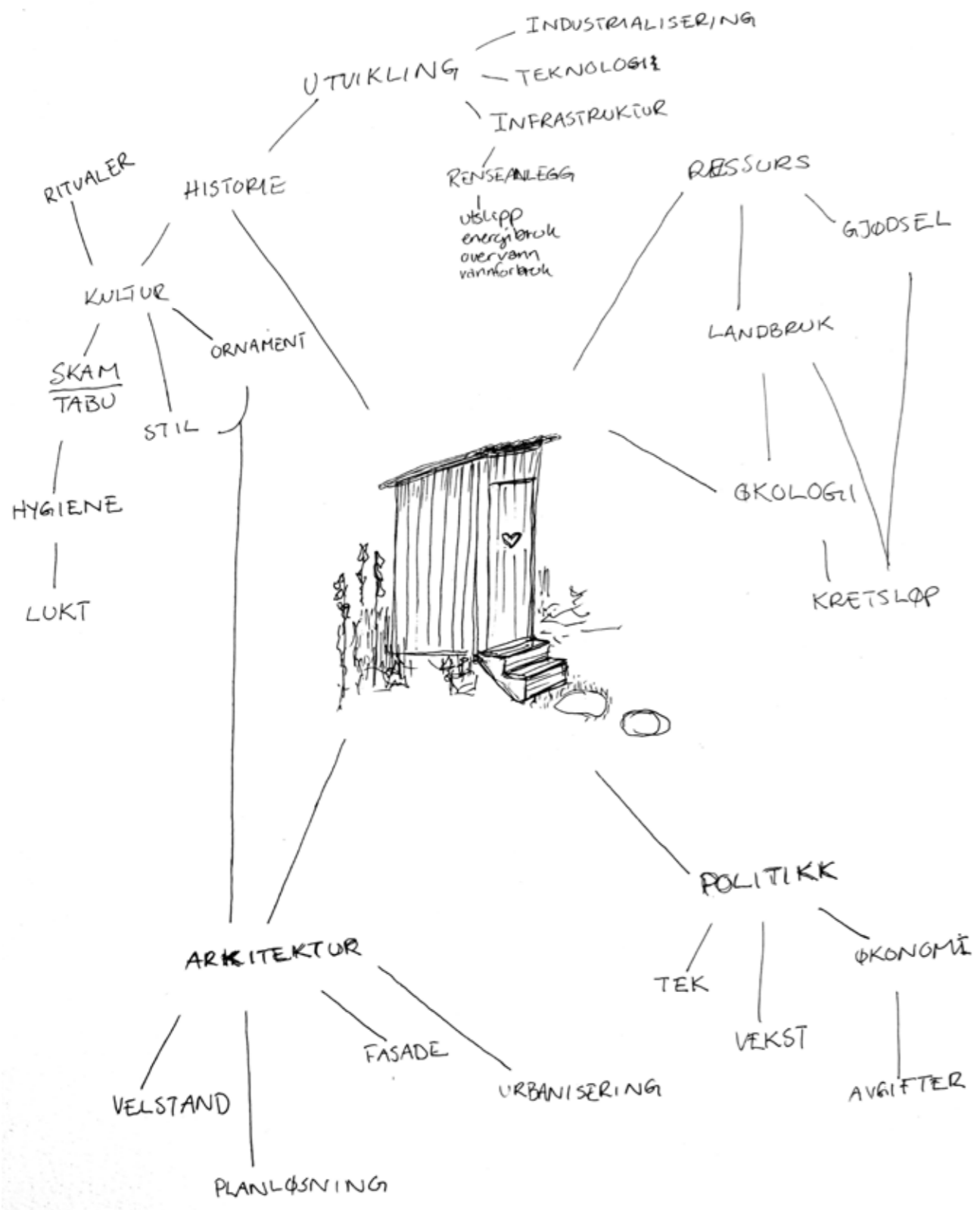


Fredag, 19 August

H+K: Idag startet vi å forberede tomten for lagring av materialer. Vi kuttet og fjernet gress, små busker og trær med ljà, hagesaks og motorsag. Gress og kvister la vi i en haug for kompostering. Noe kuttet vi opp til ved.

Friday, 19 August

H+K: Today we started preparing the site for storing materials. We cut and removed grass, small bushes and trees with scythes, garden shears and a chain saw. The grass and twigs were left in a pile to compost. Some of it ended up as firewood.



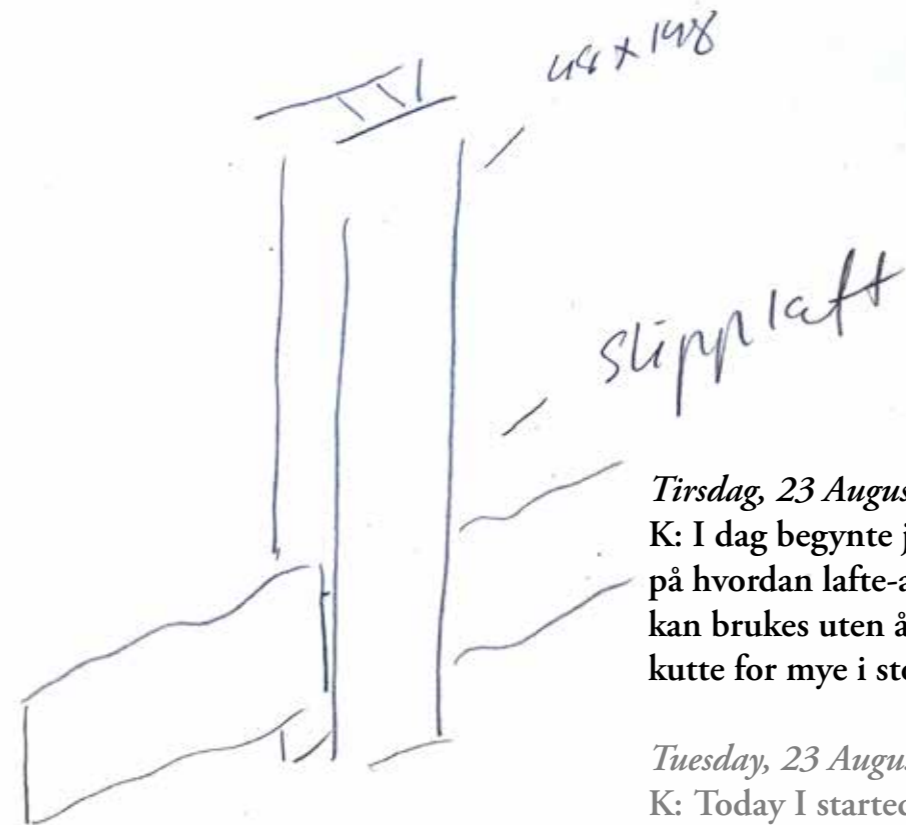
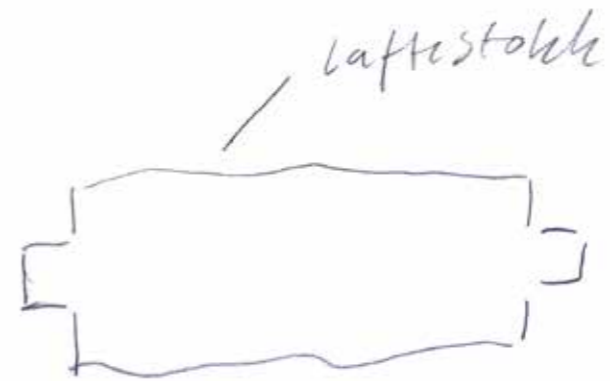
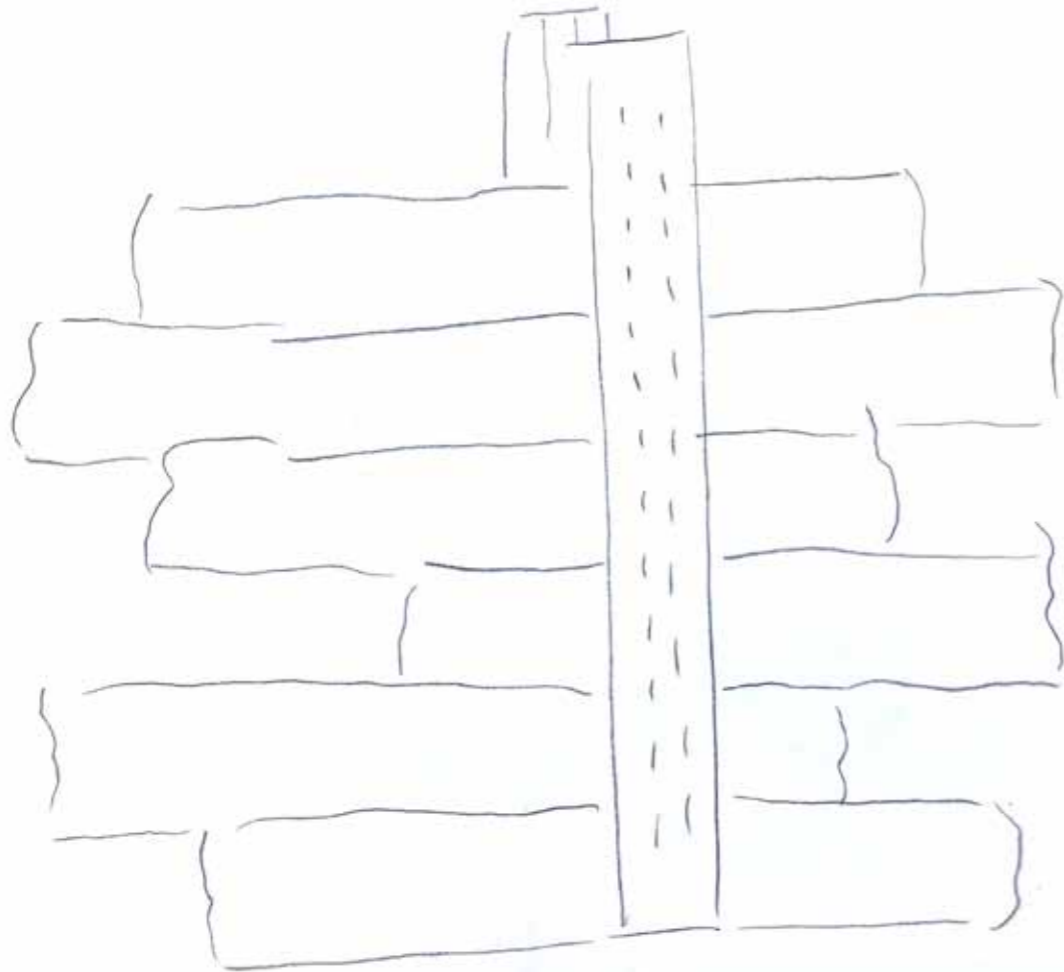
Mandag, 22 August

K+H: I dag jobbet vi hele dagen på skolen. Vi snakket med Petter og skrev mer utfyllende på de temaer vi ønsker å ta tak i videre i prosjektet.

Monday, 22 August

K+H: Today we worked all day at school. We spoke to Petter and wrote in detail about the topics we want to explore further in the project.

lage et spor i hver
stokk for å låse

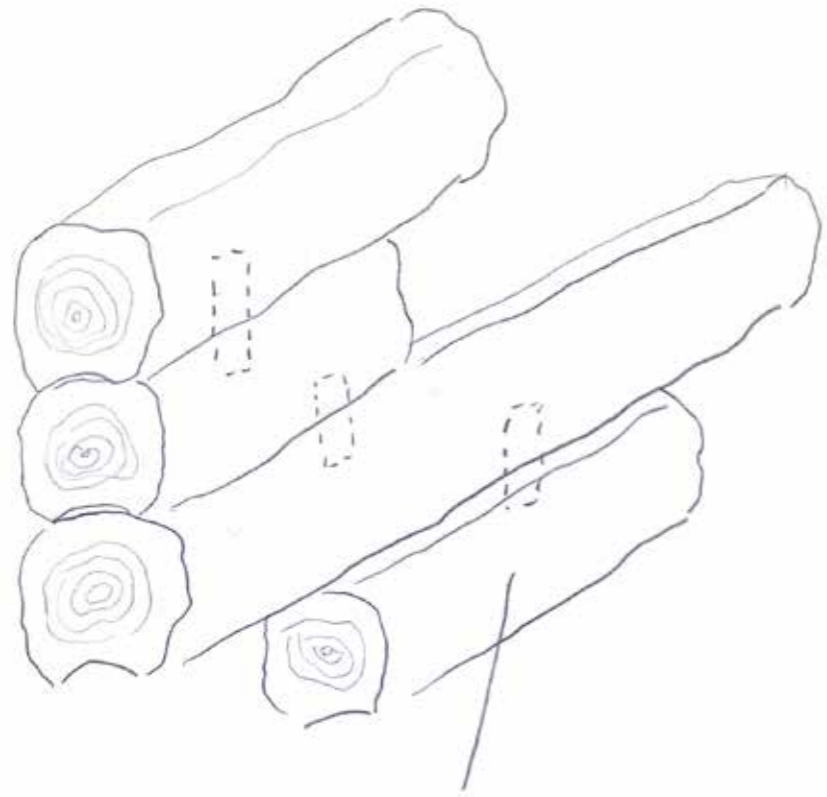


Tirsdag, 23 August

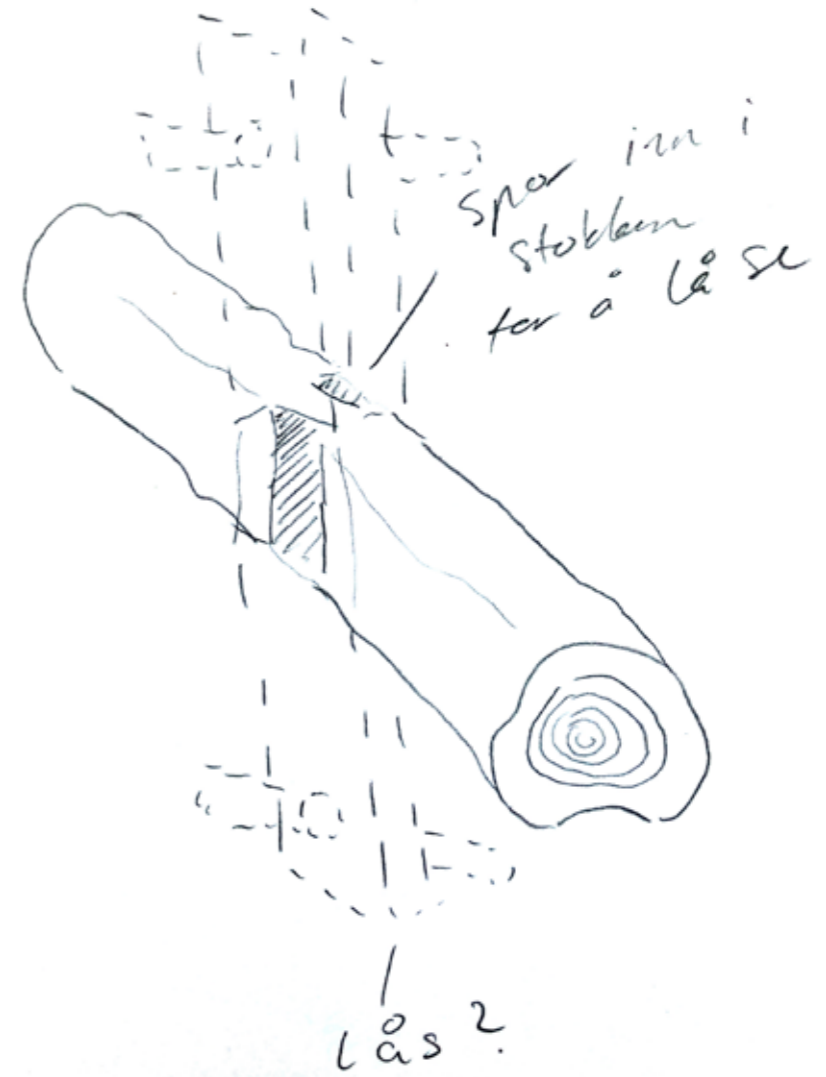
K: I dag begynte jeg å tenke på hvordan lafte-avkappet kan brukes uten å måtte kutte for mye i stukkene.

Tuesday, 23 August

K: Today I started thinking about how log pieces can be used without having to cut away too much.



Kun den linje
som holder på
press



Onsdag, 24 August

K: For å teste teknikken brukte jeg tilfeldige materialer i nærheten, en bit av en nyere plank havnet imellom to gamle, som lenge har ligget på den gamle uthusmuren. Kontrasten mellom det gamle og det nye ble tydelig.

Wednesday, 24 August

K: To test the technique, I used random materials nearby, a piece of a newer plank ended up between two old ones, which had been lying on the old stone foundation for a long time. The contrast between the old and the new became prominent.



Kontrast mellom gammelt og "nytt" materiale
Contrast between old and "new" material



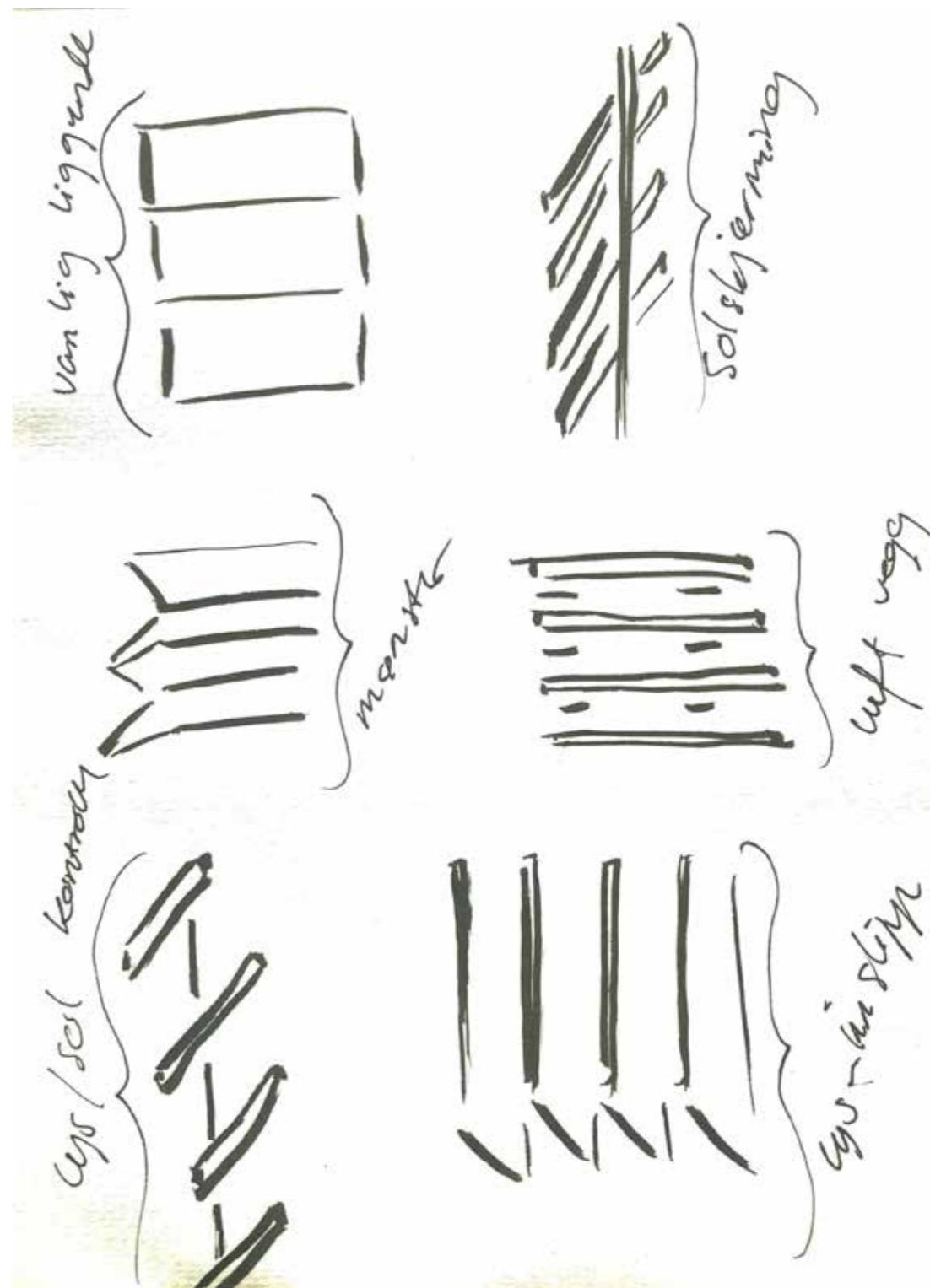
Liggende panel, ikke stående som jeg trodde først
Horizontal cladding, not vertical as I first thought

Onsdag, 24 August

K: Jeg trodde at haugen med panel på uthusmuren var stående kledning, men fikk det ikke helt til å stemme med utformingen på not og fjær. Etter å ha snakket med en håndtverker fikk jeg beskjed om at det var liggende panel, og da jeg spurte om jeg likevel kunne bruke den stående fikk jeg til svar at det skulle være som å bruke mose som papir.

Wednesday, 24 August

K: I thought that the pile of paneling I had was vertical cladding, but the “not og fjær” didn’t match. After talking to a craftsman, I learnt that it was horizontal panel and when I asked if I could use them upright, I got the answer that it would be like using moss as paper.



Onsdag, 24 August

K: Kommentaren inspirerte meg til å teste ut ulike måter å bruke panelet på.

Wednesday, 24 August

K: The comment inspired me to test out different ways of using the panel.

Rydder utthussneven



ved

~~Zone luffestolker~~

Ring Åge

Feil
nummer?

Måll og telle
plank



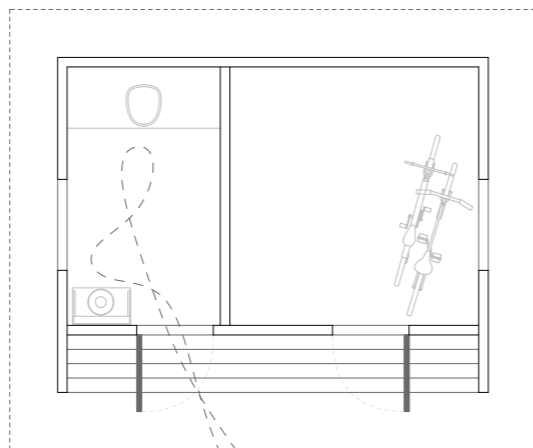
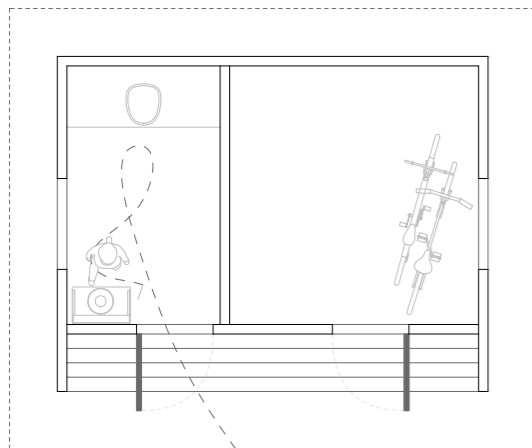
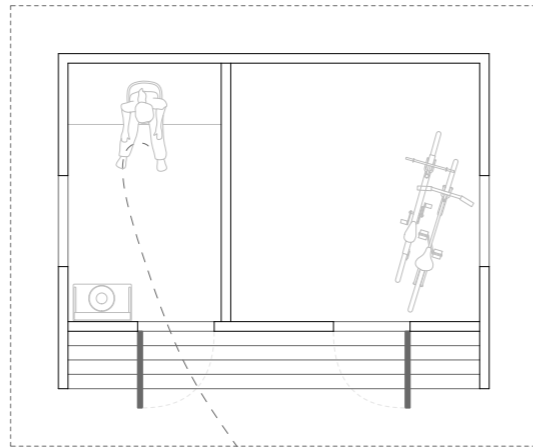
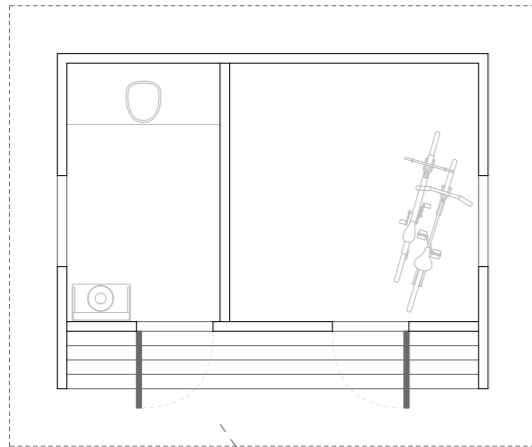
Torsdag, 25 August

K: Dagen gikk med til diverse rydding og organisering av materialer.

Thursday, 25 August

K: The day was spent cleaning up and organizing materials.





Fredag, 26 August

H: Eg har tenkt på korleis eg brukar utedoen på hytta og korleis bevegelsesmønsteret mitt er. Eg går inn, do-benken er framfor meg, eg snur meg rundt og sett meg ned og ser tilbake mot døra der eg kom inn. Det er nok mange utedoar og baderom som har samme mønster, kan vår utedo lage eit nytt?

Friday, 26 August

H: I have been thinking of how I use my own outhouse and how it makes me move. I enter, the toilet bench is in front of me, I walk in, turn around and sit down looking back at the door where i entered. I think many outhouses and bathrooms are like this, could ours offer a different path of movement?



Sørum Gård

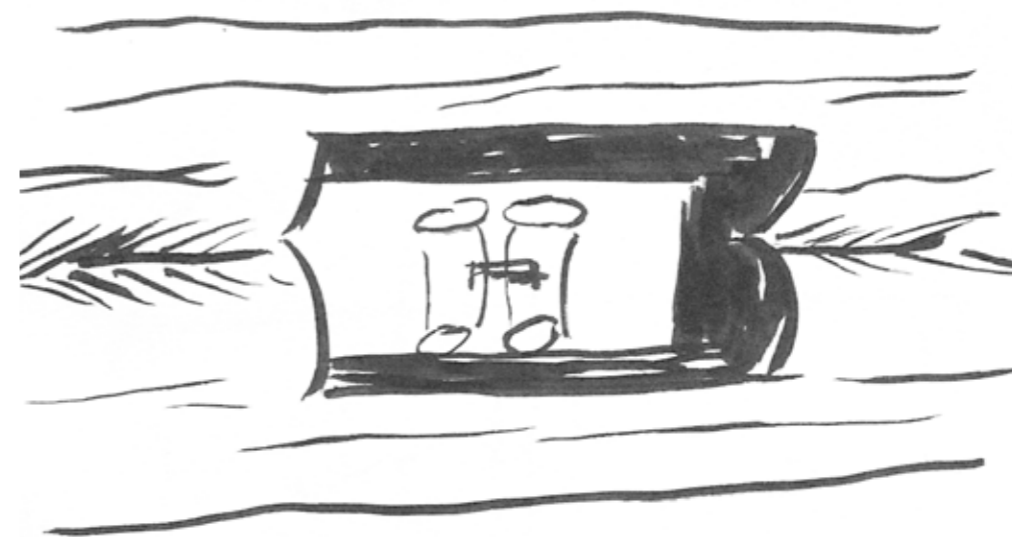
Fredag, 26 August

K: Ville teste å lage et lite vindu mellom to stokker som jeg så og ble inspirert av på Sørum gård som vi besøkte i første klasse på AHO. Jeg så for meg at det kunne være fint at vinduet plasseres i et spor, slik at det kan skyves opp og igjen inn i stokken. Jeg brukte sag for å lage sporet, det tok tid å få det bredt nok, siden treverket beveger seg må det jo være endel plass rundt. Mulig fugging er en bedre løsning og heller ha et annet vindu som kan lukkes og åpnes.

Friday, 26 August

K: Wanted to test making a small window between two logs. I was inspired by a window I saw at Sørum gård which we visited our first year at AHO. I imagined that it would be nice for the window to be placed in a slize, so that it could be pushed up and back into the log. I used a saw to make the notch, it took some time to get it wide enough, since the wood moves there must be enough space around it. "Fuge" might be a better solution, and to rather have another window that can be closed and opened.





