MA4-URB2, June 2010

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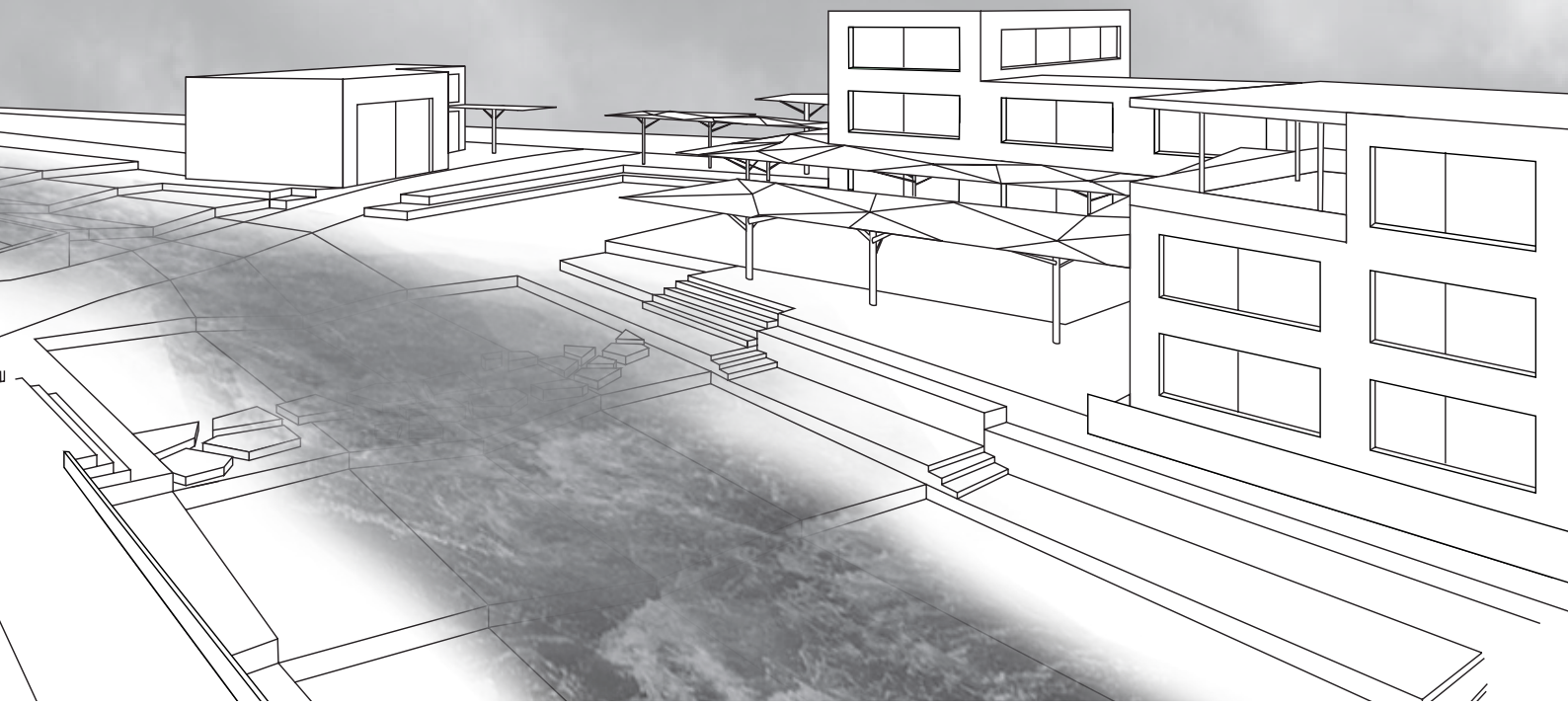
DESIGN PROCESS

CLIMATE DESIGN

WORKING WITH VULNERABLE URBANITIES IN MOZAMBIQUE



INTRODUCTION

This book is a sum up of the process we have been through in this project.

The project started at the workshop of; Humanitarian Disaster: Challenges for Architecture at the Royal Academy School of Architecture, where we established contacts to our collaborators in Mozambique. This resulted in a 3 week study trip in February with the purpose of collecting material to build the project on.

When we came to Mozambique we found the site of North-eastern Maputo, which had problems with climate change which was our starting point. Our second focus on urban growth was however not our focus at that time as there were many other problems in the context. What was very notable in the area was that the rich and the poor population were living relatively close together. The streets were however the only meeting point between the two groups, and we wanted to take a closer look on how we could generate a development with room for both social levels and with spaces for interaction between them. We saw gentrification of the area as a large issue, and wanted to work with that issue as the focus next to climate change. But as the project progressed, and we made the analysis we discovered that to really work with climate change related issues, we had to focus on what was the immediate issue of the area, and that was the hydrodynamic flow and the urban growth. This meant however that the design process has been split in two parts with two different focuses. In this report we will not show the first process as much as the process behind the finished design. What we will show is the initial state of project focus and how we came to discuss the notions on flexible planning.

The design process presented is therefore organised into two parts, where part one focuses on the stages until the project focus, and part two focuses on the design of Escadaria D' Água.

Part two is organised into themes of; The Wadi, Programs, Build environment and the lake. After that we go into detailing of the Neighbourhood centre.

PART ONE

WORKSHOP

HUMANITARIAN DISASTER: CHALLENGES FOR ARCHITECTURE
ROYAL ACADEMY SCHOOL OF ARCHITECTURE

The workshop was organised by Jorge Lobos and consisted of a series of lectures through the fall of 2009 and a two week workshop in the end of January 2010.
The workshop was dealing with five different cases on five continents. We were working with the case of Chokwé in the centre of Mozambique which recently had suffered from a large flood. In a group of four we made a strategy and design proposal for how the urban poor could live with frequent floods. We called our design "Living with floods" and it consisted of an escape plan, a plan for control of urban growth and a concrete design of an escape station combined with community centre facilities.

We met Carlos Trindade, Farnando Ferreiro and Eduardo Feuerhake at the workshop who helped us with establish contacts and site location in Mozambique.

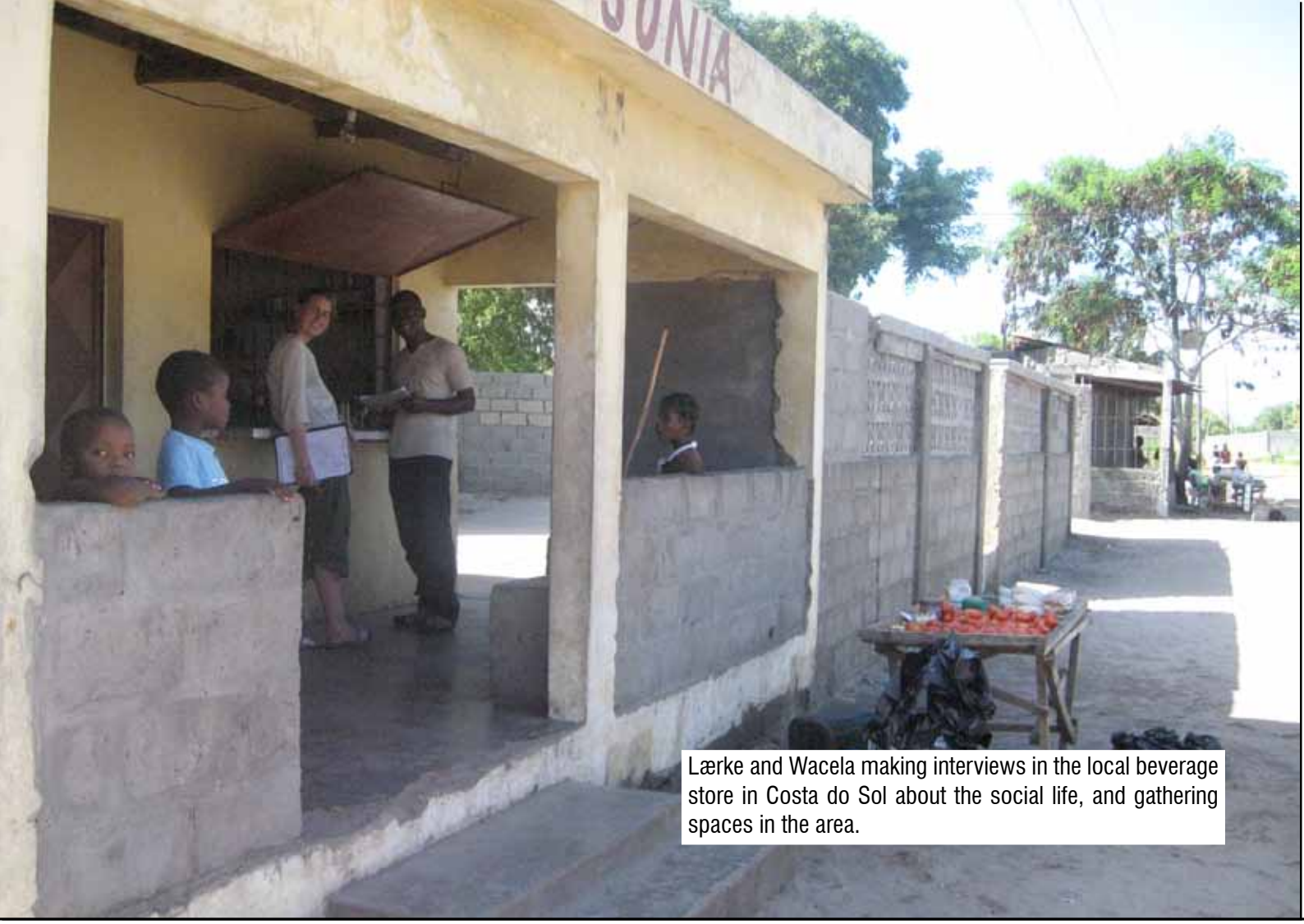
Lærke and Kirstin are making models of the escape station

The escape station is build up by prefabricated concrete columns and has room for a market on the ground floor, which is raised one meter from the ground to prevent frequent flooding. The station has a first floor which is a flexible space with temporary moveable walls that can make room for a clinic, classrooms, local work offices etc. The station is functioning as a community centre most of the time but in case of emergencies the station can hold up to 1000 people, who can either be evacuated by boat or helicopter.

The trip to Mozambique had a large impression on us, as none of us had ever been to the continent before. When travelling as tourists, one can manage with sign language but when making a research project more skills are needed and the language was a large barrier. Lucky we met Otelo Uetela, Wacela Macamo and Pedro Coimbra, students at Eduardo Mondlane University who had time to help us with translating in interview situation. They were also familiar with the local area, and knew a lot about how they are organised etc.

The second challenge was the time aspect. Mozambiquen time is not European time, and everything just takes longer. We experienced that when arranging interviews with people they were rearranged once or twice. In many ways it was needed to spend three weeks in Mozambique. When this is said it is important to mention that we meet a very open mind towards our project and we had no trouble getting in contact with the right people that could give us the necessary knowledge and data from which we a extremely thankful.

STUDY TRIP TO MOZAMBIQUE

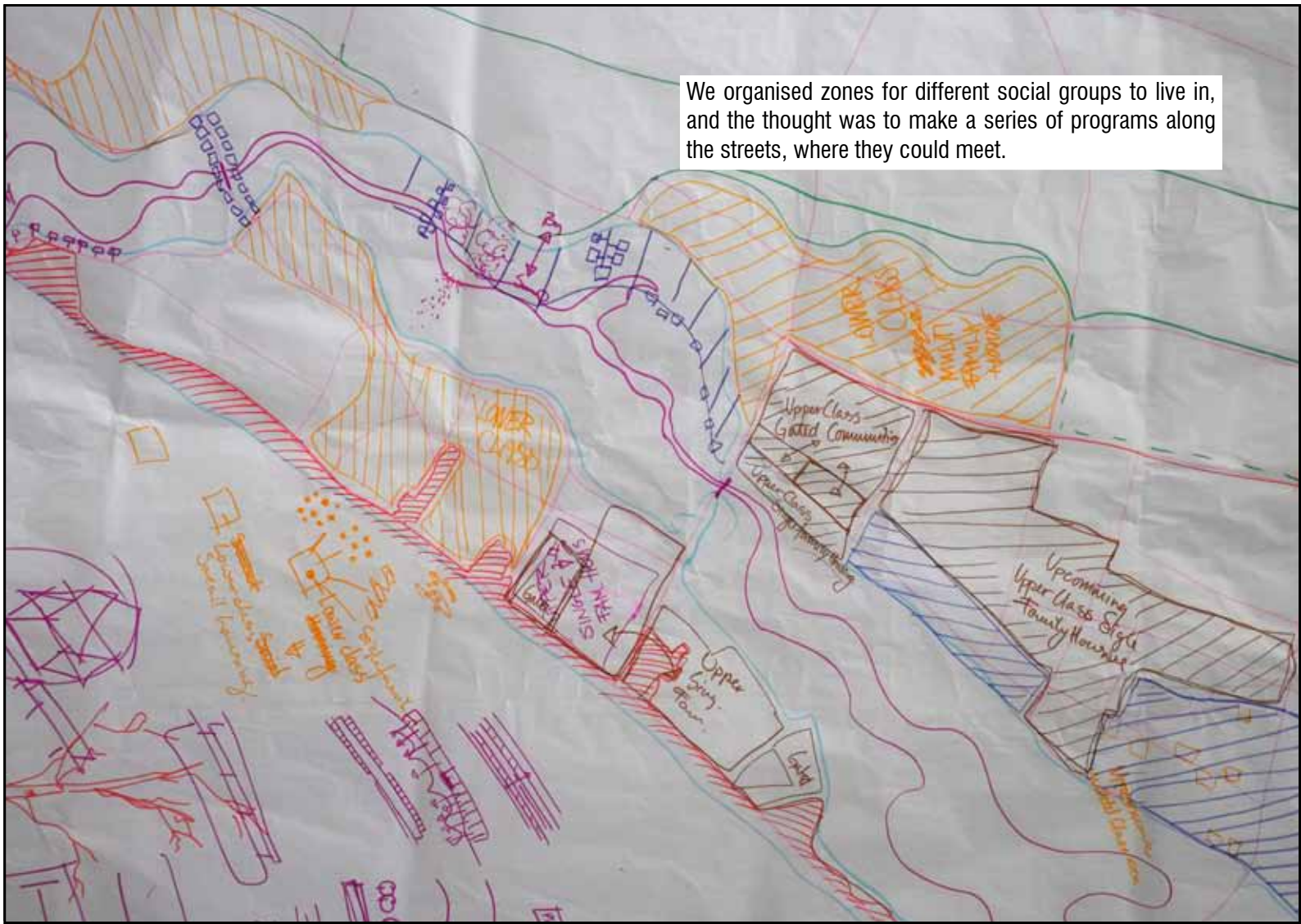


Lærke and Wacela making interviews in the local beverage store in Costa do Sol about the social life, and gathering spaces in the area.

Stine is interviewing a local family about the social structures and their family life. This gave us a broad understanding of the neighbourhood and the culture.

The first part of the design process was rather chaotic as all initial steps to a design is. What was characteristic about it was however that we were using a top down planning approach to deal with the problems in North-eastern Maputo. We focused on how the social groups were integrated in the planning process, but we realised that we were planning the area in a much larger detail level than was actually possible for the municipality to fulfil. At the same time we needed a way of dealing with the very large scale problems of climate adaption and urban growth. This was the seed for the flexible planning approach and it meant that the process in this scale took a turn towards a much more strategic perspective with a theoretic back-ground.

INITIAL DESIGN PROCESS



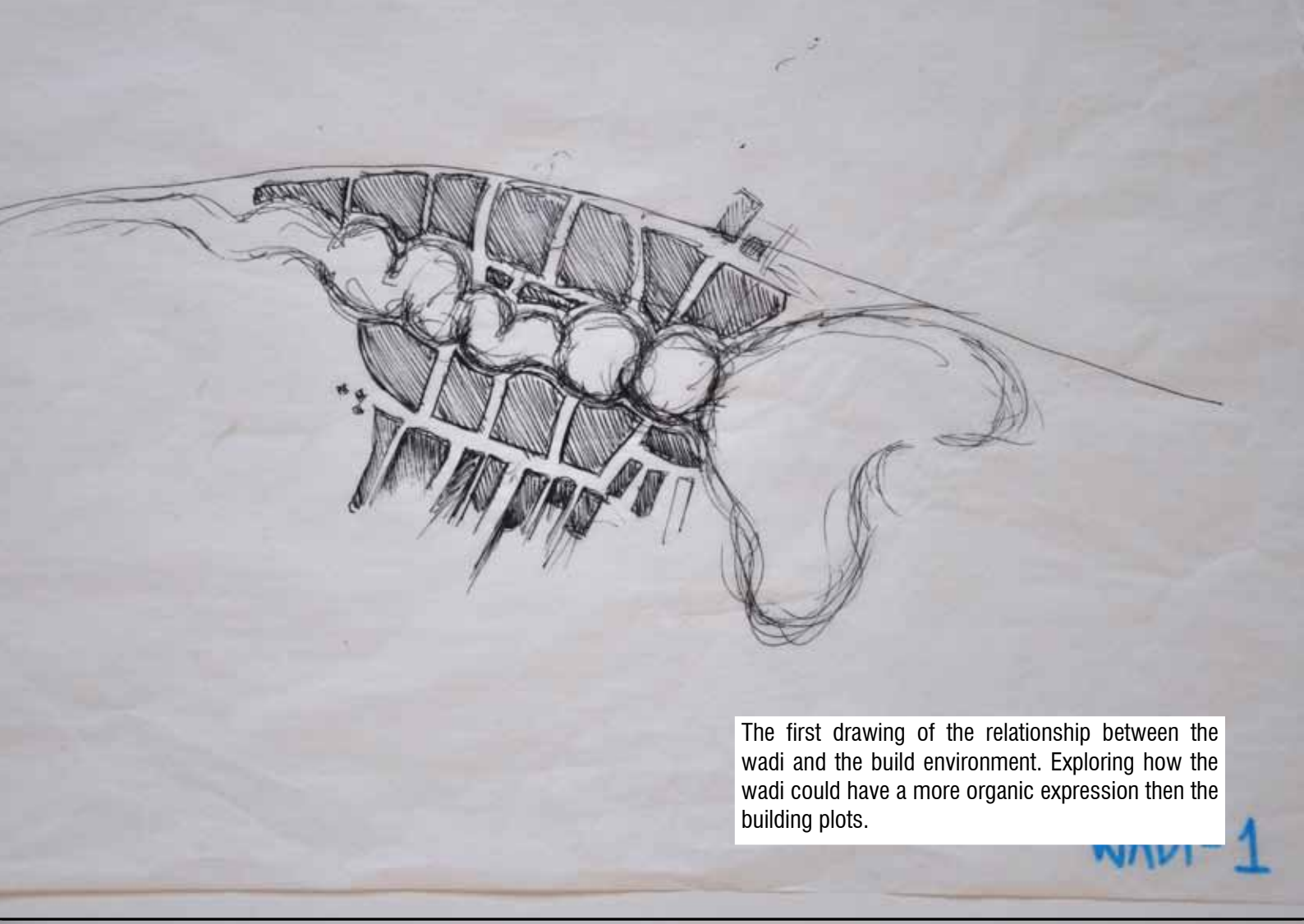
We organised zones for different social groups to live in, and the thought was to make a series of programs along the streets, where they could meet.

