



THE PROBLEM

DEFINE

The first part of Chapter 3 aims to investigate and analyse the **Real World Problem**, which is the environmental impact of building construction. The second part of this chapter identifies the **Design Problem** which entails the client and site analysis.

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3.1 THE REAL WORLD PROBLEM



Figure 3.1. Environmental degradation (Fetrow, 2011)

3.1.1 THE GLOBAL PROBLEM

The conservation of our environment has been an issue since the industrial revolution in the late 19th century (Dykstra, 2008). The economic boom gave rise to a consumerism lifestyle that essentially depletes natural resources faster than it can be replenished, and discards such resources in the form of waste when the consumed product has reached the end of its lifecycle. This presents two ends to the environmental problem that is currently faced by the 21st Century society. This problem will be explained using the analogy of a tap and a sink.

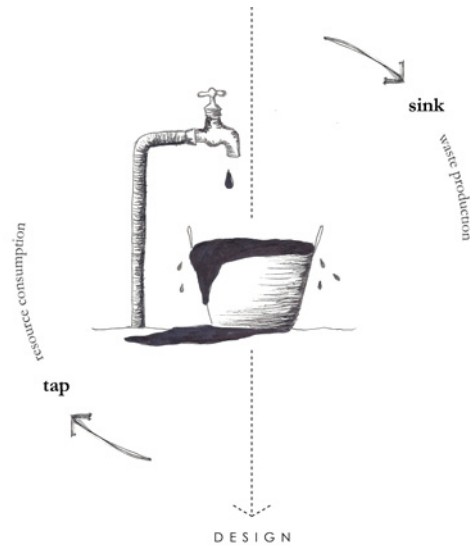


Figure 3.2. Tap and Sink Analogy: Showing resources consumed and waste produced (Author, 2016)

"Modern man does not experience himself as a part of nature but as an outside force destined to dominate and conquer it. He even talks of a battle with nature, forgetting that if he won the battle, he would find himself on the losing side. Until quite recently, the battle seemed to go well enough to give him the illusion of unlimited powers, but not so well as to bring the possibility of total victory into view. This has now come into view, and many people, albeit only a minority, are beginning to realize what this means for the continued existence of humanity"

- Pearce, 1978

The first end of the environmental problem is natural resource depletion, i.e. the tap. The tap represents the way in which natural resources are extracted from the earth for human consumption, production and manufacturing purposes (Magdof, 2013). Natural resources are being 'tapped' at an alarming rate. It is a fact that on average, every person uses 16 kilograms of natural resources extracted from the earth on a daily basis (The World Counts, 2015). This is not something to be taken light-heartedly, considering that the human population has already surpassed 7 billion and is rapidly growing, suggesting that the demand for resources will only increase (The World Counts, 2015).

Natural resources are categorized either as renewable or nonrenewable (EPA, 2013). The supply of renewable resources such as energy from the sun and wind is infinite and can be recycled or replenished at approximately the same rate at which it is harvested. Timber is also considered a renewable resource, however the rate at which timber is farmed often exceeds the rate at which it can be regenerated. Nonrenewable resources, for instance coal, iron ore and bauxite are finite in their supply and cannot be replenished once extracted from the earth (EPA, 2013). Both renewable and nonrenewable resources are invaluable for production and manufacturing purposes, which is why it is important for these resources to be used efficiently and sparingly to prevent total depletion of supply.

The second end of the environmental problem is the excessive quantities of waste and pollutants produced through processing of natural resources, which cannot be filtered or absorbed by the earth i.e. the sink (Magdof, 2013). Ultimately, the sink is overflowing with waste and pollutants that are very harmful to the natural environment and its ecosystems.

The two ends (tap and sink) of the environmental issue are directly correlated with one another (Magdof, 2013). Natural resources that are extracted from the earth are used as raw materials for manufacturing of goods. Energy often in the form of burning fossil fuels is required to manufacture such goods, which produces harmful air pollutants and greenhouse gases as a by-product. These greenhouse gases become trapped within the earth's atmosphere and ultimately contribute to climate change (EPA, 2013). The effects of climate change are very serious and could prompt natural disasters such as droughts, flooding and the spread of disease. Climate change could also disturb vegetation growth patterns and could possibly put ecosystems out of balance (EPA, 2013). Since life on earth is directly dependent on the state of the natural environment, it is essential that we as human beings do everything in our power to protect and conserve it for present and future generations.

3.1.2 THE ENVIRONMENTAL IMPACT OF BUILDING CONSTRUCTION

The building construction industry is a major contributor to the environmental problems we are faced with today. It is responsible for 20% of global greenhouse gas emissions, mainly caused by transportation of building materials and burning of fossil fuels to create energy for building construction. It also contributes to 50% of global energy usage, which is more than any other industrial sector (Moxon, 2012). Additionally, buildings contain large amounts of embodied energy due to the processes involved in construction including extraction of raw materials, processing and manufacturing thereof, transportation of materials to site, construction and maintenance of buildings.

The built environment also plays a large role in depletion of natural resources and is accountable for 40-50% of global raw material flow (Moxon, 2012). This totals to 3 billion tons of raw materials used annually. The rate at which these natural resources are being depleted is extremely detrimental to the state of the environment as well as the ecosystems that depend on these resources.

Due to the impact of building construction, sustainable practice in the built environment has become a prerequisite. Environmental sustainability is defined as the “responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long term environmental quality”. Through practicing environmental sustainability, we as professionals of the built environment help to ensure that the needs of today’s population is met without jeopardizing the future generation’s ability to meet their needs (Moxon, 2012).

Interior design forms part of the built environment industry and therefore also contributes to the negative impacts caused by building construction. It is an industry that is routinely involved with adaptations and renovations of interior spaces, a process that can be resource and energy intensive (Moxon, 2012).

