



CHAPTER FIVE

Development of the Demo Urban Essential Oil Farm

Introduction

The final master plan is a culmination of the theory premise, the research, the design development and a constant iteration of the outcomes.

Due to the selected site being a brownfield site, the designer had the freedom to fully express the field of smellscape design by means of open space and manipulating topography.

The master plan seeks to provide a general overview of the functions of the whole site to illustrate the validity of other entities and design ideas that developed in the sketch plan area. These entities can thus in the following chapter be seen as the required context for a holistic design approach.

In this chapter the principles used to generate the master plan as well as various design inspirations that originated from the site and research will be discussed. The progression from concept to the iteration of the master plan leading up to the final master plan will be illustrated where the final master plan will then be discussed in detail.

Overview of the Master Plan

The master plan is a layered solution to satisfy expected diverse users on site, potential local community needs ecological responsibilities, while also trying to challenge the norm in landscape architecture and find new ways to design for a specific human sense namely smell.

The master plan design has to satisfy many different needs on the site and of the surrounding community and users. It was the intention of the author to seek ways in which to do this. The author believes that there are necessary contextual and real issues like the lack of open public green space that should be dealt with as to ensure that the project does not end up as an elitist entity but is grounded in the urban context and surrounding community.

Much of the design and form generation was influenced by basic archetypal principles and elements found in two books; *Forms and Fabric in Landscape Architecture* by Catherine Dee (2001) and in *Architecture: Form Space and Function* by Francis D.K. Ching (2007).

Program

- Fragrant flower planting fields
- Moments (Spaces) of intense smell
- Urban balcony
- Space for prepping, making, storing and packaging of essential oils
- Skills training facilities for new staff members
- Outdoor recreational and picnic space
- Kids play areas
- Educational outdoor spaces

- Market spaces
- Fragrant flower market (multifunctional)
- Storage space
- Essential oil factory
- Events spaces
- Jogging routes
- Meditation spaces
- Activity route

- Commercial entities
- Reception and Fragrant experience
- POP-UP interaction with site and design
- POP-UP second phase expansion

Composite Functional Relationship Diagram

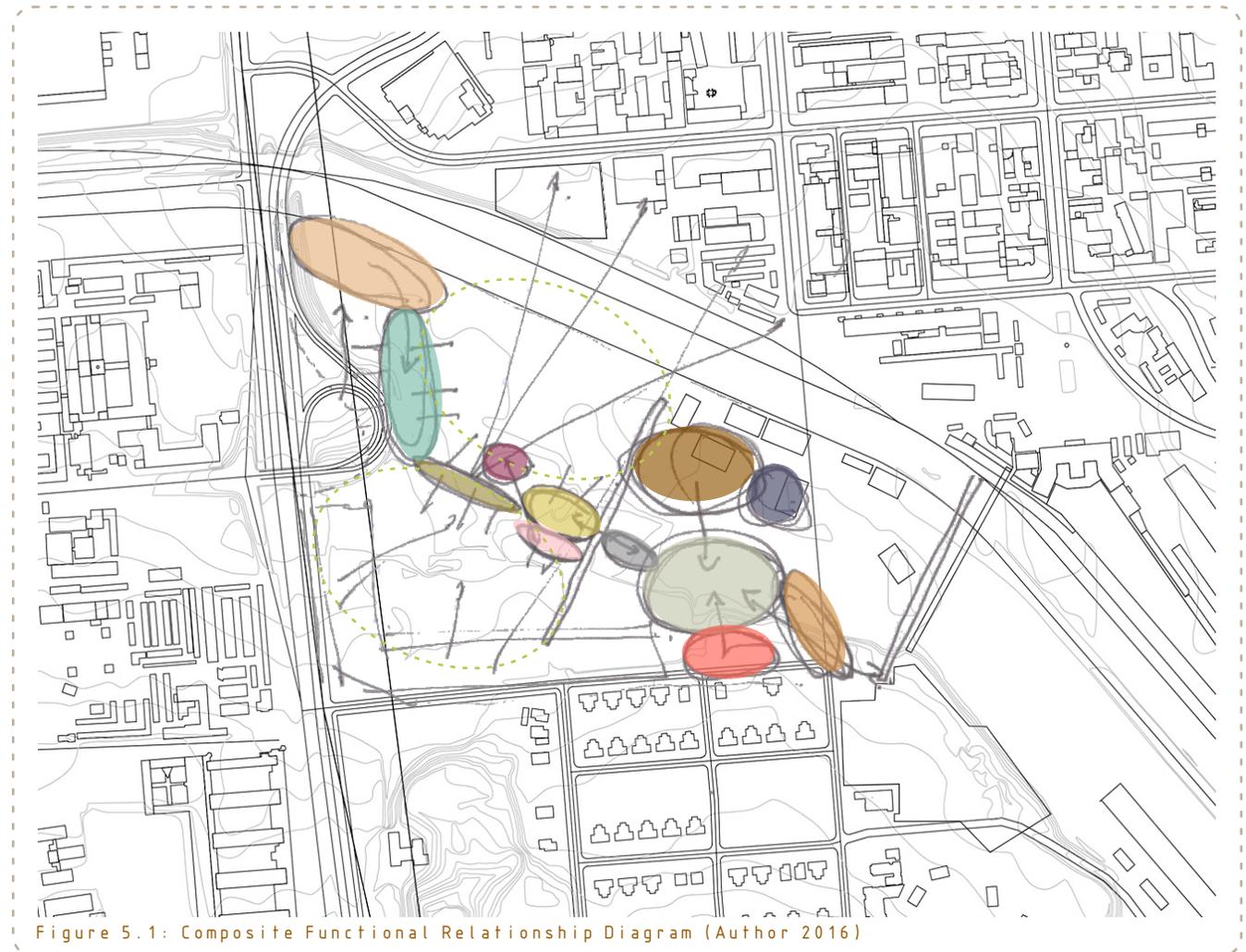


Figure 5.1: Composite Functional Relationship Diagram (Author 2016)