This section is a extract of the most important sketches telling the steps of how the design has progressed. They are categorised to make it easier to explain the process, but in reality the process has gone back and forth between the different categories.

PART TWO

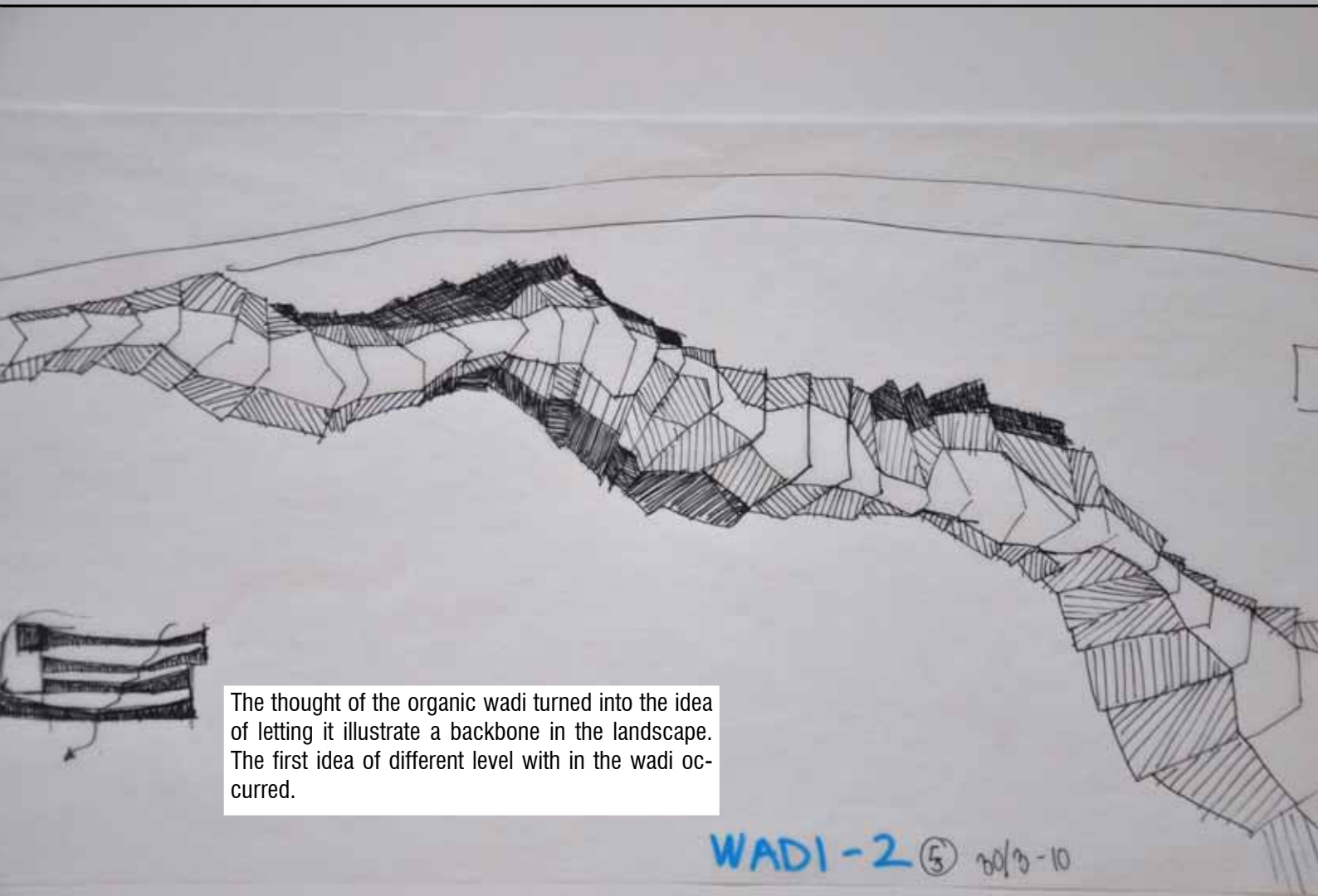
THE WADI

The wadi was created to control the surface water flow coming from the hill and running through the erosion trench taking waste, soil and even houses with it. The water was coursing large problems in the area of the hill and at the bellow laying area of Costa do Sol. The first and foremost design task was to get the wadi implemented in the landscape and in the build environment on the slope and making it contribute to the urban environment around it.



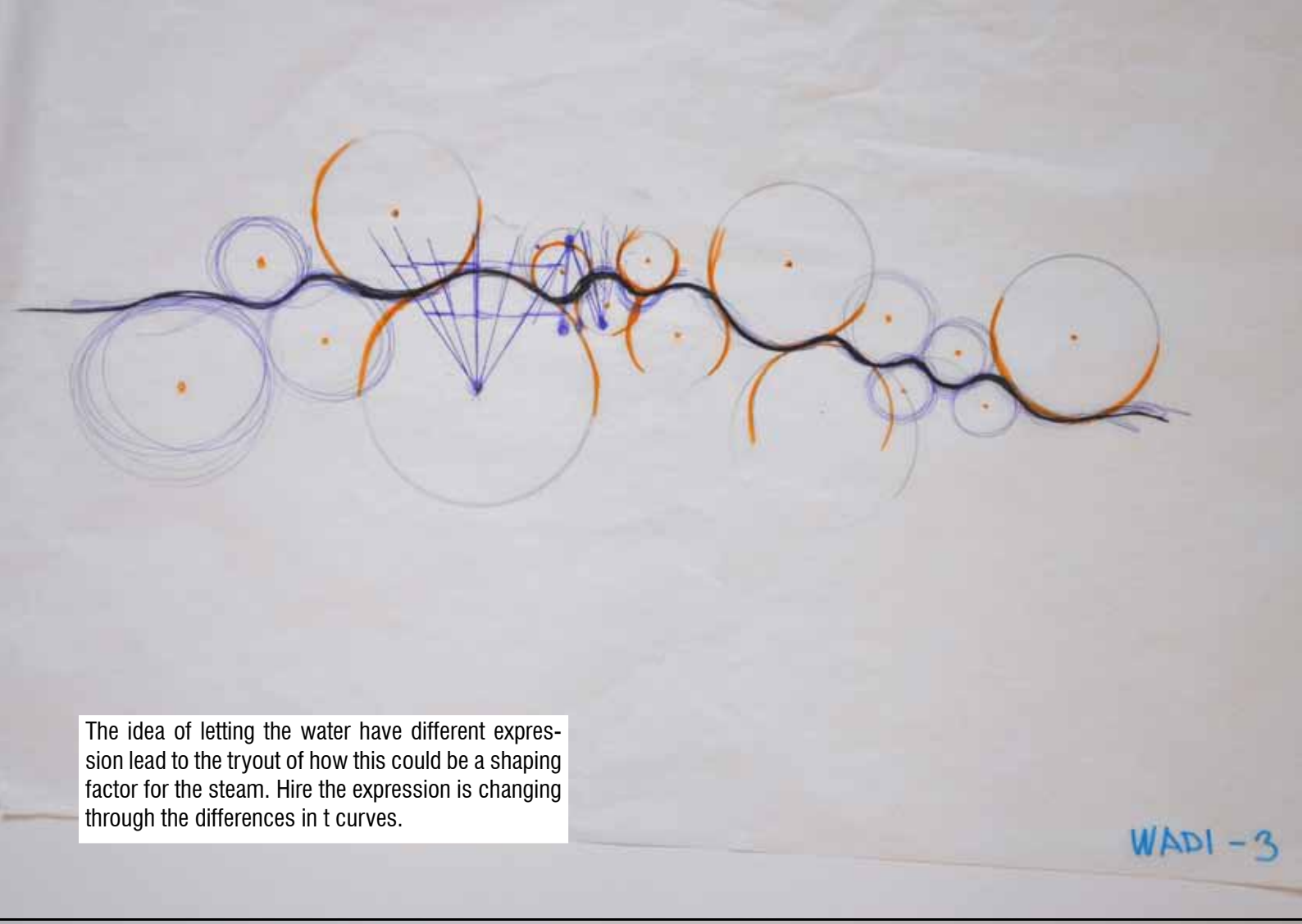
The first drawing of the relationship between the wadi and the build environment. Exploring how the wadi could have a more organic expression then the building plots.

WADI - 1



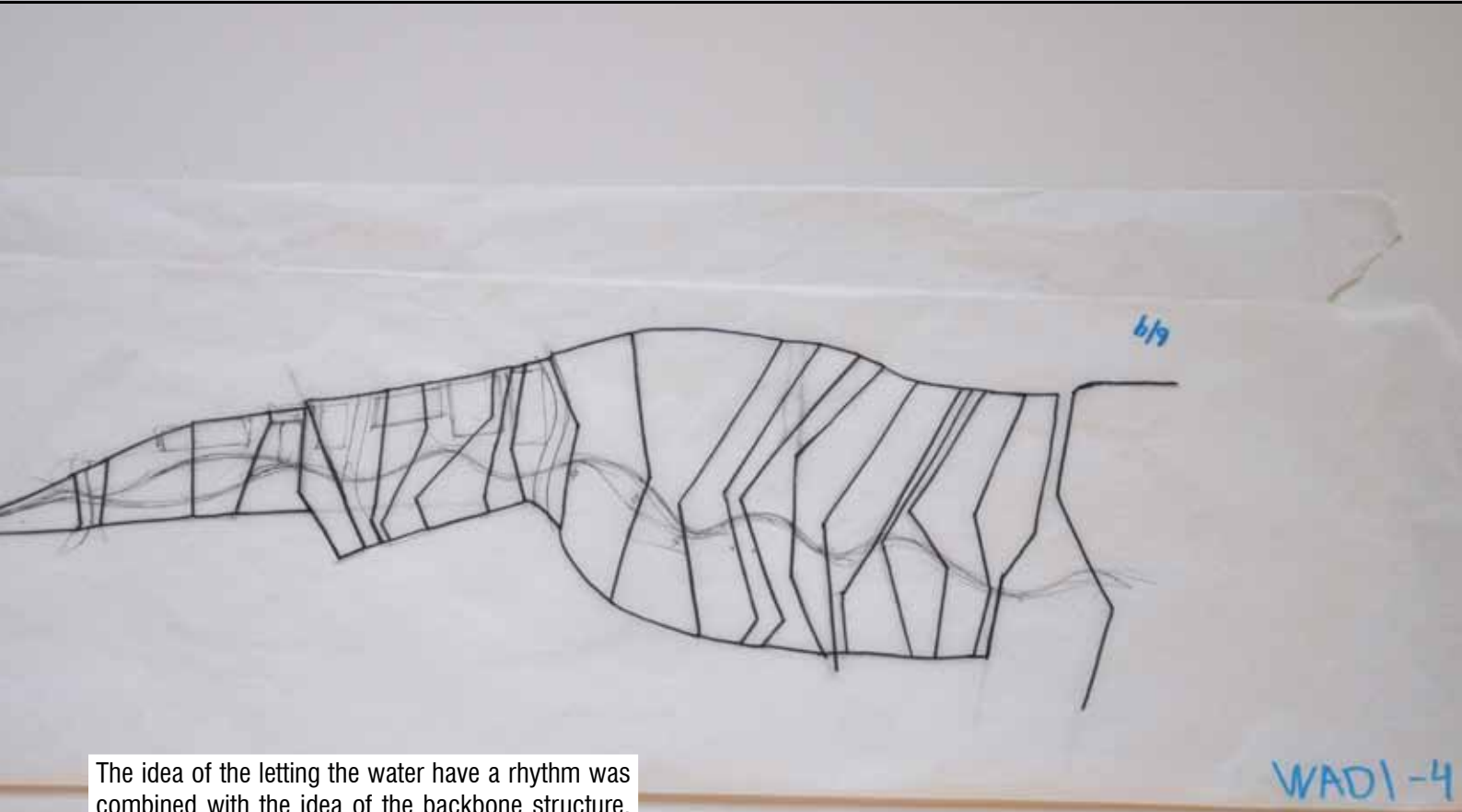
The thought of the organic wadi turned into the idea of letting it illustrate a backbone in the landscape. The first idea of different level with in the wadi occurred.

WADI - 2 ⑤ 30/3 - 10



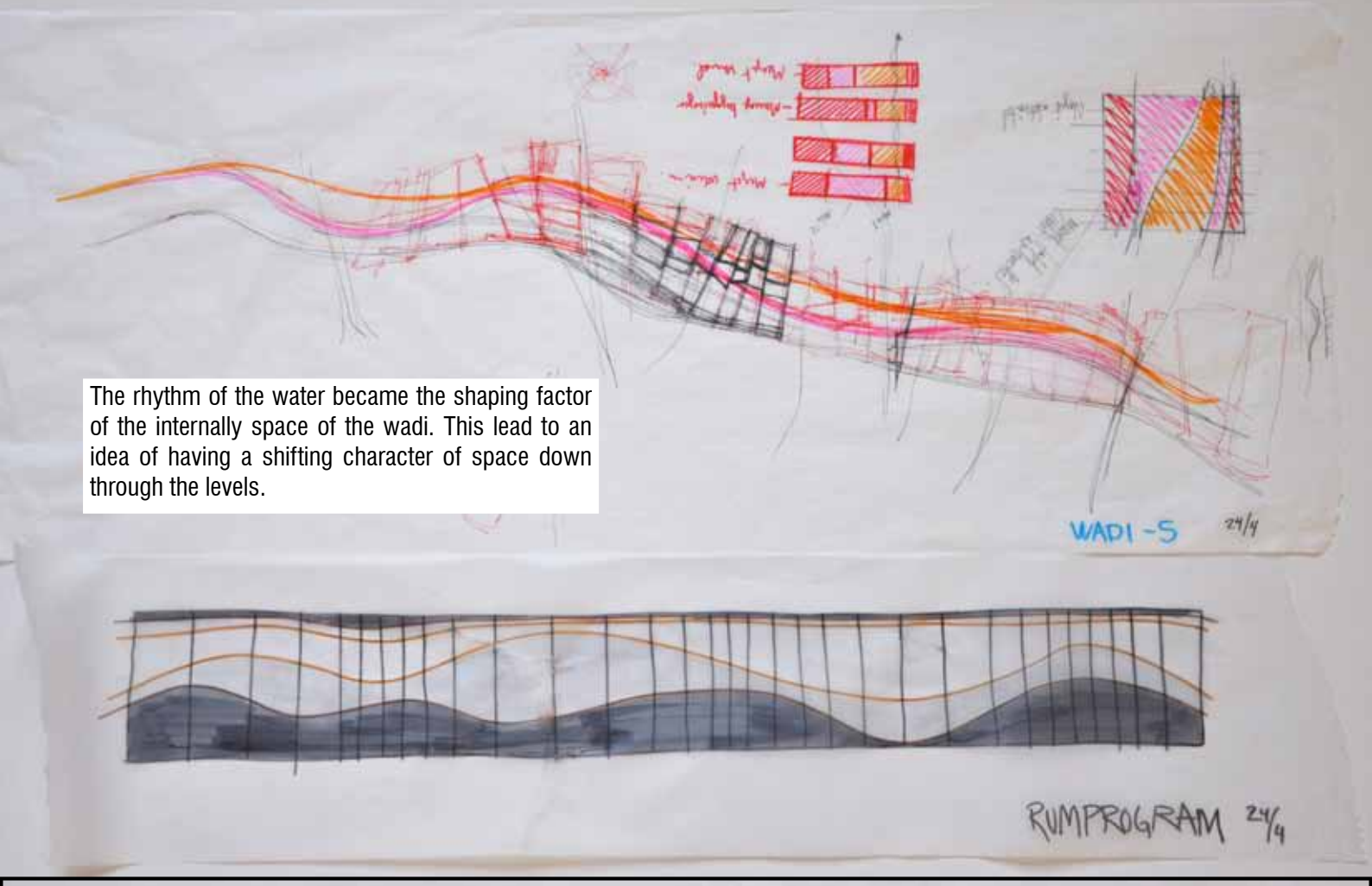
The idea of letting the water have different expression lead to the tryout of how this could be a shaping factor for the steam. Hire the expression is changing through the differences in t curves.

