MEMENTO MORI VIVI

Natural Organic Reduction In Sihlfeld Cemetery, Zurich: Ecological Gardens and Forests of Remembrance

Free Diploma HS22/FS23
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Architecture of Territory

Figure I: Sihlfeld Cemetery, Crematory D arcade view: grave, urn wall, allotment garden shed. by Author (2022). [image]

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Special thanks to Nathalie, my mom, for her help in setting up the exhibition and all her loving support

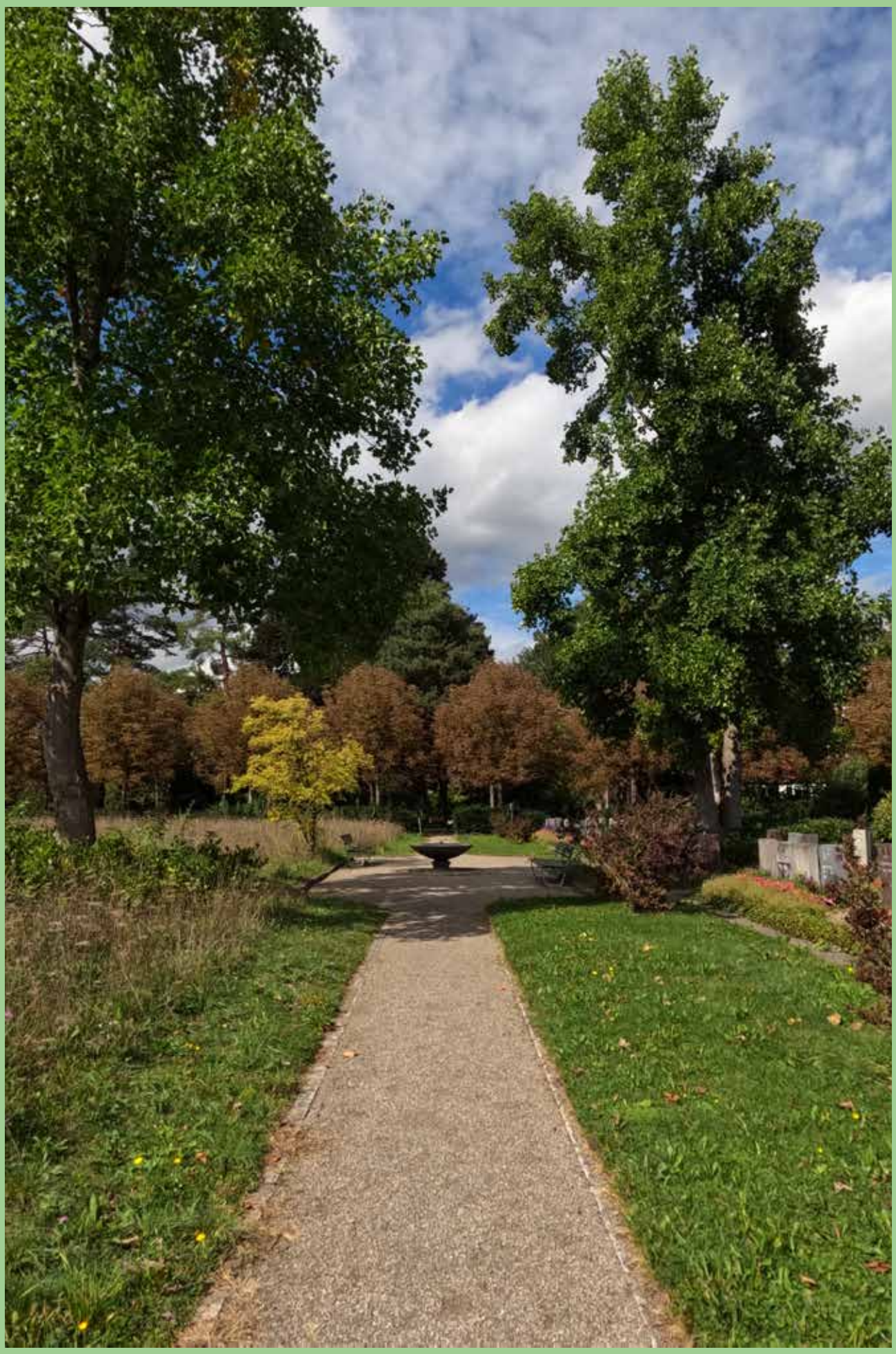

Figure 2: Sihlfeld Cemetery D Park Benches, fountain, path separating natural field and graves. by Author. (2022). [imgae].

