

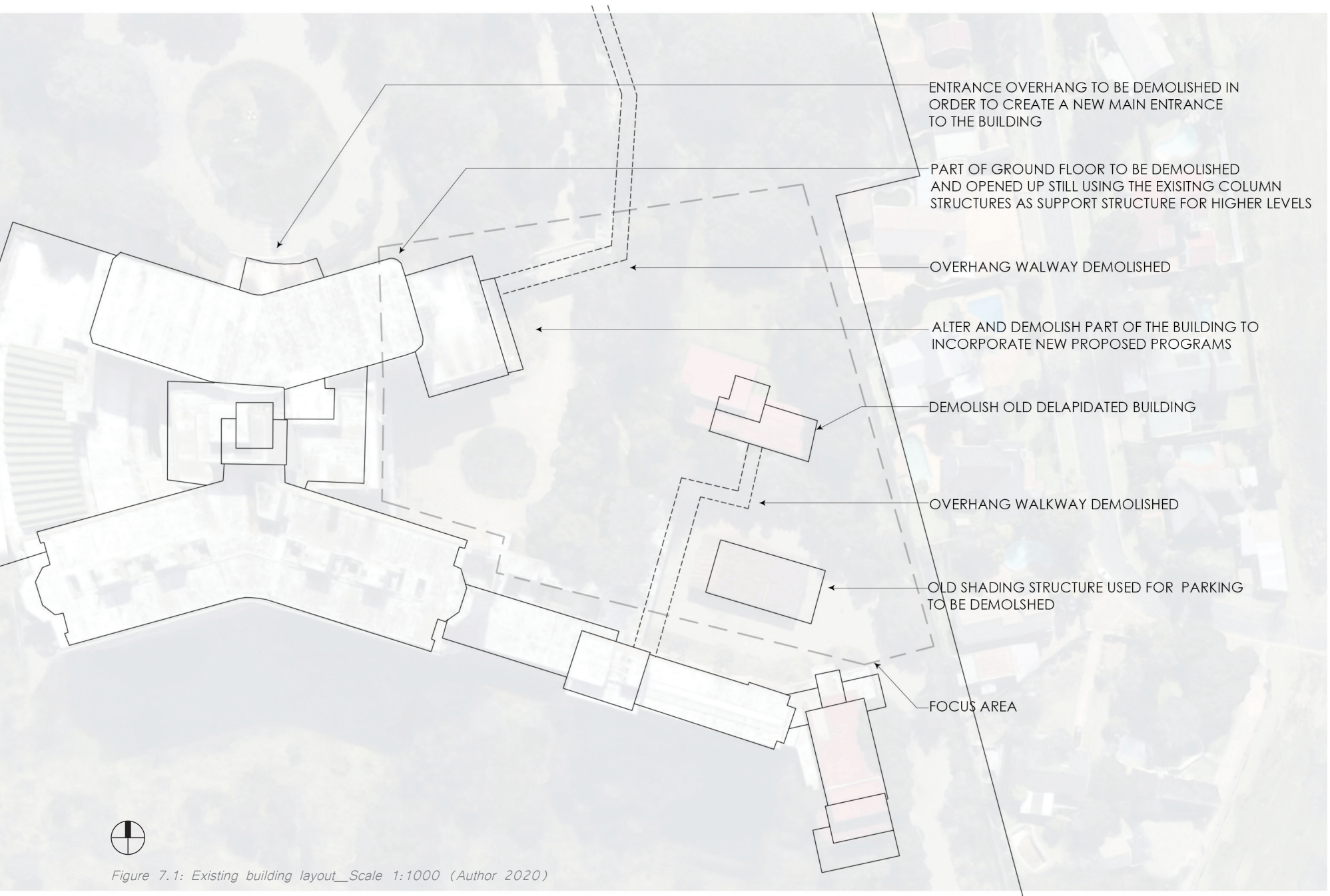
07

CHAPTER

DESIGN DEVELOPMENT

INTRODUCTION

In chapter 7 the design development and design thinking will be discussed and explained. During the design development the design thinking revolved around the users and their needs, encouraging designs that will end in new solutions to accommodate the people I am designing for. First, I indicated what I am proposing to change on the exiting focus area and identifying new construction to be introduced within the focus area. I then discuss the design development and layout of the new building, thereafter allocating the new programs in the building. Through incorporating the design informants and conceptual intentions discussed in chapter 6 I attempted to generate a design and technical resolutions for this facility.



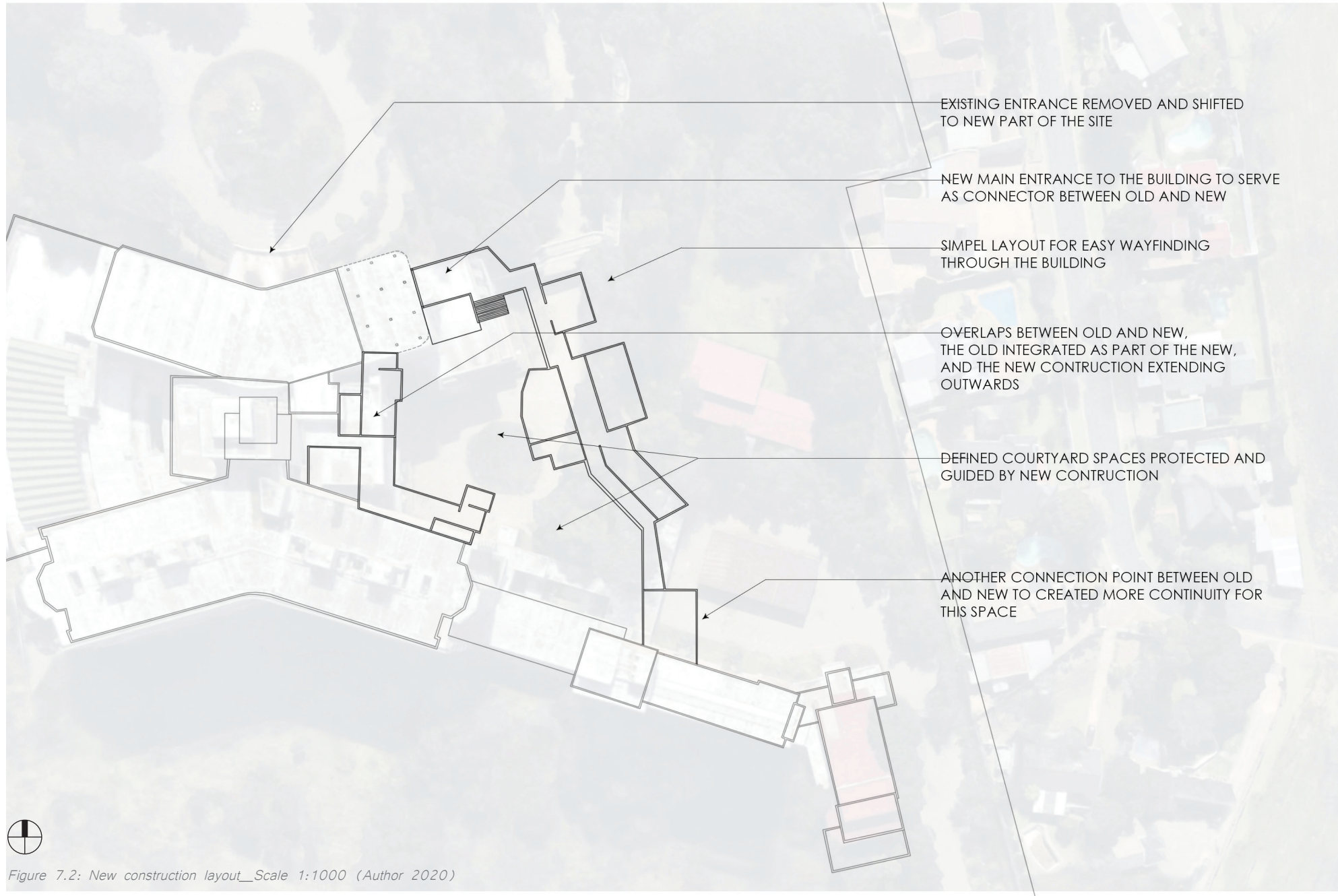


Figure 7.2: New construction layout_Scale 1:1000 (Author 2020)

DESIGN DEVELOPMENT

The development of the design layout is encapsulated in four phases:

1.Connection

First it was important to establish a connection between the existing building and the proposed new building. This is done to avoid any further isolation and separation towards the existing building. Creating a physical and programmatic connection results in a more cohesive design. The existing context is also used as guidance placing the building in such a way that it aligns with the natural sloping contours establishing an environmental connection.

Creating these connections brings a new circulation strategy to the building, connecting the entire building as a whole as well as allowing the inclusion/integrating of a new design into the existing building.



Figure 7.3: Connection (Author 2020)

2.Simple layout

Based on the users of the program it is important to still have a simple layout with easy and simple circulation. According to Altman and Low (1992) being able to understand and easily comprehend the layout and form of a space can contribute to the cognitive interaction between a person and the place they find themselves in. This can help establish a better sense of place referring to the theoretical premises discussed in chapter 2.

The proposed design will seek to have an easy transition between the existing and the new building, furthermore the proposed new building will seek to have a simple/ easy layout and circulation within the building, by having a main route or corridor that then spills out to different parts of the building.

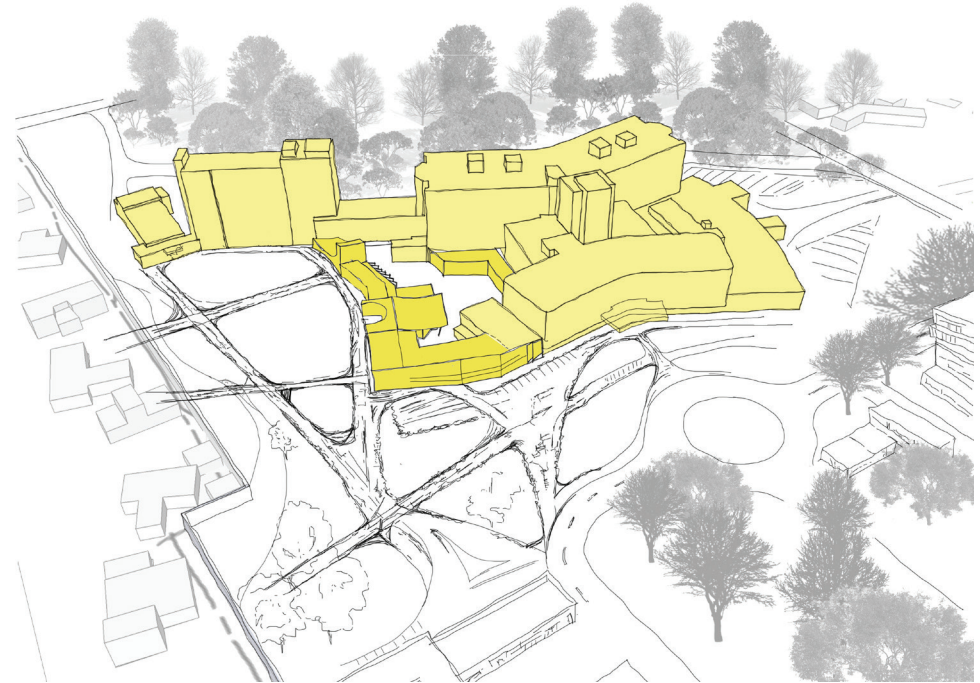


Figure 7.4: Simple layout (Author 2020)

3. Permeability

The design is to allow for easy access, interaction, and integration with its surroundings. The existing building stood in isolation from its surrounding, thus the new design proposal attempts to allow for more permeability and inviting all users to interact with the new building's programs. According to Baldwin, et al. (2013) Previous models for elderly living often demonstrated a separation between elderly people and the rest of the community. The design for this dissertation seeks to do the opposite, and to rather encourage the integration between elderly people and the rest of the community thus creating more permeability throughout the site.

Part of the existing building is proposed to be removed to allow for a more open exterior ground floor layout, that leads to courtyard spaces which can be occupied by a variety of users.

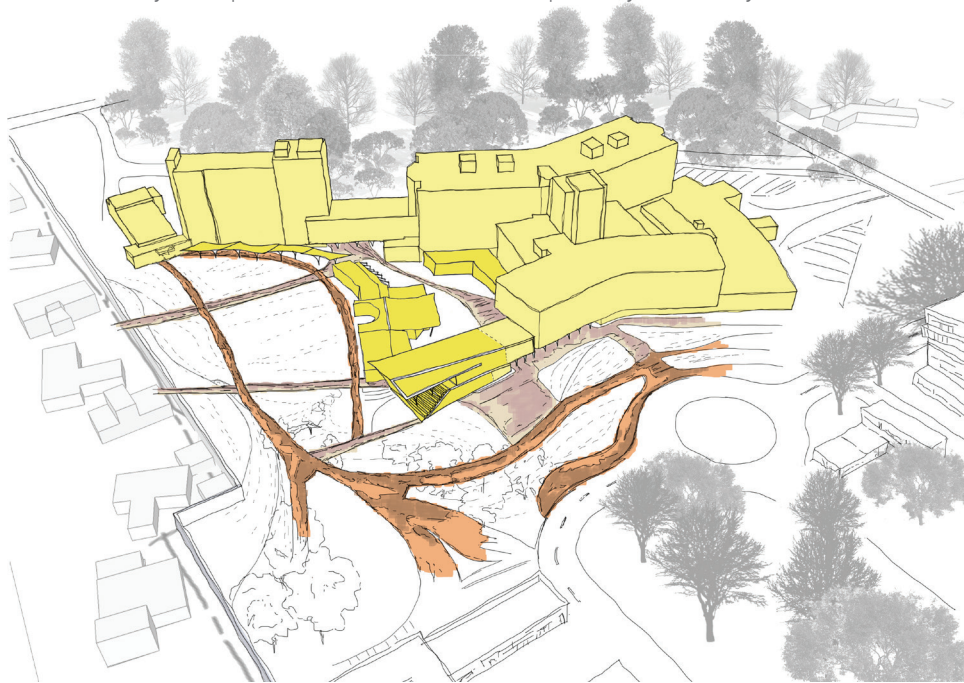


Figure 7.5: Permeability (Author 2020)

4. Dialog with the landscape

Part of the theory and concept for the design is to create a more integrated relationship and dialogue between architecture and the landscape, to overcome the barrier of buildings sitting in isolation from their surroundings. Incorporating greenery and landscape areas into the design not only contribute to enhancing the immediate macro-climate, but also enhances the users experience and interaction with the natural environment.

Thus, landscape elements will be incorporated into the program and design through garden routes, roof gardens, rain gardens, planting between the building and green spill out spaces like courtyards. This will promote and allow for physical and visual interaction with the landscape. and as mentioned in chapter 2 by Numan Abu Hammad (2017) re-establishing the relationship between people and their environment.