WADI -3



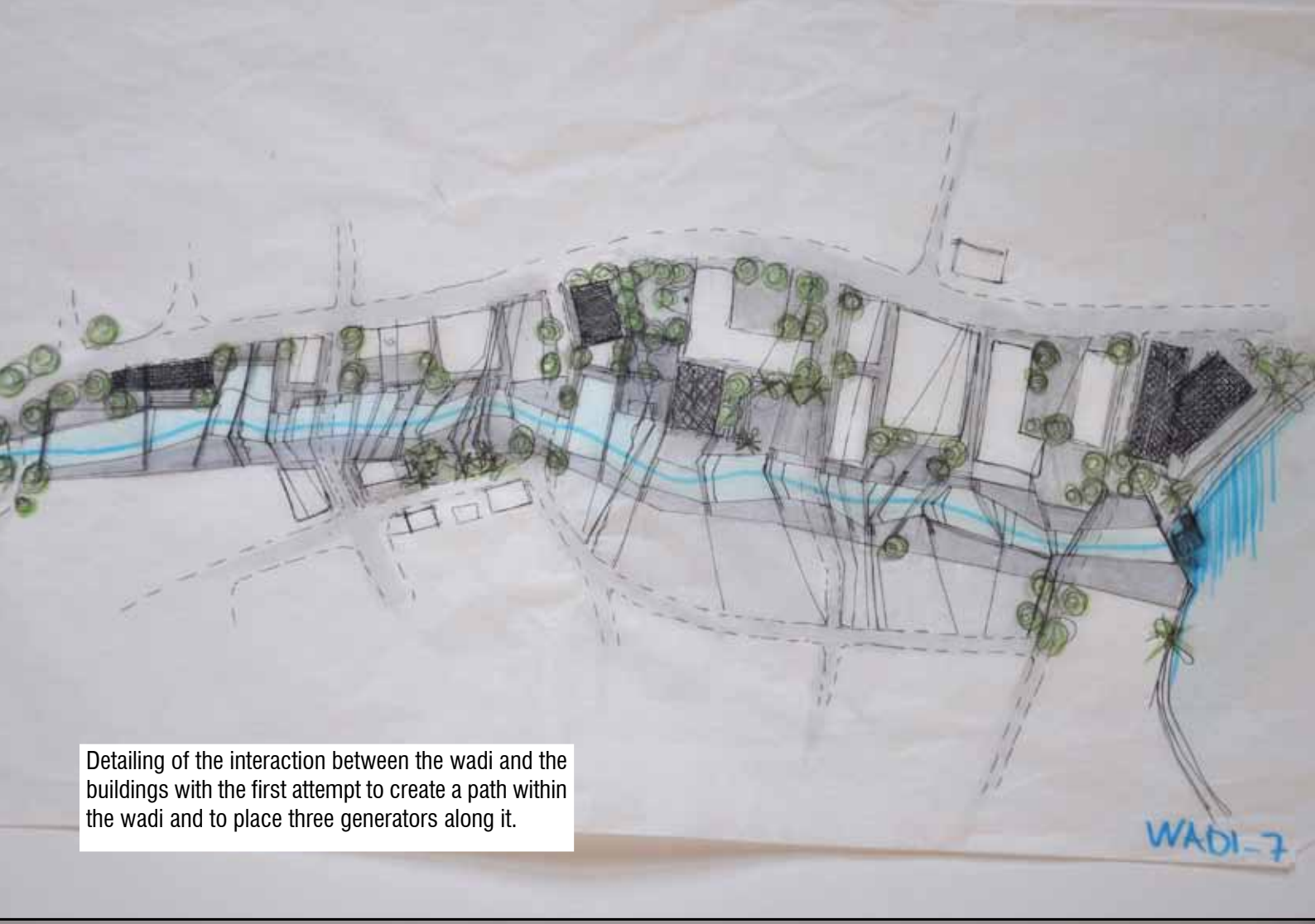
The idea of the letting the water have a rhythm was combined with the idea of the backbone structure. This sketch shows how a reading of lines in the landscape could be the shaping factor of the wadi.

WADI -4

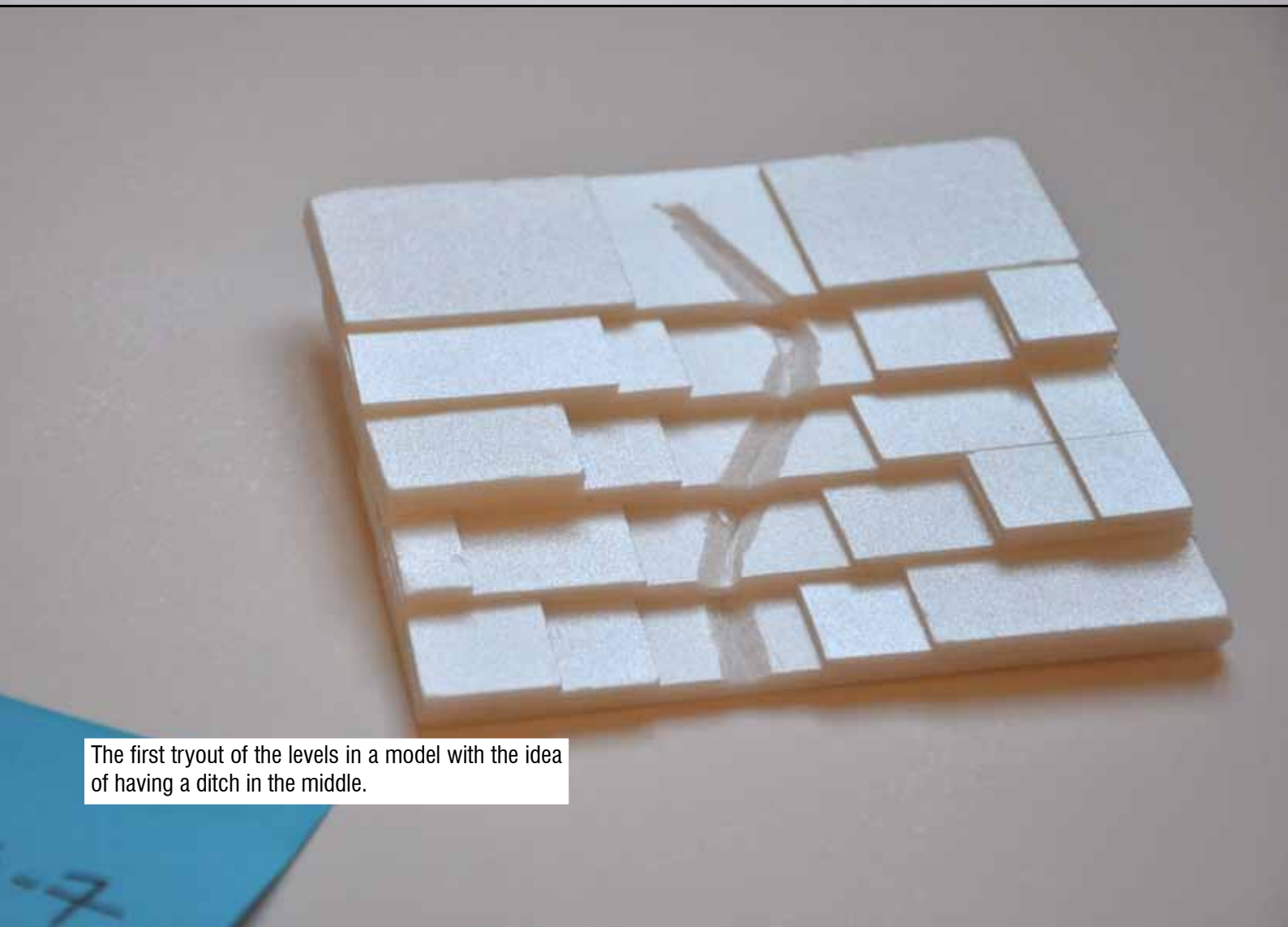


The rhythm of the water became the shaping factor of the internally space of the wadi. This lead to an idea of having a shifting character of space down through the levels.

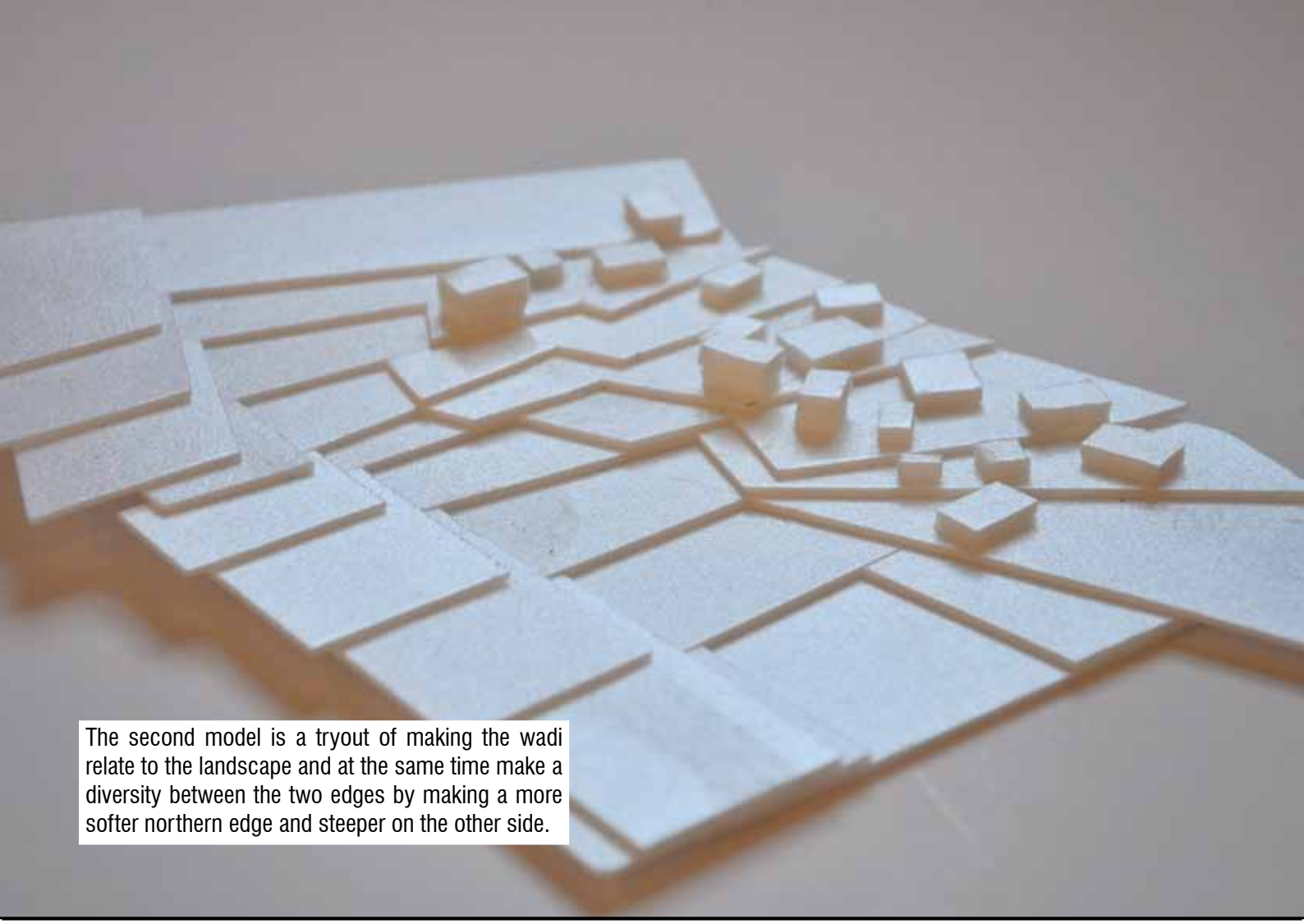
The idea of the backbone, the shifting water expression and the lines of the landscape was combined with the idea of somewhere letting the wadi cut into the build environment.



Detailing of the interaction between the wadi and the buildings with the first attempt to create a path within the wadi and to place three generators along it.



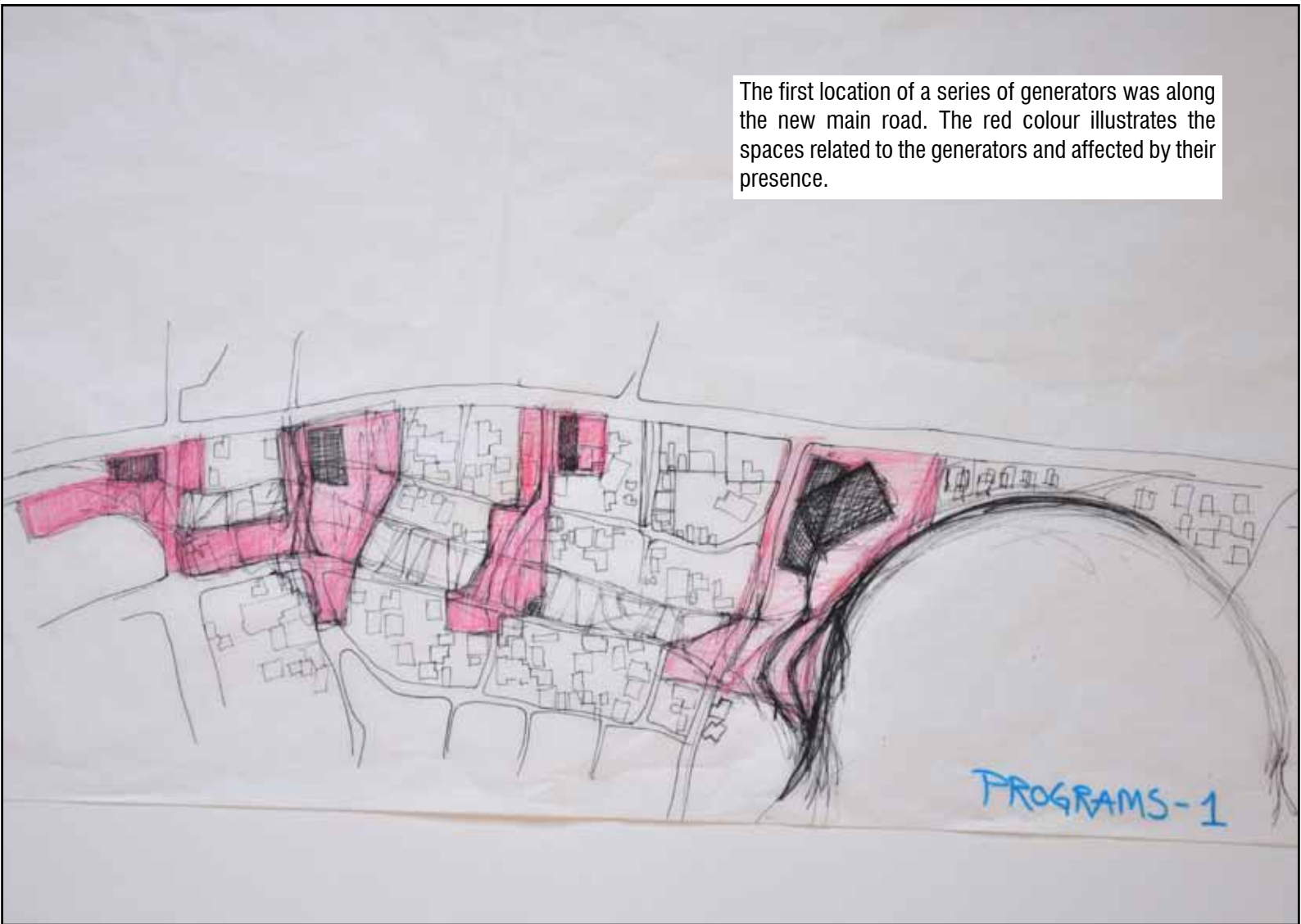
The first tryout of the levels in a model with the idea of having a ditch in the middle.



The second model is a tryout of making the wadi relate to the landscape and at the same time make a diversity between the two edges by making a more softer northern edge and steeper on the other side.

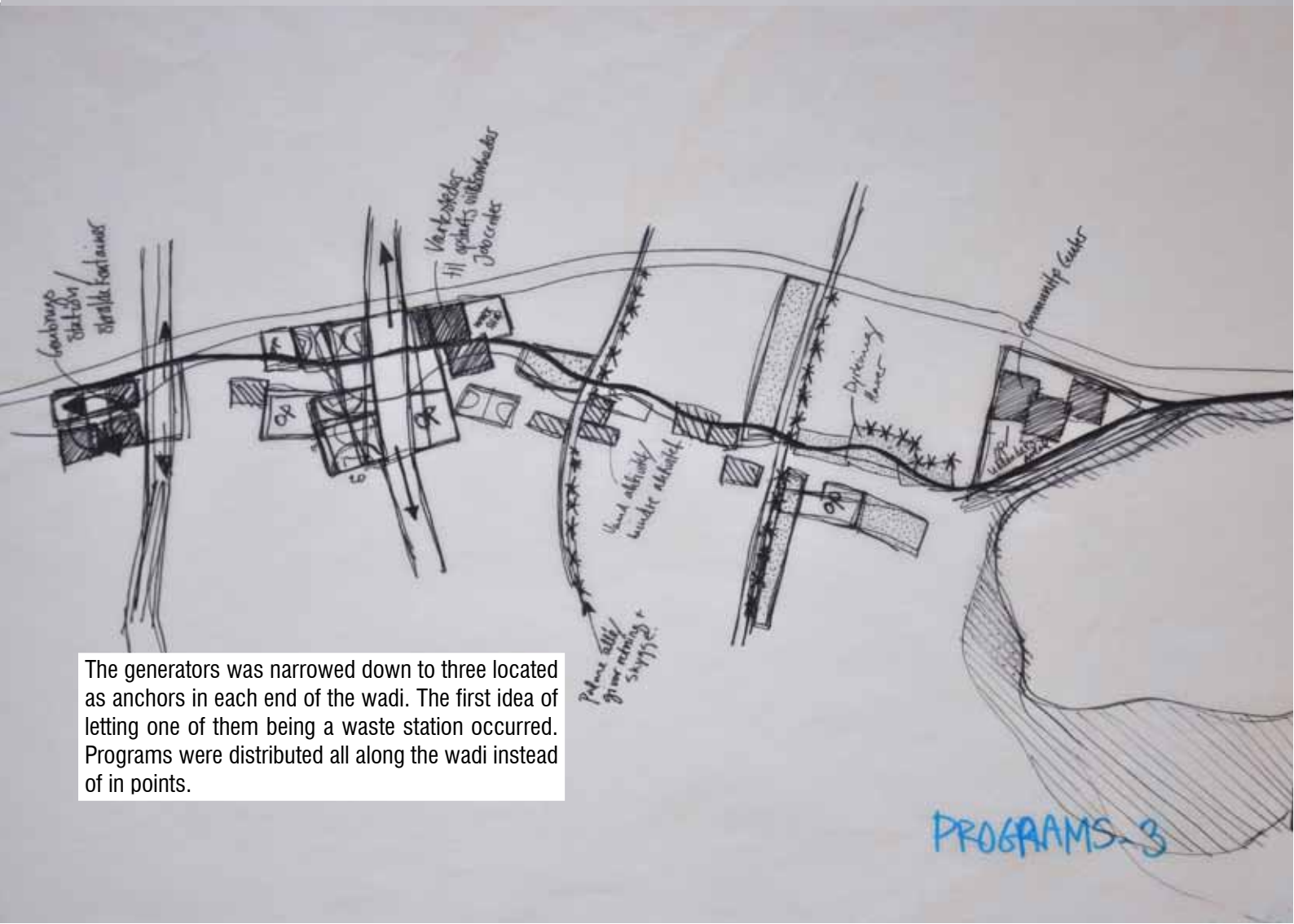
It was especially important for us to implement new programs in the area. The main reasons for this was to make the locals gat a relation to the wadi in order to understands its purpose and thereby treasure and care for it. Furthermore shall the programs invite to more informal meetings and activities to force the community and activate many of the children and teenagers.