EN HYLLE / VINDU
TIL KIKKERT



Lørdag, 27 August

K: Fikk omsider tak i Åge, nabo. Spurte om vi kan kjøpe noen av materialene som han har og det kunne vi. Til en svært hyggelig pris, sa han.

Saturday, 27 August

K: Finally got hold of Åge, the neighbor. Asked if we could buy some of the materials and that was ok. At a very nice price, he said.

Søndag, 28 August

K: La inn et søk på finn etter plank som gis bort i nærheten og fikk opp en annonse og hentet noen tykke, fine (men slitte) materialer som kanskje kan bli bra som en baseramme til utedoen.

Sunday, 28 August

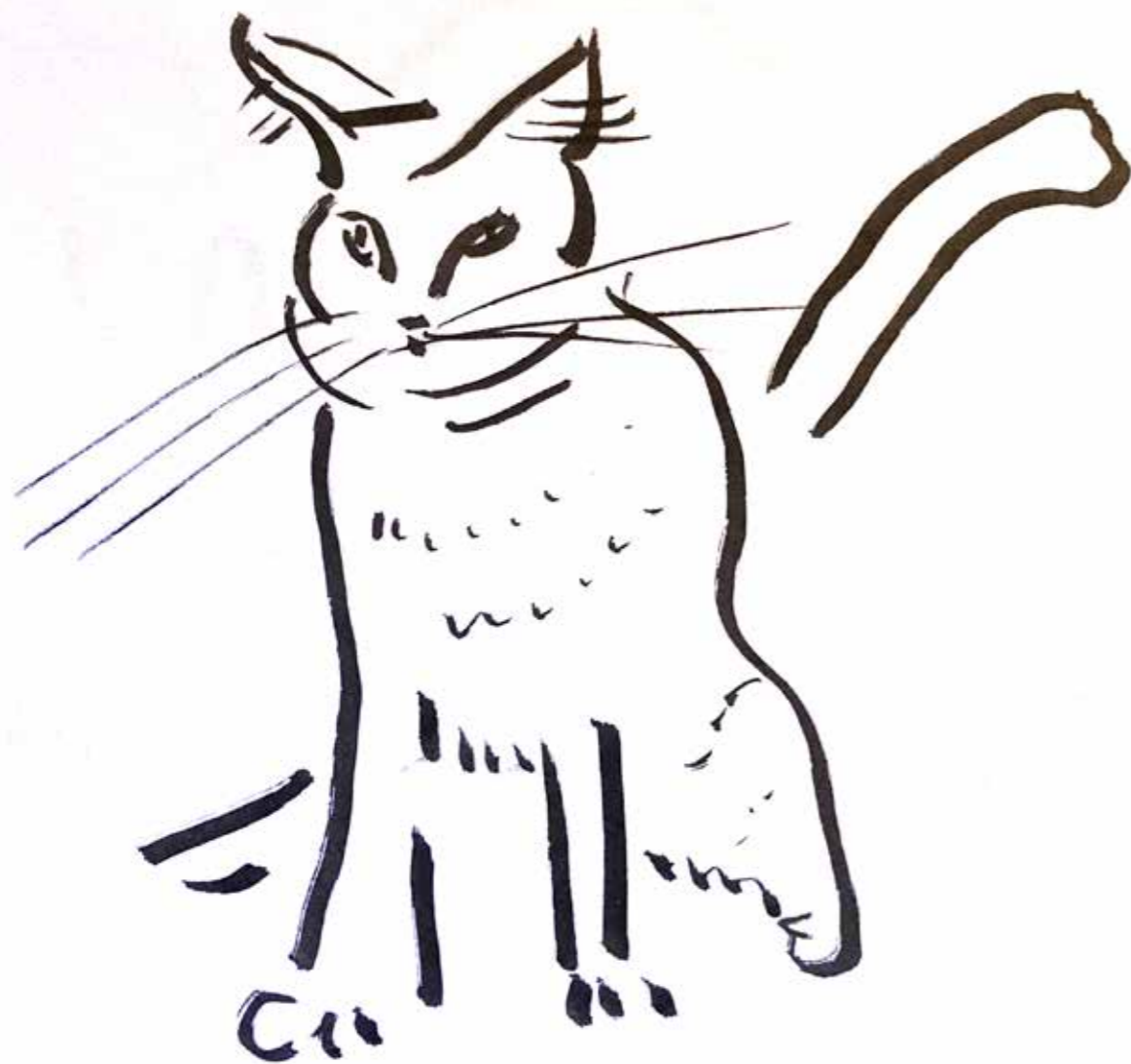
K: I set up a search on "Finn.no" for free materials nearby. An ad came up for some wide planks that could possibly be used as a base frame for the utedo.





Fikk hjelp til å vaske og stable materialene på riktig måte. I vater, med lekter imellom og sammenhengende spyling, slik at ikke treverket skal bli porøst.

Got help cleaning and stacking the materials in the right way. In level, with laths in between and continuous flushing, so that the wood does not become porous.



Flink pus som graver ned etter seg
Good boy who covers up his shit

Mandag, 29 August

K: I dag tidlig satt jeg med kaffen og så ut på sola gjennom kjøkkenvinduet, og fikk øye på pus som satt å gjorde fra seg litt lengre bortenfor tørkestativet. Etterpå gravde den ned bæsjen sin, og jeg begynte å tenke på hvordan det ville være å gjøre morgenritualet ute der. Grave ned eller putte i kompost? Hva med papiret? Er det ok å ha dopapir i kompost? Etterpå ble det en tur på do og jeg begynte å lese på dopapirpakningen. Det sto at papiret var laget av 100% nyfiber. Hmm, dette måtte googles. *Masse fremstilt gjennom en kjemisk prosess brukt til å fjerne lignin fra tre.* Videre kommer jeg over: *Velg riktig dorull –hvilket toalettpapir er best for miljøet?* Det konkluderes med at det myke dopapiret er best for rørene, fordi det løses opp lettest, mens det resirkulerte (og billige) litt hardere papiret er best for miljøet totalt sett. Med utedo så slipper jeg å tenke på at rør skal bli tette så da kan jeg jo gå for det papiret som er billigst OG mest miljøvennlig! Genialt.

Monday, 29 August

K: This morning when I was drinking my coffee and watching the sun through the kitchen window I noticed the cat who was taking a shit a little beyond the drying rack. When he finished he buried the poo with his paw and I began to think about what it would be like to do the “morning ritual” out there.. Bury it or add it to the compost? What about the paper? Is it ok to put toilet paper in the compost? Afterwards, while I was sitting on the toilet, I looked at the toilet paper pack, it said that it was made of 100% “nyfiber”. Hmm, I had to google that. *Mass produced through a chemical process used to remove lignin from wood.* Furthermore, I came across: *Choose the right dorull. -Which toilet paper is best for the environment?* It concluded that the soft toilet paper is best for the pipes, because it dissolves most easily, while the recycled (and cheap) slightly harder paper is best for the environment overall. With an outhouse, I don’t have to worry about pipes getting clogged, then I can buy the cheap and most environmentally friendly paper! Nice.



STOL - 00

Analyse

KLIPPE AV BEN
FOR RIKTIG HØYDE

Mandag, 29 August

Kanskje vi kan bruke denne blå stolen til å teste ulike steder å gå på do? Sage hull i setet og Kappe bena til ønsket høyde..

Monday, 29 August

Maybe we can use this blue chair to test different placements for the outhouse? Make a hole in the seat and cut the legs to the desired height..

Mandag, 29 August

K: Fikk kaffebesøk av en venn i dag som foreslo ulike måter å lage slisse til vindusinnsatsen; Borre først, så sage med stiv sag eller smalt stemjern. Håndholdt sirkelsag med lekt for å få helt rett spor. Motorsag. Brenne ned i slissen for å få jevnt spor.

Monday, 29 August

K: A friend visited for coffee today, he suggested different ways of making the slits for the window; Drill first, then cut with a stiff saw and/or narrow chisel. Hand-held circular saw with a batten to get a perfectly straight line. Chainsaw. Burn the slot to get a smooth track.





Mandag, 29 August

H: I dag kostar ein dusj 70 kroner i store delar av Noreg. Eg bada i sjøen og det kosta meg 0 kr og gav meg ein frisk start på dagen.

Monday, 29 August

H: Today, in parts of Norway, taking a shower will cost 70 kr, I took a swim in the lake, it cost me 0 kr and gave me a fresh start to the day.

Tirsdag, 30 August

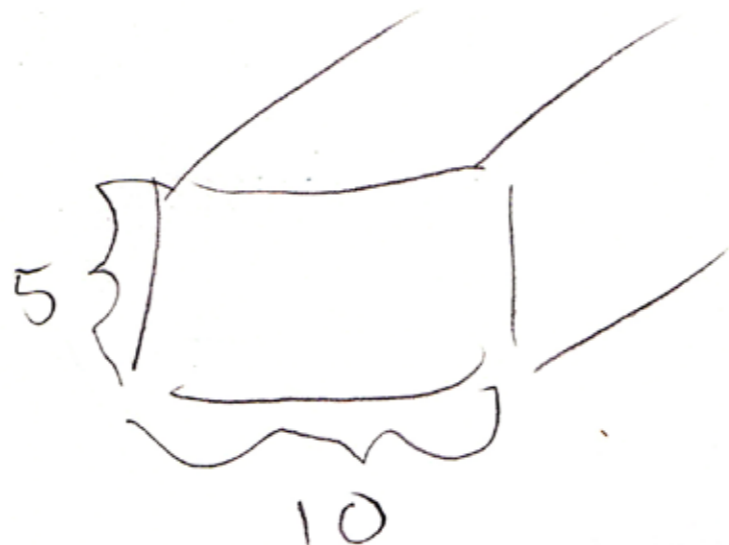
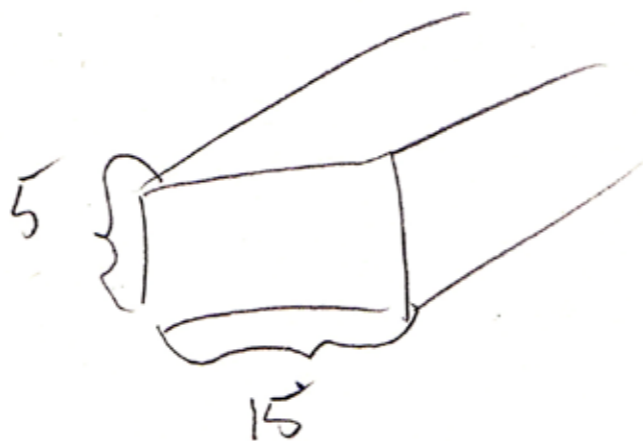
H: Eg har starta do-dagbok på utedoen på hytta. For å kunne registrere tankar og erfaringar om temperatur, lukt, insekt osv. Eg fann og ein lang pinne og fekk dytta ned eit lite fjell av drit som hadde bygd seg opp i doen. Å fordele massen utover førte til at ei lukt av jord spredte seg i rommet. Eg fylte på med gras og ei blanding av bark, furunåler og delvis rotne kvistar og greiner som ein slags ny start for komposten.



Tuesday, August 30th

H: I initiated a “Do-dagbok” in the outhouse at the cabin, to register thoughts and experiences of temperature, smell, flies etc. I also found a long stick and took down the tiny “mountain of shit” that had started to accumulate in the outhouse “tub”. Spreading the contents out in the tub actually made the room smell more “earthy”. I put some fresh grass and a mix of bark, pine needles and partly decayed twigs/branches on top for a kind of “new start” to the pit.





Tirsdag, 30 August

K: Ryddet resten av materialene på uthusmuren, 12 stykk 48x98 plank var i grei stand, på litt over to meter hver. Fant frem fire bølgeblikkplater for å ha over materialene, de fant jeg nede hos Åge.

Tuesday, 30 August

K: Cleared the rest of the materials from the old foundations, 12 pieces of 48x98 planks were in good condition, just over two meter each. I found four sheets of corrugated iron, to cover the materials, at Åge's place.



Fant disse lange bølgeblikkplatene nede hos Åge, fin form, farge og struktur.

Found these long corrugated steel sheets at Åge's place, nice shape, colour and structure.



Onsdag, 31 August

K: Fikk et behov for å kjapt snekre opp en struktur for å teste å plassere på tomten, for å få et inntrykk av størrelse. Det tok ikke én time, men hele dagen.

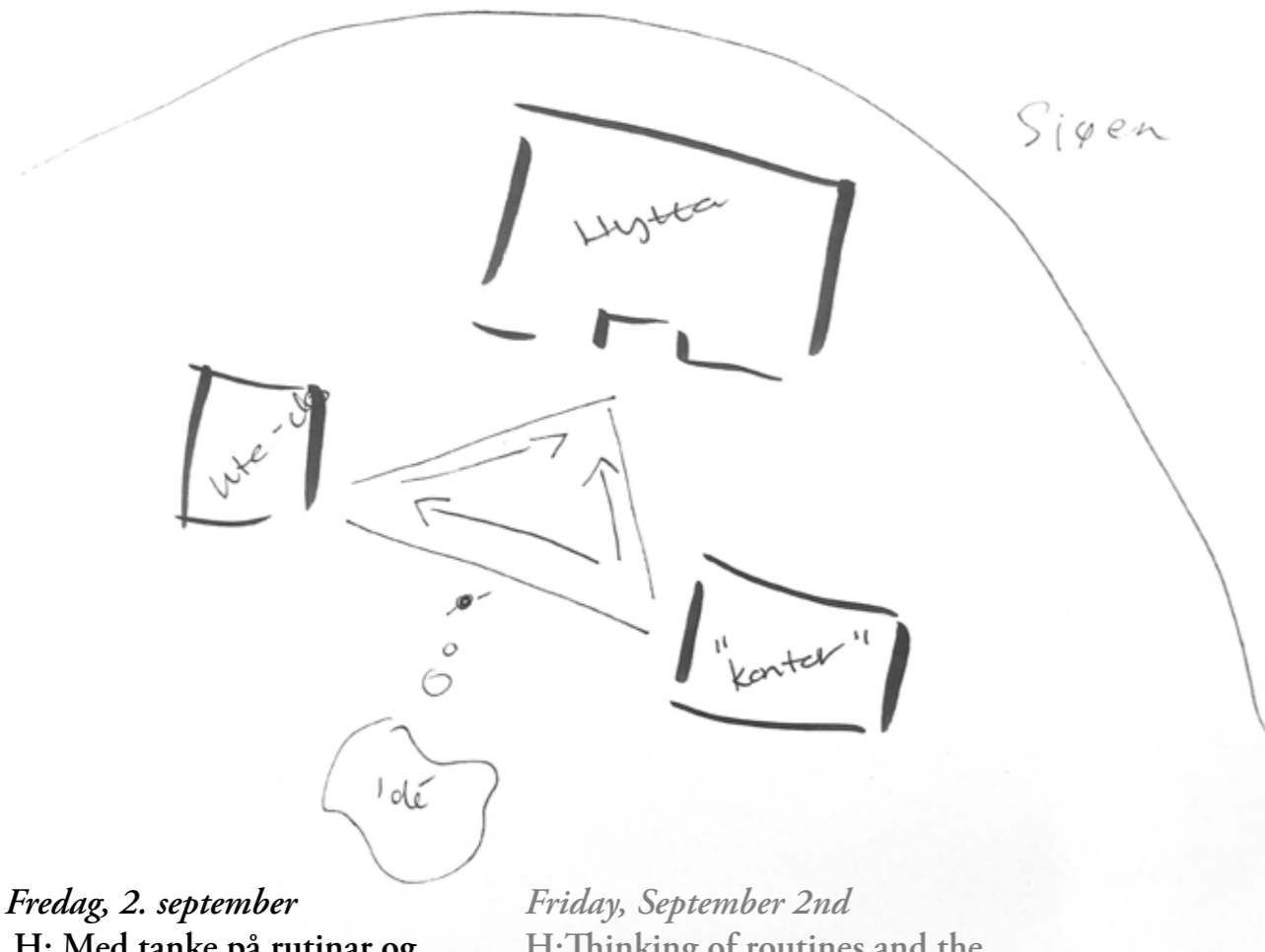
Wednesday, August 31st

K: Got a need to quickly put together a structure to test on the plot, and to get an impression of size. It didn't just take me one hour, but the whole day.



Feil side
Wrong side





Fredag, 2. september

H: Med tanke på rutinar og korleis ein lever og oppfører seg når doen ikkje er inne i huset.

Eg bur for tida på ei familiehytte i sør-enden av Finnskogen. På tomte er det tre bygg. Eg søv, slappar av og et i hovudhytta, i ei mindre tømmerhytte har eg kontoret mitt og i ei enno litt mindre bu er utedoen kombinert med lagring av ved- og reiskapar.

Friday, September 2nd

H: Thinking of routines and the way we live and act when the toilet is separate from the house

I currently live at my family's cabin in the southern parts of Finnskogen. There are three buildings on the plot. The main cabin is where i sleep, relax and eat. The secondary and smaller log-cabin is where I have my "office" and the shed is where the toilet is (a pit-toilet?) and storage for tools and wood.

På ein vanleg arbeidsdag er eg oppe klokka 07.00. Eg må som regel gå rett til bua for å gå på do. Etterpå blir det kanskje eit bad i sjøen, 10 meter frå hytteveggen. Eg lagar meg te eller kaffi og går til "kontoret", 7-8 meter frå hytta. I løpet av dagen bevegar eg meg i ein trekant mellom desse tre bygga. Dette kjennest ut som ein luksus-situasjon samanlikna med den eg var i for to år sidan ved utbrotet av pandemien. "Trekanten" eg gjekk i leia meg frå senga, 1,5 meter til badet og vidare 3-4 meter til spisebordet.

Sjølv om det av og til er litt tungt å måtte kle på seg og gå ut av hytta for å gå på do så har det blitt ein start på dagen eg har lært meg å setje pris på. Eg får eit inntrykk av korleis dagen kjem til å bli med tanke på vær og vind, og eg kan få med meg kva naboar eller dyr og fuglar som allereie er oppe basert på lydane i skogen og over sjøen.

On a work day I get up around 7 AM, I usually have to go straight to the shed in the morning. And afterwards, if the sun is out, I might go for a dip in the lake, if not I make tea or coffe and I bring it to my office, 8 meters from door to door. Throughout the day I usually walk in a triangle between these three buildings. Compared to the situation I was in two years ago with the outbreak of covid, where my triangle led me from my bedroom, to the bathroom 1,5 meters away, and then to the living room table, another 3 meters from there, this feels like a complete luxury.

Although leaving the warm comfort of a bed, having to go outside to the shed to pee in the morning, often makes me hit the snooze button one more time, it is a start of the day that I've learned to appreciate. I Instantly get a feel for today's temperatures and weather and I can register which neighbors and birds/ animals are already up judging by the sounds across the lake. In the beginning I had my office

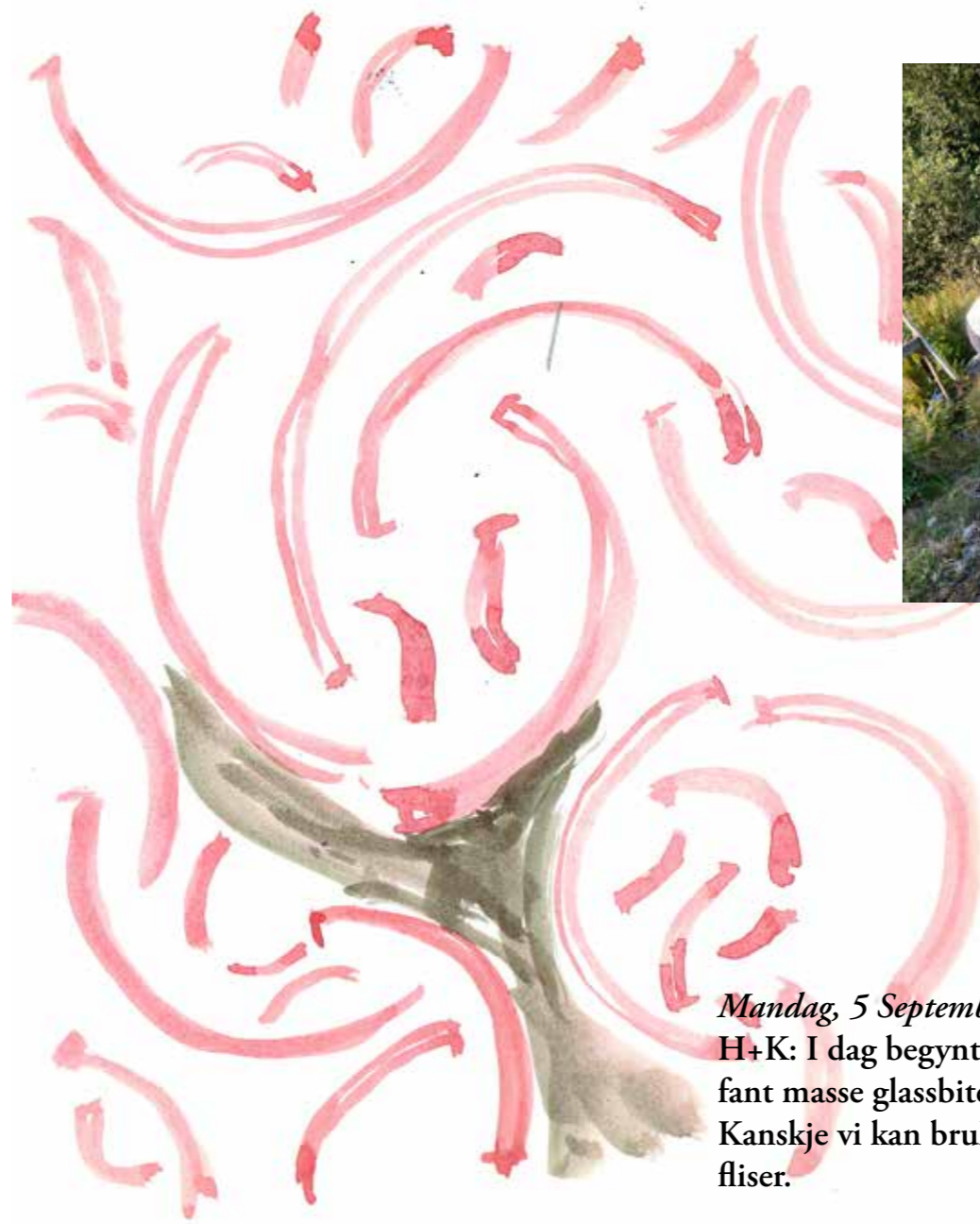
På starten av semesteret hadde eg kontoret på spisebordet i hytta fordi eg ikkje hadde fått ordna meg med ein pult. Det førte meg delvis tilbake til covid-situasjonen der eg ikkje bevegde meg meir enn 5 meter frå der eg sov til der eg tilbragte resten av dagen. Det var kort veg til distraksjonar og effektiviteten gjekk ned.

Det å gå mellom desse tre bygga, hytta, kontoret, utedoen, i løpet av dagen lagar små pausar for kropp og sinn. Å bevege seg mellom, og til og fra ulike miljø gir tid og rom til å restrukturere tankar. Det er ikkje sjeldan eg har opplevd at løysinga på eit problem kjem 10 minutt inn i gå-turen på veg heim frå skule eller jobb. Å leve slik som eg gjer på hytta skapar desse pausane “gratis” gjennom dagen.

on the dining table in the main cabin because I didn't have a desk. This kind of led me back to the covid-situation where I didn't really move more than 5 meters from where I slept to where I spent the rest of the day working. For me this led to a less efficient life where I easily got distracted.

Walking between these three buildings break up my day, in a positive way. Moving between different environments creates time and space to re-direct thoughts, to re-set the mind. I have more than once experienced that the answer to a question or a problem I've been trying to solve for hours becomes clear to me 10 minutes after leaving school or work. Living in this situation gives me these pauses “for free”.





Mandag, 5 September

H+K: I dag begynte vi å grave i jorda og fant masse glassbiter i forskjellige farger. Kanskje vi kan bruke disse til å lage fliser.

Monday, 5 September

H+K: Today we started digging and found lots of pieces of glass in different colours. Maybe we can use these to make tiles.







Tirsdag, 6 September

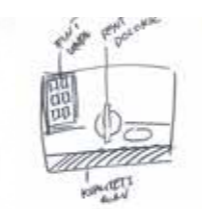
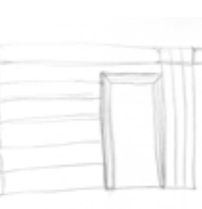
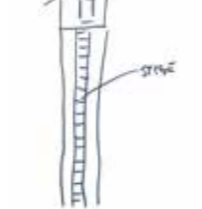
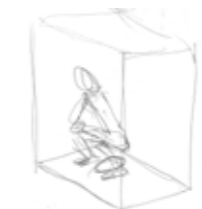
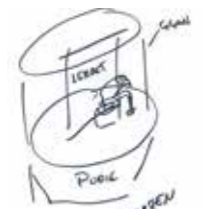
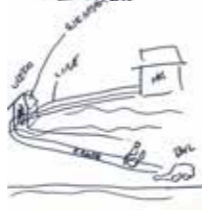
H+K: Hentet 52 meter med trevirke på 50x70mm. Tok ut 74 spiker. Regnet ut at disse ville kostet ca 2500 kr på Maxbo.



Tuesday, 6 September

H+K: Picked up 52 meters of 50x70mm wood. Took out 74 nails. Calculated that these would cost about 2,500 kr. at Maxbo.





H

K

H

K

Utedo for:
Outhouse for:

Å se på fugler
Gartneren
Værentusiasten
Ekshibisjonisten
Kunstneren
Den reserveverte
For den prippne
Den late hundeeieren
Den handikappe
Den hardføre
Den spreke
Den late
Fjellklatrerer
Arkitekten
Håndtverkeren
Den gniene
Den nysgjerrige
Barn
Fiskeren

Watching birds
The gardener
The weather enthusiast
The exhibitionist
The artist
The reserved
The stuffy
The lazy dog owner
The handicapped
The hardy one
The fit
The lazy one
The mountain climber
The architect
The craftsman
The cheap
The curious
Children
The fisherman(woman)



Onsdag, 7 September

H+K I dag brukte vi hele dagen på utedotomten. Fjernet mer jord, sorterte ut stein, undersøkte de ulike vekstene som vokste der. Skisset og spiste lunsj.

Wednesday, 7 September

H+K We spent the whole day at the site. Removed more soil, sorted out stones, examined the various plants that grew there. Did some sketching and ate lunch.





Natt og Dag

K: Dag og natt, sol og måne, stømorblom, styggmorblom, sjukmorblom, skjereblom, kattaue, kjerkefolk, maikatt, blåbjølle. Det vokser mye "natt og dag" rundt omkring her. Den er spiselig, og har en litt søtlig vaniljesmak. I folkemedisinen ble den ansett som effektiv mot gikt og revmatisme, nervøst hjerte, hysteri og kramper hos barn. (rolv.no)

Viola tricolor

K: Day and night, sun and moon, stømorblom, styggmorblom, sjukmorblom, skereblom, cattow, kerkefolk, maycat, bluebell. "Night and day" is growing all over at Holtberget. It is edible, and has a slightly sweet vanilla taste. In folk medicine, it was considered effective against gout and rheumatism, nervous heart, hysteria and convulsions in children. (rolv.no)



Einer har en spesielt god lukt, er antiseptisk og er bra for å holde insekter og flott borte.

Junipers have a particularly good smell, they are antiseptic and can keep insects and ticks at a distance.