Principles as Layered Approach

Layer 1

This should be a green space which people can enjoy daily, satisfying general daily needs of the surrounding public and making it easier for residents and employees in close proximity to the site to comfortably enjoy the outdoors, daily gaining from the benefits like psychological restoration and revived energy that it has to offer (see chapter 2).

Layer 2

The new design should be ecologically responsible and sustainable. The functioning of the design should not use any resources but it should be able to produce and harvest its own resources off-site and on site.

Layer 3

The design should seek to find new ways in which to create spaces and experiences. Smell has a strong influence on the experience of spaces as mentioned in chapter two. The challenge of this third layer will be to design with the sense of smell as experience.

It is important to note that these layers have been identified at master plan level and does not speak about specific approaches to landscape design yet.

For example sustainability in itself also has many diverse facets and layers attached to it on a design level. This will be elaborated in the next section.

The layers of sustainability

One of the United States leading landscape architectural theorists, Elizabeth Meyer, in her book 'Sustaining Beauty: The performance of appearance – A manifesto in three parts' explains that sustainable landscape design is understood in relation to three principles; ecological health, social justice and economic prosperity (see figure 5.3), arguing that one needs more than ecologically regenerative interventions to achieve sustainability in landscape design. Designed landscapes need to be constructed human experiences as much as ecosystems (Meyer 2008:21). Mcharg explains that “our [landscape architects] concern is for a method which has the power to reveal nature as process, containing intrinsic form (in Swaffield: 2002:39).

A concern for beauty and aesthetics is vital in considering sustainable design if it is to have a significant impact on our culture (Meyer 2008:8). Beautiful sustainable landscape design involves the design and creation of experiences as much as the design of ecosystems. These experiences are vehicles for connecting with and caring for the world around us (Meyer 2008:18). Emphasis must also be put on the concept that nature is not out there but in here, interwoven in the human urban condition. Hydrology, ecology and human life is intertwined (Meyer 2008: 16).



Figure 5.2: Graphic representation of three different layers (Author 2016)

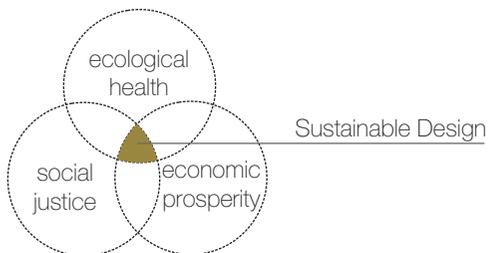


Figure 5.3: Three principles of sustainable landscape design according to Elizabeth Meyer (Author 2016)

Design Inspiration

There were specific design ideas that originated from the following:

From Site Analysis

In the site analysis and through the site visits a few features of the site were identified as opportunities. These were:

- The beautiful views to the city and to Salvokop, (see figure 5.5)
- Some of the indigenous pioneer grasses that have taken over on site, (see figure 5.6)
- The barren railway tracks and old building material dumped on site (see figure 5.7)
- The feeling in the air at dawn and the city lights at night (see figure 5.8)
- Stone and Concrete pieces left in piles on site (see figure 5.9)

The Idea is to enhance the beautiful view on site and tightly knit it in with the idea of smell, the poetics of fragrance and the idea of escaping from the city. Now seeing the city as an outsider and not being in the 'hustle and bustle' for a moment.

Pioneer vegetation along with alien invasive species started to take over in many parts of the site, in some of these parts it seems like indigenous grasses have predominantly taken over. These grasses are beautiful and the author has decided that they need to be preserved. Users of the site will be allowed to gently move through to experience these 'wild' areas without much disturbance .

Some of the train tracks that are covered with soil will be exposed again to reveal part of the history of

the site and to emphasize the theme of linearity that keeps on prevailing in the design. A few piles of steel has been left on site, the designer will use these steel elements in the design and detailing of the project.

Because of the size of the site (13ha) as well as the lack of definition of elements to respond to the author had to seek appropriate ways in which to create form

The linearity of the existing train tracks on the periphery of the site along with the predominant wind directions in summer and in winter (see figure 5.4) provided elements to respond to.

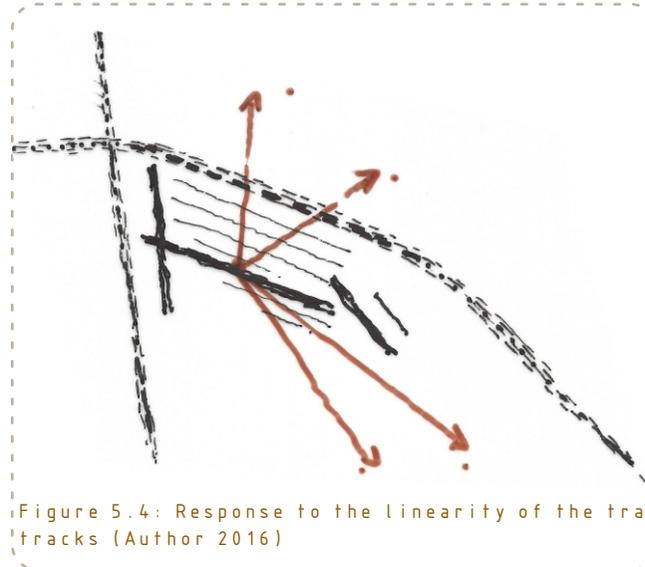


Figure 5.4: Response to the linearity of the train tracks (Author 2016)