PROLOGUE

Have you ever asked yourself how you wanted your body to be disposed of once you die? The options, in Switzerland, aren't varied: they are determined by the legal system. Therefore, you have the choice between earthen burial and cremation. On one hand, earthen burial was defined by the church that was responsible for death care until 1874 (in Zürich). It is consequently a practice that has a religious background (see chapter 3.5). On the other hand, cremation emerged in the context of a social revolution: the Enlightenment (18 hundreds) (see chapter 3.6). We are now living through another type of social and cultural change with notions such as: equal rights, feminism, or the climate crisis. Our death care system fails to reflect contemporary ideologies, especially ecological ideologies. It has thus become anachronistic.

Because of social and cultural changes, our cemeteries have already started to evolve. The prior function of a cemetery: the graveyard, has gradually lost its role. The religious landscape has shifted and influenced a drastic increase in cremation which has led to a decrease in the number of earthen burials. As Switzerland's policy includes a limited lifespan of graves (15-20 years), the amount of space available in cemeteries has not ceased to escalate. What happens with these spaces? In cases like that of Sihlfeld Cemetery, the cemetery acquires a new function: the role of a public park (see chapter 4.3). The typology of the cemetery has changed and become multifunctional.

Gradually we have started to redefine the cemetery, the place of final rest, the place of remembrance. When a cemetery becomes Park, it gains a public value that is in fact contradictory to the traditional values of a cemetery. The place where people come to mourn is juxtaposed with the place where people come for leisure.

Such transformations reflect the way we perceive death. Our society is increasingly secularized and accordingly, we trouble to find meaning in the rituals around death because they are linked to the historical and social context of burial as well as cremation. As religion plays an important role in the rituals and understanding of death, how can a secular society find a new spirituality/meaning around death?

Gradually, new forms of disposal of bodies have started to appear. The search for ecological alternatives to burial and cremation is on the rise (see chapter 2). The importance of these new techniques isn't simply ecological however, they tend to integrate new forms of ritual. These rituals bring us physically closer to death, a proximity that is helpful in understanding and accepting death (see chapter 3.3). Furthermore, rituals require space. Therefore, the implementation of an alternative burial method in an existing cemetery is in fact the implementation of a new ritual. A ritual that has the capacity to redesign as well as redefine the "cemetery".

Figure 3: Churchyard, Cemetery, Park: The Evolution of the perception of Death.by Author. (2022). [Posters].

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I. INTRODUCTION
- REMEMBER WE MUST DIE ALIVE

"You and the tree in your backyard come from a common ancestor. A billion and a half years ago, the two of you parted ways... But even now, after an immense journey in separate directions, that tree and you still share a quarter of your genes." - Richard Powers [I]

I.I OVERVIEW

The aim of this Research is to explore the potential of natural organic reduction, in the city of Zurich. Therefore, the project develops a green burial method and thus an ecological cemetery garden in Sihlfeld Cemetery. The problematic regarding current death care practices is discussed in chapter I therewith introducing chapter 2 that presents an alternative method of disposing of human bodies: Natural Organic Reduction (NOR). Chapters 3 and 4 dive into the site, namely Zürich and then, Sihlfeld Cemetery to understand the historical, cultural, social, and political context that shaped the death care system. Finally, in chapter 5, the project proposes a vision of Sihlfeld Cemetery in which the bodies are composted and planted. Chapter 6 presents the second phase of the project in which the project is designed (figure 4).