Figure 7.6: Dialog with the landscape (Author 2020)

DESIGN DEVELOPMENT

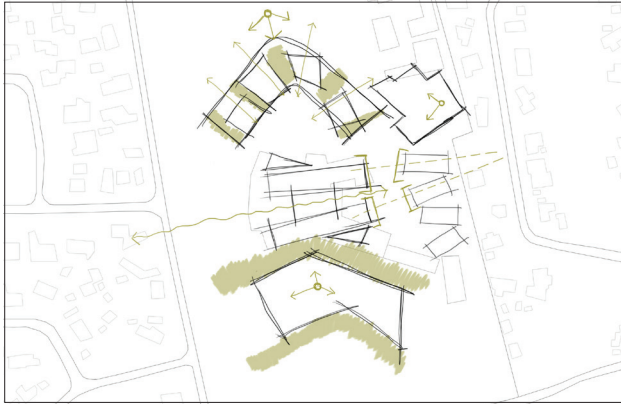


Fig 7.7



Fig 7.8

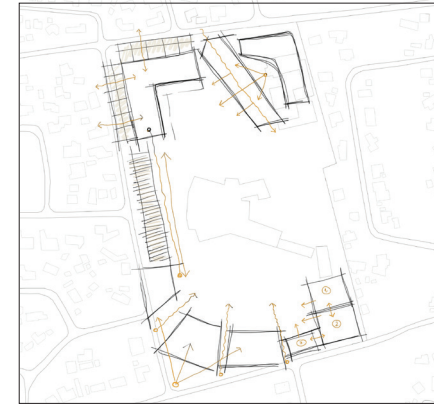


Fig 7.9

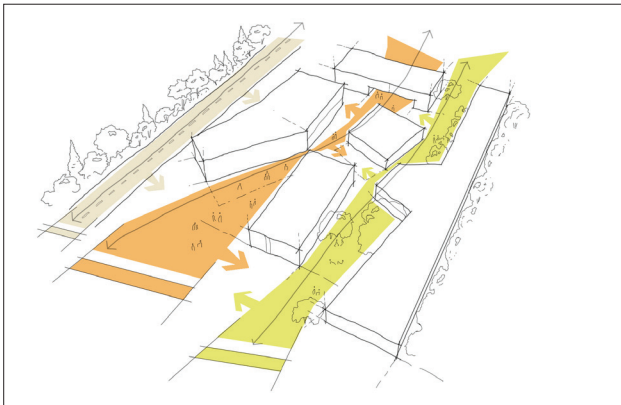


Fig 7.10

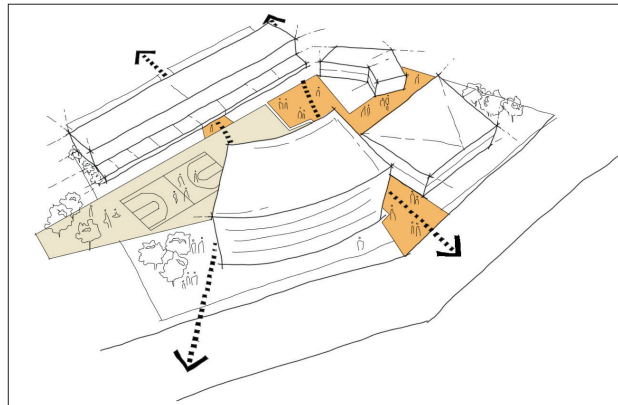


Fig 7.11

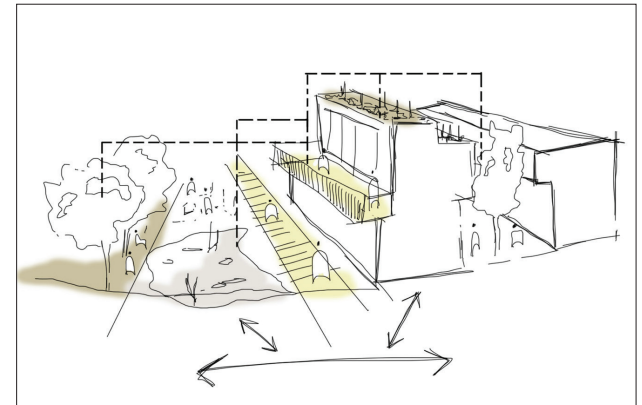


Fig 7.12

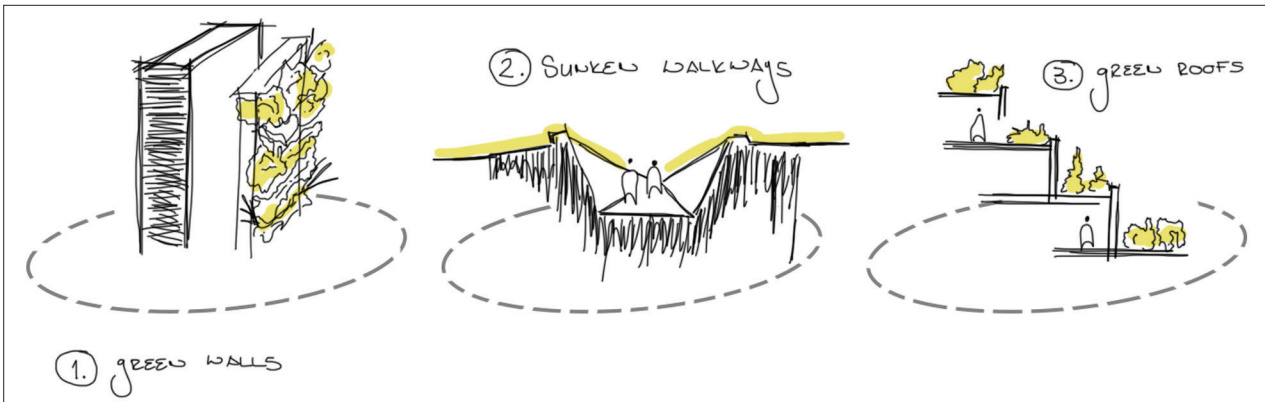


Fig 7.13

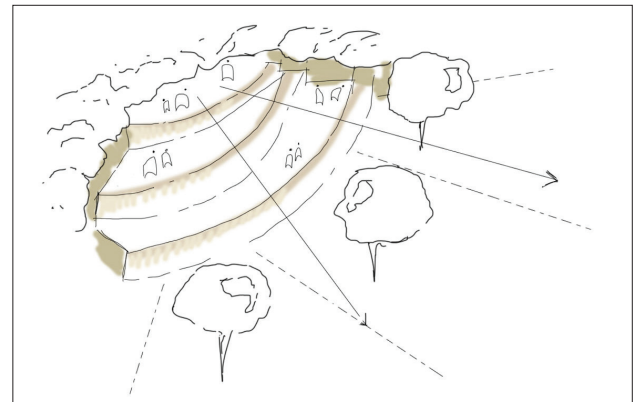


Fig 7.14

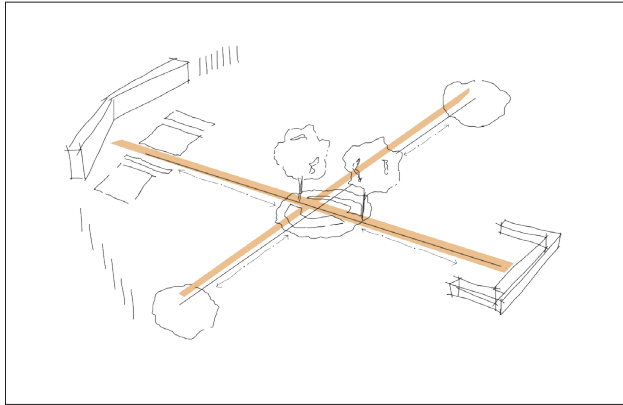


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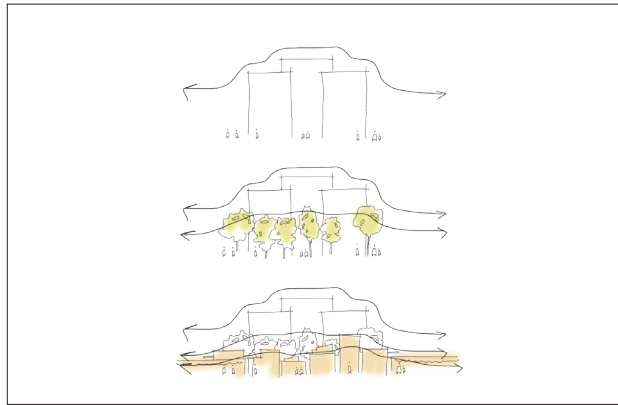


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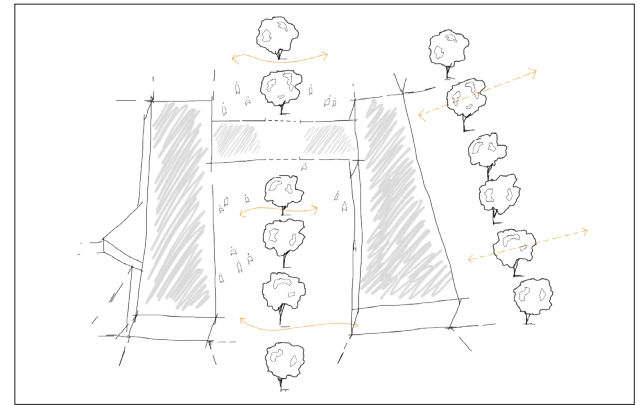


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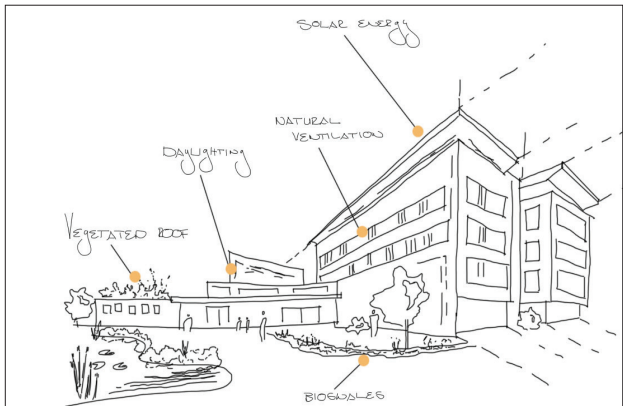


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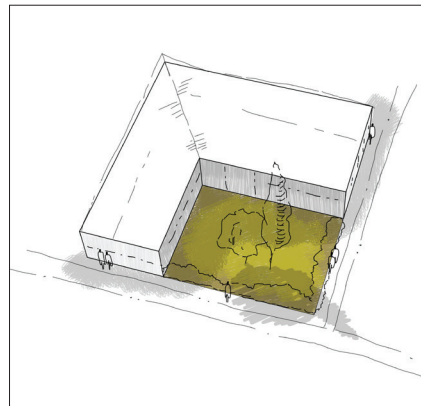


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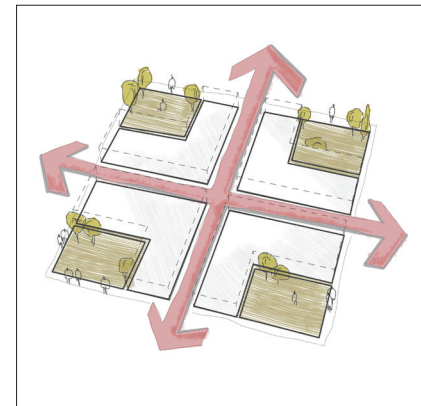


Fig 7.20

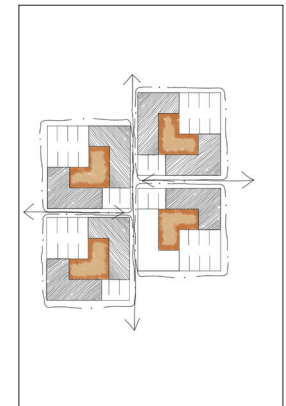


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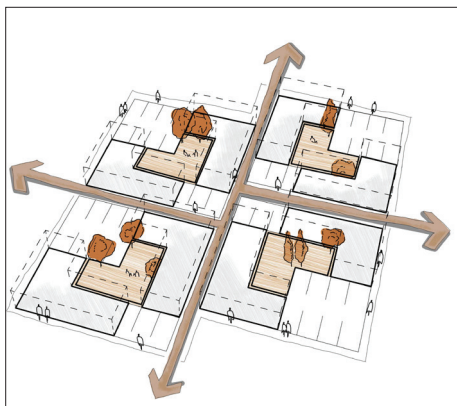


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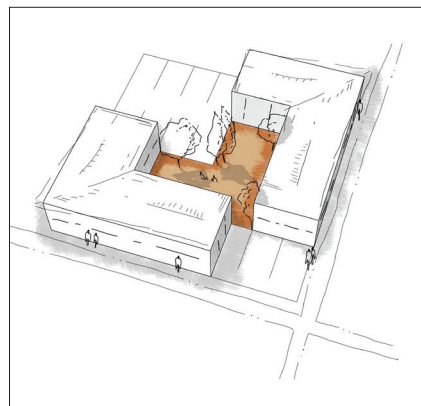


