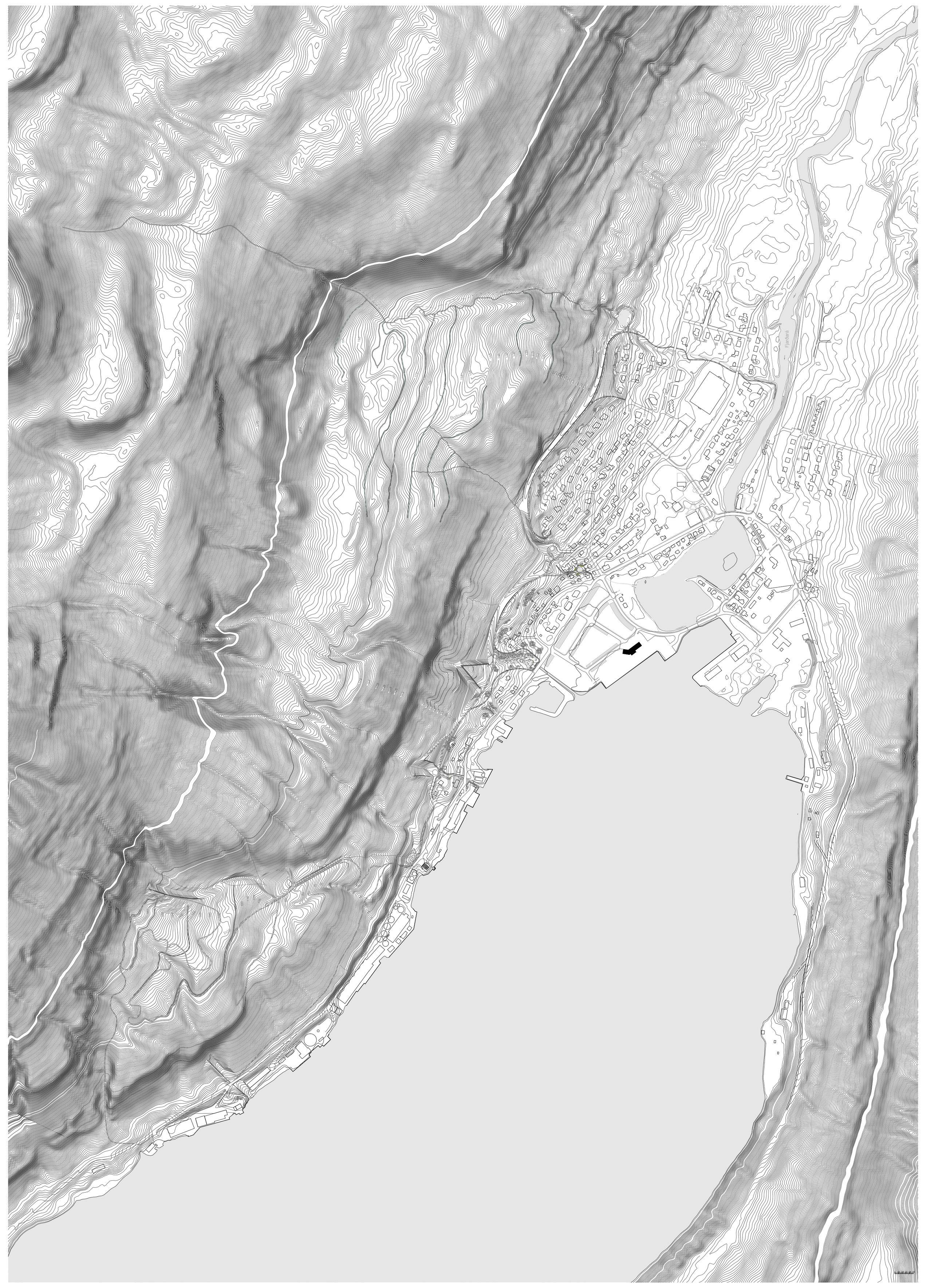