Figure 5.5: a) beautiful views to the city (Author 2016)



Figure 5.6: b) indigenous pioneer grasses glowing in the late afternoon sun (Author 2016)



Figure 5.7: c) steel train tracks left on site (Author 2016)



Figure 5.8: d) The city lights at night (Author 2016)



Figure 5.9: e) Stone and concrete pieces left on site (Author 2016)

From Theory

There are seven factors that influence the design with smell as mentioned and explored in chapter 2. These feature had to be translated into specific design ideas and responses.

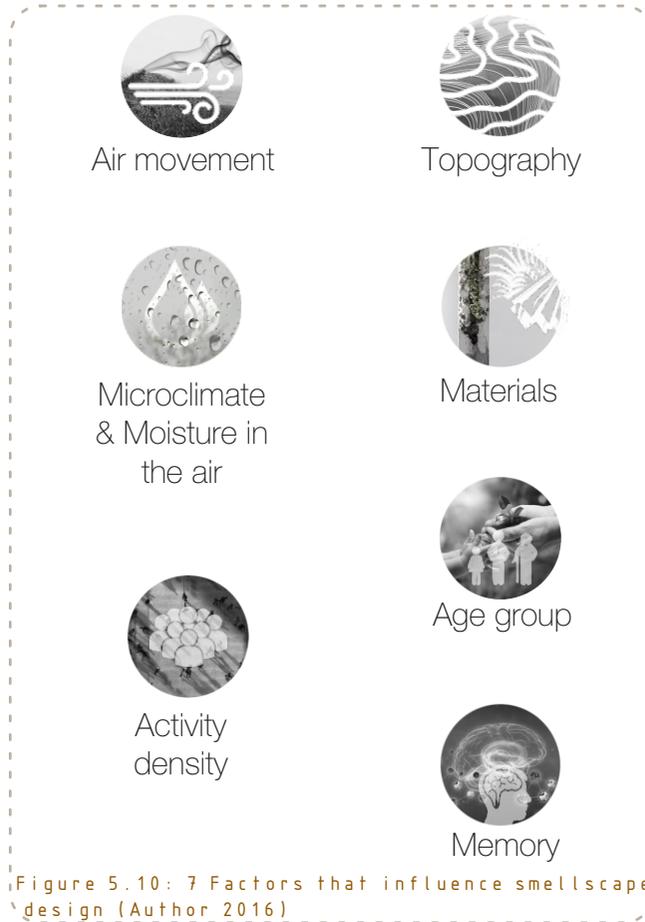


Figure 5.10: 7 Factors that influence smellscape design (Author 2016)

Another important factor that is researched as part of the theory chapter is how to achieve the spiritual and economic upliftment of a community. As explained in chapter two it is very important that the site gives back to the community. Ways to ensure this were explored in the following chapter and manifested in the program.

From Initial Technical Investigations

The method of irrigation used in the project had a great influence on the overall aesthetic and the 'look and feel' of the planting fields which is a big part of the design.

Two different methods have been explored to ensure the viability and sustainability of the project as seen in figure 5.11.

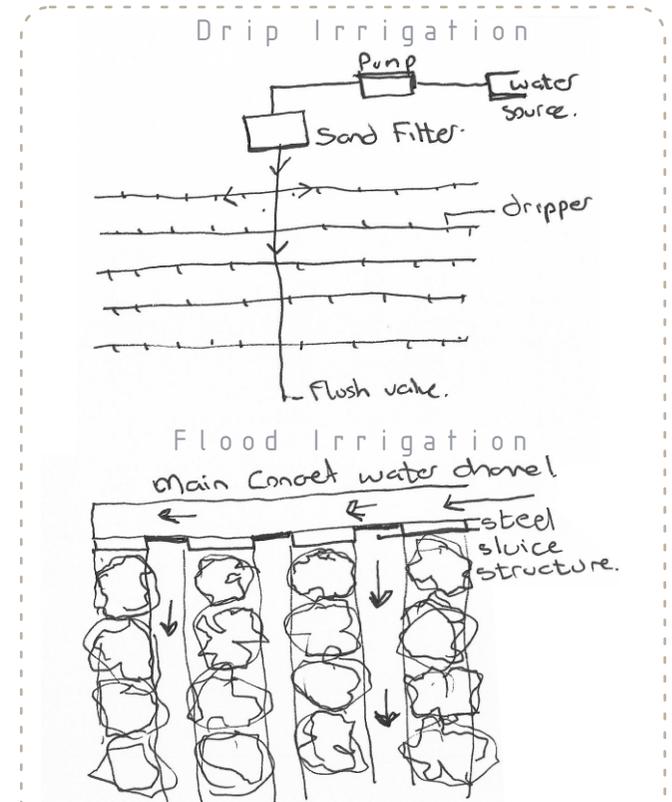


Figure 5.11: Different irrigation systems
Table 11.3: Typical cross-cut dimensions, lengths and gradients of furrows

