

## The design of the masterplan Driebergen

**Design Booklet**  
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## Table of Content

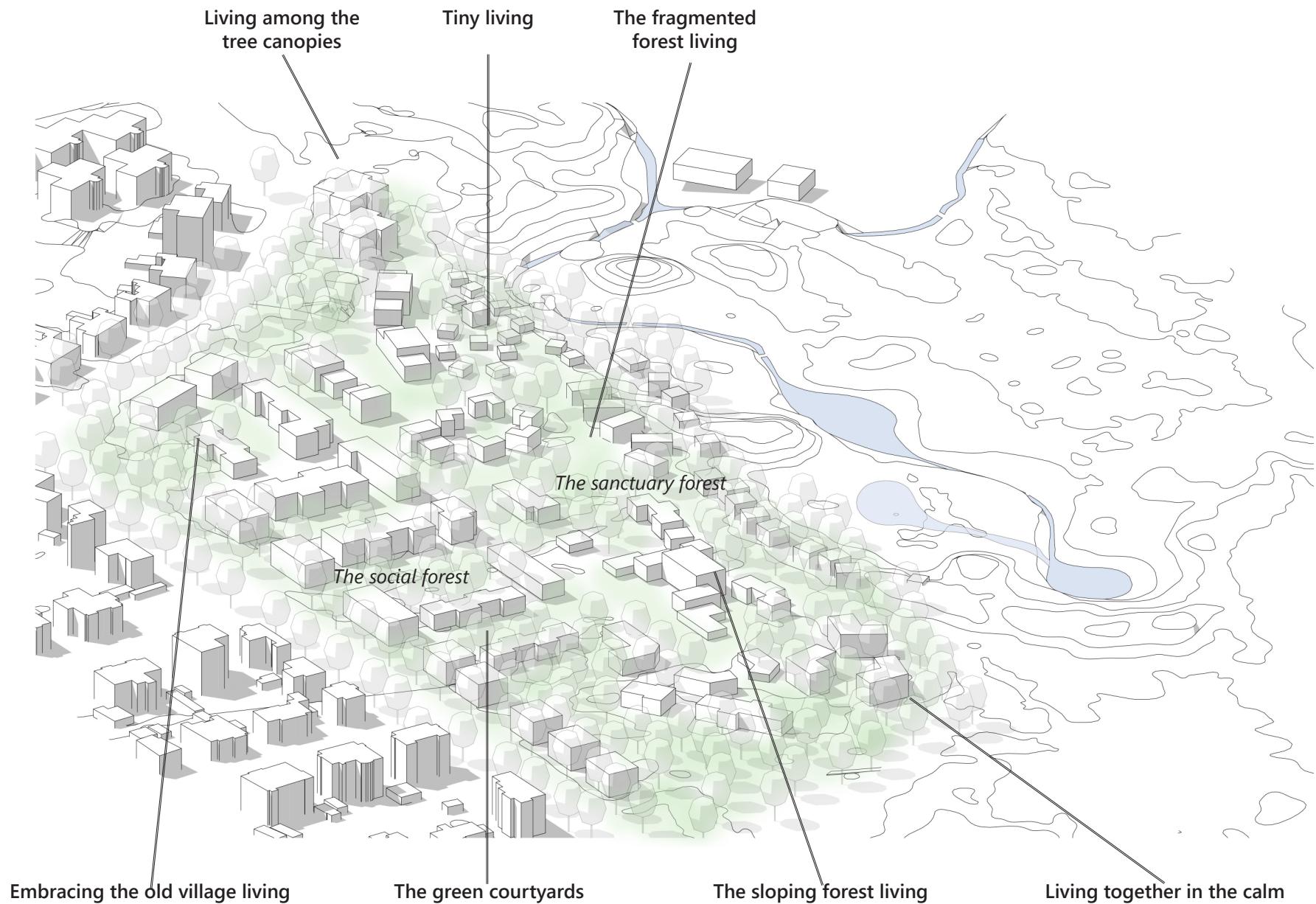
I. Introduction	7
II. Concept and Thuisbos	23
III. Nature and Thuisbos	35
IV. Infrastructure and Thuisbos	57
V. The lanes of Thuisbos	81
VI. Public and collective spaces	95
VII. Dwellings	145
VIII. Process	179
IX. Sources	217
X. Appendix	219



# Thuisbos

*A new lifestyle for everyone*

**Thuisbos** is unique in that it provides a place to grow old healthy, happy and actively with others, not without others, and in that it provides a way of living that is deeply rooted in its relation with nature. In **Thuisbos** forced relocation is fully prevented with housing that is able to change along with the needs of its inhabitants, regardless of their age or disabilities. Choices on where to live in **Thuisbos** are focused on the characters of its future inhabitants in relation to a diverse range of characters of homes and their surroundings in the plan. **Thuisbos** has many more features through which **Thuisbos** distincts itself from other types of dwelling in the Netherlands. All features are explained in the following pages.



The characters of the site

*Everyone can live in each part of the site, the choice is made depending upon their preferred character*

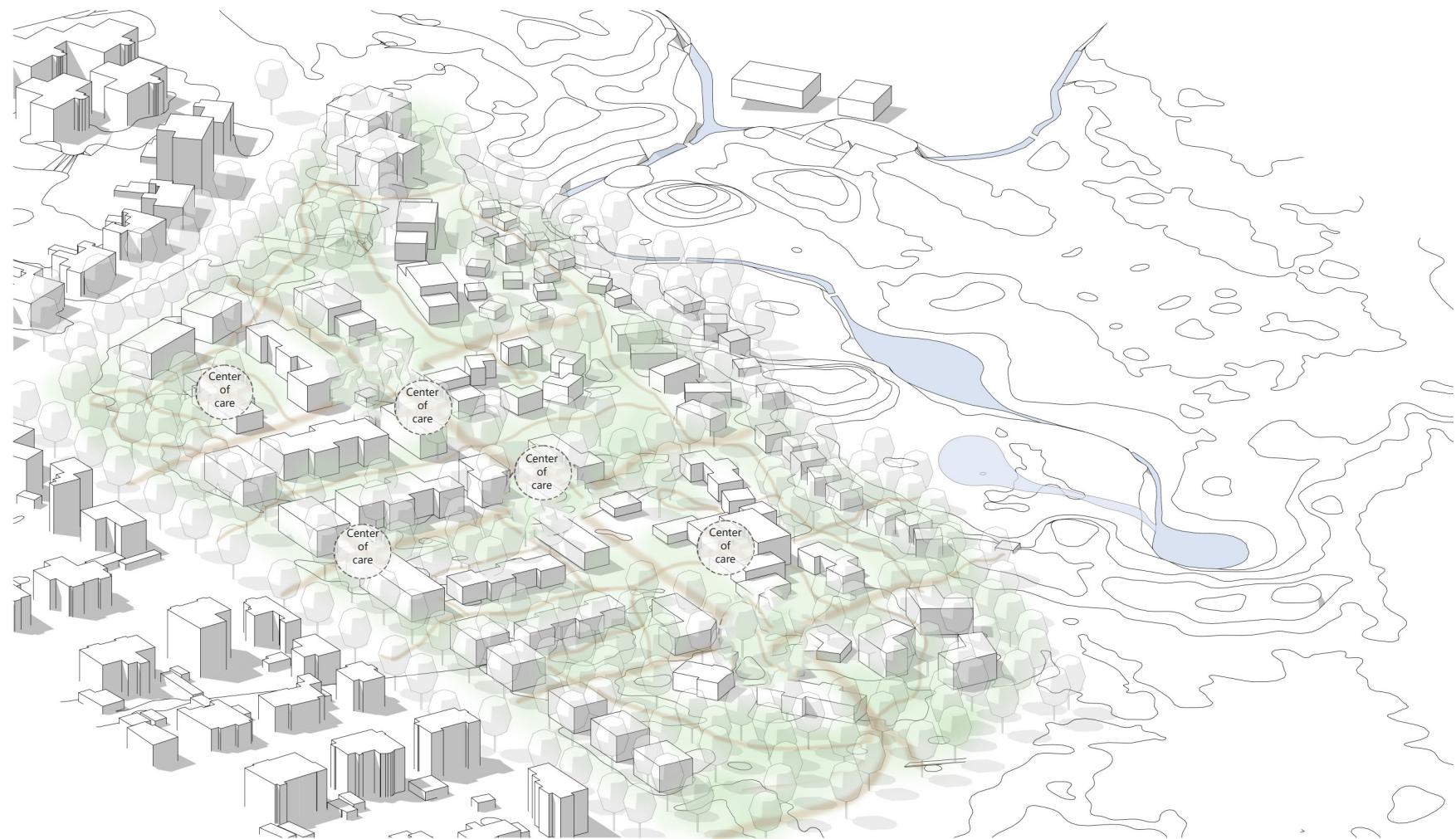
## Prevention of relocation

### *Everyone can live anywhere*

by providing several ways of living throughout the project and creating housing that is age proof.

Having to relocate from one's home to an unfamiliar environment as a result of the need for (sudden) care can be a quite stressful event. Especially for people in late life it can cost more energy to leave one's known environment behind and to reintegrate into a different society, neighbourhood or care home while at the same time facing negative biases just because of one's age. Nowadays people in late life are often relocated to nursing homes and placed into an environment with people who are similarly or more heavily disabled, thus they live without any stimulation and are completely shut off from the society in general.

In Thuisbos forced relocation is fully prevented with housing that is able to change along with the needs of its inhabitants, regardless of their age or disabilities. Choices on where to live in Thuisbos are focused on the characters of its future inhabitants in relation to a diverse range of characters of homes and their surroundings in the plan. A wide range of ways of living in connection to the surrounding forest and neighbourhood are provided throughout the whole project, thus giving the future inhabitants the chance to base their decision on where to live on the character of living environment and not be limited by their financial means, health condition or age. Thus, in Thuisbos people will live in a small community with neighbours that might look different in household size, and/or care needs but are similar in their mindset.



The lanes as the hallways of a care home

*Care givers drive from the care focus spots towards the homes in need of care*

## Care at home

### *The lanes as the hallways of a care home*

Needing care does not change the home.

In Thuisbos providing care at each home was a point of high importance as it prevents forced relocation, allows for people to stay and participate in their communities, and it does not discriminate people on their health condition, as well no one can see which house is in need for care. In Thuisbos the lanes form the basis for possible care at each home. With concentrated care spots for parking and storing materials care at each home is made possible at any time of the day. 24 hours a day caregivers will be available for the people who need assistance. They will be provided a home in the area and as a result of creating three care spots at the site, they will be able to efficiently get materials needed and drive by the people needing care.

At the final stage of illnesses such as dementia it is possible that people will become a danger to themselves or to their community. This is usually an unfortunate, confronting and sad situation for everyone. In order to protect those people and their surroundings while at the same allowing them to still live in the neighbourhood and thrive, two buildings, one positioned in the forest and one positioned at the edge of the existing neighbourhood and Thuisbos will provide housing for people in need of 24 hour guidance. In these homes they will be able to go outside and wander in the sensory garden while still being looked after at a distance by caregivers.

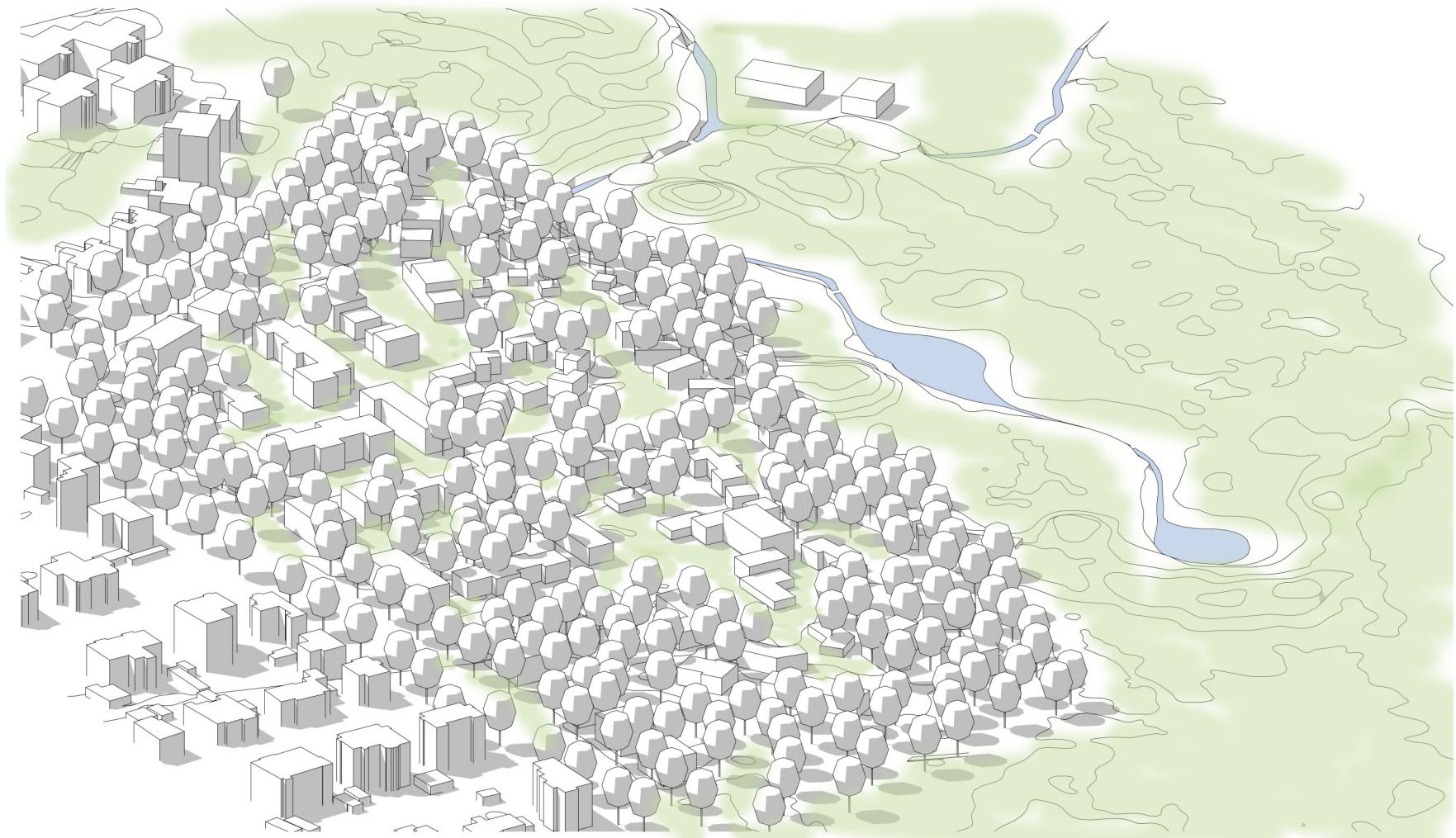


*Everyone can take part in the community of Thuisbos*

## **Opportunities for full participation in society**

### *The creation of easily accessible facilities and outdoor spaces*

All several ways of living are well connected by and at a walking or wheeling distance of The Driebergjes Lane, an easy readable lane that provides public facilities needed on a daily and weekly basis. As a result of creating public facilities nearby every home, each inhabitant is enabled and encouraged to do the groceries themselves, to cycle to the pharmacy and have a coffee with their friend or neighbours, and thus they are able participate in their communities and to stay independent. As well a large variety in many publicly or collectively accessible outdoor spaces throughout the area allows the inhabitants to stay connected to their communities by meeting them spontaneously outside when taking a short 5 minute walk and when seeking contact outside in the sun. Every lane encourages slow traffic by limiting car traffic and slowing down car and bus traffic. This allows people, especially people with mobility issues, to feel safe enough to go outside and cross the lane.



The existing trees are shown, almost all are largely kept in place and intact

*Living and respecting the nature of Driebergen-Rijsenburg*

## Reconnection to nature

### *Respecting nature's boundaries and seeing its beauties*

Upon living in Thuisbos one will find that all inhabitants of Thuisbos hold a similarity that keeps them closely attached, namely that every inhabitant seeks a close connection to nature. In Thuisbos people are encouraged to respect the forest and the nature of the site. Car use is limited with a car sharing system that reduces the amount of cars, with concentrated car parking spaces that are out of sight, with one-way roads and with a traffic system that makes sure that the cars have to stay behind a cycler on the lanes. Biking, walking and strolling in a wheelchair are encouraged by creating wheelchair accessible streets that are attractive, by removing thresholds and by giving them priority in the lanes.

Besides encouraging slow traffic, people are made aware of the sacrifices that nature had to make in order to house all the dwellings. This awareness is created by for example the positioning of tree trunks besides the streets that had to be cut in order to build. As well, an eco-garden is placed to educate people on the flora and fauna of the site.

Lastly, the positioning of the dwellings were grounded greatly on the positioning of the existing trees. As many trees as possible were kept alive and well at the site. As a result, many open outdoor space is left and transformed to several types of gardens of which at least one will suit the mood of its inhabitants that day.



## **The way of living for elderly in Thuisbos**

When living in our master plan the elderly will have exactly the same opportunities to participate in a community as people in other life phases do, and moreover they are able to live anywhere in Thuisbos. As a result they will live with similar people as well as with people in other life phases. When facing increasing disabilities or illnesses (as a part of aging or not) they do not need to move out of their house. When in need of care, caregivers will come to their homes and provide the care they need. Moreover, the elderly will be encouraged and able to reach the supermarket themselves, to dine with others, and to go to the forest with possible assistance of their neighbour whom they have got to know throughout the years at the community centre. In other words, the elderly will be able to live, flourish and thrive in Thuisbos like everyone else, and when needed will be offered help at their homes by caregivers and their community.



## **Thuisbos as an inclusive living environment**

Thuisbos creates opportunities for every person regardless of their age or health condition to dwell throughout the entire neighbourhood. This translates into architectural as well as urban details such as a clearly readable lane that connects daily and weekly facilities and the forest with each other. Facilities are brought in close reach from each dwelling, making sure that everyone is able to participate in society and to be seen. As a result, in each part of Thuisbos people will live from different ages and thus Thuisbos allows already at the start of moving in that one is physically integrated into a community of several ages. Once settled, people will live in different community sizes and types depending on their own preference, and will mentally become attached to their neighbours as they share certain facilities and join similar events, and most of all they share their main garden: the forest. Thus, everyone is included in a smaller community existing of their neighbours and them, and the bigger community of Thuisbos as a whole.



## **Steps of action for Thuisbos**

Thuisbos is a carefully set-up neighbourhood that is made to work within today's society of people in the Netherlands. To make it function, first of all, an open minded attitude of everyone involved towards older or ill people is important. The negative biases on elderly should be turned towards a positive view in which they are seen as worthy (to our society). Thuisbos will take part in turning this negative view to a positive one by showing people of all ages that elderly can contribute to society by for example gardening, looking after children and sharing their wisdom. Second of all, although Thuisbos has carefully placed details in the urban setting, like preventing thresholds, creating clear distinctions between roads for vision problems, adding plants with scents to help memorize people with dementia, people within the community need to carefully look after changes that could be made in the future in the architecture of Thuisbos. By all means, architectural elements should allow for everyone to be able to be included into their community.

**Forest environment**  
*buildings and landscape  
together form a harmonious  
residential landscape*

**Sanctuary forest**  
freedom & peace

*De drieberges laan*

**Social forest**  
together & lively

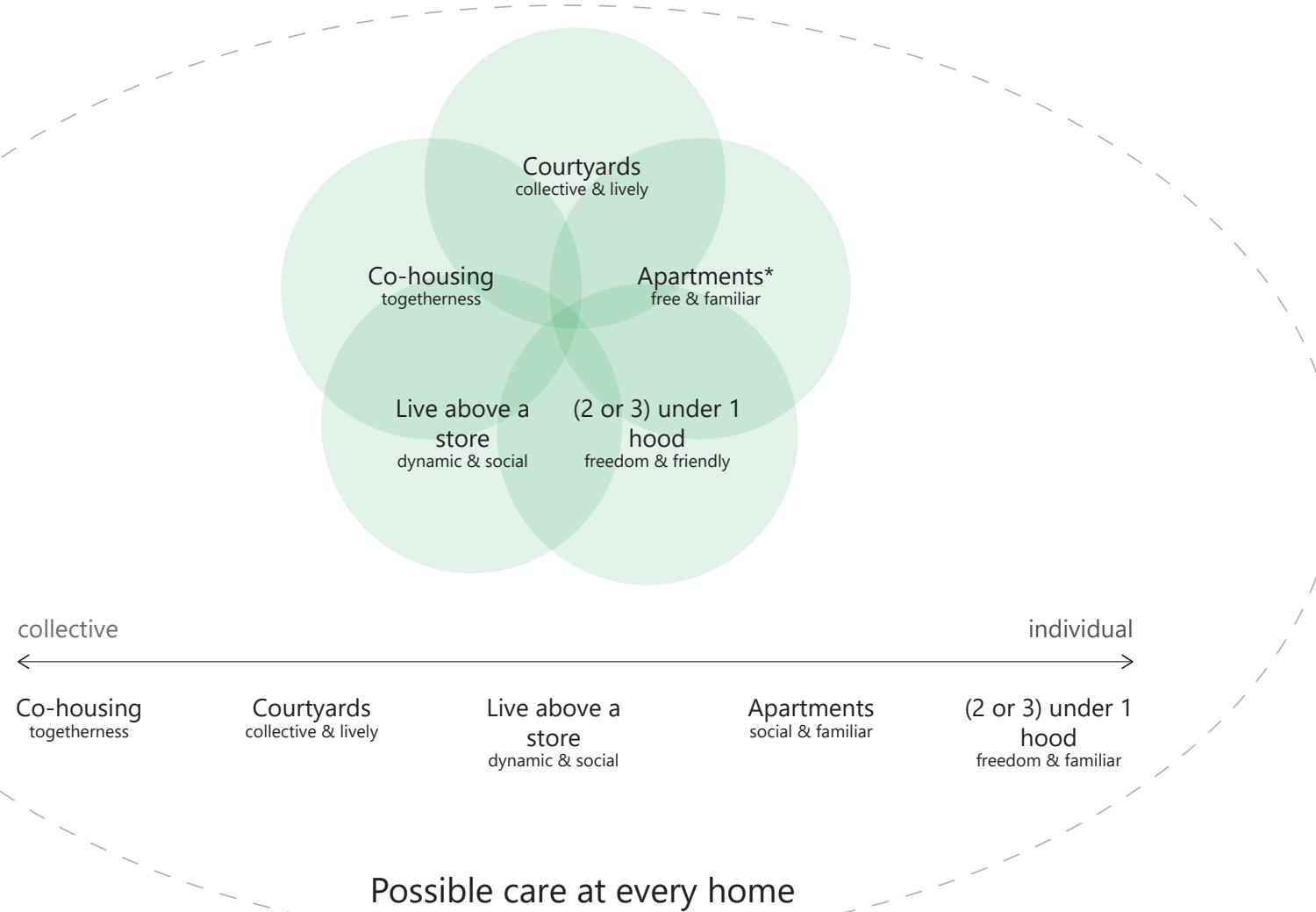
Possible care at every home

## **II Concept and Thuisbos**

### **The Thuisbos environment**

The entire master plan is located in a beautiful forest landscape that connects directly to the natural forest and the residential area. We distinguish two different characters in this area: the Social and Sanctuary Forest. Both areas characterize the good connection with the green landscape. The entire master plan consists of life-proof homes and houses where care at home can be provided at a later age.

# Social forest

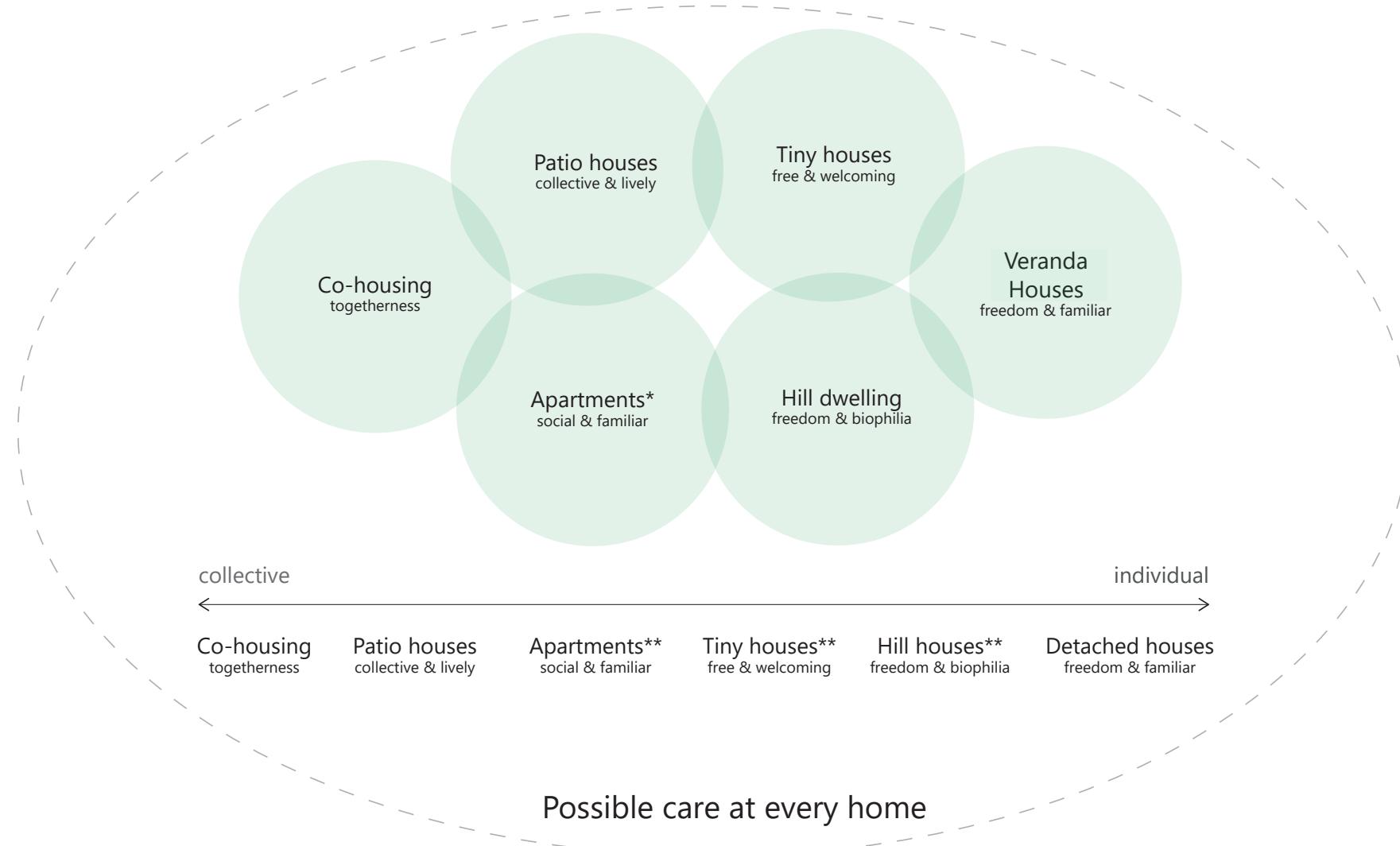


\*part of the apartments will be used for severe dementia households (Super Vision apartments)

## **Social forest**

The majority of houses with a social character are located in the social forest. In this area we distinguish five different housing types. The sequence of these housing types describes the different properties of how people would live in this area, from shared housing to your own private room with a collective garden. The different types are explained in more detail.