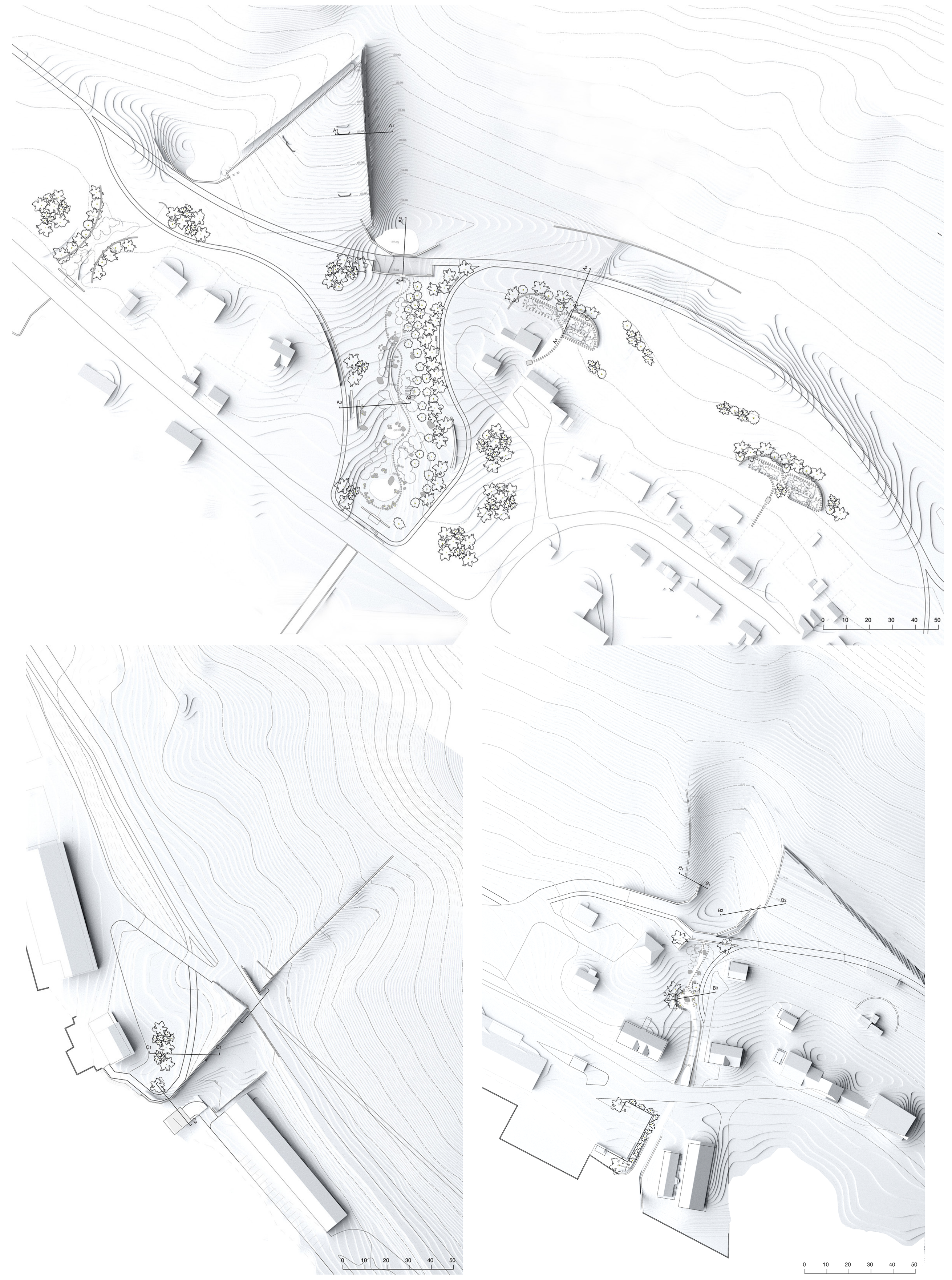