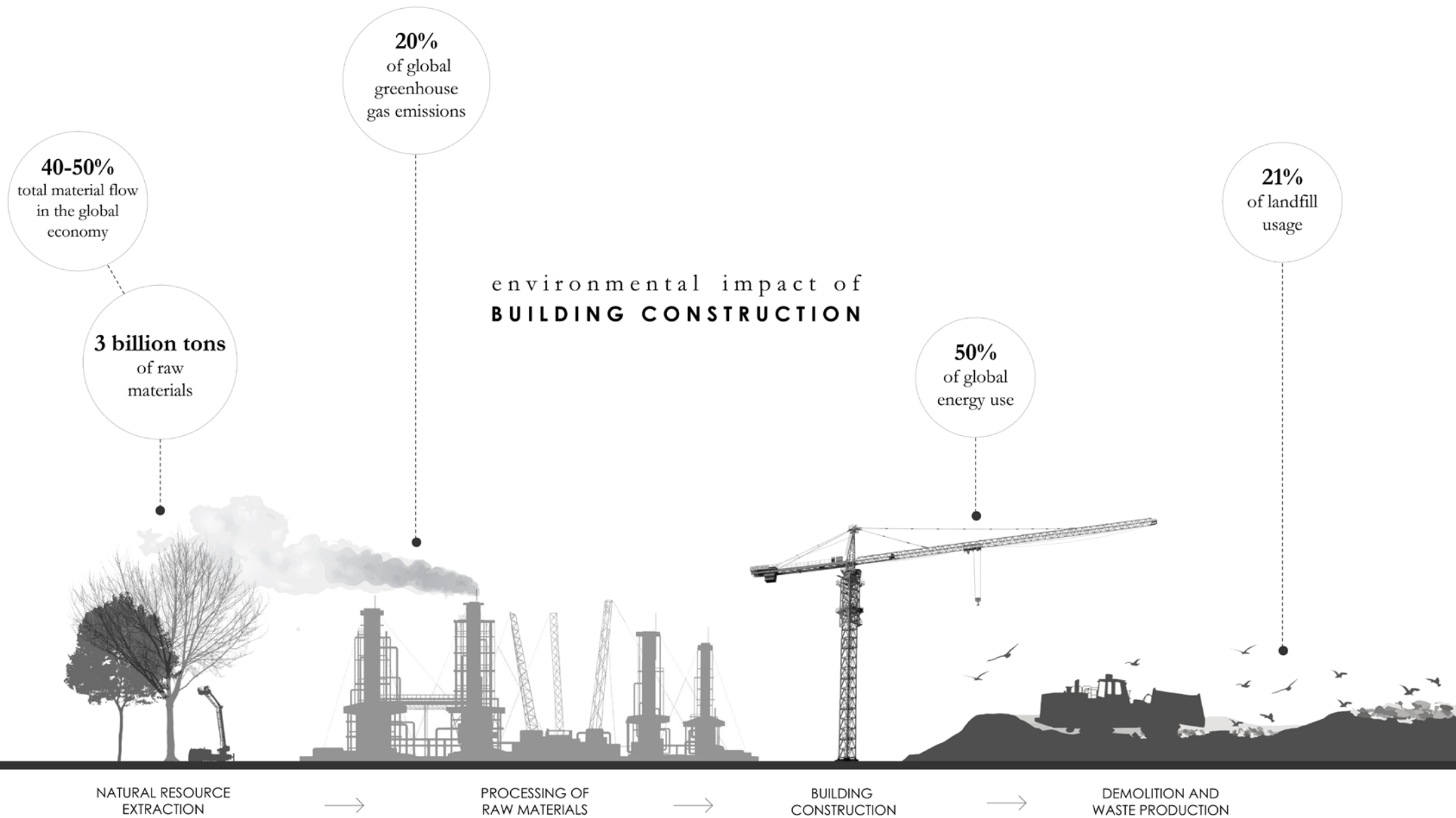


Figure 3.3. Environmental impact of building construction (Author, 2016).

3.2 THE DESIGN PROBLEM

3.2.1 CLIENT ANALYSIS

Margaret Roberts is a very well-known and inspirational South African figure. She is a Herbalist that practices natural healing methods with medicinal herbs that is manifested in the form of skincare and culinary products. She is recognized for her informative lectures, radio talks and a large collection of published books on herbs and their medicinal uses. Her extensive research and invaluable contribution to the field of herbs has earned her a Laureate Award from the University of Pretoria (Natural Medicine, Sa).

Growing up on a farm, Roberts has always been fascinated by nature, but it is only in her adult years as a mother that she became really infatuated with the medicinal and healing properties of herbs (Roberts, 1984). She is passionate about passing on her knowledge and teaching the public to incorporate herbs into their daily lives.

Roberts may be a senior citizen but that hasn't stopped her from perusing her goals. She is currently the founder and owner of the Margaret Robert's Herbal Centre in the Hartbeespoort region of Pretoria. The Herbal Centre is divided up into several different areas including herbal gardens, a nursery, restaurant, apothecary, labyrinth, chapel, sand garden and her skincare shop (Margaret Roberts, n.d).

Justification of Chosen Client

This dissertation is conducted under the environmental potential research field, which is why it is imperative to work with a client that supports sustainable practices. Margaret Roberts is therefore an ideal client since she is very concerned with the preservation of our natural environment and has already adopted sustainable practices at her Herbal Centre (Margaret Roberts, n.d) such as rain water harvesting.