PROGRAMS

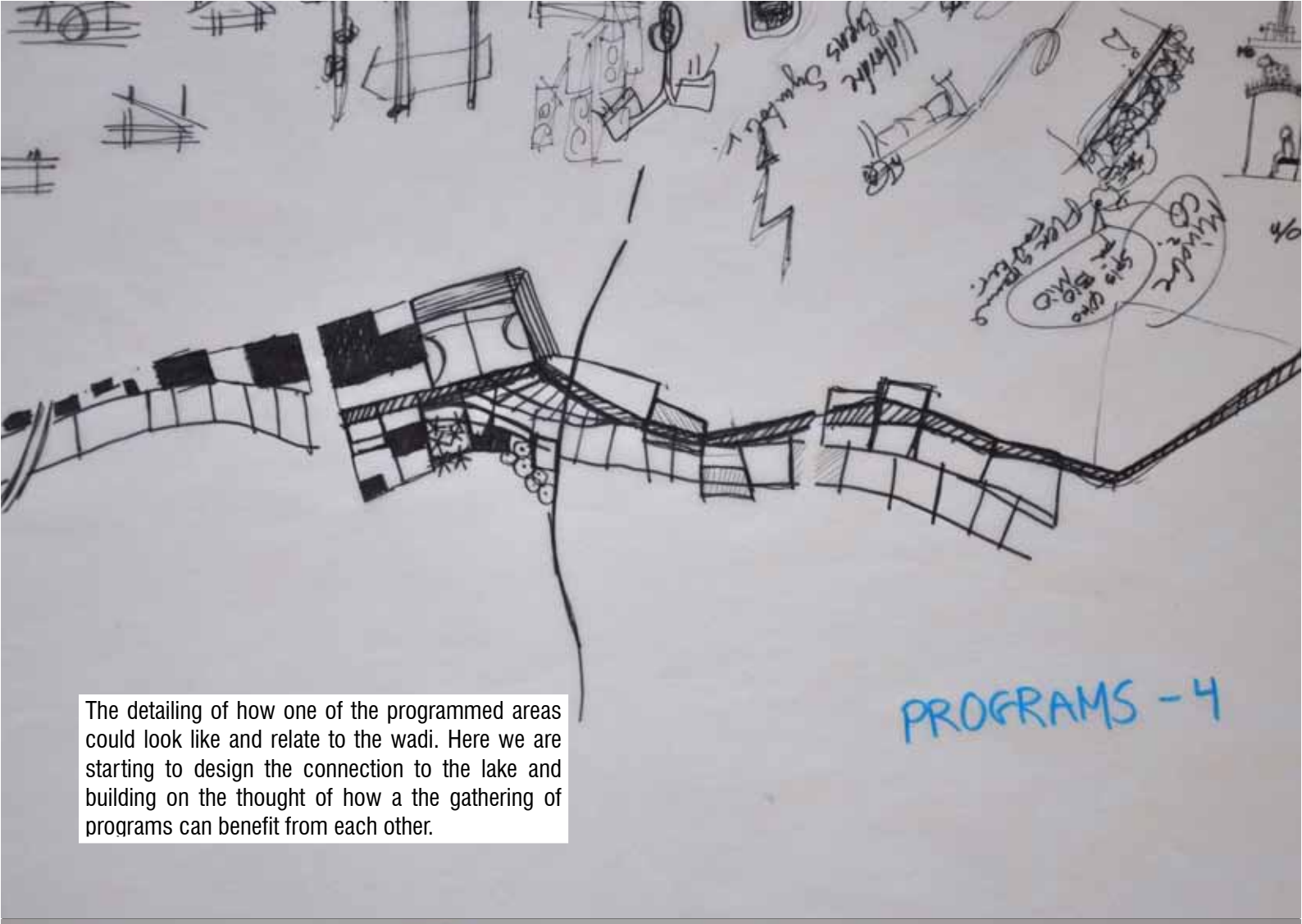


The first location of a series of generators was along the new main road. The red colour illustrates the spaces related to the generators and affected by their presence.

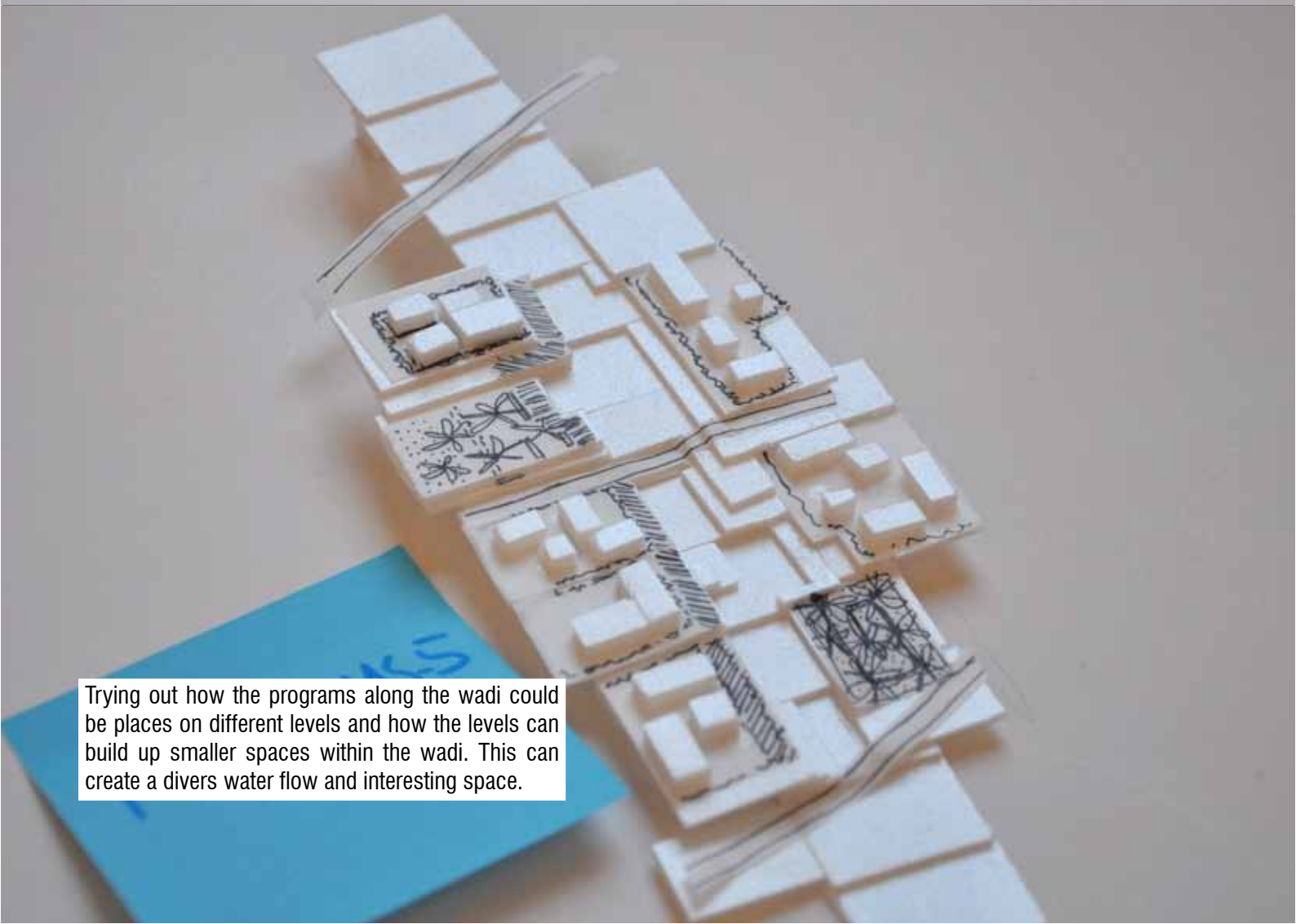
The four generators was giving each their function that would relate to different types of use.



The generators was narrowed down to three located as anchors in each end of the wadi. The first idea of letting one of them being a waste station occurred. Programs were distributed all along the wadi instead of in points.



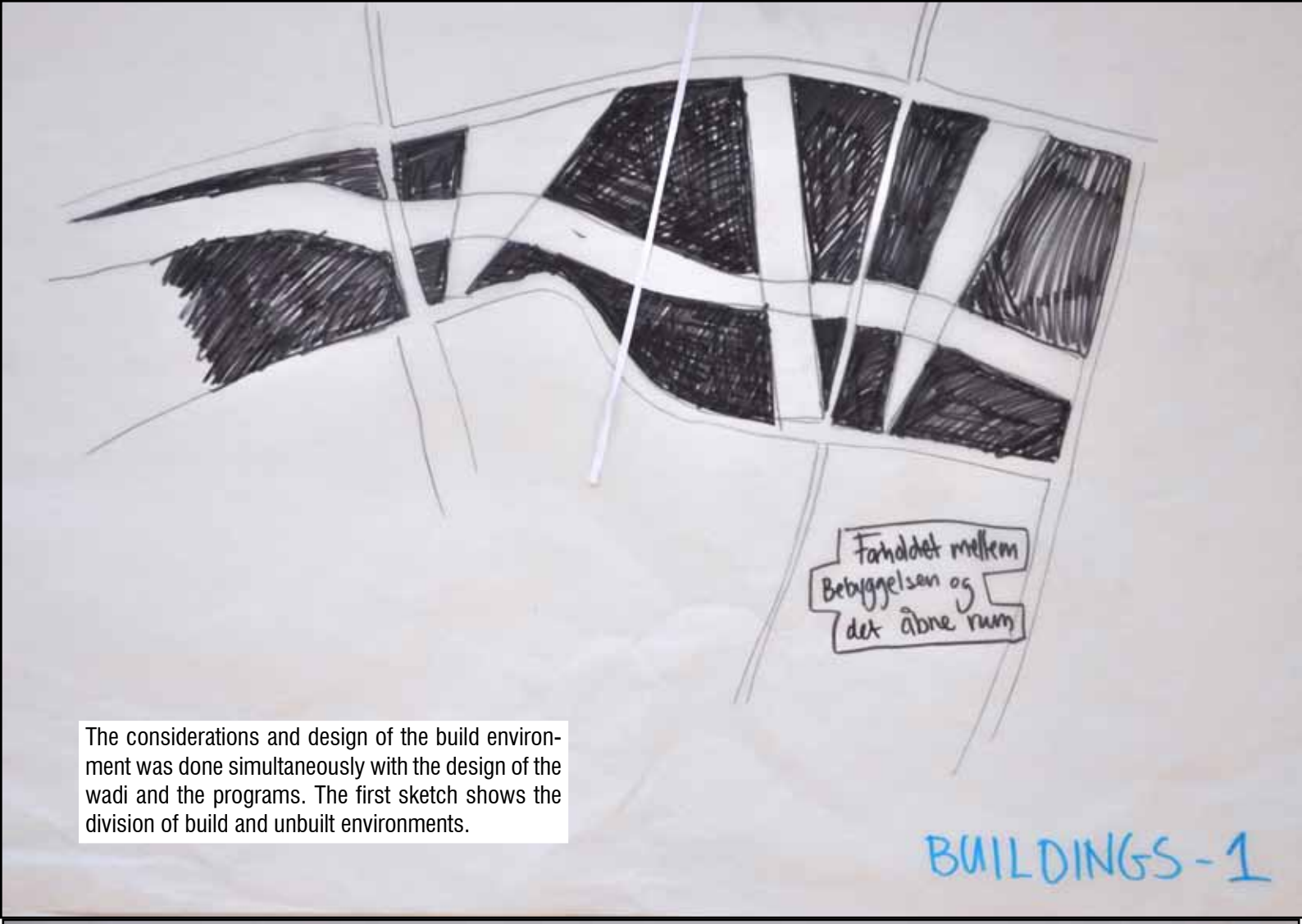
The detailing of how one of the programmed areas could look like and relate to the wadi. Here we are starting to design the connection to the lake and building on the thought of how a the gathering of programs can benefit from each other.



Trying out how the programs along the wadi could be places on different levels and how the levels can build up smaller spaces within the wadi. This can create a divers water flow and interesting space.

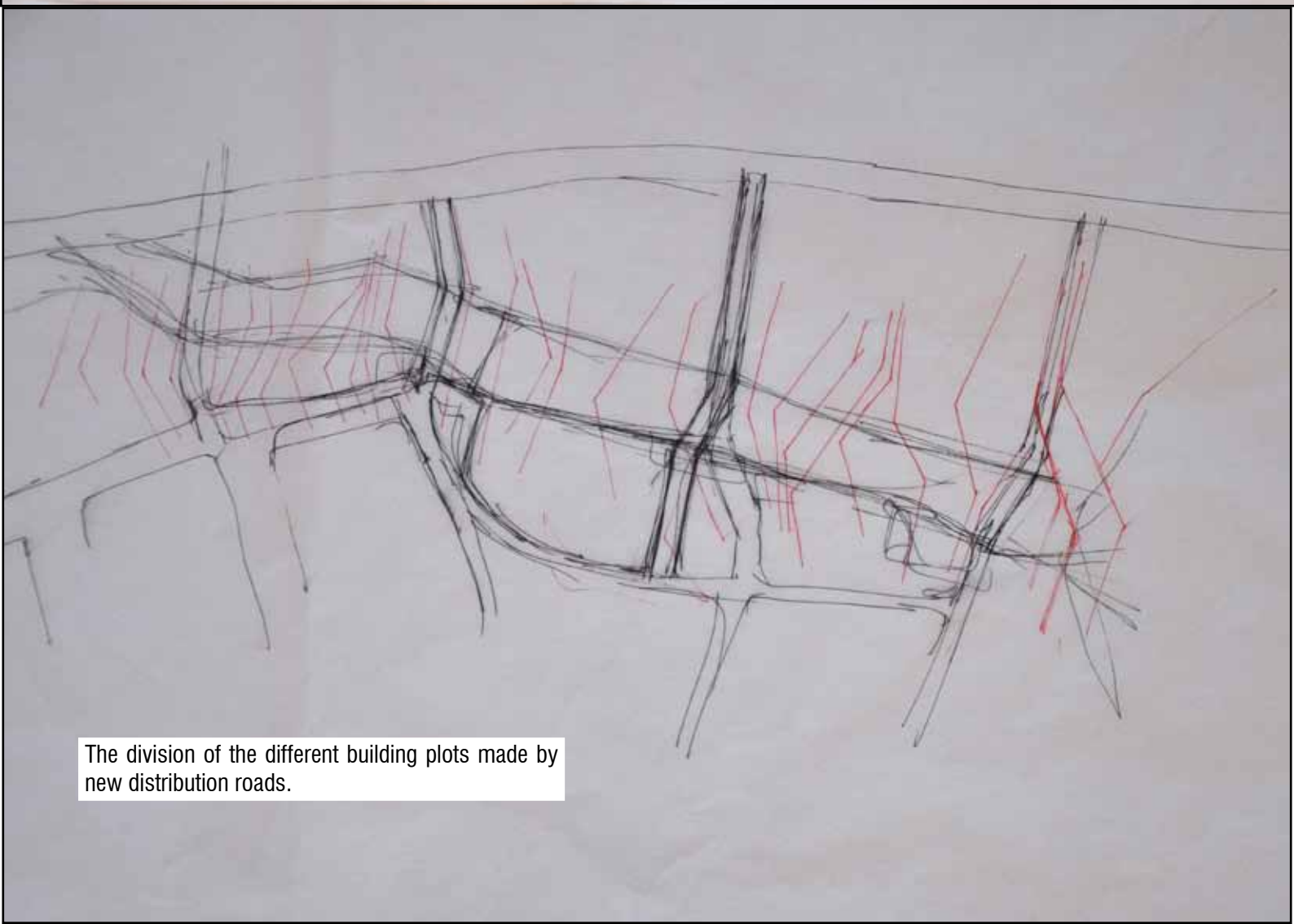
The design of the build environment is a balance between the existing and the new. The task was to preserve as many of the existing houses as possible and through the design give them better upgrading possibilities by e.g. creating better access to the plots. At the places where it was necessary to eliminate houses other functions had to be implemented and they had to reflect the urban need for new houses.

