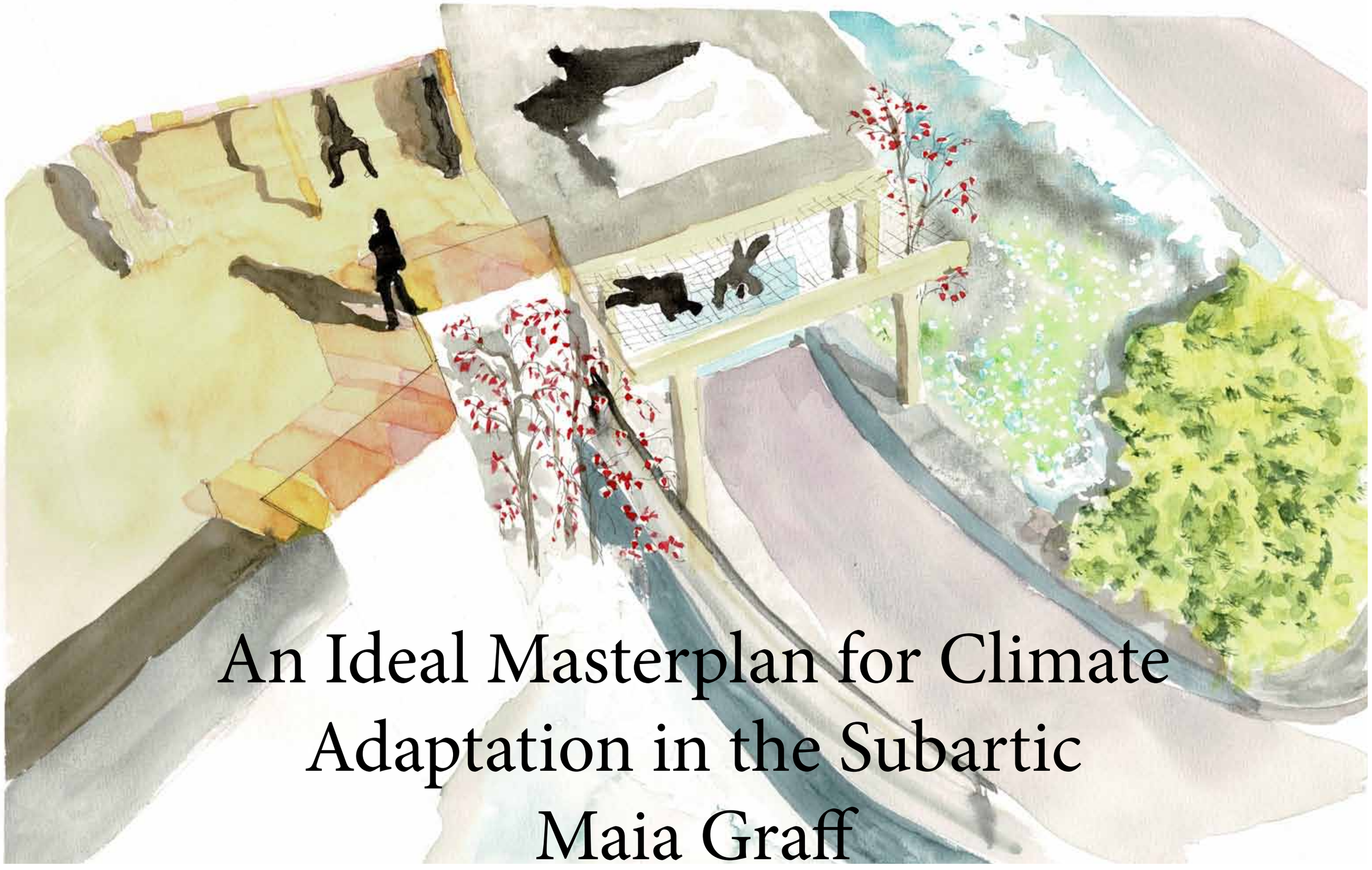
Diploma in
landscape architecture
AHO 2018

Main supervisor:
Janike Kampevold Larsen

(Second supervisor:
Thomas Juel Clem-
mensen)

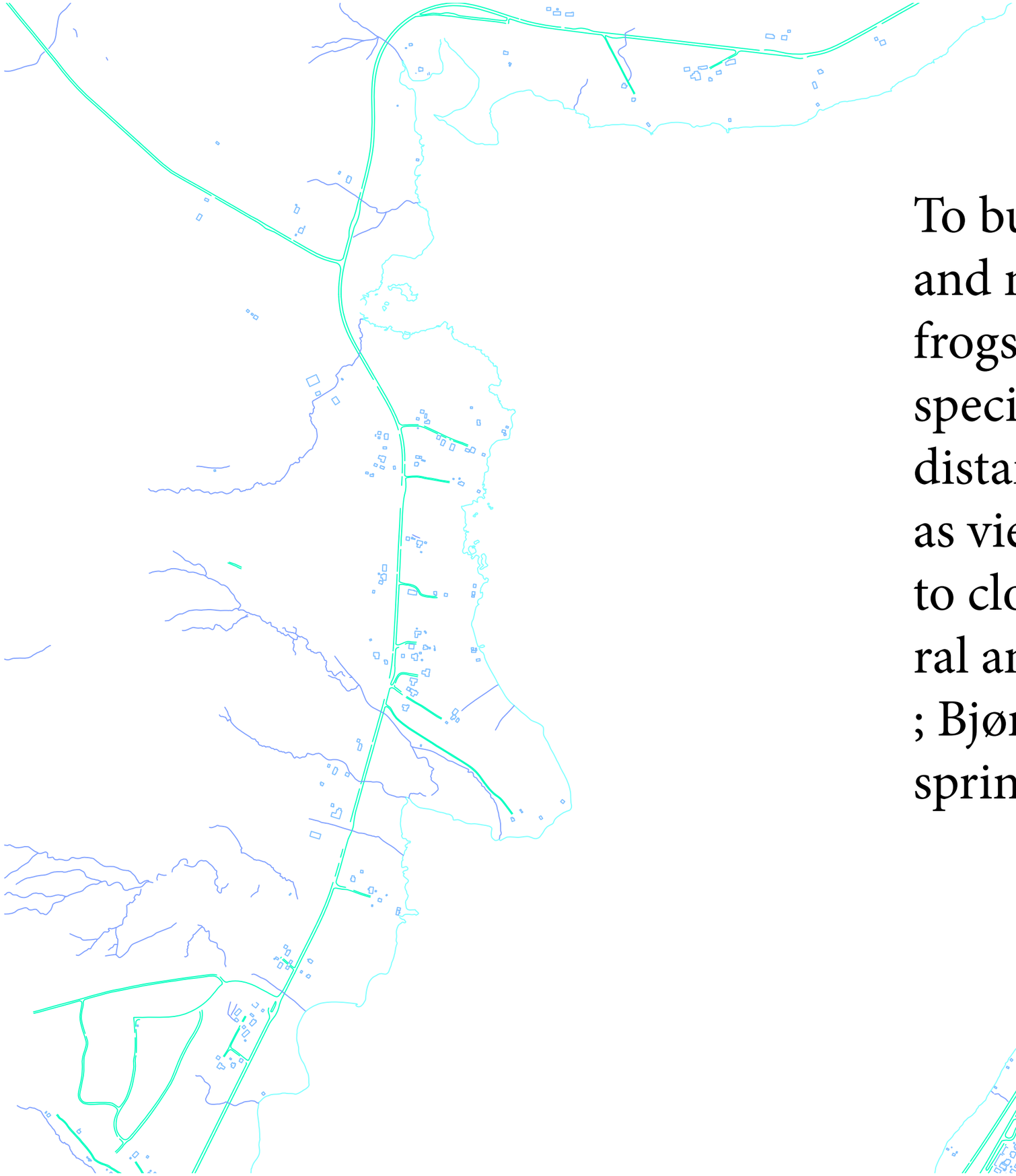
External supervisor: Rose
Marie Steinsvik



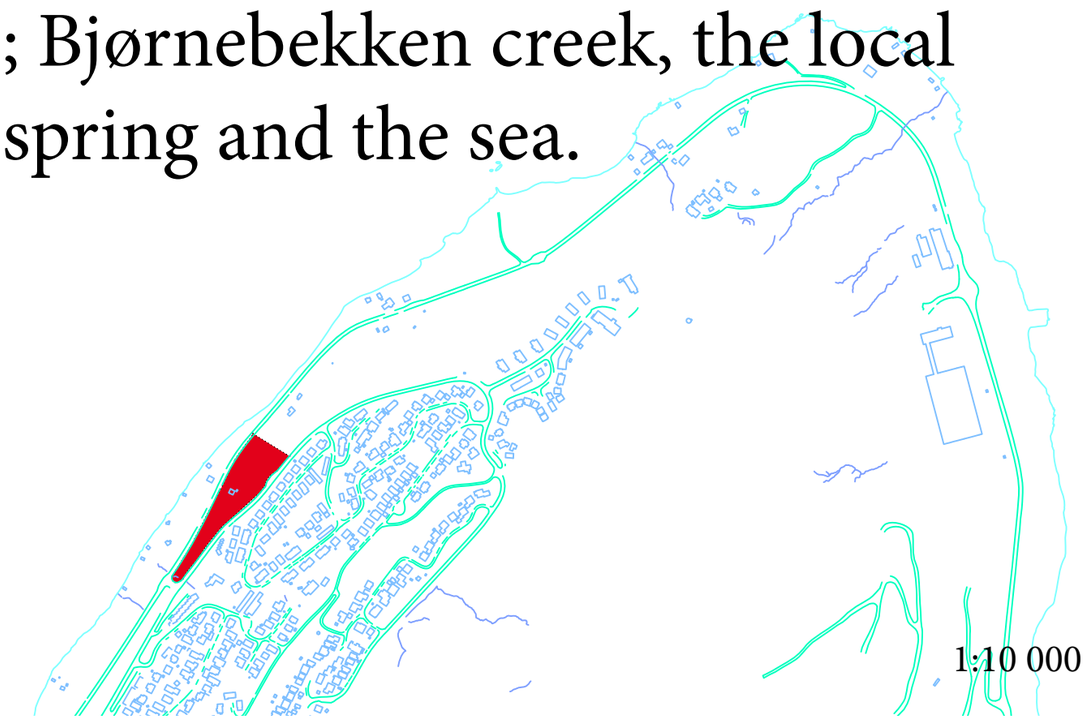
An Ideal Masterplan for Climate Adaptation in the Subartic

Maia Graff

Tromsø is located at 70 degree north, and has a July isoterm at 13 C. The winters have massive amount of snow, the region is dominated by wind, clouds and precipitation. The winter sun is low and is lacking between late November and late January. The summers are bright and chilly.



To build habitats for humans and non-humans: children, bats, frogs, seagulls and unregistered species. The project offers short distances to nature qualities such as views – both panoramic and to close bountiful areas of natural and planted vegetation, water ; Bjørnebekken creek, the local spring and the sea.



1:10 000

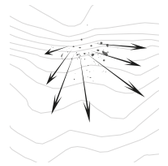
The main premise for the project is to maintain the natural qualities of a large plot in steep terrain. As far as possible it will preserve its natural qualities while accomadating optimally for sun, wind and snow conditions. The collective outdoor space is the projects main concern.

The plot has a rich ground cover. Trees include birch, rowan, salix and spruce, and most importantly the lot proves to have an extremely rich variety of mosses and heather (vacinum), and wet meadows.

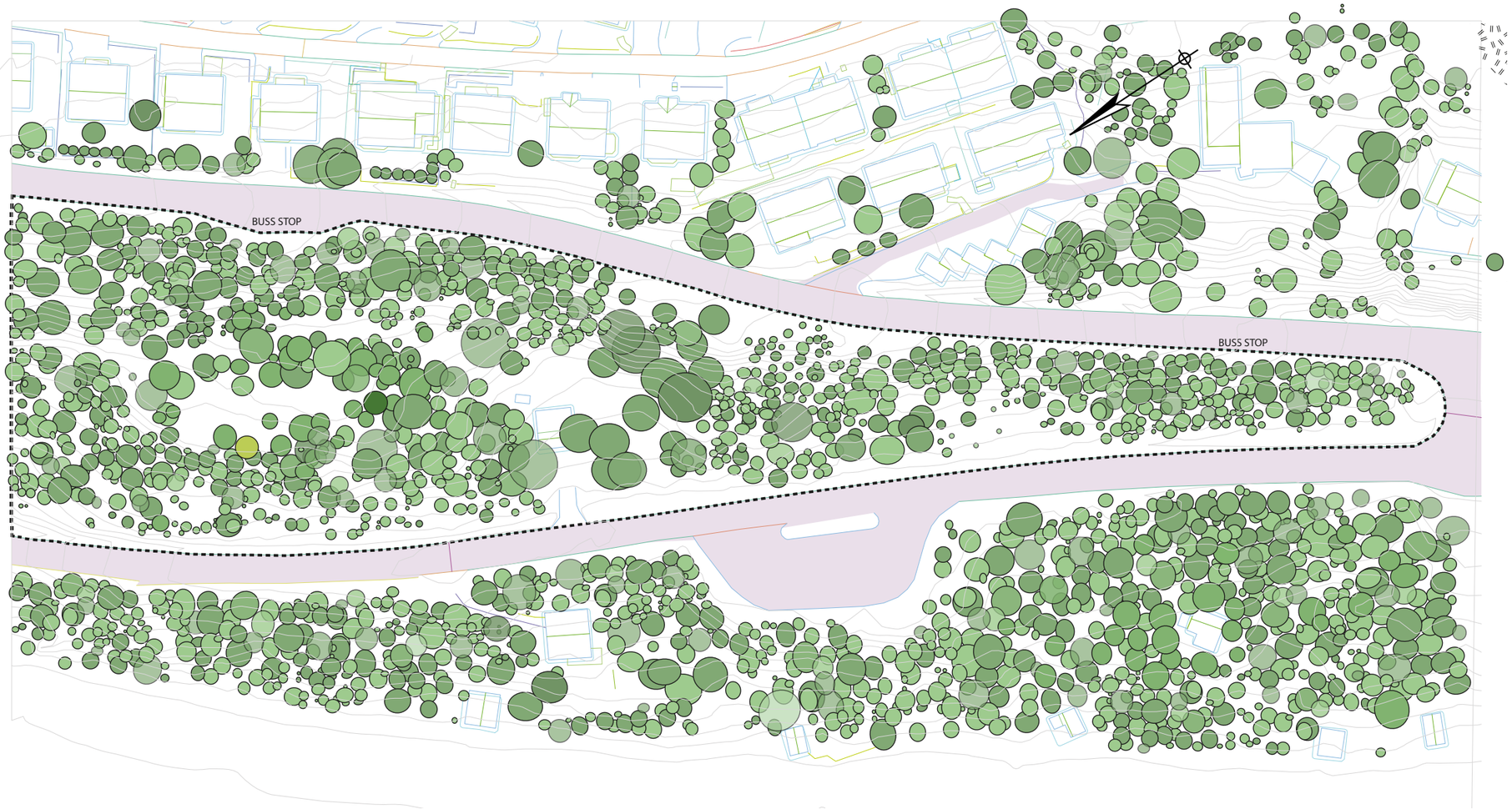
Tromsø municipality masterplan from 2017 is clear about the overall plan of new housing at the plot and futher north along the Bjørnebekkvegen. I concentrate on the first 300 meters.