Soil types	Recommended gradient (vert:hor)	Length	W [mm]	Y [mm]
Sand	1:150 - 1:300	50 - 100	300 - 500	100 - 200
Loam	1:200 - 1:400	100 - 200	300 - 600	150 - 300
Clay	1:200 - 1:800	200 - 400	300 - 700	150 - 300

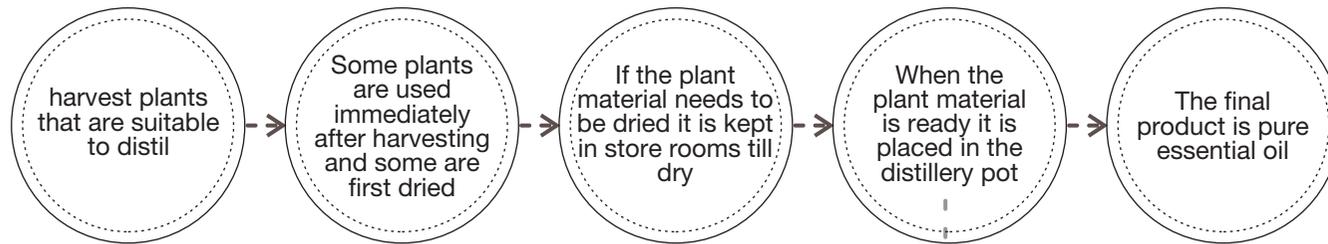
Figure 5.12: Recommended gradients for different soil types (AGIS 2002)

Inspiration from Research on Essential Oil Manufacturing

There are many practicalities of how essential oil farms work and should be managed.

The narrative and practical steps of making essential oil needed to be understood fully. The way plants need to be harvested, kept and the distillation process, machine sizes etc. informing the design. Through understanding this process in detail the narrative of the specific process was translated into design.

The narrative



The distillery process

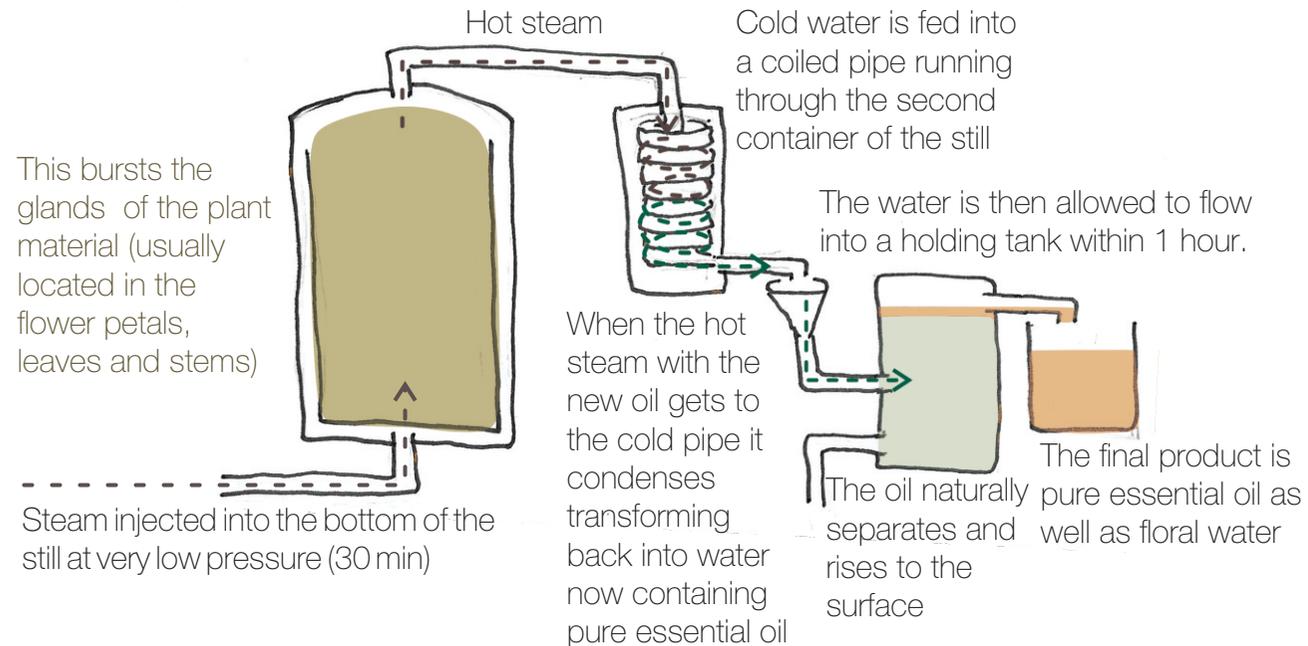


Figure 5.13: The essential oil distillation process (Author 2016)

Distiller: 50kg (material) 180/liter double pot
Installation

Size: 1100 x 2100 x 1650 Weight: 500kg
Water requirements: Boiler - 20/h
Condenser - 250/h