# Sanctuary forest

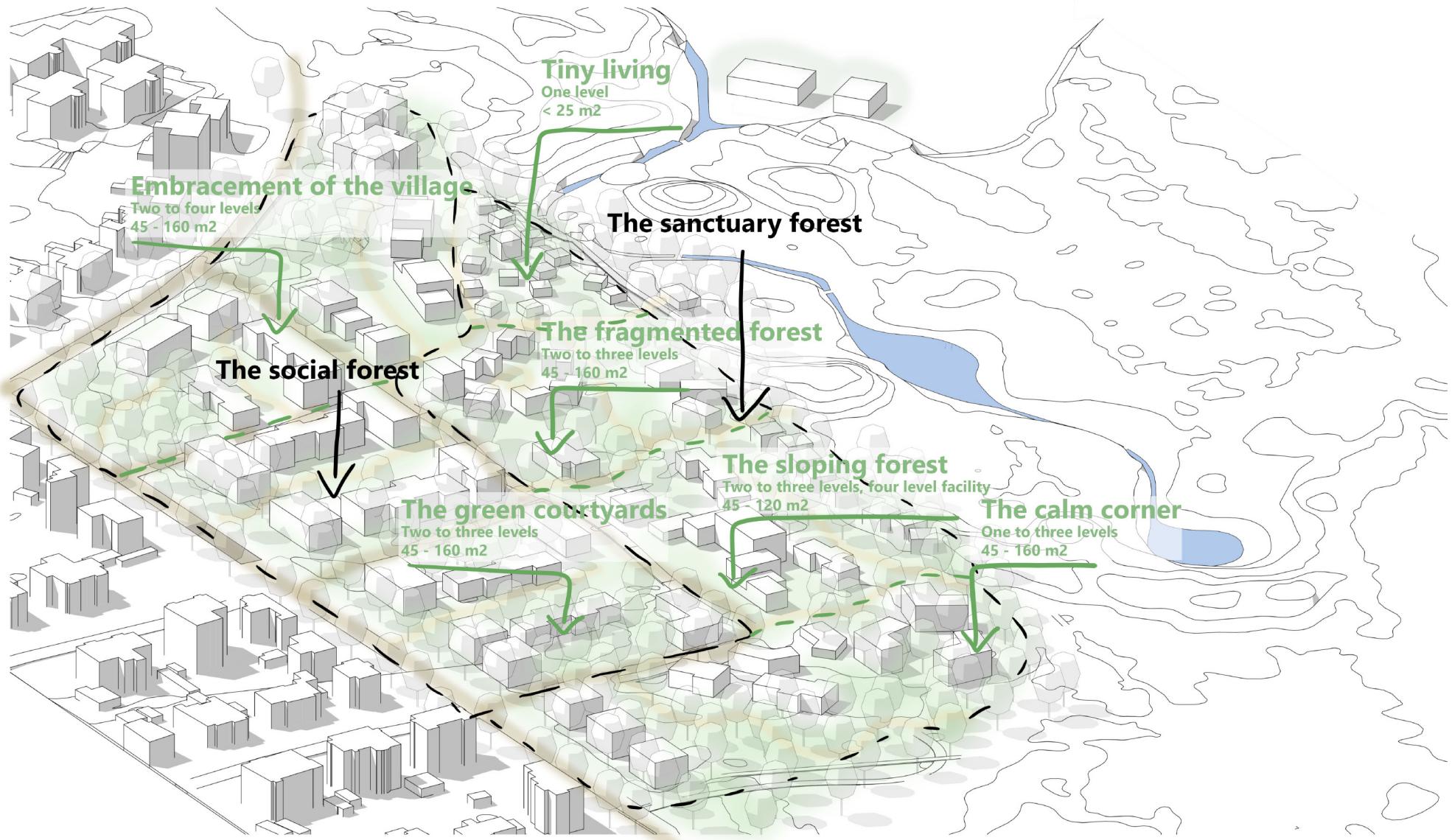


\*part of the apartments will be used for severe dementia households (Super Vision apartments)

\*\*the order may change depending on the environment

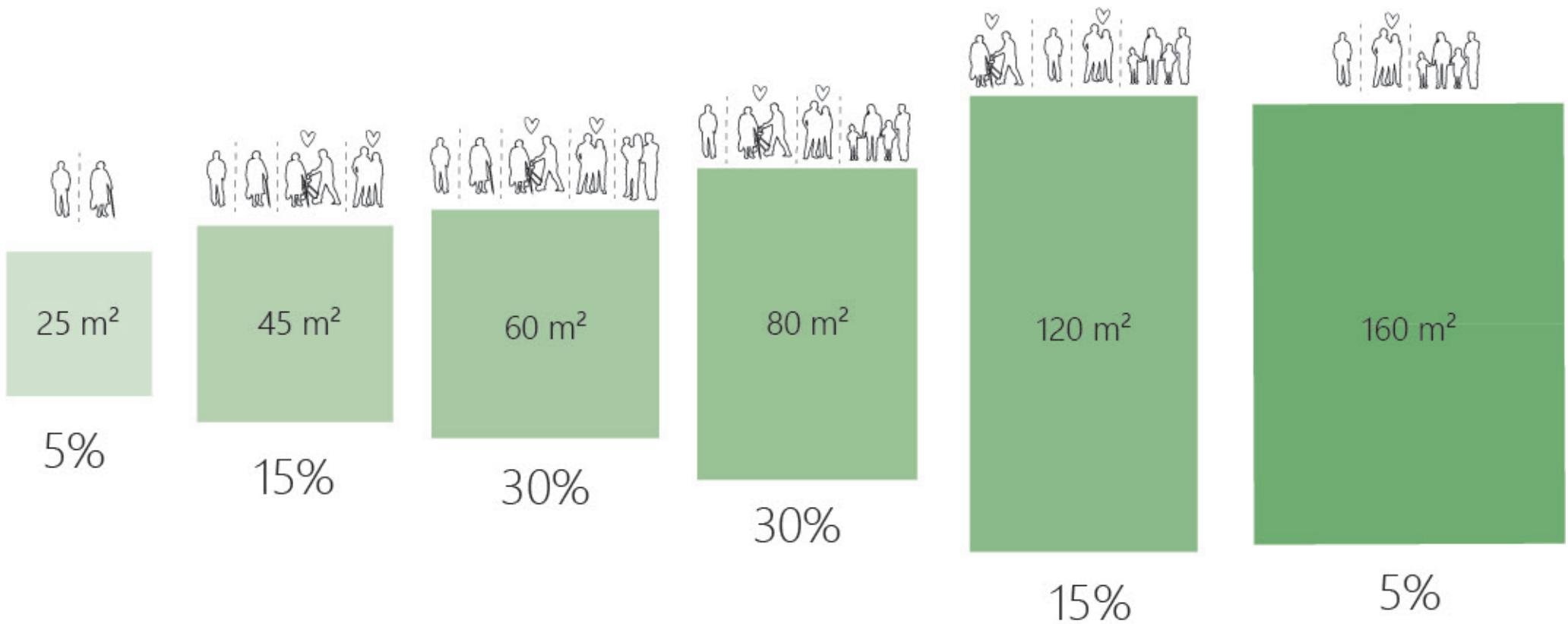
## **Sanctuary forest**

The sanctuary forest characterizes the dwellings with a direct relationship with nature. These homes differ from dwelling properties: from collective homes to private detached homes which all have a direct relationship with nature. We distinguish six different housing types. The different types are explained in more detail in the diagram on the left.



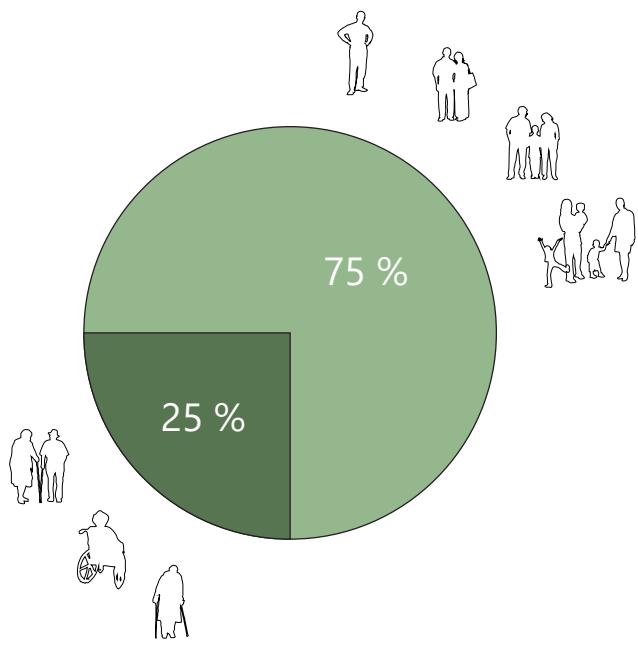
## **The master plan in 3D**

On the site about 316 homes are placed. The site has two main characters: the social forest and the sanctuary forest.

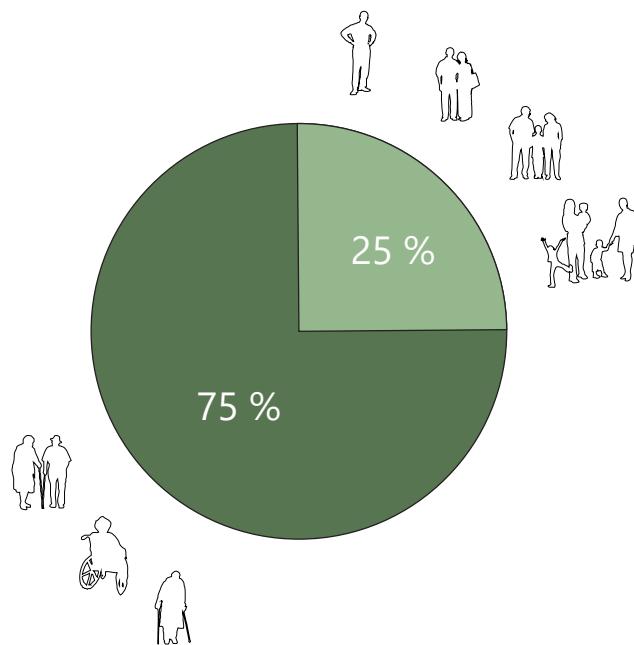


## **Target groups | Masterplan**

The new neighbourhood contains a mix of different population groups. The neighbourhood is accessible to young and old and will not discriminate on age. Therefore, our masterplan contains different sizes of houses attractive to each age group. In the figure on the left you see our first proposal of a division of different sizes of houses.



Idealistic



Maximum

## **Age balance**

Idealistically, the amount of elderly or disabled people is a reflection of society. As in 2040 25% of the Dutch population will belong to the target group of elderly, the percentage of elderly living in Thuisbos will as well be 25%. This percentage can increase up to 75% if needed, and also includes people with disabilities of any age. This percentage is quite high, but due to the bigger sized houses, like family houses, these elderly, and thus not inhabited by elderly<sup>1</sup>.



## III Nature and Thuisbos

### Introduction

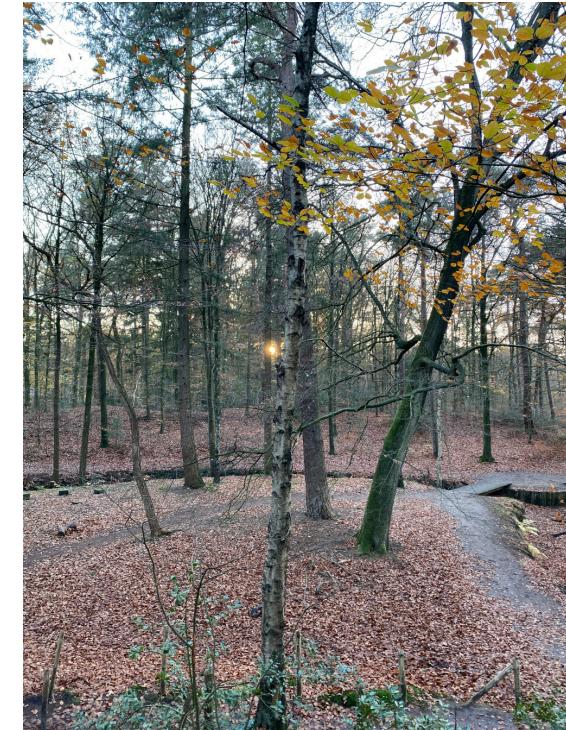
From the beginning of the design process the climate of Driebergen-Rijsenburg has been taken into account. For example, the sizes of open outdoor spaces were important as research showed that the many trees of Sparrenheide could pose a threat to receiving enough daylight in the area. In the upcoming pages it will become clear how Thuisbos reacts to the climate of Driebergen-Rijsenburg.



*The sun in the surrounding neighbourhood*



*The sun setting at the Northern area of the site*



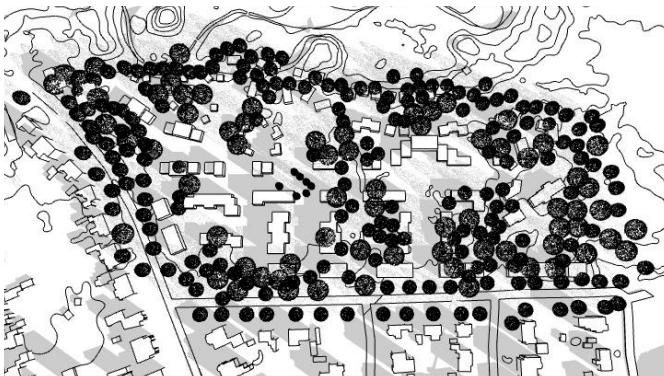
*The sun through the trees, the Northern area of the site*

## **The sun path**

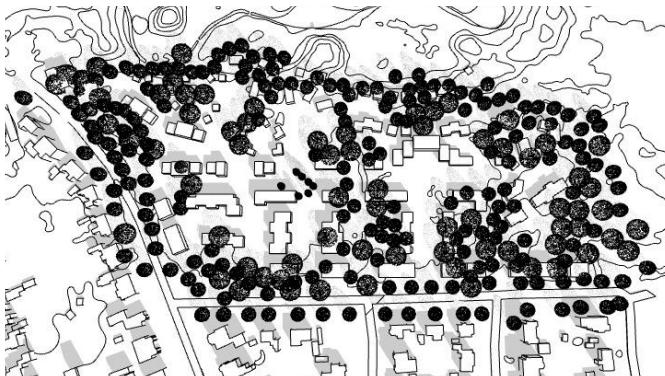
At the very start of the design process the sun path in each season has been taken into account (see the Site Analysis Booklet, chapter '*Climate*'). It became clear that the many existing trees create much shadow at the site. On the next pages the sun path is shown together with the existing trees, and the buildings of Thuisbos. While the buildings have been largely placed according to the direction of the extended lanes coming from the existing neighbourhood, many of the outdoor spaces (including the small private gardens extending into collective gardens) have been made of a large area size to make sure the sun is able to enter the gardens, and as a result as well as in the homes. Therefore, at each time of the day there will be an outdoor public space that has sun or shadow which is in short distance of each home. Lastly, every building has been kept at a low height (with a maximum of 4 levels) in order to maximise sunlight entrance at each outdoor place.

## Daylight through the day

Summer 21 June



08:00



10:00



12:00

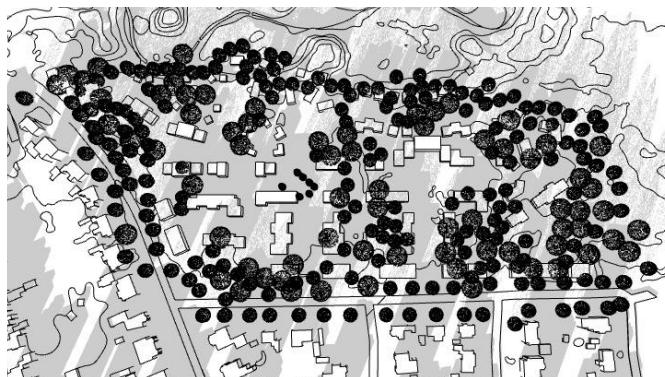
Winter 21 December



08:00



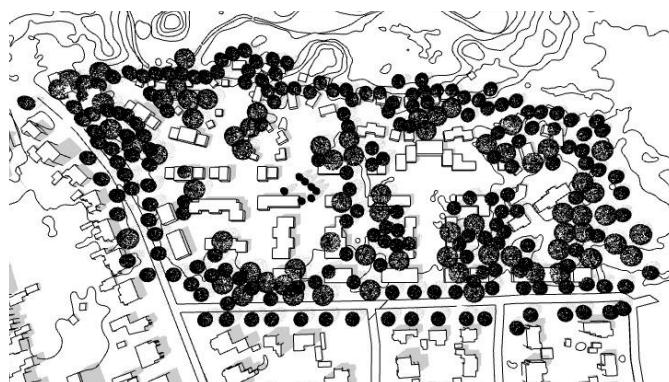
10:00



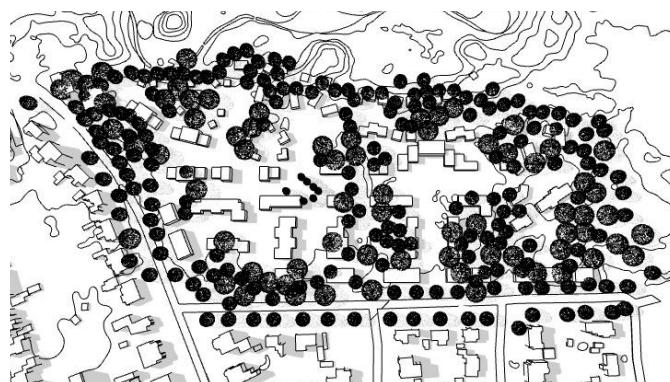
12:00



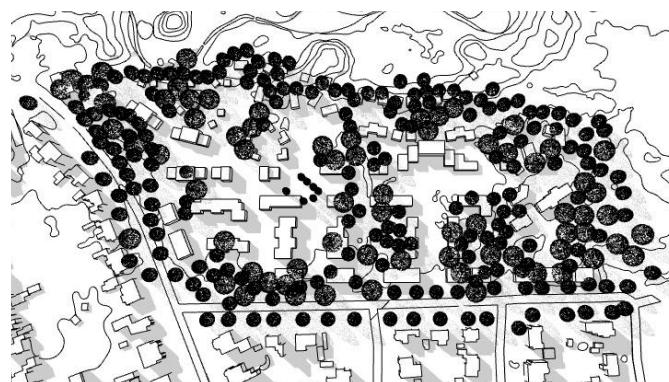
Simulation of sun orientation within the surrounding nature during winter and summer.



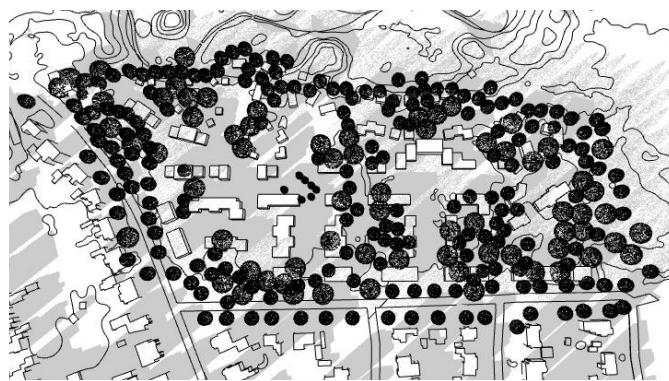
14:00



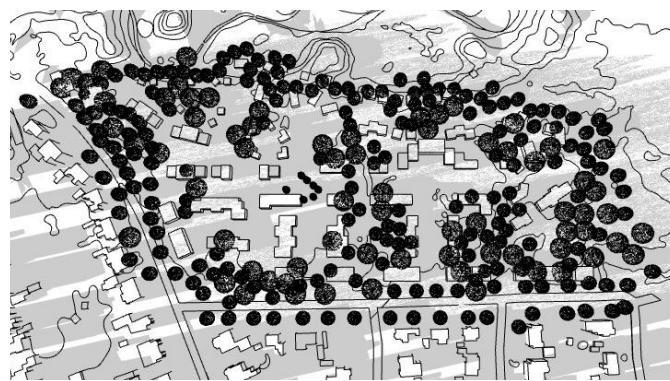
16:00



18:00



14:00



16:00



18:00



## Daylight through the day (without existing trees)

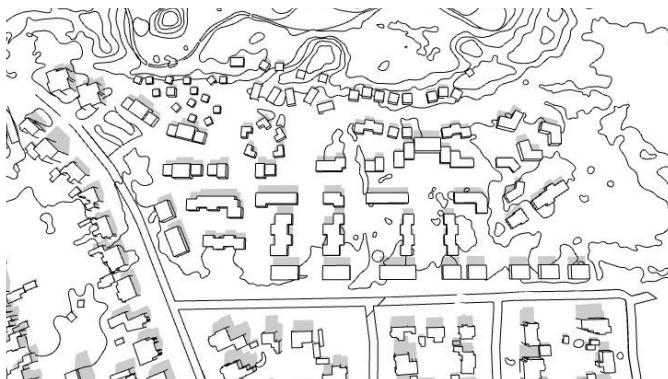
Summer 21 June



08:00

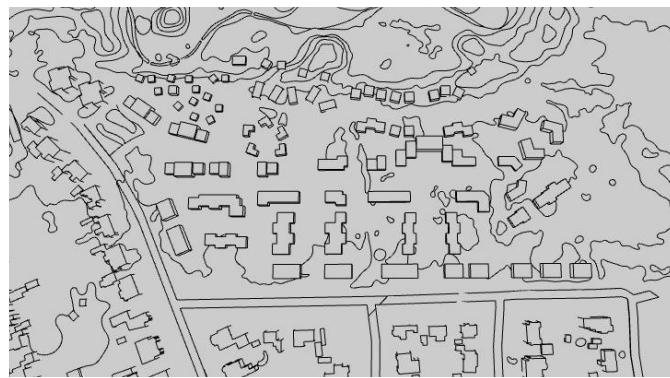


10:00

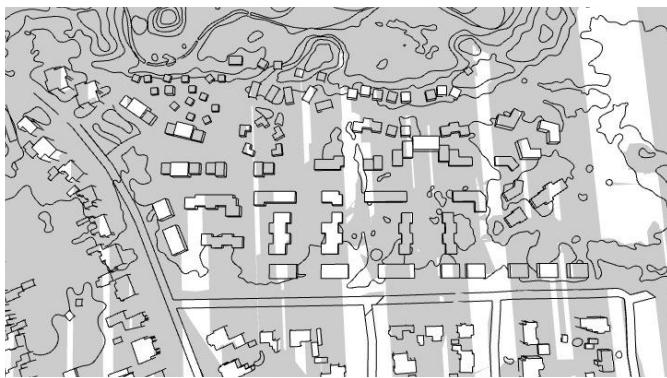


12:00

Winter 21 December



08:00



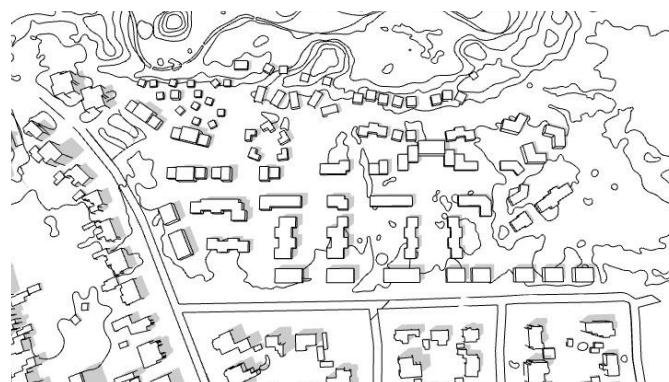
10:00



12:00

To get more knowledge about the summer and winter sun orientation in our site, the trees were left out of the simulation. Although this is not the reality, the model does show what shadows are caused by the buildings themselves.





14:00



16:00



18:00



14:00

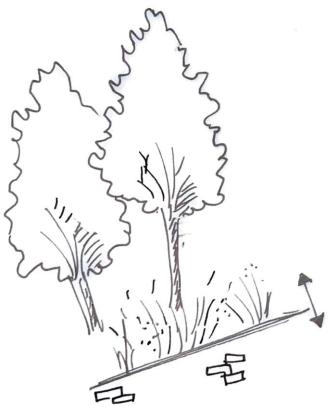


16:00

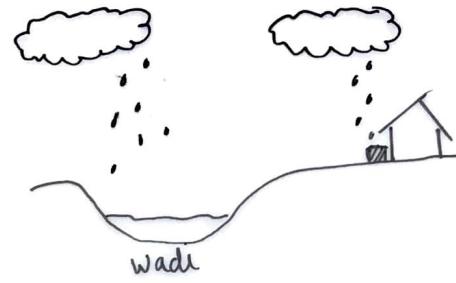


18:00





Use hard surfaces only when needed



Retaining water in the neighbourhood



Create awareness of water use

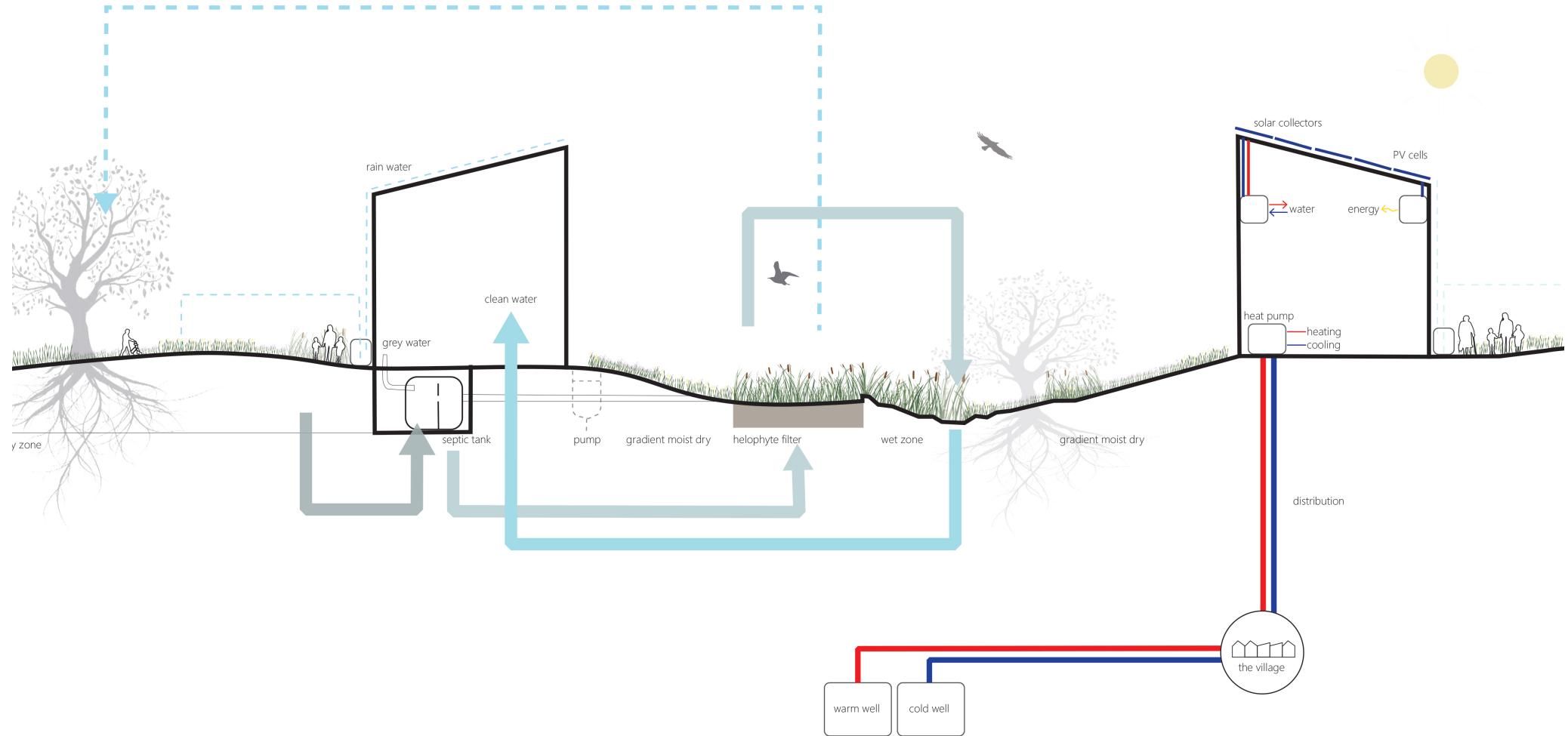


Circulation of water

## Water plan | Key points

There are four key points that belong to the theme "*Water plan in the Masterplan*". These are:

- To use hard surfaces only when needed
- To retain water in the neighbourhood
- To create awareness of the water use (e.g. information sign at the wadi)
- To circulate water in a closed circle



Schedule of the sustainability concept

## **Sustainability Schedule**

This section gives a brief impression of our sustainability principle in our masterplan. Our masterplan consist of energy neutral houses, therefore we implement solar panels to generate energy and heat pumps to control our houses from heating and cooling.