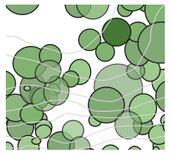
Existing structures consist of single- and chained houses, with nature playground in between. Steinsvik Arkitekter made the old masterplan in the 1980, and Bjørn Bygg did the houses.

For futher analysis on the Bjørnebekk area, see the pre - dipoma.



view, potential





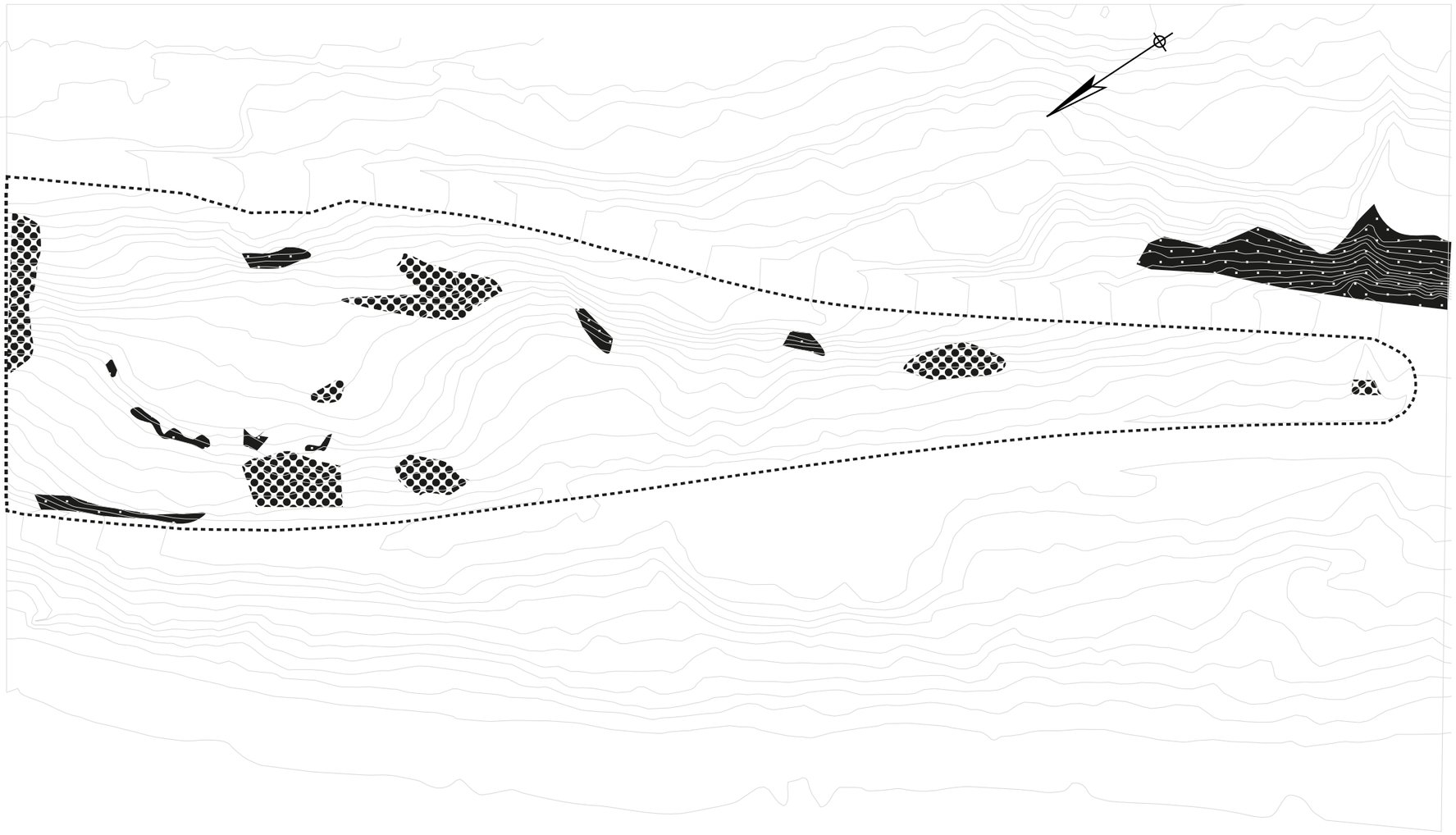
distribution of bushes and trees

Fig. 5
MG

Fig. 17
MG

Fig. 3
MG

Fig. 4
MG



boulders lying around on ground

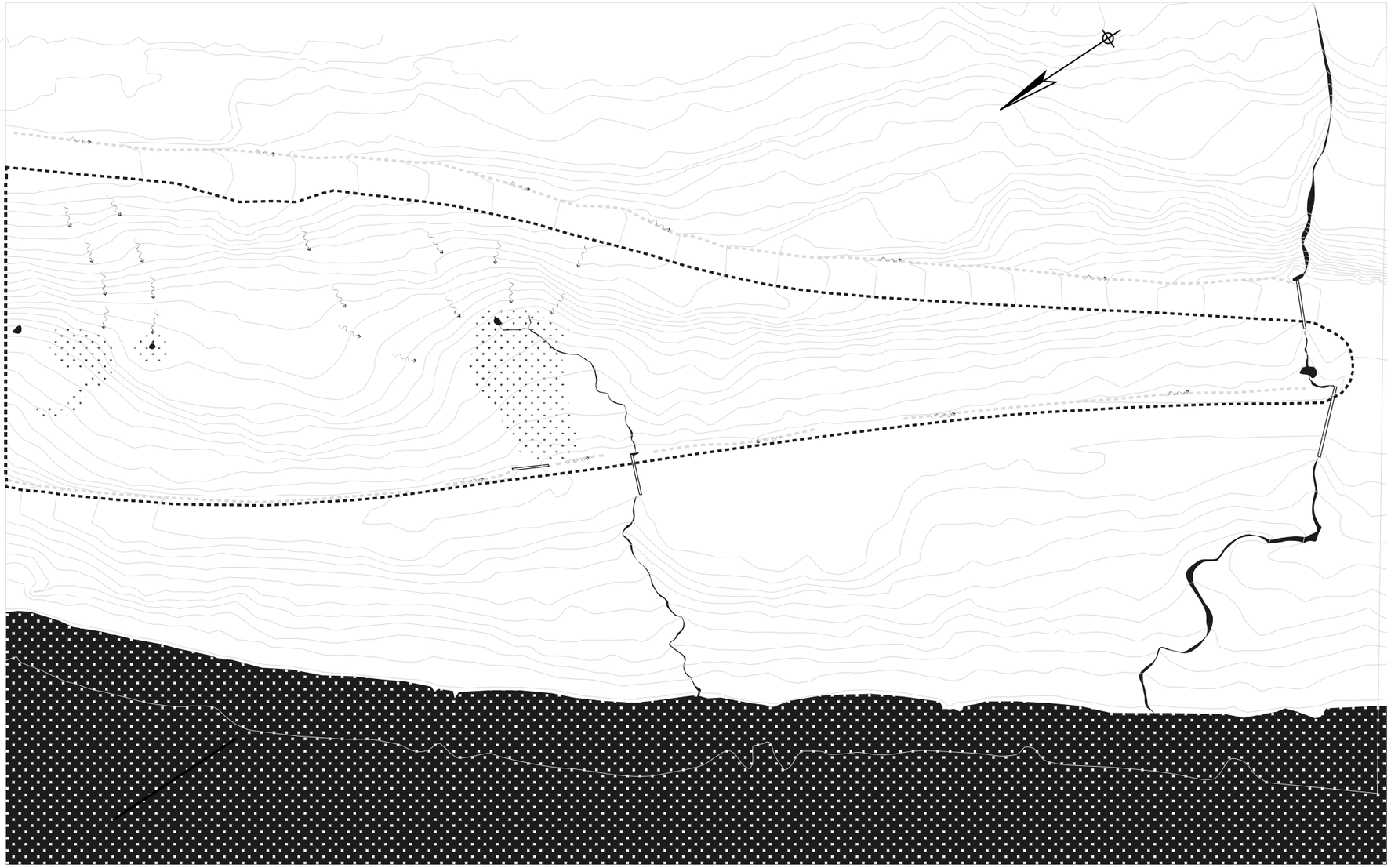
open bedrock/ vertical big boulders

Fig. 6
MG

Fig. 7
MG

Fig. 8
MG

Fig. 9
MG



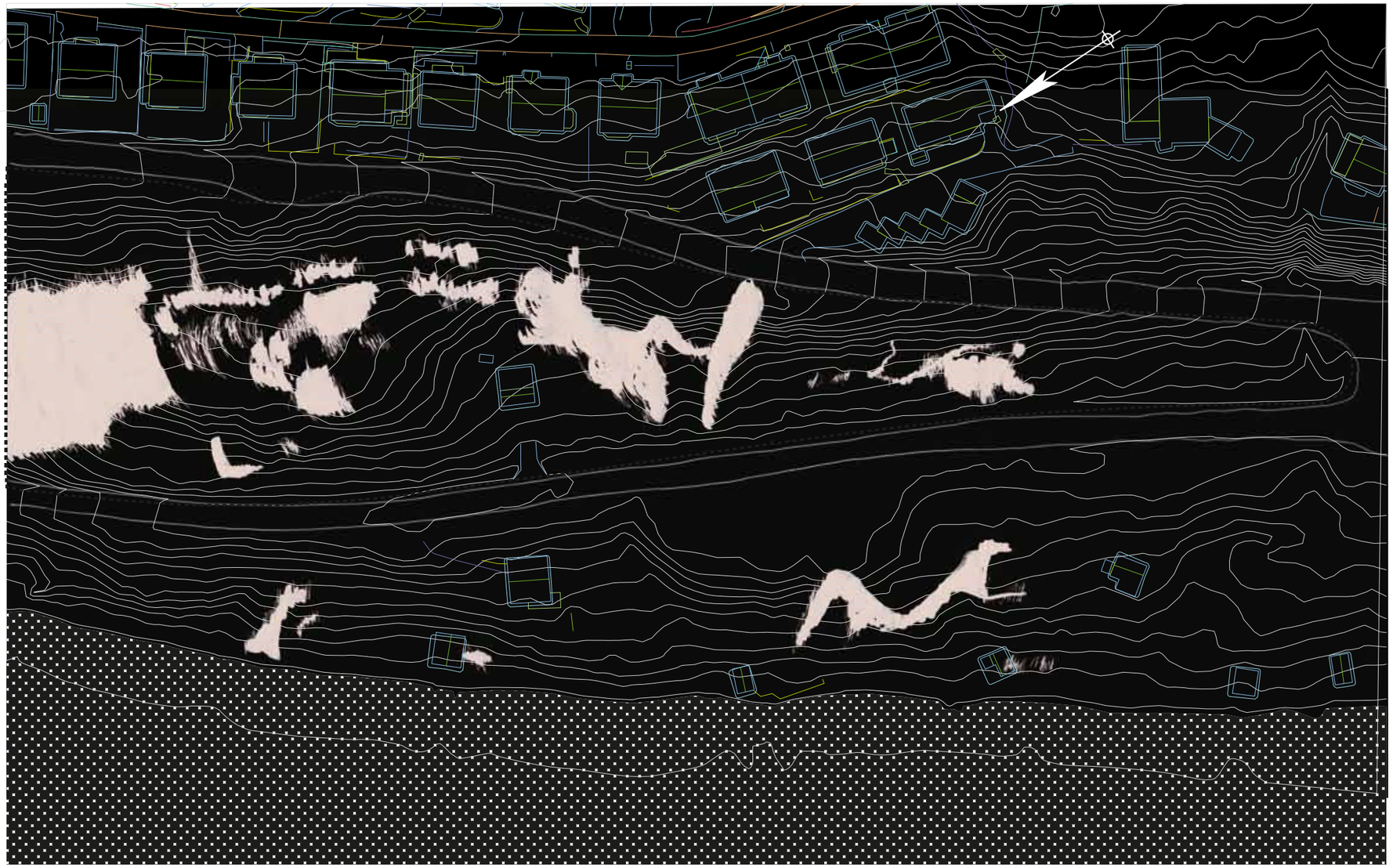
creek
pond
wetland
surface drainage
ditch
sea