Fig 7.23

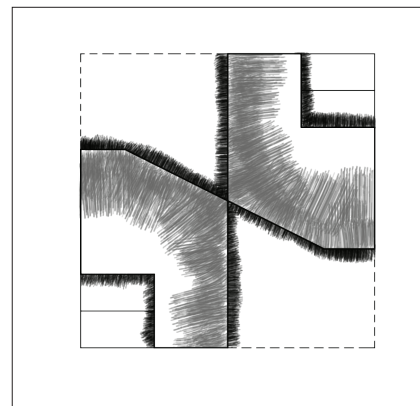


Fig 7.24



Fig 7.25

DESIGN DEVELOPMENT

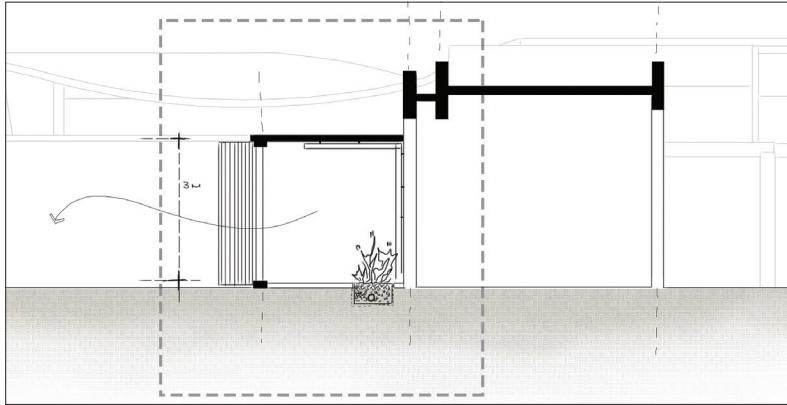


Fig 7.26

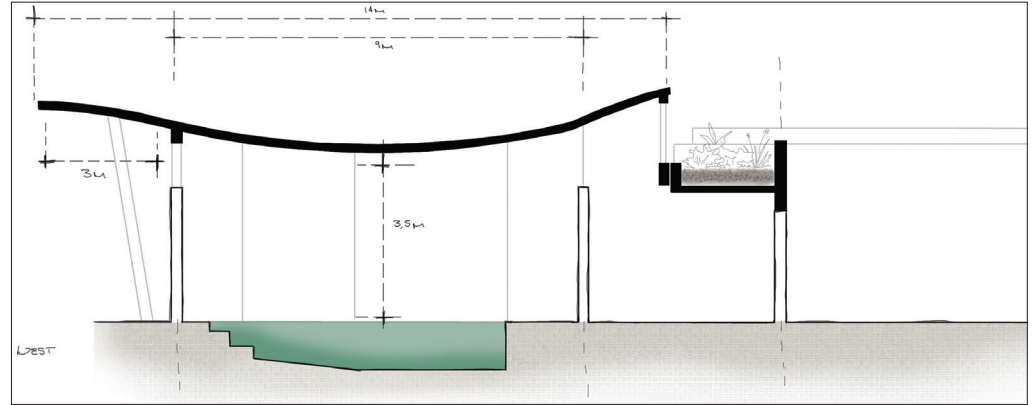


Fig 7.27

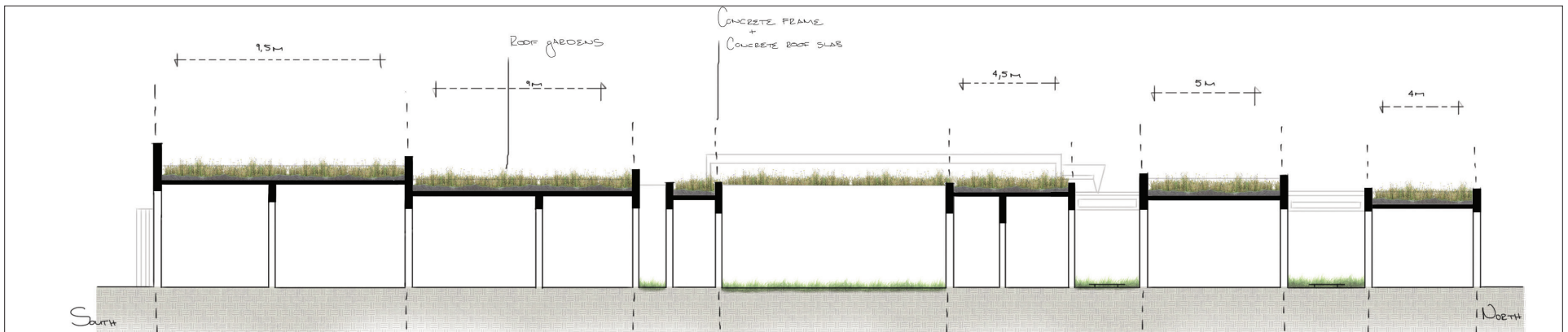


Fig 7.28

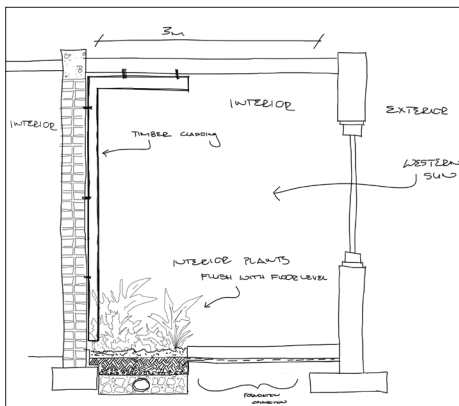


Fig 7.29

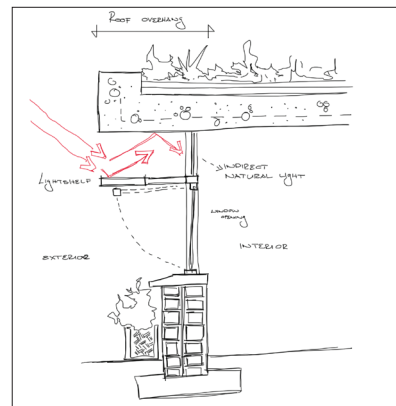


Fig 7.30

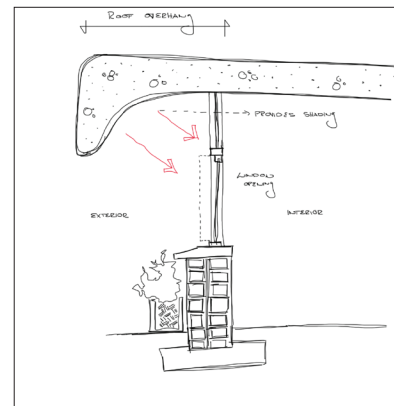


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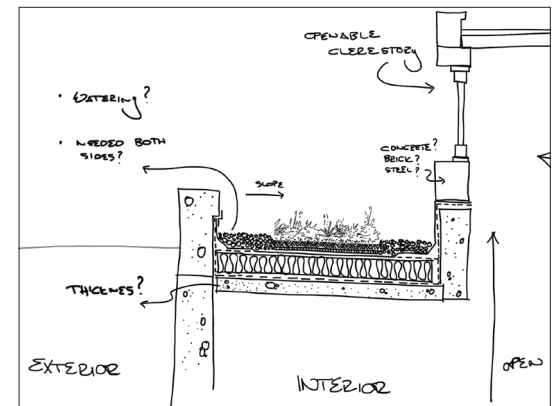


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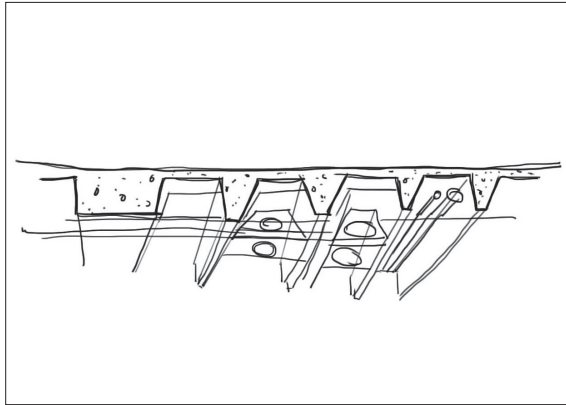


Fig 7.33

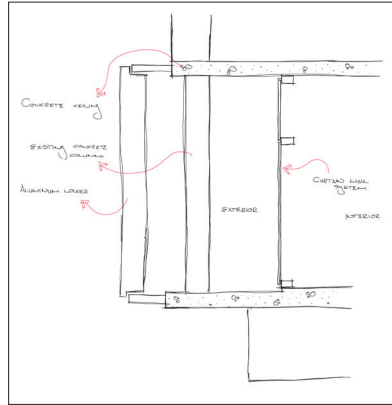


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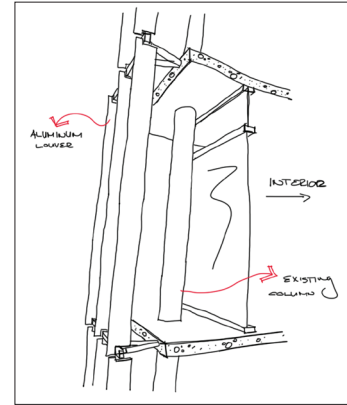


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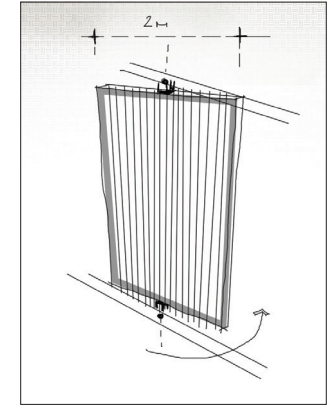


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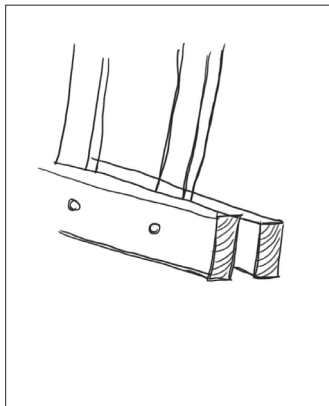


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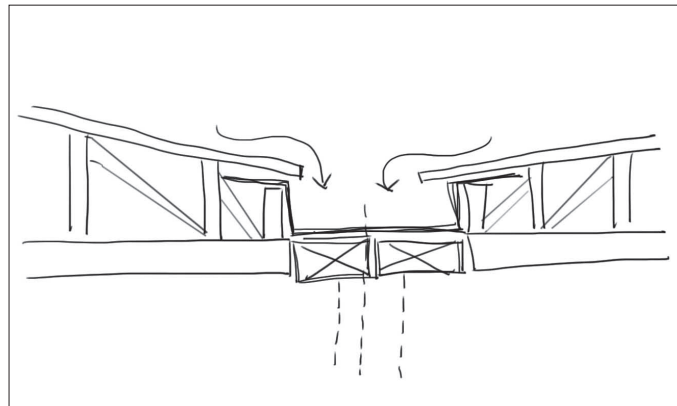


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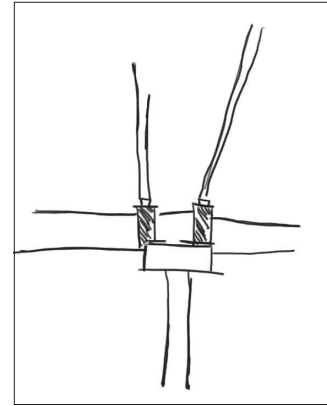


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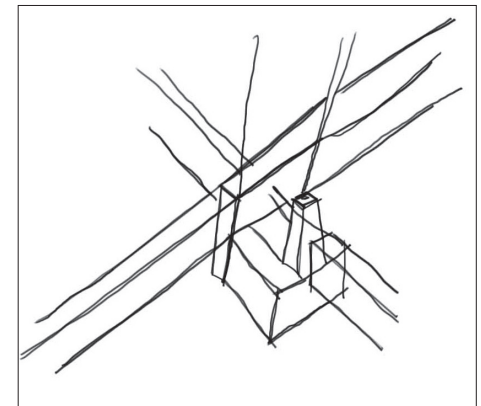


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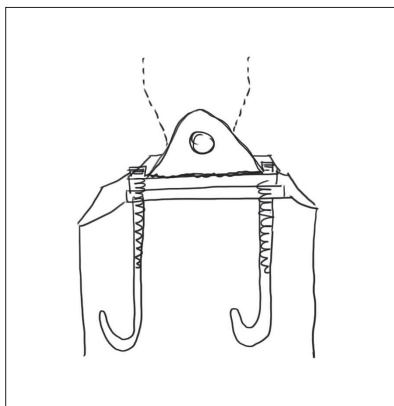


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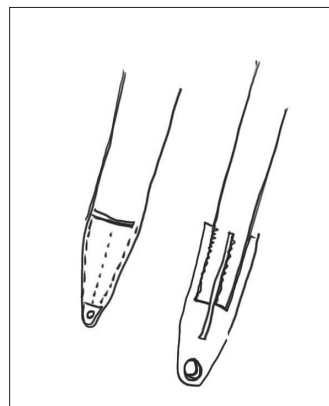


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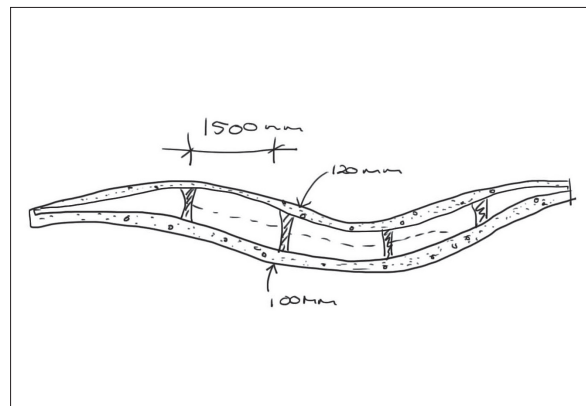


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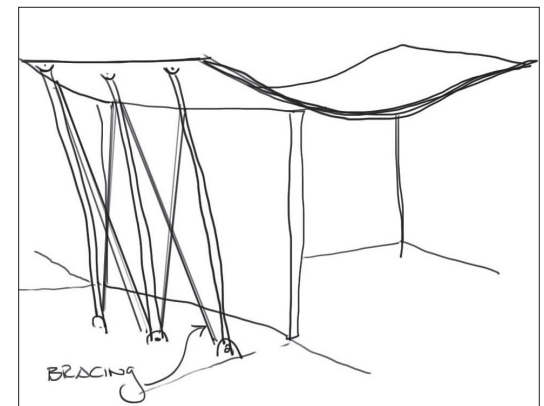
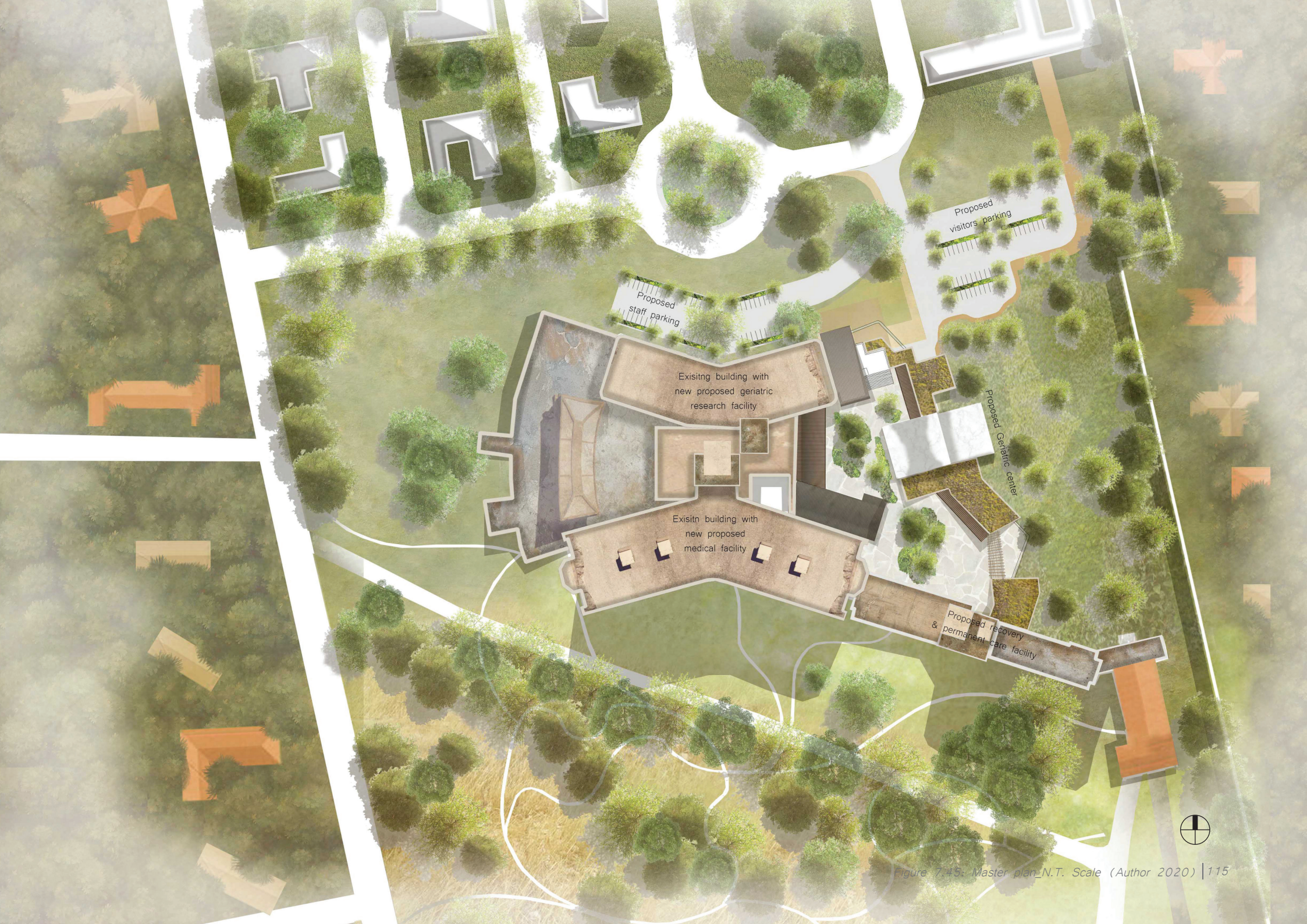