BUILD ENVIRONMENT

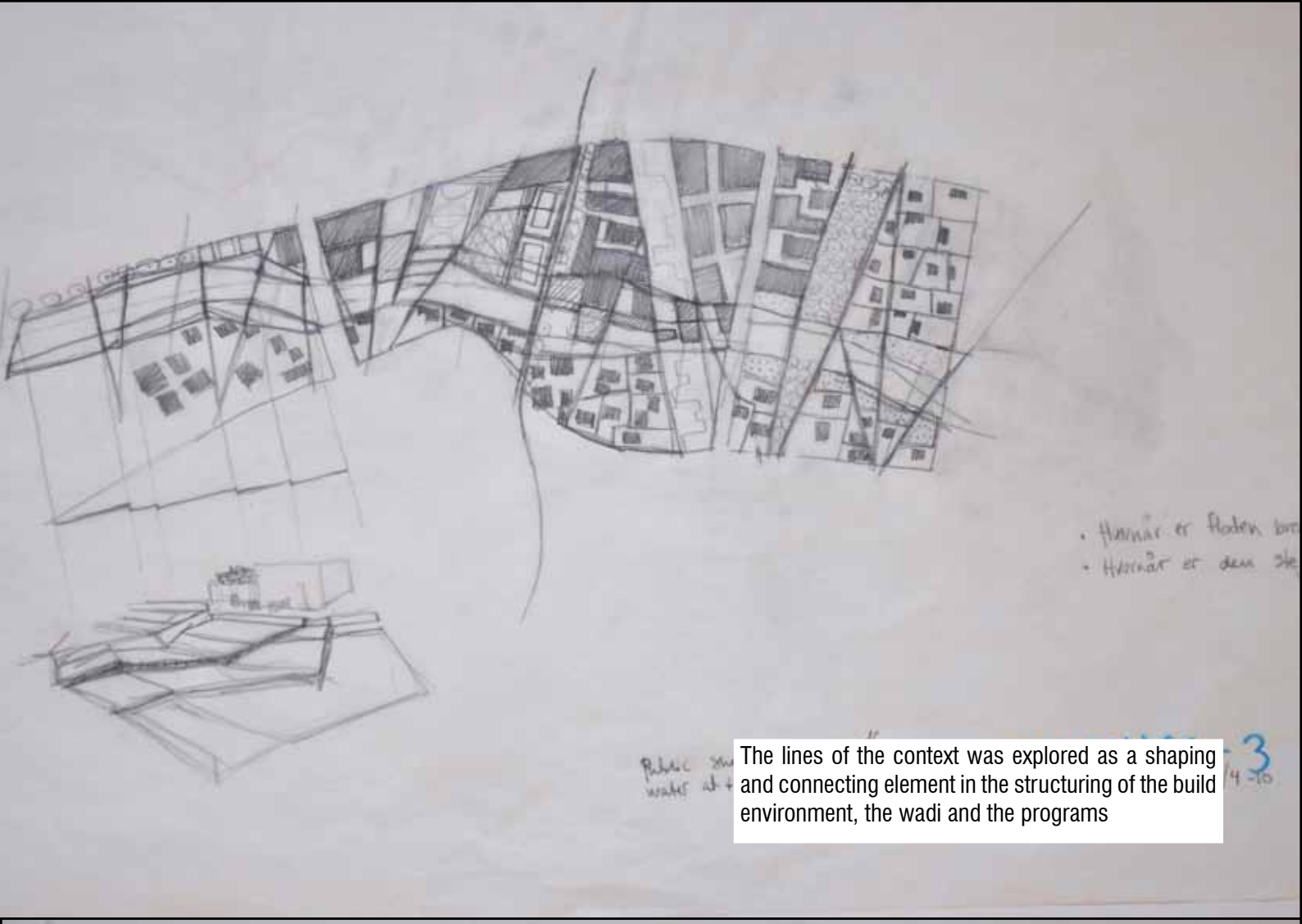


The considerations and design of the build environment was done simultaneously with the design of the wadi and the programs. The first sketch shows the division of build and unbuilt environments.

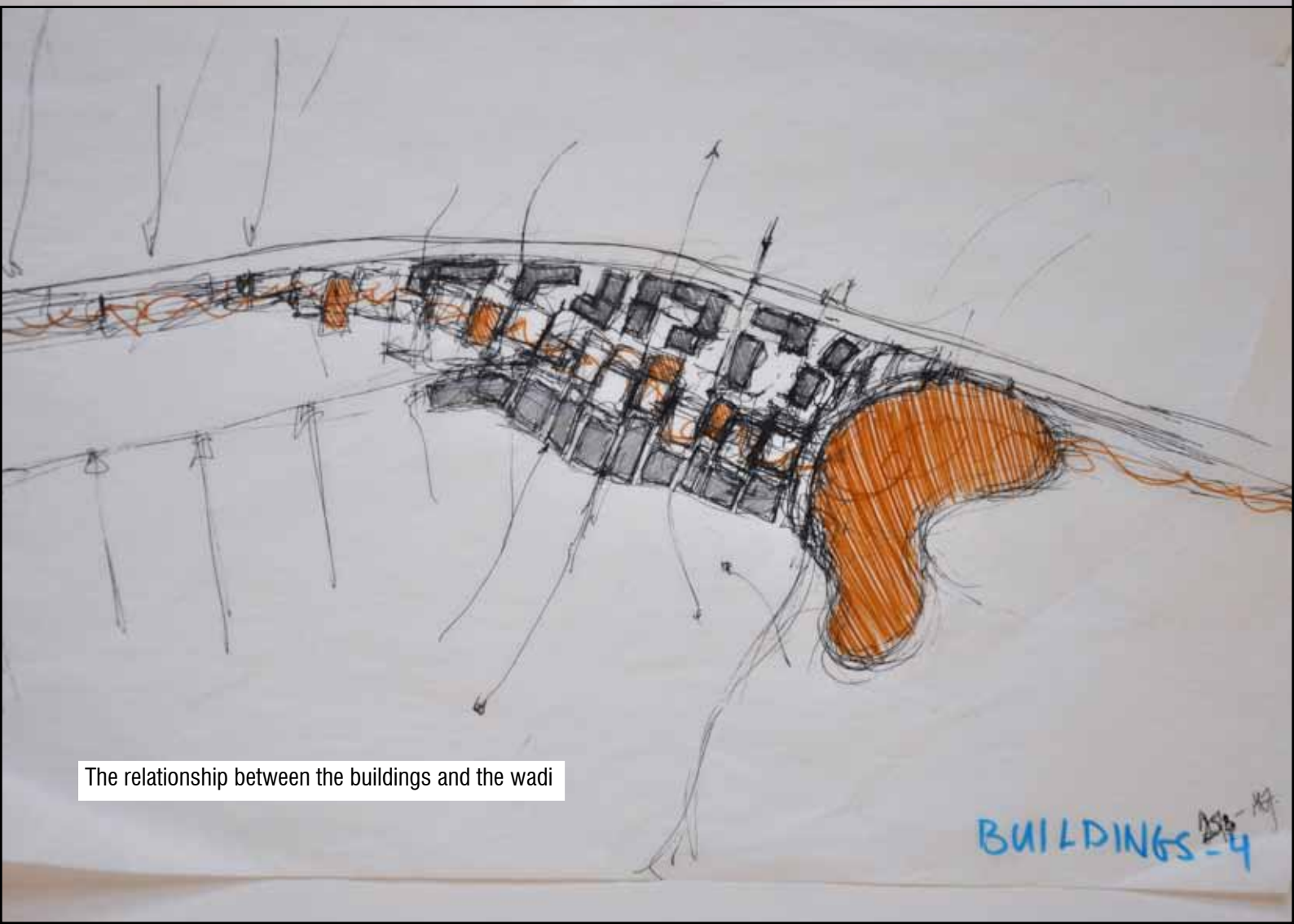
BUILDINGS - 1



The division of the different building plots made by new distribution roads.

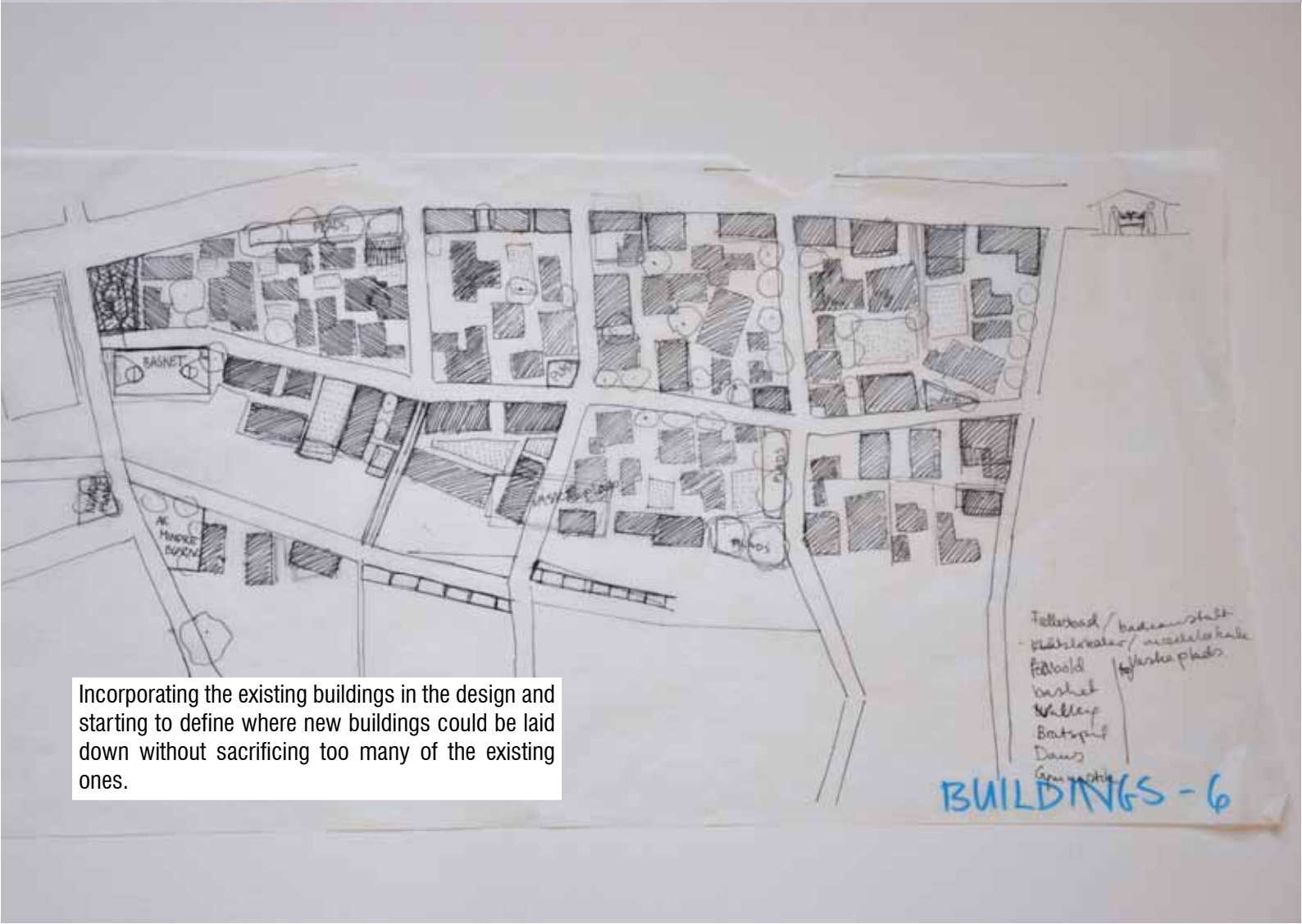


The lines of the context was explored as a shaping and connecting element in the structuring of the build environment, the wadi and the programs

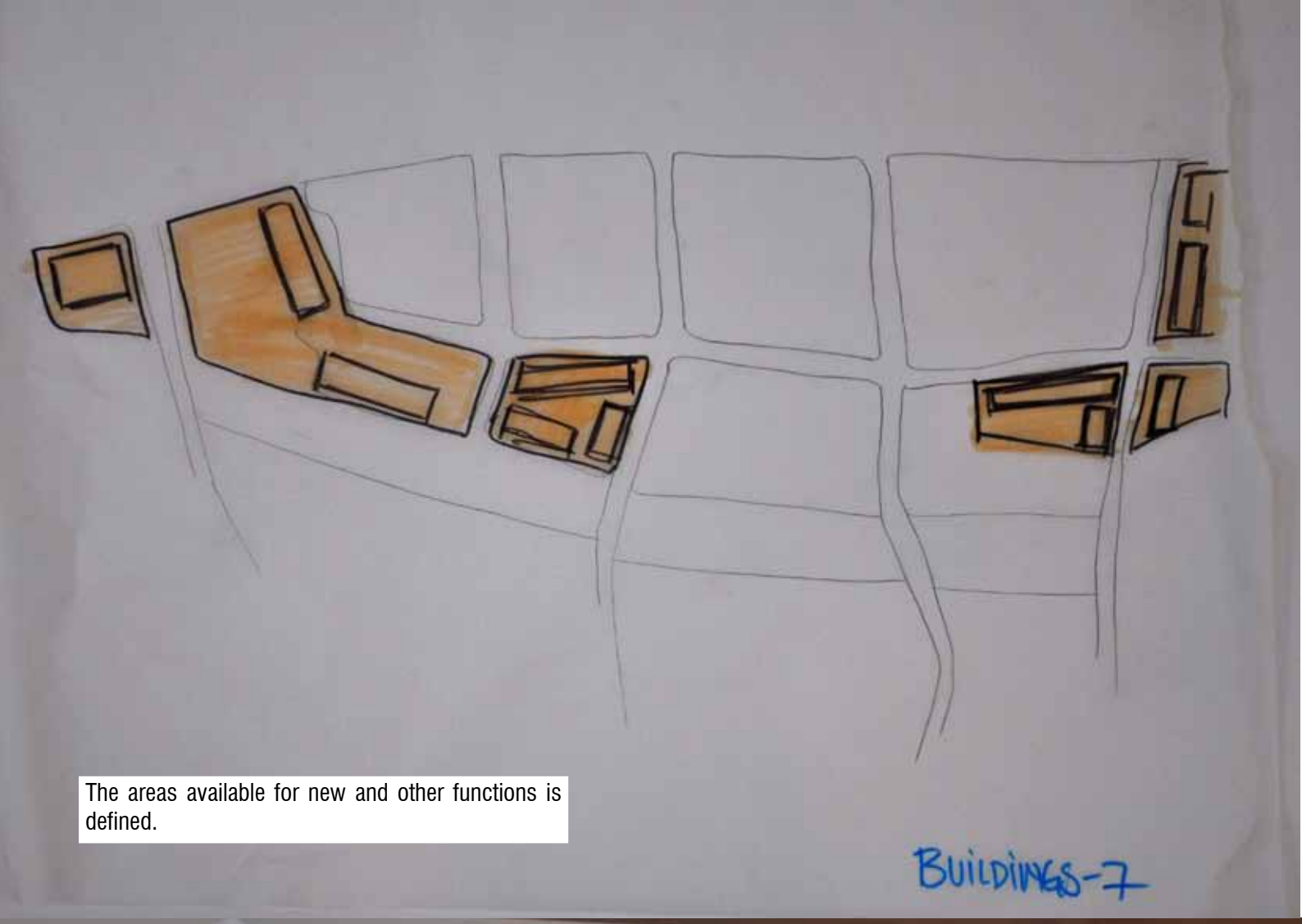


The relationship between the buildings and the wadi

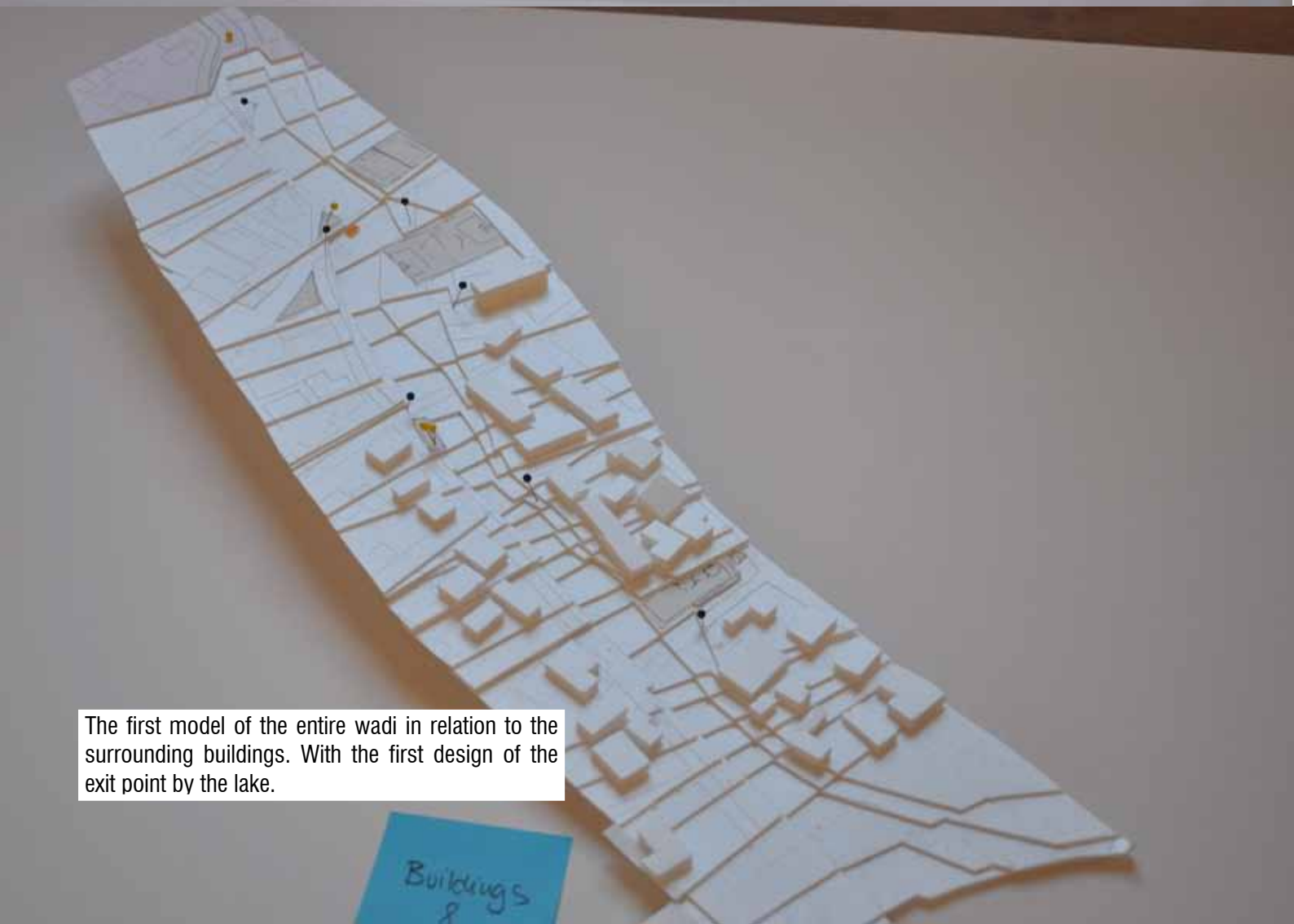
The space between the wadi and the buildings was explored by laying down building block as barriers defining the public space.