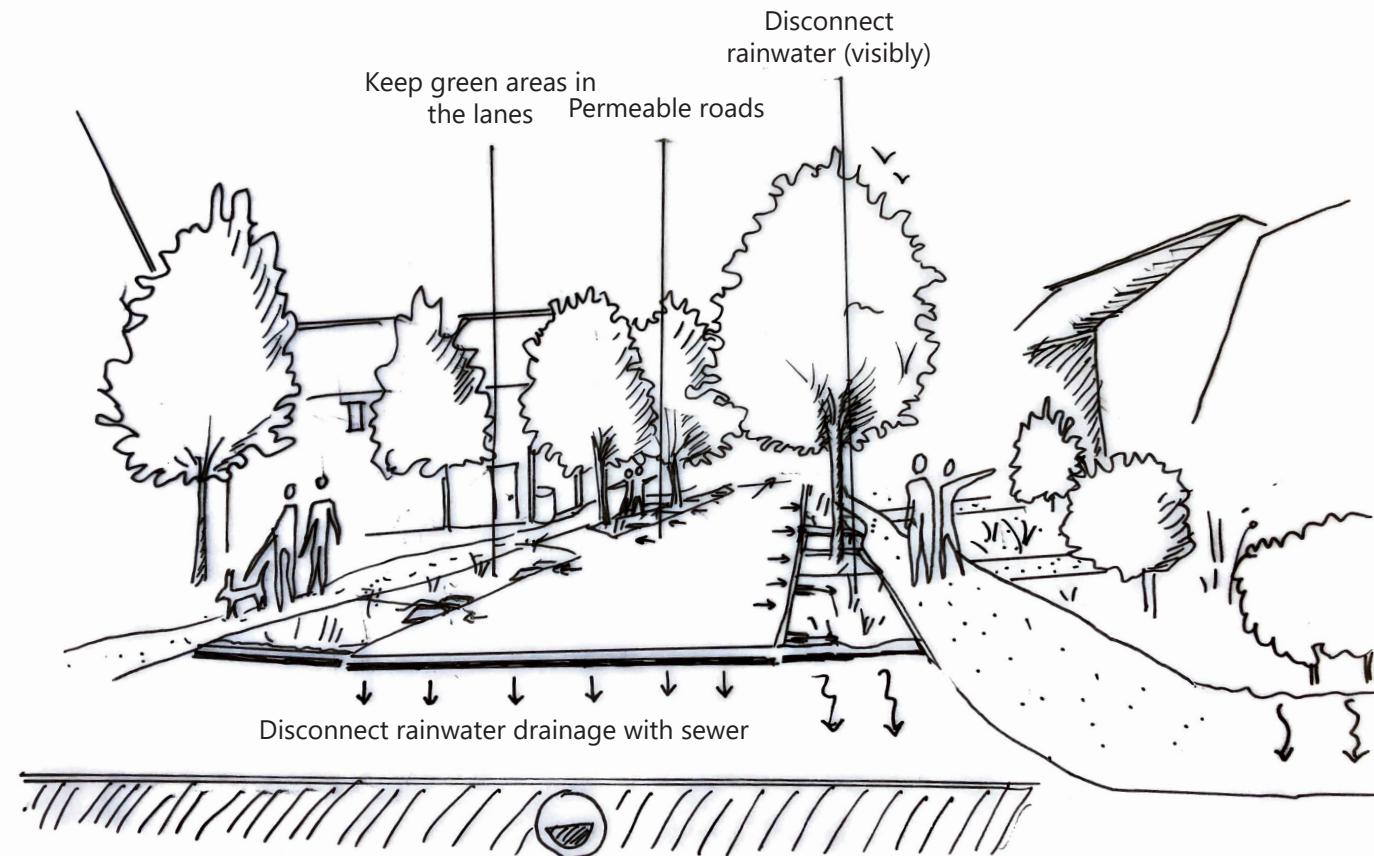


Figure 1. Less tiles, more green<sup>2</sup>



Figure 2. Disconnect rainwater (visibly)<sup>3</sup>



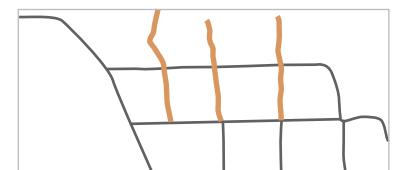
Figure 3. Use large gutters in nature for rainwater drainage<sup>4</sup>



Figure 4. Use of semi-pavement Nobre Cál

## Water plan | Vertical lanes

- In the vertical lanes the sewage drainage and rainwater drainage are separated. *Why?* Because of this the pressure on the sewer decreases. In the future it is predicted that it will rain more often and harder. The normal sizes of a sewer is not designed for this, and thus it is better to disconnect the rainwater from the sewer, to collect it locally and to store it. Water will become much more visible in the neighborhood. We want to drain the rainwater above ground as much as possible: make it visible
- Green areas are kept intact as much as possible. *Why?* Green (grass and trees) retains (rain)water and creates shade, but also captures particulate matter and absorbs CO<sub>2</sub>. Moreover, it provides a pleasant living environment. It strengthens forest character that matches the character of the Utrechtse Heuvelrug.
- Space gutters and a wadi are integrated to store the water from extreme rain showers.



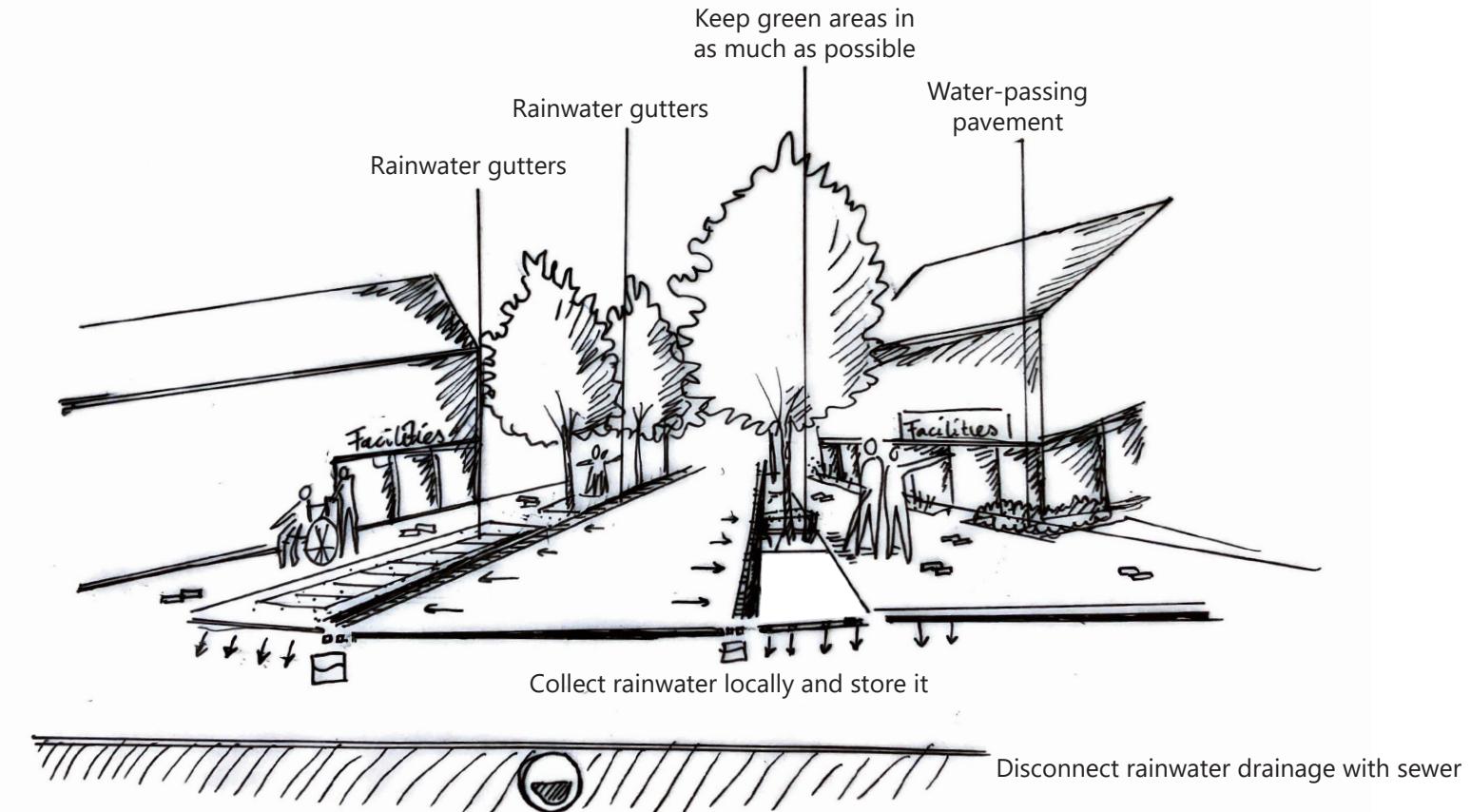


Figure 6. Less tiles, more green<sup>6</sup>



Figure 7. Water-passing pavement<sup>7</sup>



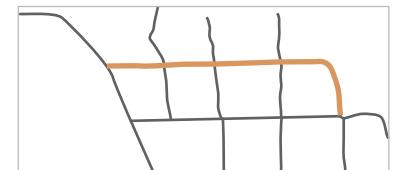
Figure 8. Green parking spaces<sup>8</sup>



Figure 9. Use of water gutter in the areas of surfacing<sup>9</sup>

## Water plan | De Driebergjes Lane

- The Driebergjes lane is similar to the vertical lanes as both are provided with a sewage system separated from the rainwater system.
- Green areas are kept intact as much as possible.
- For the paved areas clinker bricks will be used as they allow water to flow into the soil beneath.
- Space gutters and a wadi are integrated to store the water from extreme rain showers.





## **Water plan | Masterplan**

Location and distribution of rainwater circulation of our master plan. The wadi areas are the places where rainwater can be temporarily collected. The gutters are also temporary places where rainwater is collected.



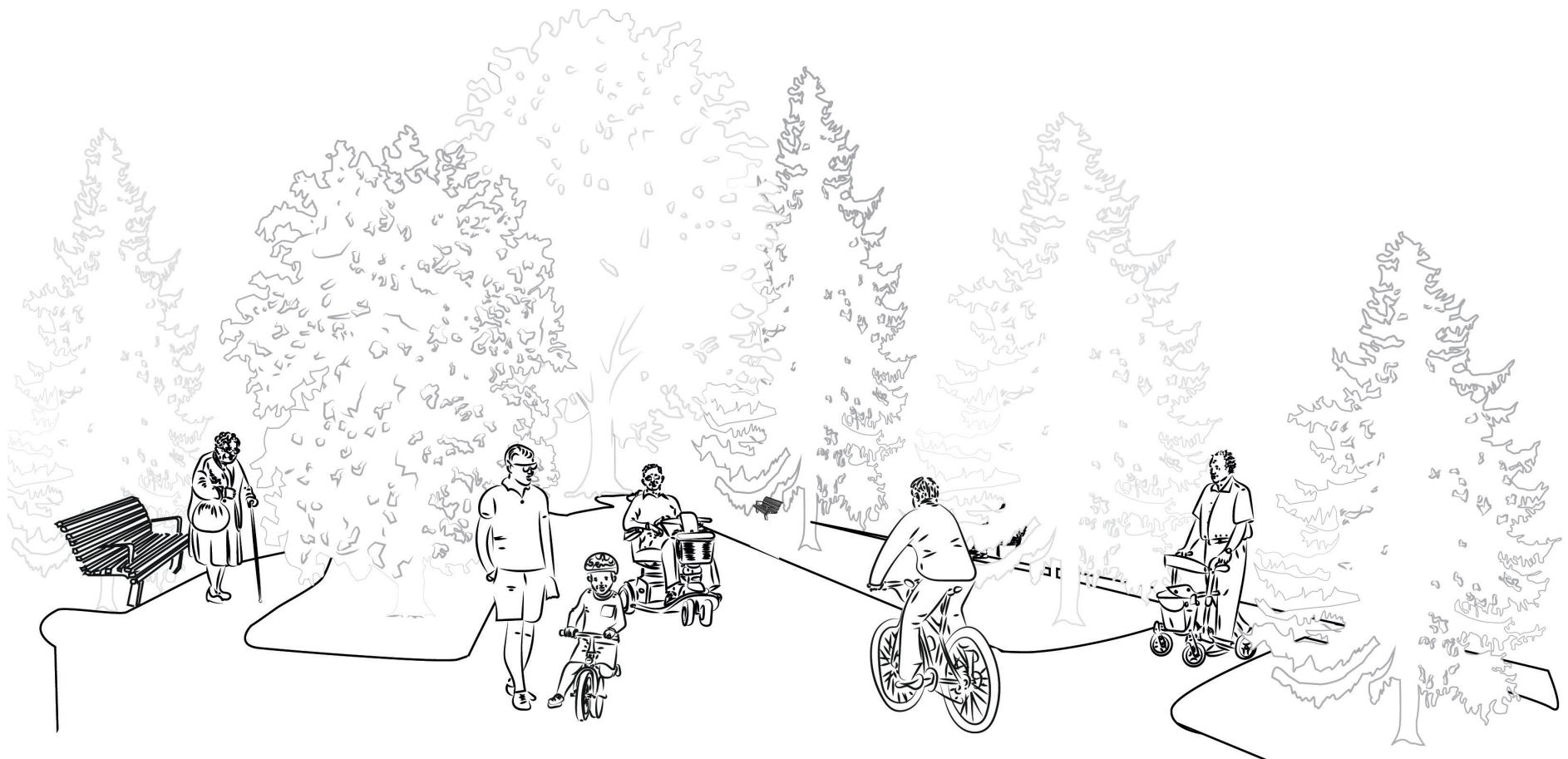
## **Sustainability**

Besides looking at the sun path of the area (as explained earlier) other measurements to make Thuisbos sustainable on the larger scale have been made. In the map on the left page some of these measurements are explained. The measurements range from choosing sustainable street lighting to reusing tree trunks.



## **Biodiversity | Masterplan**

Biodiversity was of high importance in our plan. To allow insects and animals to flourish, several spots for nesting and resting are placed throughout the entire site. As well, nice smelling flowers which are attractive to bees are placed along the sensory path to allow people to see the insects. Bird houses are either placed in trees or integrated into the facades.



# **IV Infrastructure**

## **Introduction**

The infrastructure of Thuisbos is based on three specific focuses, firstly, the idea that everyone should feel safe enough to travel around in the area albeit via bus, wheelchair or walking, and regardless of any health issues. Secondly, the idea that nature should be protected as much as possible, for example via preventing pollution from cars. Lastly, that walking, rolling and cycling should be promoted as it has many health benefits for people of all ages. On the next pages the translation of these ideas becomes clear within Thuisbos.



## **Facilities | Masterplan**

To give the residents of Thuisbos more grip on their daily activities, facilities are located in the center of the plan. Currently, the facilities are too far away to walk or wheelchair for the seniors. Thereby, implementing facilities inside our masterplan gives the residents more individualism about their life, gives possibilities to get a purpose of activities to do in life and encourage the sense belonging to their direct surroundings in order to get more know-how of your neighbours. To give orientation where the facilities are located in our masterplan, we decided to locate all the daily and weekly facilities next to horizontal facility lane named "Driebergjes Laan". People can recognize these lane through different material for the ground, the smell of flowers next to the street and a one way street which will dominate by bicycles. The ground floor will be occupied through shops and facilities.



## **Care facilities | Masterplan**

The symbol of care are the focus points of care from which care is given. Here are the storage places for care as well as care offices, lunch places and care sleeping places. Besides there are care car parking spots along the facility lane. Throughout the entire plan are toilet spots for everyone to use. Lastly, a pharmacy, a physiotherapy, a dentist, lifts and special guidance apartments are found.



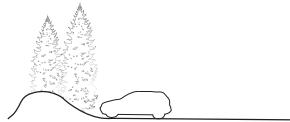
## Traffic | Masterplan

As a result of the important features of **Thuisbos**, namely respecting nature and allowing it to thrive and providing lanes that feel safe enough to walk slowly and wheelchair on, slow traffic has the lead on every lane at the site. Therefore cars and public transport are the guest at the lanes. Therefore the walkers, cyclist and wheelers will have the lead. The Driebergjes Lane is one way traffic for cars and the bus in order to prevent a hectic street. The arrows on the roads indicate the direction of the streets. The bus icons indicate the stops of the bus.

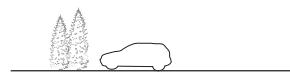


## **Parking**

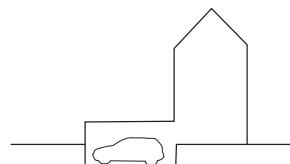
As a result of the car sharing system less parking spots are needed within the area. To encourage people to use the bike, to walk or to roll, and to minimize views on cars, two concentrated parking spots are concentrated on both sides of the site. A car sharing system is used so therefore even less parking spots are needed. The parking area on the west side is embraced and thus visually closed off by existing hills, while around the parking area on the east side artificial hills are created (with reused building blocks of the removed nursing home) to visually shut off the parking spots. Each parking area is partly for car sharing as well as for visitors of inhabitants of the site. Only in special circumstances people buy a parking spot for an individual car by inhabitants of the site according to their household income, but with an unattractive expensive price. At each parking spot one will first encounter roofed parking spots for bikes and scoot mobiles. The parking spots for scoot mobiles can be safely shut off.



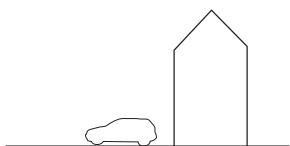
Car parking behind the natural slope



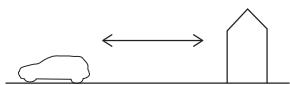
Car parking behind the hedges



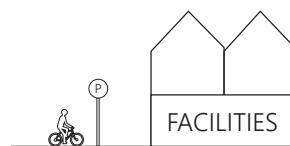
Car parking (half) subterranean



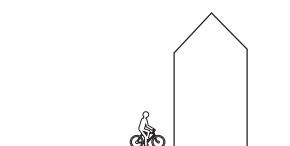
Parking of (shared) cars directly front of your homes



Big parking places far from your house



Visible bike parking places close to facilities



Bike parking directly front of your house

## **Car parking principles**

Within Thuisbos there are several ways of parking. The two large car sharing parking plots fall in the category of parking behind a natural slope and further away from home, this prevents cars in the area and views on the cars from the area. In the dwelling area itself parking for people with mobility issues is provided via half subterranean parking or parking next to the homes. To encourage cycling or wheeling parking spots for bikes are made visible near facilities and dwellings.



Figure 10. A simple and calm timber communal shed for bikes with playful roofs<sup>10</sup>



Figure 11. Locked and roofed scootmobile park spots made of timber<sup>11</sup>

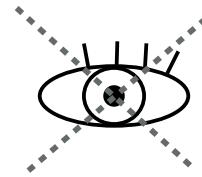
## **Bike and mobility scooter parking**

To encourage people to take the bike or mobility scooter instead of the car, the parking spots for slow traffic are put at the entrances of the parking spots (and thus are seen first). Both for the bikes and the mobility scooters roofed timber parking spots are made that have a playful touch. Timber is used to allow the parking spots to blend more easily into the forest. Both parking spots can be locked if needed.

Difficulties to walk



Poor visibility



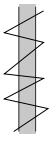
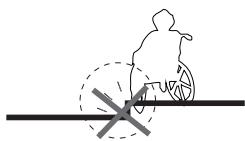
Poor hearing



Difficulties mentally

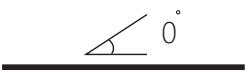


Threshold free



Use of guidelines<sup>2</sup>:

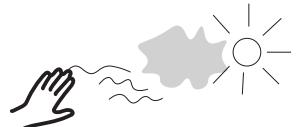
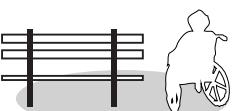
1. Tangible differences in textures / materials
2. Brightness in colours
3. Use of little high differences



Use of horizontal paths

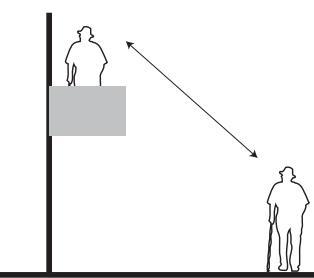
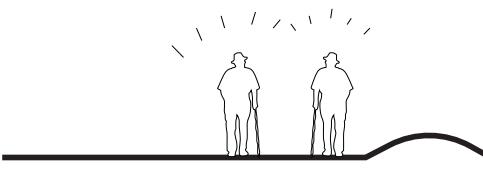
Creating landmarks through different smells

Distance at least 1,5m



Creating wheelchair proof meeting places<sup>1</sup>

Feeling of wind or sunlight for orientation of intersections and buildings



Connections by view



Structure



Contrast



Touching, smelling, hearing can stimulate the brain

## **Points of attention | Limitations**

An overview of basic principles for designing for people with disabilities. A distinction between physical limitations of mobility, blindness and deafness and a mental limitations of Alzheimer. The principle: "Creating wheelchair proof meeting places" at column 1 and "Use of guidelines" for the people with poor vision is further explained on the following pages.

Haug, (2005)<sup>12</sup>

Melis-Dankers, Havik (2012)<sup>13</sup>

Kimbols (2021)<sup>14</sup>

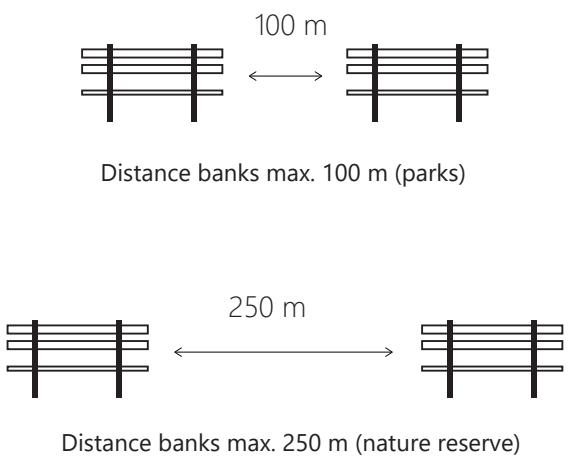


Figure 12. Distance between benches in public spaces



Figure 13. Example of wheelchair friendly furniture.<sup>15</sup>

## **Creating wheelchair places | Difficulties to walk**

Creating wheelchair friendly benches and picnic tables accessible with a wheelchair, or space for a wheelchair next to the sofa, or picnic tables, partly wheelchair accessible by wheelchair (bottom minimum 0.75 m high).<sup>16</sup>



Figure 14. Melis-Dankers, 2012



Figure 15. Melis-Dankers, 2012



Figure 16. Kerkebosch, Zeist



Figure 17. Melis-Dankers, 2012

## **Use of guidelines | Poor visibility**

Guideline is formed by elements that are not specially intended for visually impaired people and blind people, but can serve as route guidance, provided it is uninterrupted and free from obstacles.

Examples are:

- curb
- facade line
- grass edge,
- hedge
- wall
- hash
- tactile contrast (texture differences)
- brightness contrast in pavement.
- drainage channel

(Melis-Dankers, 2012)<sup>17</sup>

(Kimbols (2021)<sup>18</sup>

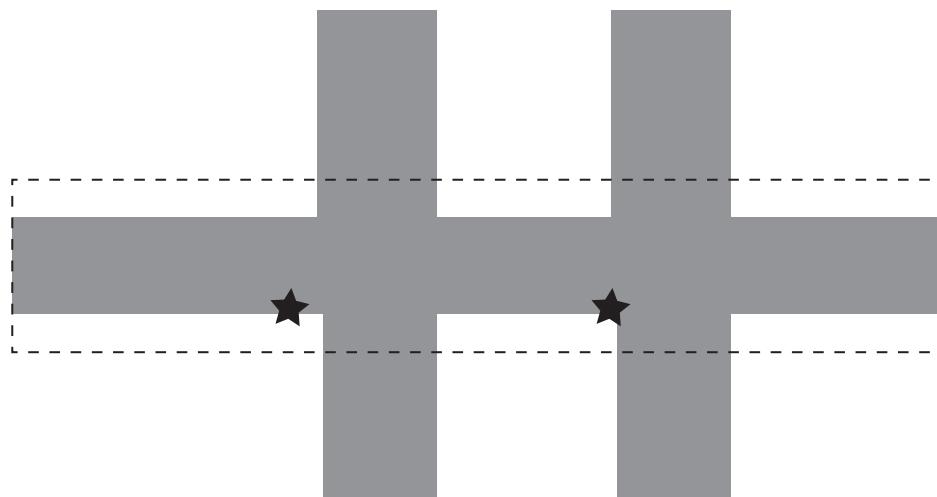


Figure 18. *De Dilgt in Haren*

## **Consistency and predictability | Poor visibility**

People who are visual impaired, it is important the environment offers sufficient support so that they can move around in a safe and comfortable way. For all road users, but certainly for the visually impaired target group, it is important that the design elements are used consistently and that they are used in the same way throughout the area.

Predictability of the environment makes navigation easier. He / she knows the way to his home based on landmarks and experiences

Source:  
Haug, J.J.M (2005). *Toegankelijkheid voor natuурpaden*. Bouw advies toegankelijkheid. Utrecht.

Melis-Dankers, B.J.M., Havik, E.M. (2012). *Shared spaces voor slechtziende en blinde mensen, een uitdaging voor ontwerpers aandachtspunten een toegankelijke openbare ruimte*.



Figure 19. *De Dilgt in Haren*



Figure 20. *Care center d'n Horstgraaf in Venlo*



Figure 21. *Residential care center De Vloet in Oisterwijk*

## **Gardens for Alzheimer**

For people who suffer from Alzheimer, it is useful to stimulate the brain in order to slow down the mental illness. Movement, sunlight and nature is one of the important conditions. For an Alzheimer friendly garden is a clear structure with boundaries one of the necessities for the patients, this creates an overview. None dead ends are used, only a continuous path so the alzheimer patients (who feel the urge to move), can keep walking. This way they can dispose their tension.

Another way to get rid of their state of agitation, is placing an busstop for instance. People with alzheimer often are searching their way back home, now they can rest while waiting. Smelling flowers, touching (not abstract) sculptures and hearing birds help in giving experience on a smaller scale. The recognizable flowers and plants are heightened so seeing and feeling is more comfortable for the elderly. Because the elderly are familiar with the kind of flower/plant by their colors and smells, it is good for their memory. A railing next to the garden has to be available since some elderly have balancing issues.<sup>19</sup>



## **V The lanes of Thuisbos**

### **Introduction**

The masterplan consist of one (new) horizontal lane which makes a connection to the neighbourhood and four vertical lanes which make a connection to the neighbourhood and forest. The horizontal lane looks different from the vertical lanes. The horizontal lane has the main function to connect the people with facilities. The vertical lanes will be occupied by residential buildings.

As both have different functions, traffic and destinations, it was needed to characterize them differently from each other. As well, it was important to characterize them differently to help people suffering from memory, vision and hearing problems to orientate themselves within the site. Whereas the lanes going from neighbourhood to forest are more naturally shaped and less hardened, the Driebergjes lane is mostly straight, functional and clearly readable.