Fig 7.44

Figure 7.7: Responding to existing (Author 2020)
Figure 7.8: Responding to site (Author 2020)
Figure 7.9: Responding to surrounding (Author 2020)
Figure 7.10: Access (Author 2020)
Figure 7.11: Place making (Author 2020)
Figure 7.12: Human-nature-building interactions (Author 2020)
Figure 7.13: Landscape feature (Author 2020)
Figure 7.14: Prospect and refuge (Author 2020)
Figure 7.15: Connection points (Author 2020)
Figure 7.16: Take down scale (Author 2020)
Figure 7.17: Manipulating permeability (Author 2020)
Figure 7.18: Resilient design (Author 2020)
Figure 7.19: Building typology 1 (Author 2020)
Figure 7.20: Spatial movement 1 (Author 2020)
Figure 7.21: Plan layout 1 (Author 2020)
Figure 7.22: Spatial movement 2 (Author 2020)
Figure 7.23: Building typology 2 (Author 2020)
Figure 7.24: Plan layout 2 (Author 2020)
Figure 7.25: Building typology 3 (Author 2020)
Figure 7.26: Open corridor section (Author 2020)
Figure 7.27: Swimming pool section (Author 2020)
Figure 7.28: Green roof layout (Author 2020)
Figure 7.29: Thermal comfort (Author 2020)
Figure 7.30: Window detail option 1 (Author 2020)
Figure 7.31: Window detail option 2 (Author 2020)
Figure 7.32: Green roof section (Author 2020)
Figure 7.33: Hollow core slab (Author 2020)
Figure 7.34: Glass window curtain (Author 2020)
Figure 7.35: Vertical shading (Author 2020)
Figure 7.36: Vertical shading panel (Author 2020)
Figure 7.37: Timber truss joint (Author 2020)
Figure 7.38: Gutter detail (Author 2020)
Figure 7.39: Foundation (Author 2020)
Figure 7.40: Foundation construction (Author 2020)
Figure 7.41: Steel fixing detail (Author 2020)
Figure 7.42: Steel joint (Author 2020)
Figure 7.43: Curved roof construction (Author 2020)
Figure 7.44: Vertical bracing (Author 2020)



Proposed
staff parking

Proposed
visitors parking

Existing building with
new proposed geriatric
research facility

Existing building with
new proposed
medical facility

Proposed Geriatric center

Proposed recovery
& permanent care facility



Figure 7.45: Master plan_N.T. Scale (Author 2020) | 115

PROGRAMMATIC LAYOUT

The new constructions programs is essentially split into three parts, the first indicated in brown, which is the main entrance and access to the building, the second indicated in yellow which is patient specific programs and the third indicated in orange which is patient and public specific programs.

Entrance and access: The entrance and access take on the role of being a threshold between the exiting building and the new, additionally it should serve as a welcoming and informative space for new users of the building.

Patient specific: In this part of the building the programs focusses specifically on the treatment programs for elderly patients.

Patient and Public specific: This part of the buildings programs is a combination of patient and public specific programs, referring to having an integrated social environment between elderly users and the rest of the community.

In figure 7.47 (right) different programs that was introduced and discussed in chapter 4 is identified and allocated inside the new building.

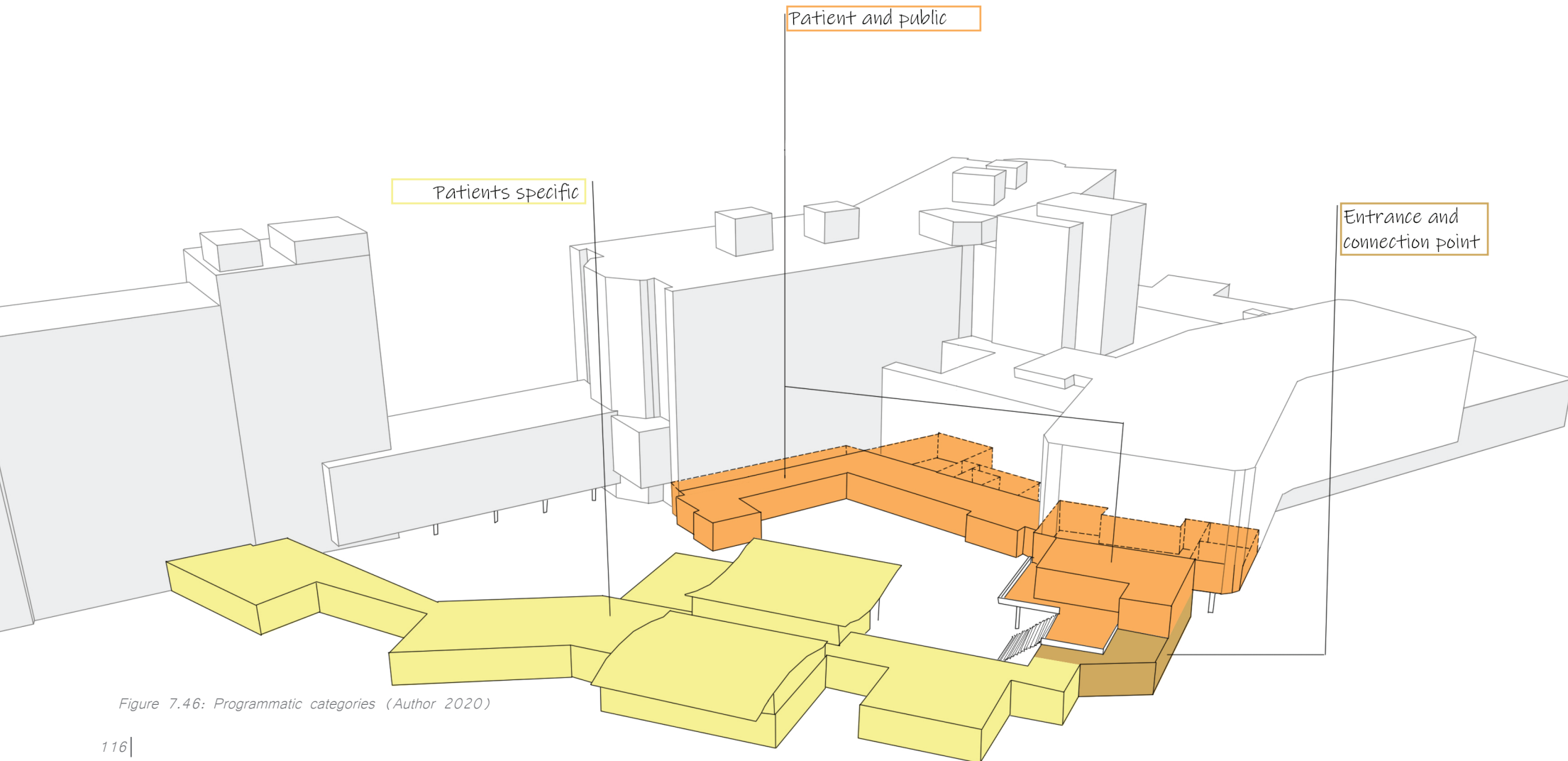


Figure 7.46: Programmatic categories (Author 2020)

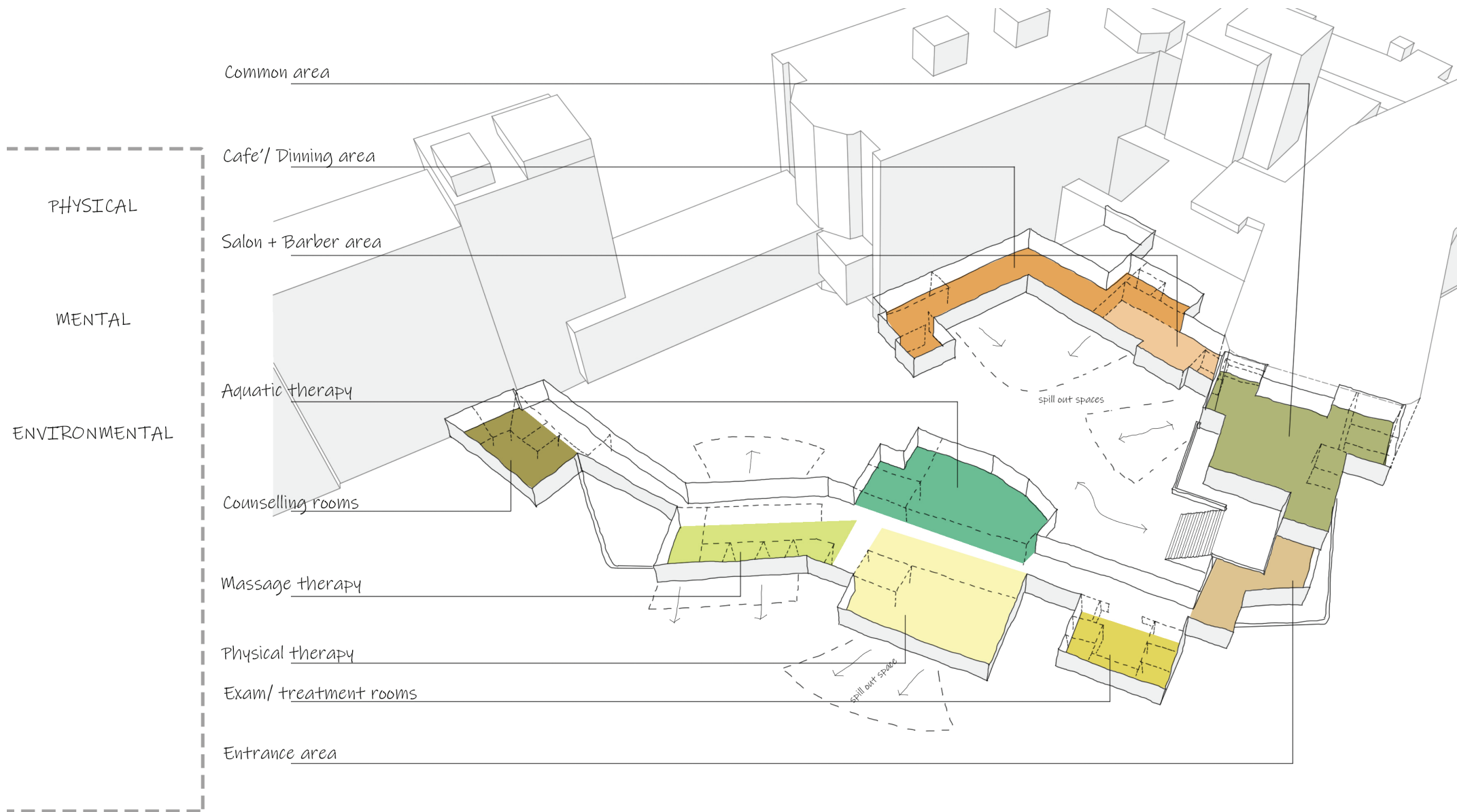
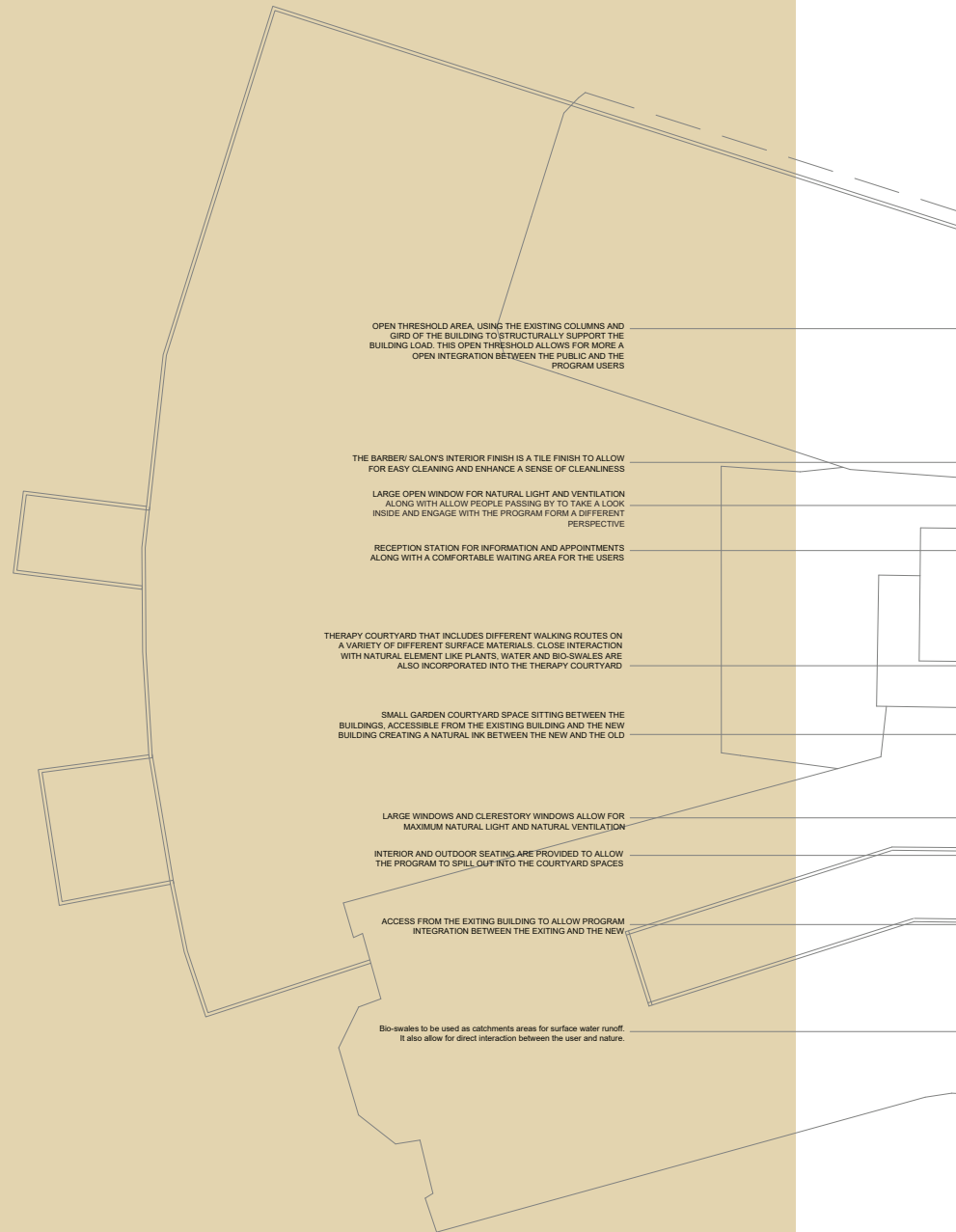
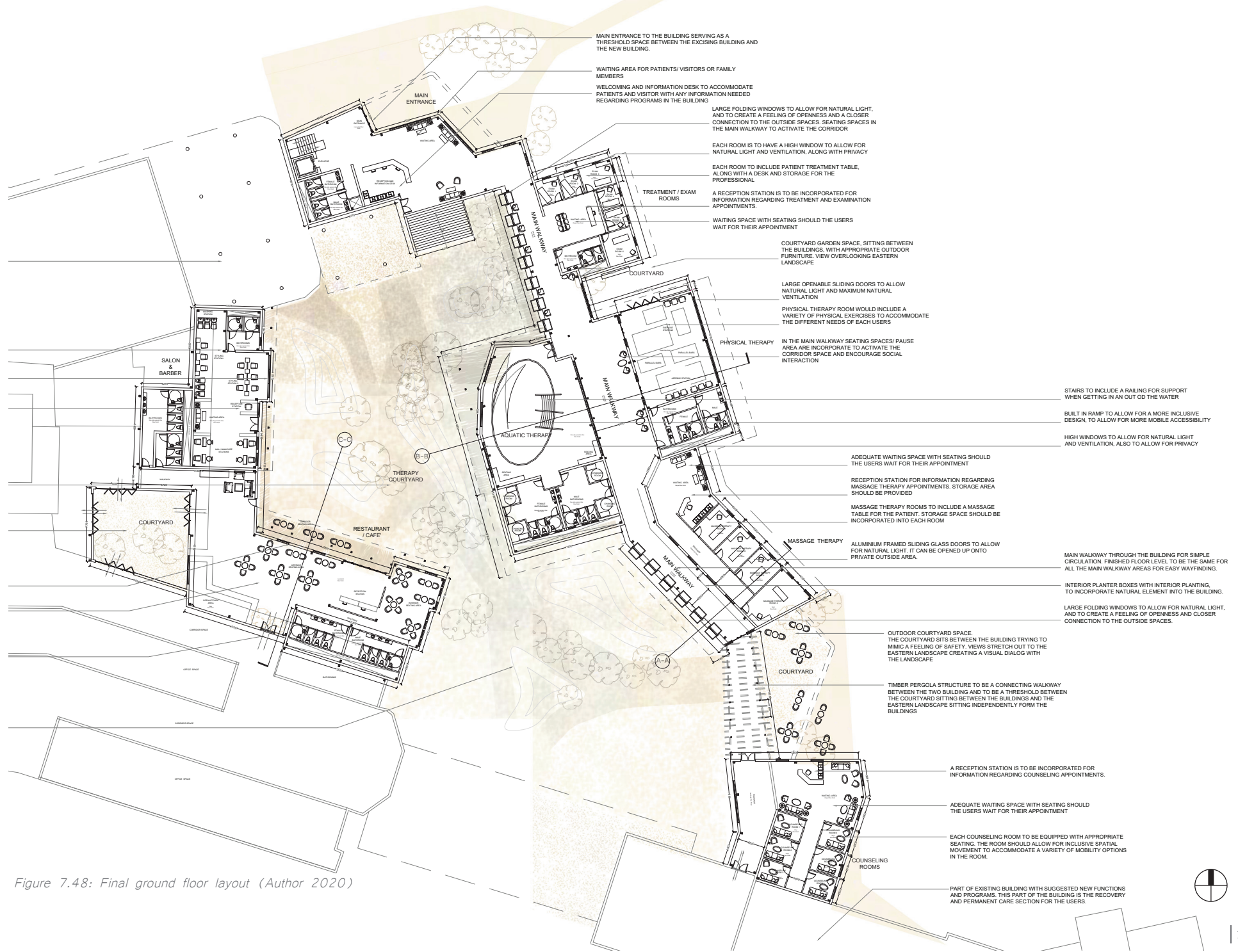