Einer

Det vokser noen einer nord for utedoen. Bærene fra eina kan spises hele året når de blir blå og er bra som smakstilsetning i mat og sprit (typisk gin). Avkok kan også brukes til god lukt i såpe. Veden er svært holdbar og er mye brukt som gjerdestolper. Egner seg til treskjæring og dreining og er dekorativ til skaft. (skogveven.no)

Juniper

There are some junipers north of the utedo. The berries from juniper can be eaten all year round when they turn blue and are used as seasoning in food and spirits (typically gin). A decoction of berries and branches can also be used to make scented soap. The wood is long-lasting and is widely used for fence-poles, it is suitable for woodcarving and turning and is decorative for shafts. (skogveven.no)



Sisselrot

K: Holtberget er omringet av store og små fjellknauser. På disse vokser det Sisselrot, som er en 10-30 cm høy bregne som har spiselige røtter som smaker søtt og lakrisaktig. Den er spesielt lett å se på vinteren. Sisselroten er slimløsende, hostestillende, svettedrivende, urindrivende, mildt avførende, bløtgjørende, galledrivende, leverstyrkende, appetittstimulerende, magestyrkende, blodrensende og antirevmatisk. (rolv.no)

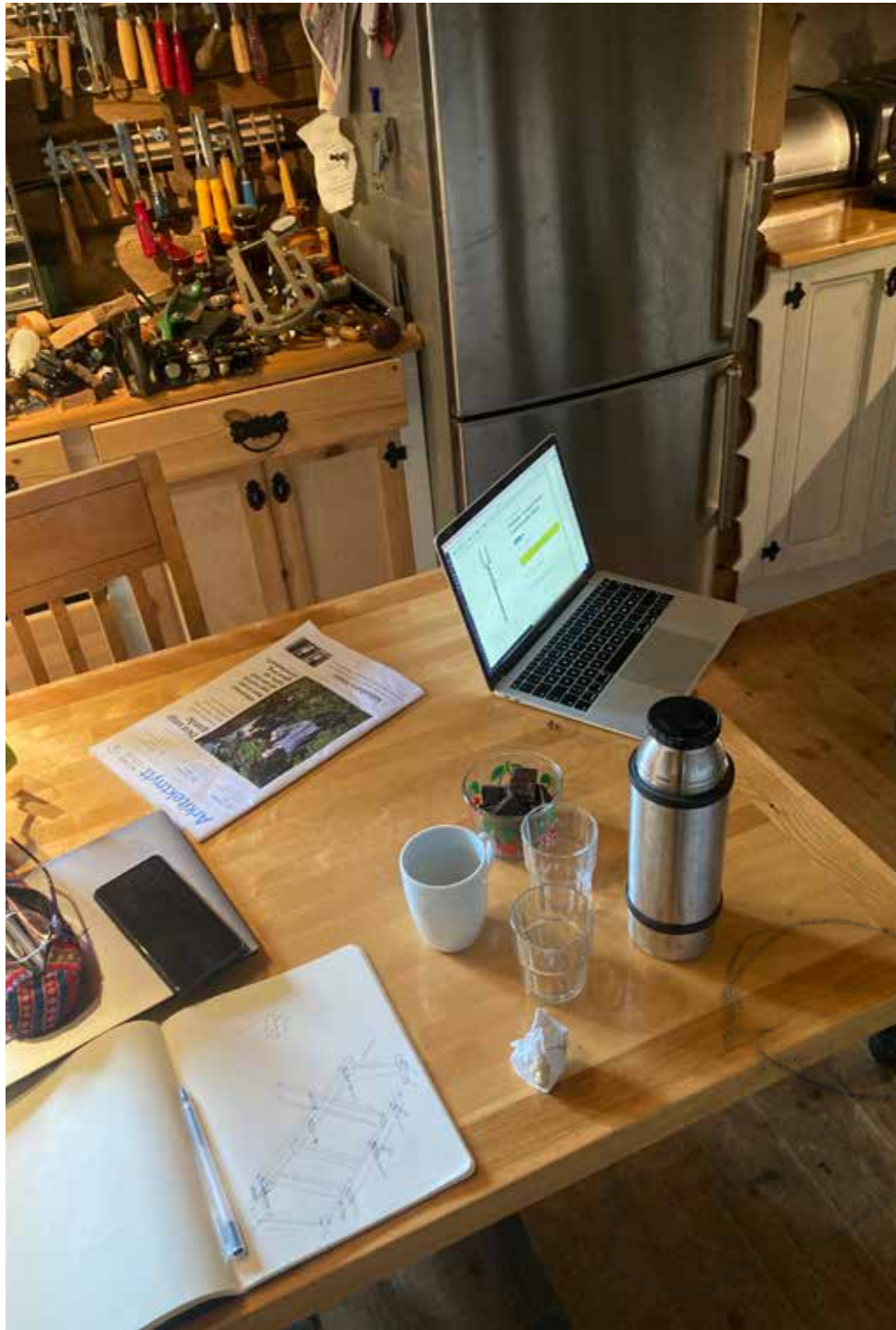
Polypodium vulgare

K: Holtberget is surrounded by large and small rocky hills where Polypod grows. Polypod is a 10-30 cm tall fern that has edible roots with a sweet and licorice-like taste, it is particularly easy to spot in winter. The polypod is expectorant, antitussive, antiperspirant, diuretic, mild laxative, emollient, bile diuretic, liver strengthening, appetite stimulating, stomach strengthening, blood cleansing and anti-rheumatic. (rolv.no)



Sisselrota smaker lakris og har mange helsefordeler.

The Polypod tastes like licorice and is said to have many positive health benefits.



Fredag, 9 September

H: Vår kunnskap om korleis ein skal bygge varierar. Eg har gjort små byggeprosjekt, ein vegg her, litt kledning der, ein benk her og ein terrasse der, som har lært meg til ein viss grad korleis“bør” gjerast. Eller kva som er den vanlegaste måten å bygge på i dag. I vår kreative prosess kan det begrense oss, men det kan og sørge for at vi får ein bygning som kan stå oppreist.

Friday, 9 September

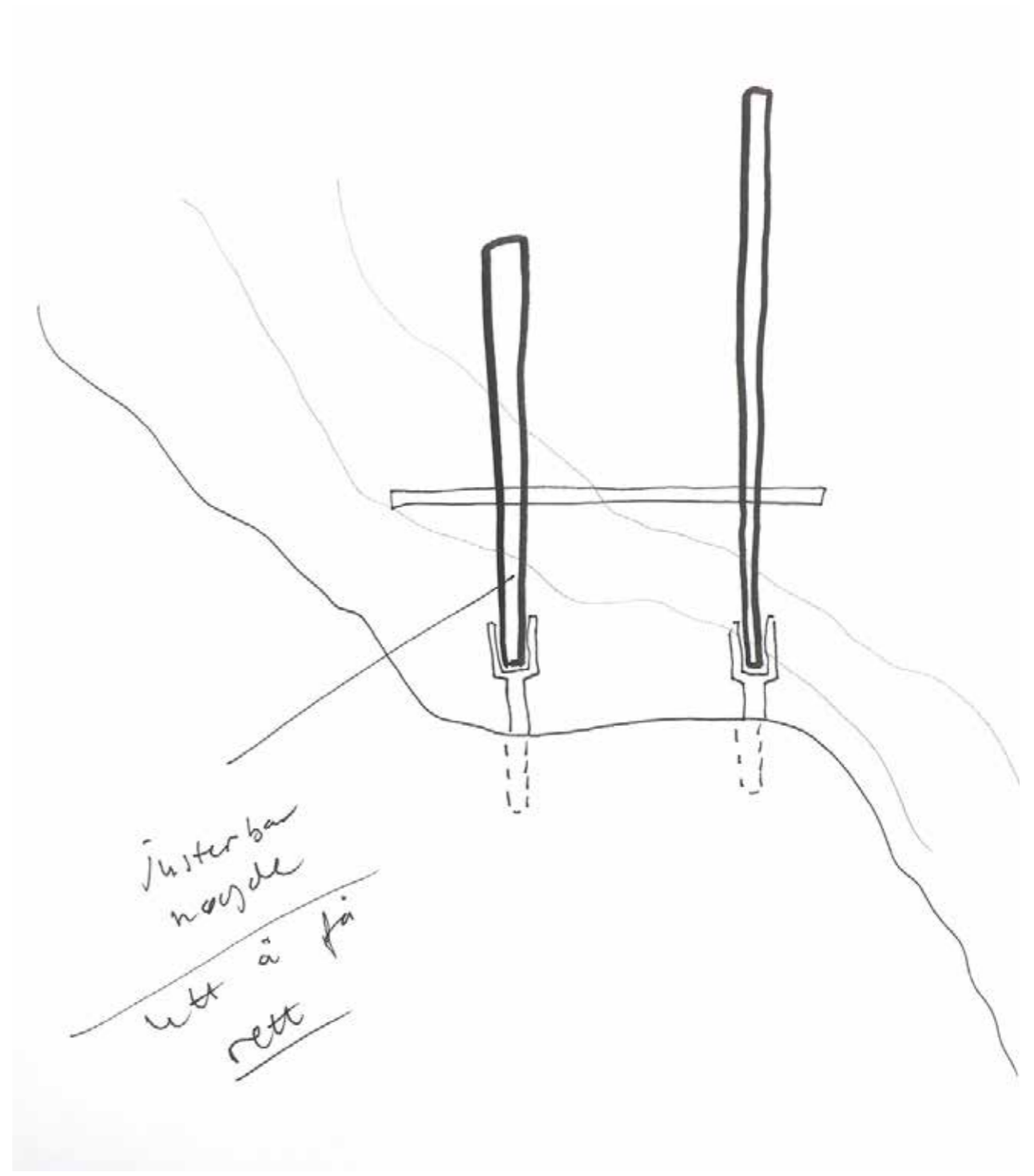
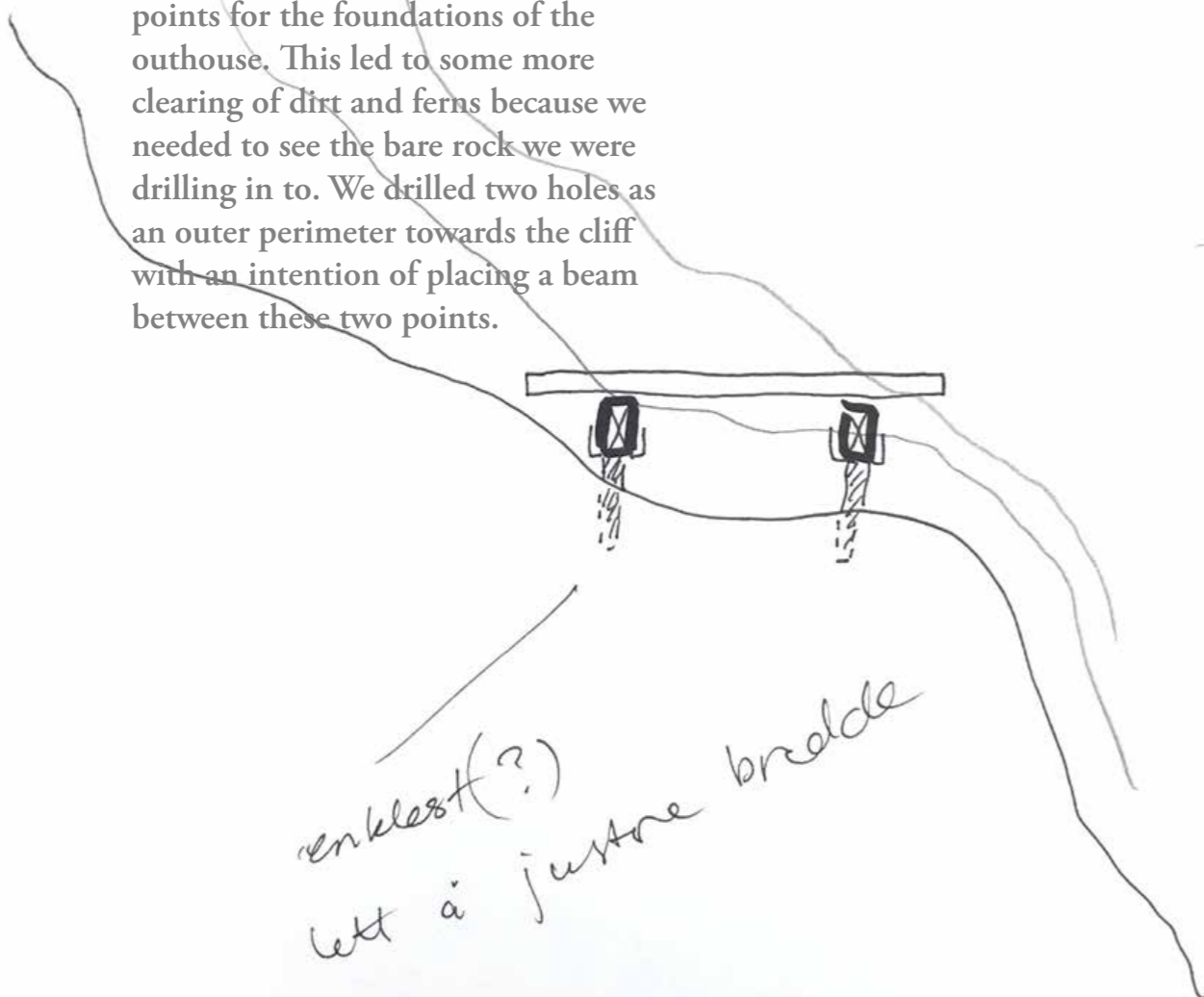
H: The actual knowledge we have on how to build varies. I have done small building projects, a wall here, some cladding there, a bench here and a terrasse there, which have taught me to some degree how things “should” be built. What is the most common way to do it among builders today. In our creative process this might restrain us, but it might also make sure that we get a building that can stand up right.

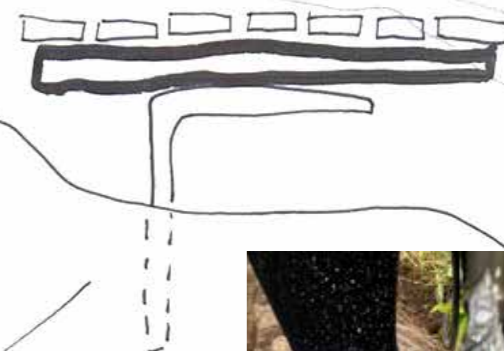
Fredag, 9 September

H+K: Vi har fått låne et ordentlig bor for fjell og bestemte oss for å begynne å lage hull til fundamentet. Dette førte til mer rydding av jord og vekster for å kunne se fjellet. Vi boret to hull som en ytre grense mot stupet med tanke på å kunne plassere en bjelke mellom disse to punktene.

Friday, 9 September

H+K: We got to borrow a drill hammer so we decided to start making some points for the foundations of the outhouse. This led to some more clearing of dirt and ferns because we needed to see the bare rock we were drilling in to. We drilled two holes as an outer perimeter towards the cliff with an intention of placing a beam between these two points.





Det ser ud til at være en
hul i rosen
1.0



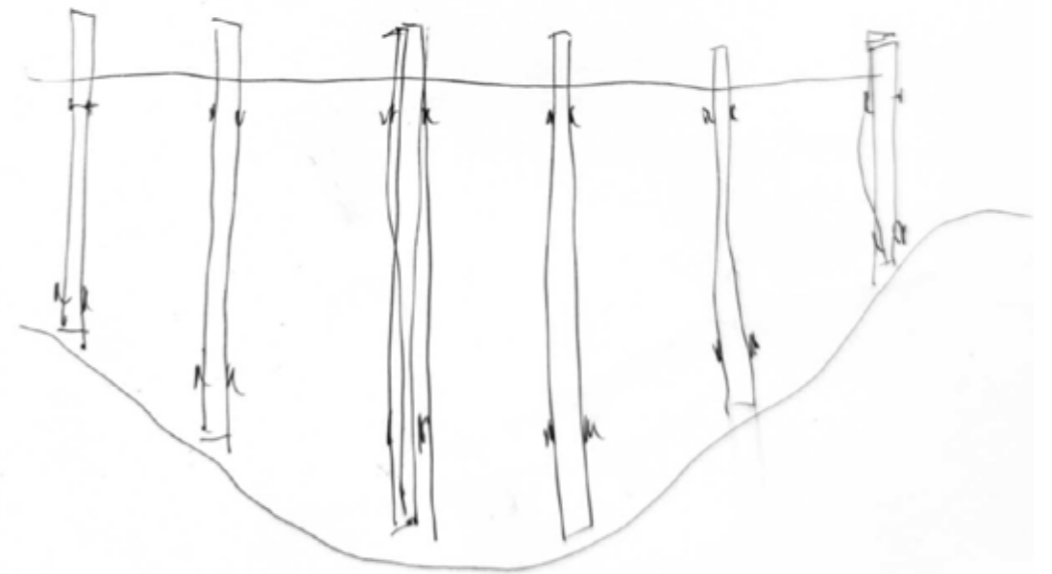


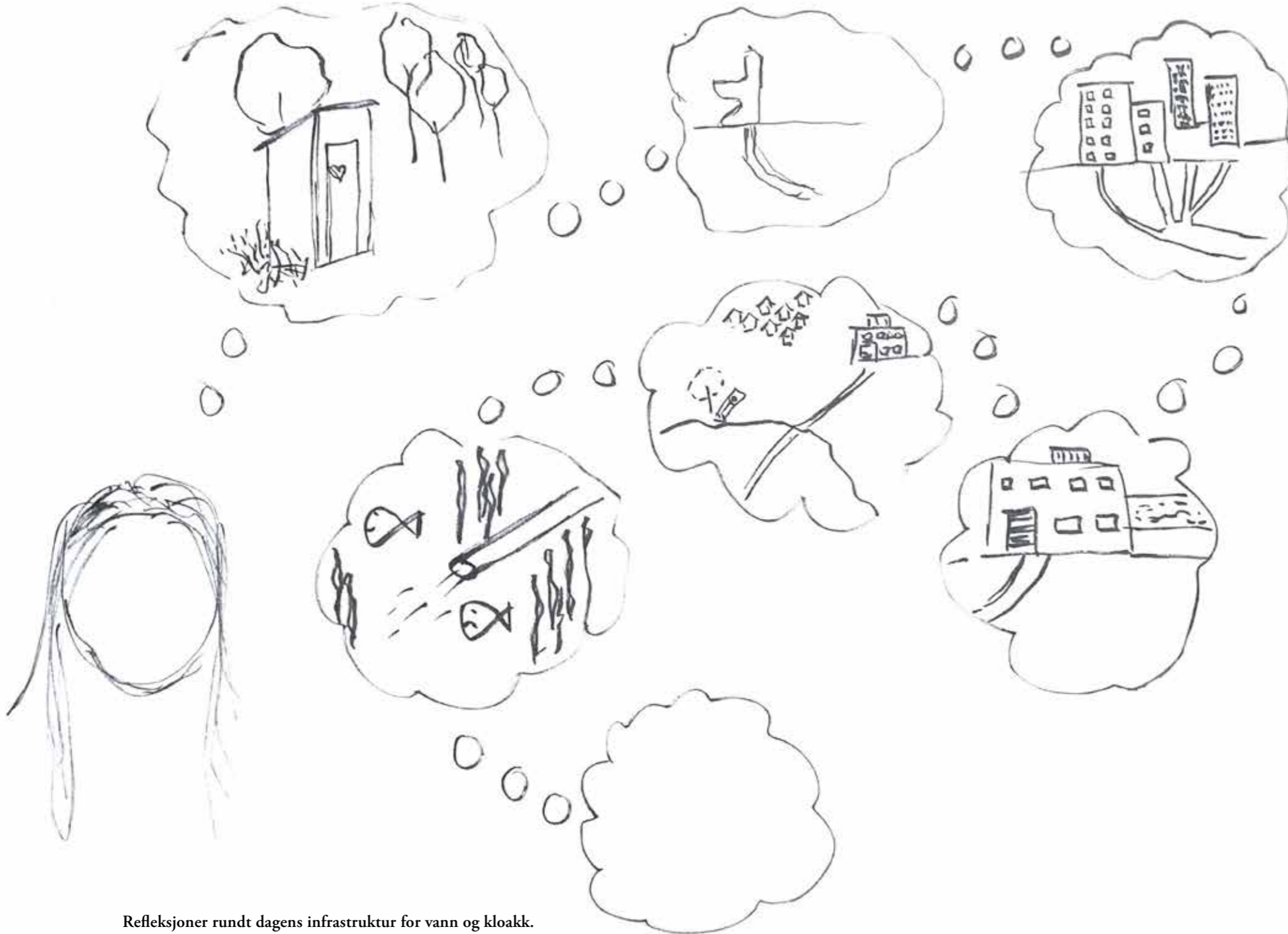
Fredag, 9 September

H+K: Så begynte vi å revurdere planen med tanke på å ha mulighet til å utkrage plattformen og/eller bygningen over stupet. Vi bestemte oss for å gå for det nedre alternativet på tegningen. Vi kjøpte stolpesko som kan justeres for å hjelpe oss med nivellering av bjelkene til slutt.

Friday, 9 September

H+K: Then we started re-thinking our plan in regards to the desire to have the possibility to protrude the platform and/or building over the cliff and decided to go for the lower option in the drawing. We bought “pillar shoes” (her må det finnes eit bedre engelsk ord?) that can be adjusted to help us with the leveling of all these beams in the end.





Refleksjoner rundt dagens infrastruktur for vann og kloakk.
Reflections on the current infrastructure for water and sewage.

Onsdag, 14 September

H: Vi besøkte Åros renseanlegg i Asker i dag, det første som slo meg da vi gjekkk ut av bilen var at det lukta litt som utedoen på hytta mi.

Wednesday, 14 September

H: We visited Åros sewage treatment plant in Asker today, the first thing that struck me when we got out of the car was that it smelled kind of like my outhouse.



Kjemikalier som tilsettes vannet på et renseanlegg.
Chemicals that are added to the water at a treatment plant.





Underfundig stein
Intriguing stone



Torsdag, 15 September

K: I dag var planen å fortsette å borre hull, men først måtte enda mere jord fjernes fra "gropa". Det var mye mer jord, stein og grus enn det så ut som først og det gikk med noen timer på å få det vekk.

Thursday, 15 September

K: Today the plan was to continue drilling holes, but first even more soil had to be removed from the "pit". There was much more soil, stone and gravel than we first thought, and it took a few hours to remove it.



Hylla
Skrenten
Kanten
Sprekken
Hella
Sofa'n
Flaket
Plataet
Hakket



The shelf
The cliff
The edge
The crack
The slab
The sofa
The flake
The plateau
The notch

Utedo-tomten har fått mange
kallenavn allerede, her er noen.

The Utedo plot has been given many
nicknames already, here are a few.

Torsdag, 15 September

H: Toalett langs vegen er ei greie i Noreg, og Statens Vegvesen har tatt på seg oppgåva med å gjere dei attraktive. Ganske mange av dei største arkitektkontora i Noreg har vore med på å designe eitt eller fleire. Dei er en del av prosjektet “Nasjonale turistveier”. Stader med spesiell utsikt eller attraksjonar har fått eit kunstverk eller ein stad å stoppe og ta ein pause. Ein nødvendig konsekvens av dette er å også lage toalett for å unngå forsøpling i naturen.

Thursday, 15 September

H: Road side toilets is a thing in Norway, and the national road authorities (Statens Vegvesen) has made it their task to beautify these. Quite a few of the biggest architectural companies in Norway can put their name on a special road side toilet. It is a part of the National Tourist route project where spots with special views or attractions have been chosen and given an art-piece or a place to rest and sit down, and of course a consequence of this is to also make toilets to avoid littering in nature.



Haugen/Zohar arkitekter



3RW - Sixten Rahlff



Tupelo Arkitektur



Code Arkitektur

Skjermddumper fra nasjonaleturistveger.no
Screenshots from nasjonaleturistveger.no



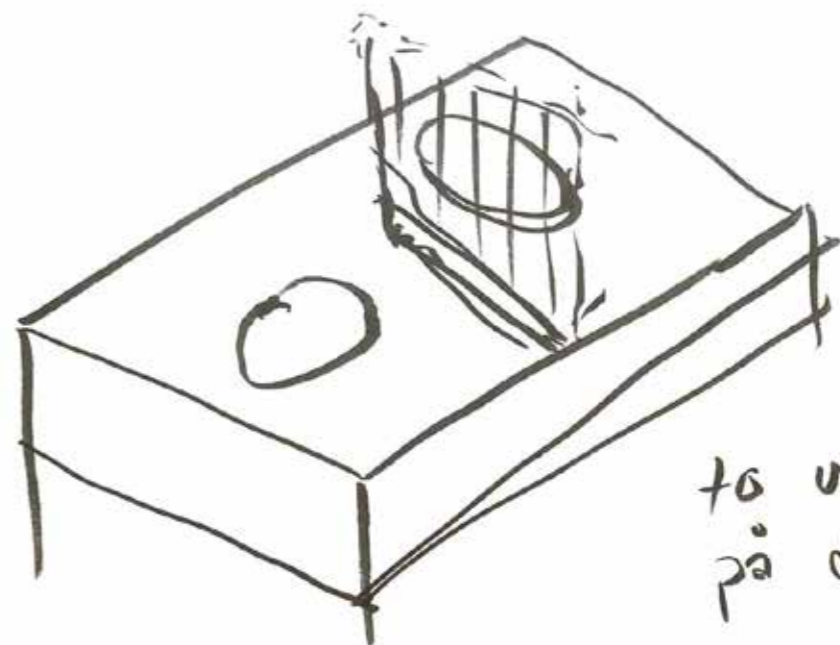
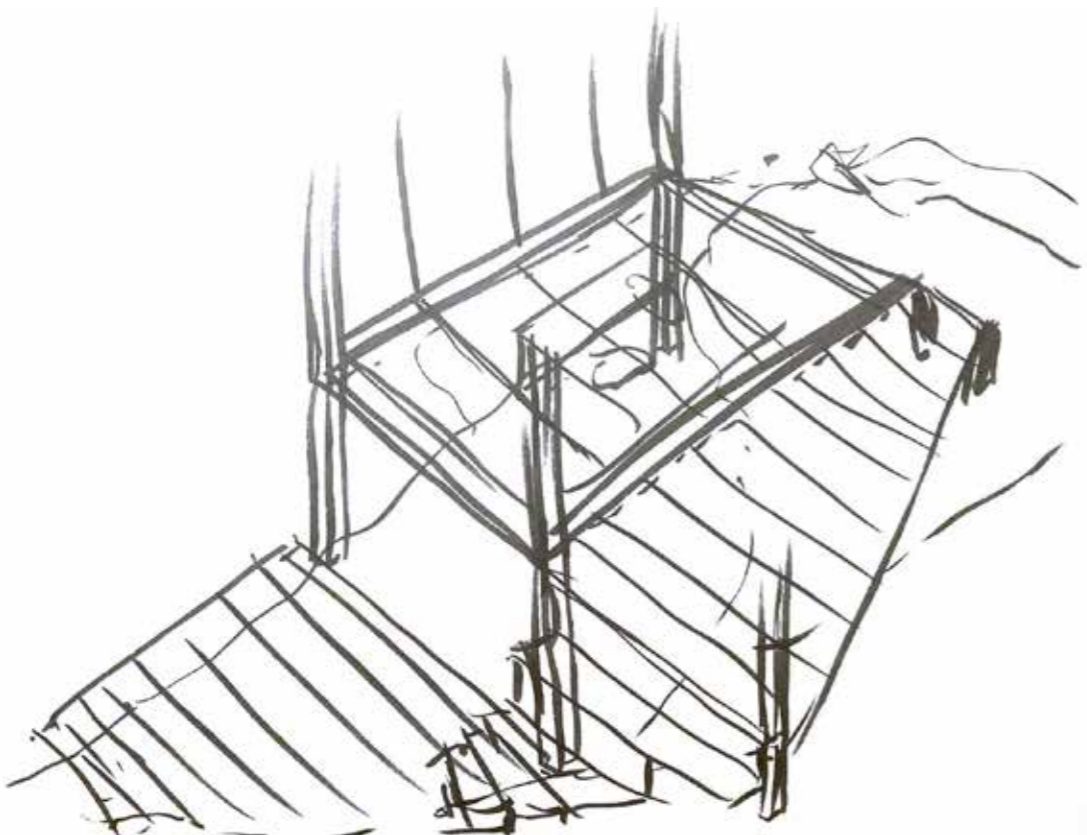
Fredag, 16 September

H: Har estetikken til utedoen ført til dens dårlige rykte? Lite hensyn til estetikk og reinslegheit gjer at ein ikkje bryr seg om bygget på samme måte som eit bad med meir “eksklusive” materialar, finare finish, vindu ++ Det er enkelt å forstå at det kan føre til forsøpling og hærverk, som gjer utedoen enno mindre attraktiv.