"Tranquility is quickly and easily found by sitting quietly in the herb garden, resting the eyes on the soft, muted greens, grays and blues of the healing plants"

- Margaret Roberts (Roberts, 1984)

Figure 3.4. Client: Margaret Roberts (Margaret Roberts, n.d).



Figure 3.5. Margaret Roberts Herbal Centre (Author, 2016).

Organic Skincare Product Range

Margaret Roberts has a wide selection of organic skincare products that is categorized into the following six groups; *ESSENTIAL OILS*, *MEDICINAL CREAMS*, *GENERAL CREAMS*, *BATH & SHOWER PRODUCTS*, *TISSUE OILS* and last but not least a *MEN'S RANGE*. Figure 3.7 shows a comprehensive breakdown of the products that fall under each of the above-mentioned groups.

The essential oil collection is at the heart of Margaret Robert's organic skincare range and forms the foundation of most of her skincare products. Lavender is amongst one of her best-selling essential oils and has become a trademark to her skincare products. Margaret Roberts has a species of lavender (*Lavandula X Intermedia*) registered to her name which is often referred to as Lavender Margaret Roberts (Haakdoorn Nursery, 2016). Lavender is an incredible medicinal healing plant that offers countless benefits, such as reducing stress, insomnia, and depression and can also be used as an anti-septic and anti-inflammatory treatment (Nordqvist, 2014).



HEALING PROPERTIES OF LAVENDER

- Antiseptic
- Anti-inflammatory
- Reduces stress
- Reduces insomnia
- Reduces depression
- Aids digestion
- Relieves headaches

LAVANDULA X INTERMEDIA

(Nordqvist, 2014)

Figure 3.6 Lavandula X Intermedia (Author, 2016).



Figure 3.7. Margaret Roberts product range (Author, 2016).

Essential Oil Distillation Process

Steam distillation is the method used to extract the essential oils from the organic plant matter. This method of essential oil extraction is most favourable for its wide application to an array of organic matter as well as its ability to carry out quality control in the process of extraction. Steam distillation allows you to control the temperature and pressure of the steam that is applied to the plant material, essentially minimizing the degradation of the delicate botanical oils to be extracted.

STEP 1:

The boiling flask is filled with distilled water and brought to boiling point. The steam from the distilled water will enter the biomass flask; heating the organic matter to release the essential oils.

STEP 2:

The steam from the boiling flask heats up the organic matter, allowing the release of essential oils in the form of water vapour.

STEP 3:

The water vapour from the biomass flask travels up through the glass delivery tubes towards the west condenser.

STEP 4:

The water vapour containing essential oils enters the west condenser. Cold water is then flushed through the outer wall of the glass condenser, allowing the water vapour to turn into water droplets.

STEP 5:

These water droplets are made up of floral water (hydrosol) and essential oils. The floral water is separated from the essential oils and is collected in a conical flask. This floral water does contain small traces of the essential oils and can be used for water-based fragrances.

STEP 6:

The essential oils are separated from the floral water through the separatory funnel and are collected in a glass jar that can be sealed.

YIELD AND WASTE

The essential oil distillation process is resource intensive which uses large quantities of fresh lavender and only yields 0.5 to 1% essential oils (Essential Oil, 2016). The leftover organic material is a type of straw that is regarded as waste.

This creates an opportunity to apply nature's zero-waste principles by developing a strategy that reuses this lavender straw/waste product as a resource.



WASTE PRODUCED
Lavender Straw

Figure 3.8. Lavender Straw Waste (Snowy River Lavender, 2016).