Figure 7.47: Programmatic layout (Author 2020)

Ground floor plan
Scale 1: 500





MAIN ENTRANCE TO THE BUILDING SERVING AS A THRESHOLD SPACE BETWEEN THE EXISTING BUILDING AND THE NEW BUILDING.

WAITING AREA FOR PATIENTS/ VISITORS OR FAMILY MEMBERS

WELCOMING AND INFORMATION DESK TO ACCOMMODATE PATIENTS AND VISITOR WITH ANY INFORMATION NEEDED REGARDING PROGRAMS IN THE BUILDING

LARGE FOLDING WINDOWS TO ALLOW FOR NATURAL LIGHT, AND TO CREATE A FEELING OF OPENNESS AND A CLOSER CONNECTION TO THE OUTSIDE SPACES. SEATING SPACES IN THE MAIN WALKWAY TO ACTIVATE THE CORRIDOR

EACH ROOM IS TO HAVE A HIGH WINDOW TO ALLOW FOR NATURAL LIGHT AND VENTILATION, ALONG WITH PRIVACY

EACH ROOM TO INCLUDE PATIENT TREATMENT TABLE, ALONG WITH A DESK AND STORAGE FOR THE PROFESSIONAL

A RECEPTION STATION IS TO BE INCORPORATED FOR INFORMATION REGARDING TREATMENT AND EXAMINATION APPOINTMENTS.

WAITING SPACE WITH SEATING SHOULD THE USERS WAIT FOR THEIR APPOINTMENT

TREATMENT / EXAM ROOMS

COURTYARD GARDEN SPACE, SITTING BETWEEN THE BUILDINGS, WITH APPROPRIATE OUTDOOR FURNITURE, VIEW OVERLOOKING EASTERN LANDSCAPE

LARGE OPENABLE SLIDING DOORS TO ALLOW NATURAL LIGHT AND MAXIMUM NATURAL VENTILATION

PHYSICAL THERAPY ROOM WOULD INCLUDE A VARIETY OF PHYSICAL EXERCISES TO ACCOMMODATE THE DIFFERENT NEEDS OF EACH USERS

IN THE MAIN WALKWAY SEATING SPACES/ PAUSE AREA ARE INCORPORATE TO ACTIVATE THE CORRIDOR SPACE AND ENCOURAGE SOCIAL INTERACTION

PHYSICAL THERAPY

STAIRS TO INCLUDE A RAILING FOR SUPPORT WHEN GETTING IN AN OUT OD THE WATER

BUILT IN RAMP TO ALLOW FOR A MORE INCLUSIVE DESIGN, TO ALLOW FOR MORE MOBILE ACCESSIBILITY

HIGH WINDOWS TO ALLOW FOR NATURAL LIGHT AND VENTILATION, ALSO TO ALLOW FOR PRIVACY

ADEQUATE WAITING SPACE WITH SEATING SHOULD THE USERS WAIT FOR THEIR APPOINTMENT

RECEPTION STATION FOR INFORMATION REGARDING MASSAGE THERAPY APPOINTMENTS. STORAGE AREA SHOULD BE PROVIDED

MASSAGE THERAPY ROOMS TO INCLUDE A MASSAGE TABLE FOR THE PATIENT. STORAGE SPACE SHOULD BE INCORPORATED INTO EACH ROOM

MASSAGE THERAPY

ALUMINUM FRAMED SLIDING GLASS DOORS TO ALLOW FOR NATURAL LIGHT, IT CAN BE OPENED UP ONTO PRIVATE OUTSIDE AREA.

MAIN WALKWAY THROUGH THE BUILDING FOR SIMPLE CIRCULATION. FINISHED FLOOR LEVEL TO BE THE SAME FOR ALL THE MAIN WALKWAY AREAS FOR EASY WAYFINDING.

INTERIOR PLANTER BOXES WITH INTERIOR PLANTING, TO INCORPORATE NATURAL ELEMENT INTO THE BUILDING.

LARGE FOLDING WINDOWS TO ALLOW FOR NATURAL LIGHT, AND TO CREATE A FEELING OF OPENNESS AND CLOSER CONNECTION TO THE OUTSIDE SPACES.

OUTDOOR COURTYARD SPACE. THE COURTYARD SITS BETWEEN THE BUILDING TRYING TO MIMIC A FEELING OF SAFETY. VIEWS STRETCH OUT TO THE EASTERN LANDSCAPE CREATING A VISUAL DIALOG WITH THE LANDSCAPE

COURTYARD

TIMBER PERGOLA STRUCTURE TO BE A CONNECTING WALKWAY BETWEEN THE TWO BUILDING AND TO BE A THRESHOLD BETWEEN THE COURTYARD SITTING BETWEEN THE BUILDINGS AND THE EASTERN LANDSCAPE SITTING INDEPENDENTLY FORM THE BUILDINGS

A RECEPTION STATION IS TO BE INCORPORATED FOR INFORMATION REGARDING COUNSELING APPOINTMENTS.

ADEQUATE WAITING SPACE WITH SEATING SHOULD THE USERS WAIT FOR THEIR APPOINTMENT

EACH COUNSELING ROOM TO BE EQUIPPED WITH APPROPRIATE SEATING. THE ROOM SHOULD ALLOW FOR INCLUSIVE SPATIAL MOVEMENT TO ACCOMMODATE A VARIETY OF MOBILITY OPTIONS IN THE ROOM.

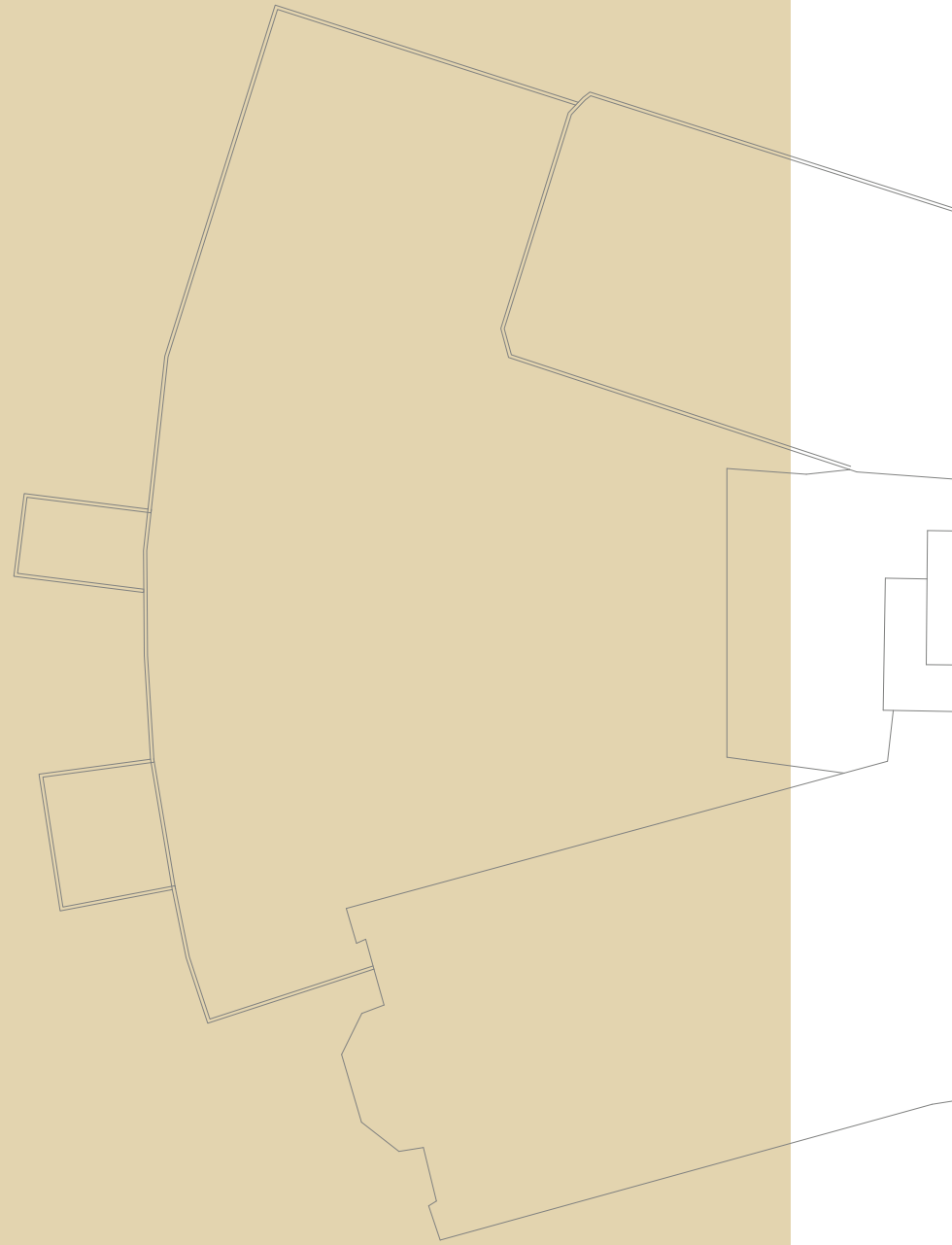
COUNSELING ROOMS

PART OF EXISTING BUILDING WITH SUGGESTED NEW FUNCTIONS AND PROGRAMS. THIS PART OF THE BUILDING IS THE RECOVERY AND PERMANENT CARE SECTION FOR THE USERS.

Figure 7.48: Final ground floor layout (Author 2020)



First floor plan
Scale 1: 500





INTERIOR FLOOR FINISH TO BE LAMINATED HARDWOOD FLOOR TO ALLOW FOR A WARM AND COMFORTING ATMOSPHERE, AND ALSO CONTRIBUTE TO SOUND ABSORPTION TO ALLOW FOR A QUIET AND PEACEFUL ATMOSPHERE.

ACCESS TO AND FROM THE EXISTING BUILDING TO THE NEW BUILDING TO ALLOW FOR PROGRAM INTEGRATION BETWEEN THE OLD AND NEW BUILDINGS.

LARGE WINDOWS AND SLIDING DOOR TO ALLOW FOR EXTERIOR VIEWS ONTO THE COURTYARD AND LANDSCAPE SPACES.

OUTDOOR SEATING SPACE WITH APPROPRIATE OUTDOOR FURNITURE. OUT DOOR SPACES LOOKS OUT ONTO THE COURTYARD SPACES TO ALLOW FOR NEW VISUAL CONNECTIONS

Figure 7.49: Final first floor layout (Author 2020)