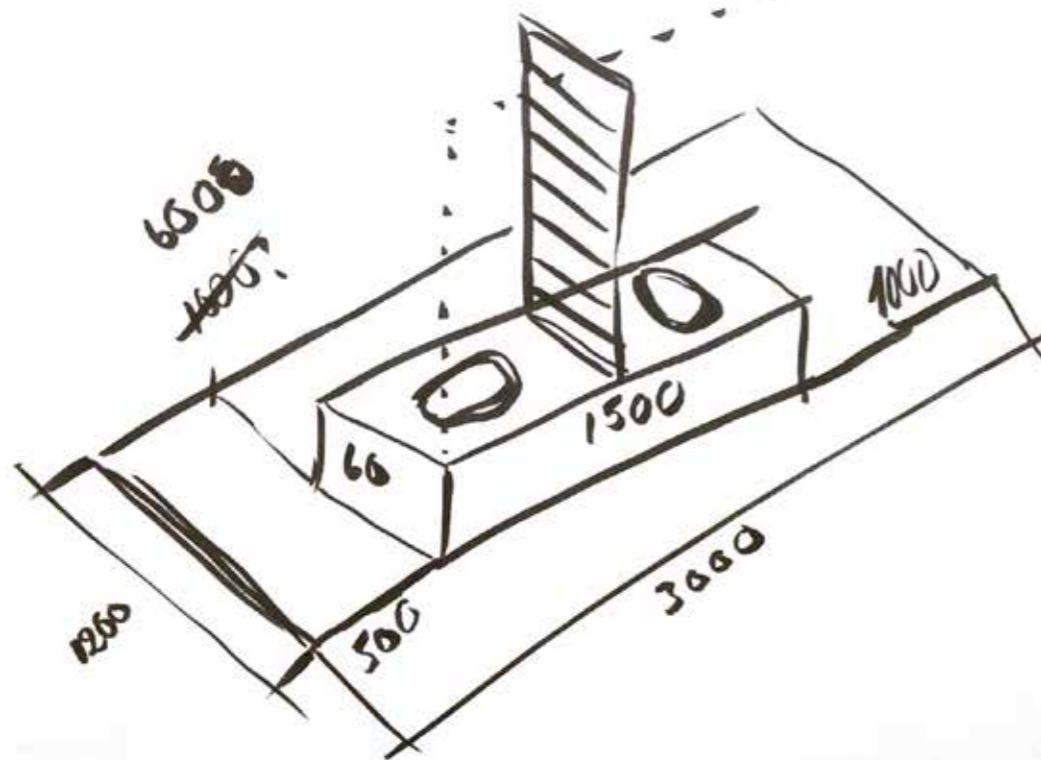
Friday, 16 September

H: Has the esthetics of the outhouse led to its bad reputation? Little or no concern for esthetics makes for a place people don't care for in the same way as a bathroom with more exclusive materials, finer finishes, windows ++ This could easily lead to littering and vandalism, making the outhouse even less attractive.





to utsyn
på de



Mandag, 19 September

K: Hanna kom til Holtberget på kvelden, vi lagde middag og la en liten plan for morgendagen. Vi diskuterte fundament og hvor mye plass vi ønsker å ha inne på utedoen og hvordan vi kan utnytte utsikten i de retningene vi ønsker.

Monday, 19 September

K: Hanna came to my house in the evening, we cooked dinner and made a plan for tomorrow. We discussed how much space we want to have inside the utedoen and how we can showcase the views in the directions we find interesting.



H: Eg fann boka “The Overstory” av Richard Powers i forbindelse med undersøkingar til dette prosjektet. Boka handlar om tre og korleis ulike tre påverkar og knyttar saman liva til 9 ulike personar. Det er fleire sitat i boka som kjennest interessante og relevante for vårt prosjekt, det var særleg eitt som traff meg med tanke på at eg bur i skogen.

K: Det kan hende dette prosjektet aldri hadde blitt noe av om ikke kloakk-rørene hadde frosset i 2021.

H: Det er først når eit eller anna skjer som krev at du må bryte opp i daglige rutinar og ritual at du stoppar opp og tenkjer, eller tenkjer om igjen om ulike ting.

H: During research for this project, I came across a reference to a fictional book by Richard Powers called “The Overstory”. The book is about trees and how they impact and bring together the lives of 9 different people. I have found several quotes in the book that are interesting and relevant for our project and our stand, and one which especially struck me while living in the forest.

K: If the pipes of the sewage hadn’t frozen in 2021 this project might have never happened

H: It is so easy to let yourself be swept away by the motions of everyday life, it is only when something happens to jolt you out of it that you might stop to think or re-think things

“The pen moves; the ideas form, as if by spirit hand. Something shines out, a truth so self-evident that the words dictate themselves. We’re cashing in a billion years of planetary savings bonds and blowing it on assorted bling. And what Douglas Pavlicek wants to know is why this is so easy to see when you’re by yourself in a cabin on a hillside, and almost impossible to believe once you step out of the house and join several billion folks doubling down on the status quo.”

– The Overstory p. 482



Tirsdag, 20 September
H+K: I dag lagde vi modeller,
kompost for matavfall og fant en do.

Tuesday, 20 September
H+K: Today we made models,
compost for foodwaste and we
found a toilet.





Sofa i stein?
Bedrock sofa?

struktur
karakterer:

- takvinkel
- form
- størrelse
- grunnmur
- vindu

landskap
karakter

- fjell
- masse
- selje
- skog
- dal

- materialer
- vindfaner

- lister
- panel
- farger
- tak
- utføring
- organisering
- utsikt er
- mellomrom

~~NO~~

karakter
sanser


- ubt
- temp
- lyd
- lys/mør

Onsdag, 21 September

H: Tomta er nesten heilt rydda for jord og vegetasjon, og hylla i terrenget ser nesten ut som ein sofa i stein. Vi hadde begge samme tanke om at det er litt trist å dekke den til med eit bygg. Kanskje dette bør blir eit viktig aspekt for bygget, at bygget på ein eller annan måte skal framheve eller vise fram terrenget der det står.

Wednesday, September 21st.

H: The intended plot for the outhouse is now almost completely cleared of all dirt and vegetation. There is only bare rock left. This shelf in the terrain has become more prominent and also looks kind of like a bedrock sofa. We both had the same thought, that maybe it would be a shame to cover it up with a building. Maybe this just serves as an extra dimension for the build, that the building in some way should enhance or show off the terrain it sits upon.



Egentlig litt trist å dekke
til den fine fjellhylla når den nå
enderlig har blitt synlig og vi kan se
hele formen på den.

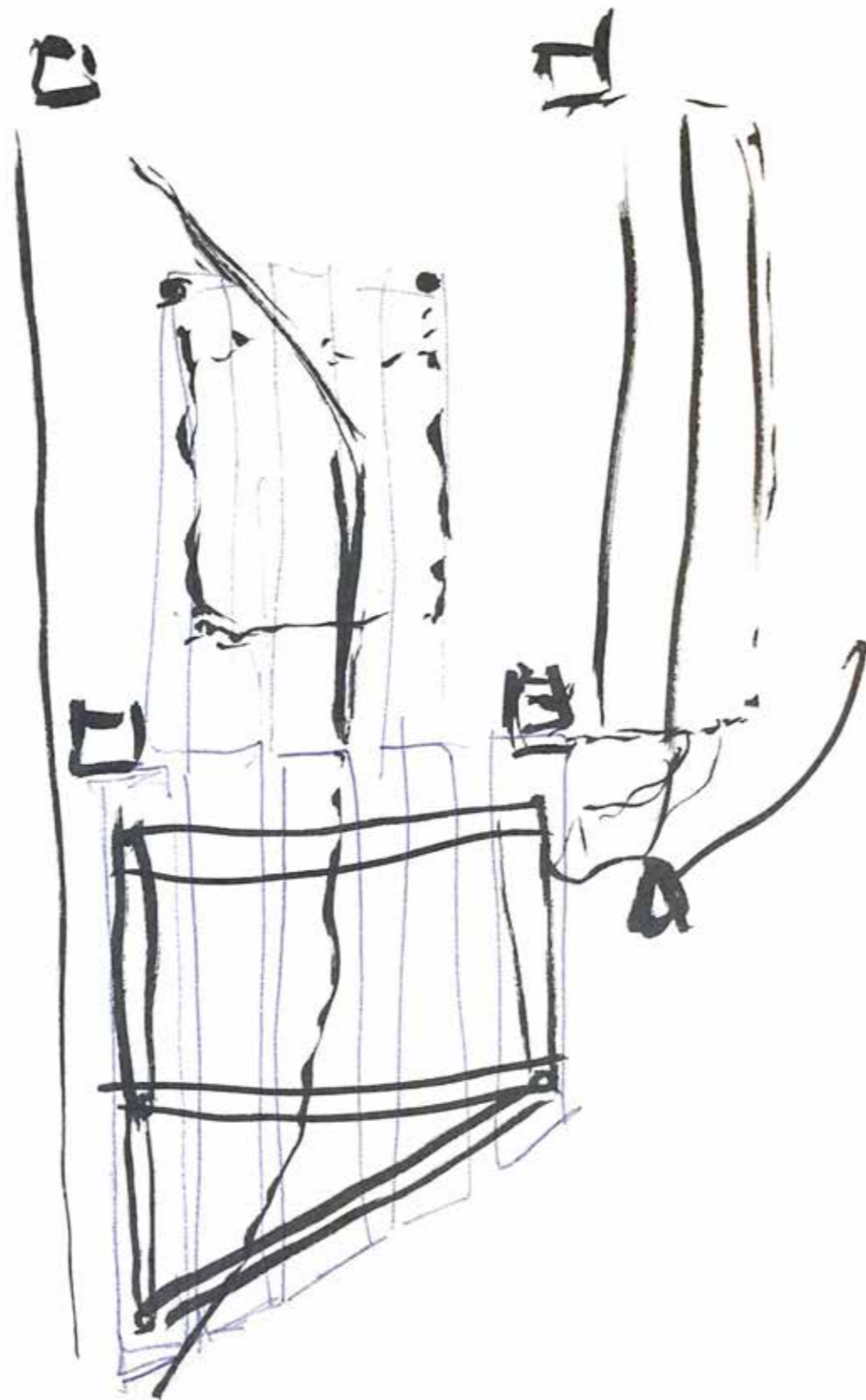
It's actually a bit sad to cover up the
nice mountain shelf when it's finally
become visible and we can see its
full shape.

.. tenkte på akkurat det
samme

.. was thinking exactly the
same thing

Onsdag, 21 September

H: Vi har borra 5 hol i berget. Fire av dei er i eit rektangulært system med tanke på å kunne plassere stolpesko til ei ramme. Det femte, som er på rekke med ei langside i rektangelet, er plassert for å kunne ha ein lengre bjelke mot skrenten og elva. Det er også muleg å plassere søyler i punkta, så vi testa dette i dag og kunne sjå kva for høgder vi truleg kjem til å måtte forholde oss til for bygget. Det gav oss og mulegheit til å teste plassering av vindauga og retninga på do-setet mot utsikta vi ønska å ramme inn.

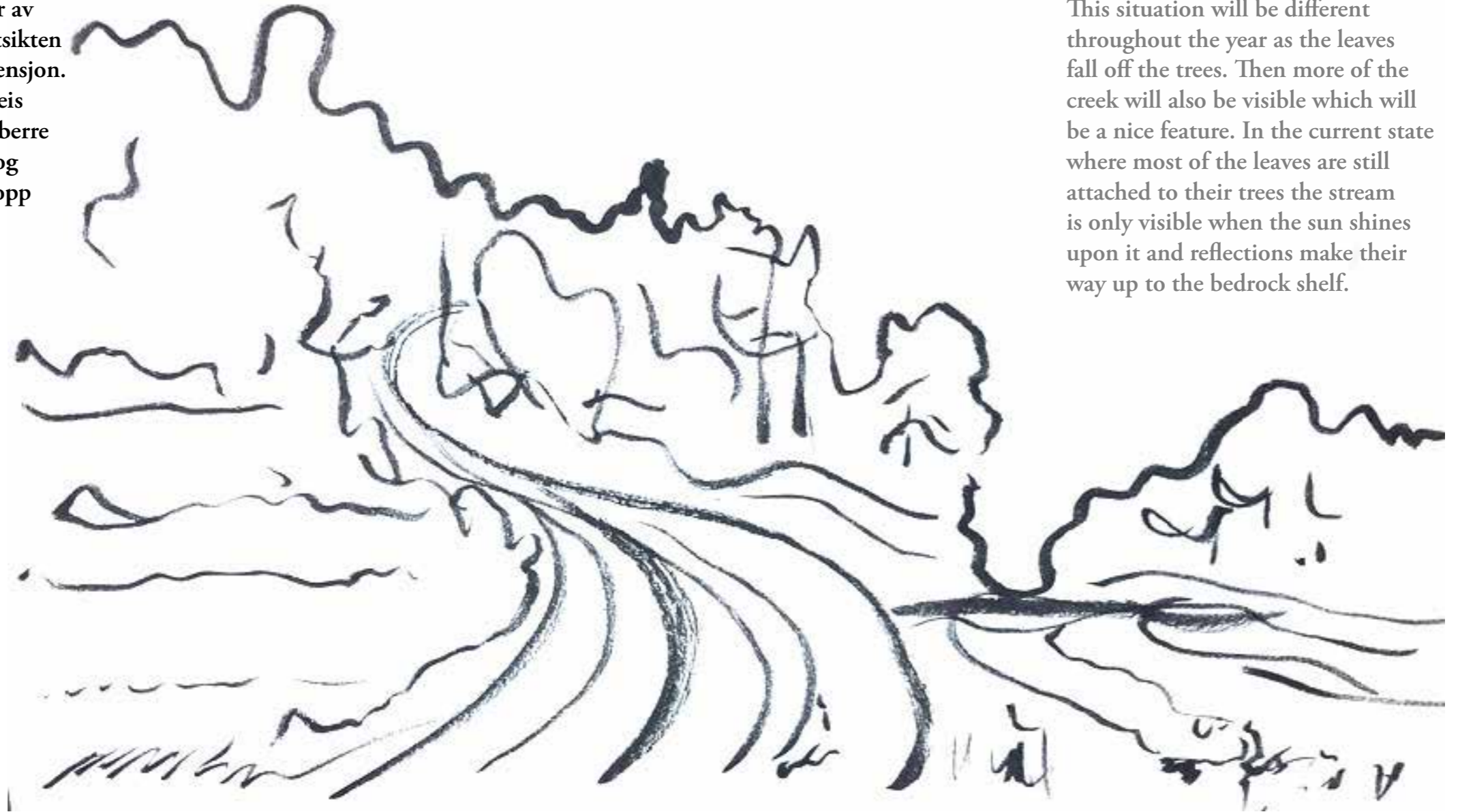


Wednesday, September 21st.

H: We have drilled 5 holes in the bedrock at the site. Four of them are in a rectangle shape suited to place column shoes for a frame. The fifth, corresponding with one of the four sides in the rectangle, is based on the idea of having a beam towards the cliff. These holes were also suitable for placing columns, so we tested this today and got a good idea of which heights we most likely will be dealing with. This also gave us the possibility to test placement of windows and the direction of the toilet seat towards the views we want to frame.

Onsdag, 21 September

H: Når ein står på vegen, eit stykke frå tomta, er konstruksjonen knapt synlig bak trea og buskene som omgir Havsjødalsbekken. Dette vil jo endre seg i løpet av året, når blada fell av trea vil meir av bekken bli synleg som gir utsikten mot og frå doen ein ny dimensjon. No som dei fleste trea framleis har alle sine blad er bekken berre synleg når sola skin på den og vatnet reflekterer solstrålar opp mot berghylla.



Wednesday, September 21st.

H: When standing on the road and in the field opposite of the site the current construction is barely visible behind the trees and bushes surrounding the creek. This situation will be different throughout the year as the leaves fall off the trees. Then more of the creek will also be visible which will be a nice feature. In the current state where most of the leaves are still attached to their trees the stream is only visible when the sun shines upon it and reflections make their way up to the bedrock shelf.



Strukturen synes såvidt fra veien over tretoppene.
Trærne langs jordene ble klippet ned for et par år siden.



The structure is barely visible above the treetops, seen from the road. The trees along the field were cut down a couple of years ago.



Da vi gikk nærmere tomten langs jordet forsvant
strukturen bak trærne.



As we walked closer to the site along the field, the structure
disappeared behind the trees.



Utedoen på hytta slit litt med klima om dagen..
The outhouse at my cabin is having a local climate crisis..

Lørdag, 24 September

H: Lukta på utedoen er i ubalanse og eg lurar på kva problemet er. Kanskje det blir for mykje væske og for lite "strø"? Kanskje eg skal sjekke med onkelen min, eller eit lokalt sagbruk om det er mulig å få tak i sagspon til å ha i doen. Til no har eg brukt eit strø av delvis nedbrotne blad, bark, kvistar, greiner, kanskje det blir for lite karbon i blandinga?

Saturday, September 24th.

H: The smell in the outhouse has gone a bit bad, I wonder what the problem is. Maybe there is too much fluid and not enough "strø" to soak it up. I'm thinking of asking my uncle or a local sawmill for left over sagspon that I can test as strø. The current mix I've been using has been partly decomposed already, maybe there is not enough carbon in the mix...?



Tirsdag, 27 September

H: Strukturen vi satte opp som test forrige veke hadde ramla ned i løpet av helga, mot bekken så klart. (Vi hadde ikkje sikra den forsvarlig så vi var klar over at det kunne skje). Vi starta dagen med å få den opp igjen og det blei ei fin anledning til å sjå tomta nede frå bekken og å teste ut om vi klarte å klatre opp igjen etter først å ha sklidd ned.

Tuesday, September 27th.

H: The structure we set up as a test last week had fallen down, of course towards the creek and not towards the hillside, during the weekend. (We hadn't secured it so we knew it could happen) We started the day getting it back up again. This was also a good opportunity to see the site from the stream and to test whether it was possible to climb up from there.





Tirsdag, 27 September

H: Vi har borra to nye hol for å gjere det mogleg å skyve bygget mot plataet rett over berghylla for å dermed kunne bruke plataet som inngangspunkt til bygget. Dermed kunne vi sette opp igjen søylene og vi fikk testa storleiken til bygget ved å kople bjelkar til søylene

Tuesday, September 27th.

H: We drilled another two holes to make it possible to enter the building from the natural plateau above the shelf. This allowed us to set up the columns again, and also to connect beams to them which made it easier to see the possible size of the building.





God takvinkel for å ha solceller på taket mot sør, men fungerer ikke så bra i landskapet.

Good roof angle for having solar panels on the roof facing south, but does not integrate to well with the landscape.

Onsdag, 28 September

K: Dette ble den store tak-teste-dagen. Lengderetning til bygget strekker seg ca fra nord til sør og hvis vi skulle hatt solcellepaneler for å ha strøm i uthuset ville et skråtak med en side mot sør vært gunstig. Men denne vinkelen fungerer ikke like godt med retningen, terrenget og åpningen mot utsikten som vi ønsker å fremheve.

Wednesday September 28th

H: To be able to move forward with the construction we decided we had to make some decisions regarding the roof of the outhouse. We've been through several discussions regarding the roof. The outhouse will have a longitudinal direction going almost north-south. If we were to have solar panels to have power in the outhouse a pitched roof with one side to the south would be beneficial. However, we both think a pitched roof doesn't really work with the terrain and direction of the site. We tested a slated roof on the structure and it does make sense with the views we want to accentuate and together with the terrain behind it, it has a similar shape to the bedrock shelf we're building on.



God takvinkel for å ha solceller på taket mot sør, men fungerer ikke så bra i landskapet?

Good roof angle for having solar panels on the roof facing south, but does not work so well in the landscape?



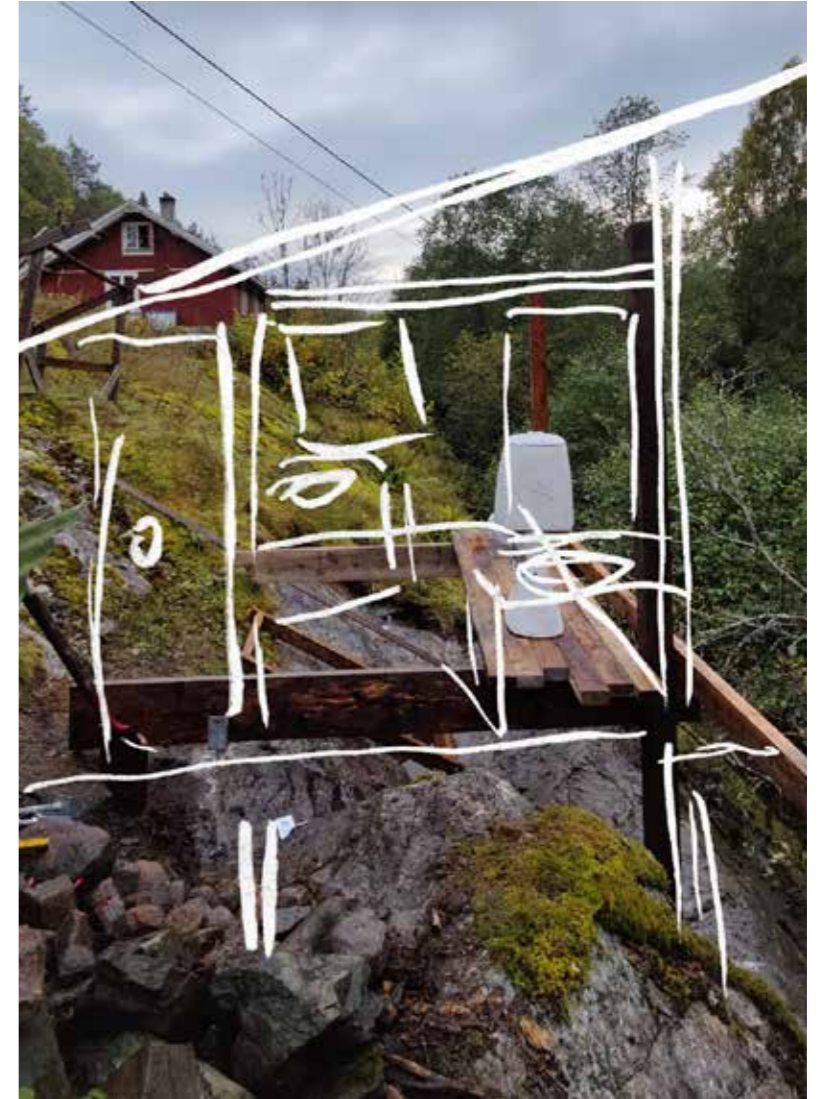
Denne takvinkelen og formen følger retningen på landskapet og åpner seg mot utsiktene vi vil fremheve.

This roof angle and shape follows the direction of the landscape and opens up to the views we want to highlight.



Denne takvinkelen og formen følger retningen på landskapet og åpner seg mot utsiktene vi vil fremheve.

This roof angle and shape follows the direction of the landscape and opens up to the views we want to highlight.



Denne takvinkelen og formen følger retningen på landskapet og åpner seg mot utsiktene vi vil fremheve.

This roof angle and shape follows the direction of the landscape and opens up to the views we want to highlight.



Tirsdag, 27 September

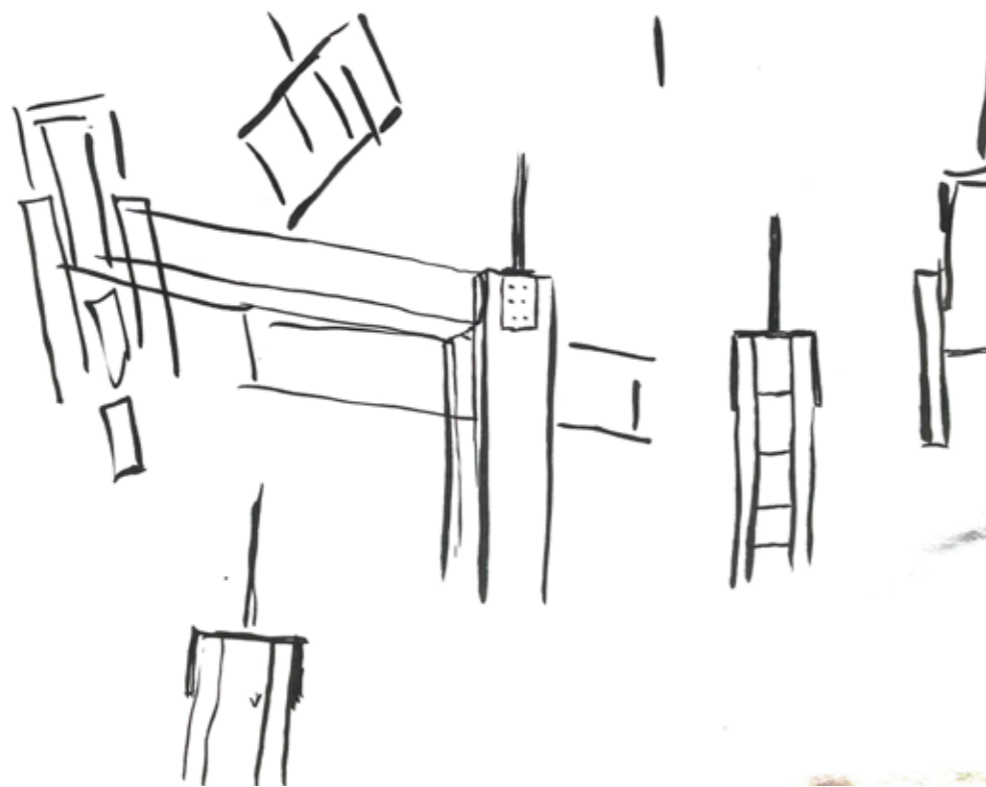
H+K: Vi la tak på strukturen, og fikk også på plass en benk og et provisorisk gulv. Vi fikk en følelse av hvordan det kan bli å bruke bygget. Dette var til god hjelp for å ta videre beslutninger. (Veldig gøy og nyttig å bygge modell i 1:1! (Og ikke minst mulig når man bygger en utedo og ikke en skole eller et sykehus))

Tuesday, September 27th.

H+K: We added a roof to the structure, and also a bench to sit on and a provisional floor to put our feet on, we got a good idea of how using the outhouse could be. This helped us make further decisions regarding the final design. (Building models 1:1 is fun, and helpful! (And possible when building an outhouse and not a school or a hospital))







Torsdag, 29 September

K: Hanna kom på at vi kunne bruke pytagoras for å finne plasseringen for de to siste hullene vi skulle borre.

Thursday September 29th

K: Hanna found a clever solution (pythagoras) on how we could find the points for the last two holes we were drilling.



Her blir det boring av ett hull til.
One more hole will be drilled here.