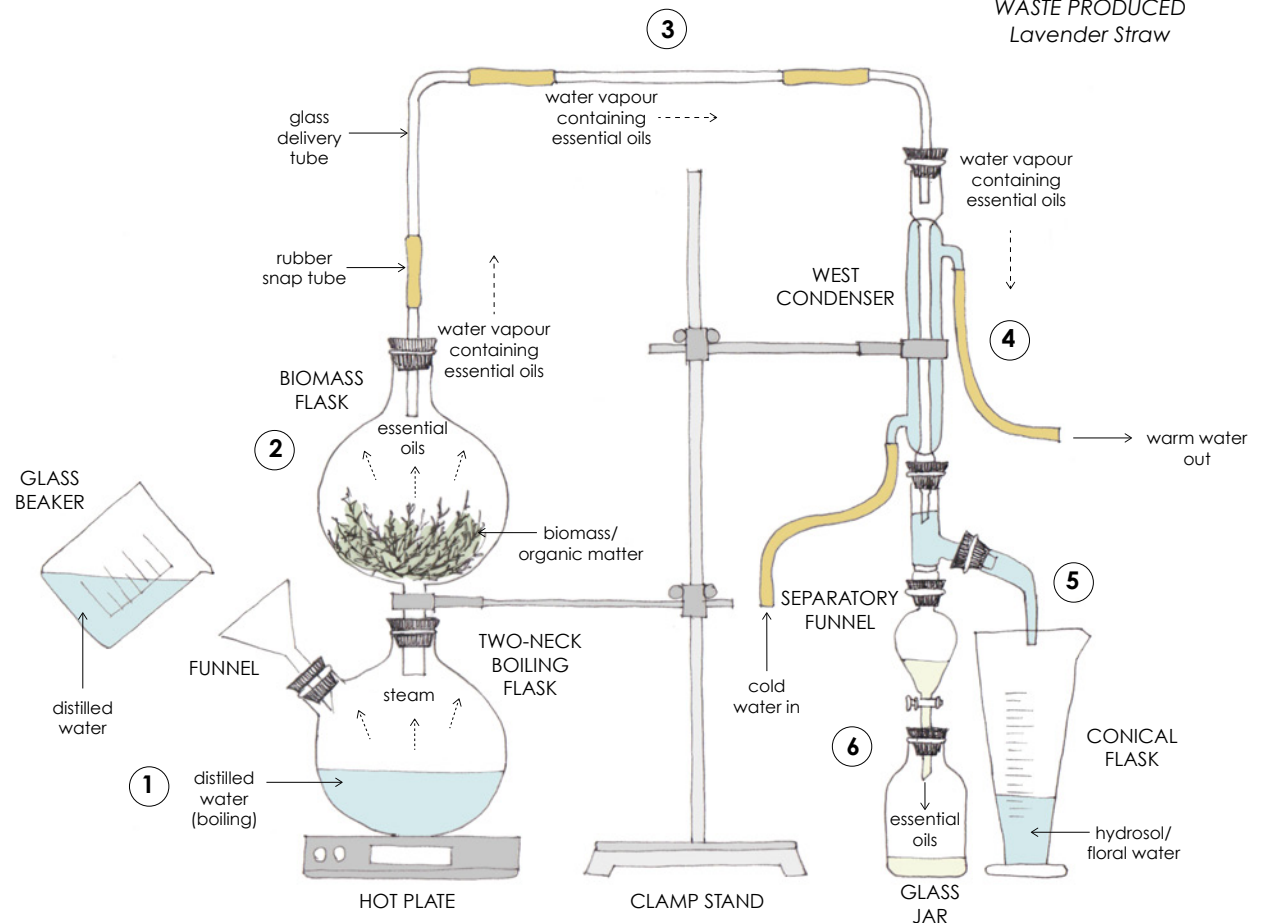


Figure 3.9. Diagram of Lavender essential oil distillation process (Author, 2016).

3.2.2 EXISTING BRAND ANALYSIS

Margaret Roberts' current product and in-store design shows little consideration to branding. Theories discussed in Chapter 2 highlight the significance of branding and the role it plays in creating a corporate identity. This corporate identity reflects the core values of the company and should be evident throughout all design aspects.

Since Margaret Roberts does not have an existing company profile, information will be collected and analysed from her series of published books and the branding of her existing product range and skincare store in order to establish what the Margaret Roberts brand needs to encompass.

CURRENT PRODUCT BRANDING

Margaret Robert's product range shows little evidence of a brand identity. It appears as though Margaret Roberts' name itself is used as the brand identifier on the packaging but is not consistent throughout. Many of the products are bottled in amber glass bottles to preserve the quality of its contents. These amber glass bottles create medicinal associations with the products.



Figure 3.10. Margaret Robert's current product branding (Author, 2016).

CURRENT STORE DESIGN AND BRANDING

The design of Margaret Roberts' existing store attempts to create associations with nature through the lavender colour scheme and incorporation of fake plants. However this attempt is not successful and can be executed better through careful design considerations.



Figure 3.11. Margaret Robert's existing store (Author, 2016).

MARGARET ROBERTS PUBLISHED MATERIAL

Margaret Roberts' published material provides better insight to the essence of her brand. The botanical illustrations drawn by Margaret Roberts; evident throughout her published material, is suggestive of the medicinal quality of her skincare products.

These illustrations will be incorporated into the new brand identity to maintain the botanical association with the skincare products.

Curry bush

Helichrysum species

ENGLISH Everlastings
AFRIKAANS Hottentotskooigoed,
Hottentotskooigoed,
Hottentotsbedding,
seewagartjies, kerrieboes



THE name Hottentotskooigoed covers several species under the genus *Helichrysum*. The leaves are usually a soft grey and curry-scented, the stems are soft and the shrub scrambles or makes a dense groundcover, spreading attractively over rocks or down hillsides. The saganj Khoikhoi, or Hottentots, used the soft leaves and flowers as bedding, hence the name, and campers still do this today. The pleasant smell the leaves give off aids sleep, and the profusion of growth in the coastal areas makes it an easily accessible plant for hikers and campers. It grows at its best invigilously usually within 14 km of the sea, but through the years some nurseries have started propagating it and it grows well even in the Transvaal with its dry winters and summer rainfall.

There are several medicinal uses for the *Helichrysum* species and those living in the Cape could start a fascinating collection, as they all make lovely garden subjects. Here are a few to get you started.

Helichrysum auriculatum

A pleasant and health-giving tea is made from this plant (1/2 cup of fresh leaves and stems steeped for 5 to 8 minutes in 1 cup of boiling water, then strained and sweetened with a little honey if desired, is the standard brew) as a treatment for backache, kidney diseases and kidney stones and heart ailments. It was once used as a daily tea in the Cape by the colonists and the Khoikhoi, and was a very much respected drink.

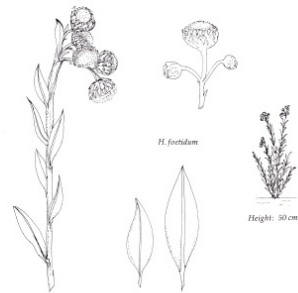
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Helichrysum crispum

A tea made of the leaves (standard brew) is drunk for heart conditions, kidney ailments and backache. It calms a racing heart, and is said to be effective for coronary thrombosis and hypertension. The Khoikhoi used it as a calming tea and introduced it to the colonists in this way. It is also an effective heart treatment for animals.

Helichrysum foetidum

The leaves warmed and washed in water make an excellent poultice for a festering, infected sore, as they have astringent qualities which draw out the infection. The leaves and flowers are aromatic and are used in pot-pourris and in bedding and pillows.



Height: 90 cm

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Figure 3.12 Margaret Roberts' published material (Roberts, 1984).



3.2.3 MARGARET ROBERTS' BRAND ESSENCE

The essence of Margaret Roberts' brand is distilled from a collection of extracts from her published material. These extracts provide an insight to the intention behind her medicinal/herbal products.