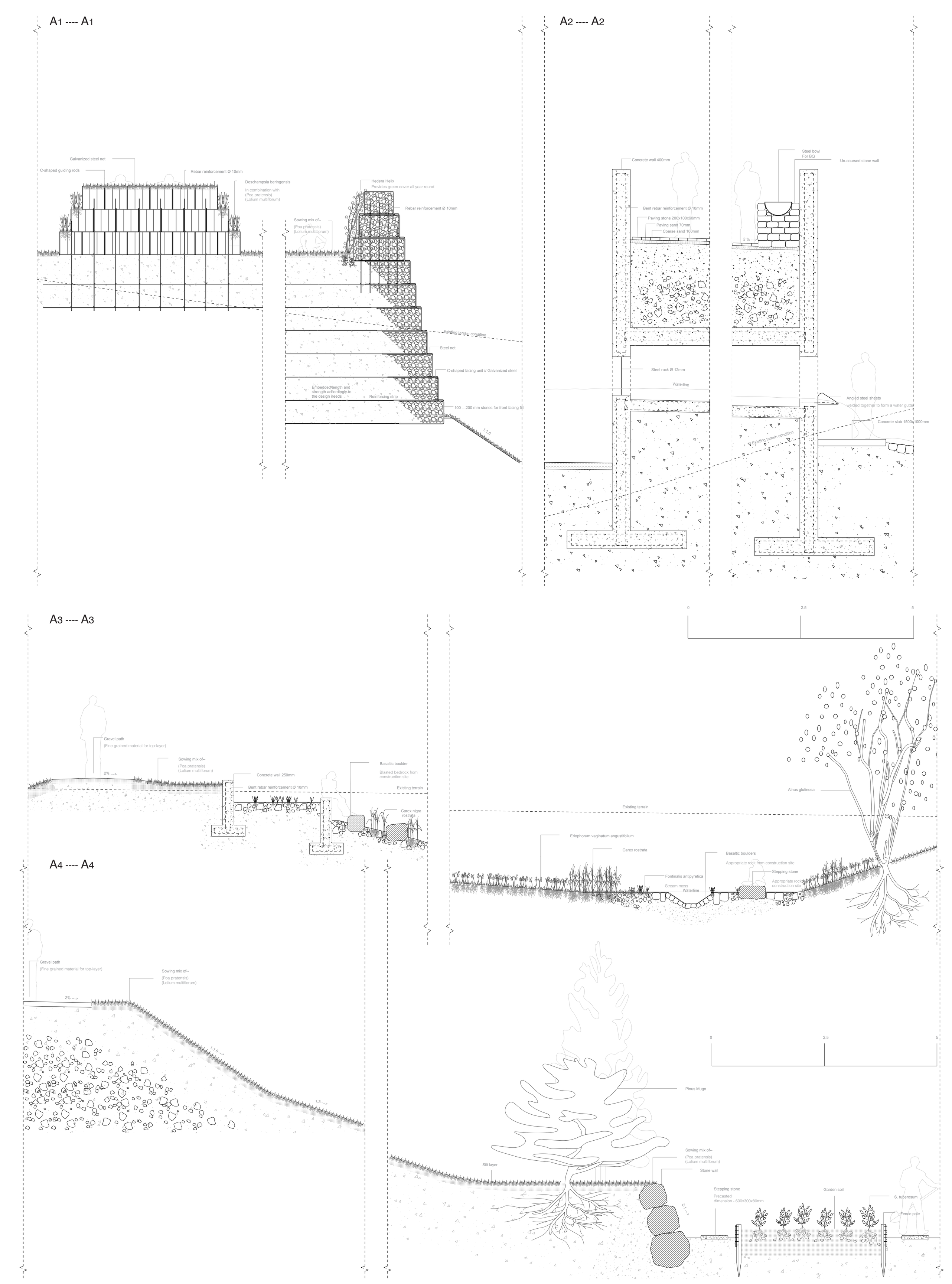