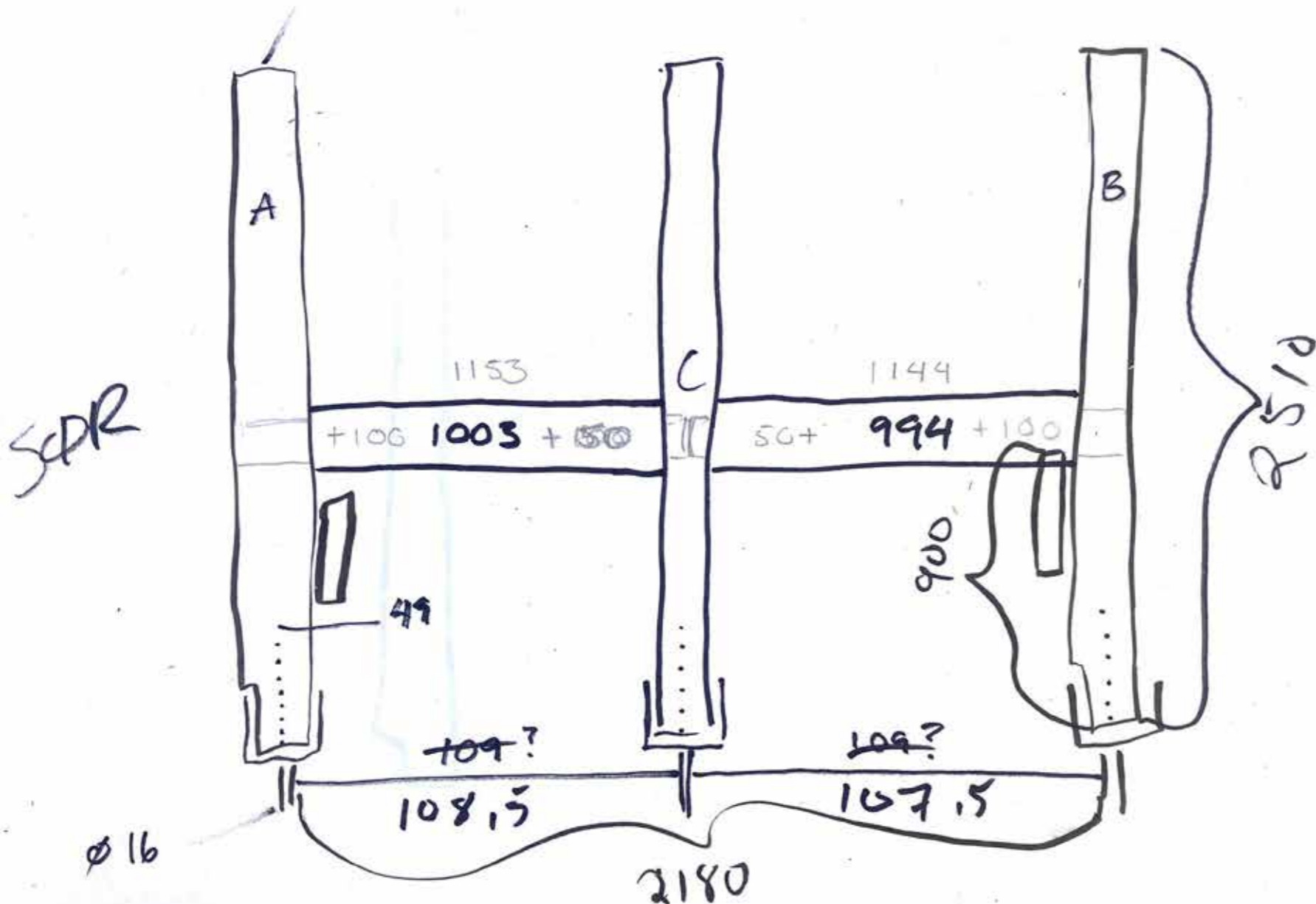


H: Heile tomta kjennes ut som ein del av utedo-prosjektet. Samtidig som vi byggjer, ryddar vi også i hagen og langs stien til utedoen. I går og i dag avslutta eg dagen med å røske opp solbærbusker som holdt på å overta ein rododendron. Vi går forbi denne kvar dag når vi arbeiar og eg kan tenkje meg at den er meir synleg no enn den har vore på mange år. (Det er framleis mange solbærbusker igjen på andre delar av tomta)

H: The entire property feels like part of the outhouse-project. Today, and yesterday I ended the day pulling up blackcurrant bushes that were threatening to overpower a rhododendron bush in the garden. We pass it several times each day on our way to the plot and I can imagine it is more visible now than it has been in quite a few years. (Don't worry, there is a big field of blackcurrants just opposite of the rhododendron)

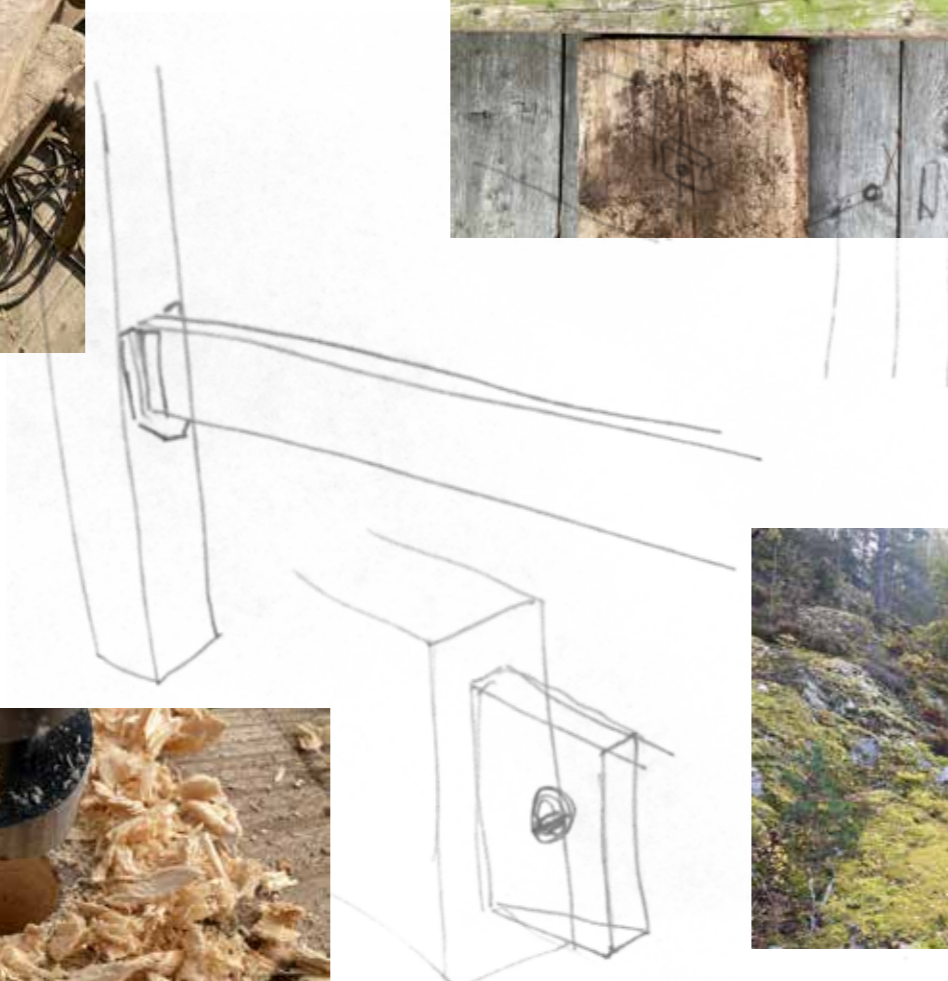
98x98

2180 - 82 = lengde bjelke mellom A & B



Fredag, 30 September
 H+K: Bygge opp en langvegg. Alt blir ikke helt rett og symmetrisk..

Friday, September 30th
 H+K: Build one of the walls. It will not be entirely symmetrical..





Gråhegre nede ved bekken
Gray heron down by the stream

Lørdag, 1 Oktober

K: I dag så jeg en gråhegre nede ved bekken. Hegren ser ut som en fugl fra dinosaurtiden, er sky og kan ha et vingespenn på nesten to meter.

Saturday, October 1st

K: Today I saw a gray heron down by the stream. The gray heron looks like a bird from the dinosaur era, it is shy and can have a wingspan of almost two meters.



Høstfarger fra tomten
Autumn colours from the site

Søndag, 2 Oktober

K: Holtberget ligger i en skjermet og stille dal, omgitt av natur, fugler og dyr. Noen dager i det siste, når vær og vind bærer lyden godt, høres anleggsarbeid og sprenging i det fjerne. Det skal bli et industriområdet på hele åsen mot øst, masse skog og natur er fjernet allerede og det skal lages en ny vei og tunell (som kommer til å ta like lang tid å kjøre som den gamle veien.) Noen ganger får jeg følelsen av å være en del av barneboken “Flukten fra Dyreskogen”¹ hvor dyrene må flykte til “Hjorteparken” der de er trygge fra menneskene som har ødelagt hjemmene deres.

Sunday, October 2nd

K: Holtberget is hidden in a quiet valley, surrounded by nature, birds and animals. Lately, when the weather and wind carry the sound well, construction work and explosions can be heard in the distance. A huge industrial field is under construction on the entire hill to the east, a lot of forest and nature has already been removed. A new road and tunnel will be built (which will take just as long to drive as the old road). Sometimes I get a feeling that I'm part of the book “The Animals of Farthing Wood”¹ where the animals escape to the “Deer Park” where they are safe from the humans who have destroyed their homes.

1. Flukta frå Dyreskogen (orig: The Animals of Farthing Wood) er en britisk-europeisk animert eventyrserie for barn som gikk på TV fra 1993 til 1995. Serien var basert på barnebøkene til Colin Dann og ble produsert på oppdrag fra Den europeiske kringkastingsunionen. (Wikipedia)

1. The Animals of Farthing Wood is a British-European children's animated adventure series that ran on television from 1993 to 1995. The series was based on the children's books by Colin Dann and was commissioned by the European Broadcasting Union. (Wikipedia)



Grevlingen, Ugla og Røyskatten så dystert på den ødelagte marka. “Hvor lang tid tror du at det tar før de når frem til oss, Grevling?” spurte Røyskatten med gråtkvalt stemme. “Ikke lenge, er jeg redd,” svarte Grevlingen trist.

(Flukten fra Dyreskogen)

The Badger, the Owl and The Ermine looked gloomy at the ruined field. “How long do you think it will take for them to reach us, Badger?” asked Ermine in a voice choked with tears. “Not long, I’m afraid,” the Badger replied sadly.

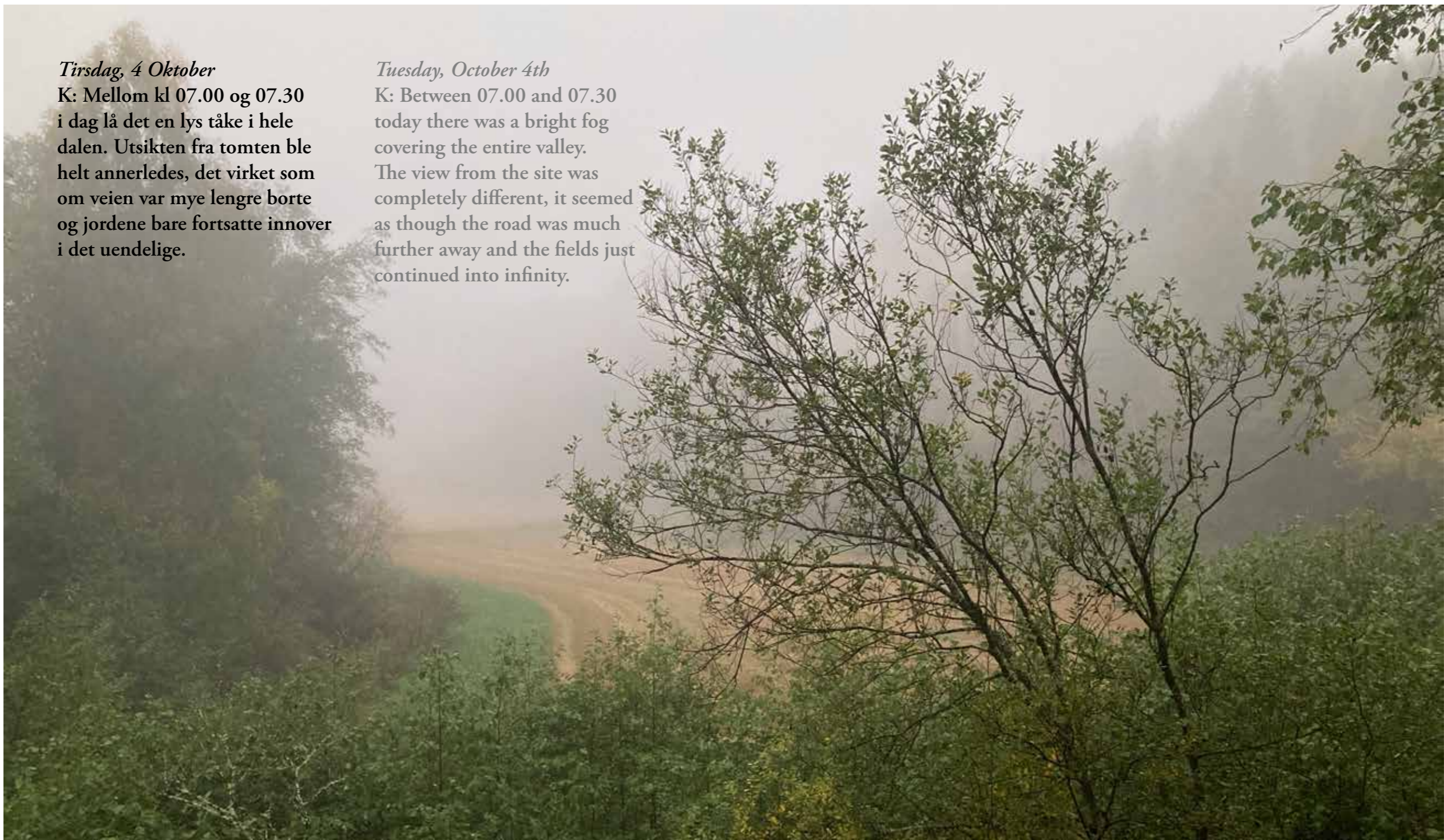
(The Animals of Farthing Wood)

Tirsdag, 4 Oktober

K: Mellom kl 07.00 og 07.30 i dag lå det en lys tåke i hele dalen. Utsikten fra tomten ble helt annerledes, det virket som om veien var mye lengre borte og jordene bare fortsatte innover i det uendelige.

Tuesday, October 4th

K: Between 07.00 and 07.30 today there was a bright fog covering the entire valley. The view from the site was completely different, it seemed as though the road was much further away and the fields just continued into infinity.









Vindauget på hytta
Window at the cabin

Tirsdag, 4 Oktober

H: Utedoen på hytta har aldri blitt tømt. Det har aldri vore nødvendig ettersom vi stort sett berre har vore der 2-3 veker om sommaren, ei veke om hausten og kanskje nokre dagar om vinteren. No som eg skal bu her stort sett heile hausten, og kanskje vidare gjennom vinteren lurar eg på om det er lurt å tømme den før ting byrjar å fryse. Kanskje eg må bygge ein kompostbinge?

Tuesday, October 4th

H: The outhouse-pit at the cabin has never been emptied, it has never been necessary because for as long as I have lived, we've only been here 2-3 weeks in the summer and maybe a week in the fall and some days during winter. Now that I'm staying here this fall, and maybe through winter as well I'm thinking that it might be wise to empty it before things start to freeze. Maybe I should build a compost-bin?

venting i ikke eller ikke

højden på todelte
blir viktig

Throne stillerz manna
nøyde på down

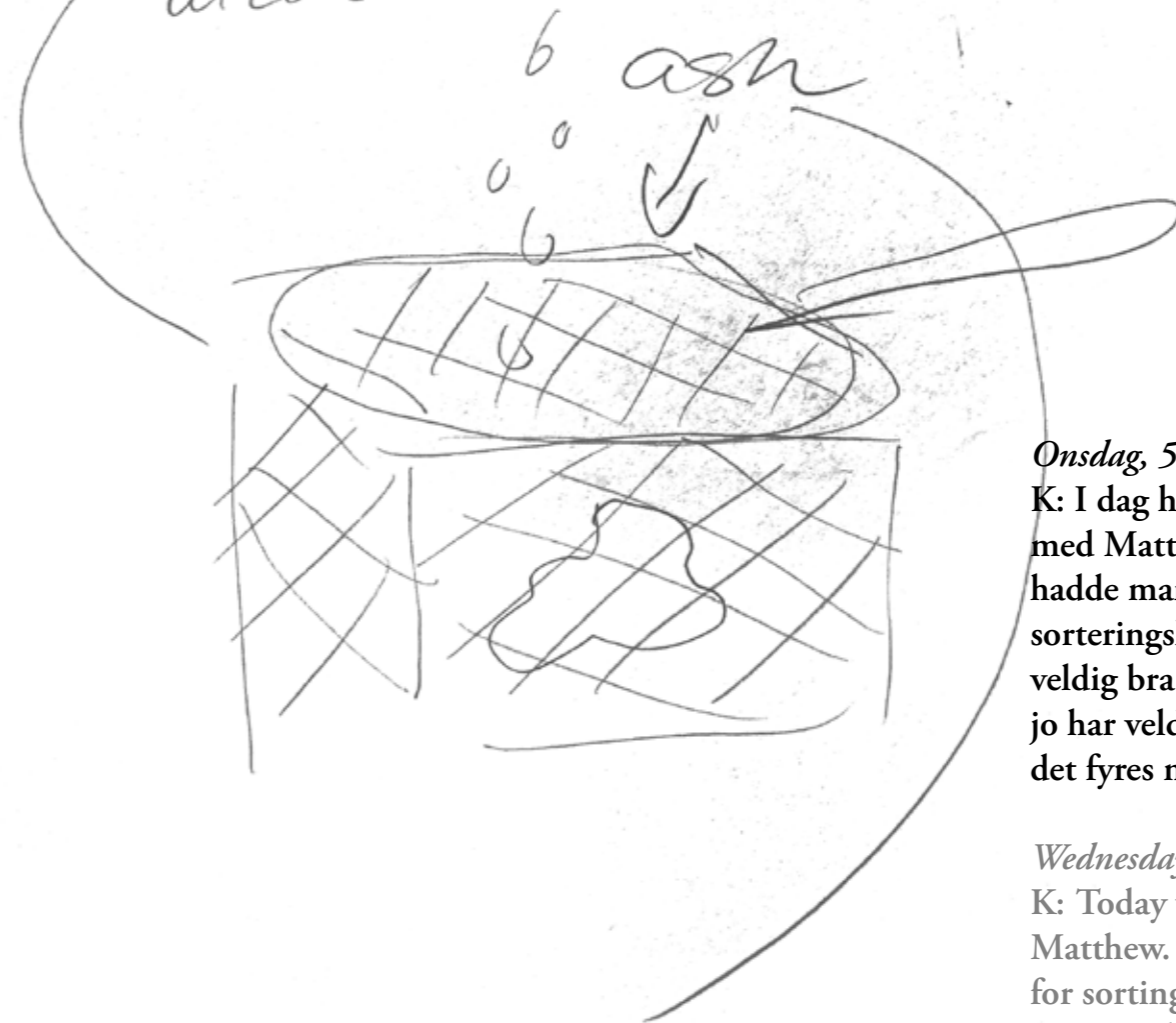
Fødeposisjon

kollage med sitteposisjonen

shelt of footliftes.



skin basket - beste
utede



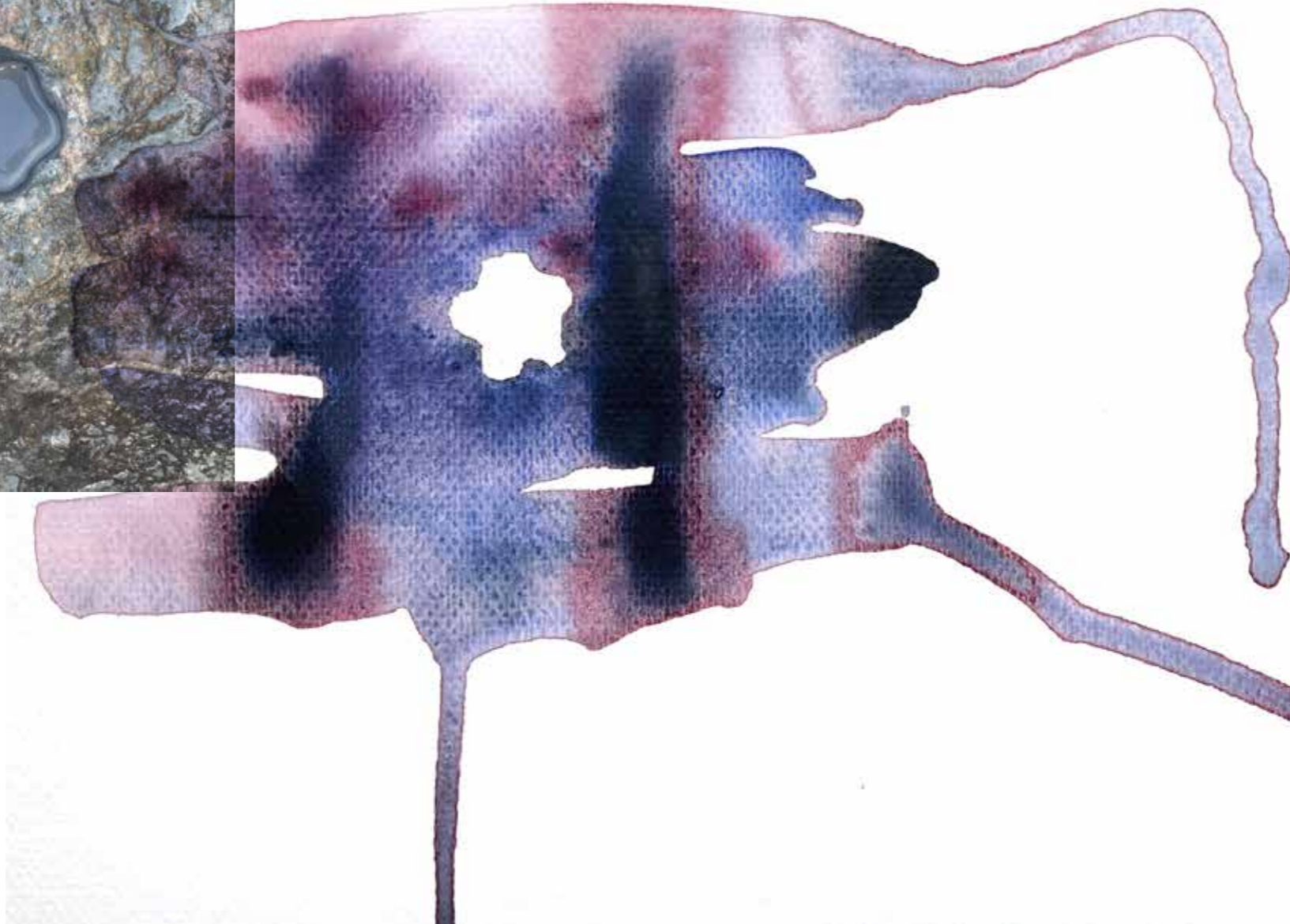
Onsdag, 5 Oktober

K: I dag hadde vi veiledning med Matthew. Han hadde mange idéer for sorteringsløsninger. Aske er vist veldig bra å ha i utedo, som jeg jo har veldig mye av ettersom det fyres med ved i huset.

Wednesday, October 5th

K: Today we had a talk with Matthew. He had many ideas for sorting. Ashes are apparently very good to add to the utedo, which is great because I already have a lot from the wood stove.

add karbon

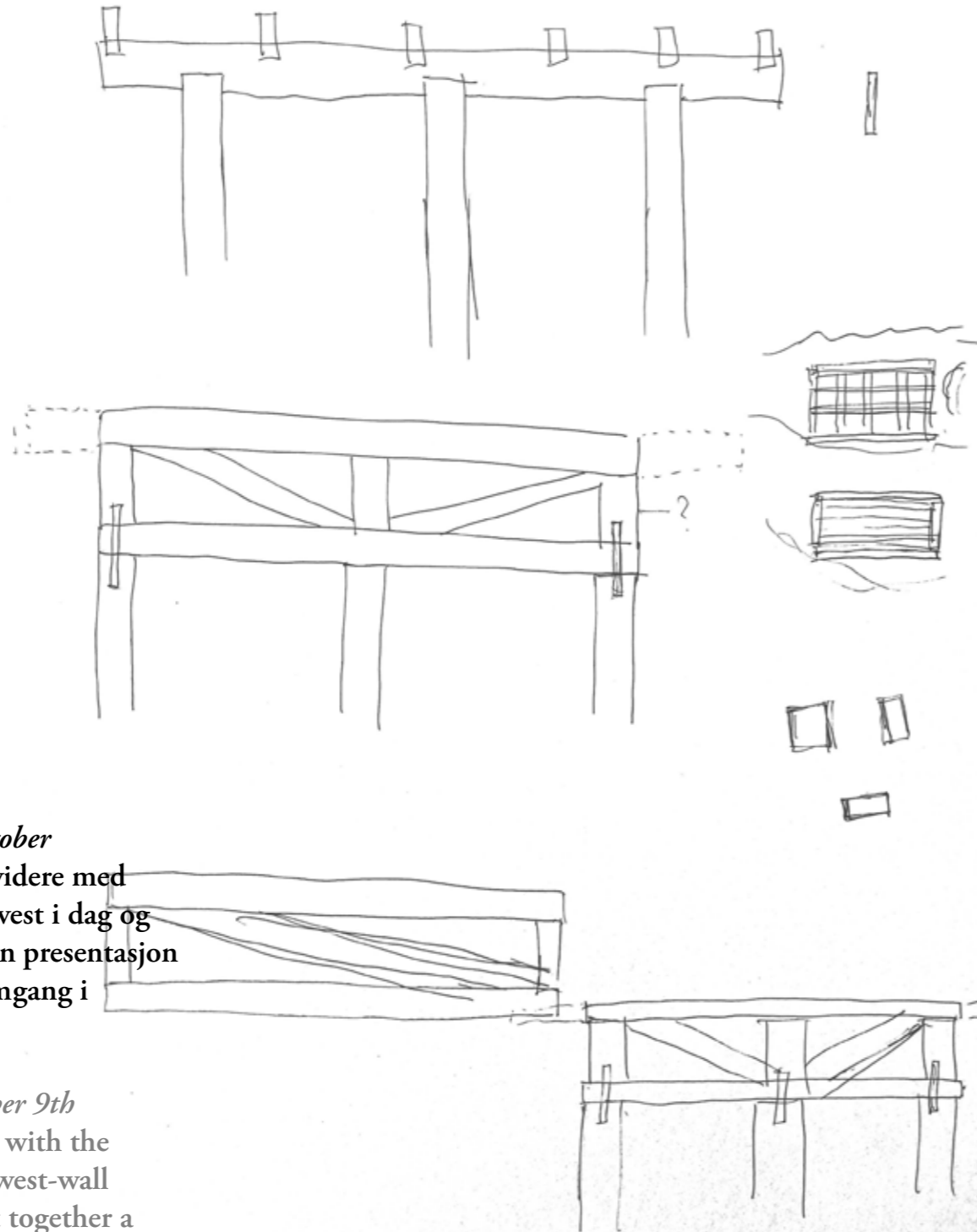


Lørdag, 8 Oktober

K+H: Planen i dag var å støpe stolpeskoene fast i berget, da vi skulle sette igang fant vi ut at vi ville gjøre hullene litt større slik at vi er sikre på å få feste skoene skikkelig, samt rette de opp da ikke alle hullene vi borra blei rette. Det viste seg å være tyngre å borre med et større bor, selv om det allerede var hull der, de nye hullene ble heller ikke runde. Senere fikk vi vite at det ikke fungerer så bra å bore i eksisterende hull.

Saturday, October 8th

K+H: The plan today was to cast the column shoes into the rock, when we were about to start we found out that we wanted to make the holes a little bigger so that we are sure to attach the shoes properly, and to get them straight. It turned out to be more difficult to drill with a larger drill bit, also the new holes did not come out circular. Later we learned that we are not supposed to drill in existing holes.



Søndag, 9 Oktober

K+H: Jobbet videre med langvegg mot vest i dag og satt sammen en presentasjon for delgjennomgang i morgen.

Sunday, October 9th

K+H: Worked with the frame for the west-wall today, and put together a presentation for midterm review for tomorrow.