Firstly, we dive into the subject with the problematic of death. In chapter I.2, we look at how a strong cultural past has rendered our death care system anachronistic. Furthermore, in chapter I.3, the ecological impact of cremation and burial are presented.

These ecological ideals can in fact be assimilated in alternative burial methods such as natural organic reduction. Chapter 2.I explores these alternative methods explaining why NOR is the most attractive solution. Chapter 2.2 shows us the similarities of composition between us and the earth, reminding us that "we are nature". We then understand the logic of human composting developed by companies such as Recompose. The Recompose method is explicitly described in chapter 2.3.

In Chapter 3.I we dive into the demographics of Zurich and how they influence death statistics in the future. Numbers are essential to the comprehension of why and how death is dealt with in Zurich but these are also linked to historical socio-cultural contexts, described in chapter 3.2. The evolution of rituals and their importance are described further in chapter 3.3. The psychological perception of death has influenced the physical development of cemeteries in Zurich , chapter 3.4, and this has also influenced our rituals around death as drawn in chapter 3.5. Finally, history and culture have shaped the way we deal with death nowadays as shown in chapter 3.6.

These rituals are the ones practiced in Sihlfeld Cemetery. The site of Sihlfeld is first looked at through its context in the built environment of Zurich in chapter 4.I. The importance of the cemetery as a palimpsest of time is presented in chapter 4.2. In chapter 4.3 we look into the complex function of the cemetery as a park. Within this park the buildings have a historical and symbolical value that is outlined in chapter 4.4. Sihlfeld, thanks to its crematoriums, built Switzerland's cremation history as seen in chapter 4.5.

In chapter 5.I, we take a look at the programme proposal: a spiritual and ecological alternative to burial and cremation. A design that is based on natural organic reduction and thus a new ritual.

In chapter 6, we firstly look at the general masterplan design of ecological gardens and forests of Remembrance. A design based on a return to nature as described in chapter 6.I. The following chapters dive into the architectural design with chapter 6.2 illustrating the constructive system. Chapter 6.4 to 6.8 gradually unfolds the different infrastructural elements of the project following the natural organic reduction cycle.

A brief conclusion in chapter 7, looks back onto the project from an analytical and critical point of view. Thereby, the conversation opens up onto the "extreme scenario" proposed. How can such a radical proposal benefit the deconstruction and re-definition of our values regarding death, rituals but also our relationship to nature?

[I] Powers, Richard. The Overstory.

HS 2022
RESEARCH

I. PROBLEMATIC

Death practices in Western Culture are Anachronistic

2. SOLUTION

Natural Organic Reduction

3. ZURICH

3.I-3.3 PERCEPTIONS, NUMBERS & RITUALS

-Historical Perception of Death
-Death Feared
-Statistics

3.4-3.7 CEMETERIES

-Context
-History
-Methods

4. SIHLFELD CEMETERY

4.I-4.4 CEMETERY

-Context
-History
-Park

4.5-4.7 PERCEPTIONS, NUMBERS & RITUALS

-Building Use
-Rituals

5. PROJECT PROPOSAL

An Ecological Cemetery Garden

FS 2023
DIPLOMA

6. PROJECT DESIGN

Masterplan Design and NOR based constructive system
New Cemetery typology= New Rituals = New Perceptions of Death

Figure 4: Research Flow Chart. by Author. (2022). [Diagram].

I.2 PROBLEMATIC
- THE ANACHRONISTIC DEATH

As populations continue to rise, so does the impact on our environment. In Switzerland, our legal system determines what we are allowed to do with bodies when we die: traditional burial or cremation. These 2 methods not only consume a lot of energy and generate carbon emissions, but also belong to a religious and cultural past that is evolving rapidly. An increasing amount of people are seeking alternative burial methods: methods that can bring us "back to nature" (companies such as Return Home for example are offering NOR). This romantic ideal is visible through the new rituals that seek to dispose of ashes in nature with methods such as the water urn (figure 5 & 6)[2]. However, the basis of the problem lies in the fact that the bodies are cremated before being put back into nature and thus the action is rendered somewhat hypocritical.