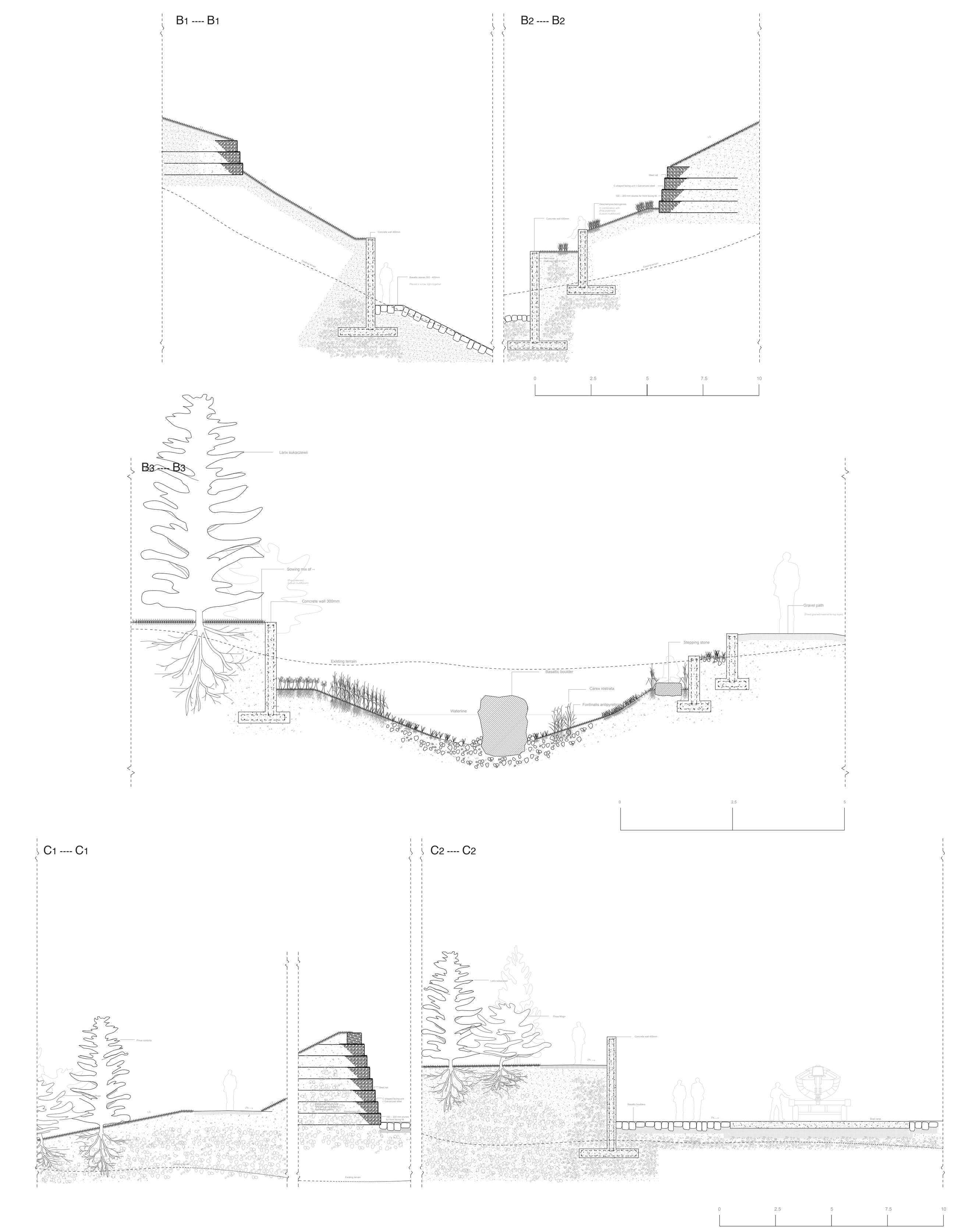
Situational plan



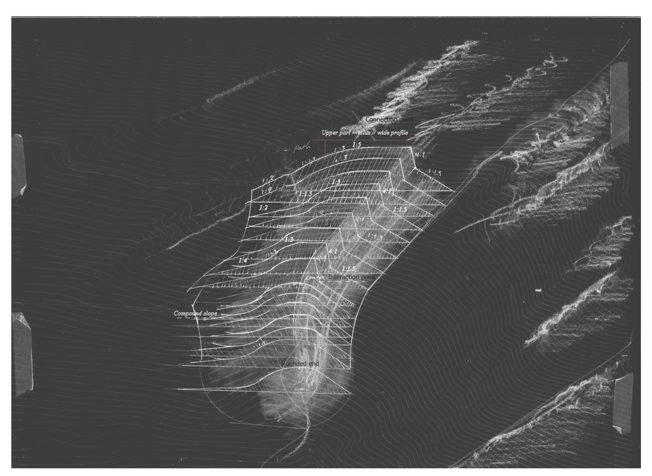
Zoom in plans



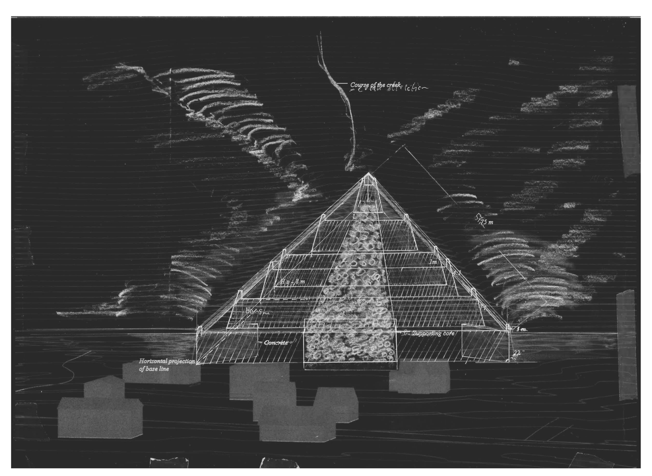
Detail sections



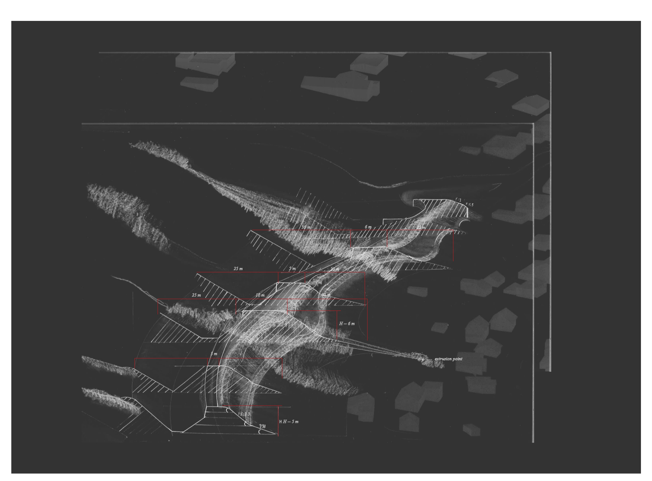
Detail sections