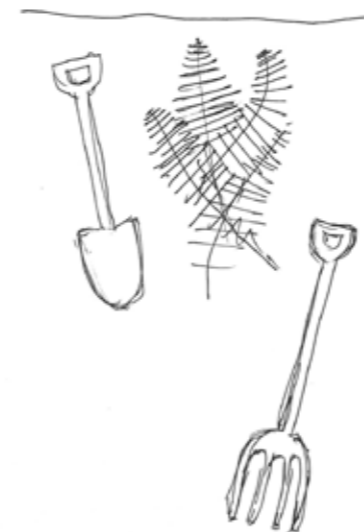


Tirsdag 11. oktober

H: Tilbake på hytta. Det er fint å vera i byen, men det er alltid godt å komme tilbake hit. Det er godt å kunne pakke ut av sekken og legge ting på plass i hyller og skap. Planen var å ta fri frå diplom-arbeid, men det eg endar opp med å finne på har som regel ein eller annan relevans til prosjektet. Eg bestilte boka "The other Dark matter" av Lina Zeldovich, den kom i posten i dag og eg byrja å lese. Ho har gått enno djupare inn i alle tema som gjeld do-avfall, resirkulering, ressursar, historie ++, enn det vi kjem til å rekke på eit semester. Eg bestemte meg og for å realisere tankane frå forrige veke. Kompostbingen kom opp ganske raskt og blei plassert bak utedoen. Det er kjekt å ha eit lite lager av materialar til fri bruk.

Tuesday October 11th

H: I came back to the cabin again today. I do really like being in the city, but coming back here really puts my mind at ease. And the fact that this is where I can unpack and I don't have to keep my stuff in a backpack feels really great. I decided to take today off from diploma-work, although what I end up doing here is never really off the topic of our diploma. A book (The other dark matter by Lina Zeldovich) came in the mail and I started reading it, the authour has gone even further into all the topics related to waste, recycling, resources, history ++, than we'll be able to do. And I decided to make my thoughts from last week a reality, I built a bin for compost and placed it behind our outhouse. I feel lucky that we have a room full of materials that I can use.





Gamle takstein fra huset som vi kanskje kan bruke til utedoen.
Old roof tiles from the house that we can use for the utedo.



Fredag, 14 Oktober

K: I dag målte jeg opp og tegnet av taksteinen som tidligere var på huset. Den klassiske takteglen i Norge er enkeltkrum. Den har vært produsert ved stort sett alle teglverk og ble opprinnelig strøket for hånd i bestemte former. Sammen med den harde brenningen skapte det variasjon i form og fargespill. (byggogbevar.no)

Friday, October 14th

K: Today I measured and drew the roof tile that was previously used on the house. The classic roof tile used in Norway is single curved. Almost all brickworks in Norway made it, and it was originally laid by hand in specific shapes. Together with the hard burning, this created a variety in shape and a play of colours. (byggogbevar.no)

Mandag, 17 Oktober

I dag støpte vi stolpeskoene i fjellet. I det første hullet klæsja vi sement ned i hullet først, for så å dytte søyleskoen ned, men da klarte vi ikke å få skoen langt nok ned så vi endte med å høytrykksspyle sementen bort fra hullet igjen. Det hadde også regnet og det lille vannet som var i hullet gjorde at sementen ble helt flytende. På de neste hullene klarte vi å tørke opp vannet med dopapir og hadde søyleskoen ned før sementen. Resten av sementen brukte vi til å lage heller med noe av glasset vi fant i jorda.

Monday, October 17th

Today we casted the column shoes into the drilled holes in the bedrock. In the first hole we added cement, then pushed down the pin, but we couldn't get the pin far enough into the hole, so we ended up removing the cement with a high pressure washer. It had rained prior to this and the water in the hole made the cement completely liquid. On the next holes we managed to remove the water with toilet paper and put the pin in the hole before the cement. We used the leftover cement to make tiles with some of the glass we found earlier.

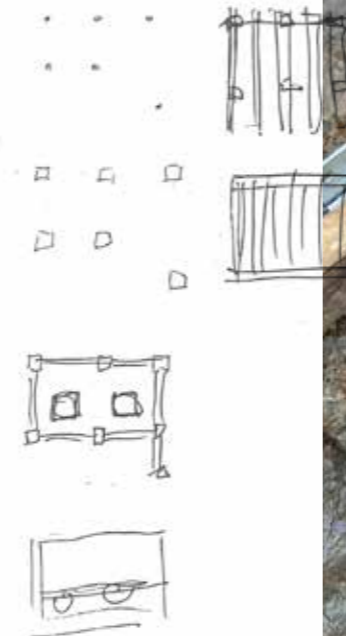
17 - 21 OKTOBER

- 17. støppe stolpesko ✓
- Lage plan for uka ✓
- H: fortsette på sitt plan. ✓
- Gå gjennom leverert materiale ✓
- K: fortsette med plan →

- 18. Gjøre ferdig ramme A
- Begynne på ramme B
- Skrive dagbok
- Telle opp takstein
- Registrere trær - laubtre
- bætre

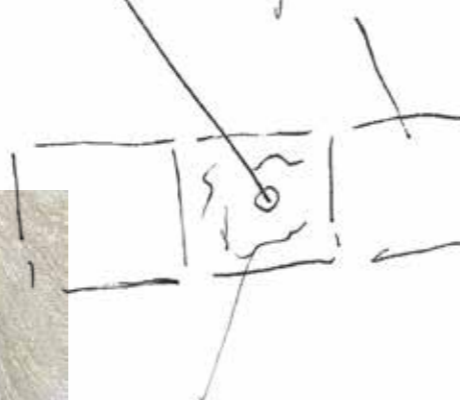
- 19. Fullføre ting som ikke blei gjort i går

- 20. 3D-modell > Bestemme utsnitt
- Frese modell





kikke hull
 glassbygger stein



støpt blokk
 med flaskehals
 og glass biter



Mini
drikkes-
vindu



glasset
fra vinduene



fuge

1/2
glass



Tirsdag, 18 Oktober

H: Kanskje utedoen blir eit slags testbygg for eit heilt kretsløp? Jord, næring og vatn til frø og blomster frå eit bygg.

K: Ja, taket kan samle opp regnvann som vanner ut gullvannet slik at det kan brukes direkte til gjødsling. Veggene kan bestå av to lag med glass med jord i mellom slik at man kan se hele prosessen.

Thursday, October 18th

H: What if the utedoe becomes a kind of display place/test building for a circular process? Soil, nutrition and water for seeds and plants in the same place.

K: Yes! And the roof can collect rainwater that dilutes the gold water and then it can be used directly for fertilising. The walls can consist of two layers of glass with soil in between so you can see the whole process.



+ jord
planter
frø

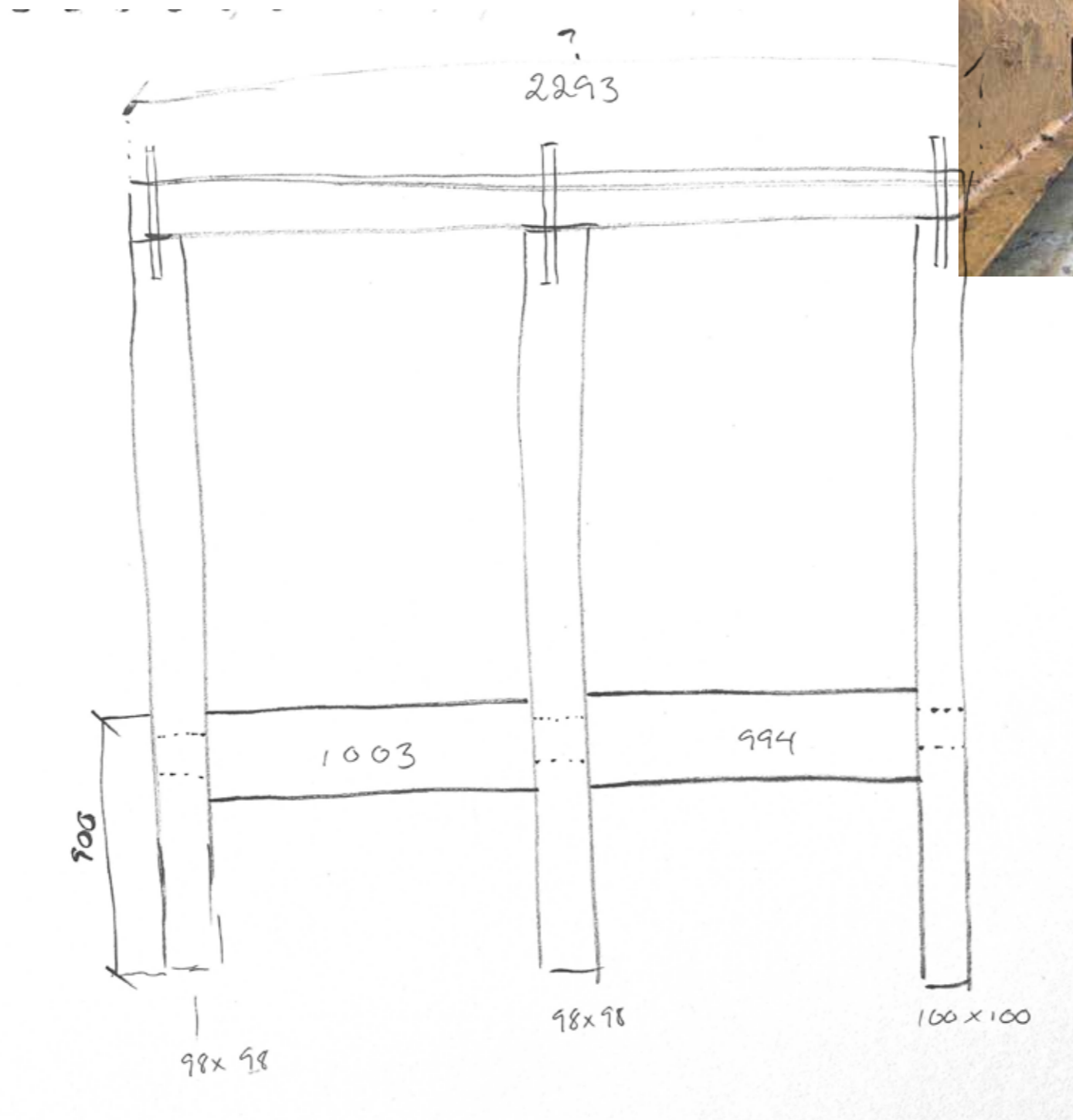
Bosj

Onsdag, 19 Oktober

K+H: Etter å ha testet ulike varianter for ramma så vi at en god løsning var å også bruke 10x10 øverst. Det så proposjonalt riktig ut og det er også lettere å borre hull til dumlinger gjennom og ned i stolpen, som er sammenføyningsmetoden vi allerede har brukt på bjelkene. Heldigvis fant vi to lange 10x10 nede hos Åge.

Wednesday, October 19th

K+H: After testing different variants of the frame, we thought that a good solution was to use 10x10 as the top beam. It looked good and it is easy to drill holes for dowels through the beam and into the column, which is the joining method we have used on the beams. Luckily, we found two long 10x10 at Åge's place.





merighet for dybde gjennom



sett fra belven



lettere å sørge for at stolpeskoene blir på samme høyde når vi kan legge det lange vateret oppi alle 3

sett fra fjellet

Torsdag, 20 Oktober

K+H: I dag ble vi ferdig med to rammer og testet de i stolpeskoene..

Thursday, October 20th

K+H: Today we finished two frames and tested them on site, in the pins..



Lørdag, 22 Oktober

K: I dag testet jeg om det går an å løse problemet med at den bakerste ramme er forskjøvet parallelt med ca 7 cm fra den fremste ramme (parallelogram) Ved å legge tverrbejelker mellom ramme A og B på innsiden midten av søyla på den store ramme mot bekken, ramme A og på langs på siden på bjelken på ramme B mot fjellet vil dette fungere bra virker det som. Det kan også være en fordel fordi



Saturday, October 22dn

K: Today I tested whether it is possible to solve the problem that the back frame is displaced parallel by approx. 7 cm from the front frame (parallelogram) By placing cross beams between frame A and B on the inside of the middle of the column on the large frame towards the stream, frame A and lengthwise on the side of the beam on frame B towards



det da er lettere å justere rett vinkel når bjelken kan treffe hvor som helst på innsiden av stolpen og ikke trenger å treffe akkurat i rett vinkel på siden. Litt usikker på om skruer vil holde på skrått fra bjelken og inn i søylen eller om denne kanskje bør felles inn.

Jeg testet også gulv og takhøyde på den nye ramme ved å legge på provisorisk bølgeblekk og plank i ulik høyde for gulv. Tanken var

the mountain, this will work well it seems. It can also be an advantage because it is then easier to adjust the right angle when the beam can hit anywhere on the inside of the post and does not have to hit exactly at a right angle on the side. A bit unsure whether screws will hold diagonally from the beam into the column or whether this should perhaps be inset.



å heve taket for å få høy nok dør og samtidig takhøyde for høyere person, og heve gulvet for å kunne åpne døra utover over fjellet.

Da taket ble høyere synes jeg den lune og koselige følelsen som skissemodellen hadde forsvant litt og ved å heve gulvet følte jeg meg mye mer på utstilling og eksponert enn i skissemodellen. Det var på en måte noe trygt ved å gjemme seg litt nærmere bakken som forsvant ved å heve gulvet og taket. Når jeg er i rommet føles det ikke som om det gjør noe at taket er lavt siden man uansett vil sette seg ned med en gang.

Videre utforsket jeg om taket eller gulvet kunne ha to høyder for å tilfredsstille ulike høyder på mennesker og også kanskje lage «mer spennende» arkitektur, men det slo meg at det fort kan bli for komplisert og ta for mye tid i forhold til å skulle bli ferdig i tide.

Det er også noe spennende

I also tested the floor and ceiling height of the new frame by placing a temporary roof and planks at different heights for the floor. The idea was to raise the roof to get the door a reasonable height and at the same time raise the ceiling height to better suit a taller person, and to raise the floor to be able to open the door out over the mountain. When the ceiling became higher, I think the cozy feeling that the sketch model had disappeared a little and by raising the floor I felt much more on display and exposed than in the sketch model. There was something safe about hiding a little closer to the ground that was lost by raising the floor and ceiling. When I'm in the room, it doesn't feel like it matters that the ceiling is low, since you go there to sit down.

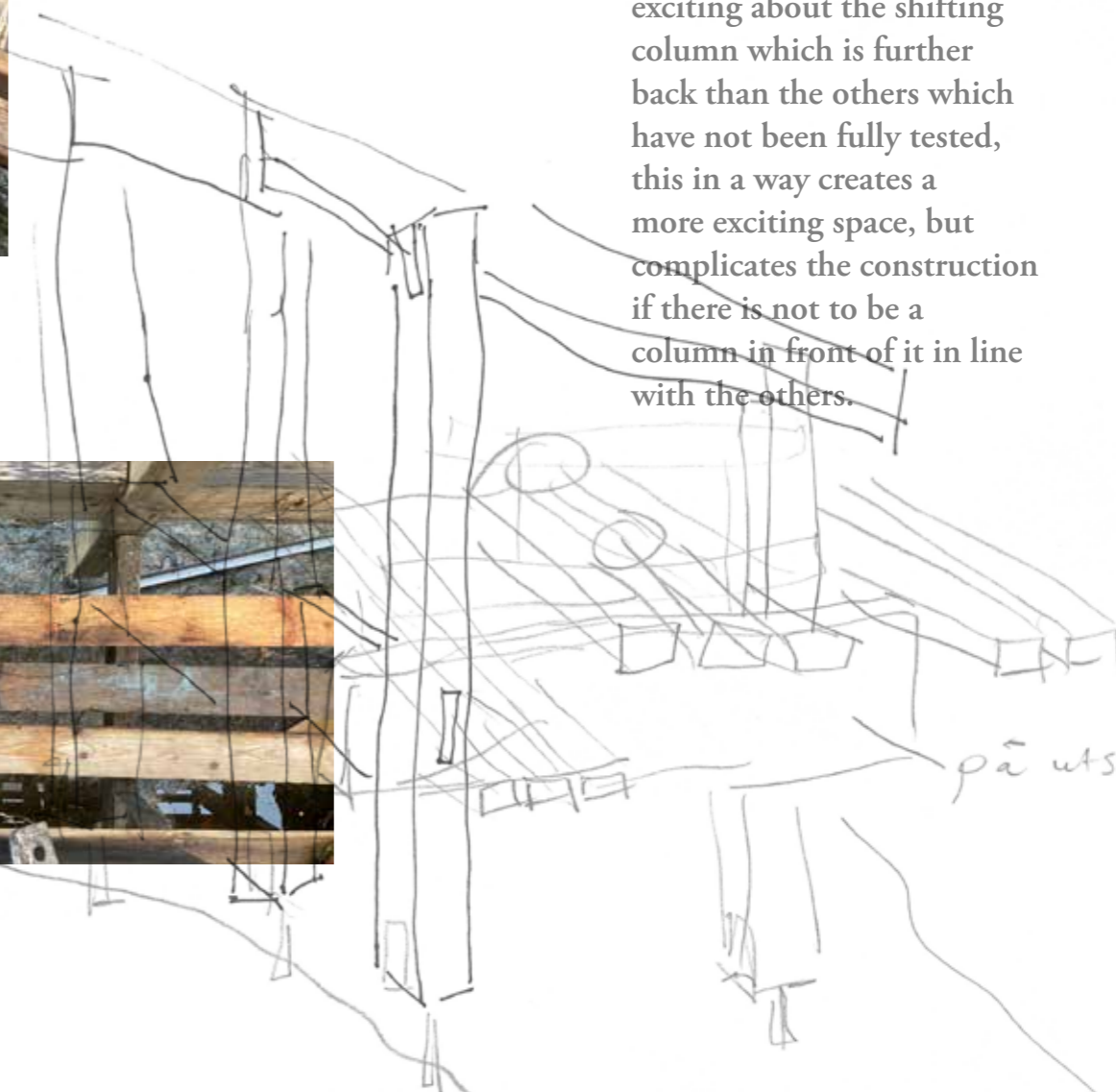
Furthermore, I explored whether the ceiling or the floor could have two heights

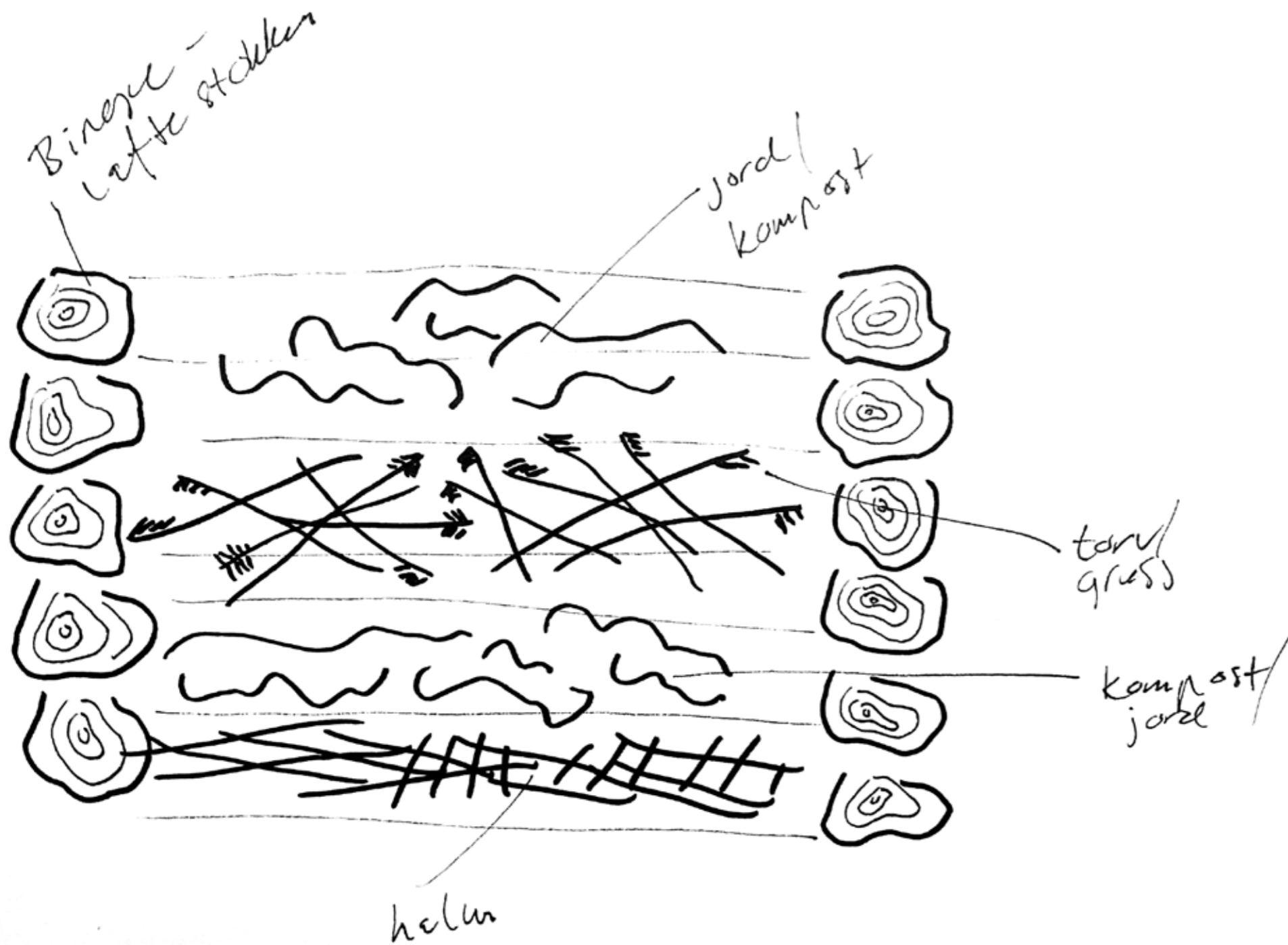


med den forskyvde søylen som må testes ut mer, denne skaper på en måte et mer spennende rom, men kompliserer konstruksjonen om det ikke skal være en søyle foran den på linje med de andre.

to satisfy different heights of people and also perhaps create "more exciting" architecture, but it struck me that it could quickly become too complicated and take too much time to be able to finish on time.

There is also something exciting about the shifting column which is further back than the others which have not been fully tested, this in a way creates a more exciting space, but complicates the construction if there is not to be a column in front of it in line with the others.





Idé til kompostbinge laget av laftestokkene
 Idea for a compost bin made from the logs

Fredag 23. oktober

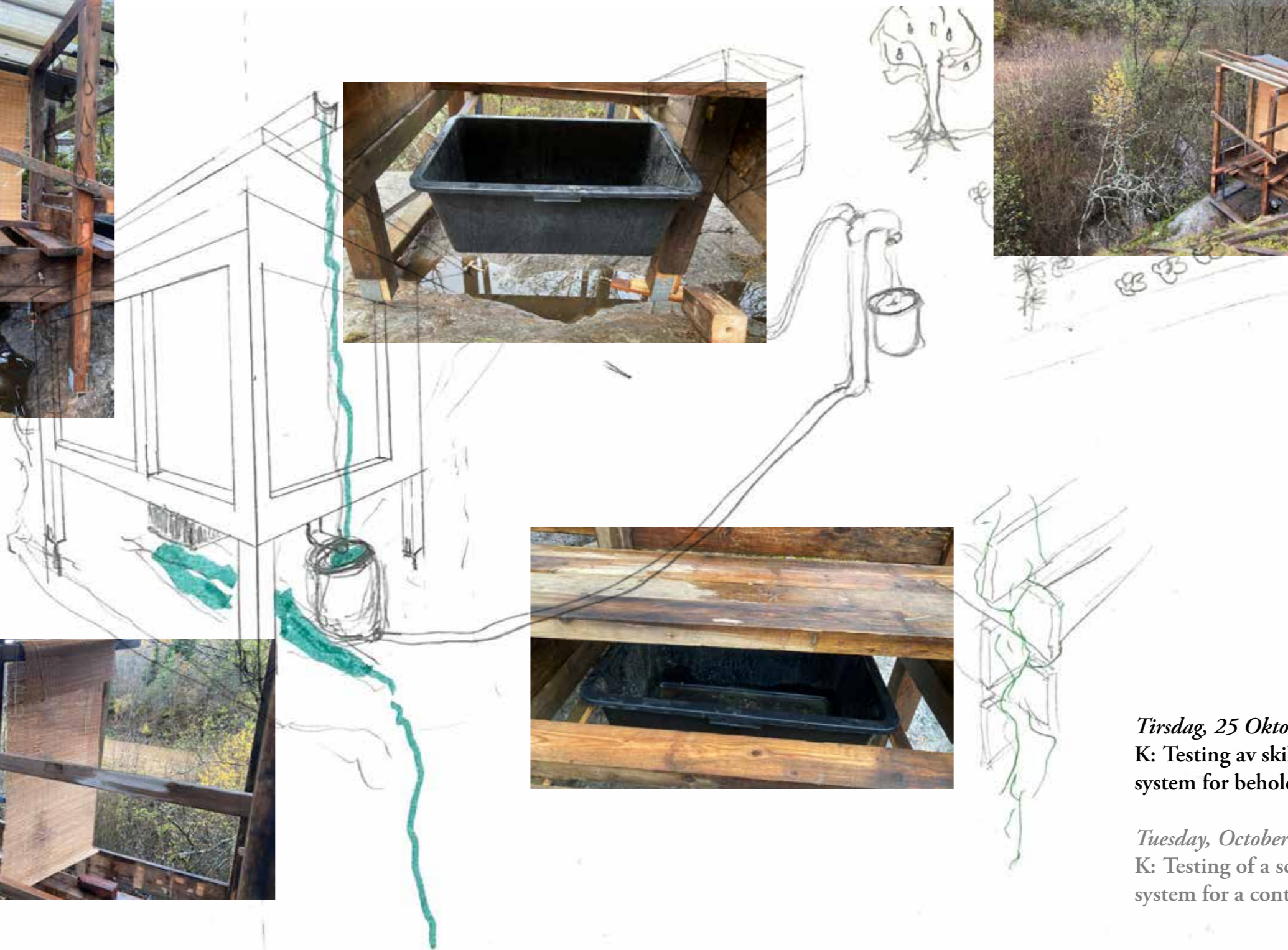
H: Tilbake på hytta, igjen.

Eg bestemte meg for å ta ut ein del masse frå utedoen og tømme innholdet i den nybygde kompostbingen. Delvis fordi det begynte å fylle seg opp og delvis fordi utedoen og kammeret under ikkje er isolert og dermed vil fryse når vinteren kjem og temperaturane synk. Då vil haugen i doen berre bygge seg opp.

Friday October 23rd

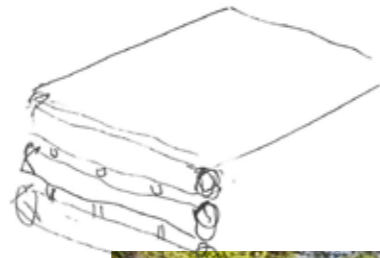
H: Back at the cabin, again.

I decided to dig out some of the contents of the pit in the outhouse and put in the newly built compost-bin. Partly because it was starting to fill up, partly because it's not insulated and will freeze when winter comes so nothing will decompose, the pile will only keep building.



Tirsdag, 25 Oktober
K: Testing av skillevegg og system for beholder.

Tuesday, October 25th
K: Testing of a screen and a system for a container.