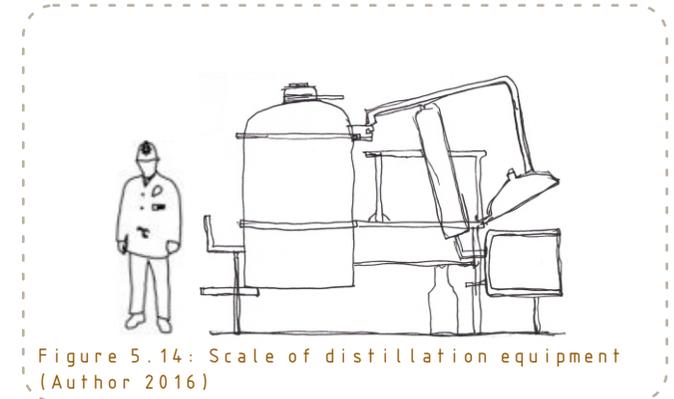
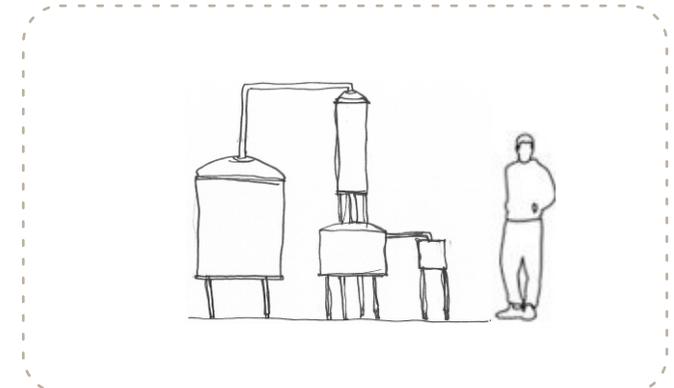


Figure 5.14: Scale of distillation equipment (Author 2016)

Components of Distiller:

- S/S Gravity feed separator
- S/S Horizontal multi-tube condenser
- S/S Still x 2
- S/S Interchangeable lid
- S/S Piping, fittings, valves, gauges etc.
- S/S Mesh lifting trays & chains x 2
- Tipping Frame
- Insulation of pot and piping (EDESA 2016)

Master Plan Informants



Figure 5.17: Informed watercolour abstractions of smellscape (Author 2106)

In an attempt to translate the intangible to a tangible form as part of the design process the designer drew inspiration from smell by documenting current smell experiences on site and then on new blank pages desired smell experiences on site were created, taking factors like wind and topography into account.

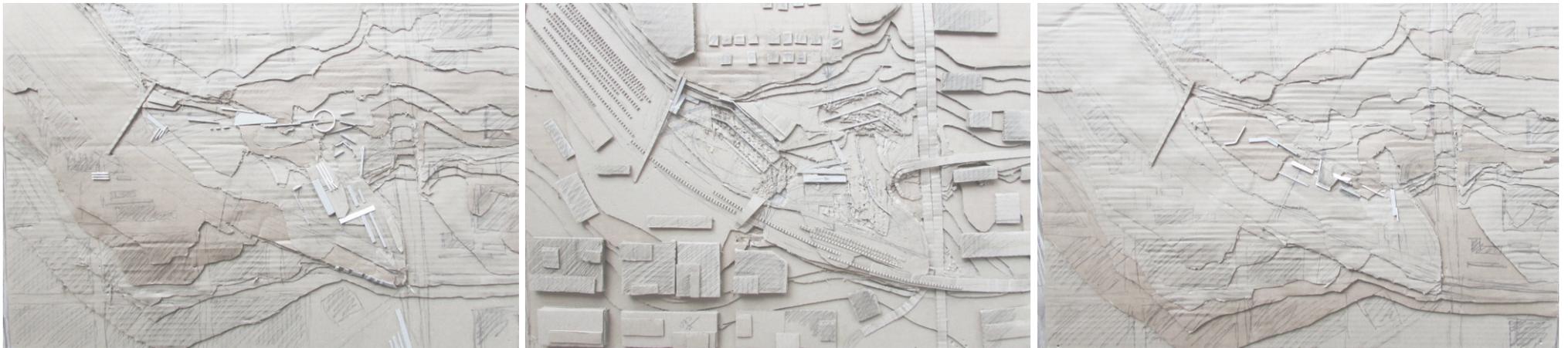


Figure 5.18: Models used in the exploration of different design outcomes (Author 2106)

Due to the nature of the project being highly influenced by on topography as well as to understand and really work with the site specific topography many models were built to understand the site.