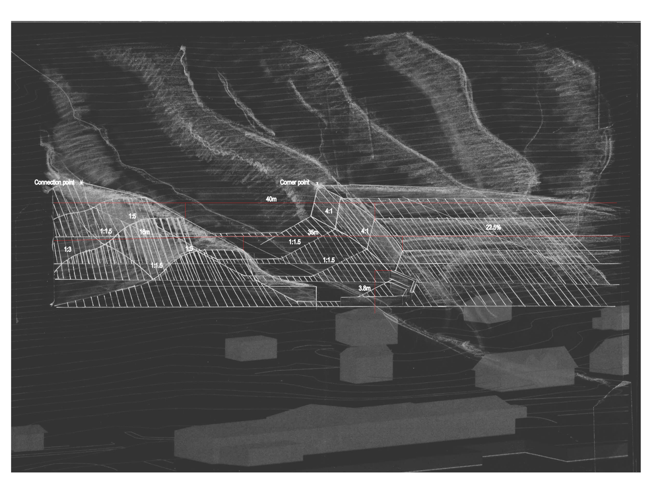
Drawing // Deflecting dam in area of Þófi



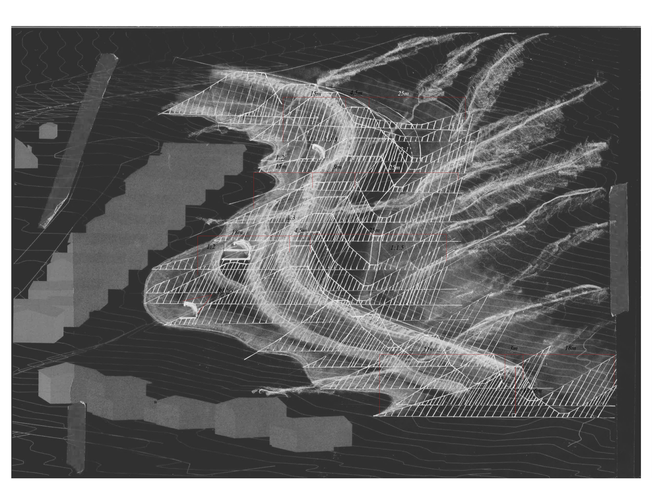
Drawing // Triangular dam under neðri botnar shelf



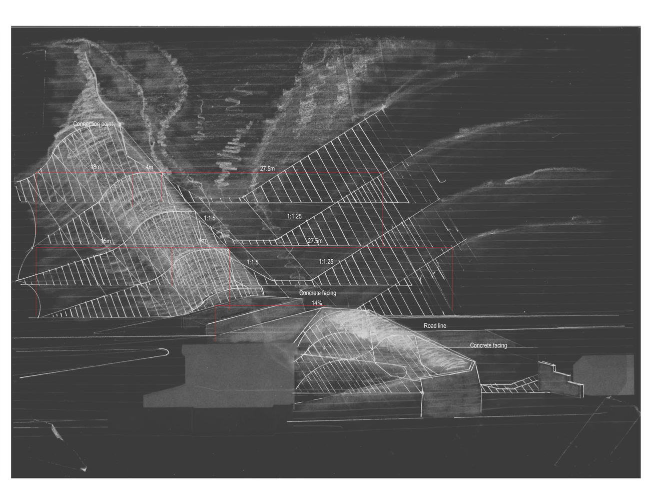
Drawing // Catching dam in Svabbatún area