Incorporating the existing buildings in the design and starting to define where new buildings could be laid down without sacrificing too many of the existing ones.



The areas available for new and other functions is defined.



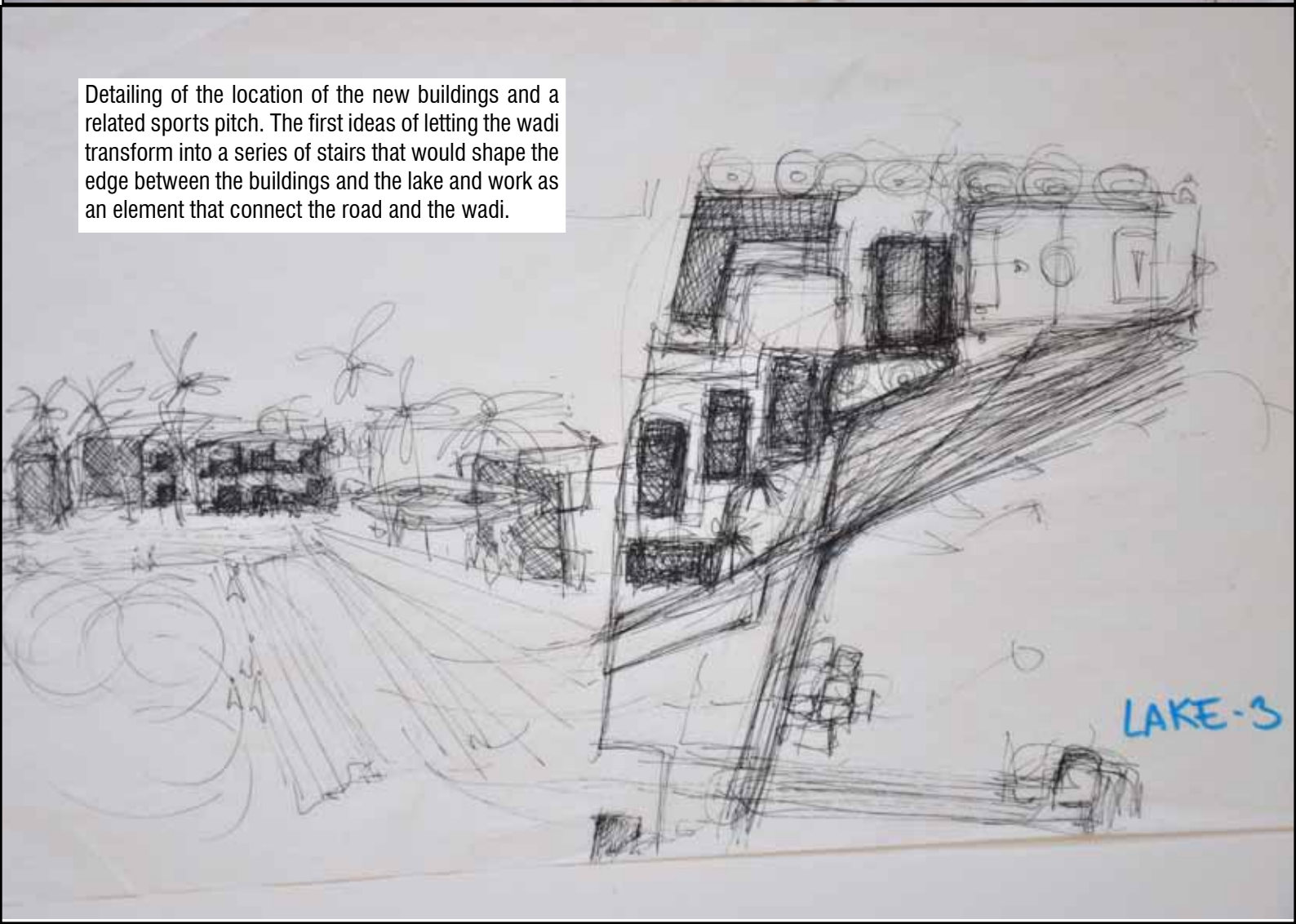
The first model of the entire wadi in relation to the surrounding buildings. With the first design of the exit point by the lake.

The lake is constructed at the bottom of the hillside creating a corner ground that a accessible for new functions which we chose to be new housing. Special care was also given to the design of the exit point of the wadi.

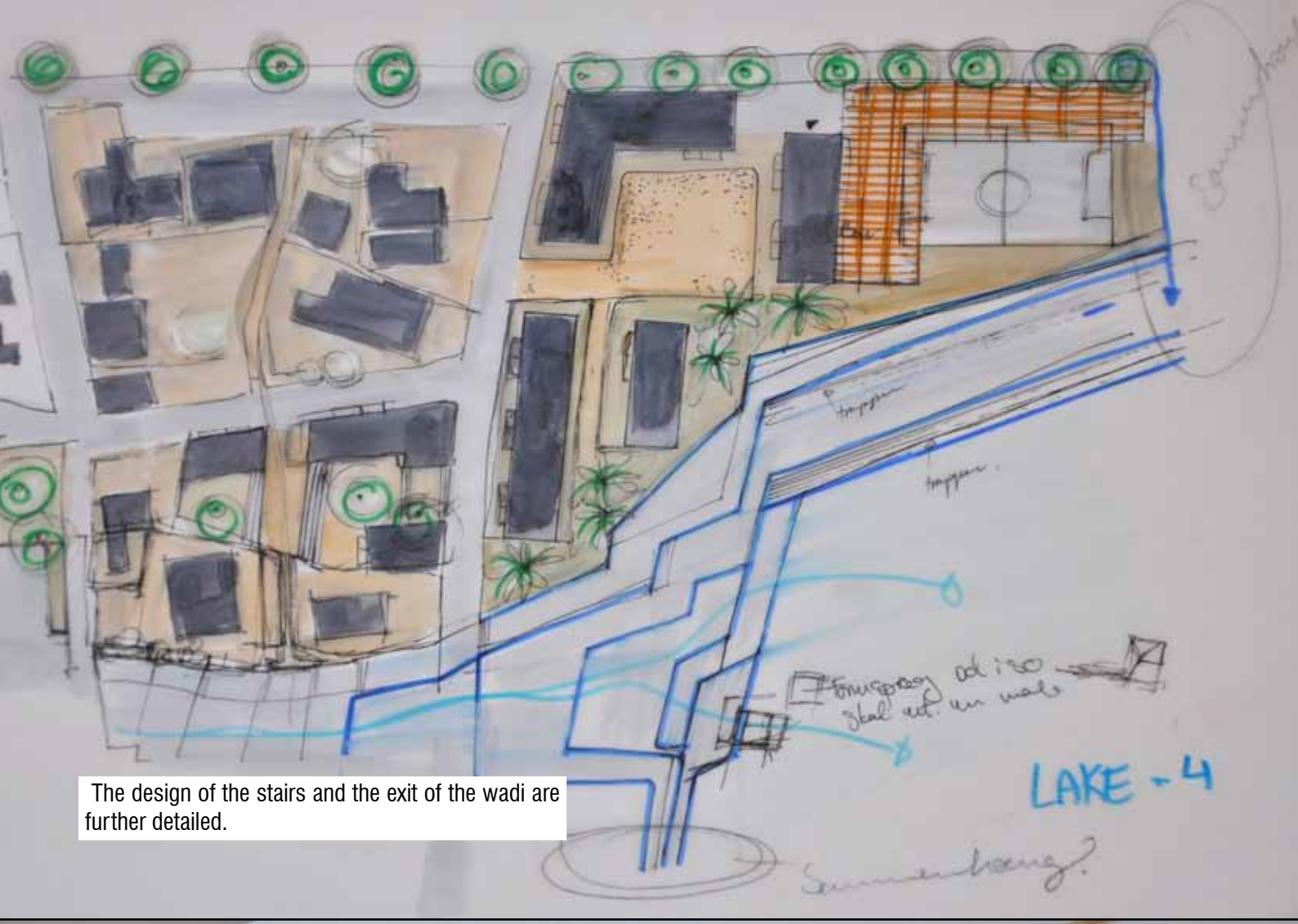
THE LAKE

The shore of the lake creates a corner at the bottom of the hill possible to develop on. The sketch illustrates the first location of new buildings.

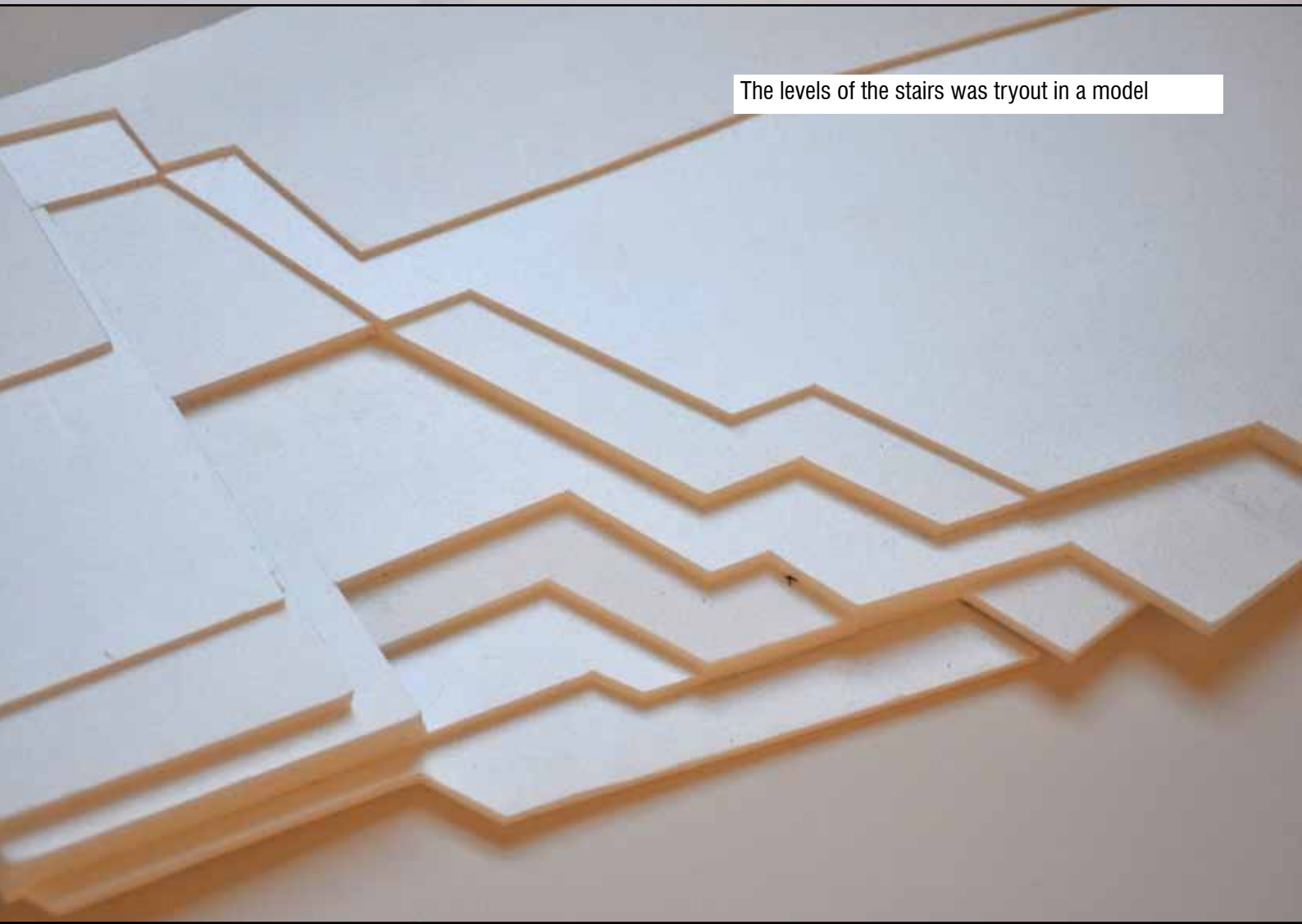
A sketch of the perspective up the wadi from the exit point by the lake.



Detailing of the location of the new buildings and a related sports pitch. The first ideas of letting the wadi transform into a series of stairs that would shape the edge between the buildings and the lake and work as an element that connect the road and the wadi.



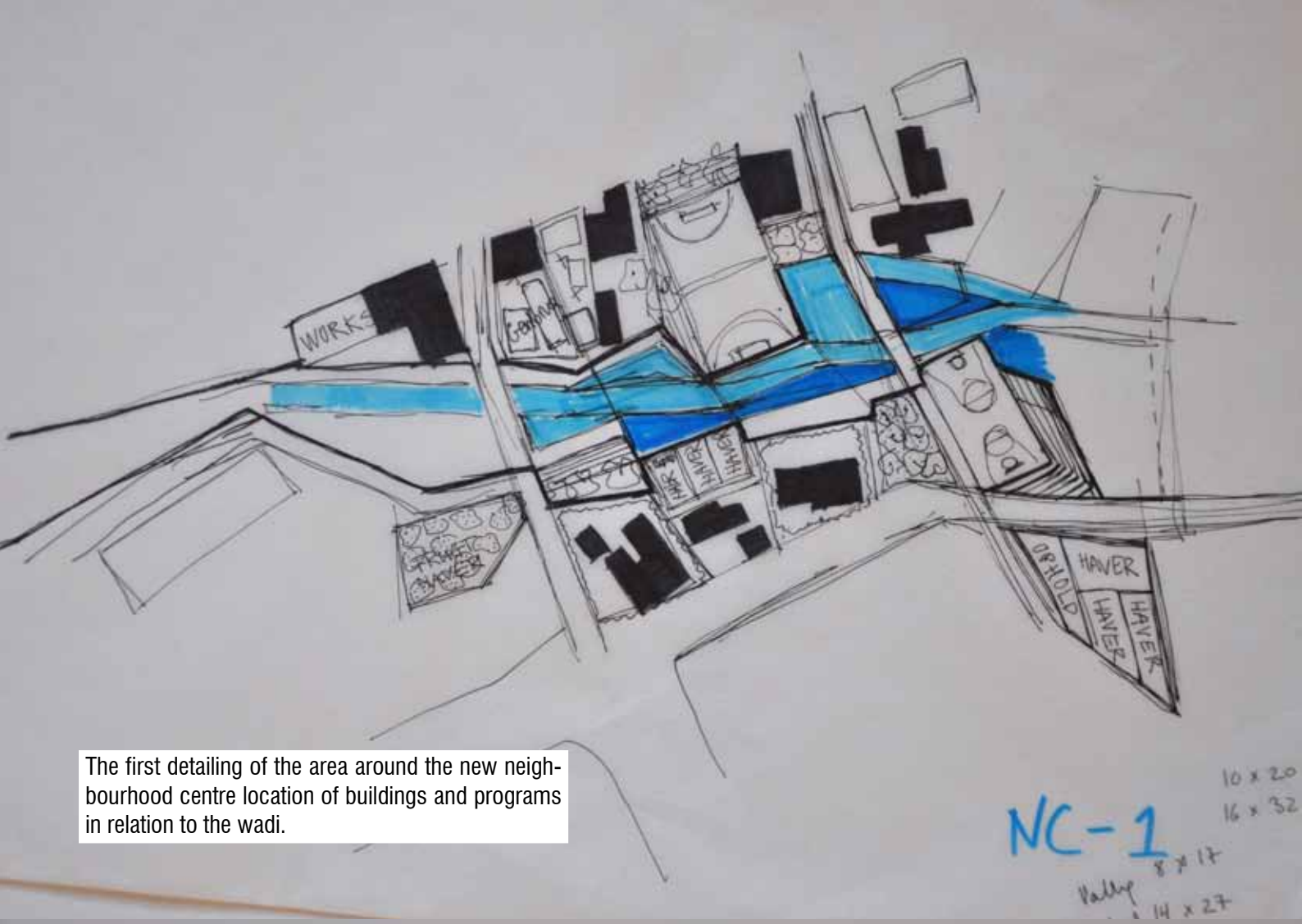
The design of the stairs and the exit of the wadi are further detailed.