*Picture of street in Kerkebosch, Zeist*

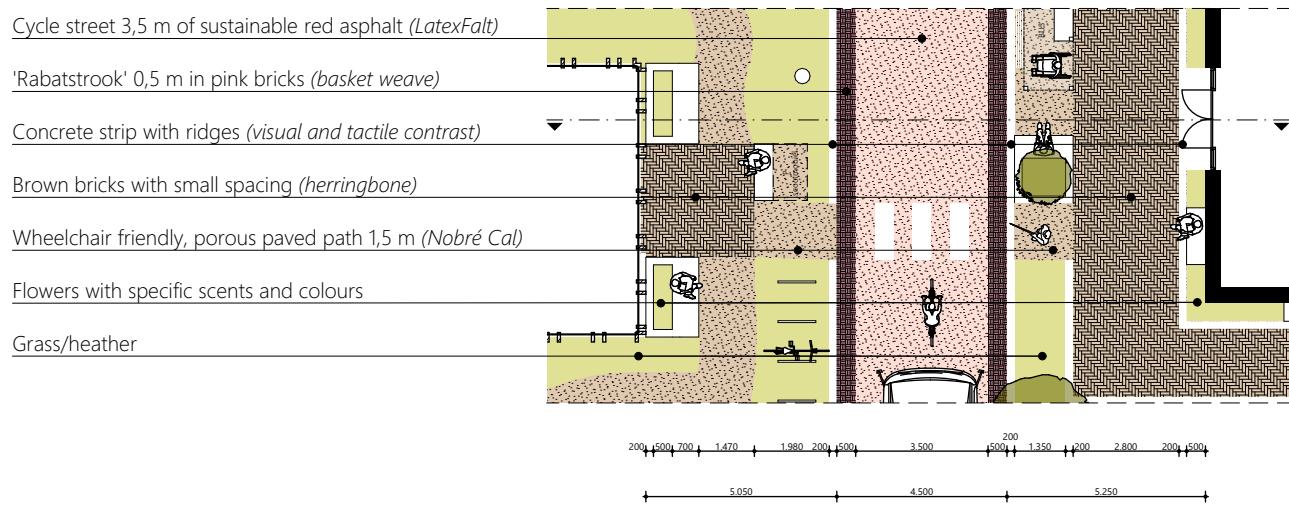
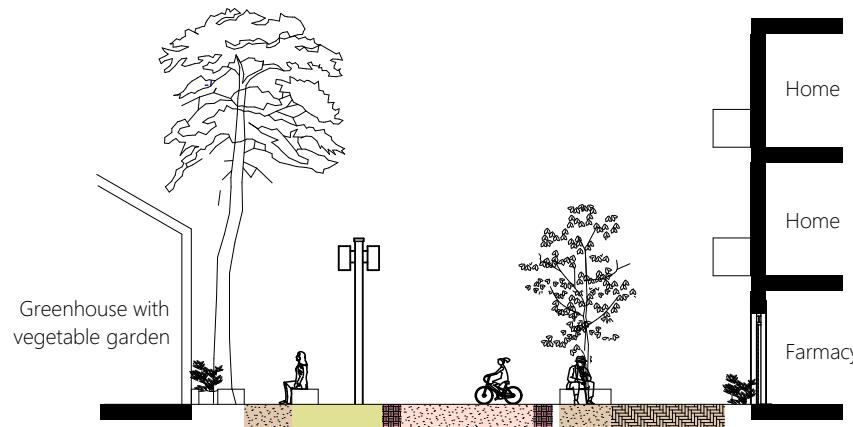


*New image of Kerkebosch, Zeist*

## Streetview of Kerckebosch

A great source of inspiration for Thuisbos was the dwelling project Kerckebosch in Zeist, in the Netherlands. The streets were more naturally shaped and featured more porous surfaces and grasses. One of these streets was the street on the picture on the left. The tree trunks in combination with the yellow porous wandering walking paths and a selection of grasses inspired us for the atmospheres of the lanes from community to forest.

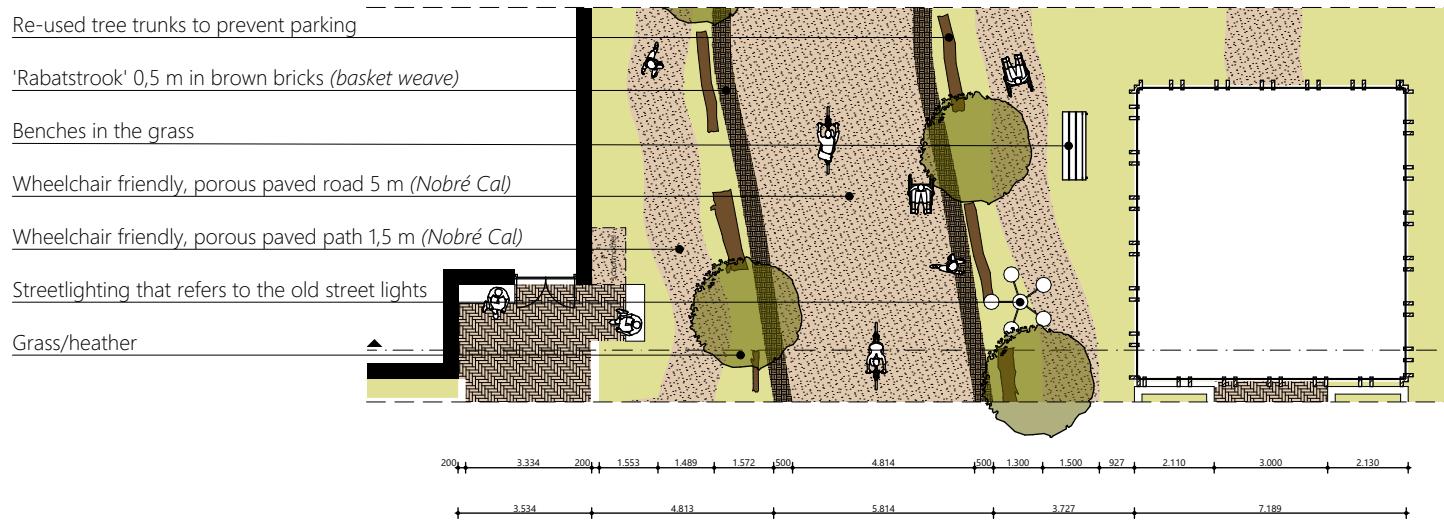
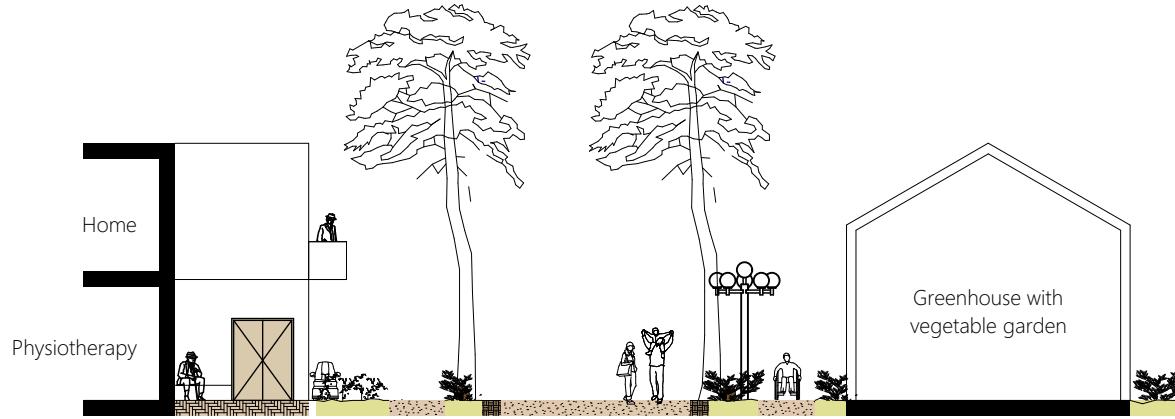
However, our view was blocked by the many cars and trash cans at the site. For people in wheelchairs the cars would completely block their sight. We wondered what the street view would look like without the cars and trash cans and thus removed them from the picture. The 'new' street view allows for more space for nature, provides a more calm atmosphere and allows for views that reach further.



Section and plan of the Drieberges Lane 1:200

## **The Driebergjes lane**

The Driebergjes Lane is characterized by its main function: that of connecting all the daily and weekly facilities at the site with each other. Thus this lane has a lively spirit with cafés and shops, while also being functional in going to the pharmacy for example and hosting the bus route. Having to guide people towards certain facilities while also hosting all kinds of slow traffic and cars and buses, the Driebergjes Lane needed to be a clearly and easily readable and accessible lane for everyone, regardless of disabilities.



Section and plan of the lanes from community to forest 1:200

## **Lanes from community to forest lanes**

The lanes coming from the existing neighbourhood towards the forest obtain quite a different character than the Driebergjes Lane they once cross. The lanes from community to forest mainly host inhabitants finding their way home or inhabitants or visitors walking towards facilities or the forest. Therefore these lanes obtain a more informal character in which meandering paths and natural elements such left open grass areas and tree trunks are placed. As well, these lanes will host a lot less car traffic and mainly walking and cycling traffic.

### The Driebergjes Lane (clearly readable, functional, public transport)



Concrete strips for contrast

Reference: *Klimaatwijk Klapwijk*



Seating at many places, along greenery and scented flowers

Reference: *Delfland Water Authority*



Inclusive streets with safe crossing spots with ridges that can be felt for vision problems

Reference: *Jackson Street, in St. Paul*

### The lanes from community to neighbourhood (more naturally shaped, usually only slow traffic, nature takes the lead)



Re-used tree trunks to prevent parking and allow seating

Reference: *Kerkebosch*



LED street lights to limit energy use and to dim for fauna

Reference: *Kerkebosch*

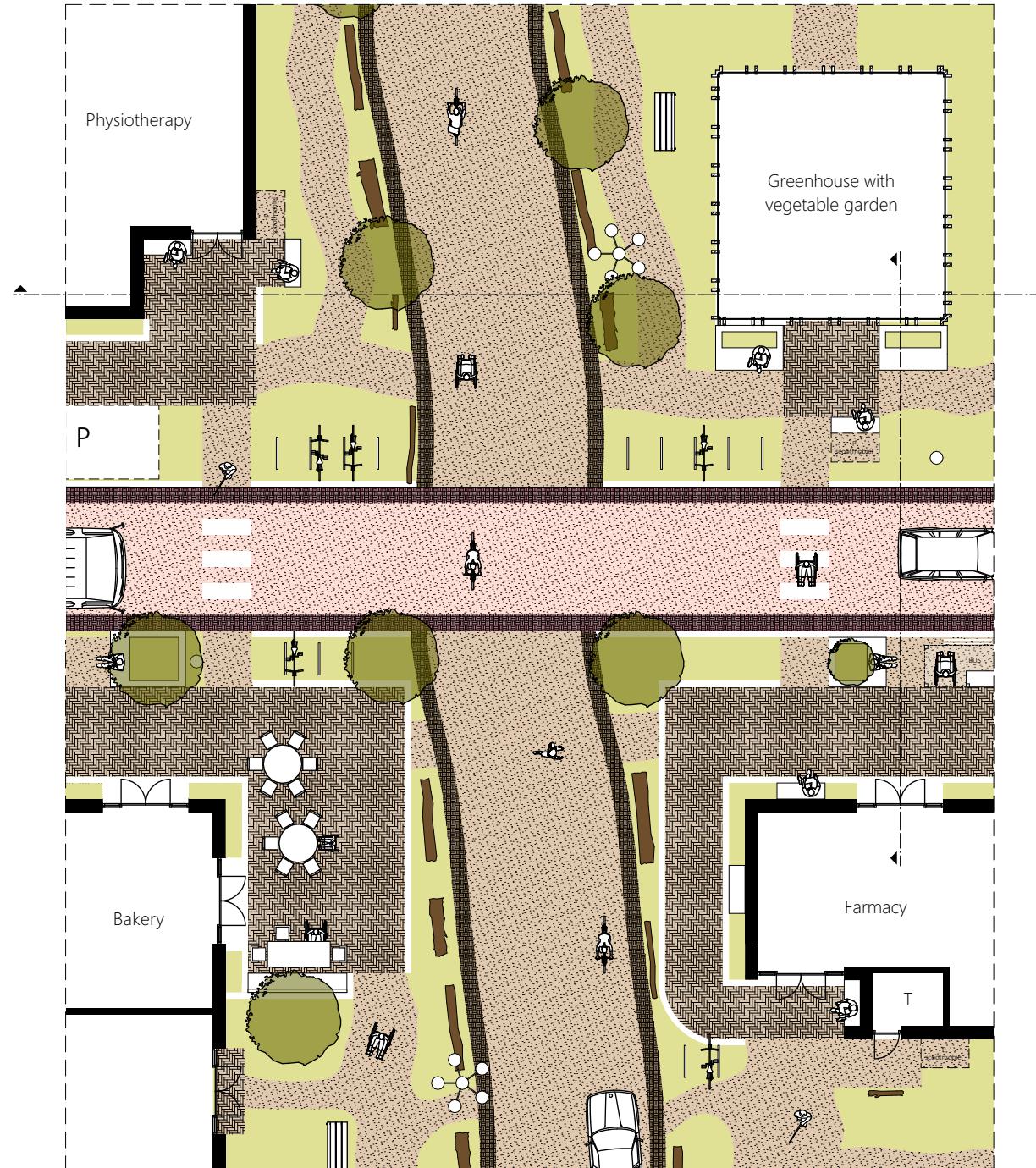


Wandering walking/rolling paths in natural shapes

Reference: *Kerkebosch*

## **The atmospheres of the lanes**

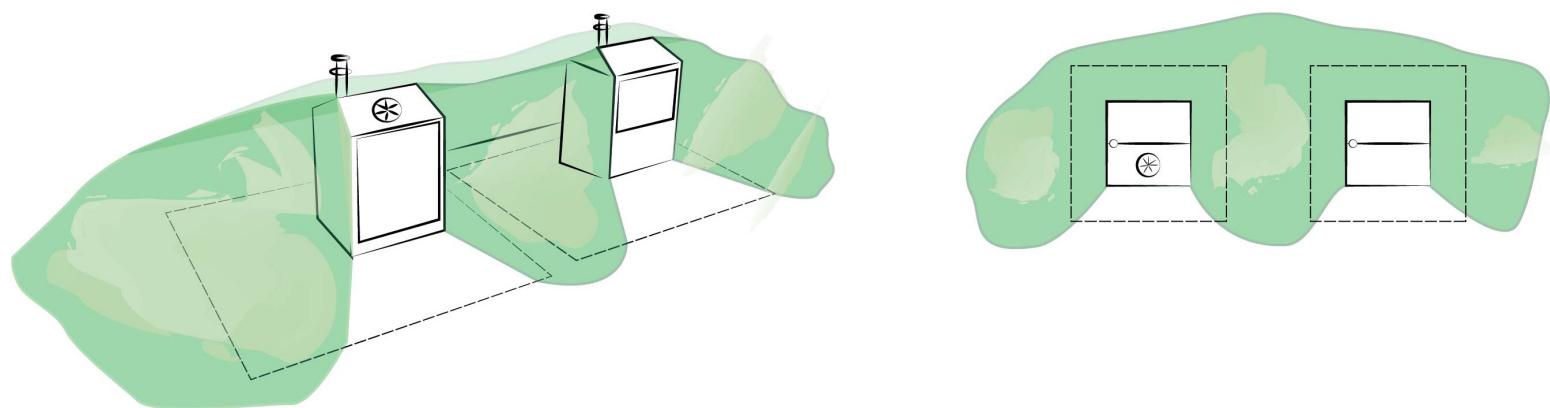
On the left pictures can be seen that provide extra insight on the characters of the lanes explained in the previous pages. Besides elements referring to the atmospheres of the lanes, sustainability was as well an important topic. LED lights for the streets are used that are dimmed at night to save energy as well as to limit influences on fauna at the site. Tree trunks that unfortunately have to be cut during construction will be re-used. Lastly, nature via grass, flowers and plants is included in all lanes to allow for water drainage.



Plan of the crossing of the Driebergse Lane and the Lanes from community to forest 1:200

## **The crossing of the lanes**

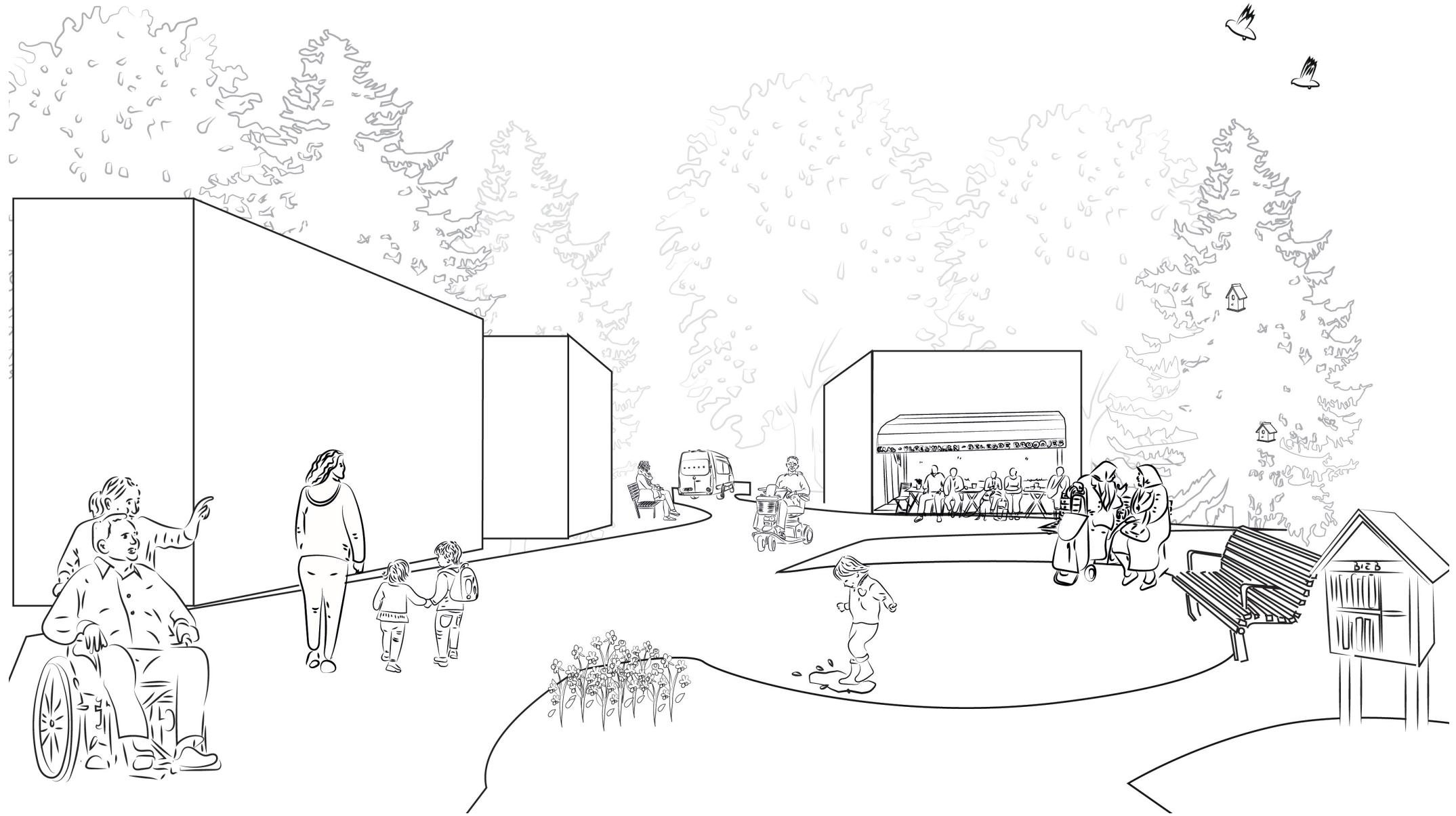
As the Driebergjes Lane needs to guide everyone in the neighbourhood to a certain place, the Driebergjes Lane continues when crossed with the other lanes. In the plan of the crossing on the left the different characters of both lanes can be clearly seen. The Driebergjes lane has more straight angles, a straight concrete strip for contrast and many entrances, while the other lane has more natural shapes, tree trunks and less hard surfaces.



*Garbage bins surrounded by nature.*

## **Hidden garbage spots**

In order to prevent garbage spots that are dirty and where garbage is placed outside, nature in the form of grasses and small slopes will be placed along the actual garbage cans. This will give the spots more value and thus it may prevent garbage placements outside. To allow people with memory problems to find the garbage spots, signs will be placed next to the spots that can be seen from further away.



# **VI Public and collective spaces**

## **Introduction**

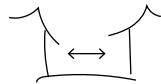
The collective and public spaces form the backbone of the masterplan as they connect not only each dwelling, but also each inhabitant living at the site. In the upcoming pages one will find several studies on public and collective spaces suitable for each type of living, and lastly an extensive diagram of the characters of the public outdoor spaces.



Closed courtyard:  
Bakenesserkamer



x 12 households



<-> **23 m x 25 m**

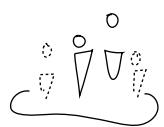


+/- 27 m<sup>2</sup> nature per  
households

= 5 m<sup>2</sup>



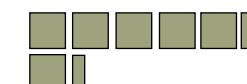
Closed courtyard:  
Evalanxmeer



x 32 households



<-> **26 m x 55 m**  
<-> **38 m x 55 m**



+/- 37 m<sup>2</sup> nature per  
households

= 5 m<sup>2</sup>



Closed courtyard:  
Knarrenhof



x 48 households

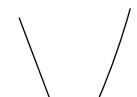


<-> **20 m x 76 m**

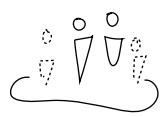


+/- 31 m<sup>2</sup> nature per  
households

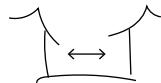
= 5 m<sup>2</sup>



Open courtyard:  
Evalanxmeer



x 26 households



<-> **18 m x 55 m**  
<-> **25 m x 55 m**



+/- 45 m<sup>2</sup> nature per  
households

= 5 m<sup>2</sup>

## Results | Public & collective spaces

In this research we distinguish three different collective and public spaces types namely: closed courtyard, open courtyard and direct nature with fragmented houses. In this study, we conducted various studies to find the ideal measures of public and collective spaces, household clusters and the distances between houses.

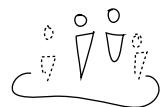
In the figure on the left you see an overview of the results of the sizes of these three different typologies. In summary, it can be seen that the amount of green in a closed courtyard is in all cases a lot smaller than the other two types.

A disclaimer of the closed courtyards, the examples are mainly localized in urban environments. This also contributes to the fact that the size of the collective gardens is therefore not very large in comparison with the examples of the open courtyards as the fragmented houses.

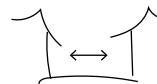
The results of the open courtyard and fragmented houses are explained in more detail on the next page.



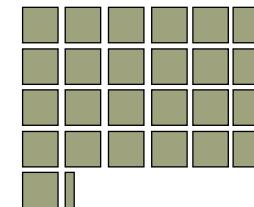
Open courtyard:  
Vogelenzang



x 36 households



<-> **16 m x 190 m**  
<-> **32 m x 190 m**



+/- 126 m<sup>2</sup> nature  
per households

■ = 5 m<sup>2</sup>



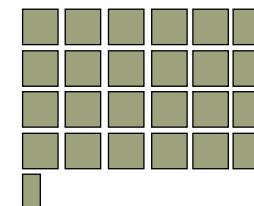
Open courtyard:  
Kerkebosch



x 12 households

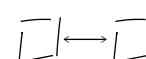


<-> **20 m x 34 m**  
<-> **32 m x 34 m**

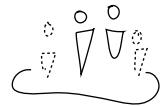


+/- 123 m<sup>2</sup> nature  
per households

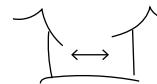
■ = 5 m<sup>2</sup>



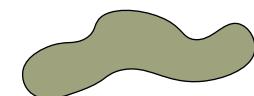
Fragmented houses:  
Vogelenzang



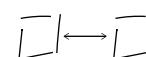
x 6 households



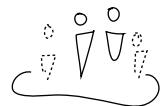
<-> 7,2 m - 13 m



One big nature space



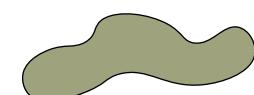
Fragmented houses:  
Kerkebosch



x 12 households



<-> 5,8 m - 15 m



One big nature space

## **Results | Public & collective spaces**

All reference projects of the open courtyards and fragmented houses have been selected on a similar natural landscape as our master plan. For this reason, the quantities of nature per house of the last column are also relatively larger.

The size of nature in open courtyards is therefore also a broad concept. They can vary from 45 m<sup>2</sup> to 123 m<sup>2</sup>. But the distances between the houses vary from a distance of 18m to 32m. So that is a measure that we also applied in our master plan.

Zooming in on the fragmented houses, we also see an agreement with distances between the houses, in the direction of the large natural surface. The distances can differ from 5.8 m to 15 m. And these distances also vary over the area. We have also applied this in our master plan. The locations of this research are briefly explained in the following pages.