In her book *Indigenous Healing Plants*, Margaret Roberts writes;

"Surely this must be one of the reasons why the wild things show so few illnesses and growth problems? Smell the summer night. The heat of the day will have released aromatic oils of all the fragrant herbs and flowers. Breathe deeply and rhythmically; let all those cares of the day fall away."

- Margaret Roberts (Roberts, 1984; iv)

"My intention is not to prescribe plant medicines for curing afflictions, nor am I trying to replace the doctor; rather I wish to reveal the amazing wealth in our green heritage and the wonderful uses that the plant kingdom has given us"

- Margaret Roberts (Roberts, 1984; xi)

It is evident that Margaret Roberts is fascinated with organic herbs, their healing properties and more so the tranquility and rejuvenation gained from interacting with these herbal plants.

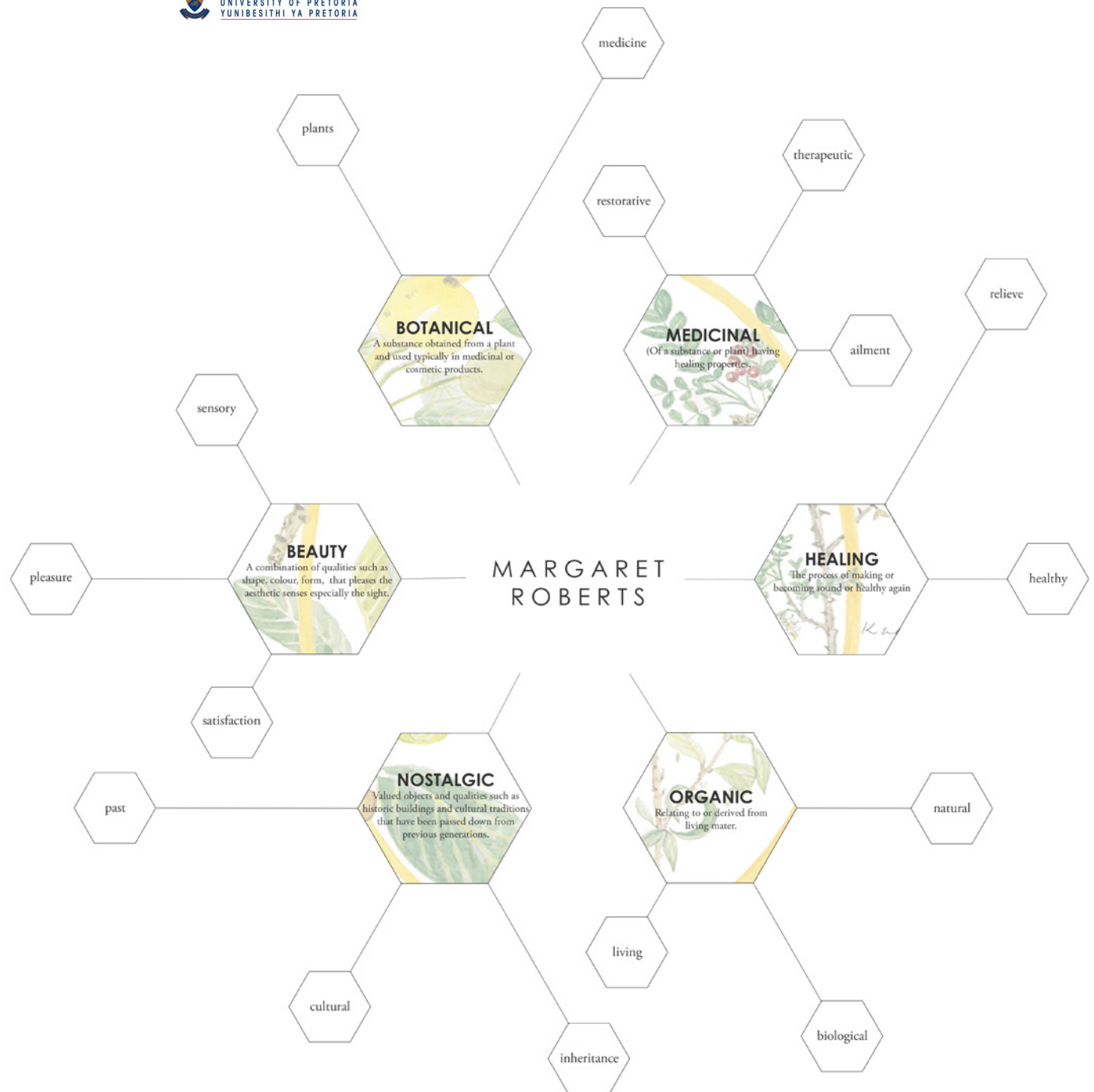


Figure 3.14. Margaret Roberts brand essence diagram (Author, 2016).

3.2.4 SITE SELECTION

This dissertation focuses on the design of a skincare servicescape for Margaret Roberts, which in essence should be able to fit various retail locations. The type of retail location in which the servicescape is situated plays a role in the associations formed with the brand, and should therefore be carefully considered. Smaller retail locations such as community malls and lifestyle centers; which are not enclosed retail spaces, are ideal settings for the Margaret Roberts skincare servicescape. Community malls and lifestyle centers generally house a variety of different stores supported by one or two anchor stores.

The following site requirements have been identified to create a guideline for selecting retail sites appropriate for the Margaret Roberts skincare servicescape.

Where possible, the retail site should:

- > Be lifestyle orientated
- > In an open/outdoor space
- > Showcase artisan qualities
- > Be a healthy site which provides access to natural light and ventilation.