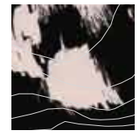
Fig. 2
MG

Fig. 10
MG

Fig. 11
MG

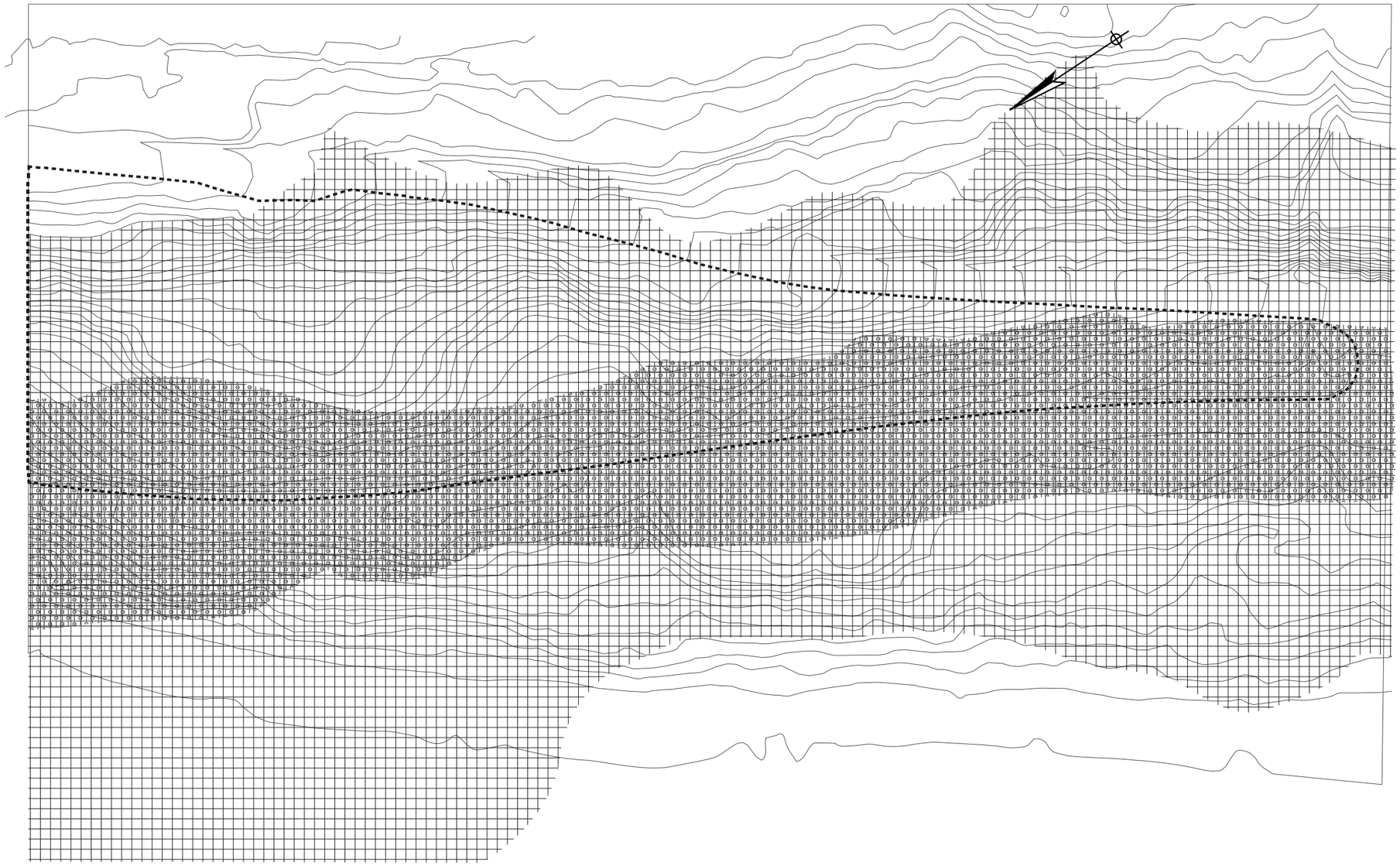
Fig. 12
MG





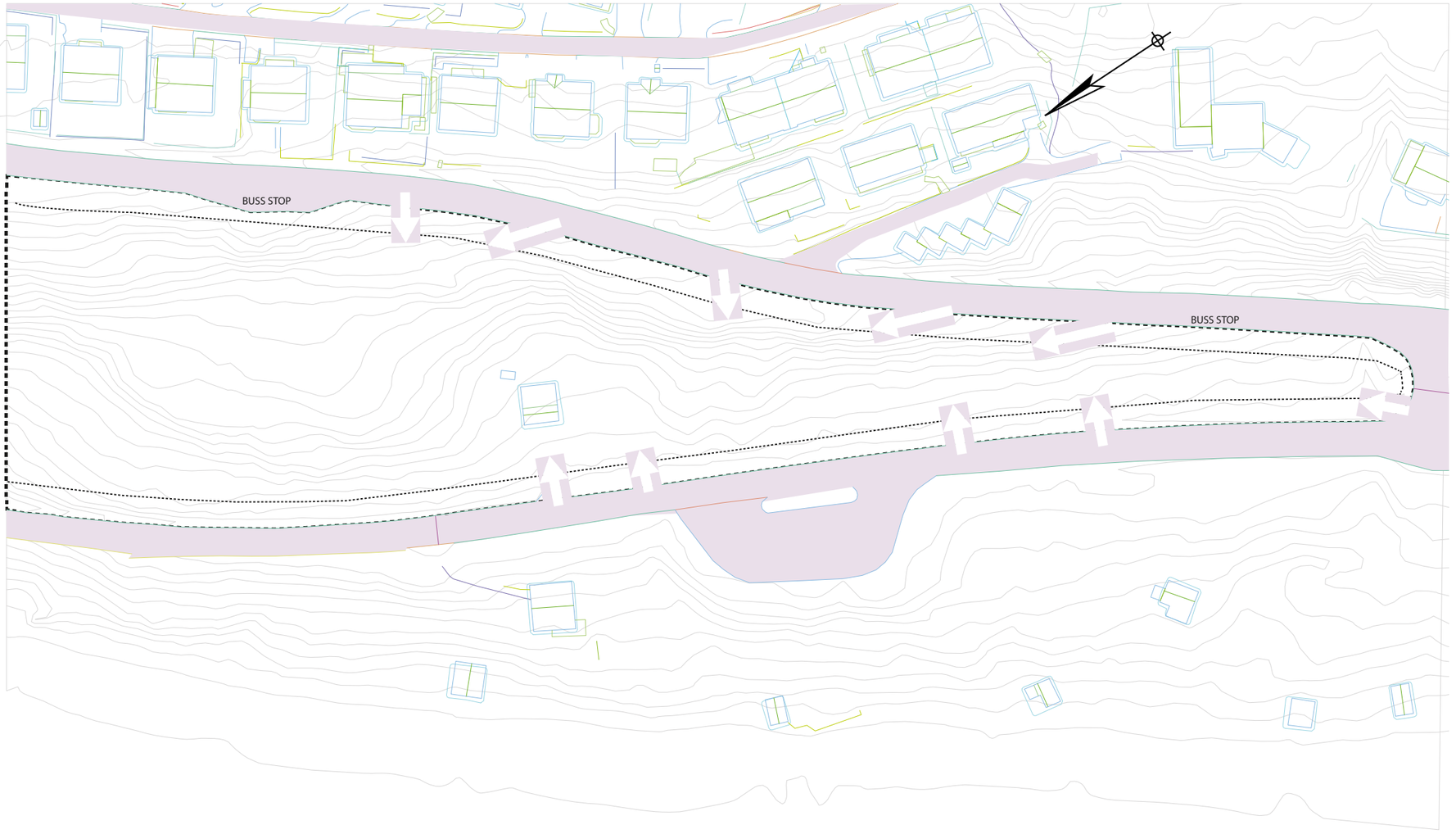
Snowpiles from drifting snow

Fig. 13
GG



Yellow noise zone

Red noise zone;
restrictions on land use



Potential entrance points from the surrounding roads without cutting of terrain and conflicting uses

BUS STOP

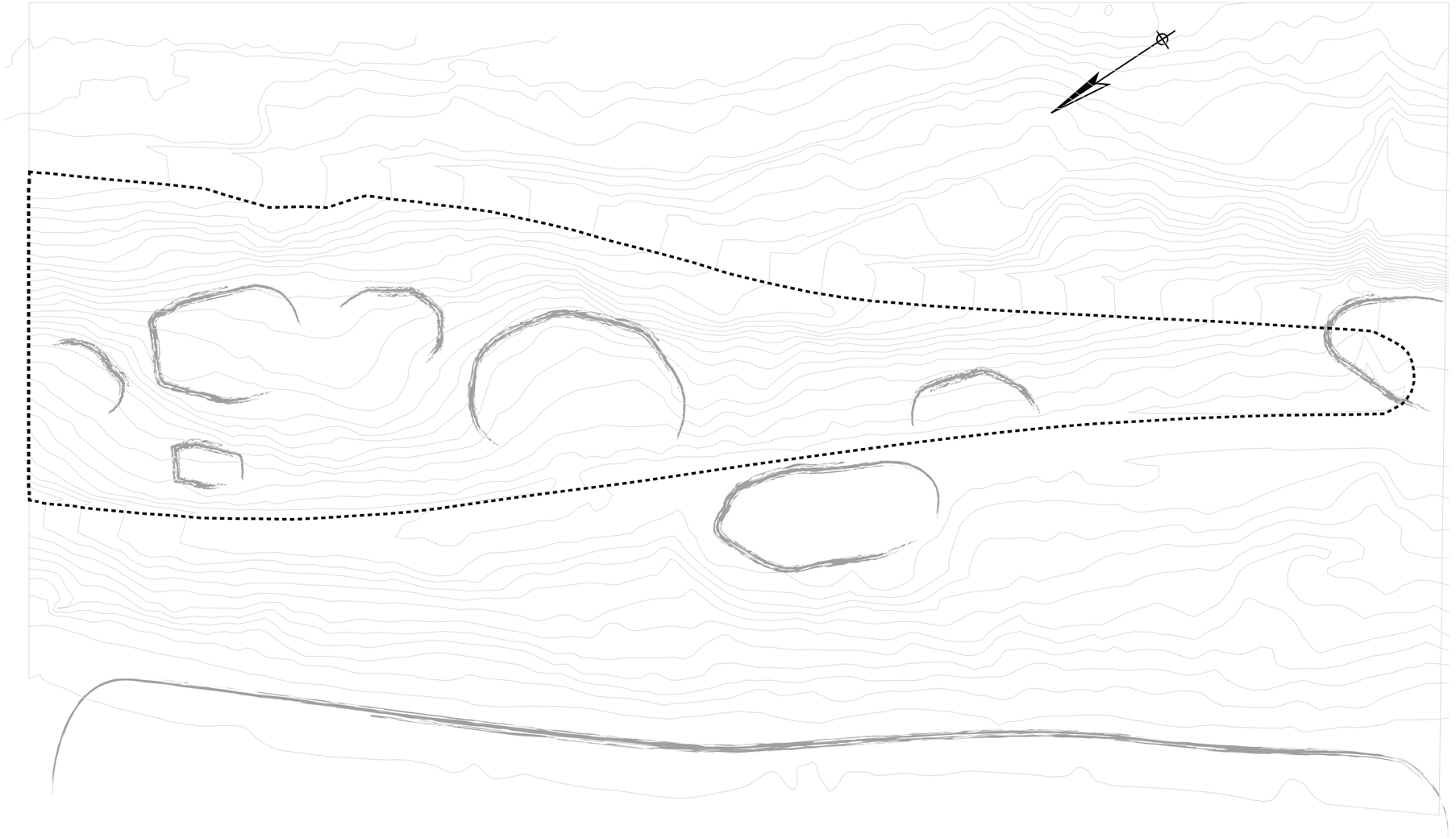
Bus stops, route 28, approximately 20 minutes ride from downtown

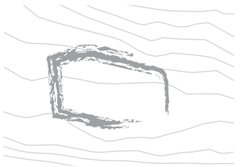
Existing roads and paved areas

Building border, 8 meters form roads center

Fig. 15
MG

Fig. 14
MG

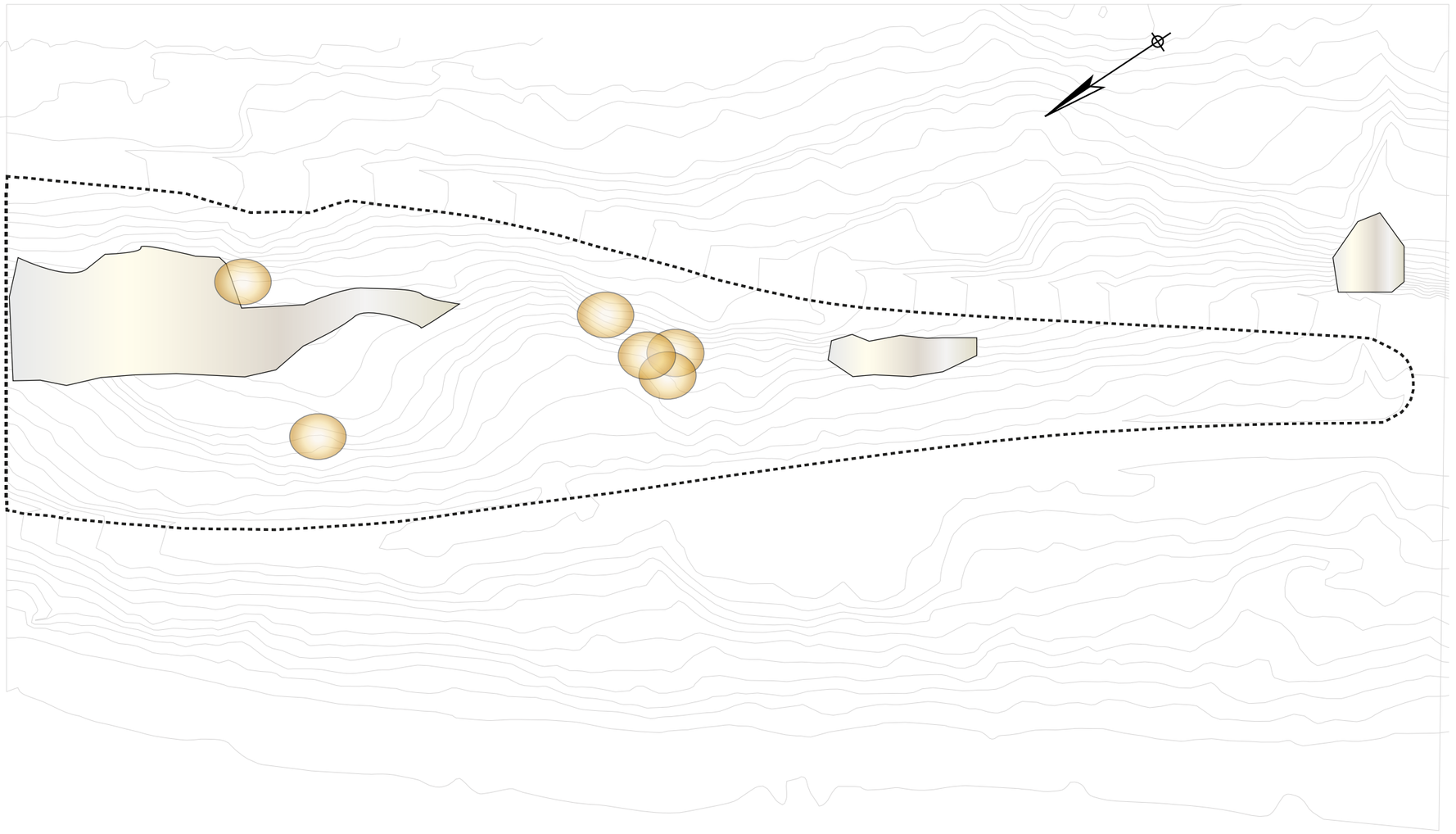




Landscape rooms, forest glades and clearings

Fig. 19
MG

Fig. 2
MG

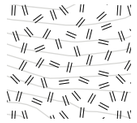


Beautiful, scenic landscape, measured by the author's feelings

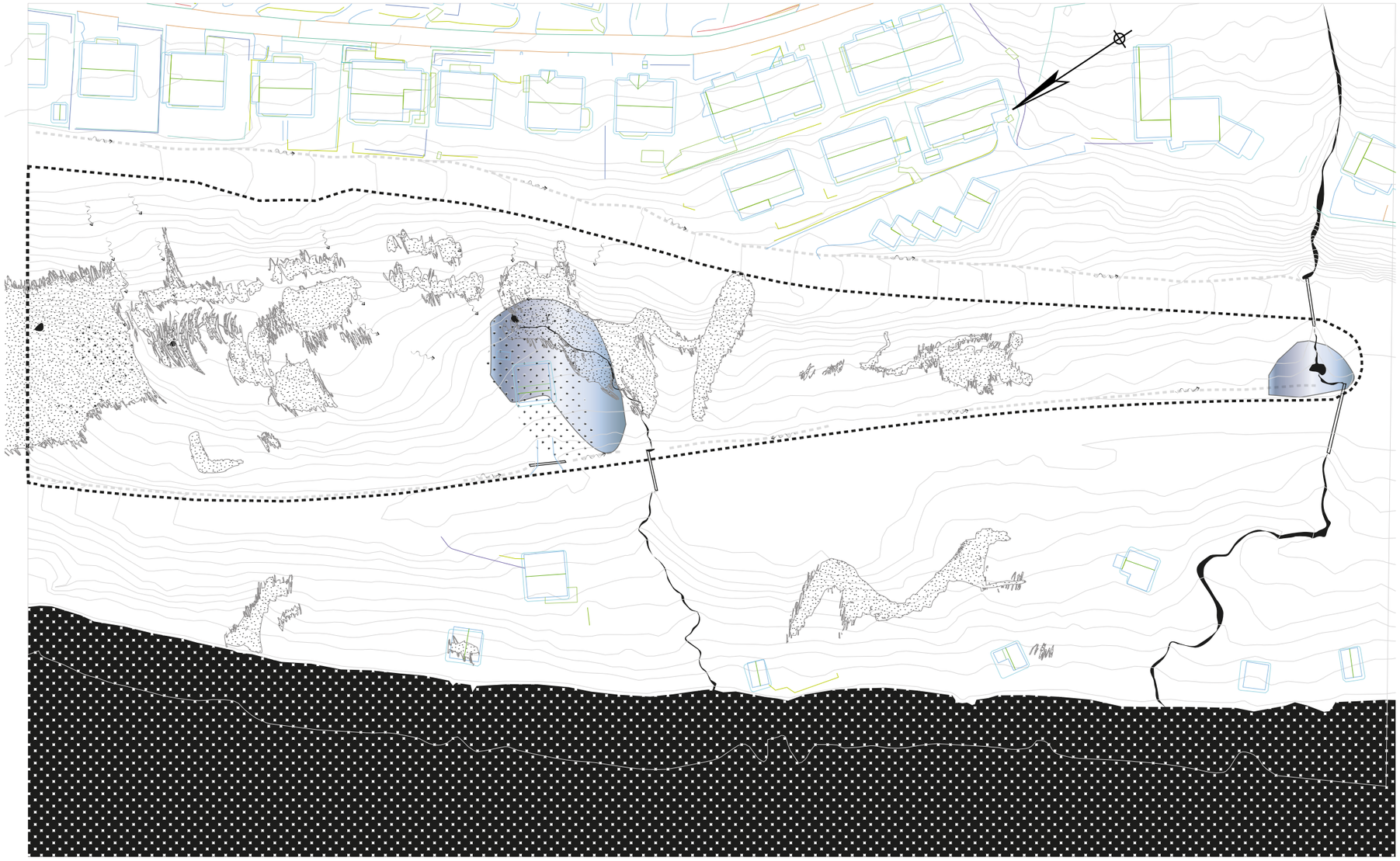
Beautiful, trees and surroundings, measured by the author's feelings