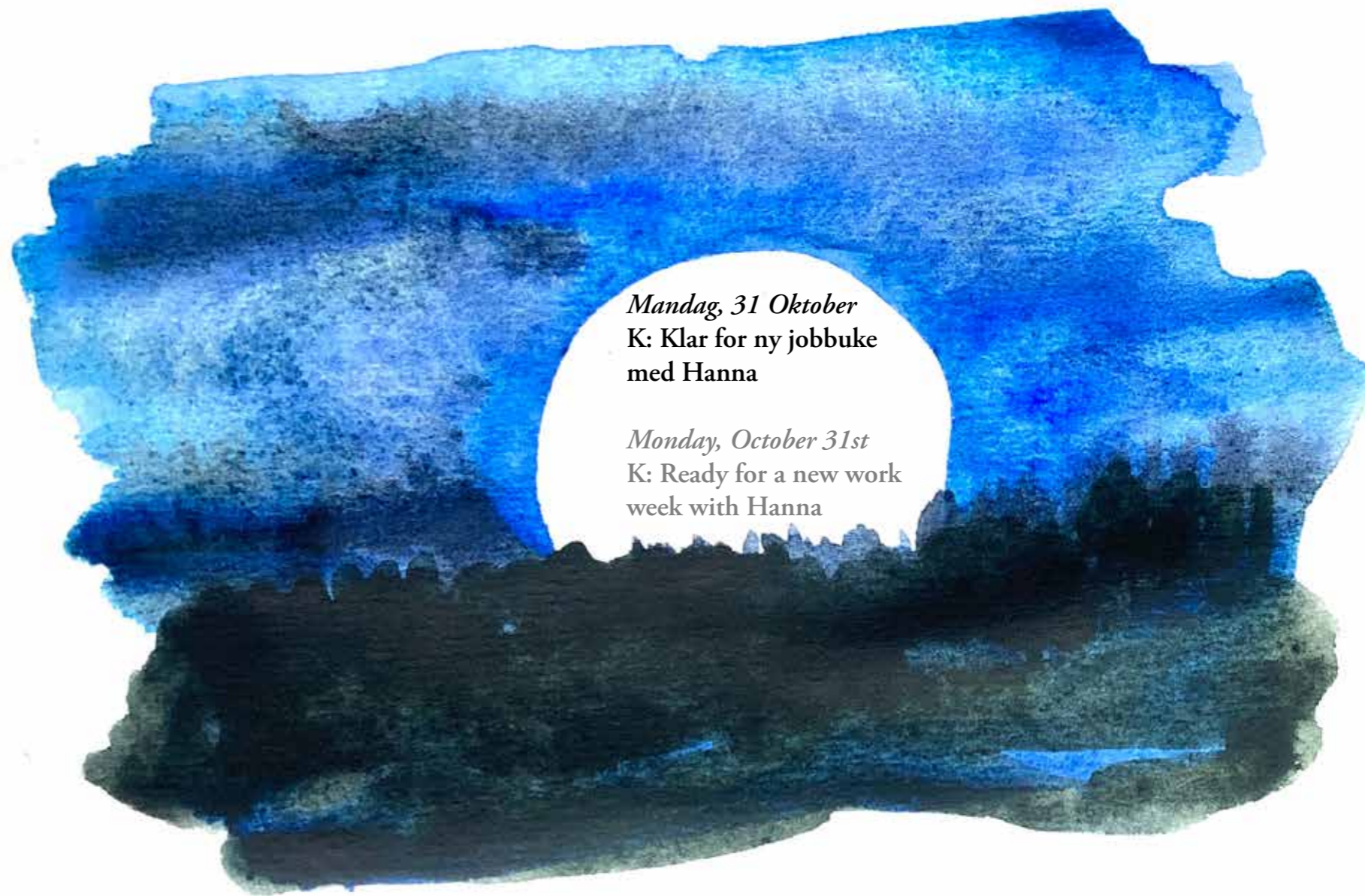
Torsdag, 27 Oktober
K: Materialer, teksturer og vekster på tomten.

Thursday, October 27th
K: Materials and textures and things that grow on the site.

potet
salbaer
rips
roser
erteblomster
humle
ringblomster

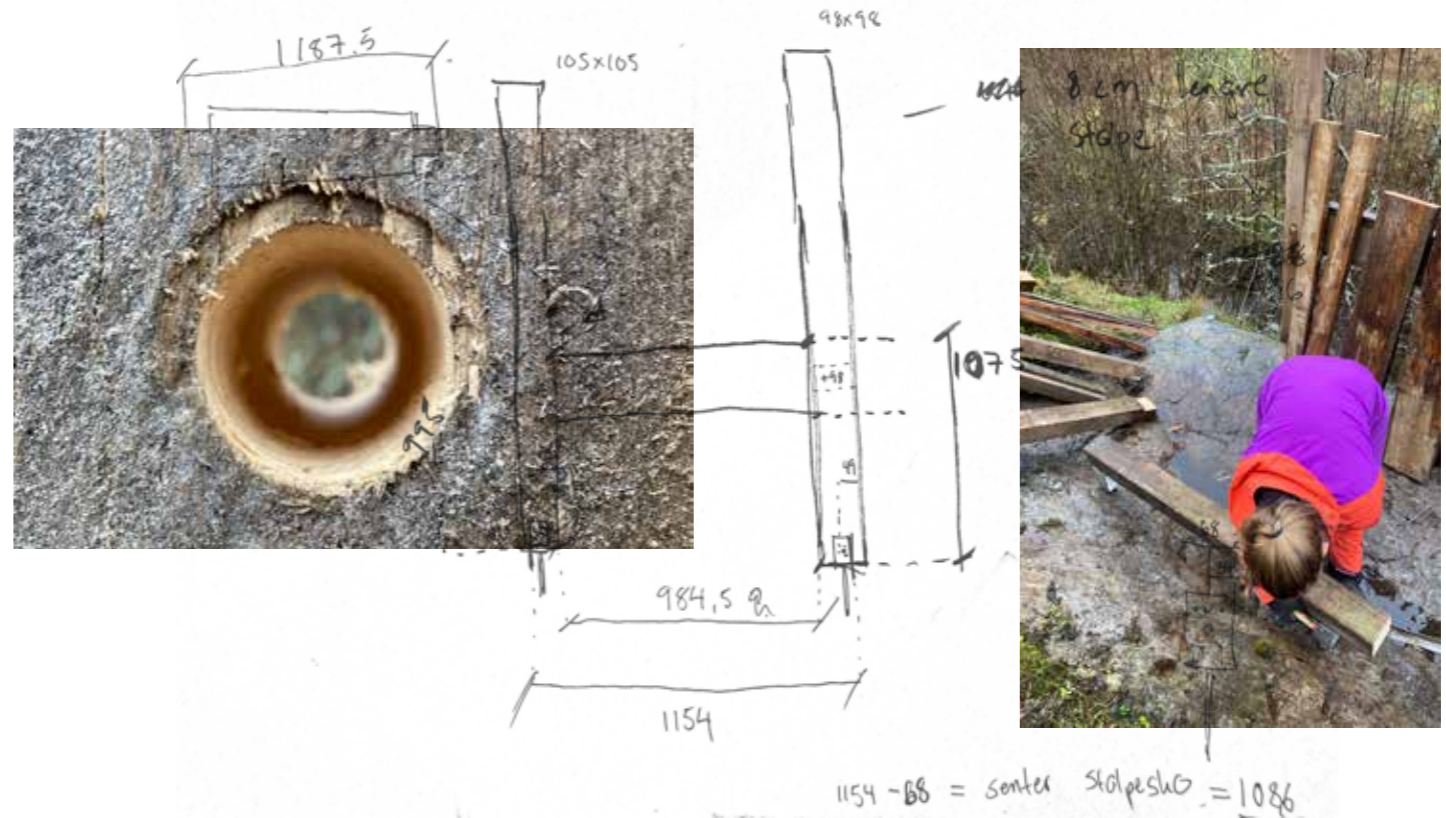


Blåtimen i Havsjødalen
The blue hour at Havsjødalen



Mandag, 31 Oktober
K: Klar for ny jobbuke
med Hanna

Monday, October 31st
K: Ready for a new work
week with Hanna

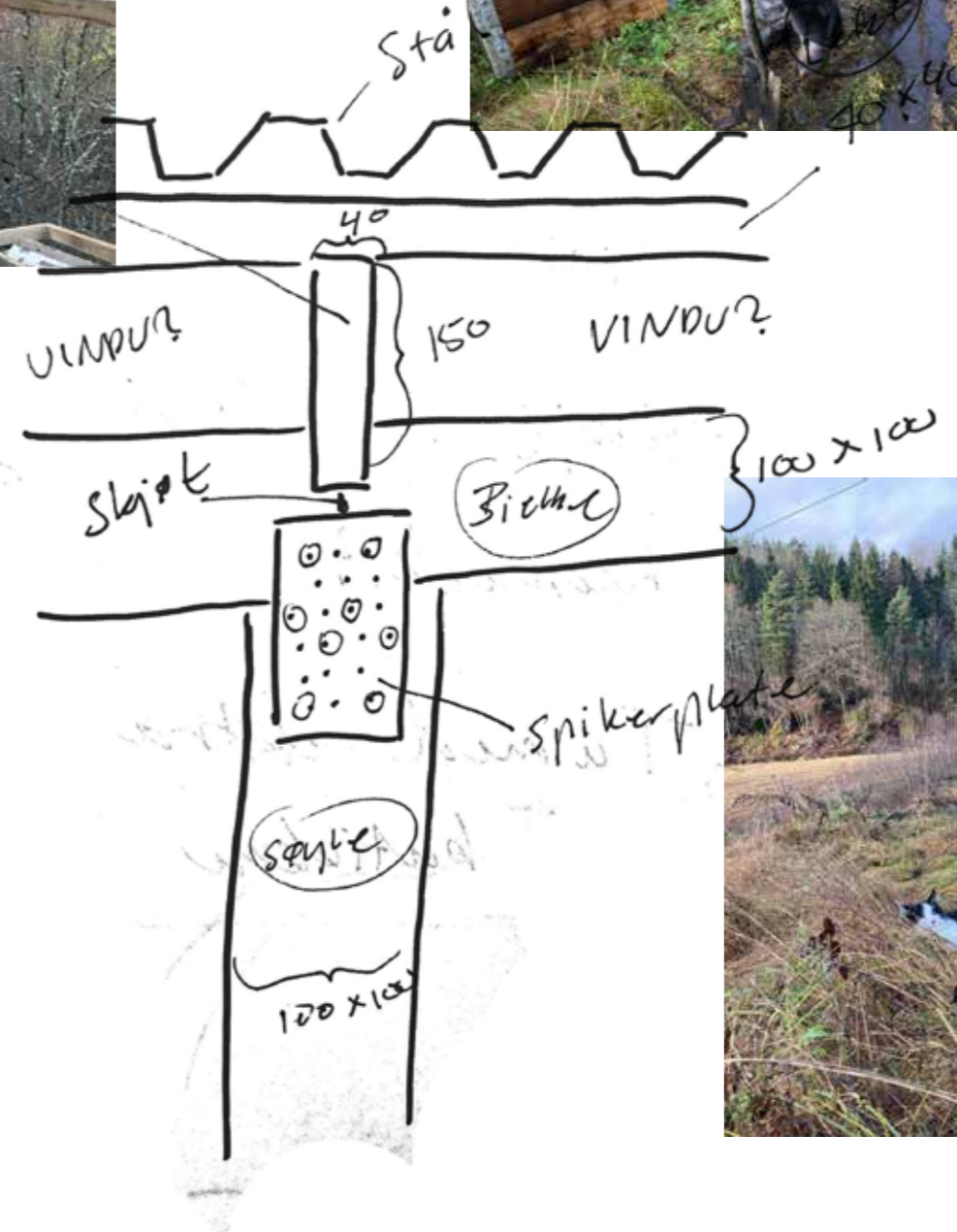


Tirsdag, 1 November

H+K: I dag startet vi å feste alle elementene ordentlig til hverandre. Vi endte opp med å bruke tre vater og fikk omsider søyler ganske rett.

Tuesday, November 1st

H+K: Today we started attaching all the parts. We used three levels to make sure the columns very fairly straight.



Onsdag, 2 November
 H+K: Rensket opp stien.
 Vasket vinduer. Startet på
 taket. Testet kledning.

Wednesday, November 2nd
 H+K: Tried to fix parts of the
 path where water had gathered
 in big pools. Washed windows.
 Started on the roof. Tested
 cladding.



Testing av kledning

1. Hylle(r)

Dopapir, funnede ting etc.

2. Tegl+panel

Bak vask? Ustabil? Tidskrevende?

3. Laft

Konkurrerer med allerede massiv konstruksjon? Mulig tidskrevende.

4. Rullegardin

Bra størrelse. Kaldt. Gennomsiktig.

5. Liggende panel

Raskt. Kjedelig?

6. Glassfiberplate

“Plastikk” uttrykk? Kaldt? Fint lys.

7. Glassbyggerstein/Tegl

For “nytt” uttrykk?

8. Stående panel

Malt? Samme farge som huset? Mangler noen linjer/formater for å stramme opp uttrykk.

Testing of kladding

1. Shelf(s)

Toilet paper, found things etc.

2. Brick+panel

Behind the sink? Unstable? Time consuming?

3. Lafted logs

Competing with already massive construction? Possibly time-consuming.

4. Roller blind

Good size. Cold. Transparent.

5. Horizontal panel

Quickly. Boring?

6. Fiberglass plate

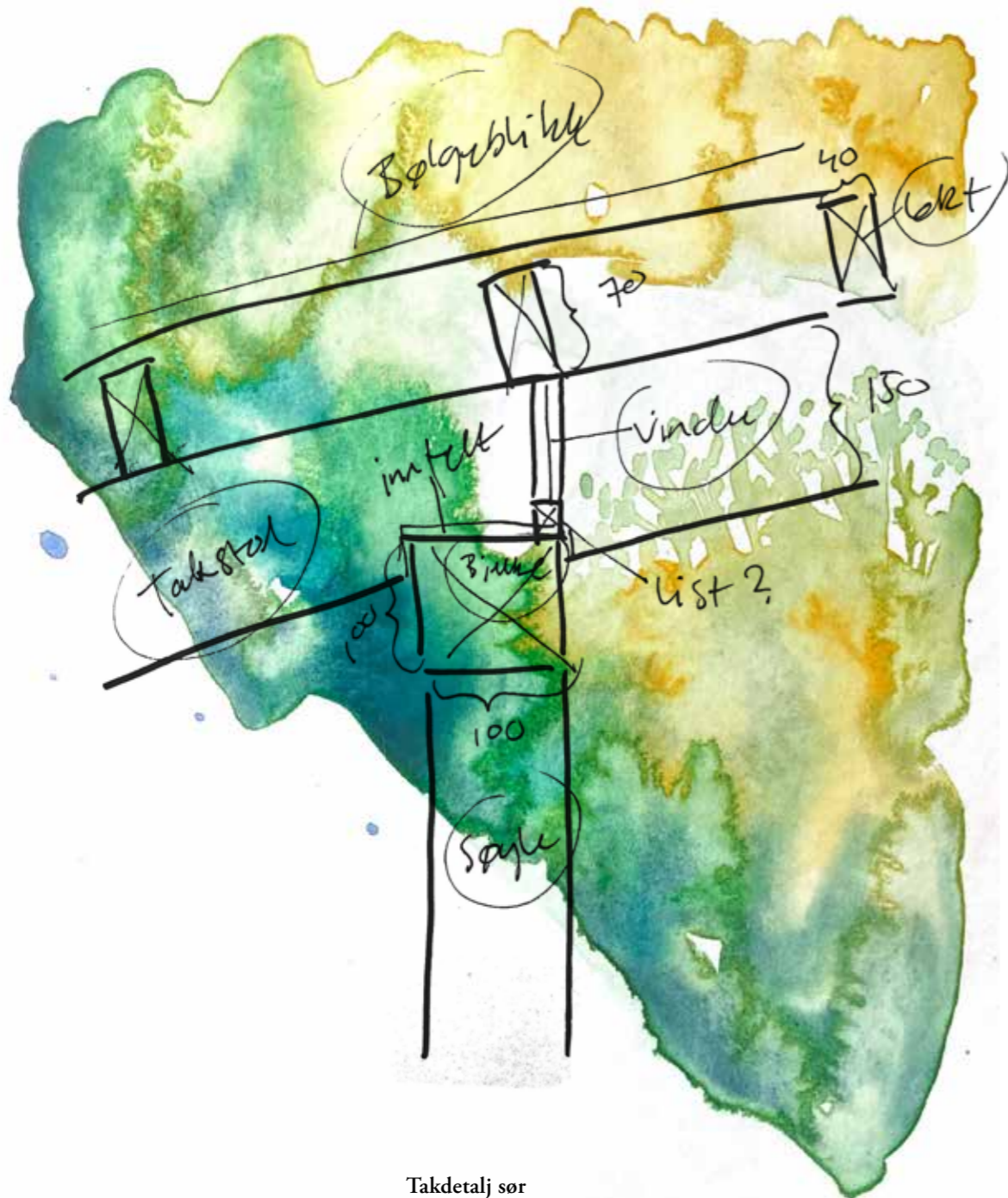
“Plastic” expression? Cold? Nice light.

7. Glass building stone/Brick

Too “new” expression?

8. Standing panel

Painted? Same color as the house? Missing some lines/formats to tighten up expressions.



Takdetalj sør
Roof detail south

Vi bestemte oss for å bruke 150x38 stokkene som taksperrer og felle disse inn i 10x10 bjelkene. Innfelling vil hjelpe med å stive av konstruksjonen på kort-siden og er også en fordel da disse stokkene ikke har sin fulle styrke på grunn av fuktskader. Skruer vil kanskje ikke sitte like godt overalt. Ved å bruke overdimensjonerte materialer får vi også god plass for hyller og eventuelle vinduer opp mot tak-konstruksjonen.

We decided to use the 150x38 logs for the rafters and slot them into the 10x10 beam. The joint between the 10x10 and the 150x38 will help brace the construction in the short direction and will also be an advantage for these logs because they don't have their full strength due to water damage. By using oversized logs, shelves are created and also a possibility for placing windows up towards the roof.



Torsdag, 3 November

H+K: Da vi fikk på plass taksperrene så vi hvor fint det ble når lyset traff treverket gjennom glassfiberplatene som vi hadde på midlertidig for regnet. Selvom det var grått vær ute lagde disse et gult og fint lys også ble på en måte konstruksjonen mer i fokus. Vi bestemte oss for å bruke noen slike på deler av taket.

Thursday, November 3rd

H+K: When we got the rafters in place, we placed some glassfiber sheets on top to protect us from the rain. Even though the weather was gray, these made a nice yellow light and in a way the construction became more in focus. We decided to use some of these on a part of the roof.





Glassfiberplater fra 70-tallet

Glassfiber sheets from the 70's

H: Korleis skal vi snakke og skrive om metoden vi har brukt i dette prosjektet? Er “learning by doing” rett begrep?

Vi har jobba intuitivt og latt ein beslutning påverke den neste og så vidare. Nokre avgjerder har begrensa prosjektet, andre har gitt oss fleire mulegheiter enn vi har hatt tid til å utforske. Avgjerder er tekne med bakgrunn i opparbeida kunnskap om tomta, grunnforhold, utedoteknologi og tilgang til materialar.

H: How do we write and talk about the method we’ve applied to this project? And what should we call it? Is “learning by doing” the correct term?

We’ve let one decision have an impact on the next and continued in that way. This means that some decisions have limited our project, and some have given us more possibilities than we have been able to explore. Decisions have been made based on knowledge of the site, research on ground conditions and outhouse-technology, and access to materials.





Lørdag, 5 November

H+K: I dag fortsatte vi på taket og bestemte oss for å bruke de lange rillede bølgeblikkplatene på resten. (Istedenfor takstein pga tid). Disse har tydelige og store riller som “snakker” med dimensjonene i konstruksjonen, dessuten er de massive og uten så mye bulker.

Saturday, November 5th

H+K: Today we continued on the roof and decided to use the long corrugated sheets on the rest. (Instead of roof tiles, because of the time left) These have clear and large grooves that suit the dimensions of the construction better, and they are also massive and quite well kept.







H: How have the things we've learnt at AHO impacted us? How does it manifest in this project?

How do our personalities impact the project?

What kind of architecture do I want to make? What kind of architect do I want to be?

To me it will be important to let my personality, my values, my ethics, my beliefs, have an impact on the architecture I produce. A built project will have an impact on many things, living or "dead", and how many of them am I willing and able to consider the consequences for..

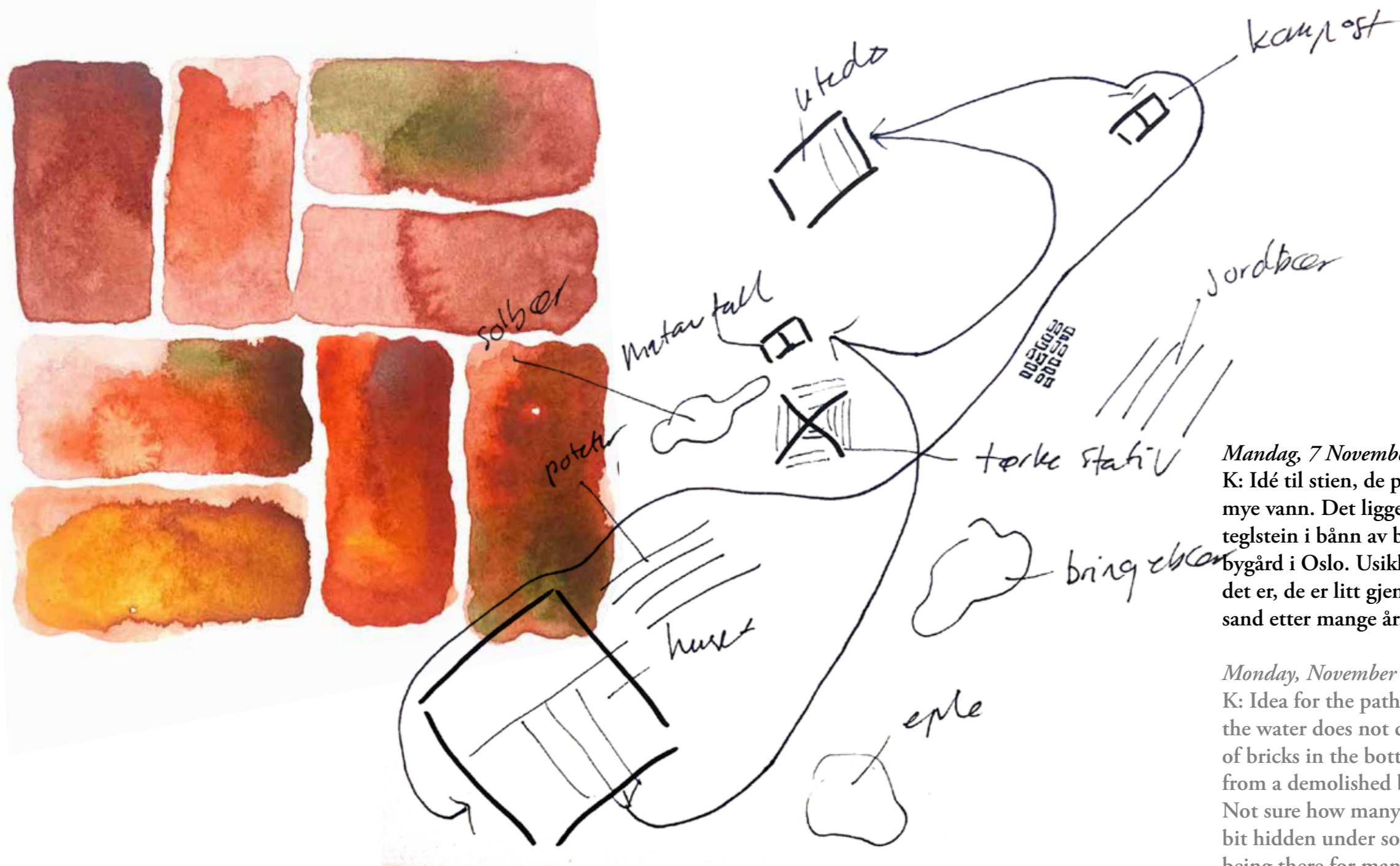
H: How have the things we've learnt at AHO impacted us? How does it manifest in this project?

How do our personalities impact the project?

What kind of architecture do I want to make? What kind of architect do I want to be?

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Mandag, 7 November

K: Idé til stien, de plassene det er mye vann. Det ligger en haug med teglstein i bunn av bakken fra en revet bygård i Oslo. Usikker på hvor mye det er, de er litt gjemt under jord og sand etter mange år.

Monday, November 7th

K: Idea for the path, the places where the water does not dry. There is a pile of bricks in the bottom of the road, from a demolished building in Oslo. Not sure how many, because it's a bit hidden under soil and sand after being there for many years.



Tirsdag, 8 November

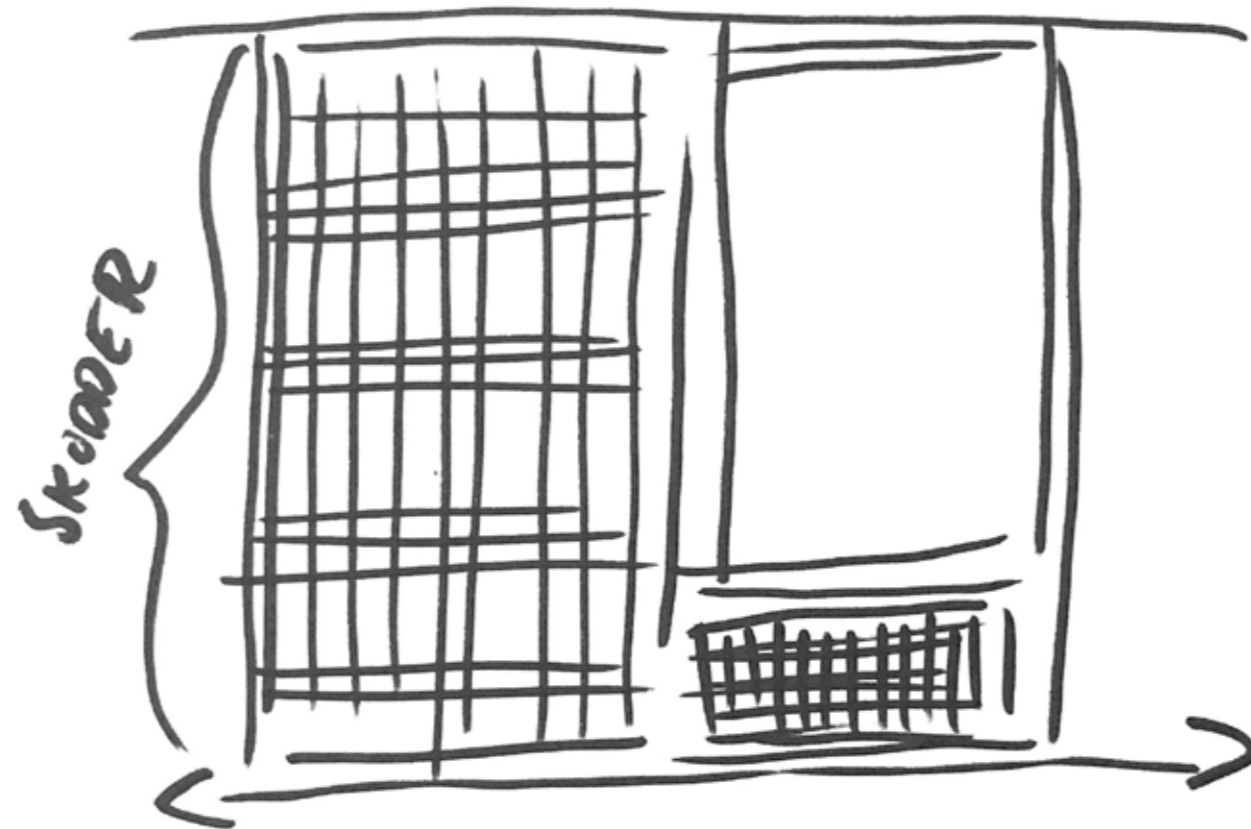
K: Siden vinduene ikke hadde rammer bestemte vi oss for at de ikke skal kunne åpnes, og heller lage luker for å åpne andre steder. Vi brukte 98x48 som vinduet skal stå på med en list. Denne høvlet vi litt ned på den ene siden slik at vann skal renne av, samt lagde spor på undersiden med fres.

Tuesday, November 8th

K: Since the windows had no frames, we went for a solution where they can't open. Because of this we've made hatches that open above them. We placed a 98x48 beam underneath the window. We planed this little on one side so that water will run off, and made grooves on the underside with a milling cutter.