The following sites have been identified as suitable for the Margaret Roberts skincare servicescape:

WATERKLOOF CORNER

Main Str, Pretoria

Waterkloof corner is lifestyle-orientated neighbourhood center that is home to a variety of artisan and boutique stores. This site would be suitable for Margaret Roberts' skincare store since it is in an open/outdoor center; providing access to natural light and ventilation and also exhibits artisan qualities that will contribute to the brand associations with Margaret Robert's skincare store.



Figure 3.15. Waterkloof Corner Shopping Centre (Author, 2016; Advanced Building, 2012).

SOUTH DOWNS

John Voster Dr, Pretoria

South Downs is a lifestyle center located on John Voster Drive, Pretoria. This center showcases many of the desired site requirements, including the fact that it is a lifestyle center; it is in an open/outdoor space and shows farm-style artisan qualities, which would contribute positively to the Margaret Roberts brand image. South Downs has existing skincare stores, which suggests that proposing a skincare store for Margaret Roberts in this location would be feasible.



Figure 3.16. Southdowns Shopping Centre (Southdowns, 2016).

IRENE MALL

Nelmapius Dr, Centurion

Irene Mall is a lifestyle community mall that offers a unique outdoor shopping experience. This mall would be a suitable site for Margaret Roberts' skincare servicescape since it meets the desired site requirements including the fact that it is an outdoor mall, it showcases artisan qualities, it is lifestyle orientated and provides access to natural light and ventilation. This site would therefore contribute positively towards the brand identity of Margaret Roberts skincare servicescape.



Figure 3.17. Southdowns Shopping Centre (Southdowns, 2016).

3.2.5 CHOSEN SITE

IRENE MALL

Nelmapius Dr, Centurion

Macro Context

The site that was chosen for Margaret Roberts' skincare servicescape is Shop 150 located in Irene Mall, Pretoria. Irene Mall is a lifestyle community mall that meets the site requirements set out for Margaret Roberts' store. It is an open/outdoor mall that provides stores with access to natural light and ventilation and also showcases farm-style artisan qualities. Irene Mall was favoured above other possible sites since it provides double volume retail spaces, which can be utilized to create a mezzanine level that will allow separation of product and service areas in the design of the Margaret Roberts skincare store.

Irene Mall is located in Nelmapius Drive, Centurion and is situated within a residential area. It is within close proximity to a main road (R21), which provides easy access to the mall.

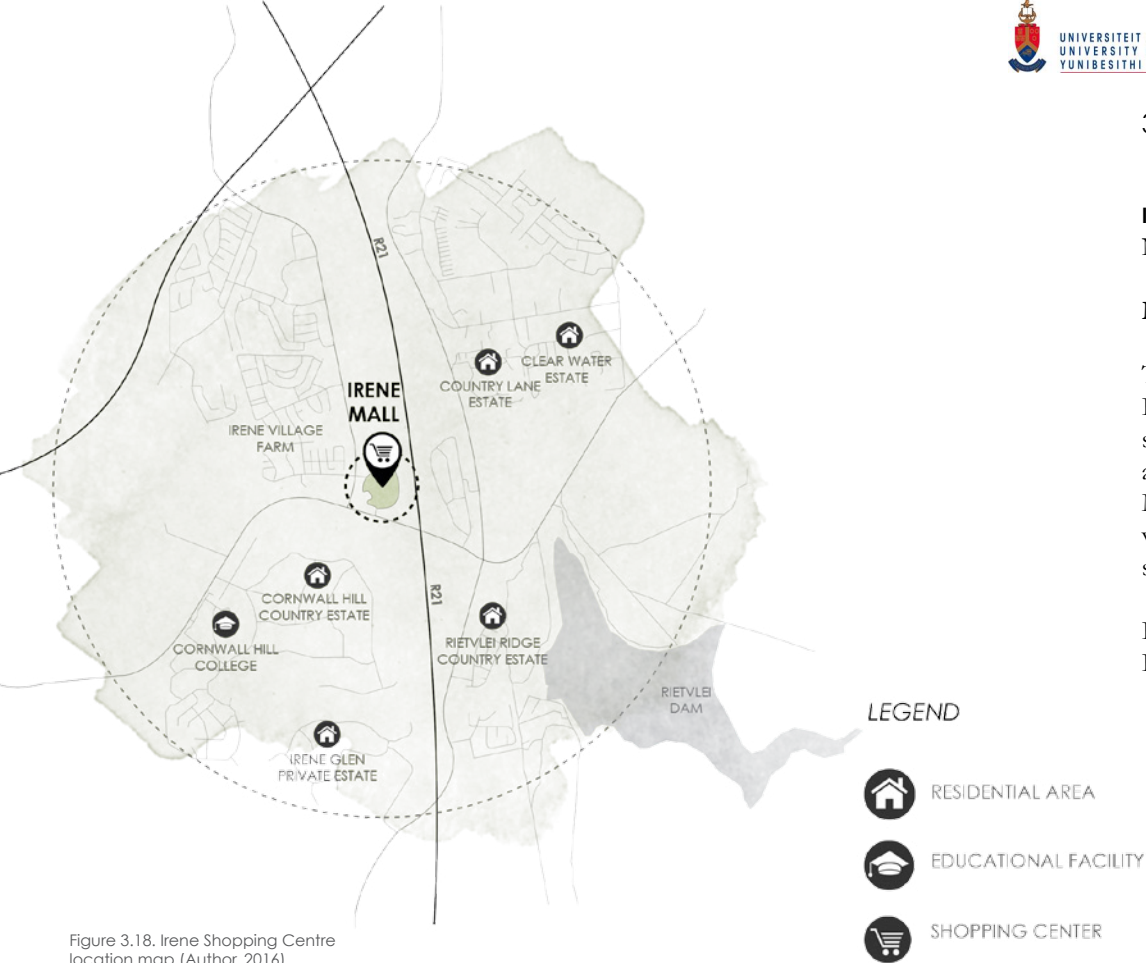


Figure 3.18. Irene Shopping Centre location map (Author, 2016).