Fig. 16
MG

Fig. 17
MG

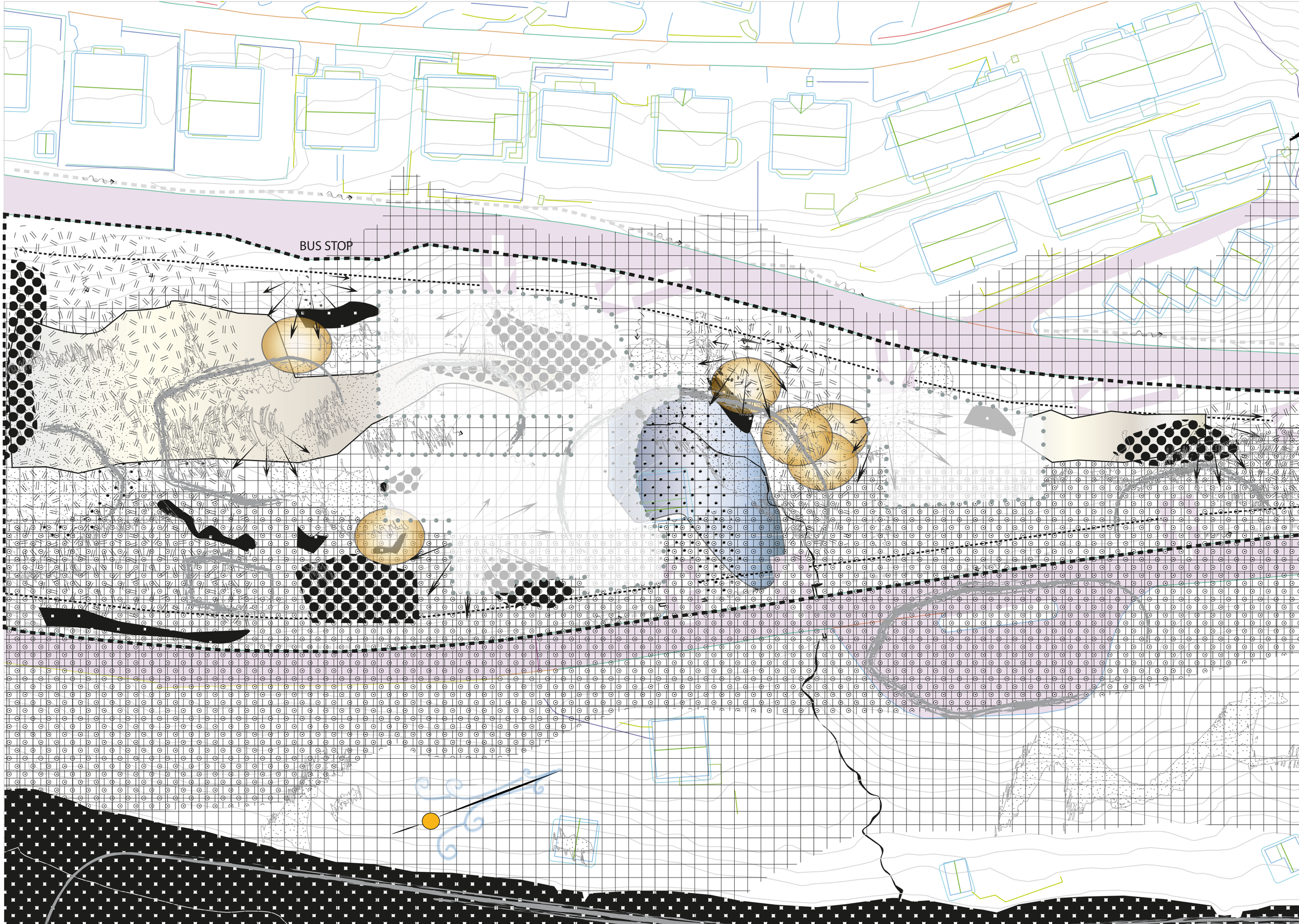


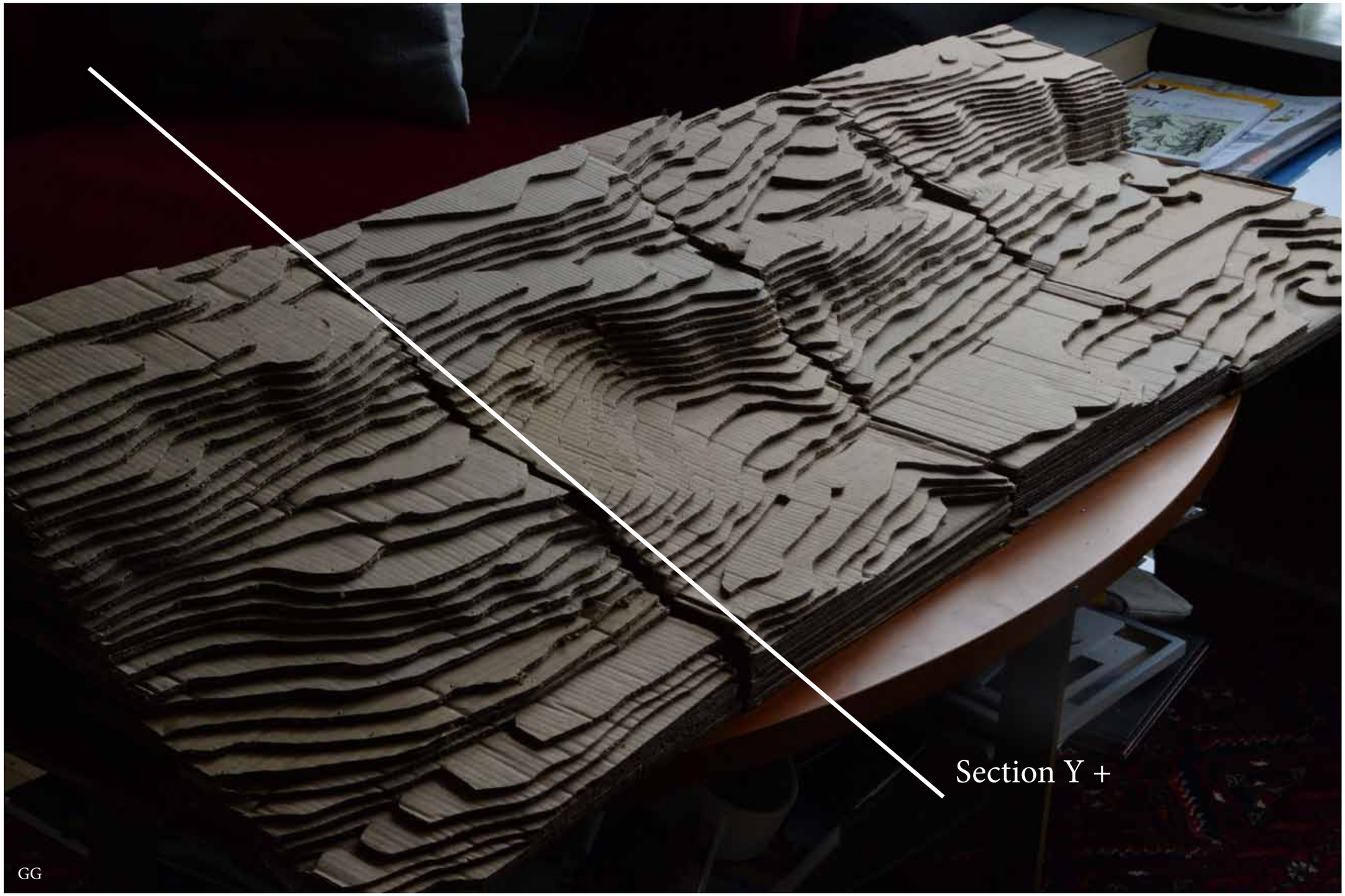
Area of existing wood areas that is slowing the prevailing winds, and thus should be tried to be preserved when area is built



Potential water landscapes, tubing it up will remove important landscape character

Fig. 12
MG

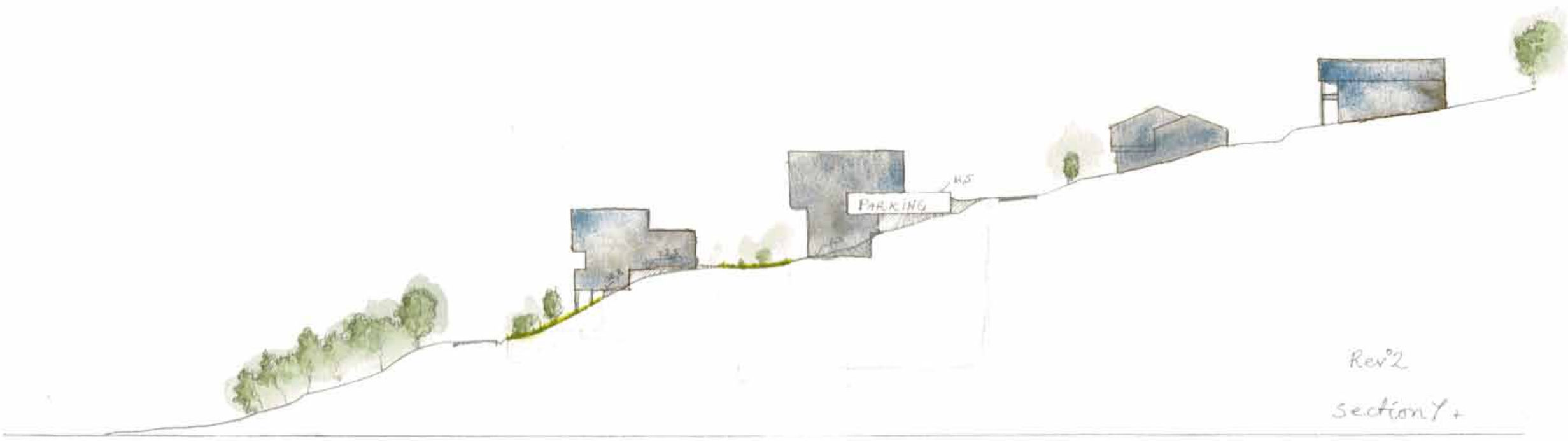

BUS STOP



Model, cardboard, +-2 meters
On hands working experience.