Research has proven that alternatives to earthen burial and cremation do exist. Most of them explore an alternative way to decomposing human remains. These methods vary from: alkaline hydrolysis (chemical cremation), promession (decomposition through freezing), bio-methanization (anaerobic digestion to create biogas) or composting.[3]

Moreover, in many overcrowded cities such as New York, the space in cemeteries is very limited and thus problematic.[4] Switzerland , with its high percentage of cremation (95%)[5] is encountering the opposite problem; cemeteries are becoming anachronistic and are gradually being transformed into Parks.

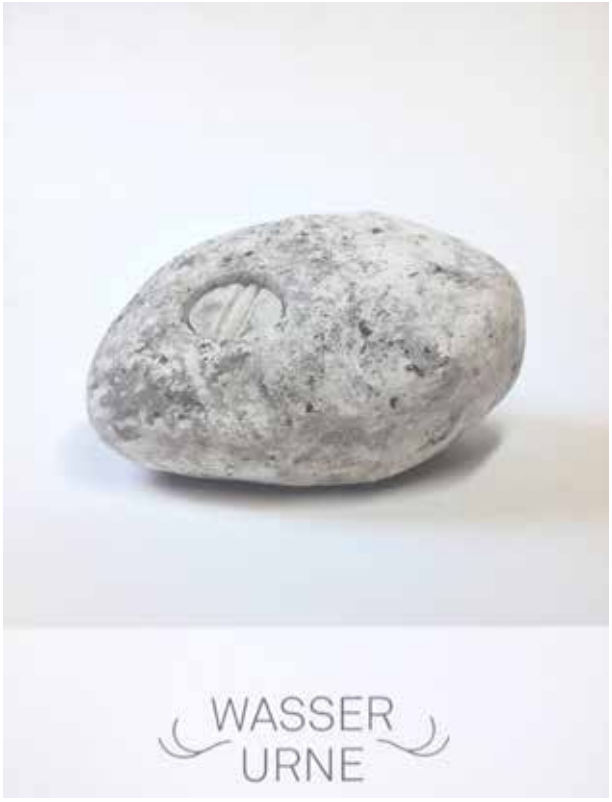


Figure 5: Water Urn alternative for disposal of ashes, Switzerland. Heid, N. (2022). [Flyer]

Figure 6: Water Urn: dissolves within 30-90 minutes. Heid, N. (2022). [Flyer]

[2] Podium Discussion. "Hallo Tod! Zurück in die Natur", Podiumsgespräch über Alternative Bestattungsformen. 2022

[3] http://deathlab.org/funerary-processes/ (accessed II Oct. 2022)

[4] Ibid

[5] https://www.dailymail.co.uk/news/article-9172305/Inside-Switzerlands-biggest-crematorium-forced-extend-hours-amid-coronavirus-pandemic.html (Accessed II Oct. 2022)