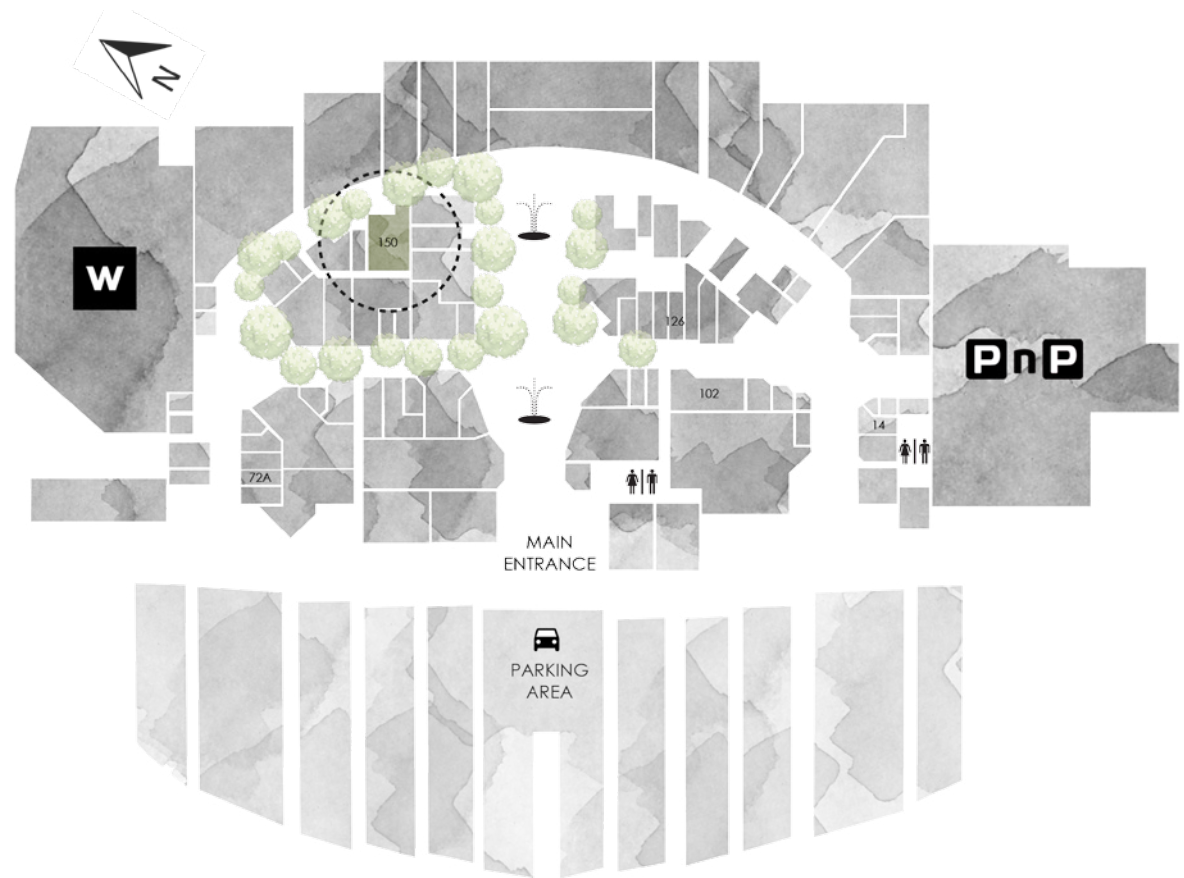
Figure 3.19. Irene Shopping Centre (Author, 2016).

Micro Context

Shop 150 is located in the northern wing of the mall (see Figure 3.21) in a more secluded area. This space was chosen since the Margaret Roberts skincare store requires a relaxing and tranquil environment. Shop 150 is a 200m² double volume space that can be extended to 300m² by introducing a mezzanine level. This will be beneficial for separating retail and treatment areas within the store. The existing store currently has one main entrance and a secondary entrance door accompanied by four large shopfront windows that allow natural light to filter into the space.



Figure 3.20. Irene Shop 150 (Author, 2016).



LEGEND

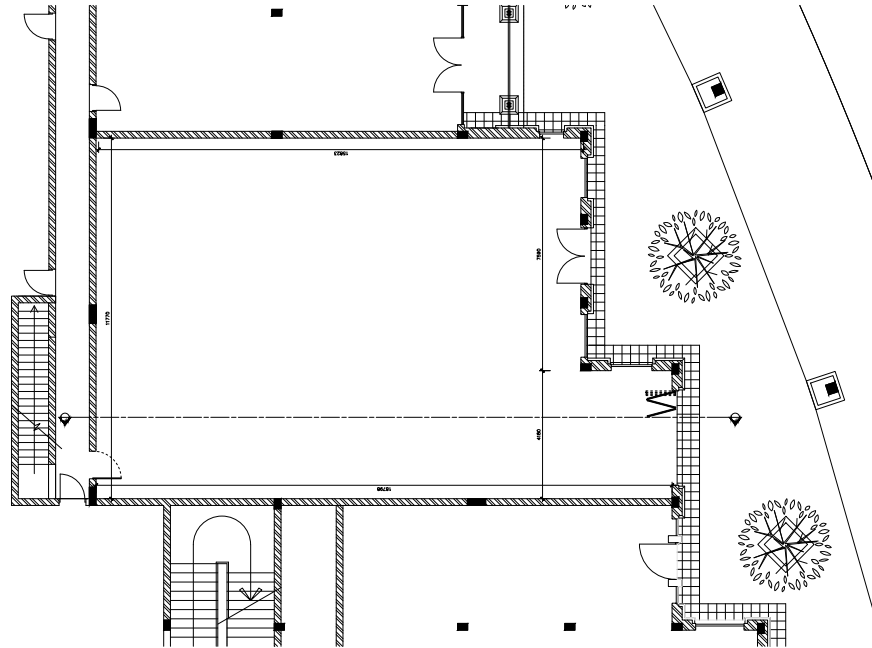
- SHOP 150 (dashed circle)
- ANCHOR STORES
 - Woolworths **W**
 - Pick & Pay **PnP**
- HEALTH & BEAUTY STORES
 - Shop 14 _ Placecol Skin Care Clinic
 - SHOP 72A _ Perfect 10
 - SHOP 126 _ Red Square
 - SHOP 102 _ Pharma Value
- Trees (green tree icon)
- Public Toilet (male/female icon)
- Fountain (fountain icon)
- Parking (car icon)