Entrance

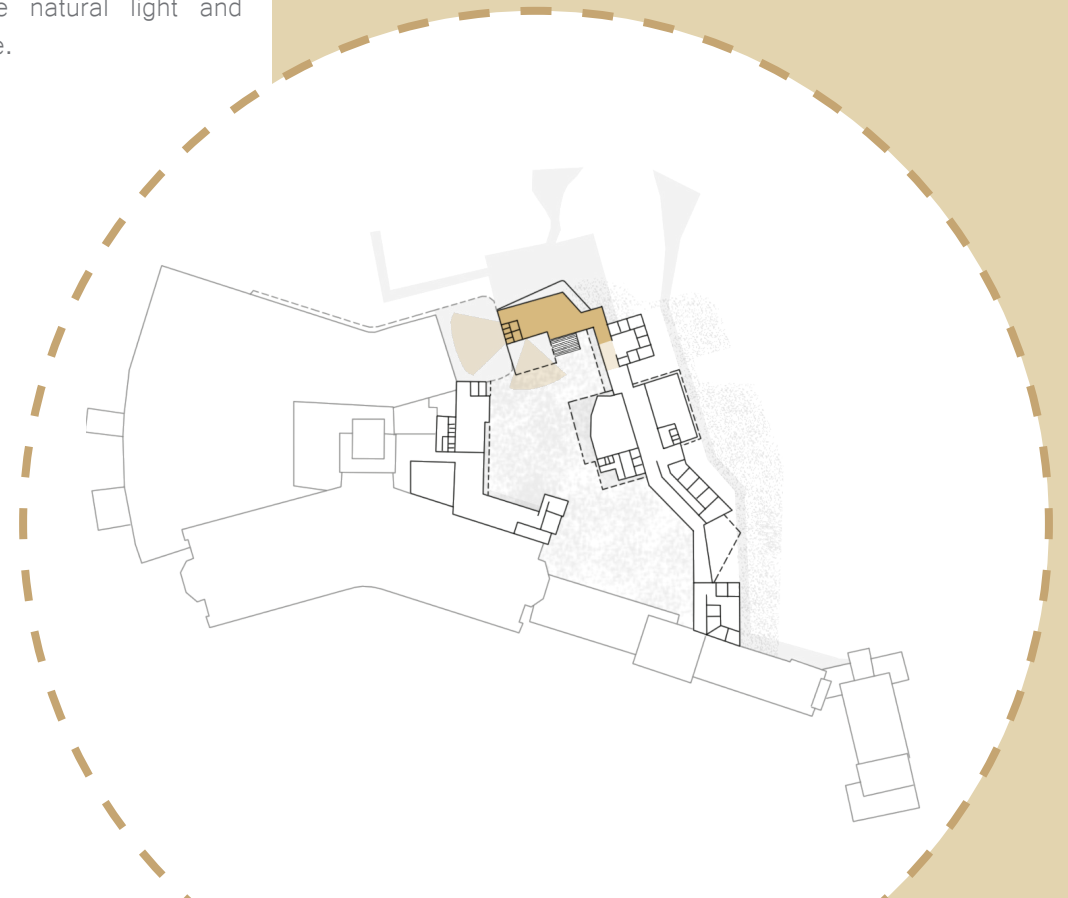
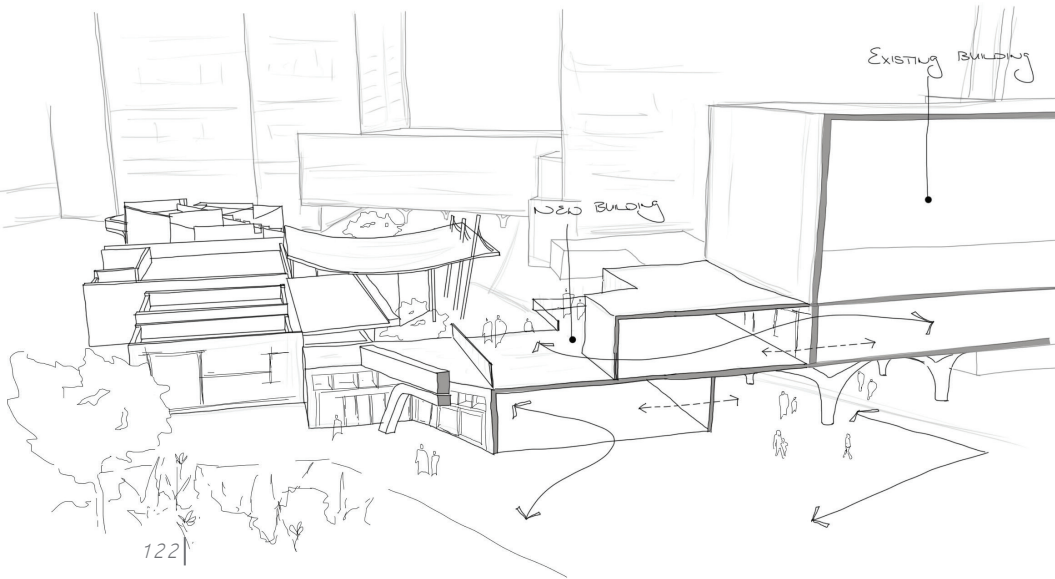
Part of the existing building is proposed to be demolished and removed to allow for new construction seen in figure 7.52 on the right. This is then to function as the main entrance to the building for patients and public users.

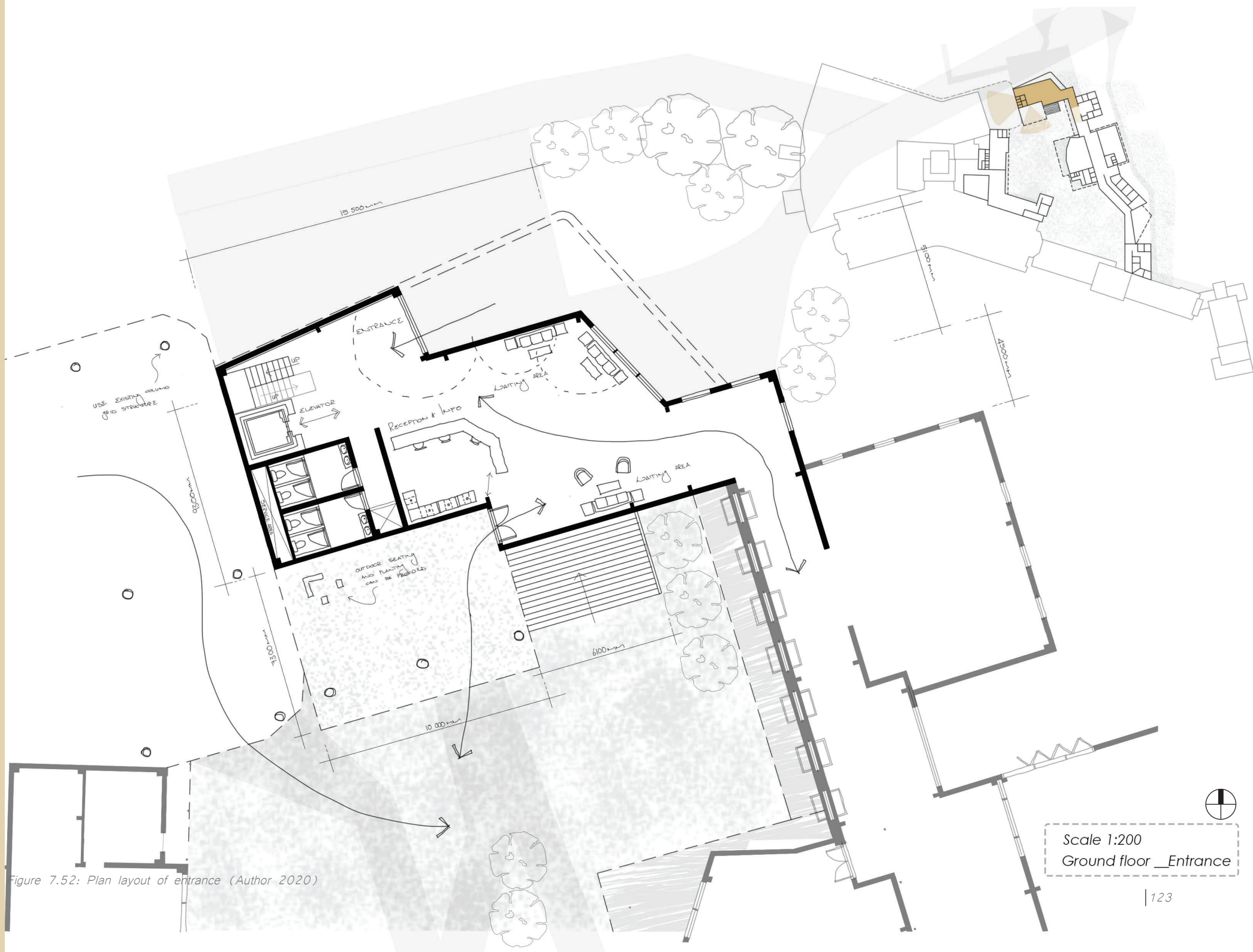
Using guidelines from chapter 5, the entrance space strives to creating a comforting and more domestic environment rather than a clinical space. The main entrance is the first space where a patient or visitor establishes a connection and sense of place. For the main entrance it is important that the space provides easy wayfinding

options. This can be done by a simple entrance layout and incorporating a reception and information desk. The spatial layout also aims to provide a simplistic approach for the users to understand, for example the user can either go right to the rest of the building or up to the rest of the building. The spatial layout also refrains away from cluttering up the space and rather allow for spacious passageways to optimize the movement flow within the space. Waiting areas are provided for patients and visitors. Windows and openings are to provide natural light and ventilation into the space.

Figure 7.50: (Bottom left) Section perspective of entrance (Author 2020)

Figure 7.51: (Bottom right) Plan highlighting entrance area (Author 2020)





USE EXISTING COLUMN GRID STRUCTURE

15 500mm

ENTRANCE

ELEVATOR

RECEPTION & INFO

WAITING AREA

WAITING AREA

OUTDOOR SEATING AND PLANTING CAN BE PROVIDED

600mm

10 000mm

8100mm

6000mm

8100mm

4300mm

Scale 1:200
Ground floor _Entrance



Figure 7.52: Plan layout of entrance (Author 2020)

- Exam/treatment rooms
- Aquatic treatment
- Physical treatment
- Massage treatment rooms

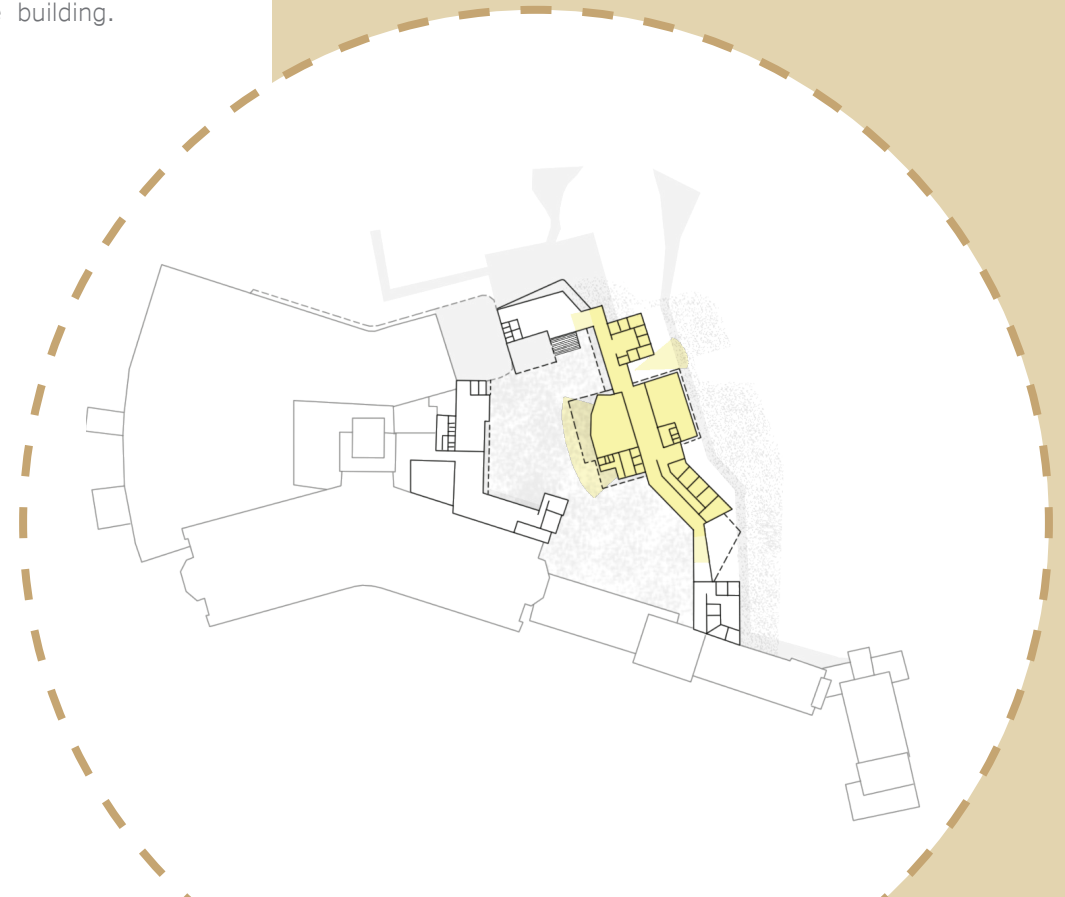
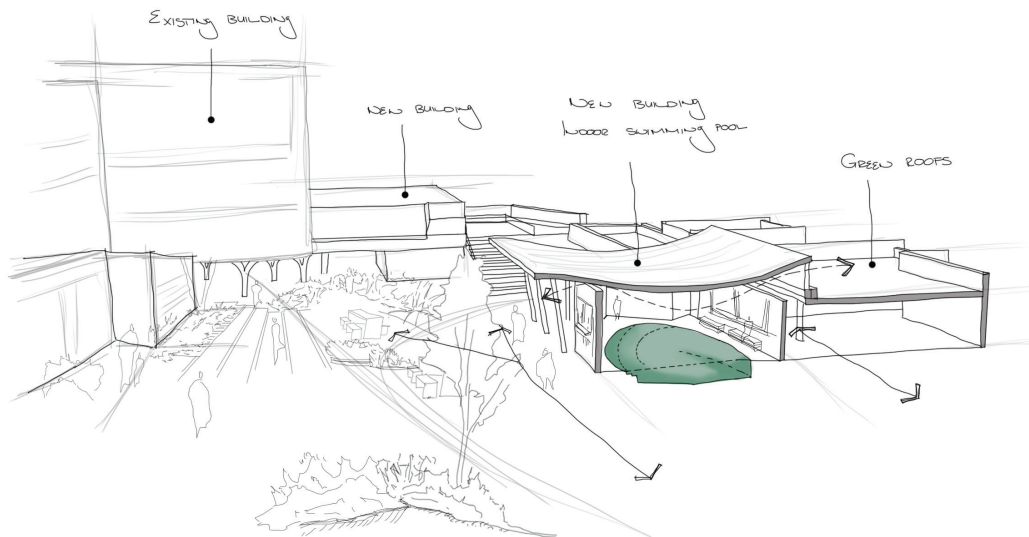
The plan in figure 7.55 (on the right) indicates part of the new construction proposed on site for the design. The form and the layout of the building attempts to mimic that of a protecting and embracing atmosphere. Referring to design guidelines established in chapter 5, this part of the building is constructed and placed in such a way that it aligns with that of the existing and natural sloping contour topography. In doing this a physical connection is made between the landscape and the structure of

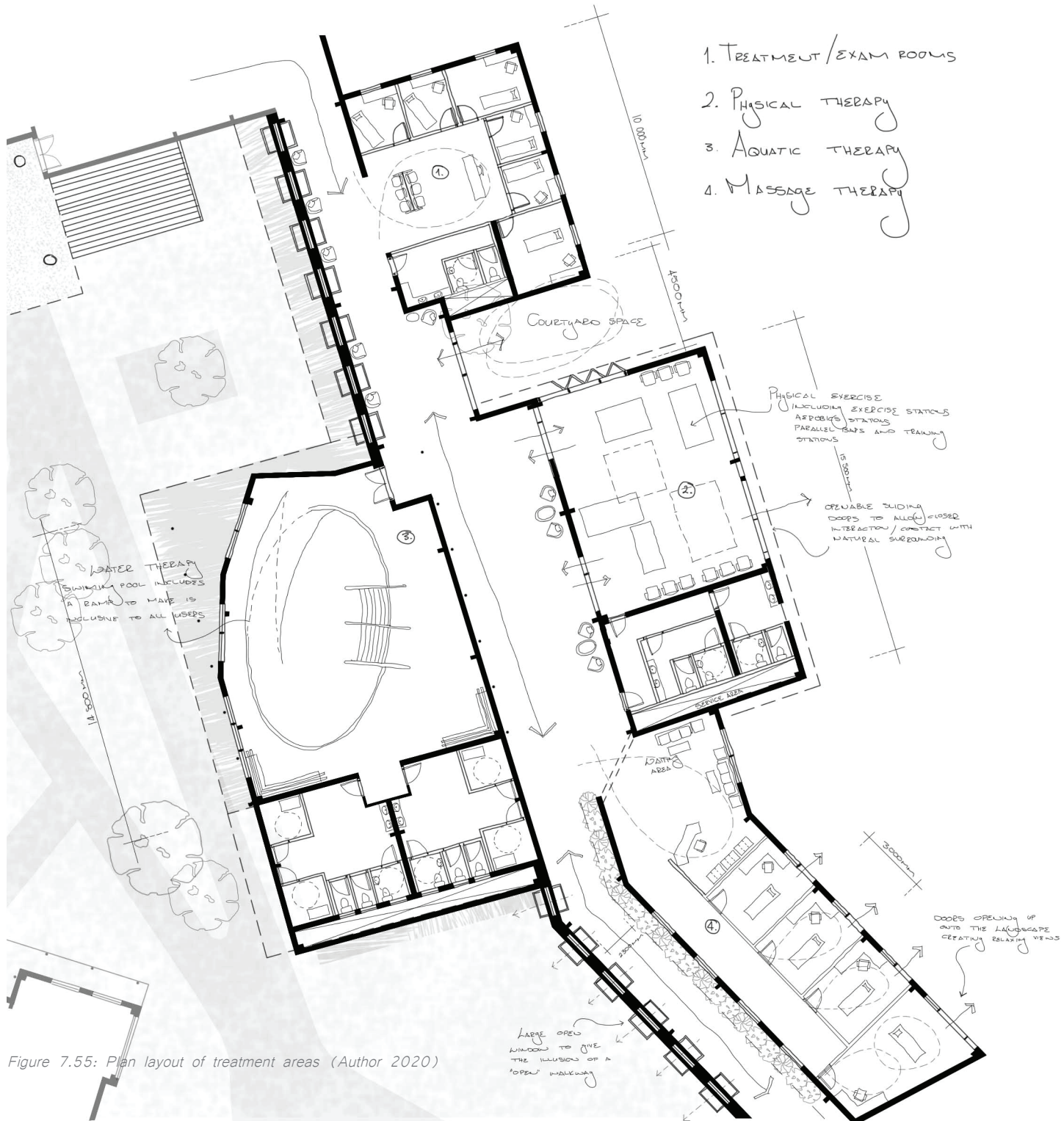
the building. The construction of the building allows for ground floor exists, onto outdoor spaces like courtyards and patio's surrounded with natural landscape elements.