I.3 PROBLEMATIC
- ECOLOGICAL IMPACT: BURIAL VS CREMATION

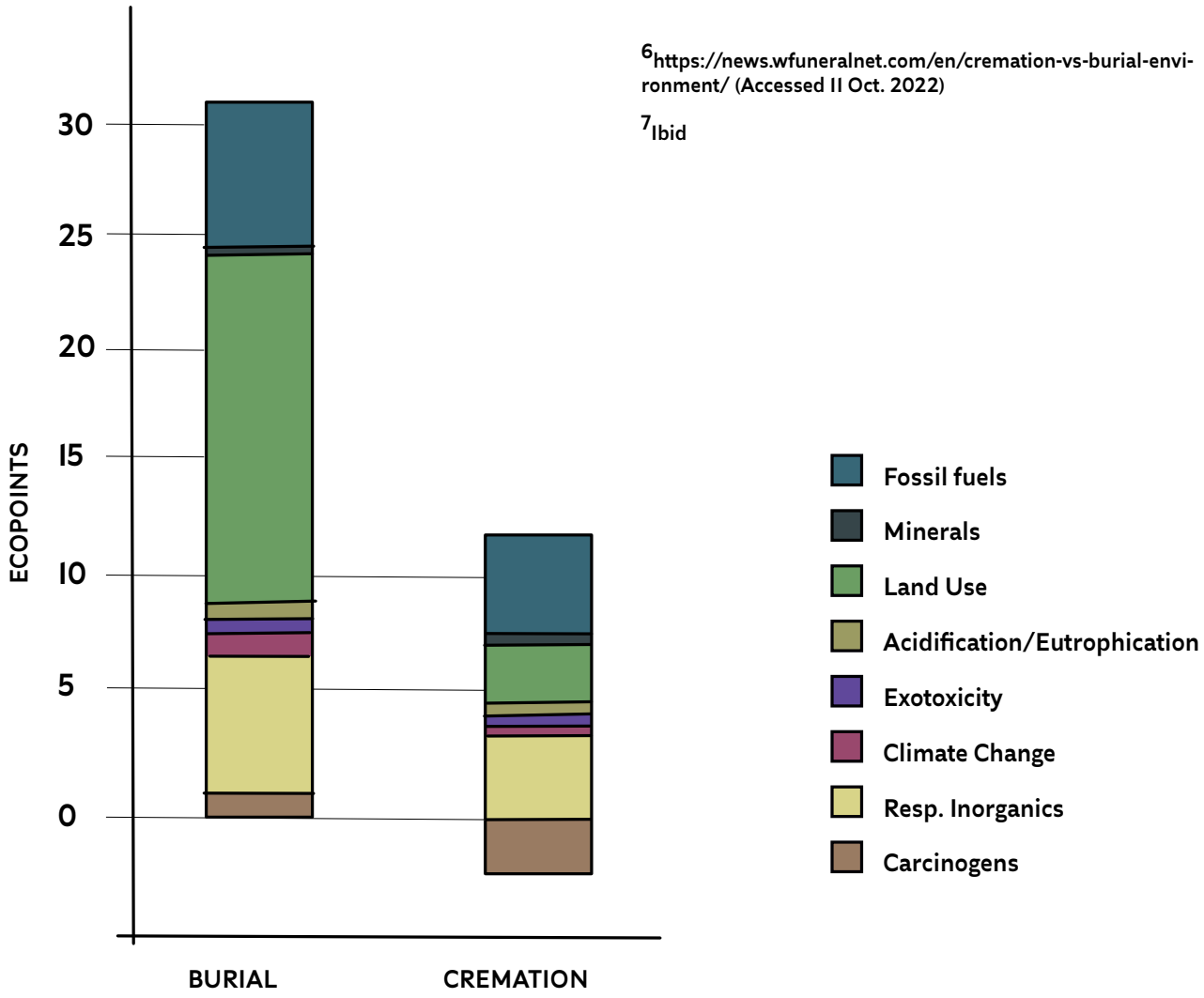
Earthen Burial:

For traditional earthen burials, the body is kept in a cool environment so that the mourners can come and pay their last respects to the deceased. The preparation of the body can include the following embalming methods: sealing, disinfecting, draining the blood and injecting chemicals that disinfect as well as delay decomposition. The body is also dressed and styled according to the family's wishes. Dies and humectants are used to give the body a natural living aspect. The embalming fluids and chemicals are toxic and thus participate in polluting the soil where the body is then buried. The clothes and other non natural elements that are buried with the body also contribute to polluting the ground. Moreover, a great number of valuable resources are used for earthen burial such as, wood for the caskets, stone for the tombstones, steel for memorial plates etc. Furthermore earthen

Cremation:

During cremation, toxic hot gasses are regularly released into the atmosphere and non-renewable fuels are used. The energy consumption necessary to burn a body is huge as it takes from 2 to 3 hours to burn a body. After the burning of the body, the ashes are collected and are put into a cremulator, thus allowing the ashes to be as fine as possible.[7] In Switzerland, it is legal to scatter ashes in nature however the ecological impact of the ashes must be controlled. (Figure 7)

As a matter of fact, alternative solutions such as natural organic reduction do exist (see chapter 2.3). This alternative reduces carbon emissions and consume less energy. However, human composting is not yet legal in Switzerland (figure 8 & 9, here the agreement on funeral wishes is altered to a system where NOR is the unique solution possible).