FURNIATUR / LAG



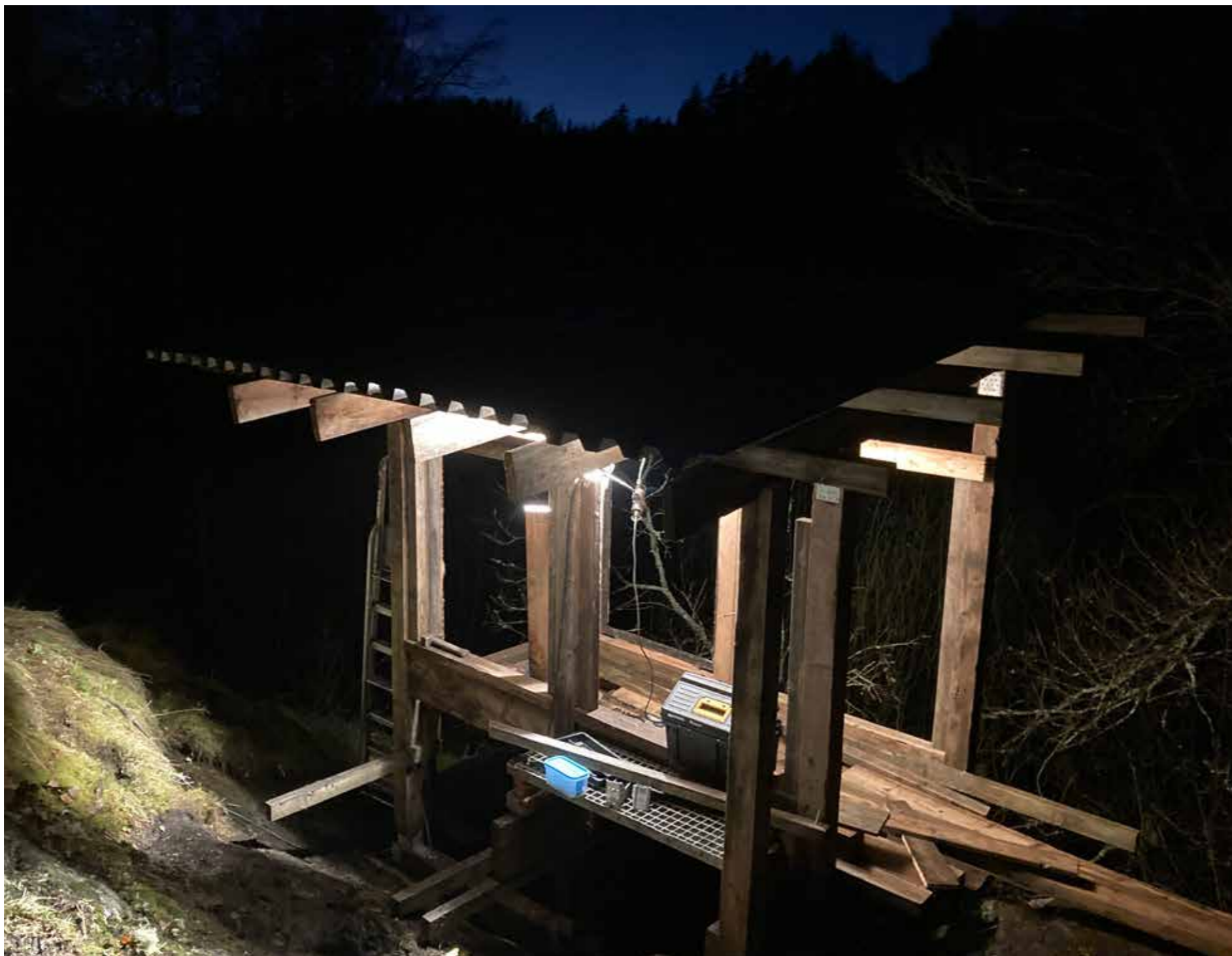
VINDUS INNSATS

Onsdag, 9 November

K: For å ha mulighet til å skjerme for vinduene fra huset, samt vegen lagde jeg i dag spor over og under vinduene hvor en ramme/skjerm skal kunne skyves frem og tilbake etter behov.

Wednesday, November 9th

K: I made tracks for a slidable screen or frame in front of the windows to block views from the house and the road.



Torsdag, 10 November

K: I dag jobbet jeg med resten av vindusinnsetsen og hvordan den øvre karmen blir som en gjennomgående linje og hylle i bygget. Som igjen legger føringer for kledning og oppdeling av flater.

Thursday, November 10th

K: Today I worked on the rest of the window insert and how the upper frame becomes a continuous line and shelf in the building. Which in turn functions as guidelines for cladding and dividing surfaces.

Torsdag, 10 November

H: Å vera komfortabel i det “ukomfortable”. På hytta, er det berre elektrisitet, ikkje innlagt vatn. Mange vil nok meine at daglige ritual er meir ukomfortable der enn i eit vanleg hus. Eg kan seie meg einig, til ei viss grad. Når temperaturen synk er turane til utedoen litt meir ubehagelige enn dei var i august.

Thursday, November 10th

H: Being comfortable in the “uncomfortable”. At the cabin, where electricity is the only modern amenity, many would argue that quite a few daily rituals are more uncomfortable than in a modern house or apartment. I can agree to some extent, that the visits to the outhouse, as temperatures are dropping, are a bit more uncomfortable than they were in August.



MEN eg får ei kjensle av korleis været og temperature er ute, og det å gå inn igjen i ei varm hytte kjennest berre bra. Eg har ikkje tal på kor mange gonger eg har blitt lurt av temperaturen inne i leilegheita eg budde i tidlegare. Det nyttar ikkje å berre stikka handa ut vindaugget for å vurdere temperaturen ute.

BUT I get a good idea of the weather and temperature outside, and the feeling of walking back into the warm cabin is nothing but comfortable. I can't say how many times I've been fooled by the temperature inside the apartment I used to live in when going outside. Too often being underdressed because just sticking your hand outside the window doesn't really help determine how the rest of the body will feel.





person)

250 g per person
1-1,5 liter urin
1 liter strø

20 liter bottle
fin
v: h·b·l

kompostbenge
1x1x1,2 m
1,2 m³ = 1200 liter

Mandag, 14 November

H+K: I dag hentet vi og testet en elefantrist. Planen var egentlig å ha 48x98 stokker som gulv som skulle strekke seg ut av bygget og treffe fjellet for å unngå å tråkke ned mellom bygget og fjellet. Vi så også for oss at dette ville bli en fin overgang mellom inne og ute.

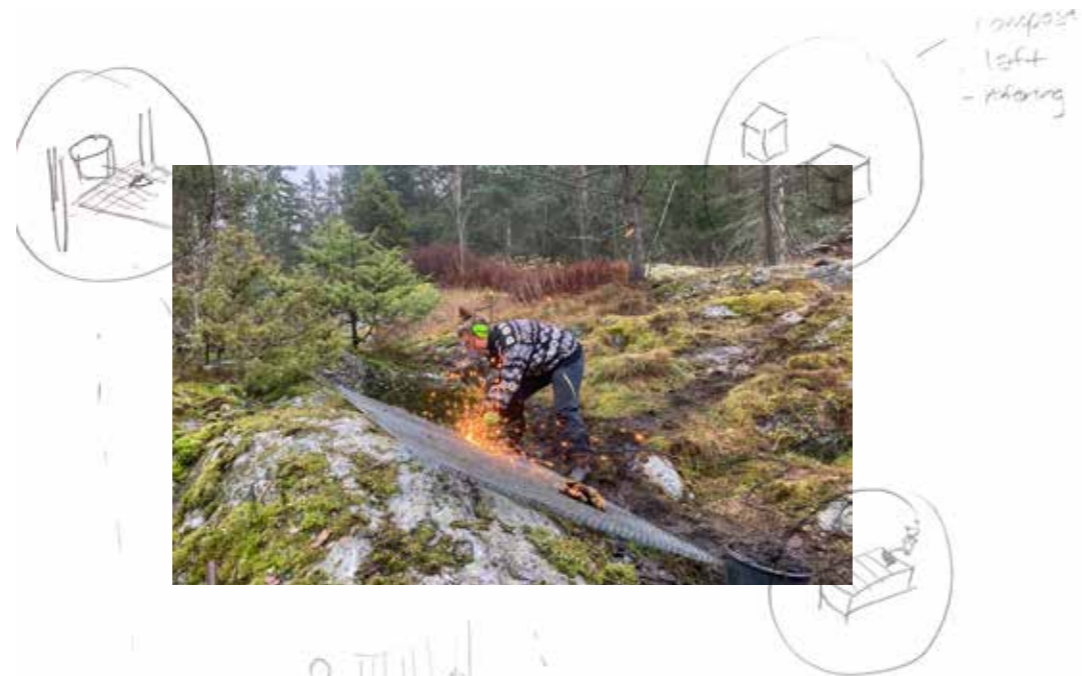
Monday, November 14th
H+K: Today we found and tested a metal grate. The plan was to use 48x98 logs for the floor that would extend out of the building and hit the rock to avoid a gap between the building and the rock. We imagined this would be a nice transition between inside and outside.

80 år
29 200 dager
700-800 timer
438 000 min
7300 timer = 300

804 - vindning
805 - vindu
806 - +24
807 - sti

0,365 m³
365 liter per år
91 kg per år
1,750 kg per uke
638,75 kg per år
36





Ettersom vi har gått mye frem og tilbake på gulvet har det blitt helt mettet med jord og søle, som jo også vil bli et problem for videre bruk av utedoen. I stedet for å la gulvbordene strekke seg ut av bygget bestemte vi oss for å erstatte halve gulvflaten med risten. Slik får man en god flate å tørke seg på før man kommer inn til tregulvet, og det er også en fordel at snø og vann renner igjennom risten, spesielt siden den strekker seg litt utenfor taket og treffer fjellet.



As we have walked a lot back and forth on the muddy trail the floor inside the outhouse has become completely saturated with soil and mud, which will also be a problem in the future. Instead of letting the floorboards extend out of the building, we decided to replace half the floor area with the metal grate. The grated floor extends a little beyond the roof and hits the rock, this way we get a large surface where water and dirt can be scraped off the shoes and fall down in to the pond below, before reaching the wooden floor.



Tirsdag, 15 November

H+K: Da risten var på plass falt det seg naturlig å senke tregulvet istedenfor å ha to nivåer på benken som vi hadde planlagt. På denne måten fikk vi tilbake følelsen av et langstrakt rom som vi likte med gulvet som strakk seg ut av bygget. Og samtidig kunne se ned på fjellet under når man sitter på do.

Tuesday, November 15th

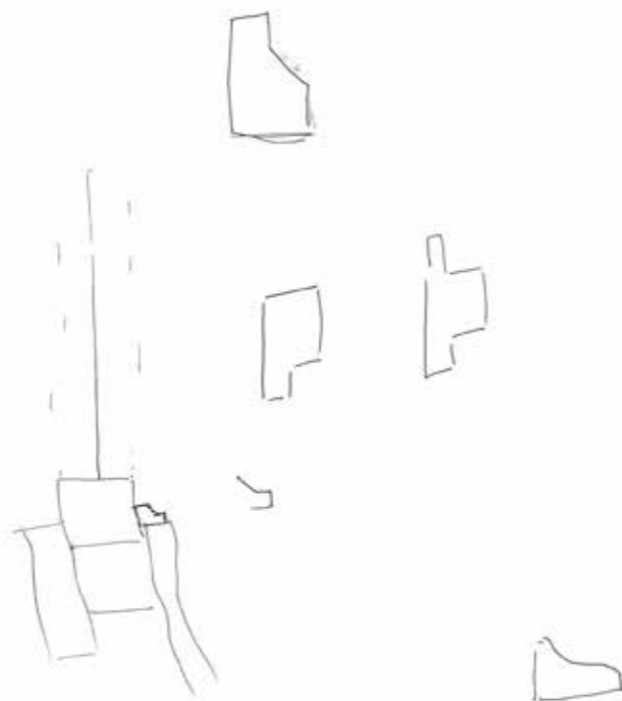
H+K: When the grating was in place, it was natural to lower the wooden floor instead of having two levels on the bench as we had planned. This way we got back the feeling of a longer room which we liked, with the floor still extending out of the building. At the same time being able to look down on the rock below when sitting down.

Flandern & Nederland
- samme jordforhold som i Japan

43-44 - vannlosettet m/ vannlås

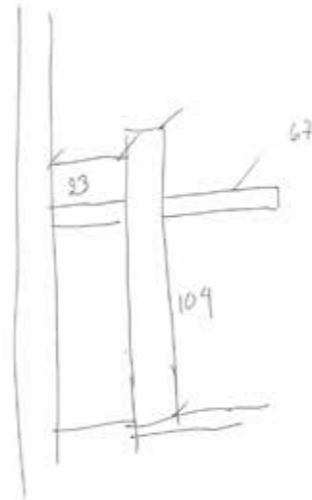
RHINO
Materialliste

PLAN



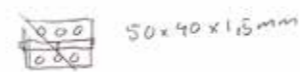


Rektverk stolpe 174cm (10x10)



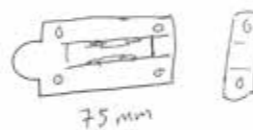
Gittergrid 3,5 x 35 cm
H: 2,5 cm
Stag diameter: 0,5 cm

Hengstler



Tau 5mm

Lås



Lage sløyvetorer

Skover



Bøtler



Kroker/øyer

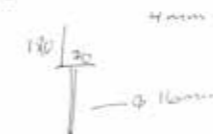
Krokk: 4,85 x 70 mm



Øye: 4 x 10 mm

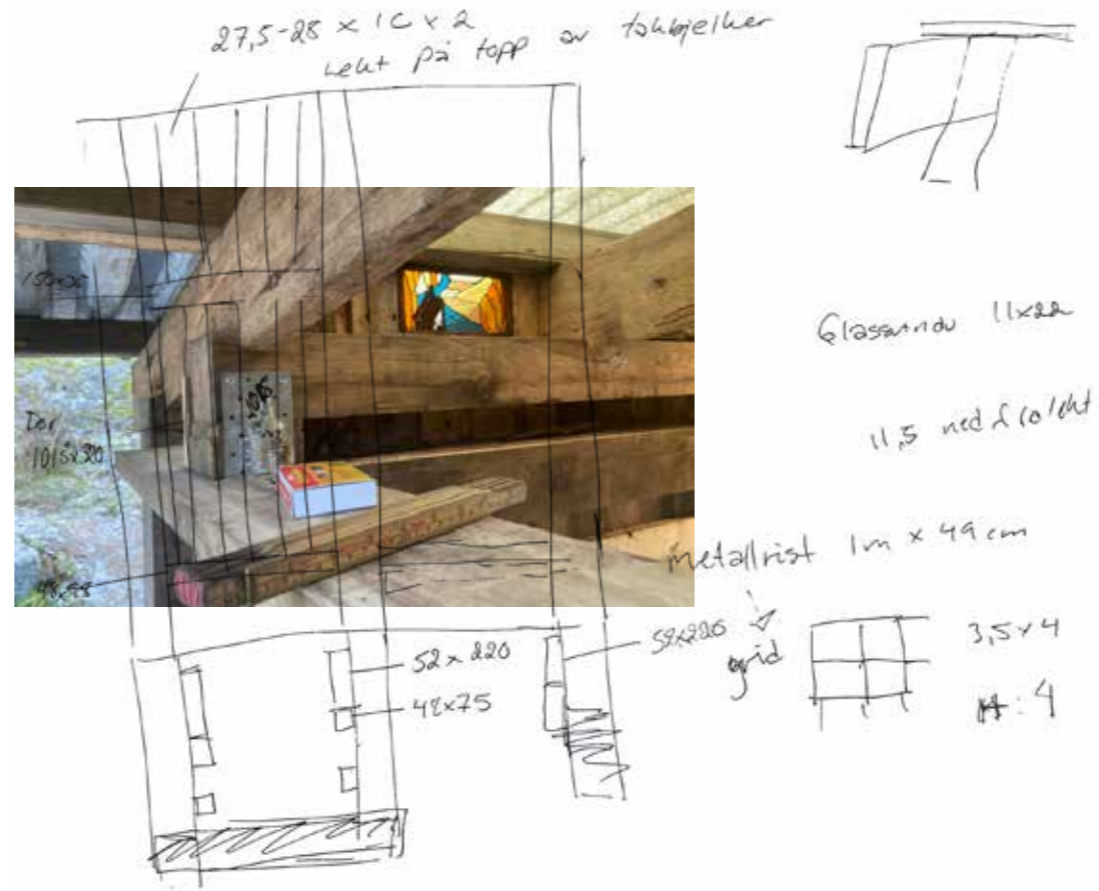


støpesko L

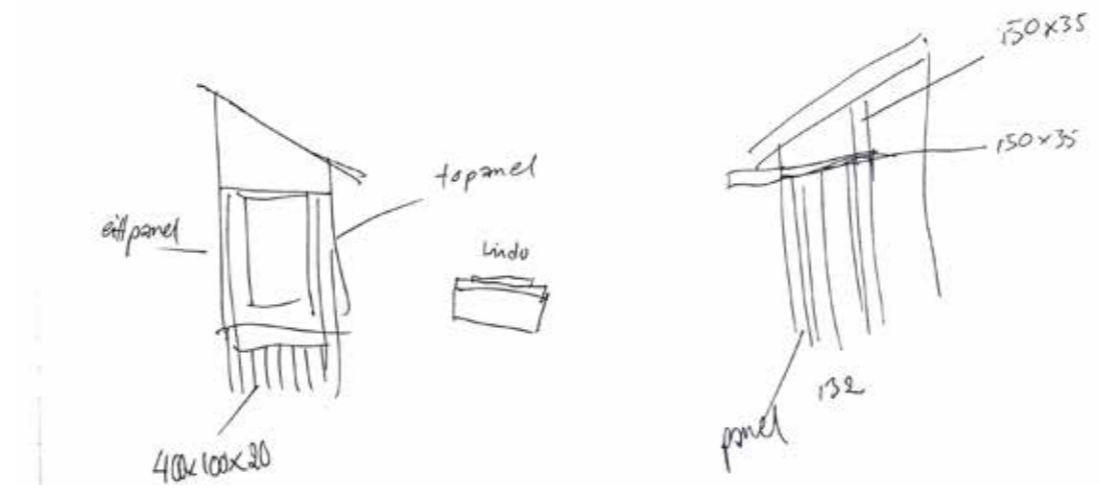


Torsdag, 17 November
H+K: Satt inn vinduene.
Samt lister, kledning og
benk.

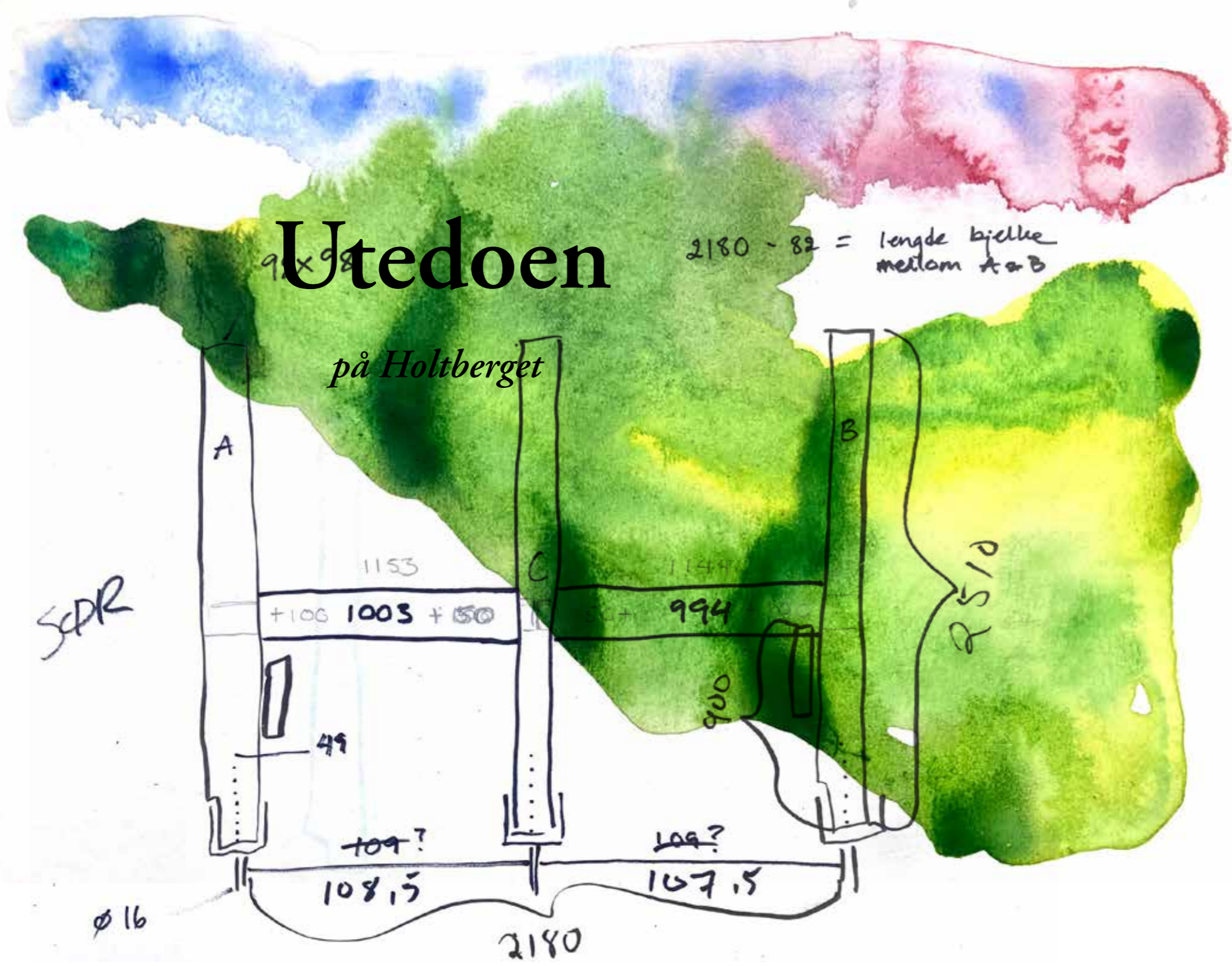
Thursday, November 17th
H+K: Inserted windows,
mouldings, cladding and cut
the bench.



Fredag, 18 November
 H+K: Lagde luker. Panel på resten av veggene. Fant en tønne hos Åge som vi ville bruke som bålpanne. Delte den i to med vinkelsliper. Satt inn glassmaleriet fra Wenkai. Lagde karm og rekkverk. Satt på vindskier.



Friday, November 18th
 H+K: Made hatches. Panel on the rest of the walls. Cut up a barrel to use for a bonfire for the opening tomorrow. Inserted the stained glass from Wenkai. Made frames and railings. Attached panels on the front end of the roof to protect the roof beams.



Utedoen

på Holtberget

Velkommen til åpning
av utedoen på Holtberget,
Lørdag 19 November, kl 14,
på verdens do-dag!

Det vil bli gløgg (med og uten
alkohol), suppe og bål.
Addressen er Sandrettveien 26,
1455 Nordre Frogn.
(parker langs jorden, ta på
støvler og varme klær)

(Utedoen er Hanna og Kine sitt
diplomprosjekt på AHO)

Welcome to the opening
of the utedo at Holtberget,
Saturday 19th of November,
at 2 p.m., on world toilet day!

There will be mulled wine
(with and without alcohol),
soup and a bonfire.
The address is Sandrettveien 26,
1455 Nordre Frogn.
(park along the field, wear
boots and warm clothes)

(Utedoen is Hanna and Kine's
diploma project at AHO)

Søndag, 20 November

K: I går hadde vi åpning av utedoen, veldig stas å vise frem og folk virket fornøyde!

Vi bestemte oss tidlig for at 19 november skulle være dato for ferdig bygg som er verdens do-dag. Dagen står på FN's liste over internasjonale dager og uker og har vært det siden 2013. Dagen er underlagt bærekraftsmål nr. 6 som er "Rent vann og sanitær". "Det skal særlig legges vekt på behovene til jenter og kvinner, som ofte opplever ekstra utfordringer knyttet til toalettbesøk. Mange jenter dropper ut av skolen når de får menstruasjon på grunn av mangel på toaletter på skolen. I tillegg blir mange ofre for voldtekt og mishandling fordi de må gå på toalettet utendørs."

Sunday, November 20th

H: We hosted an opening of the outhouse yesterday on World toilet day. Quite a few people came which was great! It was fun showing our work to friends and family. They seemed to like it, but would they say if they didn't...?

We set the date of November 19th as a goal for a finished outhouse when we learned of World toilet day earlier this year. The day is on the UN list of international days and weeks and has been since 2013. The day is subject to sustainability goal nr. 6 which is "Clean water and sanitation". They write that billions of people still lack access to these basic services and that more than 650 million people still practice open defecation.



Mandag, 12 Desember

K: Teknologien i utedoen er per dags dato er enkelt og greit en bøtte som må tømmes. Tanken er å kanskje justere designet/teknologien etter å ha brukt den en stund. Det er god plass under den for eventuelle justeringer i fremtiden, men når det er sagt så er jeg allerede overraskende positiv til det enkle bøttesystemet. Bøtta er 20 liter, liten nok til å enkelt ta med seg på veien og stor nok til at den ikke blir full hver uke. Etter å ha satt meg inn i kompostverden så har dette med å omgjøre avfall til nødvendig næring til jorda blitt en slags ny interesse og hobby, og det å pusle med organisering av kompostbinger har blitt en rutine jeg gleder meg til i hverdagen. Med bøtta går det raskt å teste hvordan ulike strøingredienser virker på komposten; være seg lukt, konsistens, hvor fort komposten brenner (blir til jord) og jeg har også mulighet for å sikre innholdet bedre hvis jeg for eksempel er syk i en periode og må gå på antibiotika, så kan jeg sortere ut bøtta med avfall fra denne perioden til en annen kompost som kan stå å hvile lenger, for eksempel.

Funfact: En flaske med økologisk flytende gjødsel på 3 desiliter (som jeg pleier å bruke til plantene) koster 350 kr på Hageland.



Monday, December 12th

K: The technology in the utedo, as of today, is simply a bucket that needs to be emptied. The idea is to perhaps adjust the design/technology after using it for a while. There is plenty of room under the building for adjustments in the future, but having said that, I am already feeling surprisingly positive about the simple bucket system. The bucket is 20 litres, small enough to easily take with me on the way and large enough so that it doesn't get full every week. After introducing myself to the world of composting, turning waste into necessary nourishment for the soil has become a kind of new interest and hobby, and spending some time with the organization of compost bins has become a routine I look forward to in everyday life. With the bucket, I can quickly test how different bedding ingredients work on the compost; smell, consistency, how quickly the compost burns (turns to soil) and I also have the option of sorting the contents different, if, for example, I am ill for a period and have to take antibiotics, then I can sort out the bucket of waste from this the period to another compost that can be left to rest for longer time, for example.

Funfact: A bottle of organic liquid fertilizer of 3 deciliters (which I usually use for the plants) costs 350,- kr at Hageland.

Linker til videoer

Prosess:

<https://youtu.be/TJujlMSE-LQ>

Timelapse fra soveromsvinduet:

<https://youtu.be/hEM23YOYGRo>

Fra kjøkkenvinduet:

<https://youtu.be/InRP3MdtUhM>

Ferdig bygg:

<https://youtu.be/hZvq-BO06xI>

Pollebakken gjennom året:

<https://youtu.be/1m-OegtV330>

Timelapse fra treet:

<https://youtu.be/xxgFNPGc-6U>

Stien:

<https://youtu.be/3kEfjZXgqJs>

Drone:

<https://youtu.be/JXsYZbimnWQ>

Ekstra:

<https://youtu.be/GhTa2qSN28Q>

Links to videos

Process:

<https://youtu.be/TJujlMSE-LQ>

Timelapse from the bedroom window:

<https://youtu.be/hEM23YOYGro>

From the kitchen window:

<https://youtu.be/InRP3MdtUhM>

Finished build:

<https://youtu.be/hZvq-BO06xI>

Pollebakken throughout the year:

<https://youtu.be/1m-OegtV330>

Timelapse from the tree:

<https://youtu.be/xxgFNPGc-6U>

The path:

<https://youtu.be/3kEfjZXgqJs>

Drones:

<https://youtu.be/JXsYZbimnWQ>

Extra:

<https://youtu.be/GhTa2qSN28Q>