Development of the Master Plan

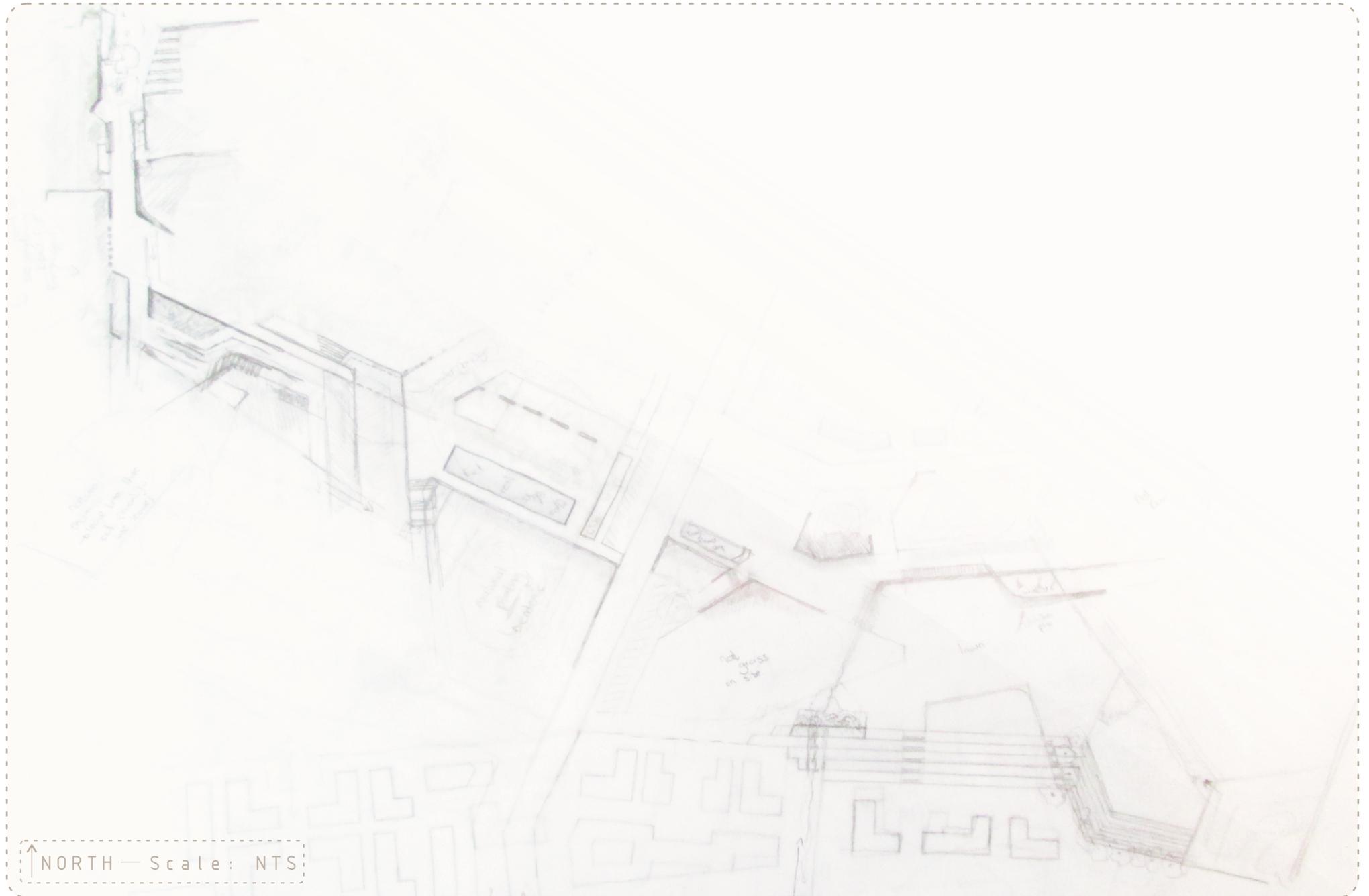


Figure 5.19: Development of the master plan through iteration (Author 2106)

Development of the Master Plan



Figure 5.20: Development of the master plan through iteration (Author 2106)