The interior of the plan highlights the main corridor with the activity spaces spilling outwards from the corridor space. The corridor space is intended to be used for causal meetings and gatherings, activating the space as a multi-purpose area. The layout of this part of the building is divided into large main areas, with dedicated programmatic affiliations, to minimize any confusion in circulation through the building.

Figure 7.53: (Bottom left) Section perspective of swimming pool (Author 2020)

Figure 7.54: (Bottom right) Plan highlighting treatment areas (Author 2020)





1. TREATMENT/EXAM ROOMS
2. PHYSICAL THERAPY
3. AQUATIC THERAPY
4. MASSAGE THERAPY

Scale 1:250
 Ground floor — Exam/Treatment rooms
 — Physical therapy room
 — Aquatic therapy room
 — Massage therapy rooms

Figure 7.55: Plan layout of treatment areas (Author 2020)

Counselling rooms

The plan seen in figure 7.58 (on the right) indicates another structural connection between the existing building and the new construction. A dedicated corridor is introduced that extends from the existing building and connects through to the main corridor and walkway mentioned previously. This part of the building seen in figure 7.58 holds the counseling room that is intended to be used specifically by the elderly patients, with the option of family members to accompany them. Windows are proposed all along the façade, creating a visual connection to the

eastern landscape. The layout of this part of the building allows for adequate waiting space and counseling rooms spacious enough to allow for optimal movement.

In the plan a connecting pergola structure is indicated, establishing a physical connection between the two new buildings, as well as establishing a visual connection between the eastern landscape and the new courtyard sitting between the new construction and the existing building drawing users into the dedicated spaces.

Figure 7.56: (Bottom left) Perspective of courtyard (Author 2020)

Figure 7.57: (Bottom right) Plan highlighting counselling rooms (Author 2020)

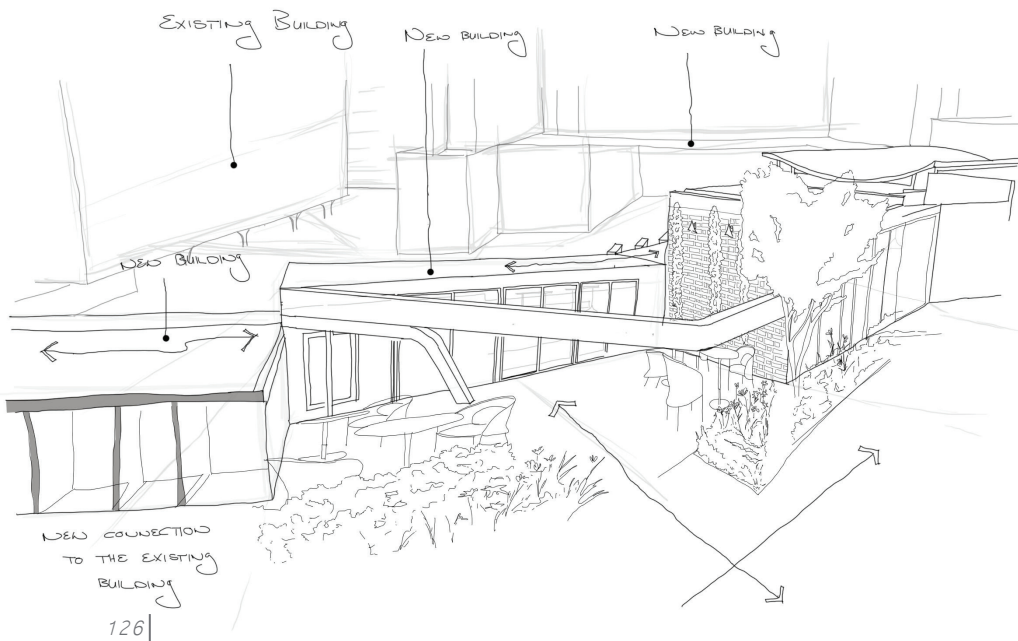




Figure 7.58: Plan layout of counselling rooms (Author 2020)

◦Restaurant/ Café ◦Salon/ Barber

The new construction is not only an extension on to the existing building but also cuts into part of the ground floor of the existing building. This is to allow for a continuous and inclusive transition between the programs happening within the entirety of the building. The layout of the new construction seen on plan in figure 7.61 (to the right) highlights how the programs can spill outwards into the courtyard area, activating the outdoor spaces that sits between the buildings. As previously mentioned, referring to another part of the building, a simple layout plan is created for easy and clear circulation.

Large glass windows on the façade of the new construction facing the courtyard area, allows for a great deal of natural light to penetrate the building. Furthermore, it allows for more visual connections and creates a feeling of openness rather than being in a closed off space. The spatial development aims for an inclusive and welcoming space, to incorporate opportunities for both the public users and patient users to interact with the space and programs identified.

Figure 7.59: (Bottom right) Plan highlighting restaurant and salon (Author 2020)





Figure 7.60: Plan layout of restaurant and salon (Author 2020)

Common room

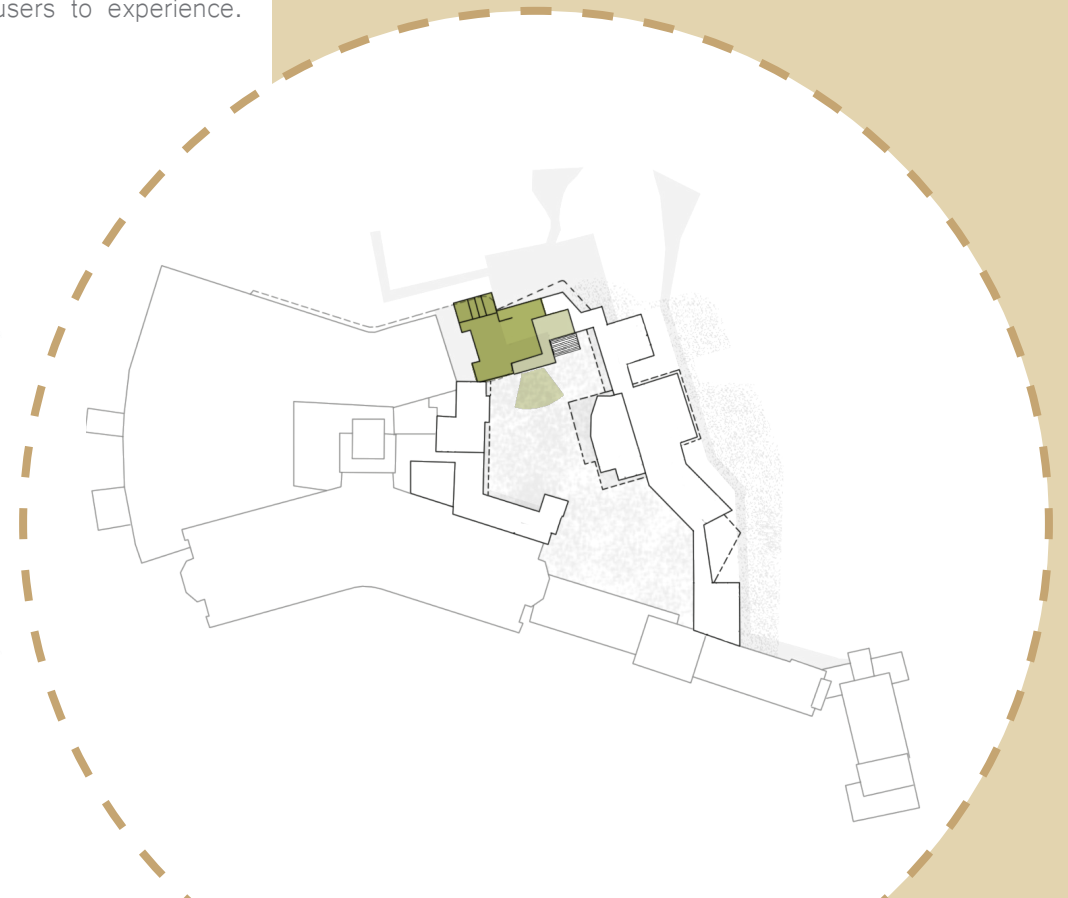
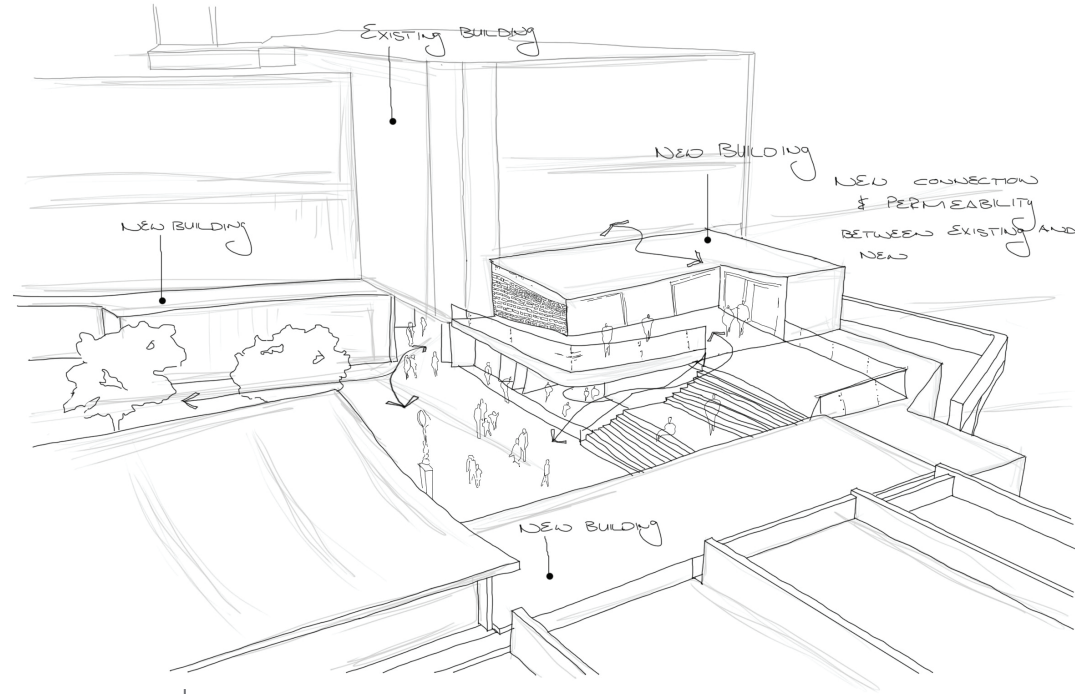
The entire new design sits low with one and two story buildings, this is the only new second floor to be constructed. In the interior of this part of the new construction, there is a direct connection between the existing building and the new building. This is to incorporate a more holistic programmatic scheme into the entire building emphasizing that the building, (new and old) is still to be read in unison.

This part of the building holds a simplistic layout once again, but with the absence

of interior dividing structures to allow for a multi-functional space fit for numerous activities and a range of users. The open and flexible programmatic interior of the space articulates liberated areas that can have multipurpose uses, establishing a strong sense of a shared space that is able to accommodate different needs and programs. A roof terrace is incorporated, that looks out onto the courtyard and green roof to support the vision of architecture relating to landscape elements, creating interactive and positive spaces for the users to experience.