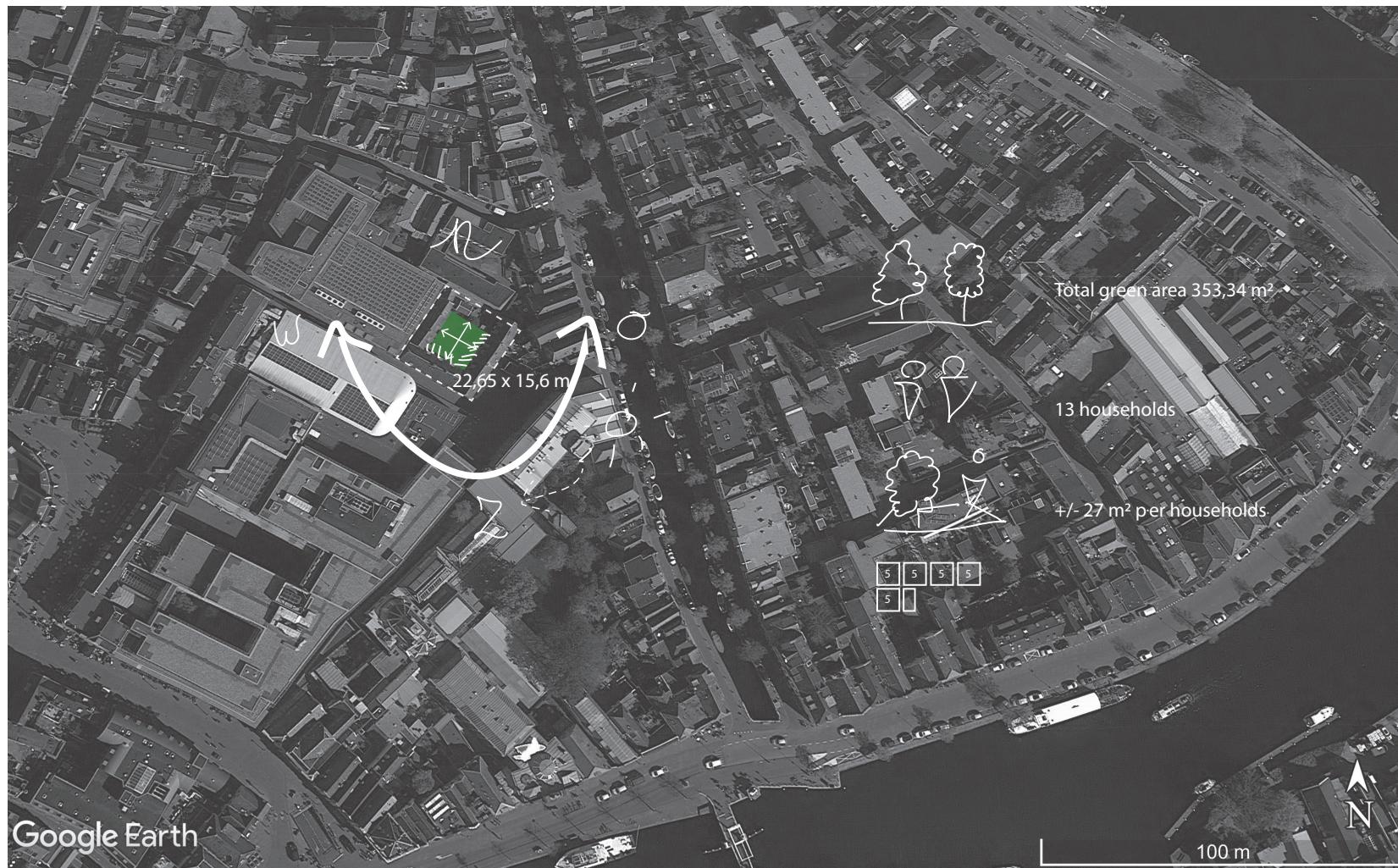


Figure 22. Closed courtyard, Bakenesserkamer

## **Closed courtyard | Bakenesserkamer**

Locatie: Haarlem

Bouwjaar: 1395

Aantal woningen: 12

\*Woning erg klein = 20 m<sup>2</sup> oppervlakte

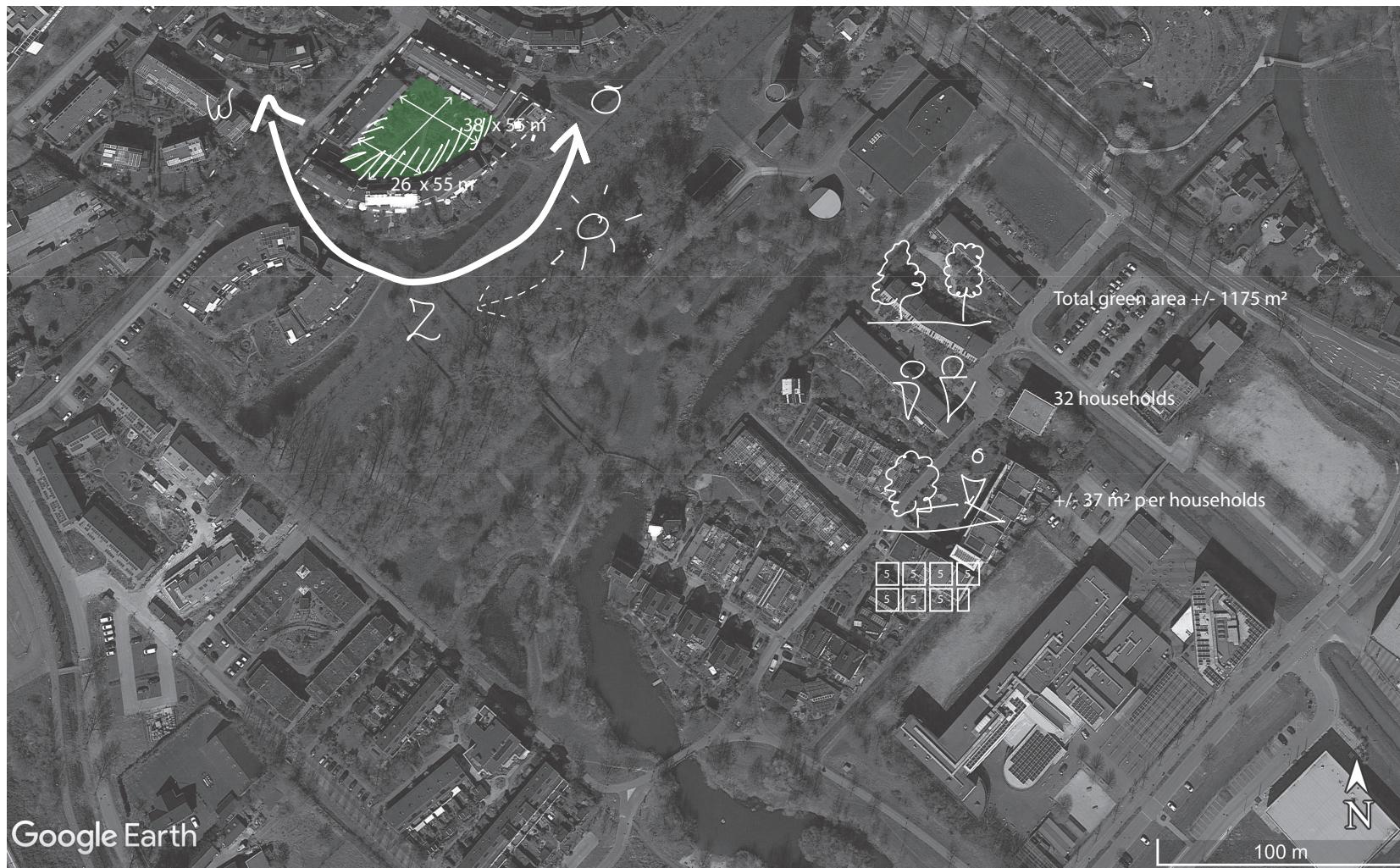


Figure 23. Closed courtyard, Evalanxmeer

## **Closed courtyard | Evalanxmeer**

Locatie: Culemborg

Bouwjaar: 2000

Aantal woningen: 32

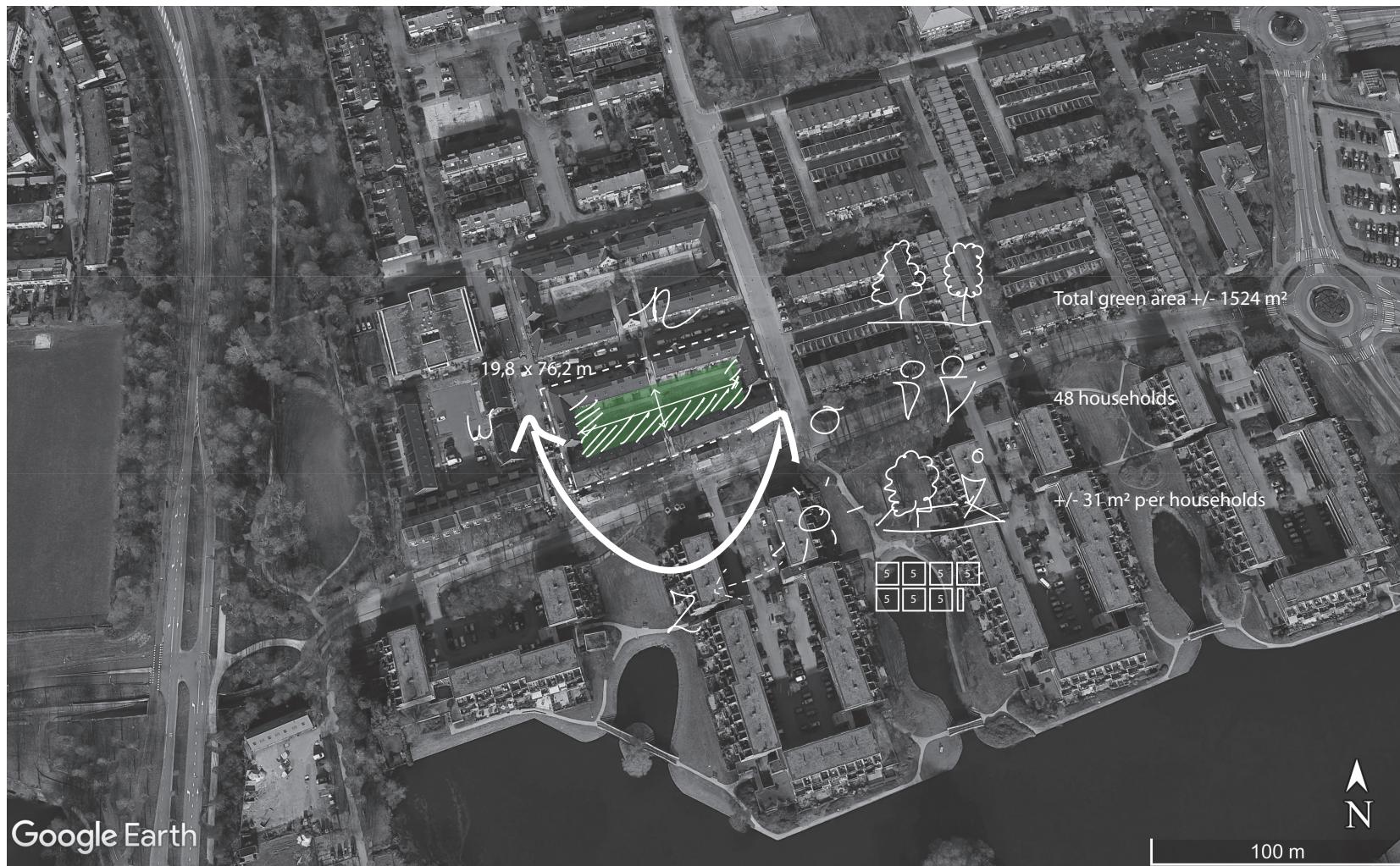


Figure 24. Closed courtyard, Knarrenhof

## **Closed courtyard | Knarrenhof**

Locatie: Zwolle

Bouwjaar: 2018

Aantal woningen: 48

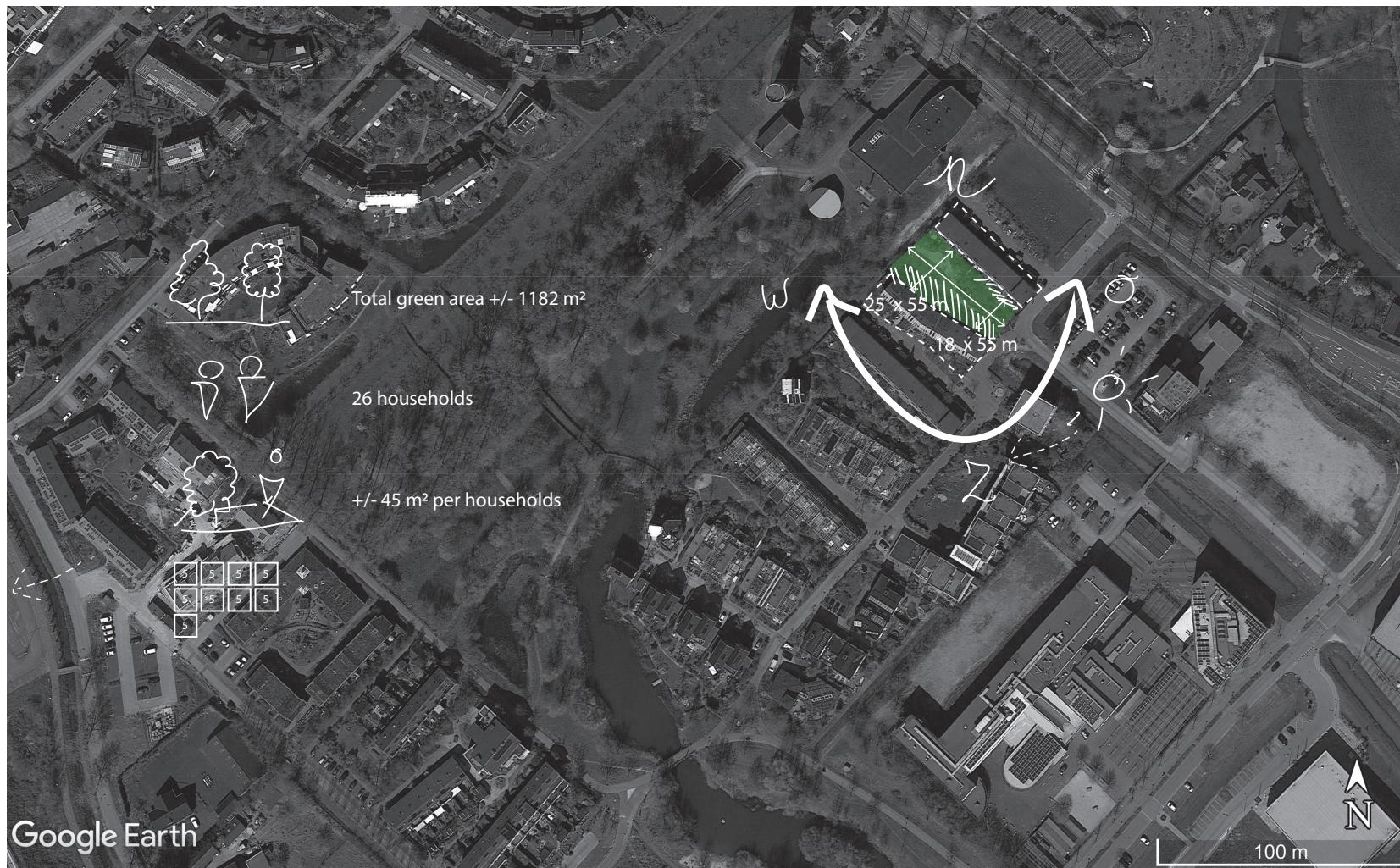


Figure 25. Open courtyard, Evalaxmeer

## **Open courtyard | Evalanxmeer**

Locatie: Culemborg

Bouwjaar: 2000

Aantal woningen: 26

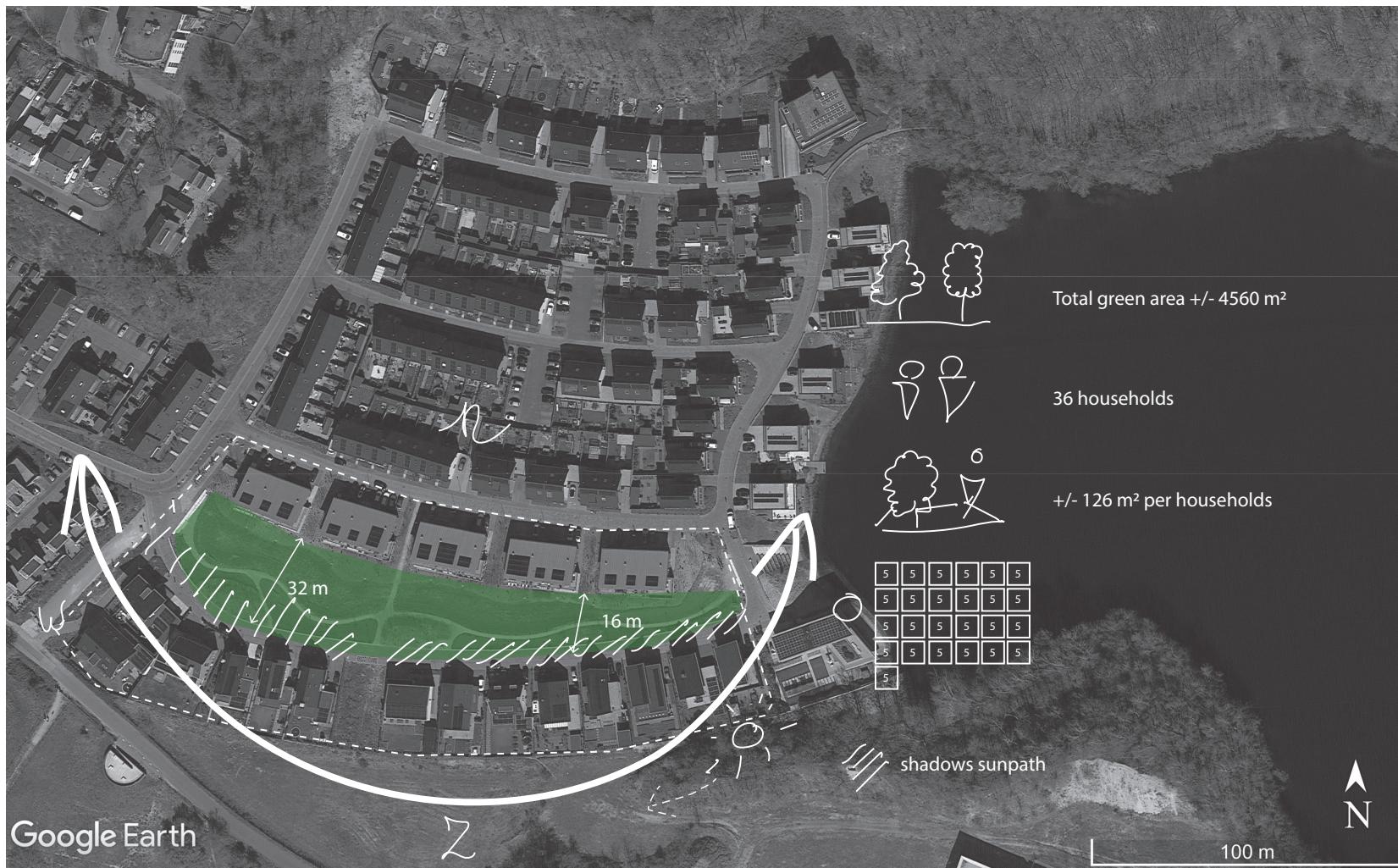


Figure 26. Open courtyard, Vogelenzang

## **Open courtyard | Vogelenzang**

Locatie: Rhenen

Bouwjaar: 2018

Aantal woningen: 36



Figure 27. Open courtyard, Kerkebosch

## **Open courtyard | Kerckebosch**

Locatie: Zeist

Bouwjaar: 2020

Aantal woningen: 12

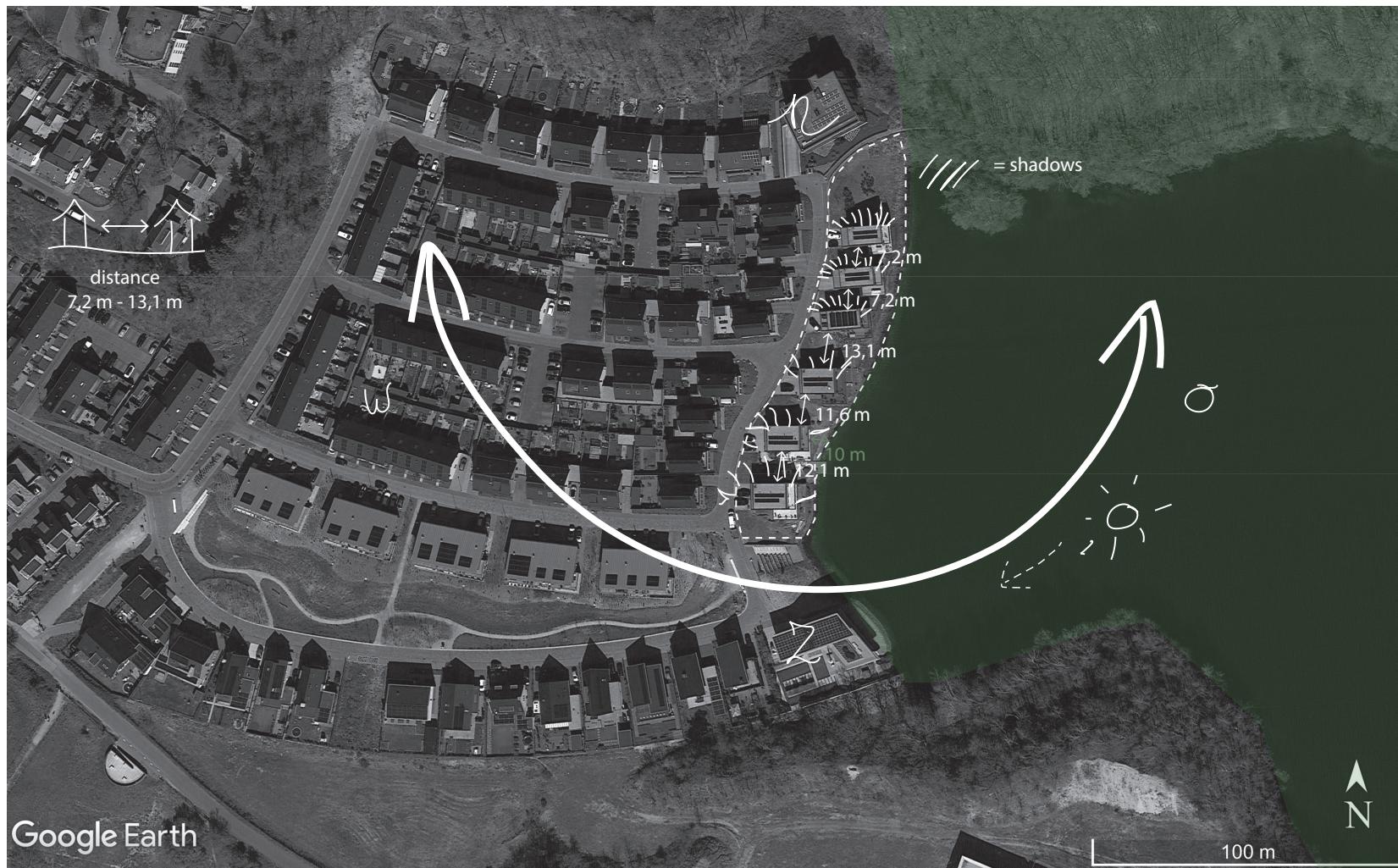


Figure 28. Fragmented housing, Vogelenzang

## **Fragmented housing | Vogelenzang**

Locatie: Rhenen

Bouwjaar: 2018

Aantal woningen: 6

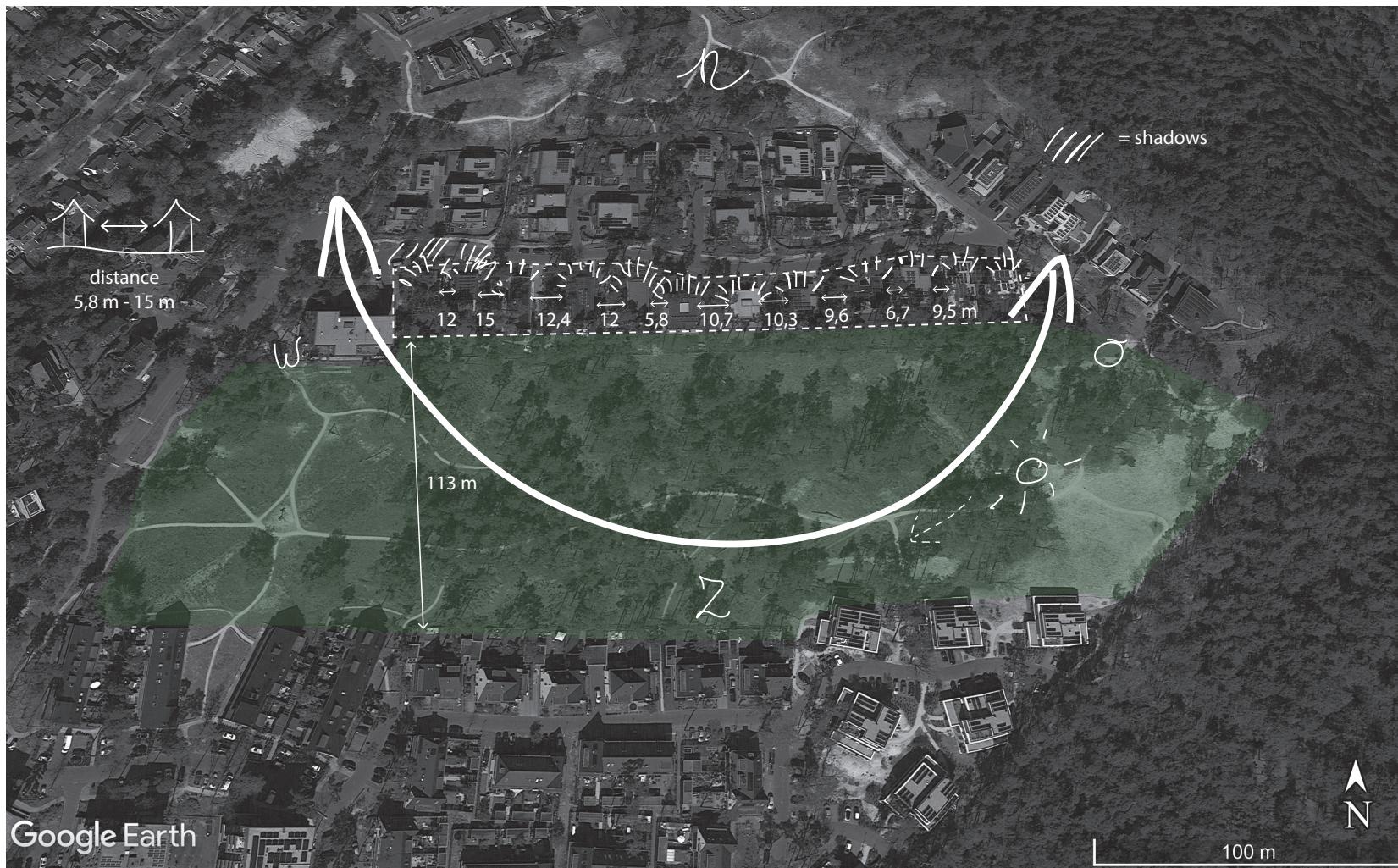


Figure 29. Fragmented housing, Kerckebosch

## **Fragmented housing | Kerckebosch**

De wijk Kerckebosch  
Locatie: Zeist  
Bouwjaar: 2020  
Aantal woningen: 12



## Outdoor public spaces

Within Thuisbos it was important to provide gardens at short distance from every home, as a result numerous public and collective gardens have been made. All gardens have been given different characters to give inhabitants the chance to visit a garden that suits their mood that day. The garden characters differ from silent gardens where contemplation is key (mostly placed near the forest in 'the sanctuary forest') to active gardens where interaction with other inhabitants is central (mostly placed near the surrounding neighbourhood and facility lane, in 'the social forest'). Every garden is connected to another via small wandering walking/rolling paths as well as via a larger walking/rolling route 'The scented path' (pink), that features particular scents and colour. Another path that connects the gardens is 'The book path' (blue) where the exchange of books and reading is central. All gardens will be explained in the upcoming pages.

 Collective / Personal

 Public connection

 Public parks

 Pocket parks

 Public Forrest

Private

*\*The sources of the images can be found on the next pages.*

ANIMALS IN THE 'WILD'  
DRINKING COFFEE  
WALKING  
ADVENTURE  
CYCLING UP THE HILL  
BAREFOOT PATH

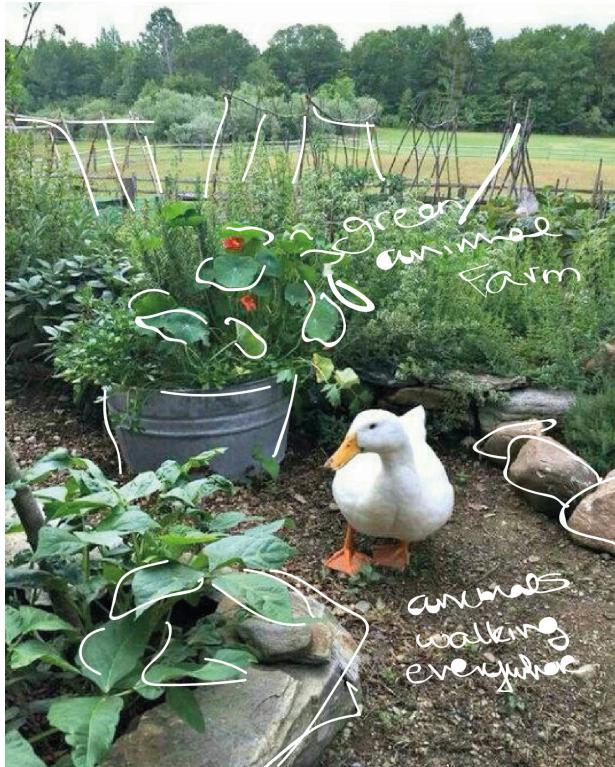


Figure 30. Duck in garden. A different kind of animal farm.<sup>20</sup>

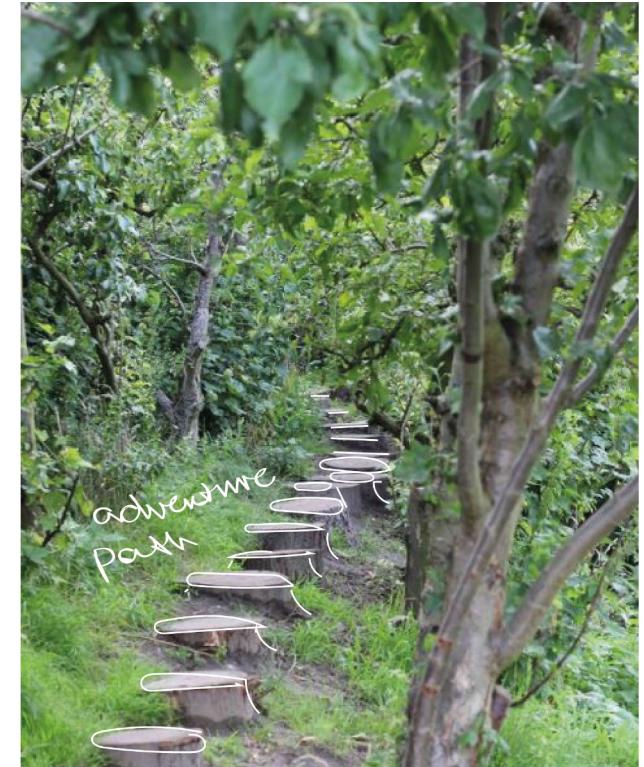


Figure 31. Dakpark.<sup>21</sup>

## **The active forest**

Within the active forest adventure is central. As it is part of the forest behind Thuisbos the highest hill is featured in the active forest with an already existing playful timber bridge overlooking a part of the forest. As well, many cyclists can be found in this area already who enjoy cycling uphill. The active forest is the most 'rough' and adventurous garden of the area.

Besides the adventurous outdoors, a daycare in which interaction with animals is central is also part of the active forest. The daycare is located on a large open flat surface to make sure that everyone is able to reach the daycare and the animals easily.

# LEARNING BY PLAYING ENVIRONMENT SUSTAINABLE GREEN ENERGY GARDENING



Figure 32. Dakpark, gardening area<sup>22</sup>



Figure 33. Gardening in Buitenhof, Tilburg<sup>23</sup>

## **Eco garden**

The eco garden is the first garden one sees when coming from the train station of Driebergen-Rijsenburg. The garden invites everyone who passes by to stop and involve in gardening with others. Central here is to learn about the nature of Thuisbos by playing and gardening. As well it is a way to interact with not only inhabitants of Thuisbos, but also with inhabitants of the surrounding neighbourhood. Raised gardening beds will be placed for people with mobility issues, as well as lowered playful gardening spots for children.