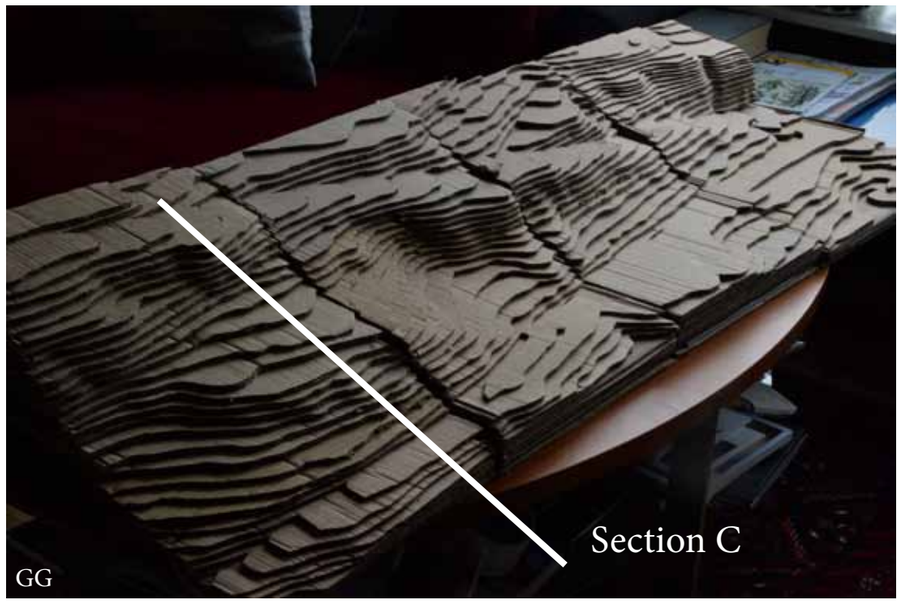
Existing situation

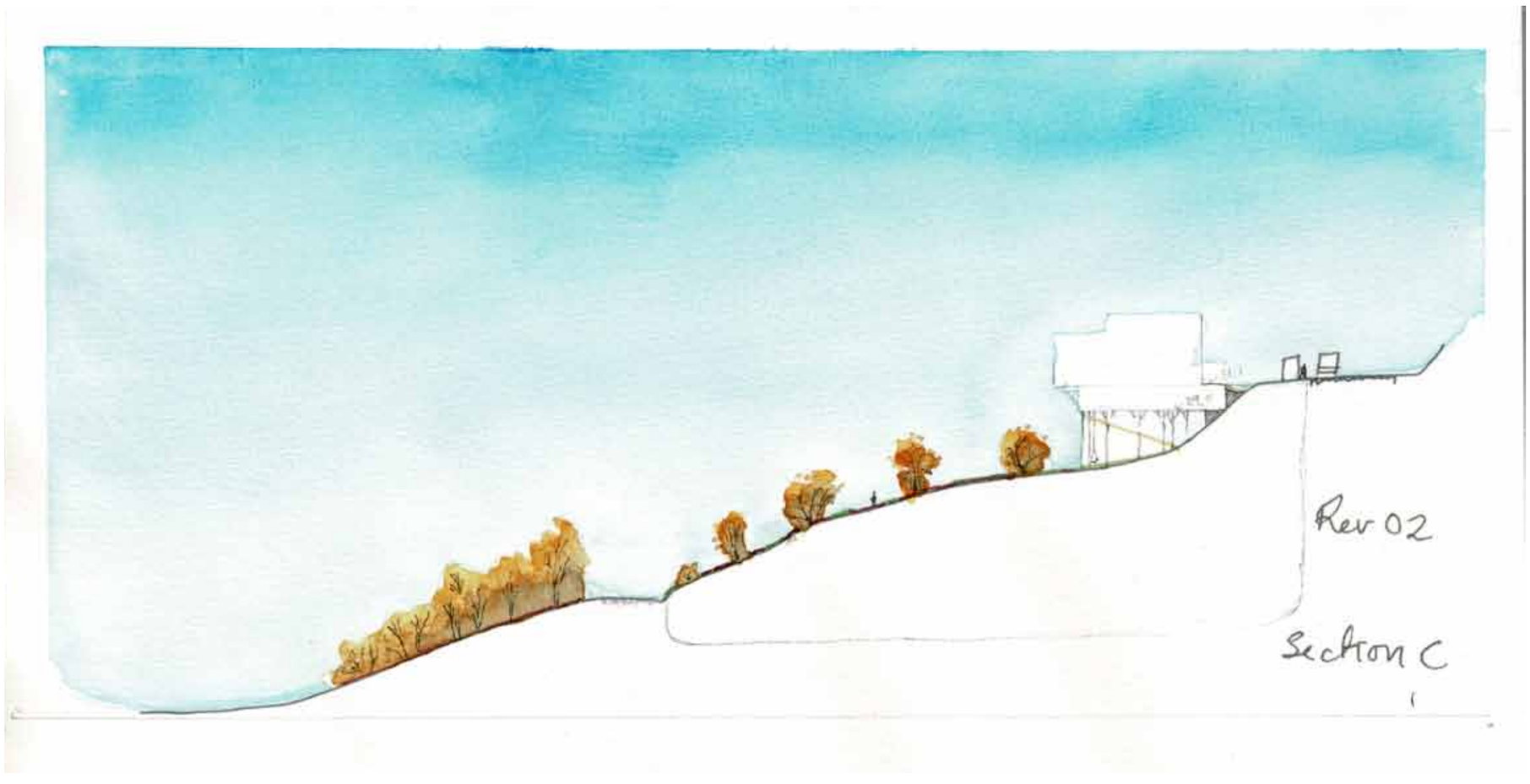
Section Y+

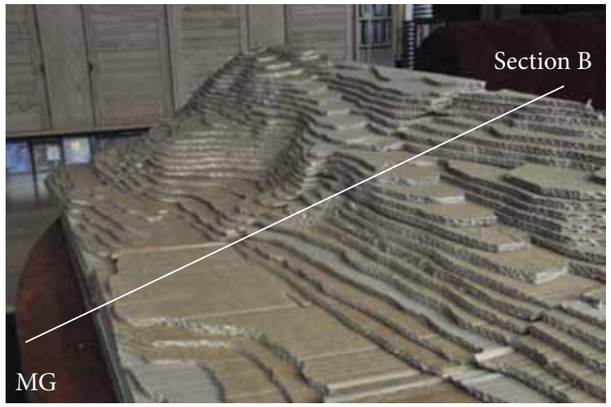


Rev°2

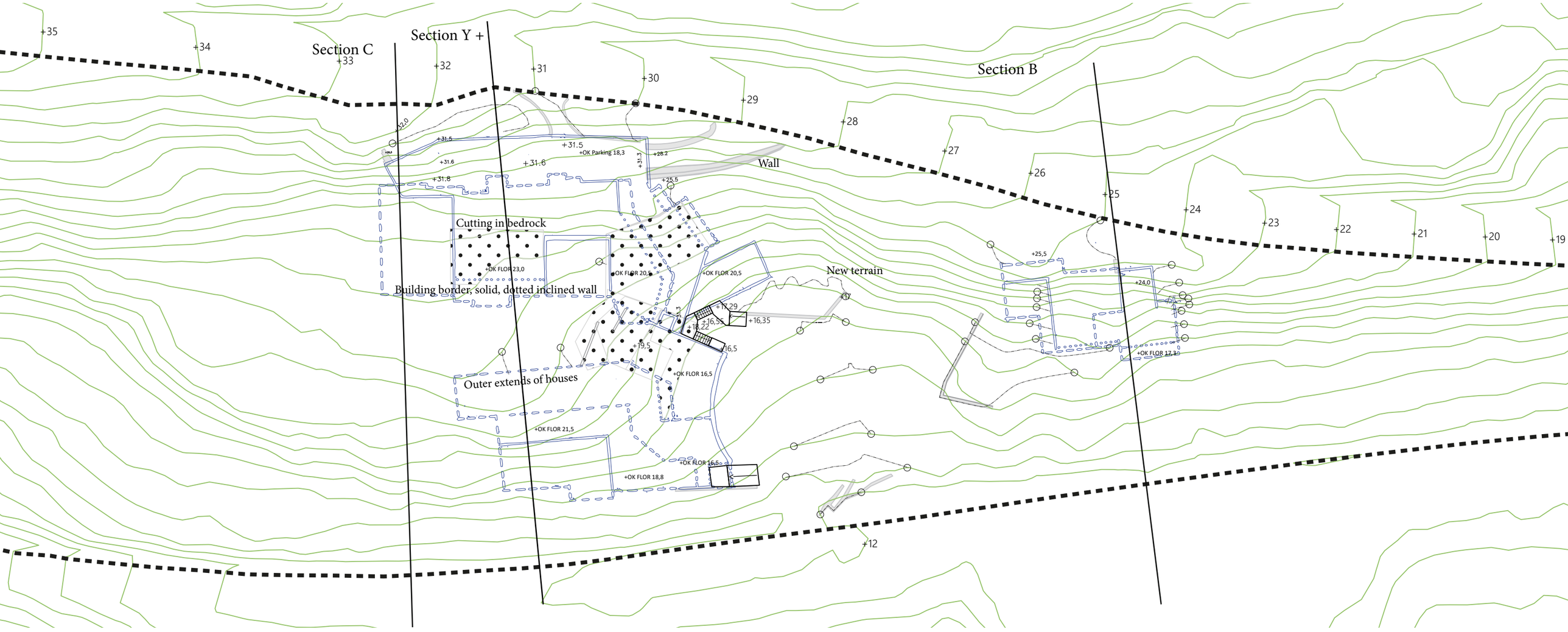
Section Y+


Section C
GG

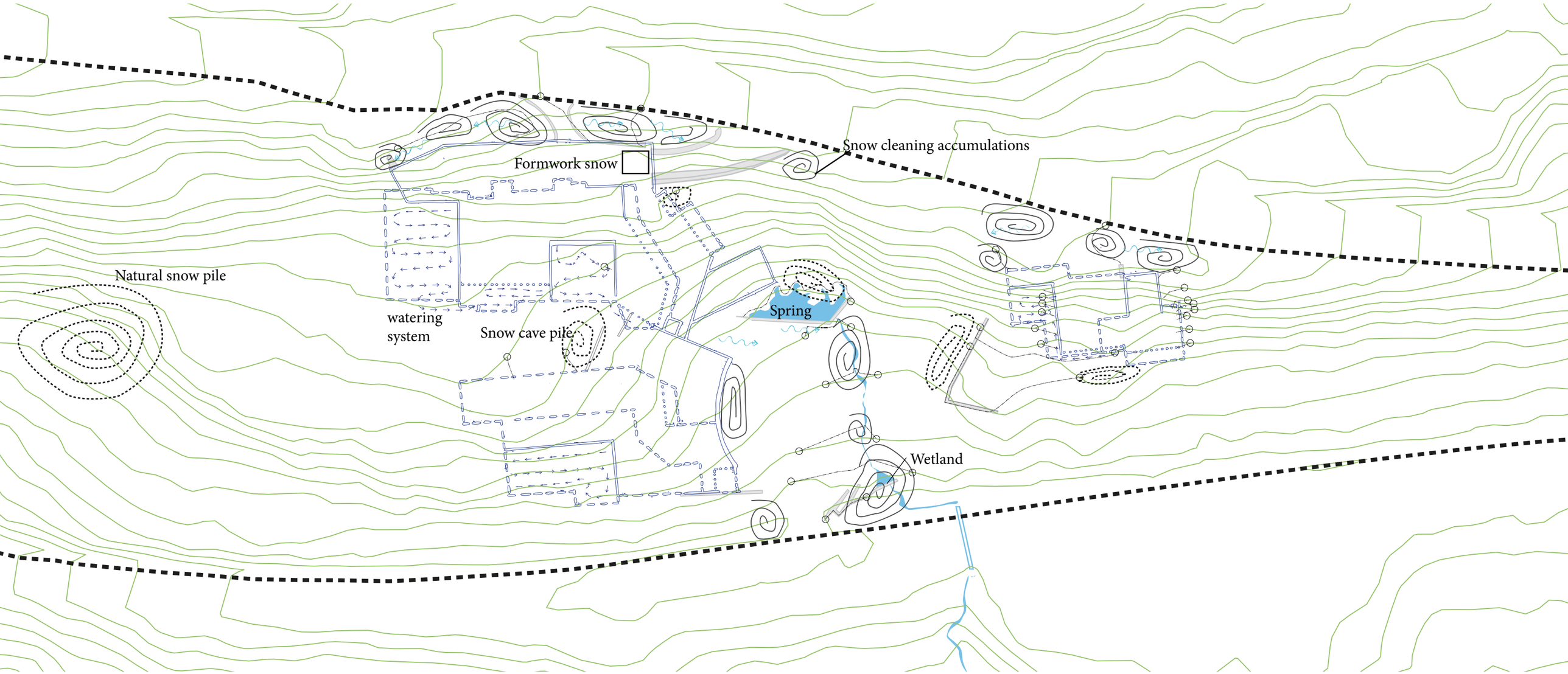

Rev 02
Section C



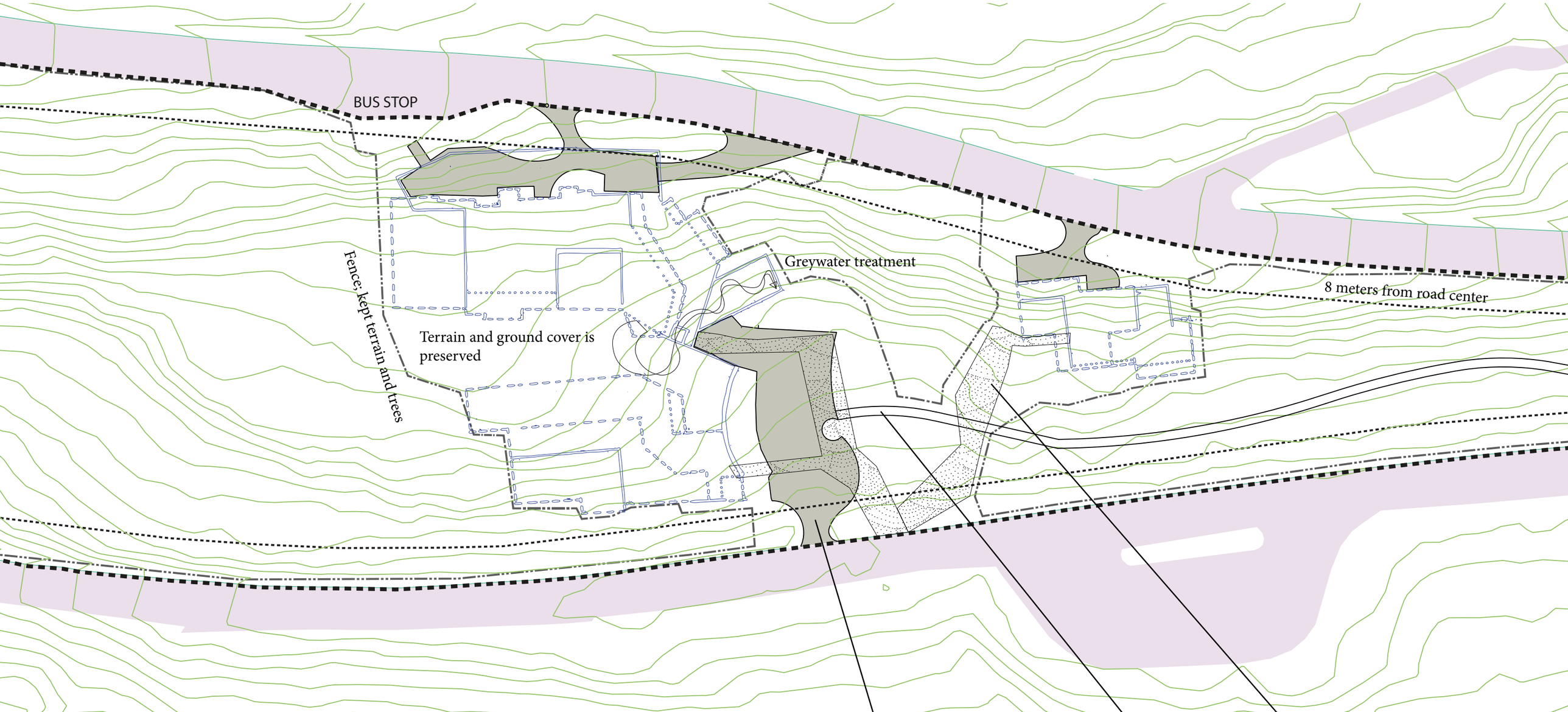
Section B Snowy winter

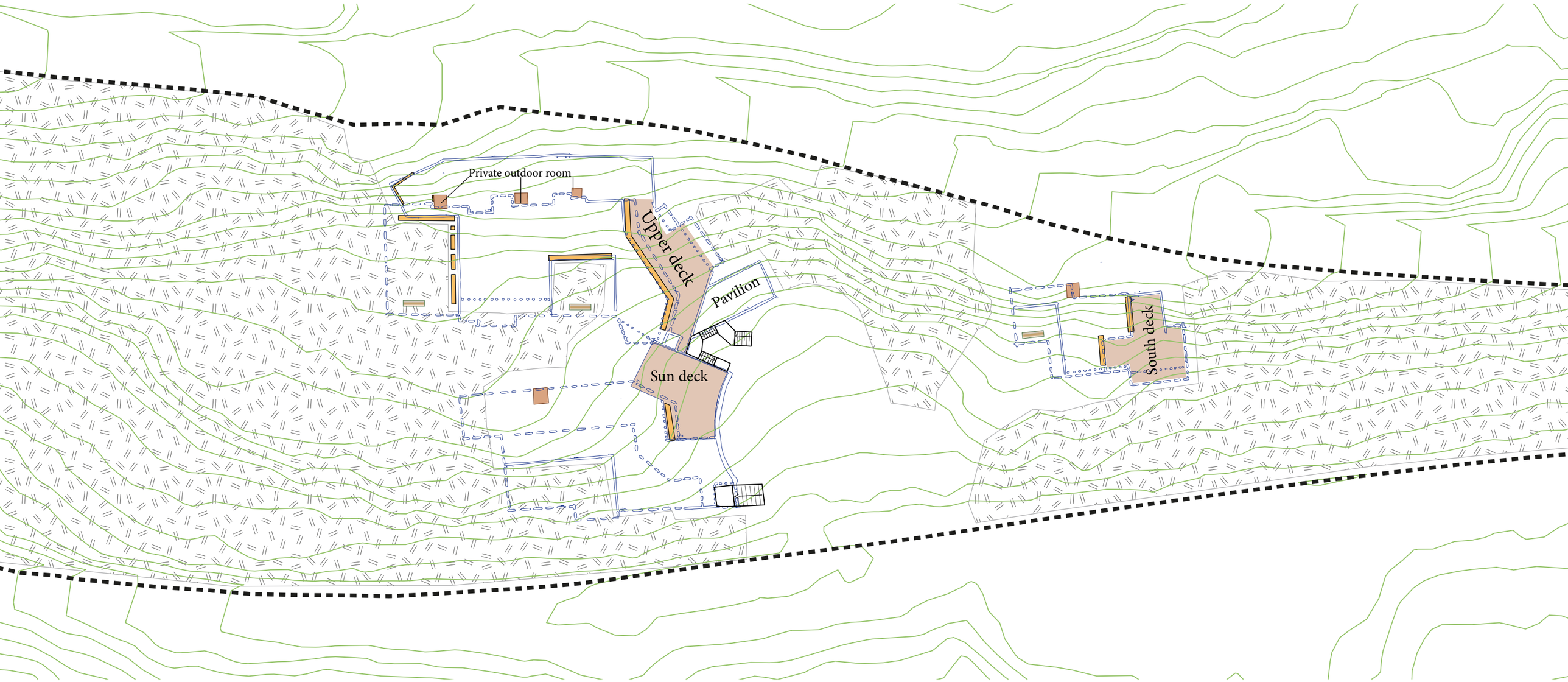


Terrain work

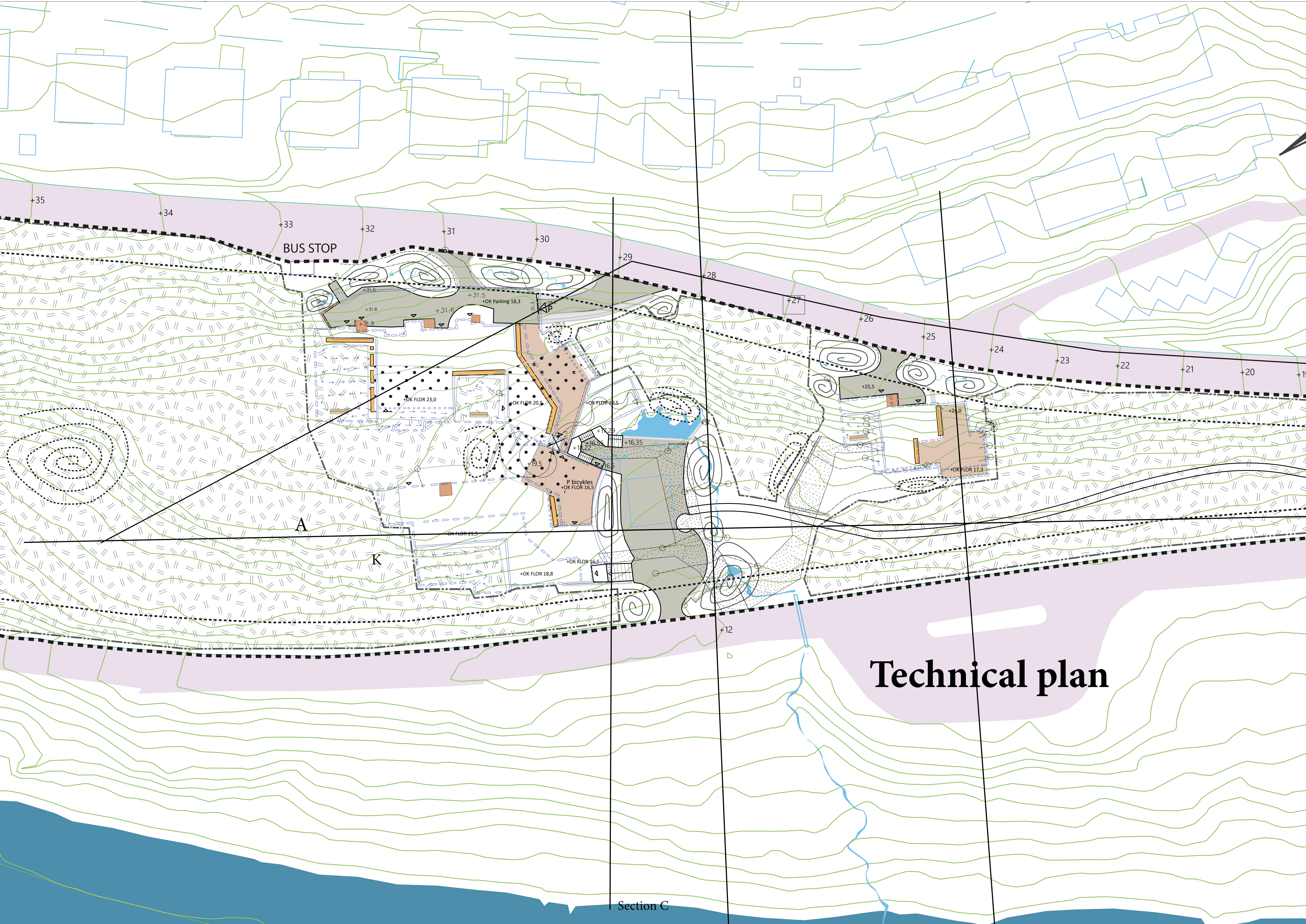


Water and snow

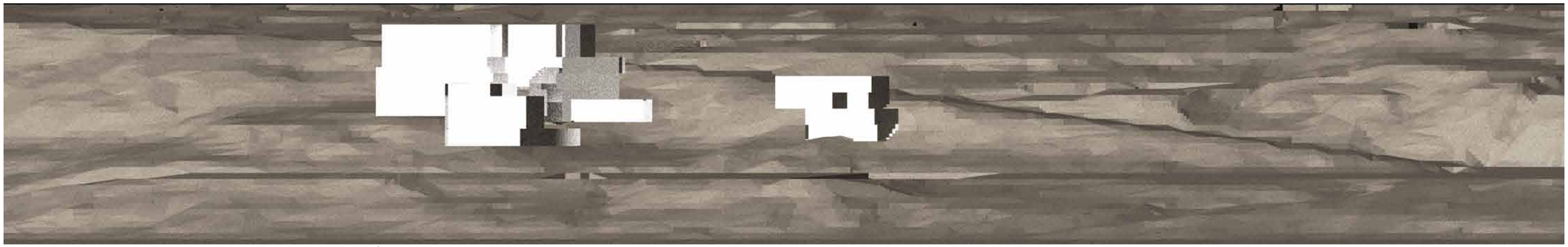