Drawing // Composition of deflecting- and diverting dams

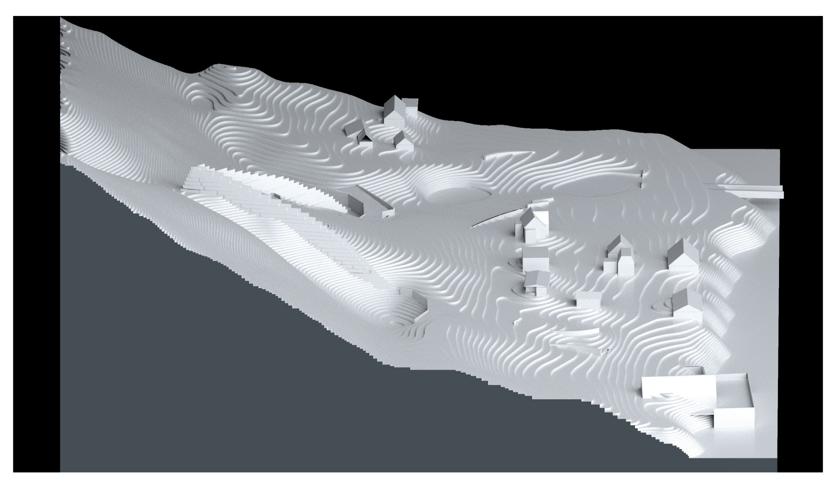


Drawing // Catching dam under neðri botnar shelf

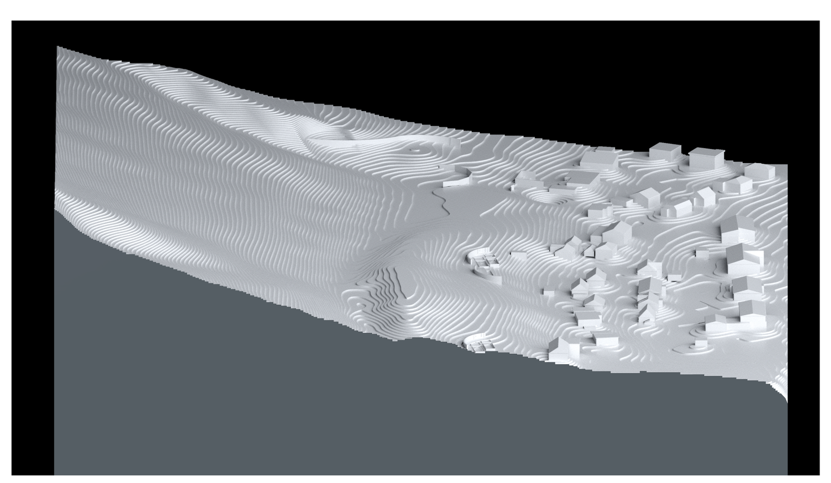


Drawing // Deflecting dam in Þófi area

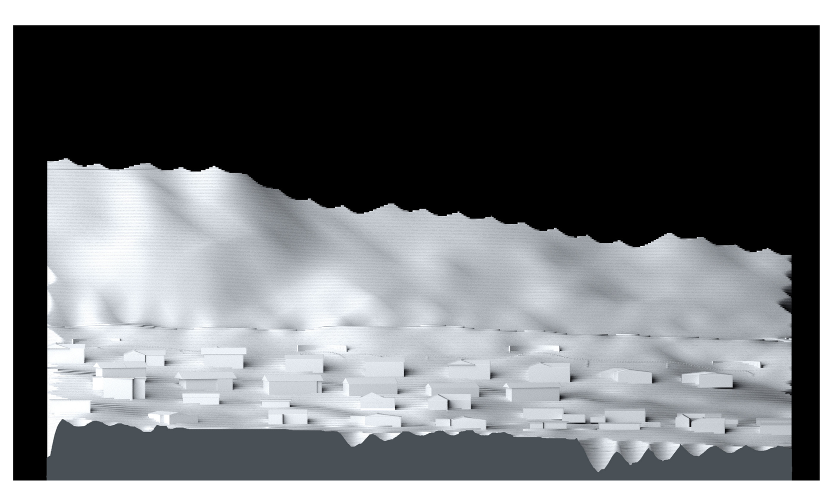
Experimental sketches



Model // Triangular dam

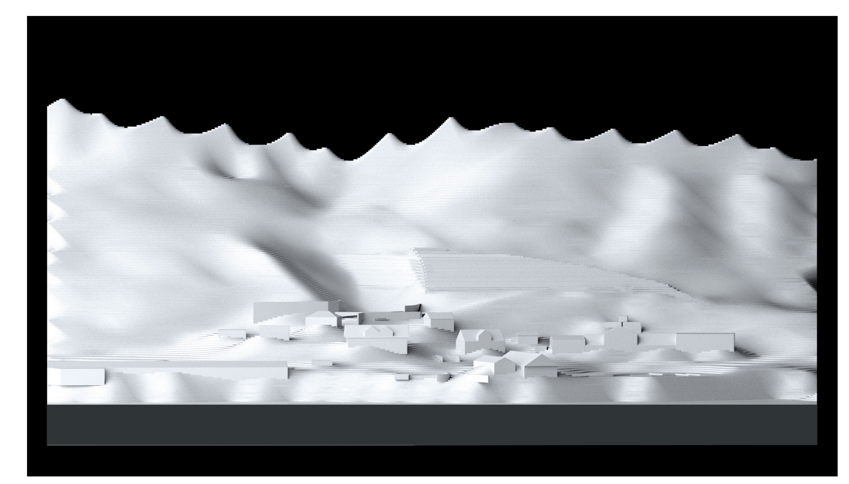


Model 1 // Catching dam

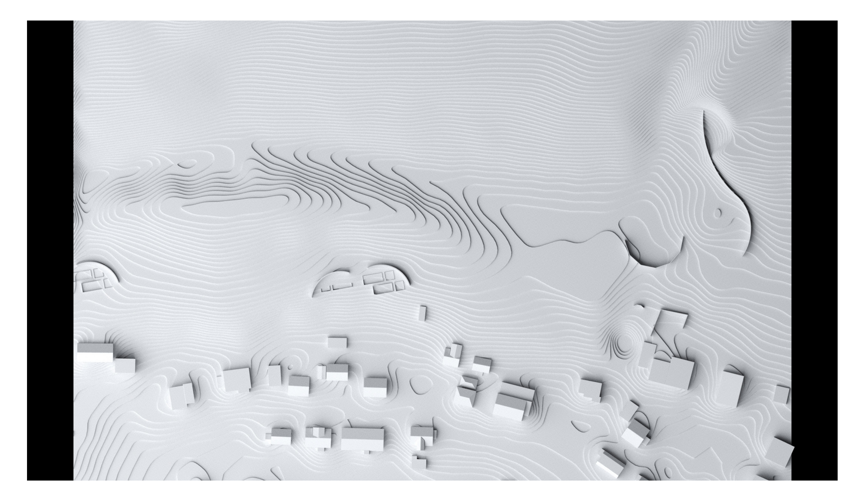


Model 2 // Catching dam

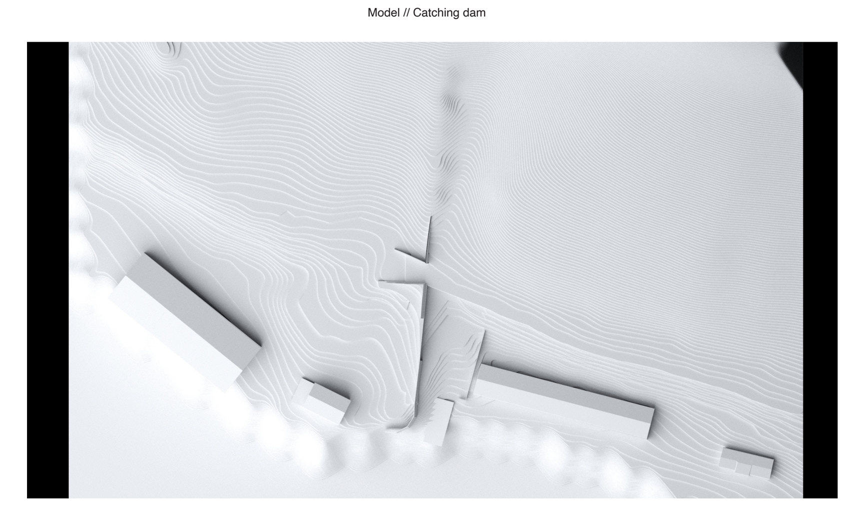
Models



Model // Hybrid of deflecting- and splitting dam



Model // Catching dam



Model // Deflecting dam

BACKSTORY

Rapid gravity mass flows pose a threat to settlements and infrastructure and limit land use on all continents of the world. In mountainous regions, these natural hazards include snow avalanches, debris flows, rockfall and landslides. People in modern societies are becoming more concerned with safety, and authorities strive to ensure that settlements are protected. Due to high safety demands, the design of permanent protection measures has become more demanding than before.

Many lives have been lost in fatal gravity mass flows in earlier decades of the twentieth century. And the construction of protection measures for settlements has been ongoing in Iceland since the catastrophic avalanche in the Westfjords occured in 1995. Although a general awareness of the danger prevails and the majority of the population agrees on the need for applicable safety measures. The implementation of protection measures is controversial and the voices of the public share diverse opinions. Where influential figures exchange views either with or against funding.