# PLAYING GROUND NATURAL MATERIALS ANTHROPOSOPHIC PLAY AREAS



Figure 34. Natural playing garden, Oosterpark<sup>24</sup>



Figure 35. Natural playing garden, NoordOogst<sup>25</sup>

## **The playing garden**

Opening up towards the surrounding neighbourhood is the playing garden, located at the most southern part of the site. An active garden like the playing garden is placed at this location to attract people with children from the neighbourhood to explore Thuisbos and to interact with its inhabitants. Here natural elements for playing are put that invite climbing, jumping, hopping, balancing and sliding. These elements will be made of tree trunks that had to be cut during the construction process of the master plan.

# MOVING HEALTH ACTIVITY PHYSICAL REHABILITATE IN NATURE



Figure 36. Sporting forest, Alken <sup>26</sup>

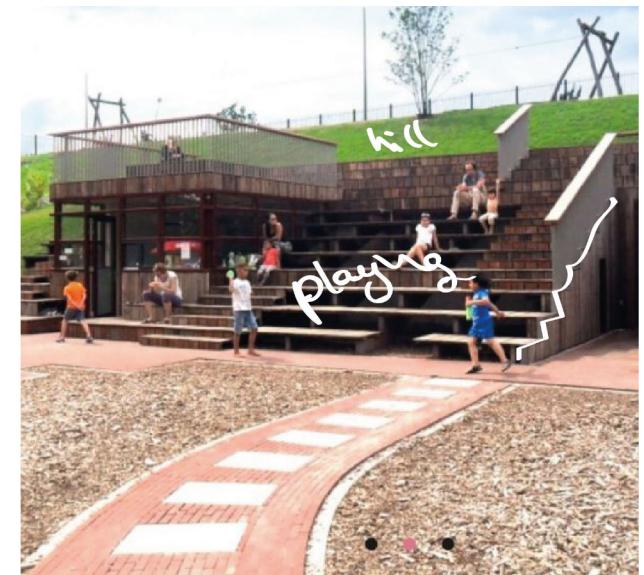


Figure 37. Dakpark playing area <sup>27</sup>

## **The sports ground**

To make moving, working out and playing sports attractive and in reach for everyone, the sports ground is placed at the center of the facility lane 'The Driebergjes Lane'. Logically the sports ground is located next to the physiotherapy, this allows the facility to practice outside. At the sports ground elements are placed to get people moving, like running tracks and old truck tires to jump from.

ARTISTIC  
EATING TOGETHER  
MOMENTS OF INTERACTION  
STRUCTURE  
SIGHTLINES



Figure 38. Dakpark <sup>28</sup>



Figure 39. Dakpark <sup>29</sup>

## **The welcoming garden | A warm hug**

As the Thuisbos states, this garden welcomes people into the site and invites them to walk further to the community centre, something that should feel like a warm hug. As one function is to invite people towards the community centre, straight lines are of importance here which guide people in clear directions. The welcoming garden is surrounded by courtyard housing and thus also functions as a place for interaction. Spots to eat together and have a drink are of importance here. The garden slowly evolves into a warm hug, a garden where finding the entrance of the community centre is important.

WANDERING AROUND  
BEING ON YOUR OWN  
RELAXATION  
BEING WITH A GROUP

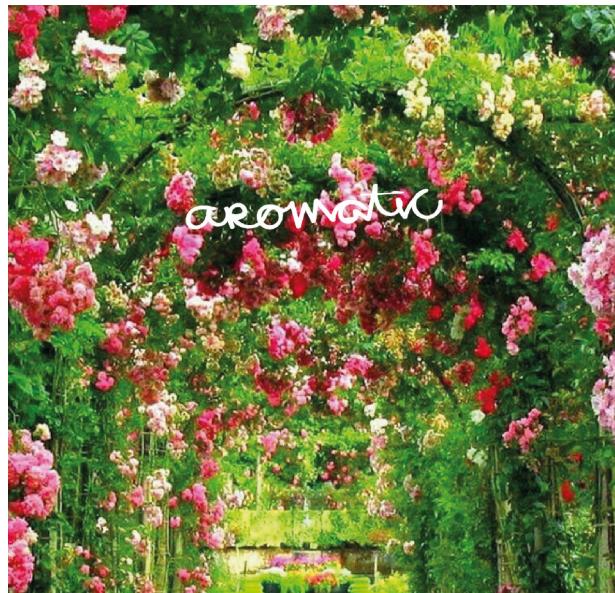


Figure 40. Aromatic and colourful flowers <sup>30</sup>

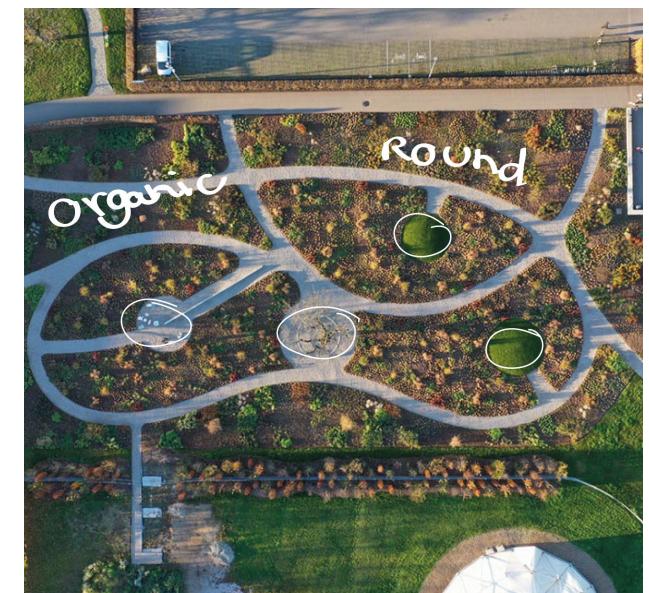


Figure 41. Vitra garden of Piet Oudolf <sup>31</sup>

## **The wander garden**

Located at the edge of forest and dwelling between the more active and more quiet and calm gardens is the wander garden. The wander garden navigates between the busy atmosphere of the welcoming garden and the calm atmosphere of the sensory garden by the creation of paths that wander off towards the northern side. From this garden one can wander towards the forest or the sensory garden. Here relaxation in a group or with someone else is made possible. It is mainly a place to wander with others, although wandering alone is as well possible.

HEARING  
TOUCHING  
SEEING  
ART



Figure 42. Sculpture garden Benson<sup>32</sup>

## **Sculpture garden**

The sculpture garden is adjacent to the sensory garden and the forest of contemplation. Thus, it is a garden to explore senses as well as to be more quiet and relax. The sculpture garden will feature non-abstract art to make it more recognisable for people with memory problems. Art made during art workshops with the community can as well be displayed here.

MEDITATION  
QUIET  
NATURE  
ORGANIC

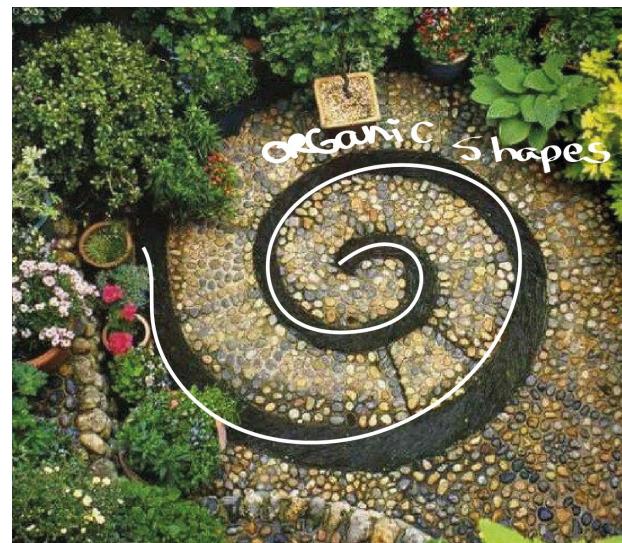


Figure 43. Meditation garden <sup>33</sup>



Figure 44. Miriam's River House <sup>34</sup>

## **The forest of contemplation**

At the edge of the dwell area and the forest is the forest of contemplation. It is located here as it is embraced and protected by the high hill tops that surround it, as well as by the existing waterways. As new water wadi is made in the forest of contemplation as the sound of water soothes and relaxes. The dwelling surrounding this garden is dwelling with a more private relaxed character. Meditation and nature is central in this garden.

COURTYARD  
COMMUNITY  
KNOWING EACHOTHER  
MEETING PLACE  
SHARED SPACE



Figure 45. Knarrenhof<sup>35</sup>

## **The social garden**

The social garden is characterised by the courtyards that surround this open outdoor space. Central here are moments of interaction. The width of this outdoor open space is wider than the width of the welcoming gardens because the social garden is made as a place to stay, whereas the welcoming garden is made as a place to stay as well as a place to guide towards the community centre. Central in the social garden is the feeling of community and knowing one another as well as the feeling of taking care of a space together.

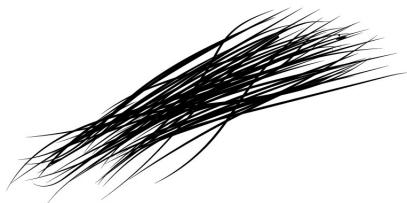
# HEARING TOUCHING SMELLING SEEING TASTING



## **Sensory garden**

Within the sensory garden it is important to allow people to explore their senses without distraction from others or loud activities. The sensory gardens are placed next to the apartments as one of these apartments can be turned into apartments for people suffering from the most severe form of dementia. Flowers and plants with strong particular scents or colours can help retrieve memories back in people suffering from memory loss.

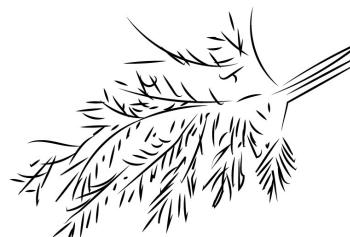
chives



leaf parsley



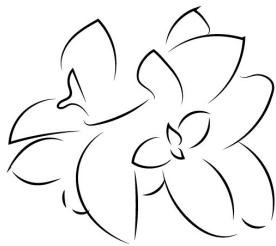
dill



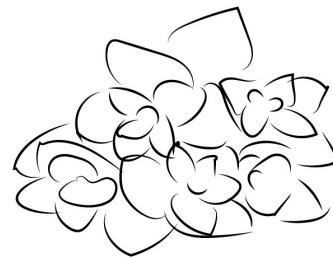
coriander



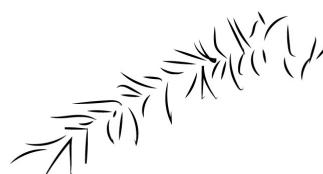
basil



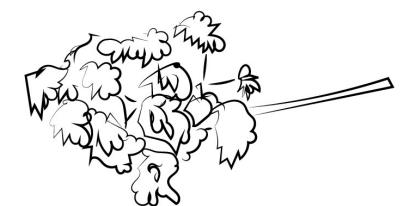
oregano



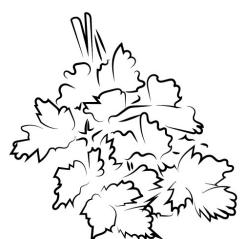
rosemary



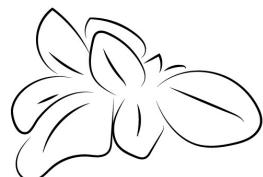
parsley



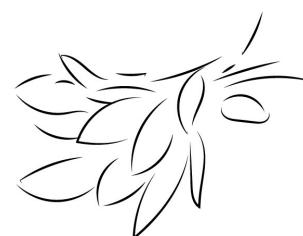
celery



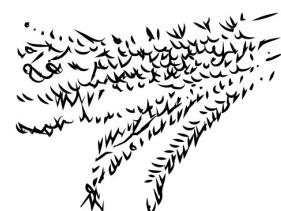
mint



sage



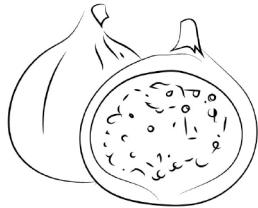
thyme



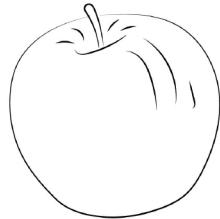
## **Sensory path | herbs**

These herbs create smell and also the opportunity to taste it. Pick your herbs and use it for a meal or tea you want to prepare. This way the products are very local.

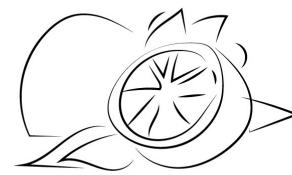
figs



apple



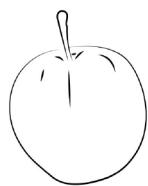
lemon



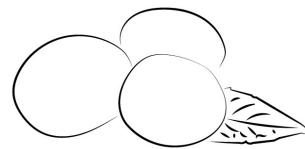
cherry



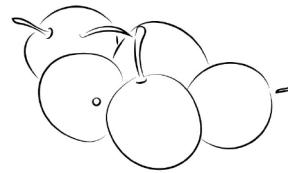
yellow mirabelle



red mirabelle



green mirabelle



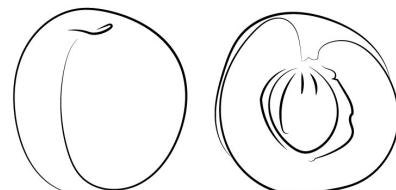
nectarine



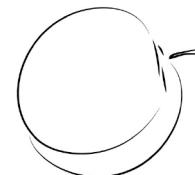
pear



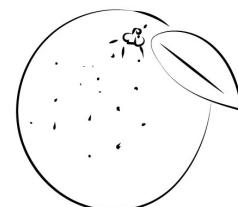
peach



plums



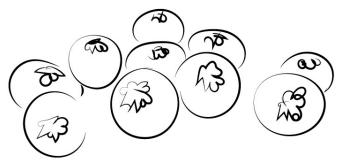
orange



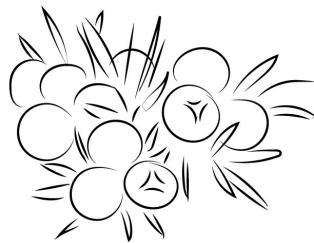
## **Sensory path | fruit trees**

Fruit picking can be your daily activity. Taste the fruit that is on the trees or has already fallen down.

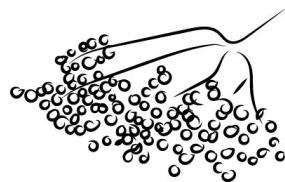
blueberry



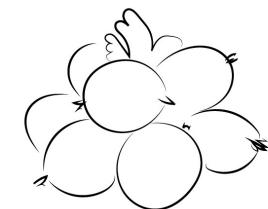
juniper



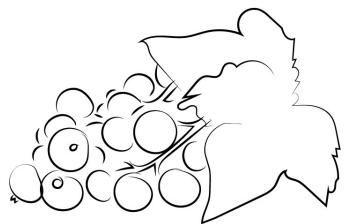
elderberry



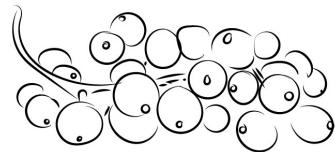
yellow gooseberry



blackcurrant



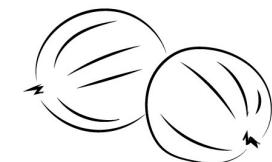
red currant



African ground cherry



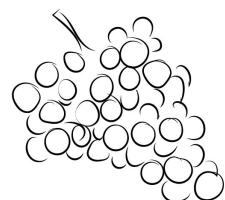
red gooseberry



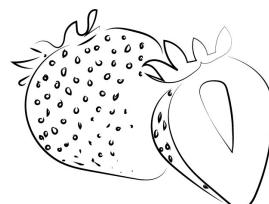
white grapes



blue grapes



strawberry



raspberry



## **Sensory path | fruit bushes**

Fruit cannot only be found in the trees, but also in bushes. All these products are free to grab. On top of that are the kinds carefully chosen so that no poison herbs or fruits are found here.



# **VII Dwelling**

## **Introduction**

The masterplan consist of several types of houses in order to create homes which fits for different types of people. We want to create a living environment that people can choice their home because of their own preferences and not in due to their limitations. Therefore our masterplan is suitable for young and old, rich and poor, disabled and healthy in order to create an inclusive environment which fits for everybody. For example we designed several tiny houses on the top of our masterplan at the edge of the forest, these houses is suitable for people who wants to live in the forest with a little ecological footprint. We assume that the residents who are living in these houses are ecological interested no matter how old they are. In the whole masterplan we implement that every resident has the choice to get care at home. These chapter consist of a brief explanation of choice of different types of dwelling types.



## **Masterplan | living types**

The figure on the right shows the different housing types. The colours indicate which areas are provided with these living types. Co-housing is spread over the area but can be combined with different housing types. The light grey blocks are buildings that only have a facility and no residential function.



## **Masterplan | living types**

The figure on the right gives an impression of our different houses typologies as discussed earlier in the section 'Living types'.

*\*The sources of the images can be found on the next pages.*

## Hill Houses

VIEW  
PEACE  
FREEDOM  
SPATIAL  
FRIENDLY  
BLENDING  
IN NATURE



## Detached Houses

SPATIAL  
FREEDOM  
PRIVATE  
DYNAMIC  
FRIENDLY  
PEACE  
VIEW



## Tiny Houses

SMALL SCALE  
LIVING  
ECOLOGICAL  
FOOTPRINT  
VIEW  
COLLECTIVE FEELING  
FREEDOM  
FRIENDLY  
BACK TO NATURE



## Apartments

VIEW  
FRIENDLY  
HIGH DENSITY  
PAY ATTENTION TO EACH OTHER  
DYNAMIC  
COLLECTIVE  
HIGH PERSPECTIVE



CONTACT  
ACTIVITIES  
COLLECTIVE  
COURTYARD  
PRIVATE HOME  
COMMOTION  
VILLAGE FEELING

## Courtyards



GROUP FEELING  
COLLECTIVE INSIDE  
AND OUTSIDE  
DYNAMIC  
BEING TOGETHER  
SOCIAL  
COMMOTION



## (2 or 3) under on 1 roof

LANE LIVING  
FAMILIAR  
FRIENDLY  
DYNAMIC  
PRIVATE  
FREEDOM



PUBLIC  
TRANSPORT  
FACILITIES  
DISTRICT  
WALKING  
DISTANCE  
DYNAMIC  
VARIED

## Living above the store



COLLECTIVE  
FAMILIAR  
FRIENDLY  
DYNAMIC  
VIEW ON COMMOTION  
NATURE



## Patio

## Overview typologies

To give a brief impression of what the different house typologies will look like, we have described the characters of the living types in keywords in addition to atmospheric images. The different housing types are explained in more detail on the following pages.

*\*The sources of the images can be found on the next pages.*

KEYWORDS:

VIEW  
PEACE  
FREEDOM  
SPATIAL  
FRIENDLY  
BLENDING IN  
NATURE



Figure 46. Hill houses<sup>48</sup>

## **Hill houses | Living profiles**

Hill houses are large detached houses that blend with the immediate surroundings. In this concept you live much more on yourself and nature. But these large houses can also provide for different households who wants to live in a community. These homes are ideal for all age types who have a strong preference for living in green.

KEYWORDS:

SPATIAL  
FREEDOM

PRIVATE  
DYNAMIC  
FRIENDLY  
PEACE  
VIEW



Figure 47. Detached houses<sup>49</sup>

## **Detached houses | Living profiles**

A detached house is understood as a house that is not attached to another building, this is often a single-family house. It provides a clear demarcation of your own domain. The residential program is focused on comfort, view and privacy. In this concept you live much more on your own. Beautiful view on nature. These homes are ideal for all ages who have a strong preference for connecting with a wooded environment

KEYWORDS:

SMALL SCALE  
LIVING  
ECOLOGICAL  
FOOTPRINT  
VIEW  
COLLECTIVE FEELING  
FREEDOM  
FRIENDLY  
BACK TO NATURE



Figure 48. Tiny houses<sup>50</sup>

## **Tiny houses | Living profiles**

The tiny houses are small and detached houses with a floor area of up to 50 square meters, with the smallest possible ecological footprint. The houses are ideal for people with an environmentally conscious background but not age-related. The houses are configured in the natural area to give a community feeling with a central collective space and a good connection with nature. It gives the feeling of being on holiday in your own home.

KEYWORDS:

VIEW  
FRIENDLY  
**HIGH DENSITY**  
PAY ATTENTION TO EACH OTHER  
DYNAMIC  
**COLLECTIVE**  
**HIGH PERSPECTIVE**



Figure 49. Apartments<sup>51</sup>

## **Apartments | living profiles**

Apartments are understood as a large block where different households live on the same floor. These complexes have a maximum of four building layers. In this house, pay attention to each other and where the corridors become the spaces of collectivity. In these homes are the size of your apartment less important. The houses are life-proof and accessible to everyone. The apartment are located close to facilities and nature.

KEYWORDS:

CONTACT

ACTIVITIES

COLLECTIVE  
COURTYARD  
PRIVATE HOME  
COMMOTION  
VILLAGE FEELING



Figure 50. Courtyards<sup>52</sup>

## **Courtyards | living profiles**

Living in a courtyard are private houses which are linked around a collective garden. The configuration gives the feeling of collectivity and care (for each other). These homes are ideal for people with a high demand for a good connection with your neighbours. There is a strong feeling of community. These houses are life-proof and for all age attractive if you want to live in a collective living environment. Spontaneous meetings and commotion are an explicit part of this concept.

KEYWORDS:

GROUP FEELING  
COLLECTIVE INSIDE  
AND OUTSIDE  
DYNAMIC  
BEING TOGETHER  
SOCIAL  
COMMOTION



Figure 51. Co-housing<sup>53</sup>

## **Co-housing | living profiles**

Co-housing is an alternative form of housing in which a group of residents in different homes use multiple, communal facilities (inside and outside). There can be houses of one or more persons. This form of living creates strong relationships with your immediate neighbours, strengthens the sense of collectivity and community. This type of house is suitable for young and old who do not want to live in private circumstances but in a collective company. The private houses will therefore be smaller because large common areas can also be used.

KEYWORDS:

LANE LIVING  
FAMILIAR  
FRIENDLY  
DYNAMIC  
PRIVATE  
FREEDOM



Figure 52. 2 or 3 under one hood<sup>54</sup>

## **(2 or 3) under on 1 roof | Living profiles**

These living types are semi-detached houses of 2 or 3 houses that create a direct relationship between the existing neighbourhood and the new neighbourhood. The houses have the appearance of houses living on a lane but with an open character. The people lives here is independently but likes to be part of a well-organized harmonious society. These residents look after each other when it is necessary: a good neighbour in an open community.

KEYWORDS:

PUBLIC TRANSPORT  
FACILITIES DISTRICT  
WALKING DISTANCE  
DYNAMIC  
VARIED  
COMMOTION



Figure 53. Living above a store<sup>55</sup>

## **Living above a store | Living profiles**

These houses are linked around and above the shop on the facilities street. This street is the busiest place in the new neighbourhood, there is a lot of activity. There is a great diversity in residents and buildings. Privacy is less important. Care and convenience services are provided within walking distance as needed. People can live here until old age. Shops, a doctor and public transport are available at a short distance. There are facilities in the complex that support the feeling of community.

KEYWORDS:

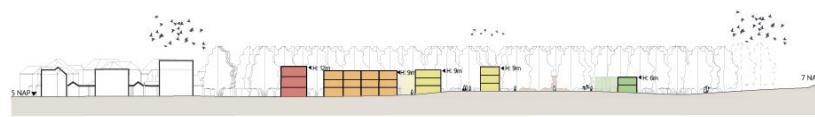
COLLECTIVE  
FAMILIAR  
FRIENDLY  
DYNAMIC  
VIEW ON COMMOTION  
NATURE



Figure 54. Patio<sup>56</sup>

## **Patio houses| living profiles**

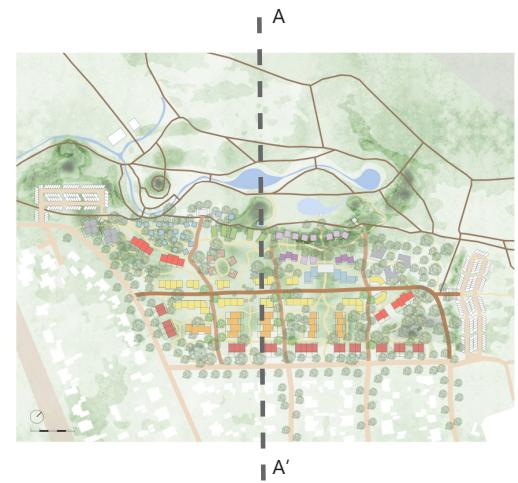
Living in a patio houses are private houses which are linked around small collective garden and bigger collective garden. The configuration gives the feeling of collectivity and care (for each other). These homes are ideal for people with a high demand for a good connection with your neighbours. There is a strong feeling of community. These houses are life-proof and for all age attractive if you want to live in a collective living environment. Spontaneous meetings and commotion are an explicit part of this concept.



Section AA'

1:2000

- (2 or 3) under 1 roof
- Courtyards
- Living above a store
- Patio houses
- Hill houses



## **Housing typologies | Section AA'**

The height differences increase from the horizontal the Driebergen lane (Driebergjes laan). The further the forest, the greater the slopes of the hills.

The typologies of the social forest are close to each other and are oriented towards each other. The houses in the sanctuary forest have a clear relationship with the large forest behind them. The public spaces around the houses provide social control, activities and cohesion between the residents.



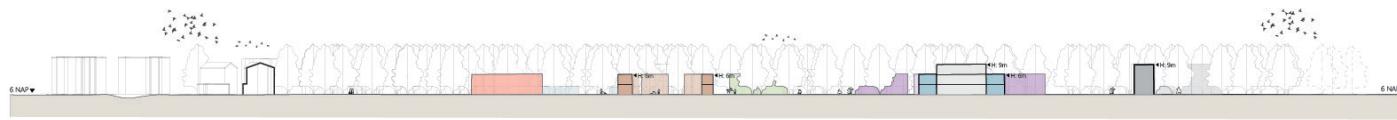
Section BB'  
1:2000

- (2 or 3) under 1 roof
- Courtyards
- Living above a store
- Co-housing
- Facility building: community centre
- Detached houses



## **Housing typologies | Section BB'**

The slopes become steeper again as you head towards the natural forest. The houses vary from 12 m high houses on the side of the original neighbourhood to 6 meters. Broadly speaking, the sizes of houses towards the forest are smaller.



Section CC'  
1:200

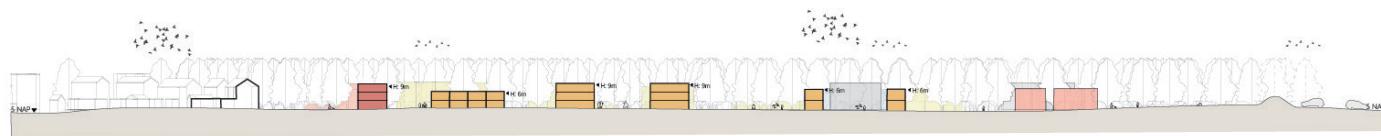
- Terraced houses
- Patio houses
- Tiny houses
- Hill houses
- Detached houses
- Co-housing
- Apartments
- Facility building: community centre



## **Housing typologies | Section CC'**

In this section the ground is quite flat. The ground will differ from 5 NAP to 6 NAP. In this section we distinguish eight different house typologies.

The public spaces between the buildings are spacious and provide social control and cohesion. Every public space has its own character.