BUS STOP
Fence; kept terrain and trees
Terrain and ground cover is preserved
Greywater treatment
8 meters from road center
Entrance zones, path and ditches for black and greywater



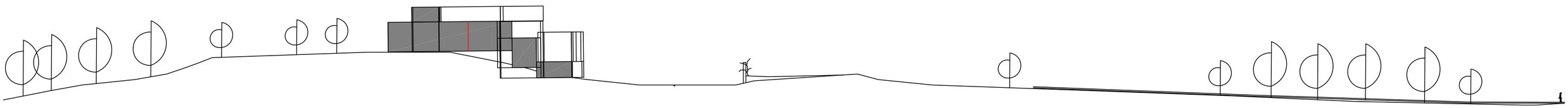
Preserved ground and
outdoor spaces and sunwalls



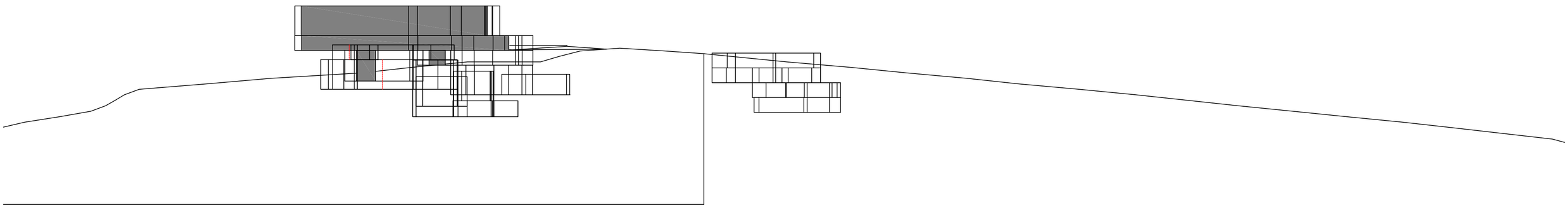
Technical plan



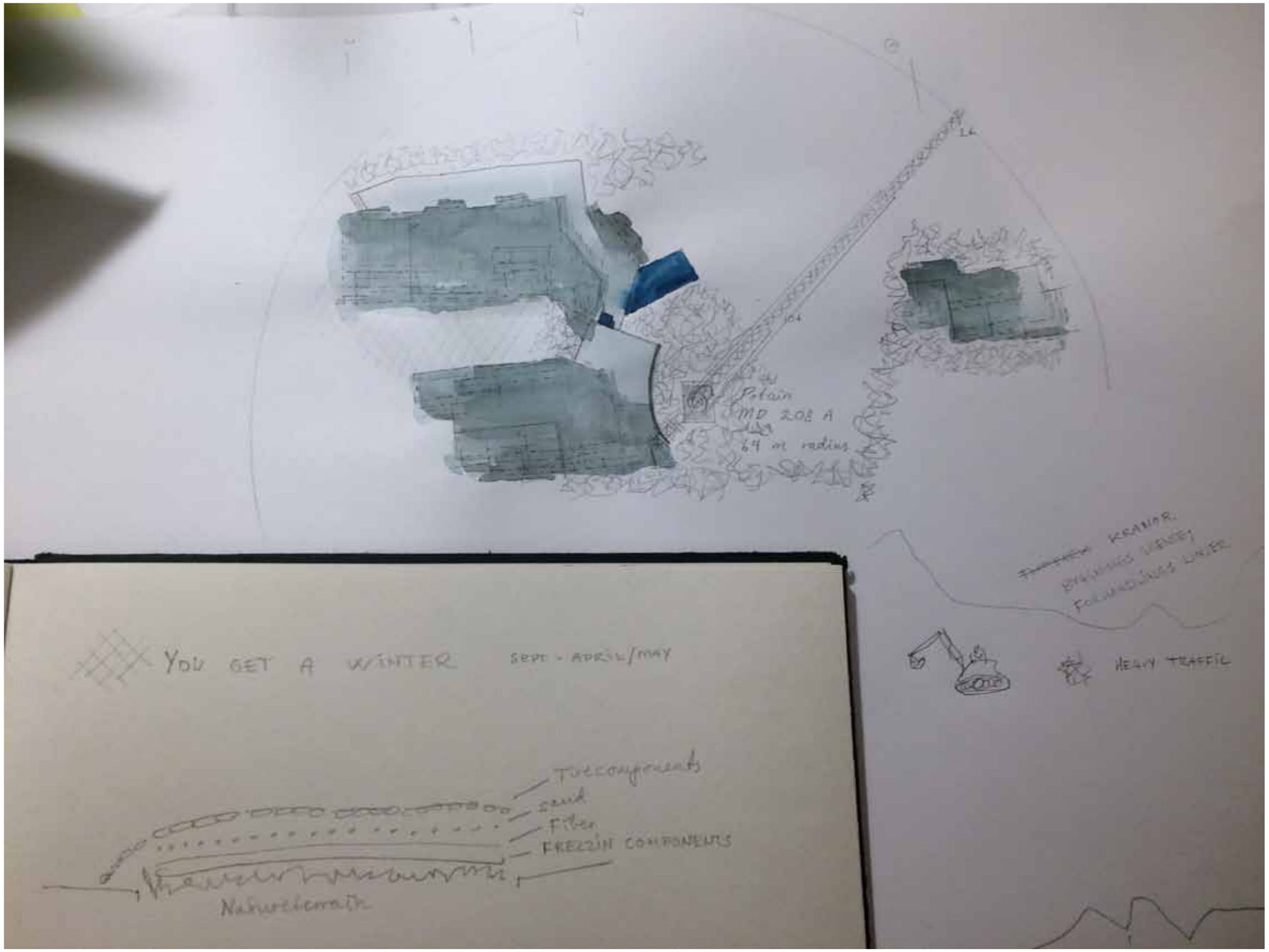
3D rendering from the west towards the plot



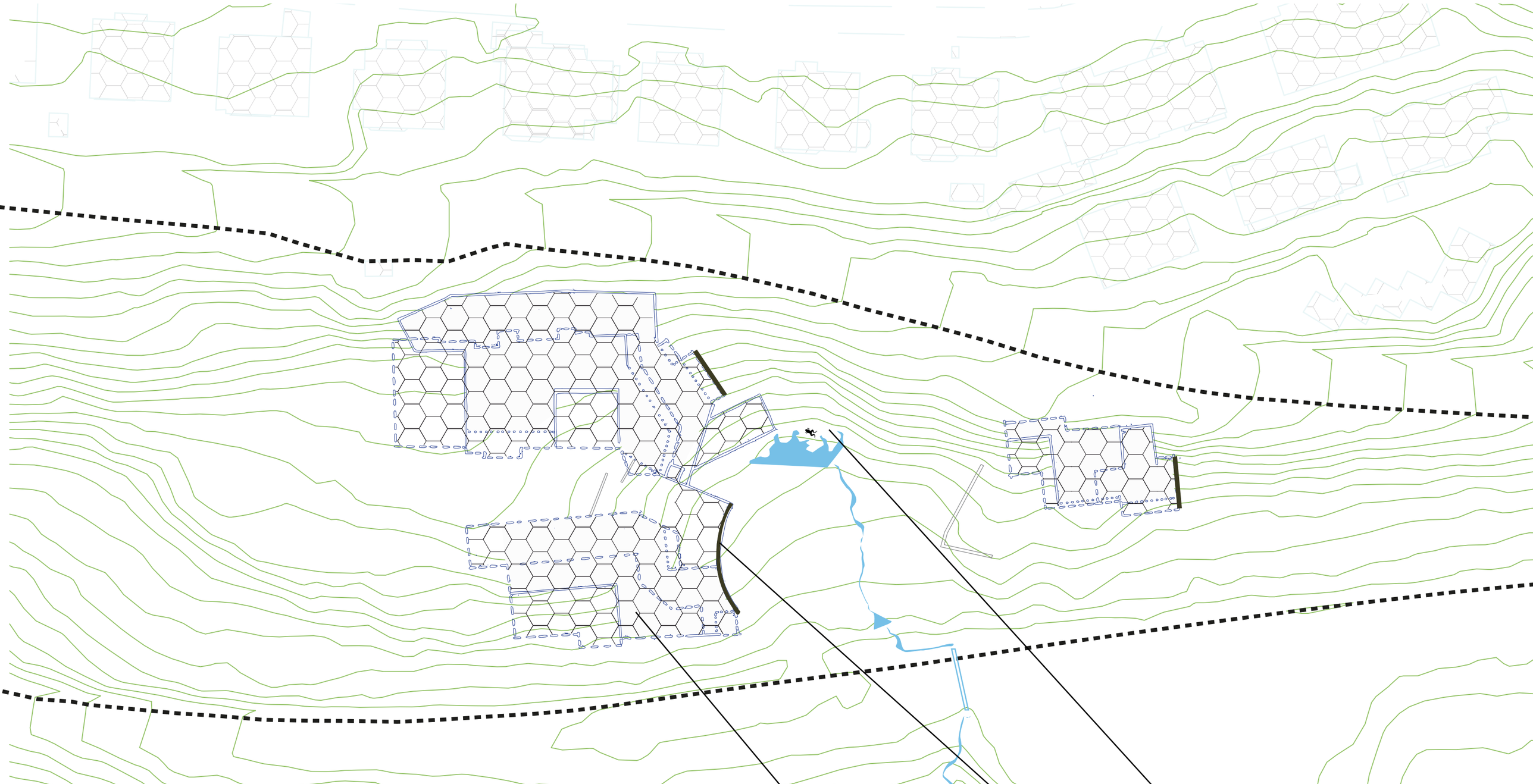
Section A-A’