Anyhow as a matter of fact;
„the hidden impacts just don't feel real until they start to happen" Currently, Iceland is witnessing changes in nature. Increased precipitation with rain in the lowlands and snow in the higher altitudes during winter can cause an increased avalanche activity. Namely an increased frequency of natural hazards, for slushflows, debris flows and landslides. There is therefore an increased need to take these new threats into consideration while planning mitigation measures for settlements.

INTRODUCTION

The diploma can be divided into two fundamental explorations. In the preceding phase I dedicated time to investigate anti-avalanche earthworks in Iceland; their design criteria and appearance. By dissecting the topic into categories and isolating their properties, simply in order to understand where the freedom within design lies.

To conclude on former exploration, The notion of aesthetic quality in the contrast between the anthropogenic landforms and the natural context they are implemented in becomes intriguing. Where the hidden brutality of avalanches has more profound visualisation through the formal language of the defense systems. The freedom for design is very much bound to the back facing sides of the earthworks; which in practice are usually convergent slopes with unvarying gradients. Shaped from the most common procedure, so called "cut and fill method". In present projects this procedure leaves us with a certain homogeneity in terms of surface treatment. Namely earthworks with oblong shapes, or planar slopes.

The latter exploration seeks out new ways of molding the protection dams on chosen project site. By using conclusions from previous phases to develop a geomorphological method to shape the earth works in a different kind of way than past and present practices have assimilated.

PROPOSAL

The Village wall proposal partly addresses new ways of implementing an avalanche defense system for a small sea village in the east of Iceland. Furthermore it explores the relationship between form and function and aspects of beauty that are exposed from the making of the earthworks. Such as the contrast between prominent geometric shapes and the natural surroundings they are implemented in. As well as an interplay between convex and concave slope gradients that imitate natural slope conditions on the site.

The drawing technique that is utilized in this project can briefly be described as follows; Each dam is dissected into profiles (cross section) that are attached to the dam leading axis, where each slope profile gets special treatment driven either under the influence of avalanche geometry (pronounced and rigid shapes) or the ideal compound slope that leaves a surface that simulates a curvilinear shape.

Resulting project is a 2,5 km long defense system with 3,9 km of drainage channels. The Village wall itself is composed of catching- and deflecting dams, splitters and other hybrid deverting structures. That either stop or divert avalanches away from the settled area to retain bed loaders which dissociate the content of the avalanche, in this case - mud and water. Water is then led through the settlement and out to sea in sloping water basins. The designed waterways become a point of attraction for people to be and gather.

The water basins are made wide in order to facilitate gentle sloping with diverse vegetation cover. The hierarchy and succession of vegative cover is made in such a way that it can withstand a diverse rise in water level. Furthermore the water basins become passages not only for water but for people to walk through or to dwell in. The passage along the basin is attached both to towns existing infrastructure and newly proposed path system.

The resulting geometrical shapes of the dams offer new types of interactions for the local community. The undulating surface of the dam's back sides forms an enclosure where vegetable gardens and playgrounds are located. Here one could envision the back sides becoming the second garden space.

In some cases the structures are more rigid yet settled and reach high up the mountain side where access by foot is possible, providing great views over the fjord. Their prominent shapes and accessibility provide conditions for the local community to come up with various ideas for different occasions.

Network of paths, both hiking and cycle, are proposed. Sometimes the paths run on top of the structures providing scenic conditions for the hiker. Or along, fading into the existing path network. Here opens up for new types of possibilities, where a 2,5 km dirt bike track is built as an extension of the drainage channel berms.

The soil reclamation will rely on two fundamental factors; first, the curvilinear down and cross slopes of the back facing sides, that will exhibit stable ground conditions that can more easily fight against the most common erosion factors in Iceland. Second, tight vegetive cover composed of sowing mixes with native grasses and sedges that knit the surface cover together.

Robust shrubs and trees are suggested to form a net of groves that are adjusted to existing tree planting on the site. Here the implementation is not done by means of camouflage. But rather as an additive mix to the project proposal.

The interplay between rigid and undulating forms, between invasive and less invasive appearances is a constant thread throughout the whole project site. And moulds fine line of contrasting landscape features that surround the village of Seyðisfjörður. The Village Wall is an idea of a contemporary relevance of a fortification as public space.
A defense system against mudslides that becomes a fundamental link to the village chain.

There are few places in the world where a city's identity is defined by a wall as they were in medieval times. Not to mention as an identity for a small village.