Figure 7.61: (Bottom left) Perspective of common area leading out into courtyard (Author 2020)

Figure 7.62: (Bottom right) Plan highlighting common area (Author 2020)



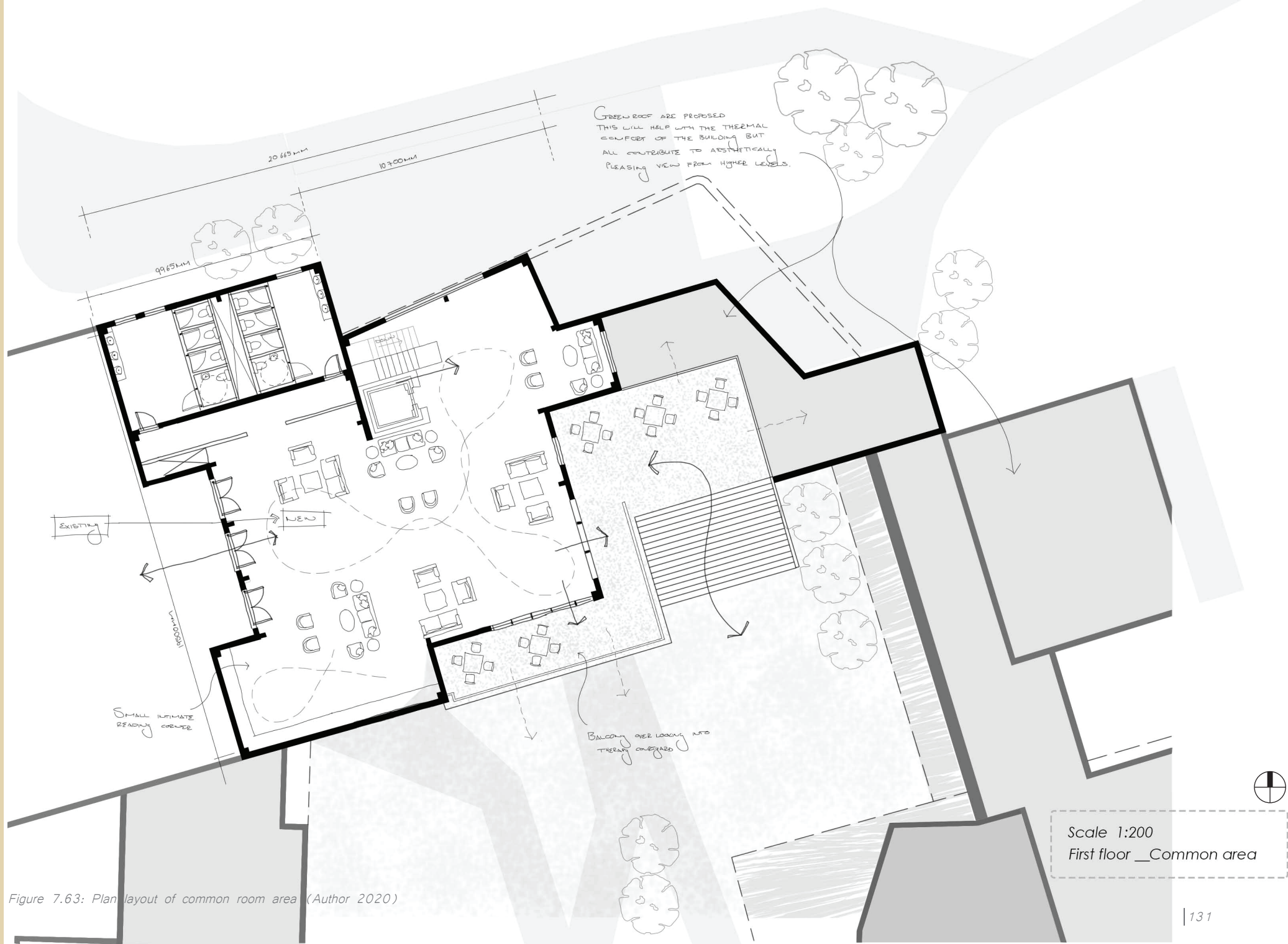


Figure 7.63: Plan layout of common room area (Author 2020)

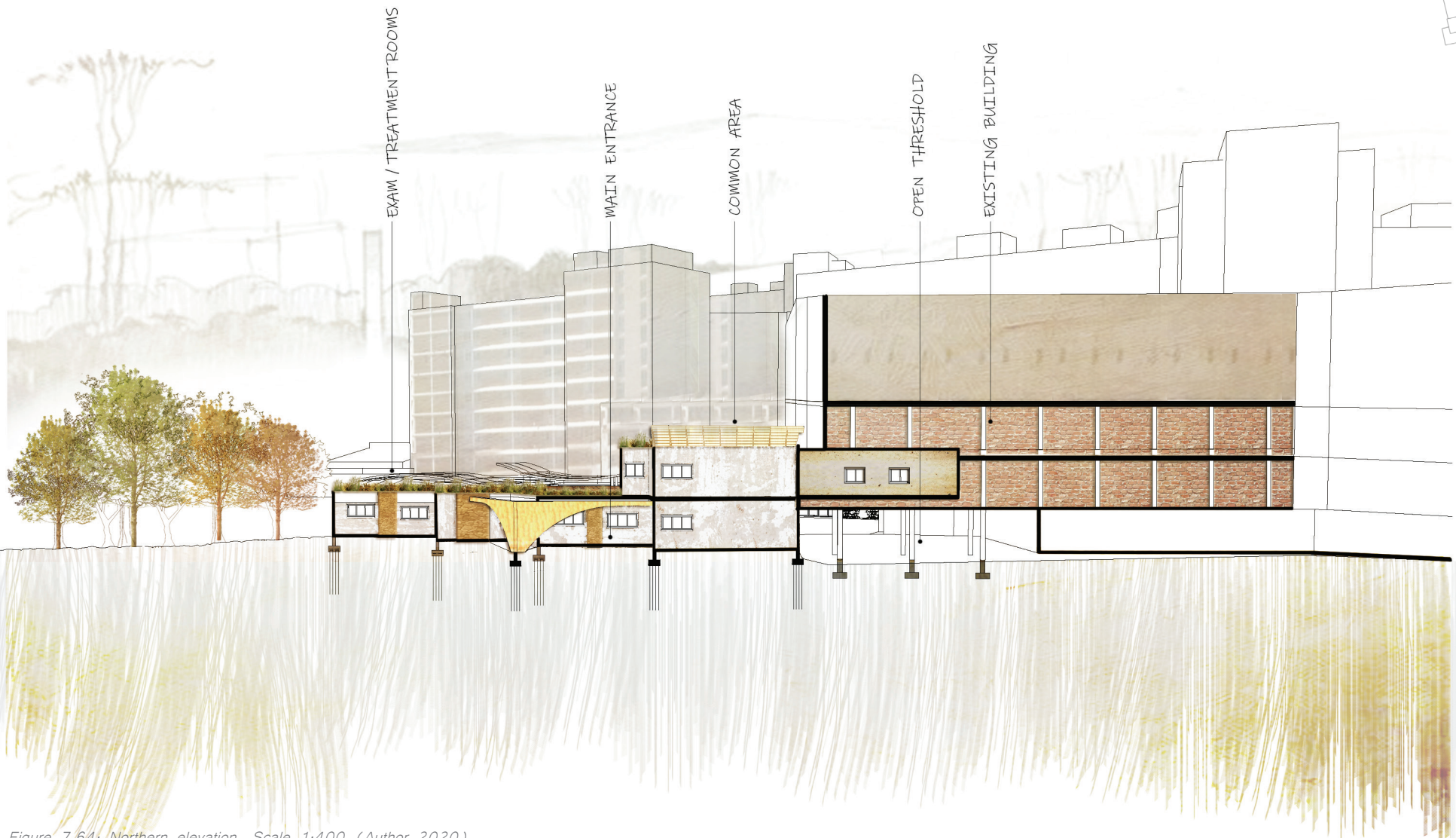
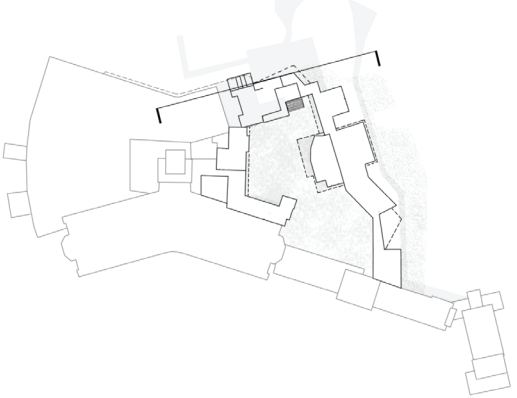


Figure 7.64: Northern elevation_Scale 1:400 (Author 2020)

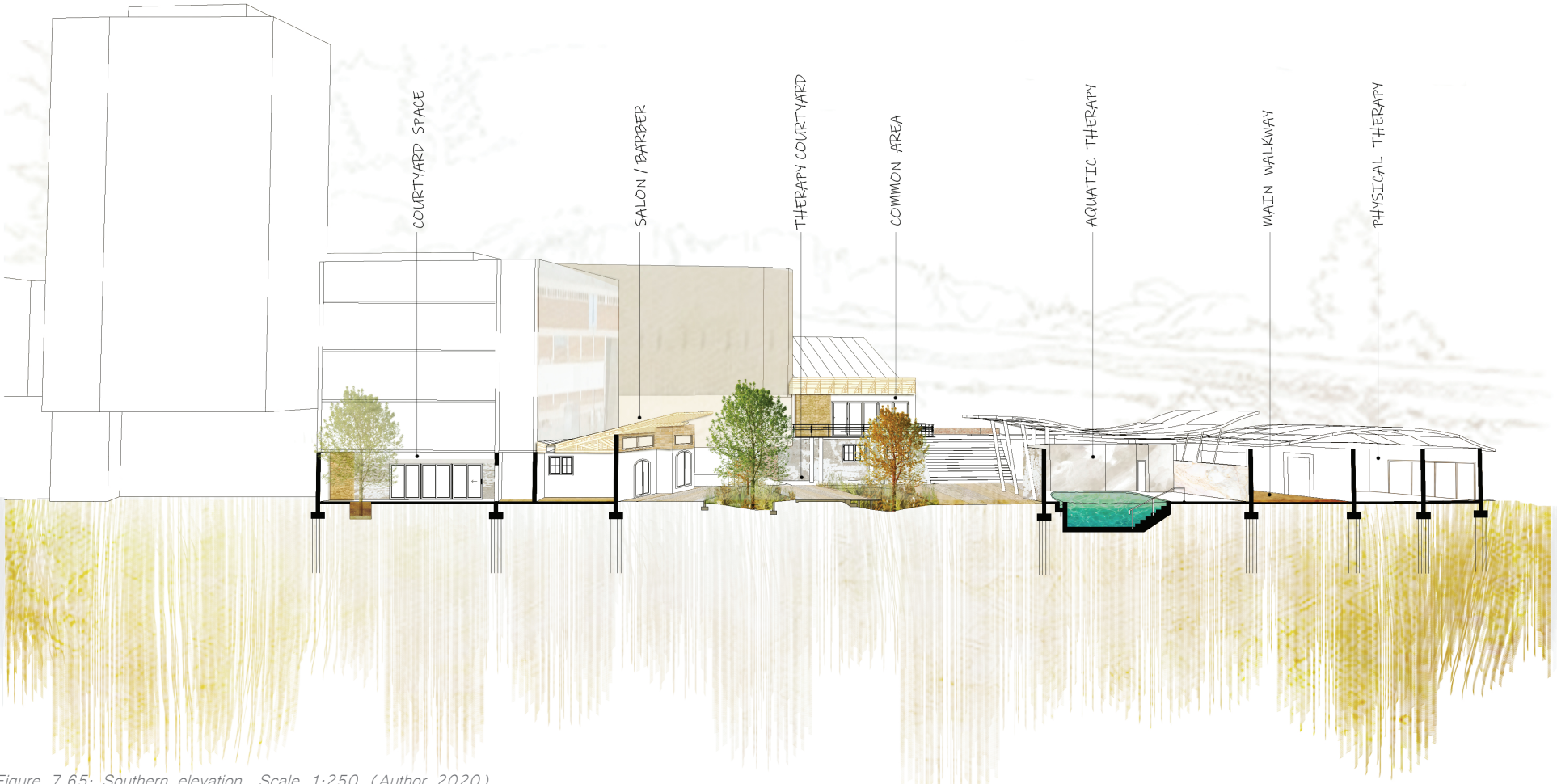
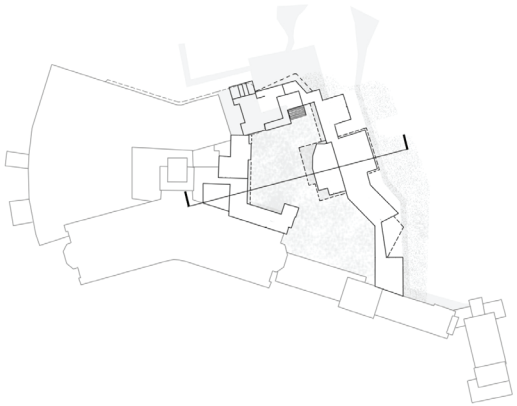


Figure 7.65: Southern elevation_Scale 1:250 (Author 2020)

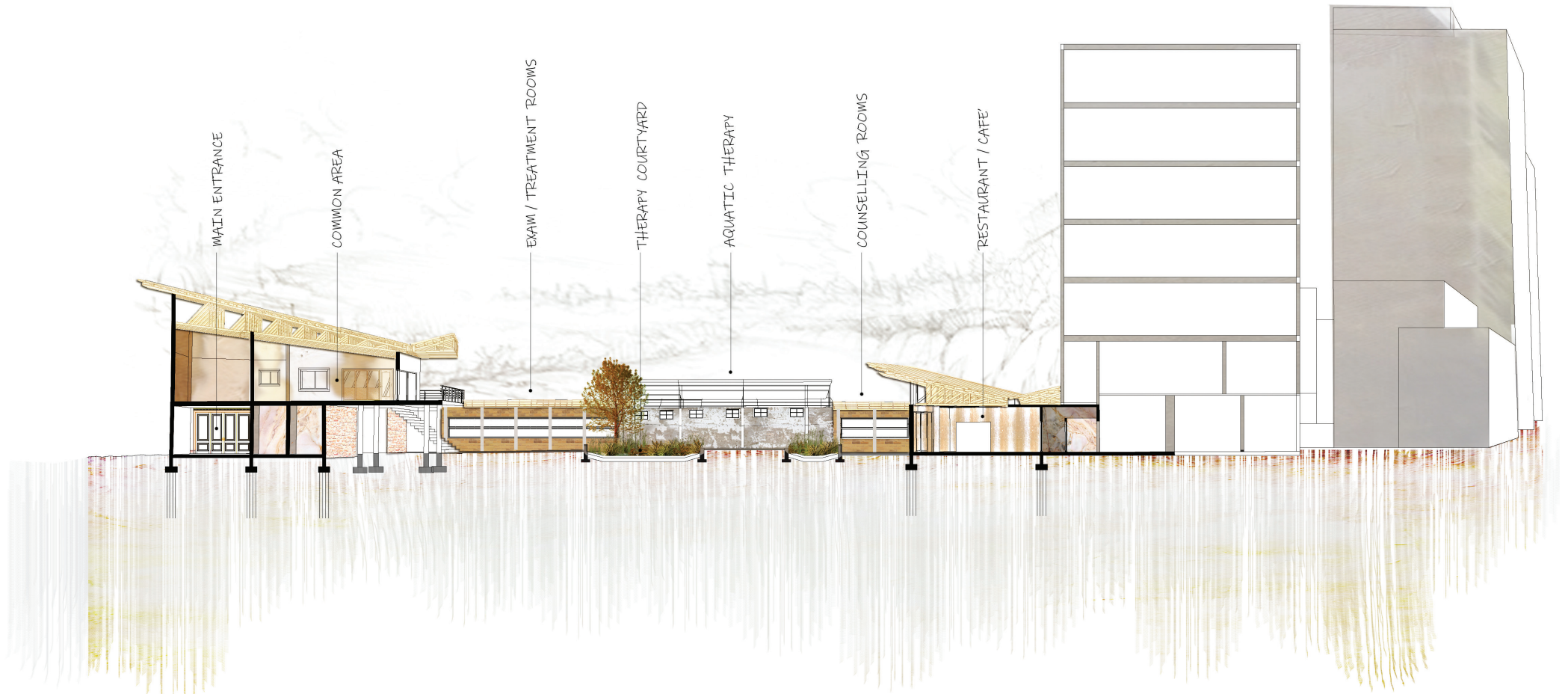
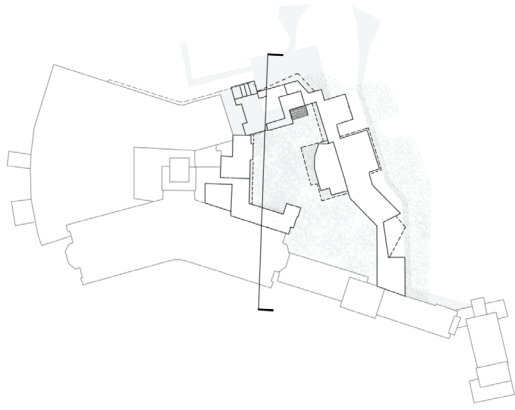


Figure 7.66: Western elevation_Scale 1:250 (Author 2020)