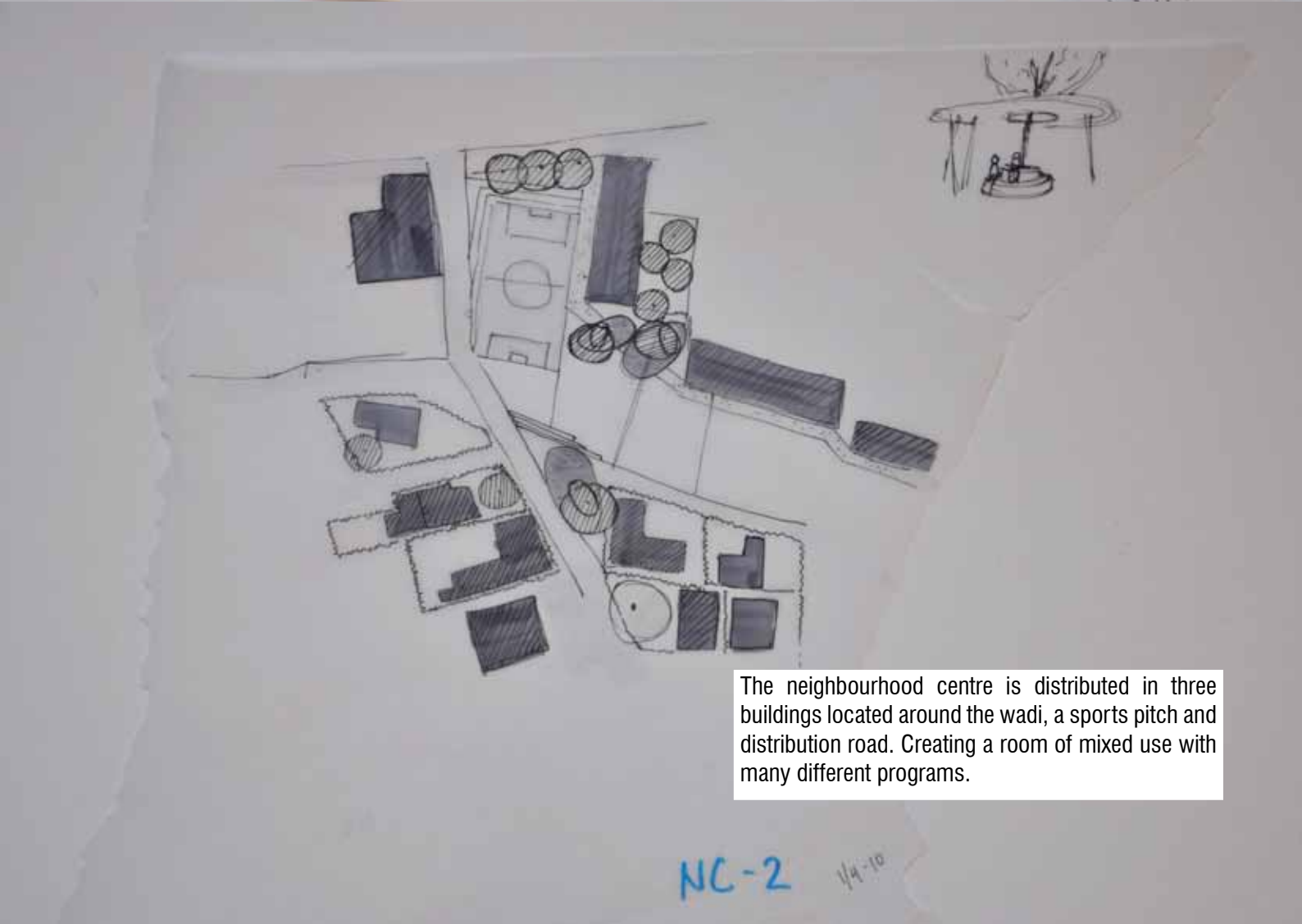
The levels of the stairs was tryout in a model

The design of the Neighbourhood centre has been a very important for the project. The main goal was to create a centre of facilities of different kind bringing together the surrounding neighbourhoods generating a base for common growth and upgrading.

NEIGHBOURHOOD CENTRE



The first detailing of the area around the new neighbourhood centre location of buildings and programs in relation to the wadi.



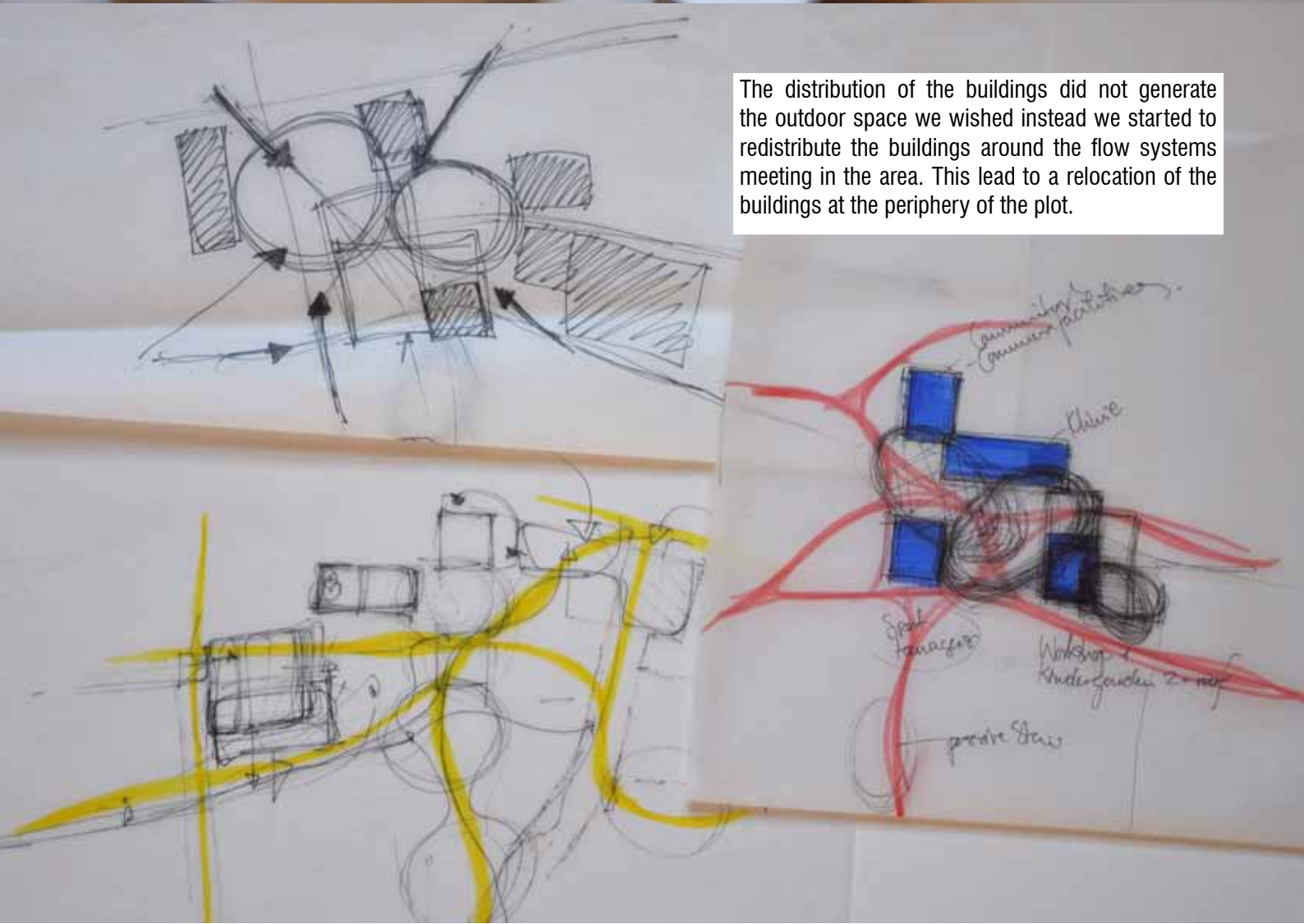
The neighbourhood centre is distributed in three buildings located around the wadi, a sports pitch and distribution road. Creating a room of mixed use with many different programs.

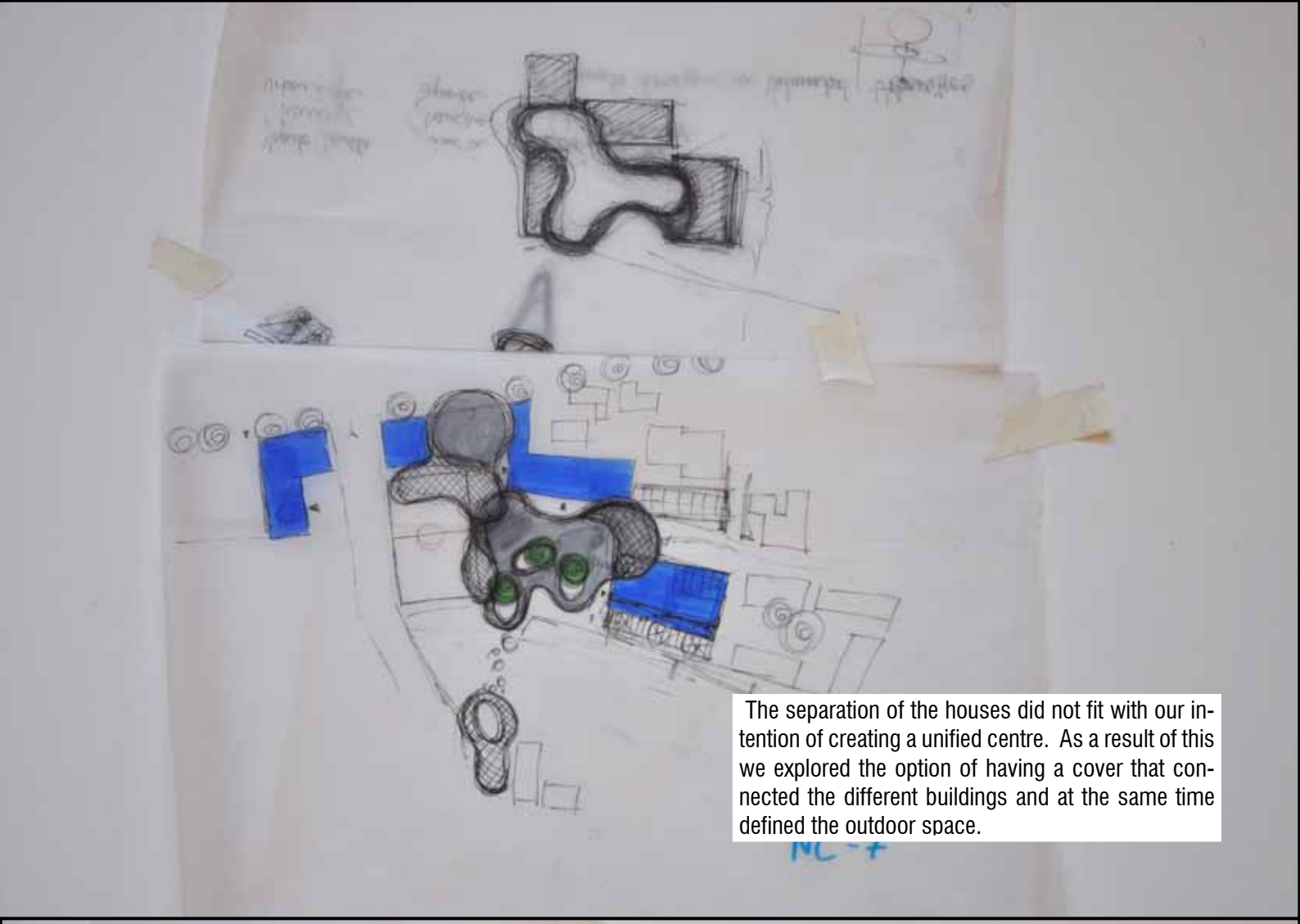
Small perspectives was made to explore the arrival to the neighbourhood centre and how one of the recreational spots could look like

The outdoor space around the neighbourhood centre was divided into an arrival area, a sport pitch, a setting area, a kinder garden and small pavilion to the south of the wadi.

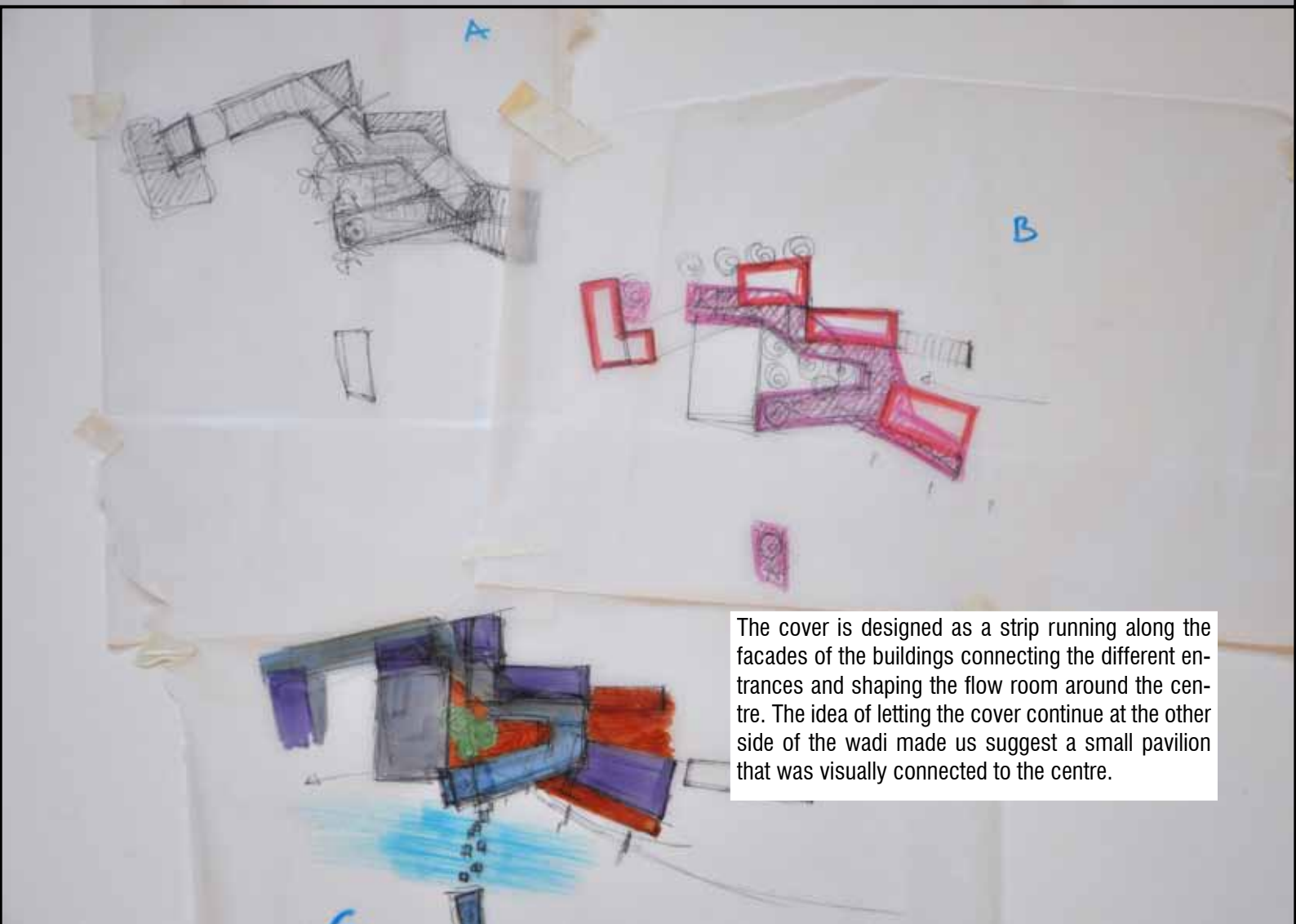
A model was made to try out the relation between the neighbourhood centre and the wadi, especially how the sport pitch could function as both part of the wadi and part of the centre.

The distribution of the buildings did not generate the outdoor space we wished instead we started to redistribute the buildings around the flow systems meeting in the area. This lead to a relocation of the buildings at the periphery of the plot.



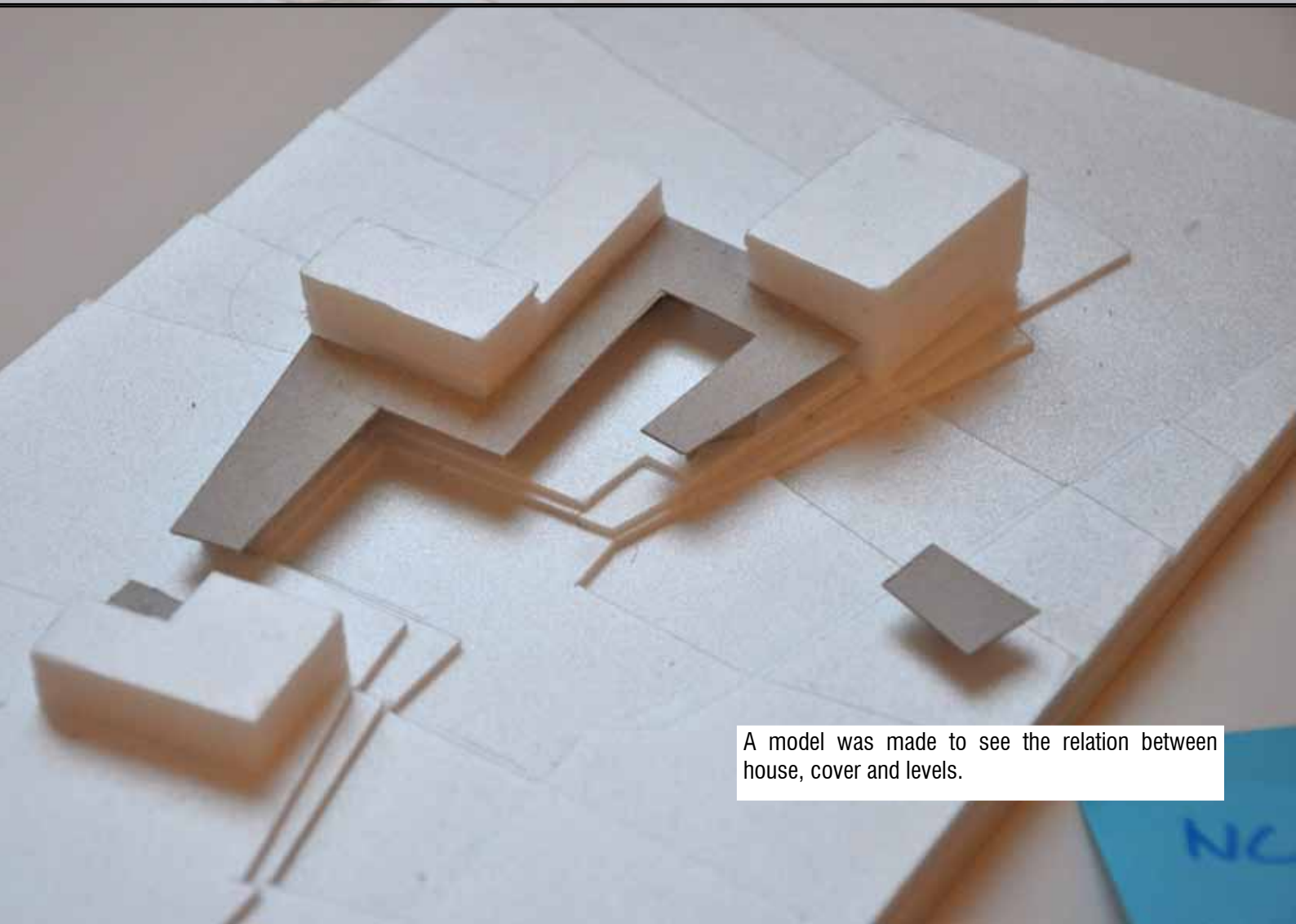


The separation of the houses did not fit with our intention of creating a unified centre. As a result of this we explored the option of having a cover that connected the different buildings and at the same time defined the outdoor space.