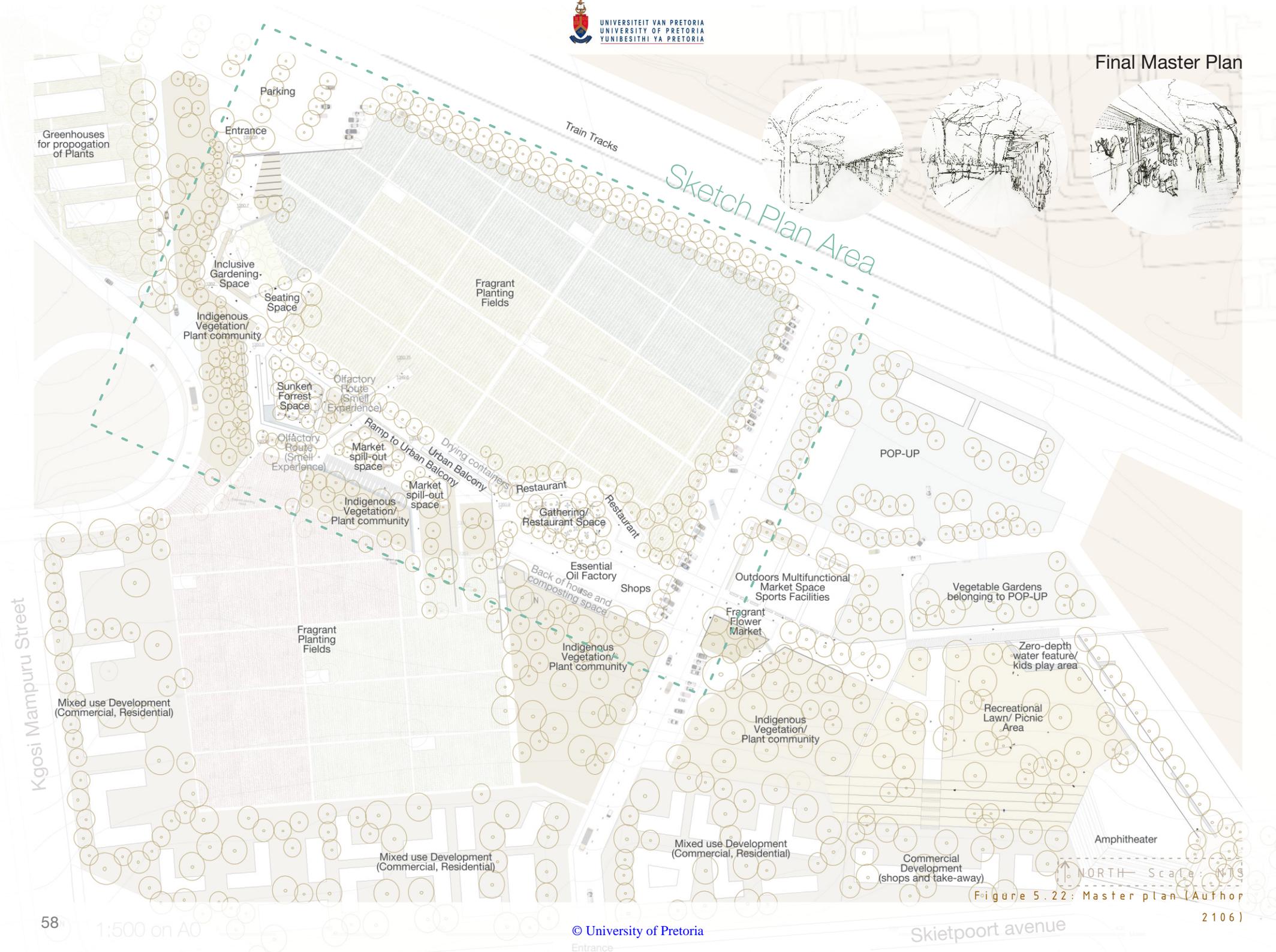


Figure 5.22: Master plan (Author)

Spatial Organization of Master Plan

The master plan is divided into two parts through a datum line. The axis originated from an existing pathway on site. It was defined as a main entrance into the urban park dividing and defining two areas of the design.

The **Western side** is more experience orientated. Smell in the landscape is revealed in this area and the process, as well as the making of essential oils, takes place on this side. To secure the productive landscape and factory some access control needs to be in place in this area, thus the area is classified as semi-public.

The **Eastern side** is more of a functional response to the local community's needs. Many basic needs of the public and POP-UP were satisfied like recreational lawn where lunch can be enjoyed daily, commercial development, restaurants and kiosks, play areas for children, vegetable gardens and multifunctional market and sports spaces for POP-UP, and spaces for public events.

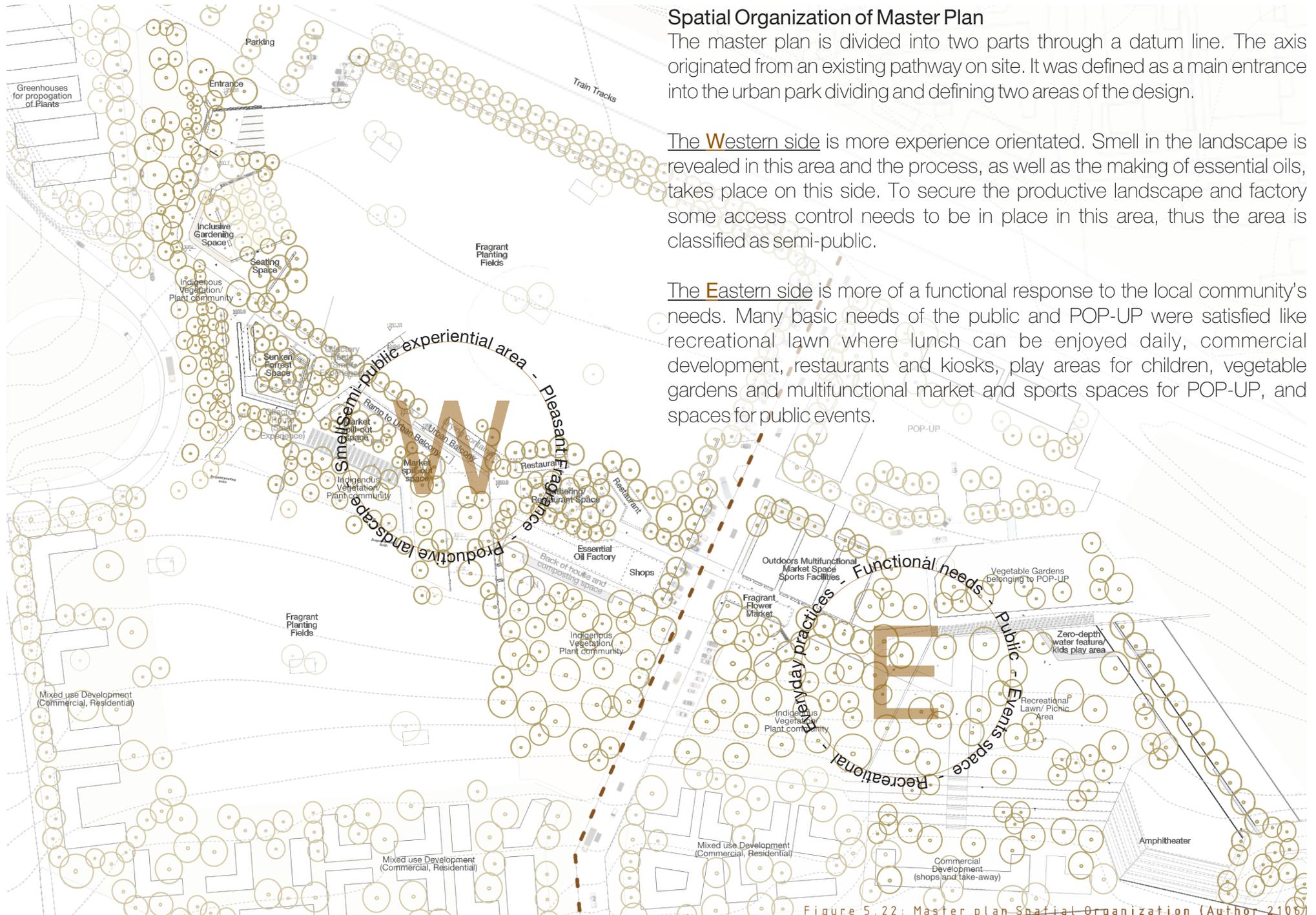
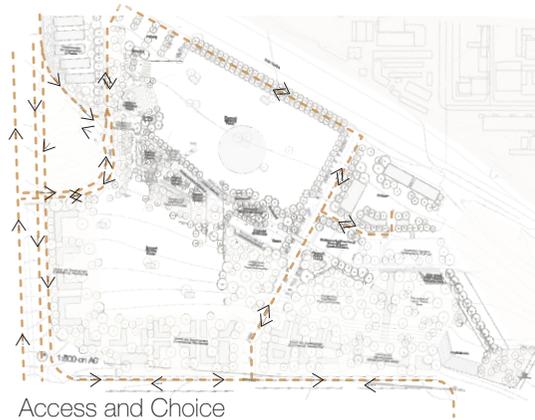