Section DD'

1:200

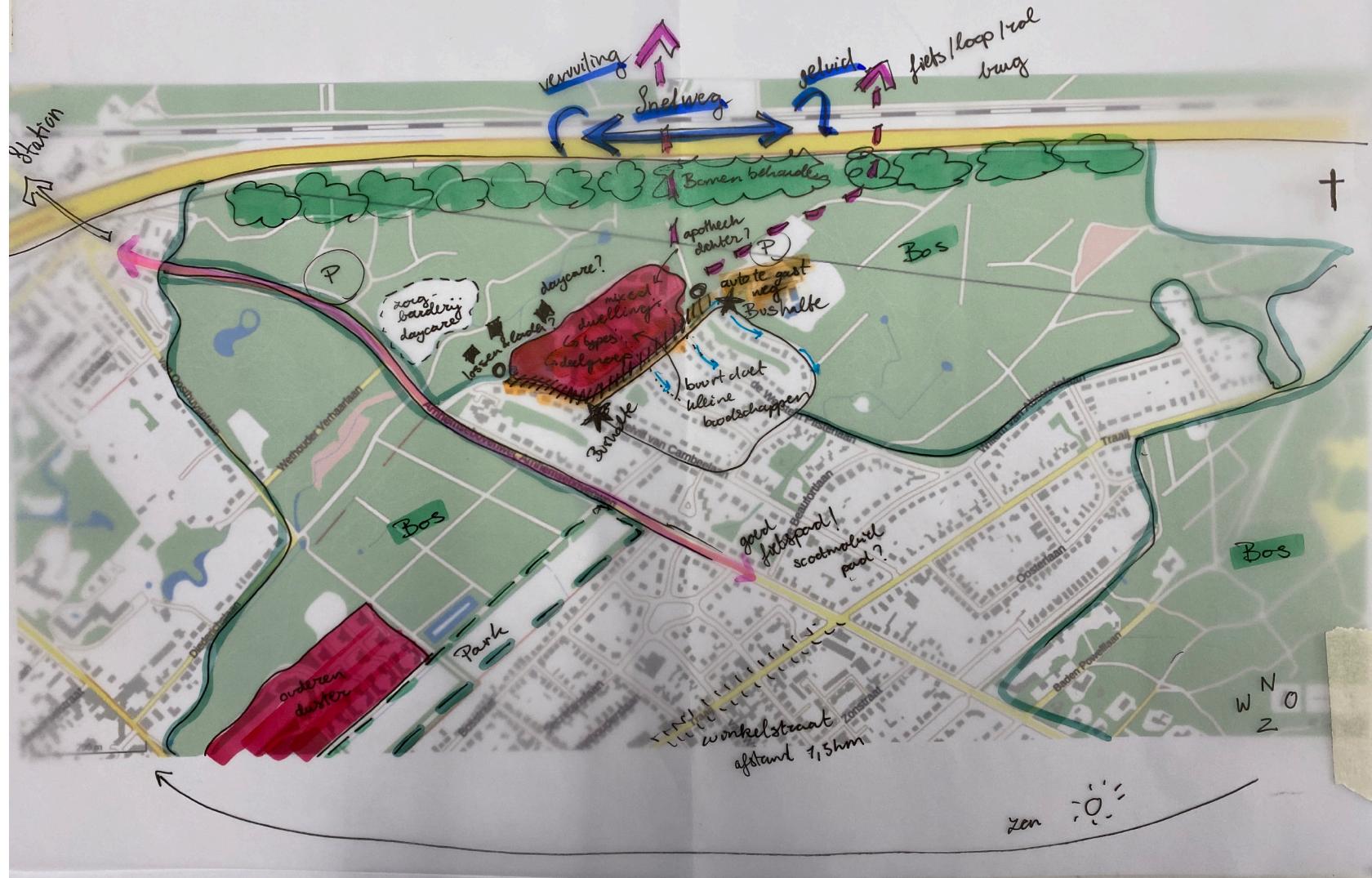
- (2 or 3) under 1 roof
- Courtyards
- Living above a store
- Facility building: community centre
- Co-housing
- Terraced houses



## **Housing typologies | Section DD'**

In this section, the height differences are also not very great. In this section we distinguish six house typologies. They all have a social character.

Concept Visie Grote Schaal

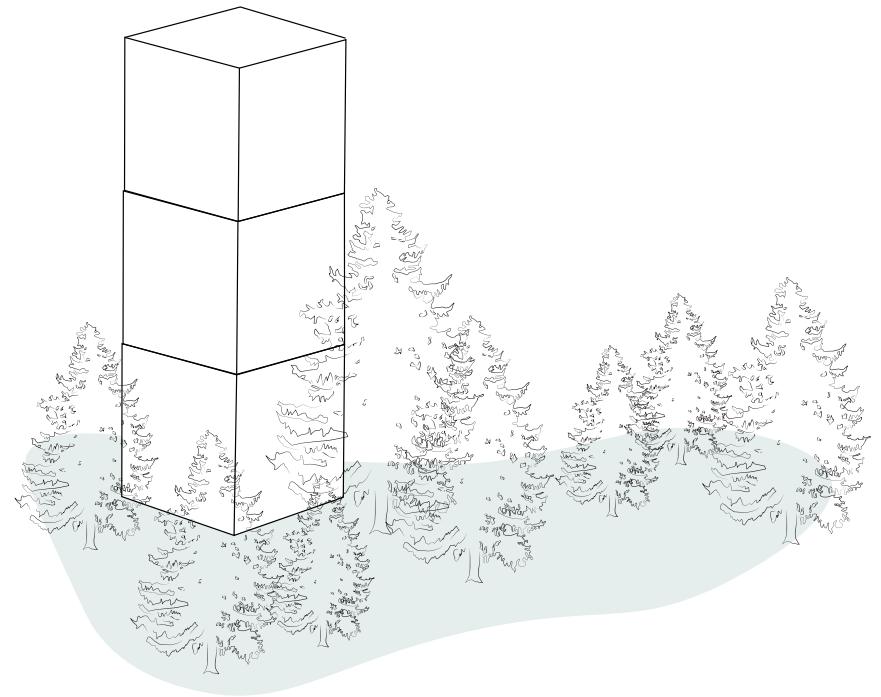
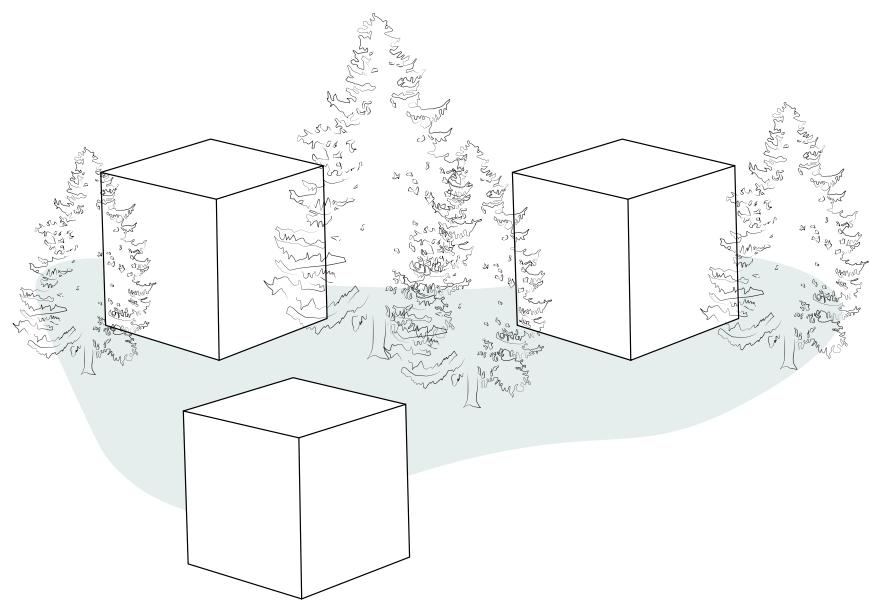


A sketch we made that belonged to our vision of the site at the time of 01-12-2020

## **VIII The Process**

### **Introduction**

The process of developing the master plan for the site of Sparrenheide has been an interesting one with many long but fruitful discussions, showing references, dimensioning and thinking on how everyone could equally and happily live in our plan. In this chapter the process of developing the master plan for the site of Sparrenheide is shown via sketches, diagrams and pictures.



$$3 \text{ cubes} = 1 \text{ tree}$$

$$4 \text{ cubes} = 3 \text{ trees}$$

## **The position and volumes of buildings in nature**

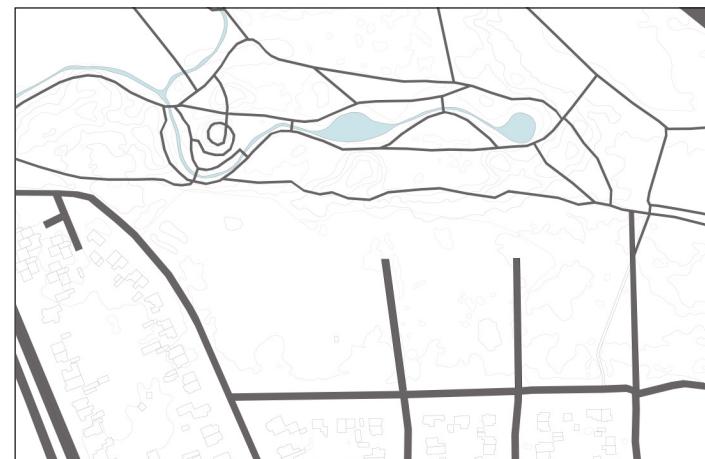
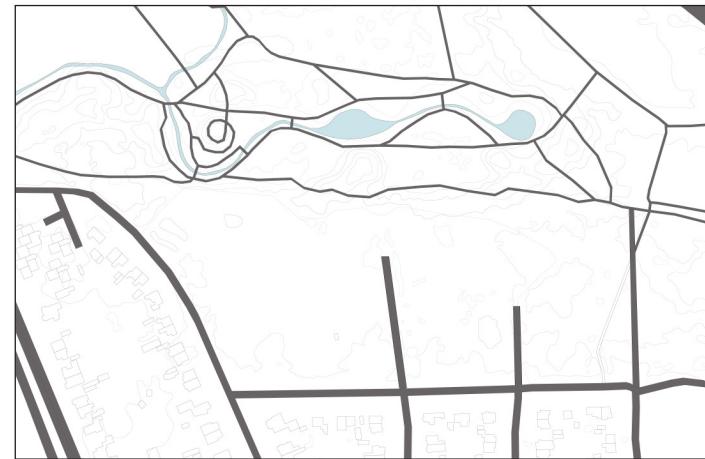
We have looked into the two options of building. The first one is low rise and the second one is high rise.

When creating the same amount of surface for dwelling, high rise buildings have a smaller footprint than low rise buildings. Stacked volumes provide more space for nature compared to the distribution of volumes.

However, the connection with nature on floor 5 may be less strongly experienced than from the ground floor.

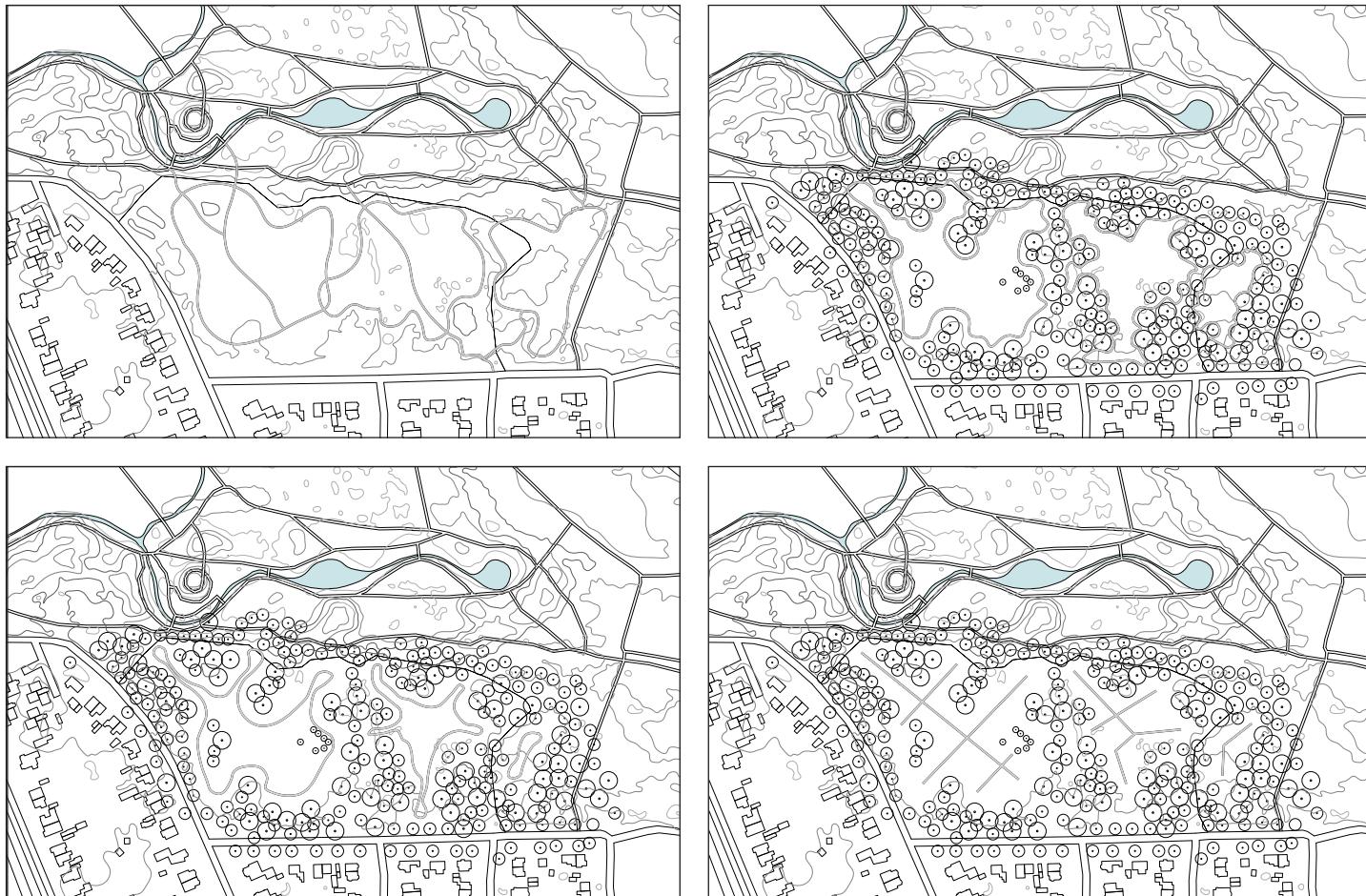
On the next pages both options are examined: a master plan from the point of view from nature, and from the point of view from the existing village.

Developing the master plan



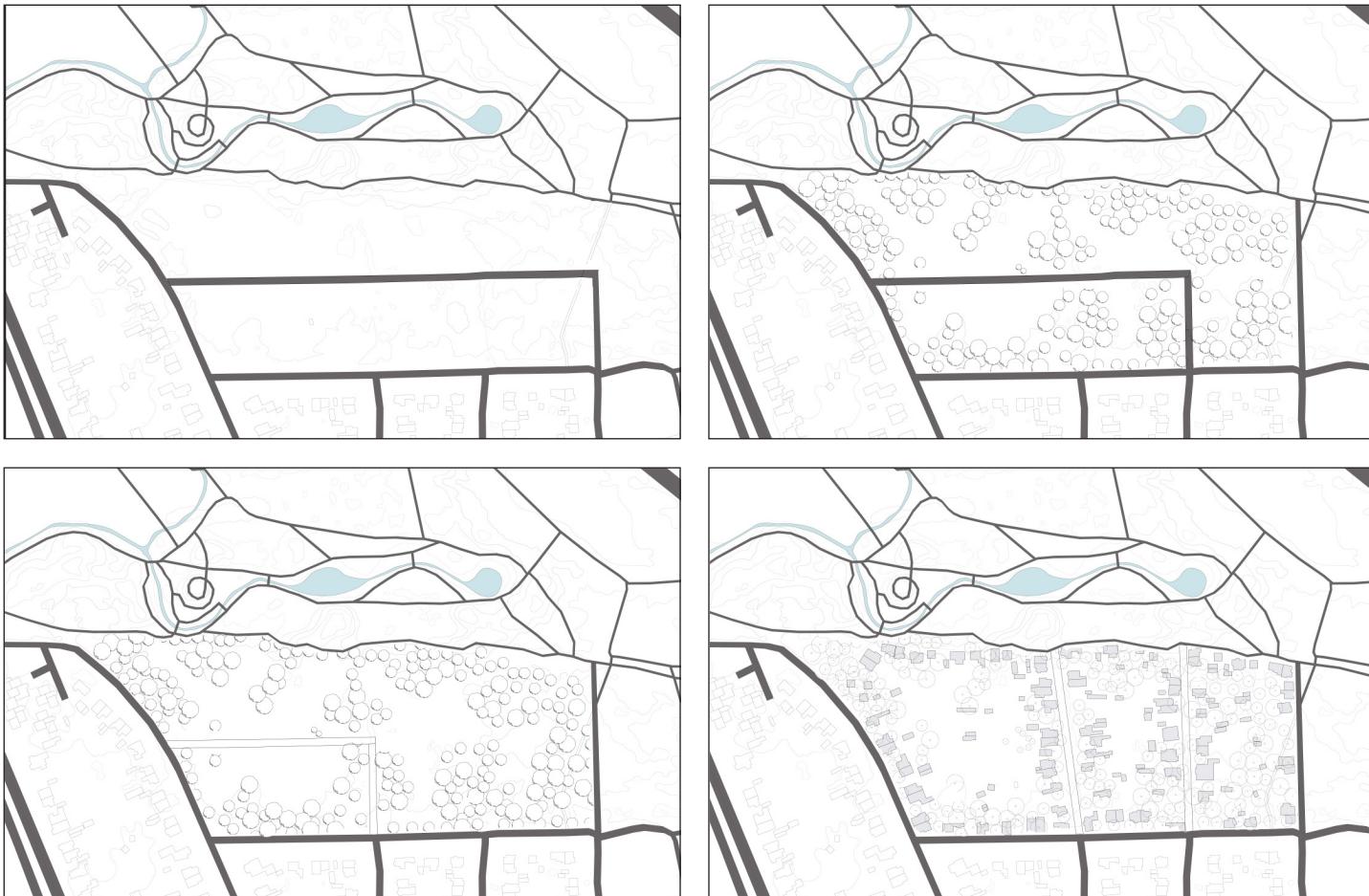
Street plan derived from the neighbourhood

Developing the master plan



Street plan derived from the forest up north

Developing the master plan



Street plan derived from the neighbourhood

## **A natural versus straight-forward approach**

Both approaches, from the forest and from the village, show a clear contrast when compared to each other.

The approach from the forest allows for naturally shaped pathways, almost looking like a holiday park.

The approach from the village allows for straight-forward clear axes, fully making the site part of the village.

On the next pages the final results from both approaches are shown, followed by a atmosphere impression we want to achieve within our master plan.

The extreme master plan

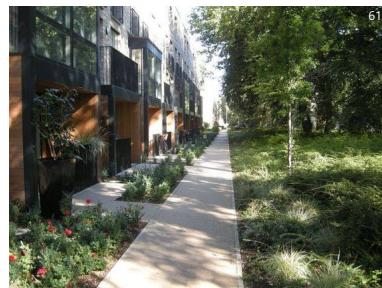


Urban plan derived from the position of existing trees

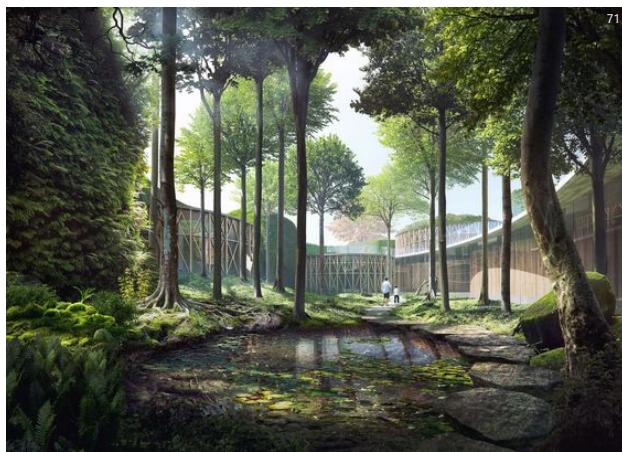
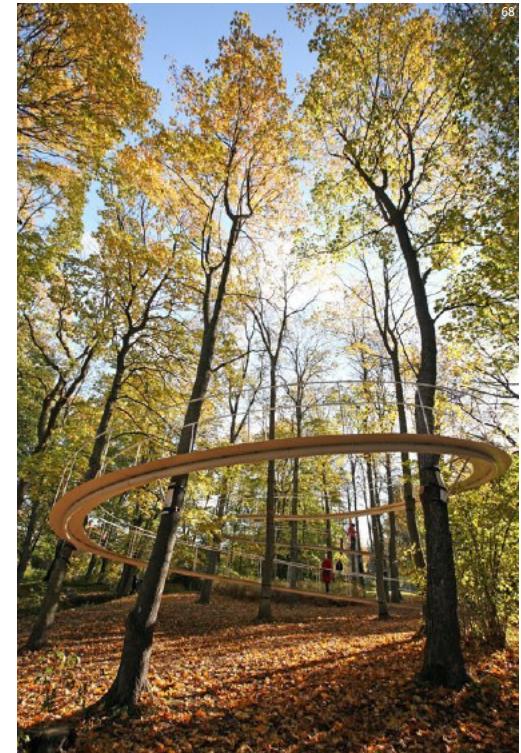
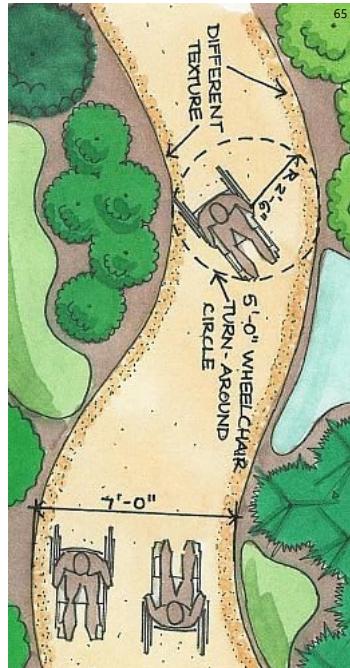
The extreme master plan



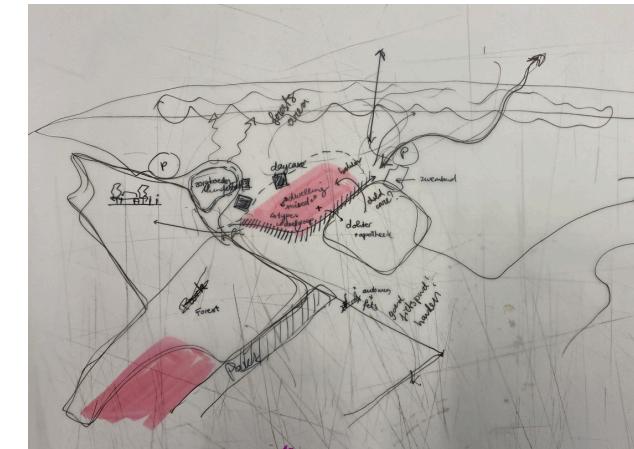
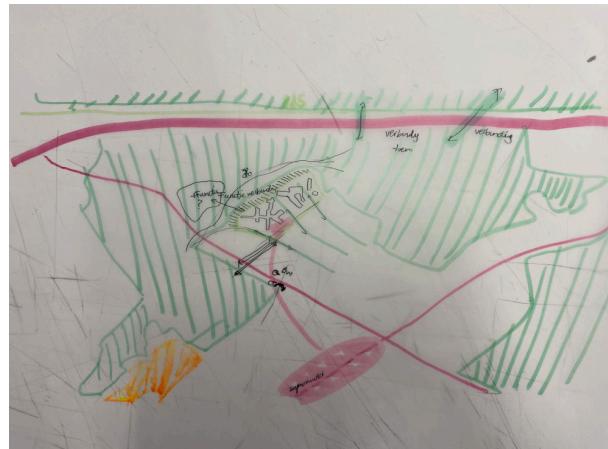
Urban plan derived from the buildings and streets of the neighbourhood



References we looked at as a group for new insights on living in nature and dwelling for care

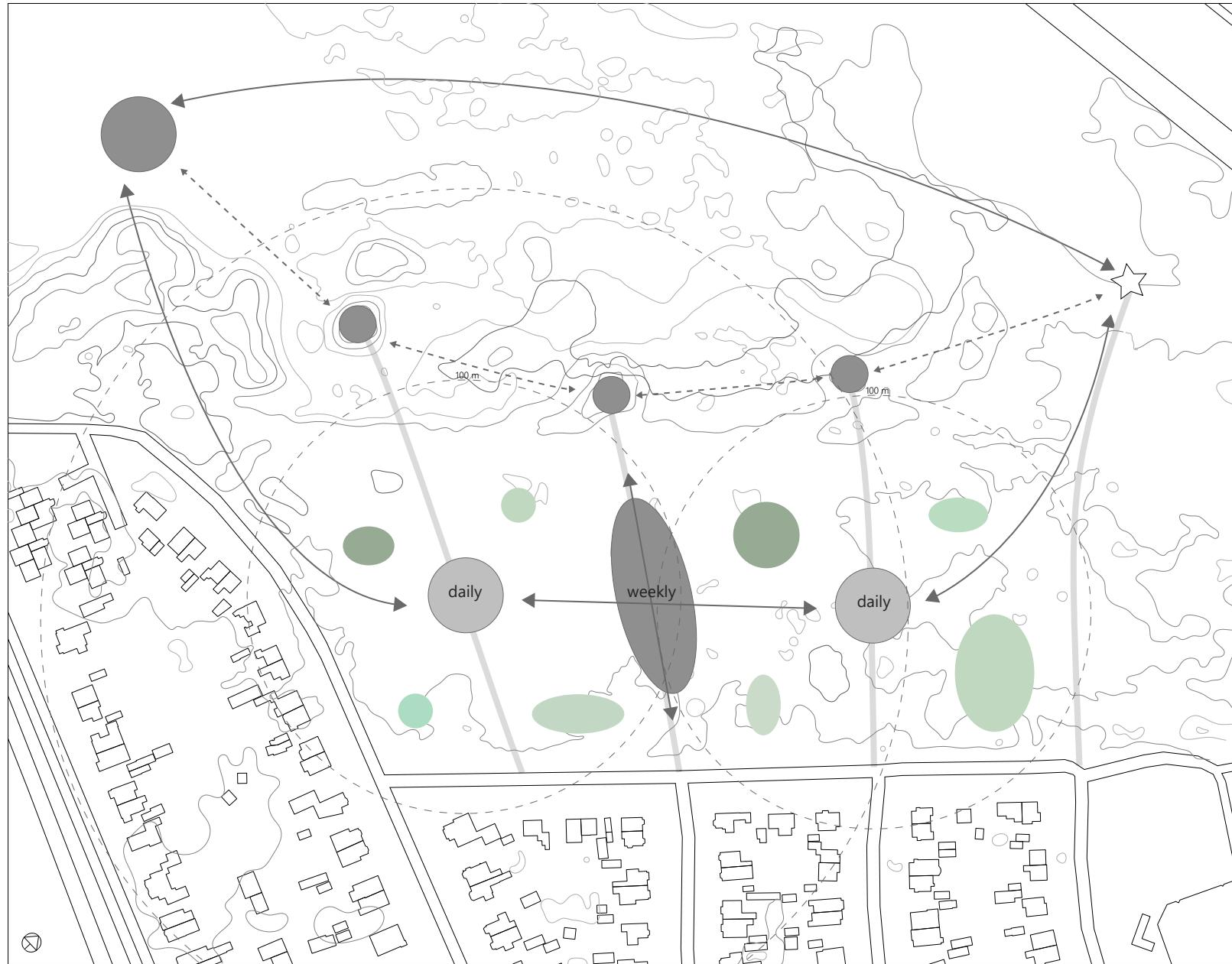


## The process of designing the master plan



## **Developing the master plan**

The pictures on the left show the process of developing a master plan that is both approached from the side of the village as well as from the side of the forest. Besides, the conclusions on the site analysis was sought to put into this master plan.