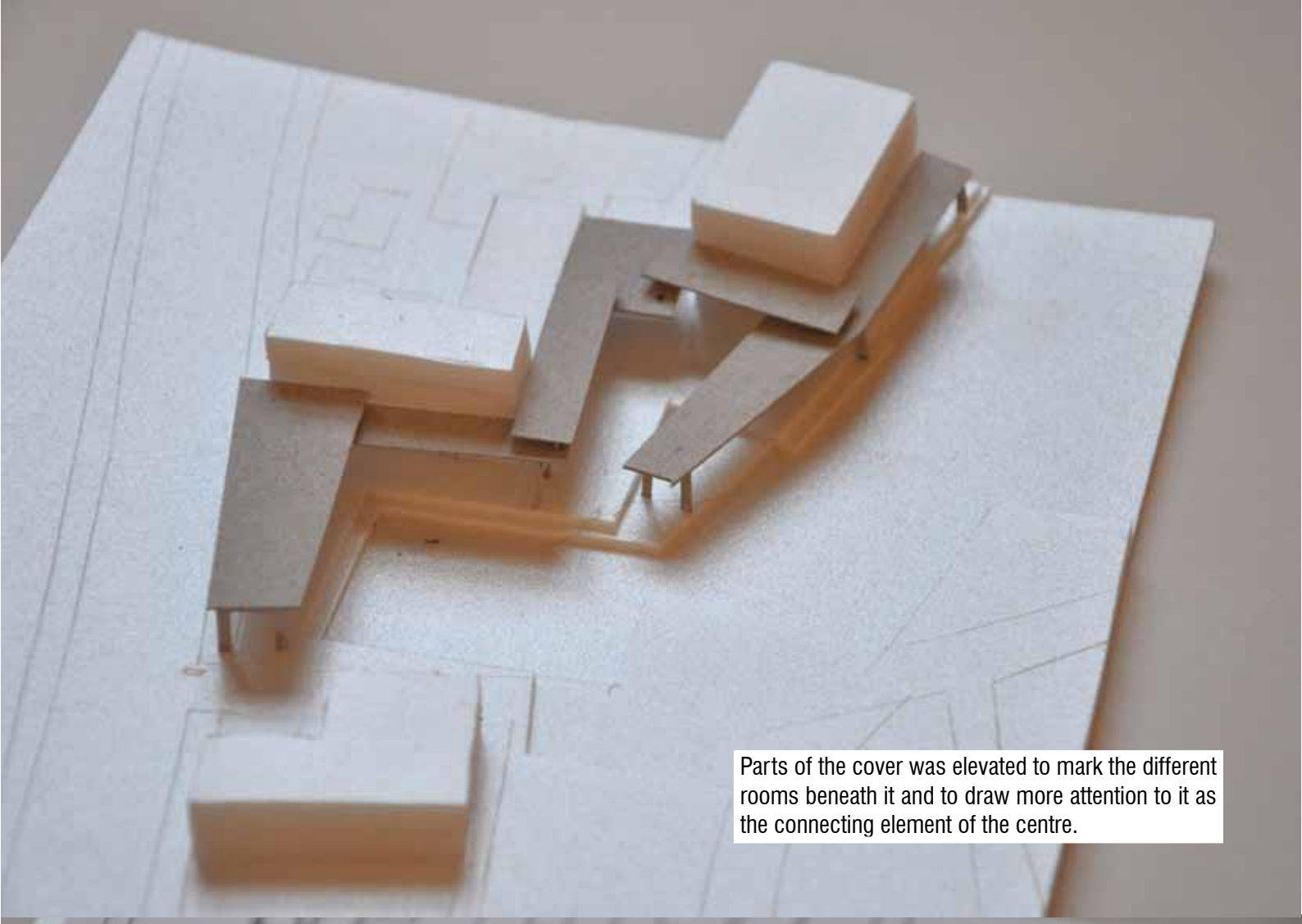


The cover is designed as a strip running along the facades of the buildings connecting the different entrances and shaping the flow room around the centre. The idea of letting the cover continue at the other side of the wadi made us suggest a small pavilion that was visually connected to the centre.

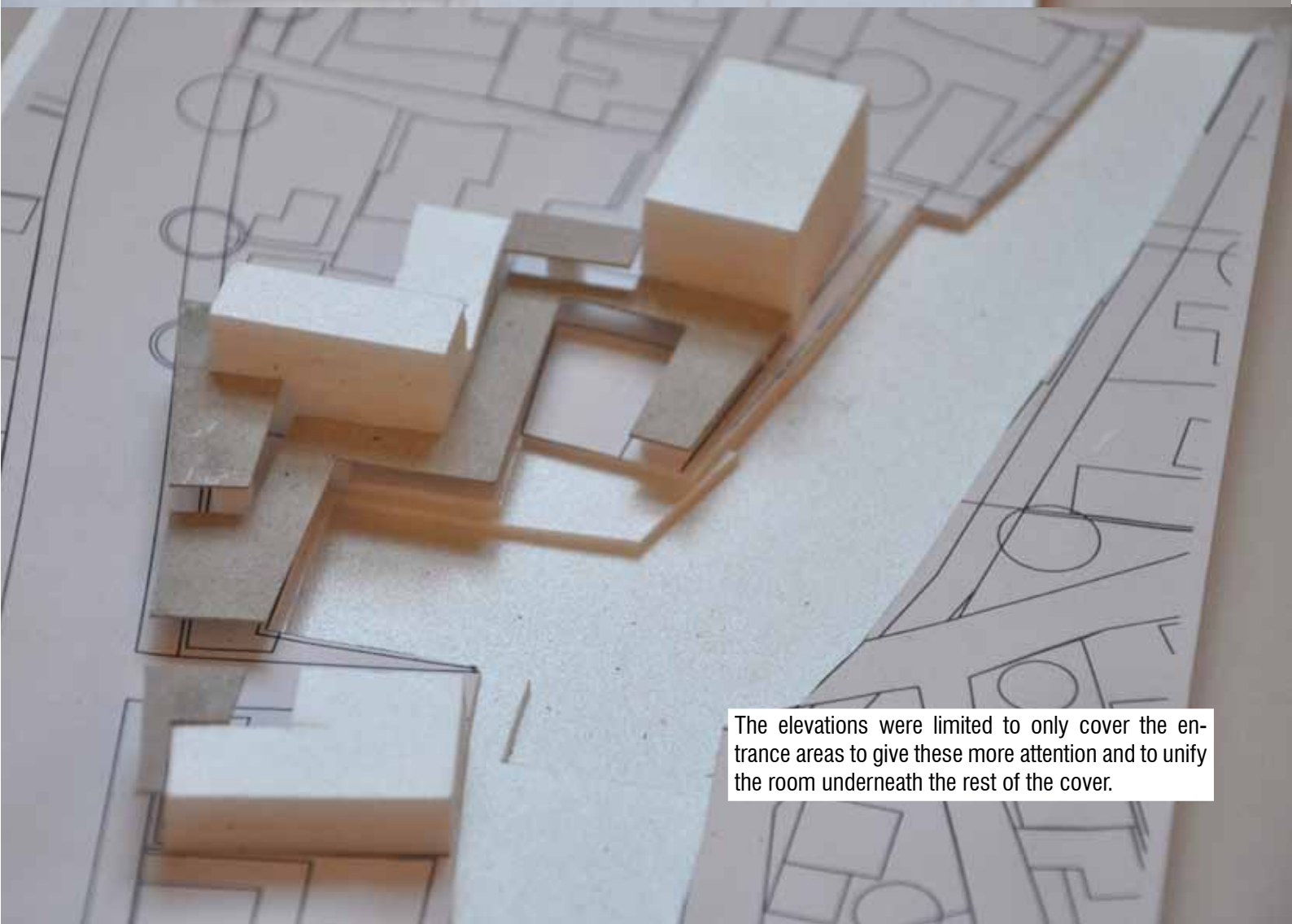
Perspective was drawn of the cover to get and understanding of the space beneath it. This also gave us the idea of having the outdoor facilities of the kindergarten on the top of the roof.



A model was made to see the relation between house, cover and levels.

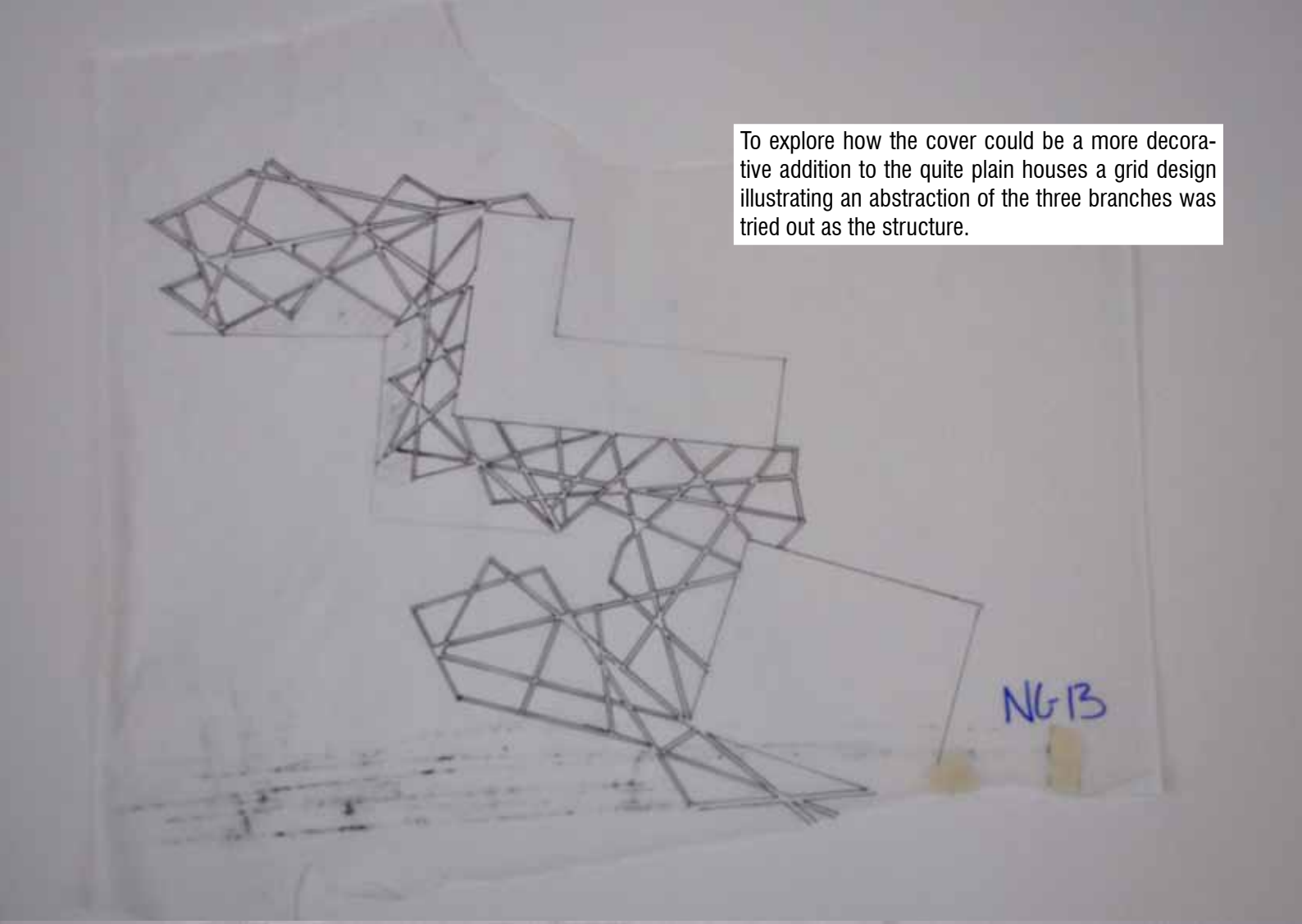


Parts of the cover was elevated to mark the different rooms beneath it and to draw more attention to it as the connecting element of the centre.

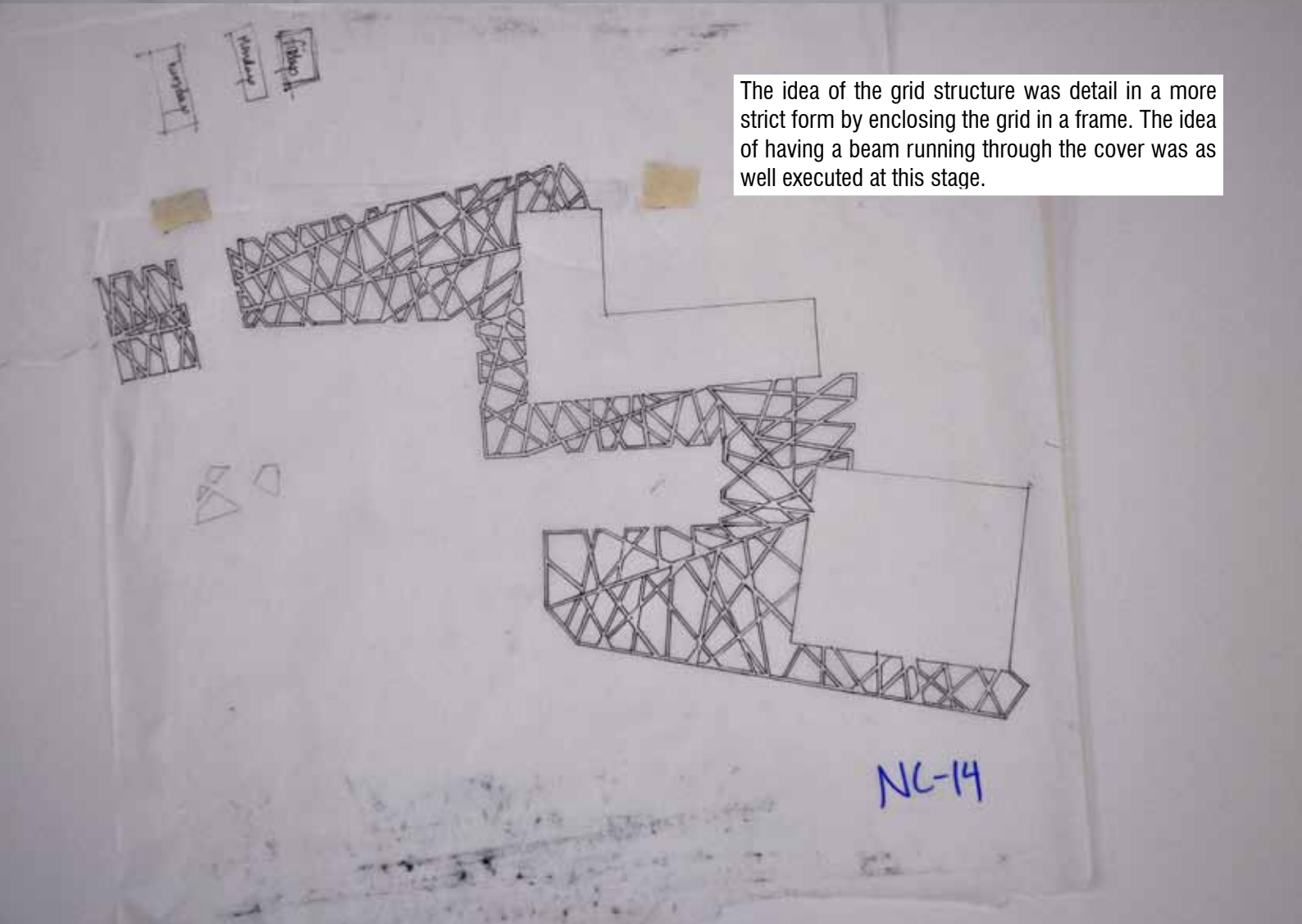


The elevations were limited to only cover the entrance areas to give these more attention and to unify the room underneath the rest of the cover.

To explore how the cover could be a more decorative addition to the quite plain houses a grid design illustrating an abstraction of the three branches was tried out as the structure.



The idea of the grid structure was detail in a more strict form by enclosing the grid in a frame. The idea of having a beam running through the cover was as well executed at this stage.



The final design of the cover is a much more simple flat solution that has the triangular structure integrated as the beams holding the sheets of corrugated iron.

As you have seen in the report, the final product of the process is this plan. The process illustrate only a part of the work behind it, much of the real hard work lies in the creation of the design strategies and policies that was develop though both the analysis and the design process. The design process stopped at the point where it was time to hand in the report but there is no doubt that there are several elements we would have liked to detail further if the time was to it. If we did have more time the next step in the design would have been the implementation of more specific play and learning elements related to and around the water in the wadi.