Figure 3.21. Irene Shopping Centre Mall Map - Indicating location of Shop 150 (Author, 2016).

Shop 150 Existing Structure

Since the site is a retail space, the existing structure is simply an empty shell that can be shop fitted according to the tenant's requirements. This retail space includes large shopfront windows that allow natural light to filter into the interior space. It is a double volume space which allows for a mezzanine structure to be introduced. Large trees are located outside the facade of Shop 150 which creates a visual connection with nature from within the store.

SHOP 150 FLOOR PLAN
not to scale



SHOP 150 SECTION
not to scale

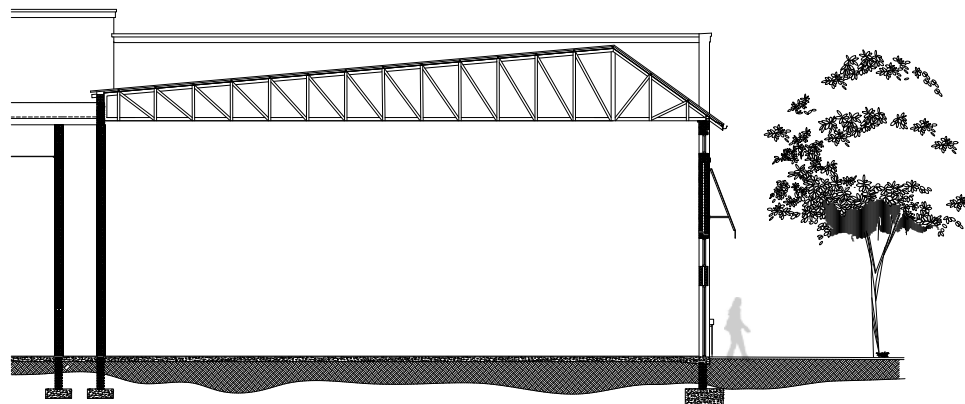


Figure 3.22. Shop 150 Floor plan and Section (Author, 2016).

EXISTING SHOP FRONT OF SHOP 150

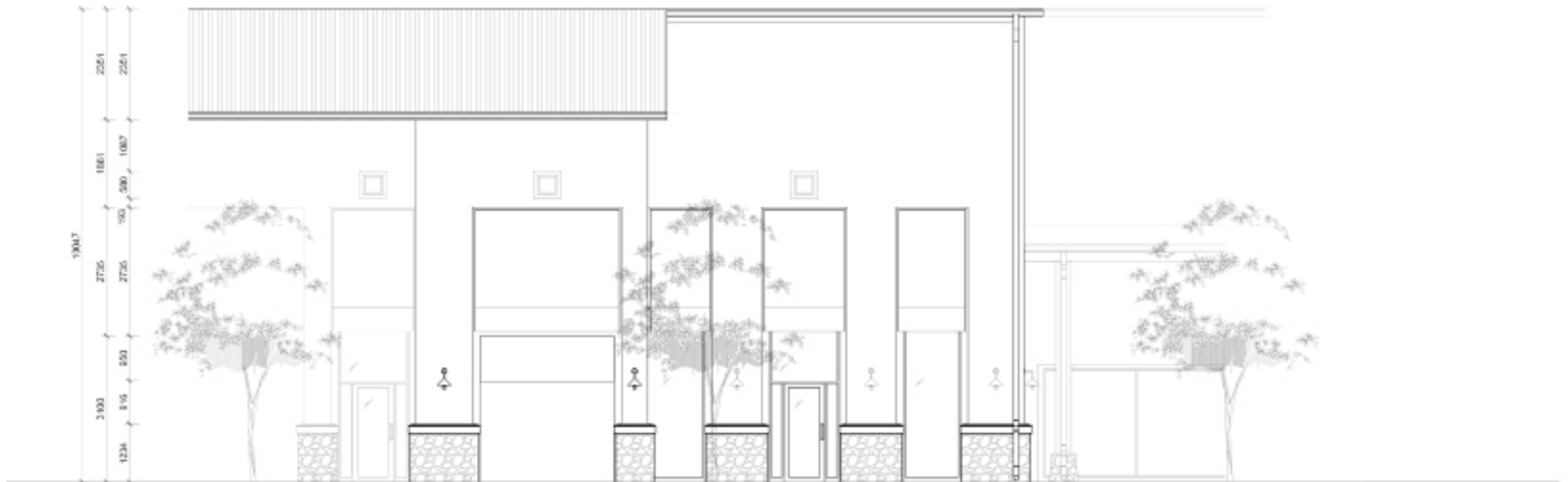


Figure 3.23. Shop 150 Existing facade (Author, 2016).