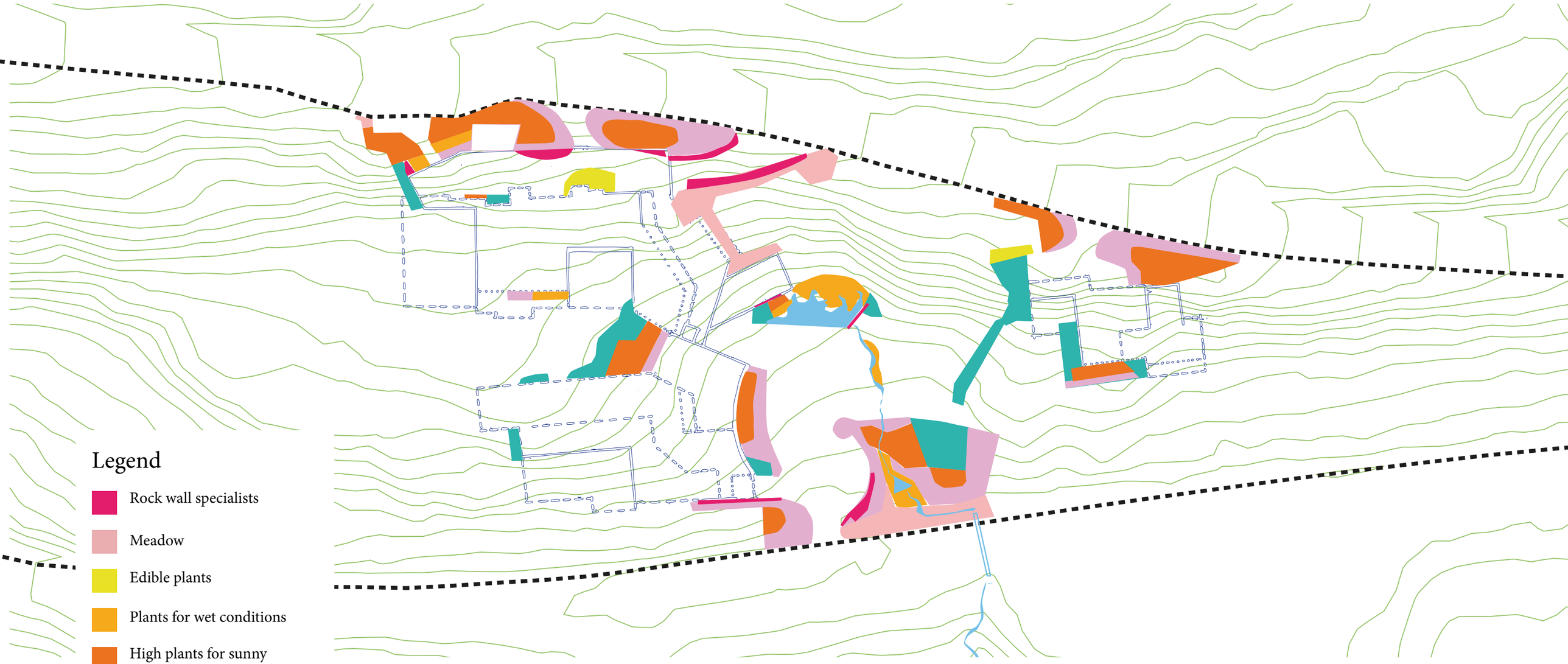
Section K-K’



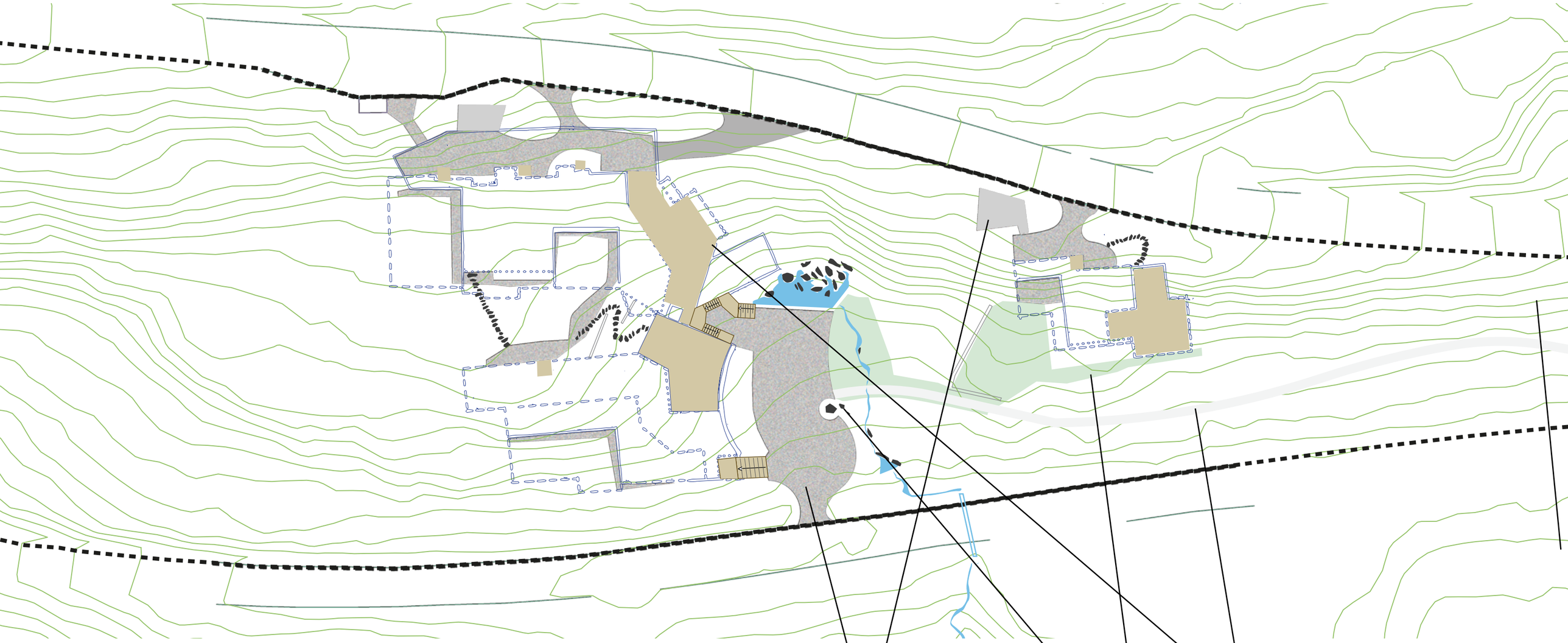
Construction detail of preserved ground under and between the houses: Freezing elements, gravel and concrete tabs on top, make sure that the ground bears the weight of the machinery. September - May.



Humans’ nest, Bats’ nest, Frogs’ den;
Ecological elements



Perennials and snow tolerant bushes, **plant plan**



Walking gravel, stones, treedecks,
playground gravel, grass, pathway,;

ground materiality

BUS STOP

See perspectives H and I

Hammock bliss in summer rain

Snow cave pile

Snow sliding area, small childern

Sun @ 9-15 from 20. of April (10-15) **Playground**

Nature ground: roofed outdoor facilities, hammocks, snowpiles, water, staircases

BUS STOP

H

P

Rosa glauca

Rosa

I

Spirea

E'

Lonicera

F

Salix alaxensis

Rosa

Rosa

P bicykles

J'

D'

Spirea

Rosa glauca

G

Ribes

F'

Cercidiphyllum

Rosa

Lonicera

E

Prunus vir. 'Canada Red'