A diagram on the plan that we showed during the Pre P2 in december

## The master plan at the Pre-P2

### *A. Connection with the surrounding nature*

Via view lines/points  
Via connecting walking/cycling/rolling paths

### *B. Involving the neighbourhood*

Via extending axes from the neighbourhood to the site  
Via adding facilities into the site, attracting the inhabitants of Driebergen

### *C. Daily activities (distance to facility < 150 meter)*

Via the creation of clusters including essential facilities (mix of daily groceries/cafe/bakery) nearby

### *D. Weekly (+monthly) activities (distance to facility < 300 meter)*

Via axes around which facilities such as the dentist and hairdresser are placed

### *E. Feeling at home in every part of the site (when relocation is needed one is already familiar with the site)*

Via weekly activities are placed throughout the site, making sure people have to also go to different parts of the site

A decomposition of the master plan at the Pre P2



Figure 62. Existing streets and buildings - height lines - trees and water - view points (left to right)

A decomposition of the master plan at the Pre P2



Figure 63. Slow traffic (car is the visitor) roads extended from neighbourhood - sight lines - walking/strolling path - cycling path

A decomposition of the master plan

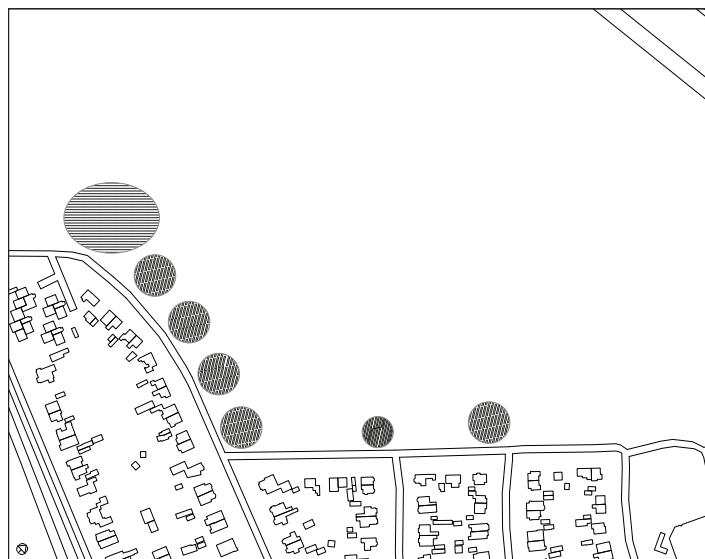


Figure 64. Sketch for placing parking spots





## **Facilities | 1:1000**



## **The master plan at the P2**

On the page on the left the master plan we presented at the P2 in January is shown. On the following pages the explanation of this master plan is visually shown and was part of our P2 presentation.



The existing



The village lanes enter the site



The forest merges in the site



Respect nature's boundaries



*Circles of facilities*



*Different housing through the entire site*



*Creating connecting paths*



*The master plan*



## **Masterplan | Village scale**

The current situation of our location is relatively far from the city center of Driebergen. As a result, the daily facilities such as the supermarkets and drugstores are not within walking distance for the generation of the older population.

In addition, the current public transport bus stop is not (very) accessible to the residents of Sparrenheide.

Our proposal: include facilities for the new master plan and connect (public) bus line with our master plan in order to easily transport for the whole village. Our master plan makes a connection with the forest and the existing neighbourhood. So from both sides we want to create an optimal connection.



Impression the village lane



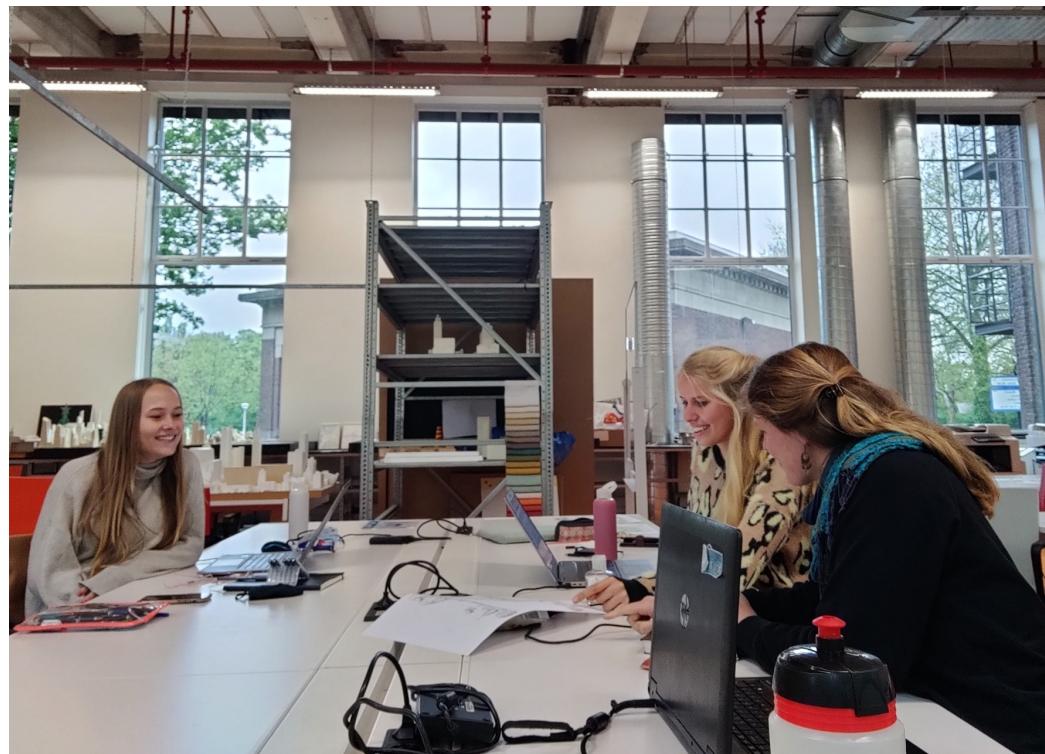
Impression of the forest paths



Impression the daily core



Impression of the calm forest



Working together at the faculty



Presentation for Habion

## **Epilogue**

Looking back at the past half year and the many hours spent together on designing, discussing, researching, laughing and eating together we feel a sense of pride in the masterplan we have carefully made and delivered. Working closely as a team for many months has given us new insights on the way of living and designing, and most of all new friends for life!



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## **X Appendix**

The annual increase in rainfall is mainly due to increases during autumn, winter and spring

There is hardly change in rainfall during summer

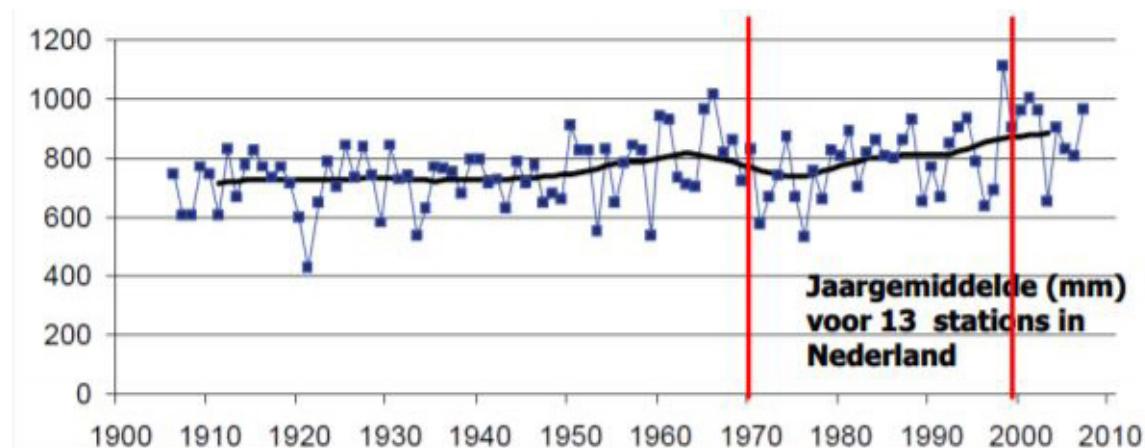


Figure 65. Increase in rainwater<sup>76</sup>

Expectations rainwater (2030)<sup>74</sup> :

- The amount of rainfall is expected to increase by about 5% until 2030.
- Extreme rainfalls will increase as well

**Rule<sup>75</sup> :**

Current rule of liter rainwater per m<sup>2</sup>: Per m<sup>2</sup> = ca. 650 L = 0,65m<sup>3</sup>

Our masterplan: 50.012m<sup>2</sup> area

$$50.012\text{m}^2 \times 650 = 32.507.800 \text{ L} = 32.507.8 \text{ m}^3 \text{ collected rainwater}$$

## **Information rain water**

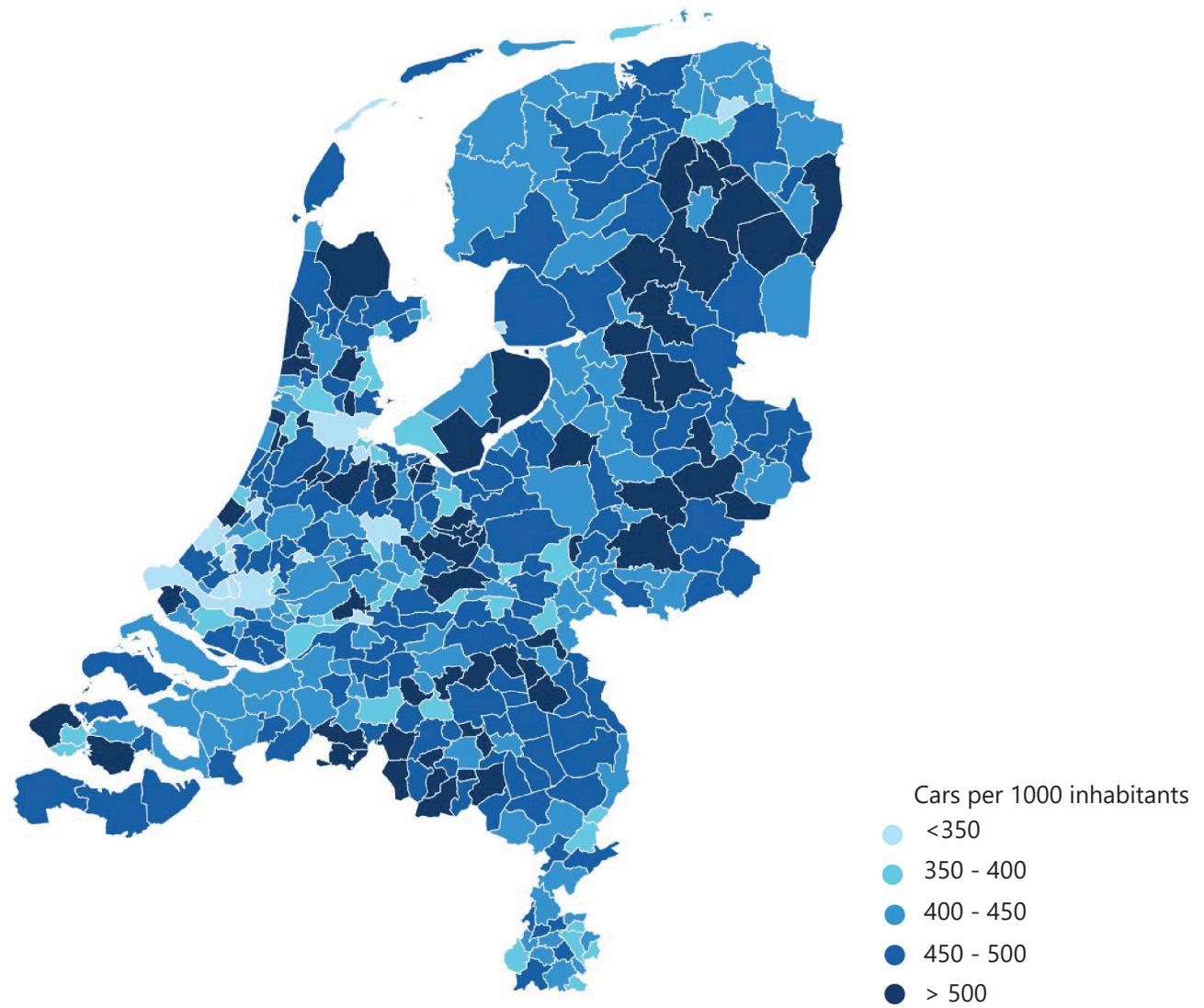


Figure 66. Ownership cars of people in the Netherlands, who are 75+ years old.<sup>77</sup>

## **Ownership cars 75+**

Almost 50% of the people in the Utrechtse Heuvelrug has a car.

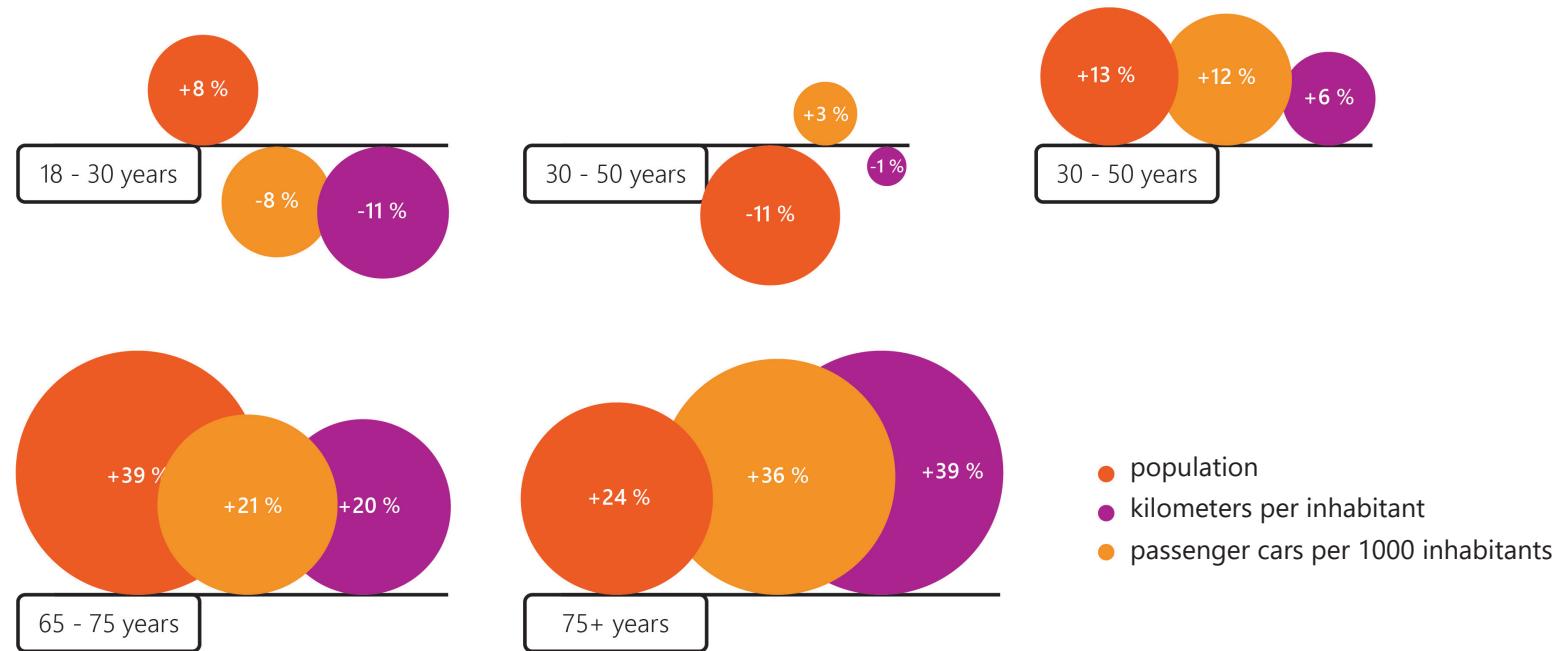


Figure 67. Ownership cars of people in the Netherlands, who are 75+ years old.<sup>78</sup>

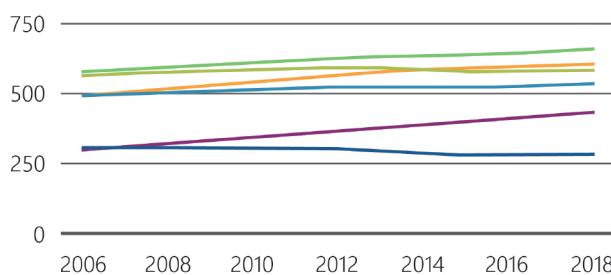
## **Change in car ownership**

Activities that a car is used for:

- groceries/daily activities/ weekly
- visiting

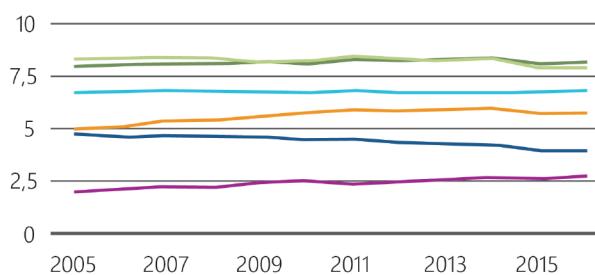
Ownership passenger car

x 1000 inhabitants



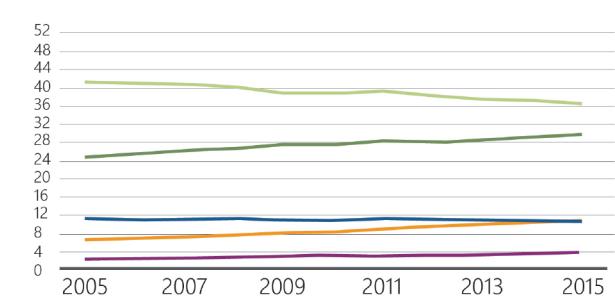
Kilometers per inhabitant

x 1000



Development of private passenger car kilometers

x billion km



Total  
18 - 30 years  
30 - 50 years  
50 - 65 years  
65 - 75 years  
over 75 years

Figure 68. Ownership, Kilometers, development<sup>79</sup>



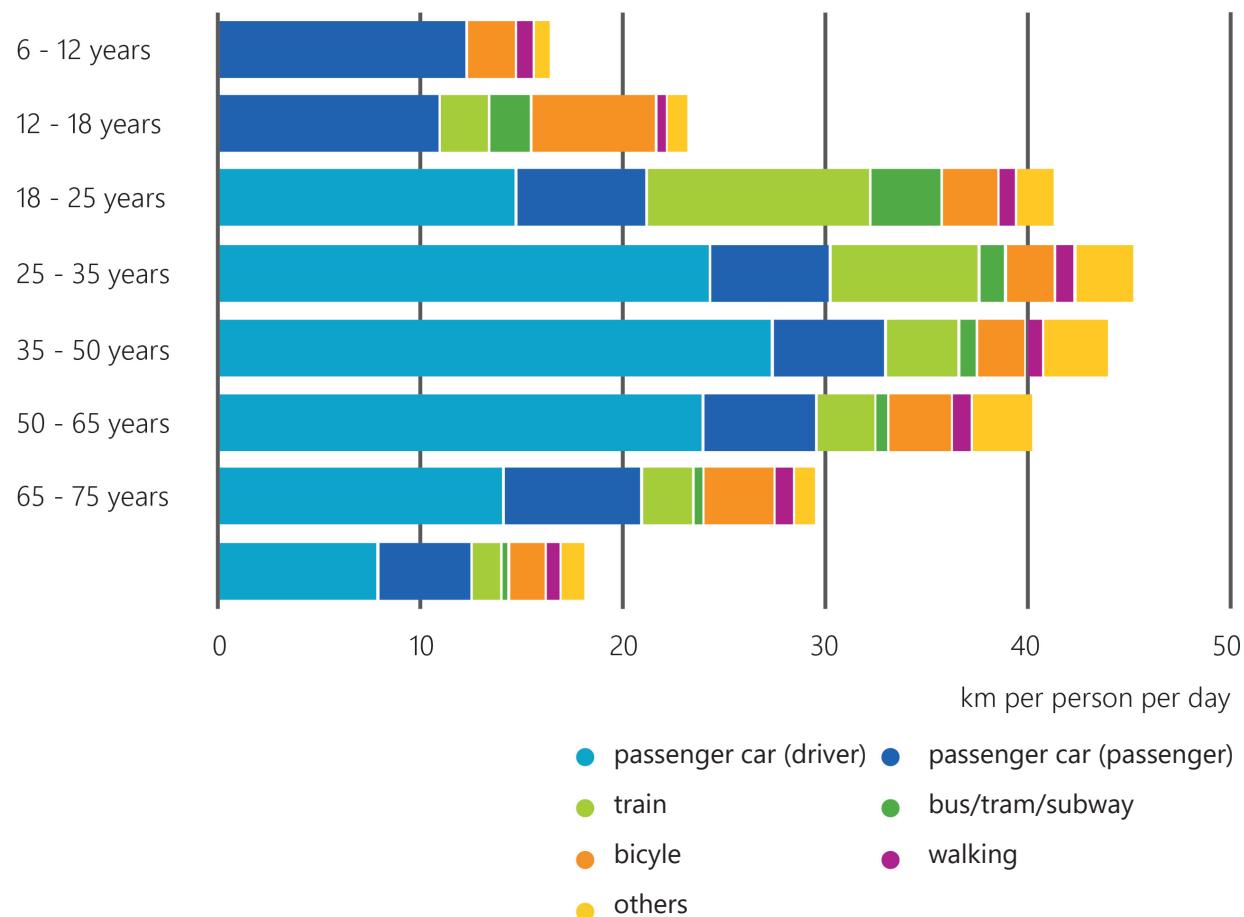
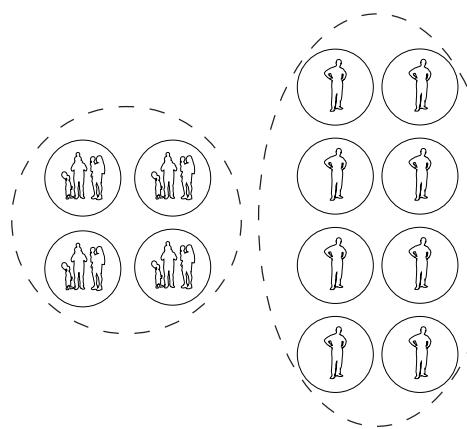
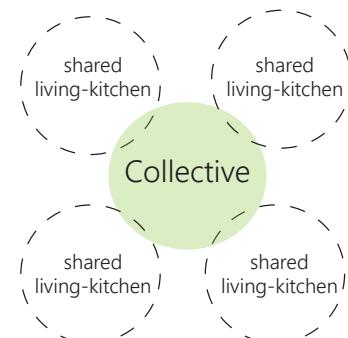


Figure 69. Distance traveled by age<sup>80</sup>

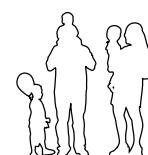
## **Distance traveled by age**



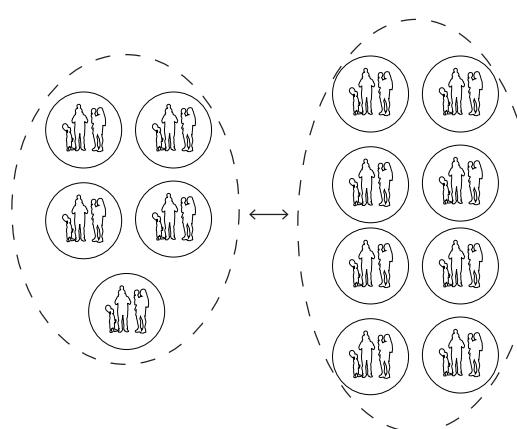
4 households = 1 cluster  
8 Persons = 1 cluster  
1 cluster = one extra shared living-kitchen



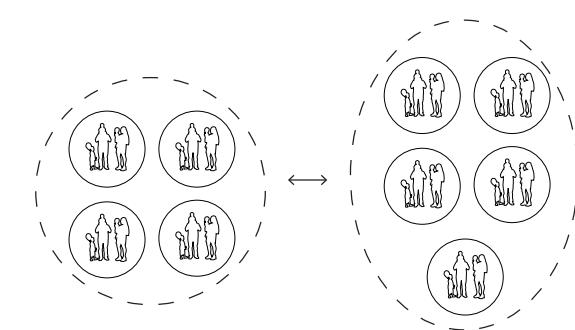
4 clusters = (16 households) => +/- 30 - 60 persons around collective space (courtyard, hobby room)



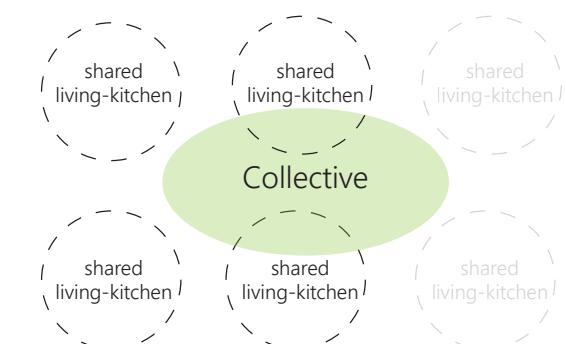
= One household  
1 or 2 Adults with/without children  
(All ages)



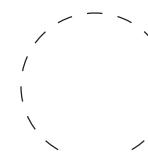
Between 5 and 8 households = 1 cluster  
1 cluster = one extra shared living kitchen



Between 4 and 5 households = 1 cluster  
1 cluster = one extra shared living kitchen



Collective space surrounded by residents  
< 100 persons



= One cluster  
(All ages)



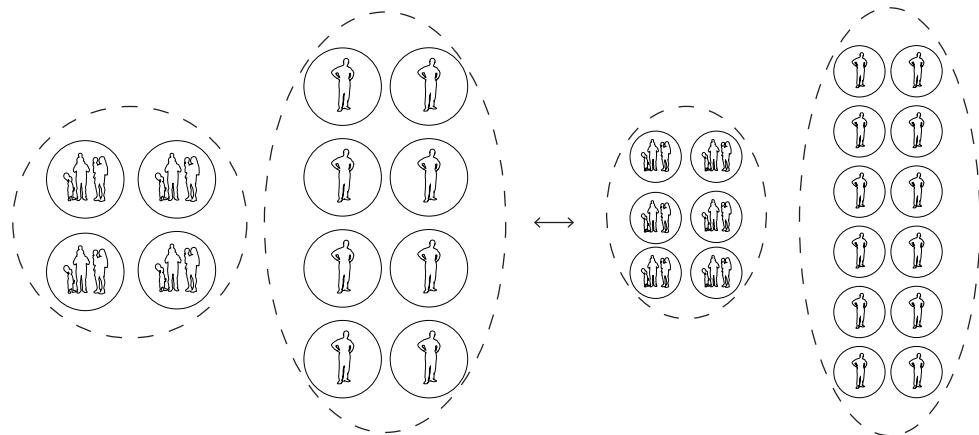
= One person  
1 Adult  
(All ages)

## **Study groupsizes | Communal living**

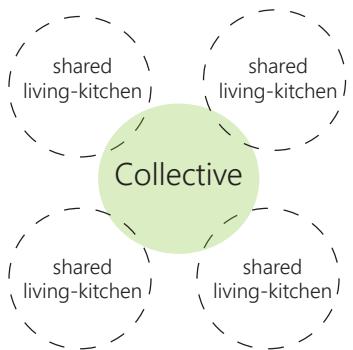
This study compares three different sources to determine the ideal group size for communal living. This group size fits for both the elderly and young families etc.

All three sources indicate that the numbers often overlap. The cluster size can vary between 4 households or 8 individuals to 8 households. One cluster contains one collective space e.g. living kitchen in addition to the private home. The clusters can be surrounded by a collective function such as a garden, courtyard or a collective facility. A recommendation here is that the number of people can vary from 16 households of 30-60 people, as long as the number is less than 100 people.

## Social forest

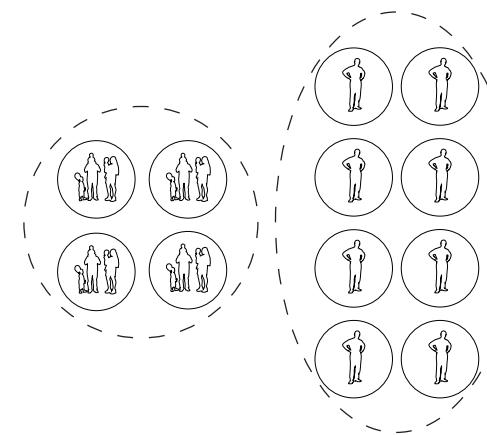


4 - 6 households = 1 cluster  
 8 -12 Persons = 1 cluster  
 1 cluster = one extra shared living-kitchen

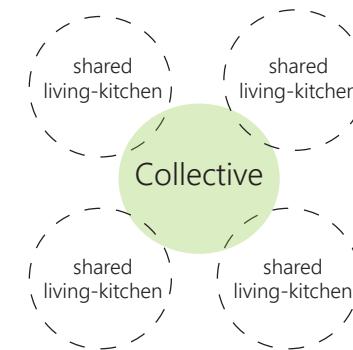


4 clusters = (16 households) => +/- 30 - 65  
 persons around collective space  
 (garden, courtyard, hobby room)

## Sanctuary forest



max. 4 households = 1 cluster  
 max. 8 Persons = 1 cluster  
 1 cluster = one extra shared living-kitchen



max. 4 clusters = (16 households) => +/- 30  
 persons around collective space  
 (garden, courtyard, hobby room)

## **Study groupsizes | Communal living**

In our master plan we work in two large areas with all their own properties namely: the Social forest and the Sanctuary forest. The collective housing sizes will also differ from areas. In the social forest, the clusters can consist of several households (4-6), so that the social network can be expanded. The sanctuary forest has more intimate and smaller numbers in a cluster ( $x < 4$ ).