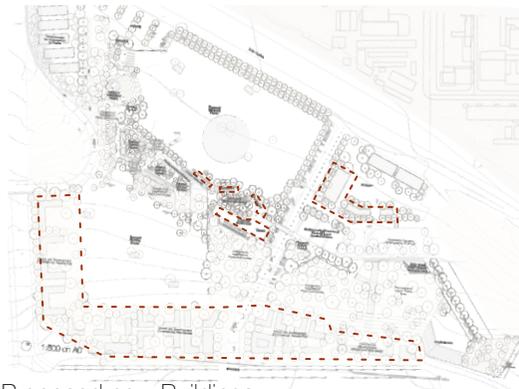
Figure 5.22: Master plan Spatial Organization (Author 2106)



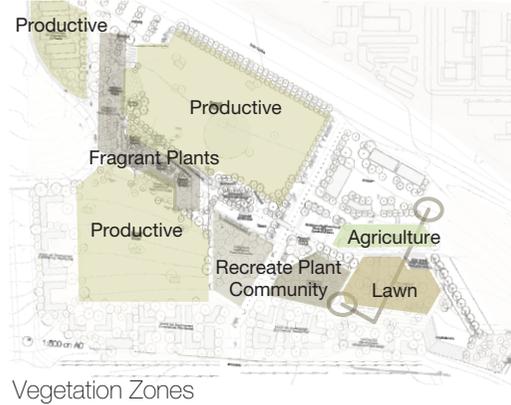
Access and Choice
Illustrating the vehicular circulation and entrances on site



Pedestrian Circulation
Illustrating the main pedestrian circulation options on site



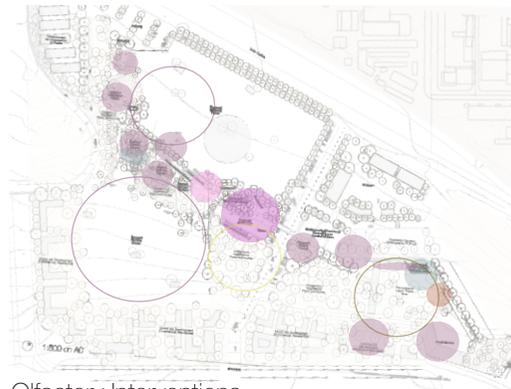
Proposed new Buildings
Illustrating the all of the proposed new buildings on site



Vegetation Zones
Illustrating the different vegetation types in certain areas



Spatial Organization
As explained on previous page



Olfactory Interventions
All of the main moments of smell (explained in detail in next chapter)

Function and Use of Master Plan

Daily use:

Management:

- Harvest fields
- Manage café
- Manage restaurant
- Fragrant Flower market
- Oversee markets
- Security

Weekday use:

Visitor:

- Experience Olfactory Route
- Utilize Recreational Lunch areas
- Take Kids to kids play areas
- Schools visit site to learn about productive landscapes and urban agriculture at POP-UP
- Socializing
- Commute to work
- Use restaurant and coffee shops
- Take a late afternoon stroll with friends
- Exercise (Jogging route & stationary exercises on lawn)
- Meditate in more private spaces
- Enjoy the sunset from the urban balcony
- POP-UP uses multifunctional space for sport activities

Weekend use: (all of above plus these extras)

Visitor:

- Buy fragrant flowers from fragrant flower market
- Visit weekend market
- Attend events in outdoor theatre space
- Cultural and Heritage tours
- Essential oil tours

Figure 5.24: Master plan assessed (Author 2016)

Conclusion

The intention of the final master plan is to firstly satisfy basic human needs (physical and psychological), as discussed in chapter two, being outdoors even if it is just in an urban park and not in first nature, have beneficial effects on humans. It ought to be everyone's right to be able to access comfortable urban parks.

Secondly ecological factors and sustainability played an important part. Thirdly the experience of smell was specifically used as design generator and finally many specific aspects of the theory generated ideas for the final refined master plan.

Sketch Plan Focus Area

This eastern area outline was chosen to be explored on sketch plan level.

There is a very strong and specific focus on smell and the journey of capturing smell in the form of an oil in this area of the design.

The western part of the design has a stronger focus on practical elements and features so that the urban park successfully functions.

Due to the main research question the eastern part was seen as more appropriate to explore in detail



Figure 5.25: Sketch plan area on master plan (Author 2016)