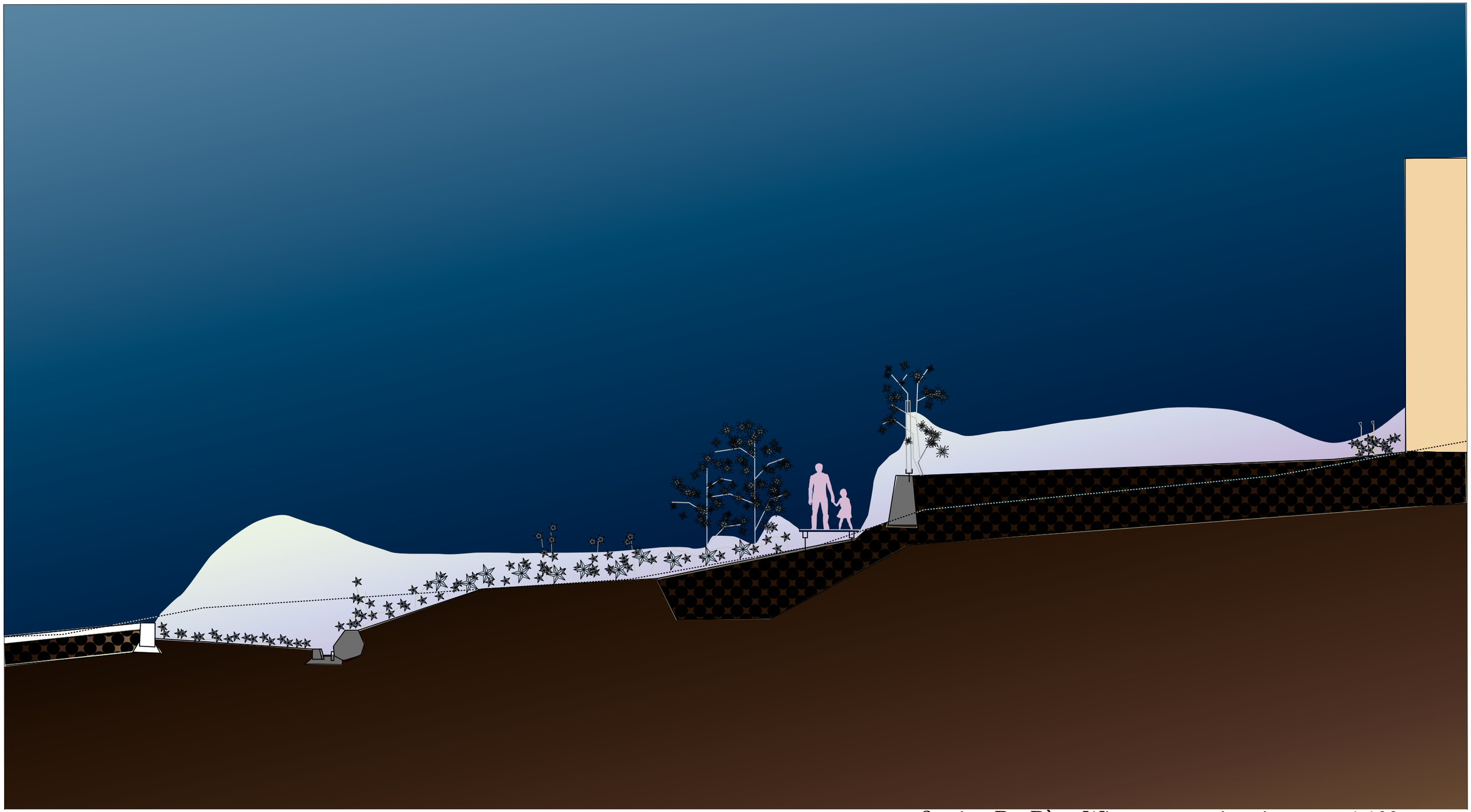
Lonicera

D

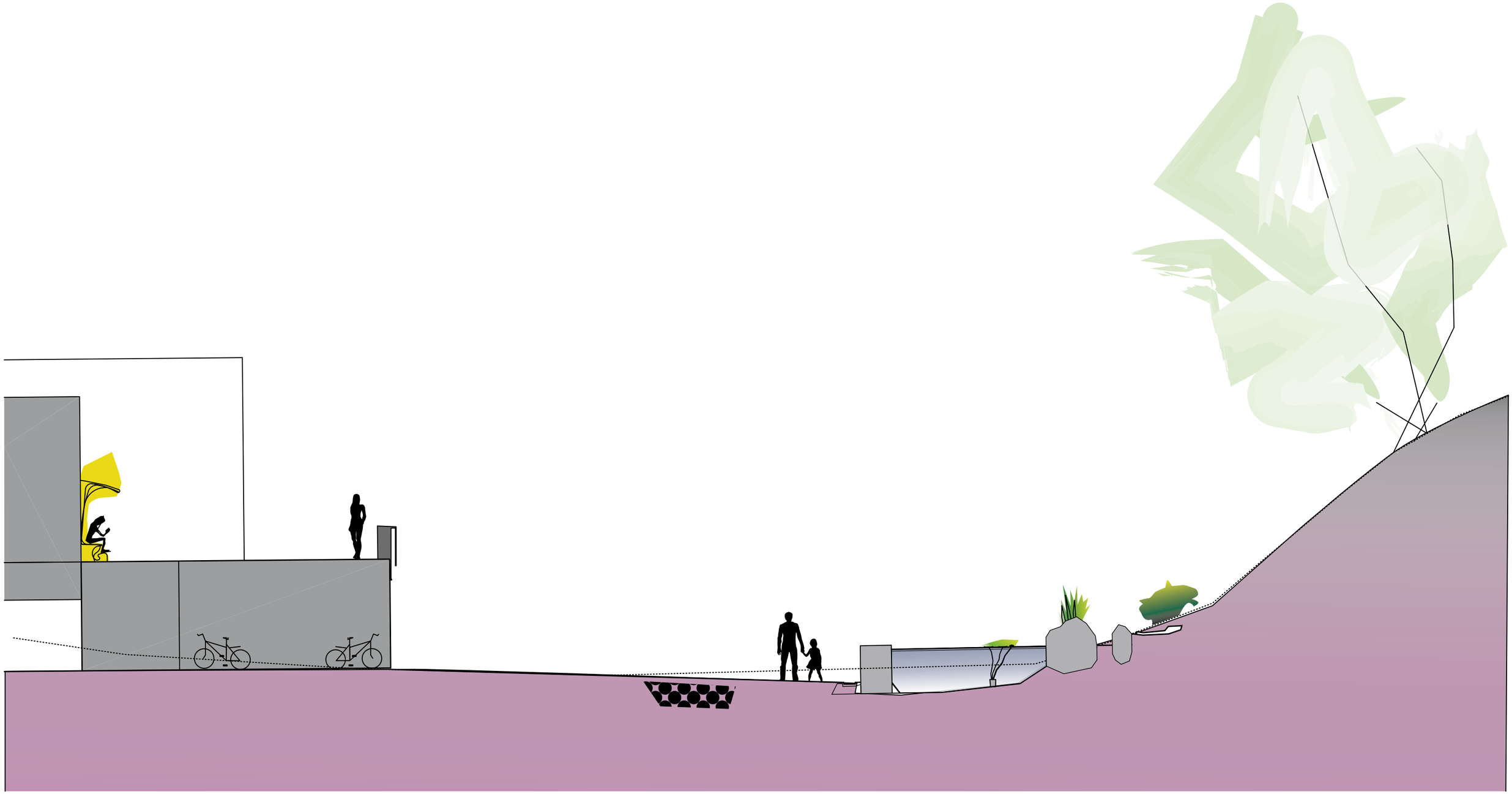
Laburnum alpinum

Viburnum opulus

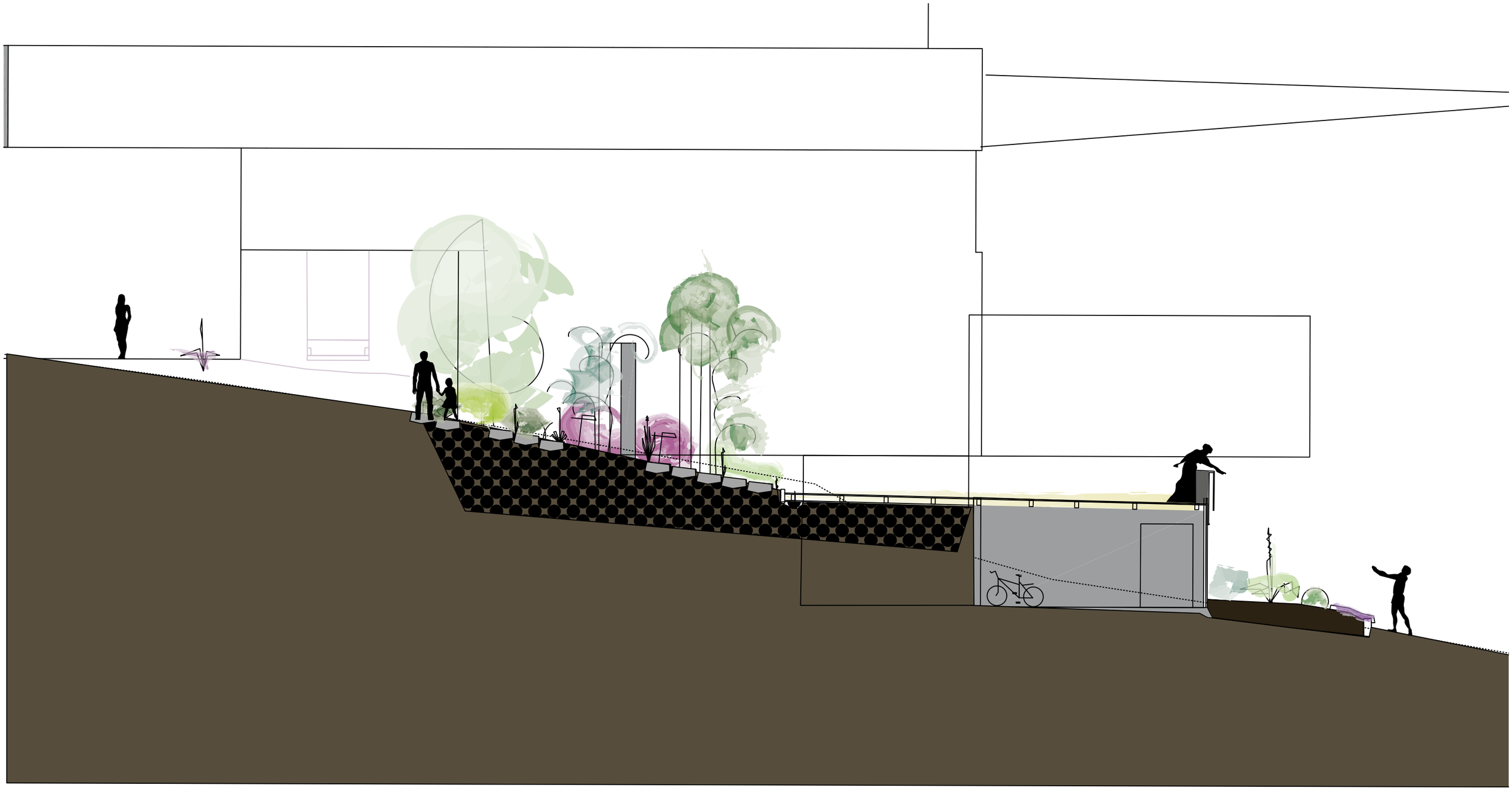
Illustration plan



Section D - D’ Winter snow situation 1:100



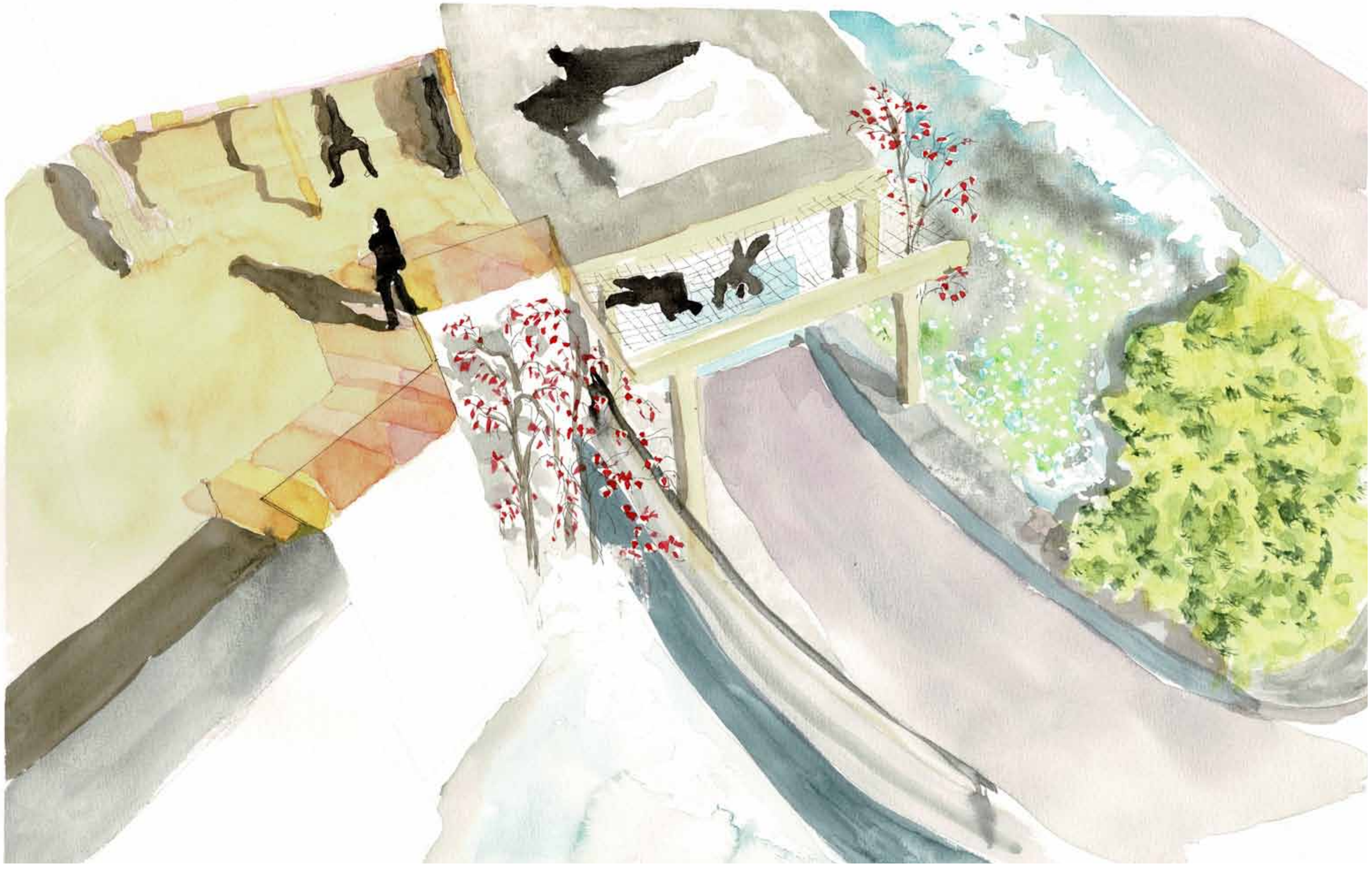
Section E- E’ Summer situation 1:100



Section F- F’ Summer situation 1:100

Perspective G:
Visualisation of the lower courtyard

Perspective H;
Access from Bjørnebekvegen to upper entrance zone, summer view



Perspective I:
Entrance to parking level, approximately 600 m2 of car parking. Playnet, sunwall. Late April/ early May.

Perspective J:
Shadow vegetation, walking gravel, preserved heather and mosses.

Example plants

This selection of plants have great bounty qualities and is hardy for subartic coastal climates. Some, like the meadow category do seed itself some. None of the plant groups are fully explored in such extensive plantings as illustrated in situations with heavy snow loads. Hands on experience of decades with gardens, and 10 years of professional maintenance and highly successive situations is the background for this selection. Every group could be expanded with experimental material, known good plants and near relatives or variants. Exceptions are the a.aflatunense whereas other monumental alliums die during the winters in Tromsø.

These plants do cope with snow, as most are perennials. We do have some ligneous, the climbing ones, the ground covering ones like Thymus and then Ribes and Microbiota, that simply don't get much height. Spirea betufolia variants are masters of snow. It bends and bounces back: only old branches or bad variants will break under snow. Other bushes can be used; planting them horizontally can give an overall growth without height and snow breakage.

LEGEND

- Rock wall specialists
- Meadow
- Edible plants
- Plants for wet conitions
- High plants for sunny positions
- Low plants for sunny positions
- Shadow thriving plants

Trollius

Iris pseudacorus

Iris chrysographes

Eryngium alpinum

Ligularia macrophylla

Primula florindae

Hosta

Dryopteris filix-mas

Astrantia major

Aconitum napellus

Tellima grandiflora

Veronica gentianoides

Corydalis nobilis

Meconopsis grandis

Rodgersia podophylla

Lysimachia punctata

Spiraea betulifolia

Unmarked photos is by Gunnar Graff

Rheum palmatum

Delphinium

Hemorocallis

Phlox

Lillium

Allium aflatunense

Primula denticulata

Sedum rosea

Bergenia cordifolia

Thymus citriodorus

Hepatica nobilis

Erythronium dens-canis

Ribes bracteosum

Geranium & Alchemilla

Microbiota deccusata

Chionodoxa

Heuchera

Dianthus arvernensis

Chionodoxa

Saxifraga

Phlox

Papaver nudicaule

Chrysanthemum leucanthemum

Allium sibiricum

Climbing plant/ ground cover
Hydrangea anomala

Clilmbing plant
Clematis alpina

Half climber, tying to wall
Rosa moyesii

Ref. 2 Laburnum, Troms
GG (Gunnar Graff)

Ref. 3 Ribes in freestanding wall, Tromsø
GG

Ref. 4 Rosa on wall, Strandvegen, Tromsø
MG

Fig. 22
MG

From approximately 10 000 square meters of the original plot, around 70 % is preserved.

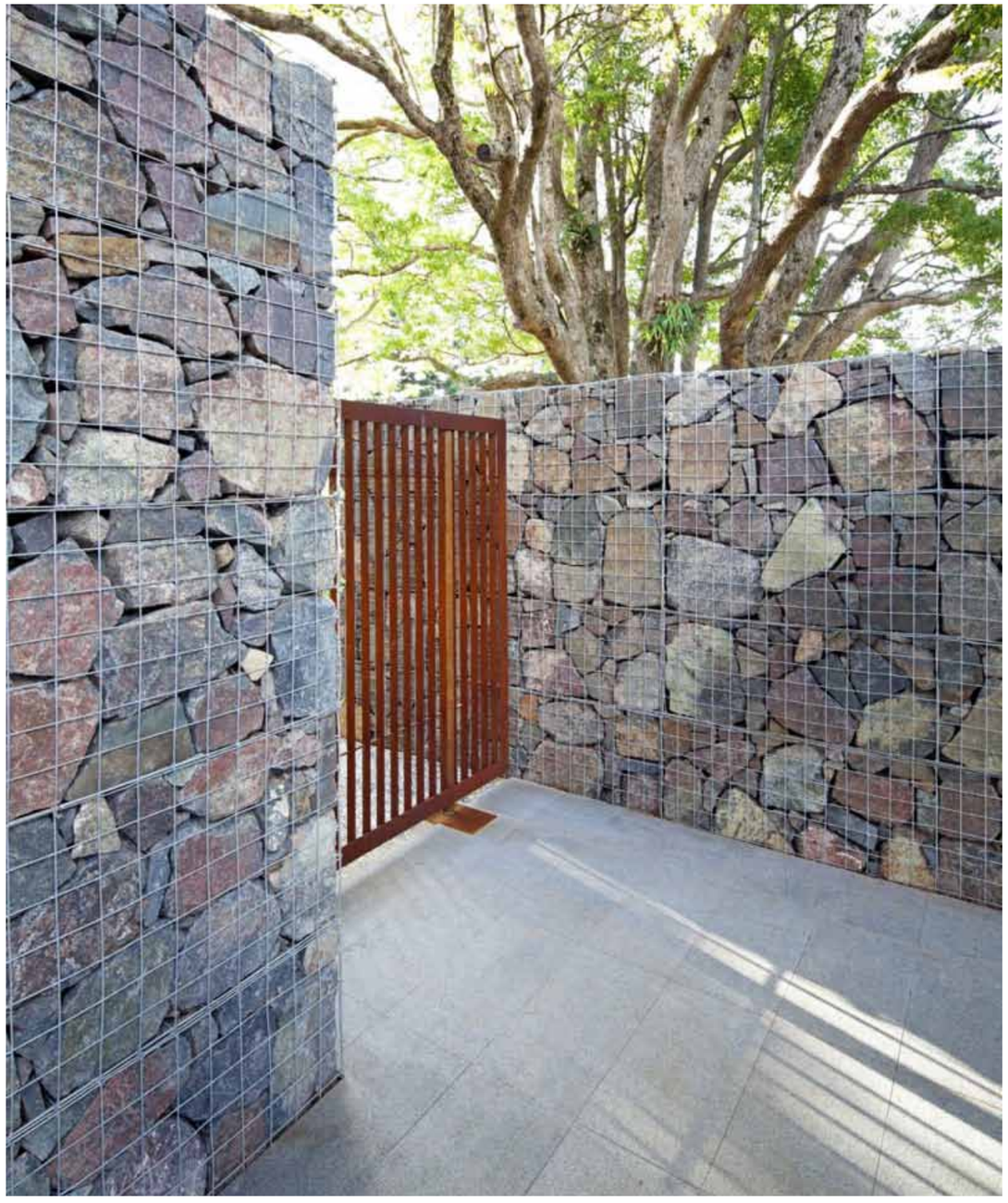
3000 square meters of collective housing is possible, where maximum housing units is 42.

The work have been concentrated on climate adaption and has given a solution in steep terrain.

Referances on matereality and lighting

Ref. 1 Lighting along structures
Permission given of owner

Ref. 8
plexiglass and lights. 2 LIGHTING INSTALLATION PUBLISHED JUNE 7, 2017 AT 768 × 708 IN SURPRISING LIGHTING INSTALLATION



Ref. 5 Gabin wall
The Maleny House by Bark Design Architects. Landscape design by Pat Atkin, Landform. Photography by Christopher Frederick Jones.
http://www.contemporist.com/what-are-gabions/

Ref. 6 Local rock
MG

Ref. 7 Local rock
MG

Ref. 9 Pavilion

Wetland folly, by Herbst architects, photo by Jackie Meiring
http://herbstarchitects.co.nz/projects/wetlands-folly

Ref. 10
Raised trail. Naturepark, Berlin
MG

Ref. 11
Square Meal
Winnipeg, MB
http://www.5468796.ca/#menu

Ref. 12 Sunwall Hjalmar Johansen gt. 11; Tromsø
MG

Ref. 13 Housing example in steep terrain
Karekare house, Herbst architects
http://herbstarchitects.co.nz