[6] https://news.wfuneralnet.com/en/cremation-vs-burial-environment/ (Accessed 11 Oct. 2022)

[7] Ibid

Figure 7: Life Cycle Assessments for Burial and Cremation - with Ecoindicator. Keijzer, E. (2011). Graph redrawn by Author. Available at: https://core.ac.uk/download/pdf/148285704.pdf. [Graph]

Stadt Zürich
Bevölkerungsamt

The City of Zurich
Residents Office
Funeral and Cemeteries Office
Graves Administration Office No. 128
Stadthaus (City Hall)
Stadthausquai 17
Postfach (P.O. Box)
8022 Zürich

Tel. 044 412 31 81
Fax 044 412 37 34
graeberadministration@zuerich.ch
www.stadt-zuerich.ch/bestattungsamt

Office hours:
Monday – Friday, 08.00 – 16.30 CET

Agreement on Funeral Arrangement Wishes

Residents of the City of Zurich may deposit their **personal** funeral requests with the Funeral and Cemeteries Office. Their wishes will be communicated to the persons reporting the death.

Surname: _____ First name: _____
Street: _____ Postal code: _____ Zurich
Date of birth: _____ Place of origin: _____
Telephone _____ E-mail: _____

~~What type of funeral~~ would I like?
After NOR(natural organic reduction)

- ☐ ~~Cremation~~ plant my soil
- ☐ ~~Interment~~ donate my soil

~~If cremation,~~ I would like: to plant my soil

- ☐ ~~Burial plot in row~~ Sihlfeld forest
- ☐ ~~Burial niche in row~~ Sihlfeld garden
- ☐ ~~Rented burial plot in row~~
- ☐ ~~Rented family burial plot~~
- ☐ ~~Rented burial niche~~
- ☐ ~~Communal burial site, incl. inscription: yes ☐ no ☐~~
- ☐ Communal burial tree
- ☐ Family burial tree
- ☐ Existing ~~grave: No.~~ _____ garden
- ☐ Entrust ~~urn~~ soil to relatives
  Name: _____

~~If interment,~~ I would like: to donate my soil

- ☐ ~~Side-by-side burial plot~~ to stadt Zürich
- ☐ ~~Family burial plot~~ to an exterior company: _____
- ☐ ~~Already rented family grave, Grave No.~~ _____

I would like the following ~~cemetery:~~ flower bed _____

In doing so, I am aware that
– the assignment of ~~burial plots/niches~~ flowerbeds in rows depends on the last residential/reported address;
– for the cemeteries of Eichbühl, Schwandenholz, Sihlfeld, Witikon and for communal ~~graves,~~ gardens there are no restrictions;
– rented ~~burial plots~~ flowerbeds can be freely selected, with the exception of the cemeteries of Fluntern and Hönggerberg;
– ~~burial of ashes~~ is possible in the forests of Leimbach or Hönggerberg.
disposal of soil

(Please see overleaf)

Department of Presidial Affairs

Figure 8

Stadt Zürich
Bevölkerungsamt

Would I like my GPS coordinates to be public? ☐ yes ☐ no

Would I like a free-of-charge **official death notice**? ☐ yes ☐ no
(national newspapers: NZZ, Tages-Anzeiger, official gazette of the City of Zurich: Tagblatt der Stadt Zürich)

What are my **special requests for the funeral arrangements / funeral service?**
(e.g., without funeral service, funeral ceremony at the ~~grave~~ site or in the chapel / church, pastoral minister, private speaker, organ music, music from a CD, DVD, soloist, singer, ~~choice of casket, urn,~~ burial gown or private garments, floral arrangements for the funeral, plants to be ~~put on grave, headstone,~~ etc.)
flowers
planted

Do I wish to **pay for the expenses in advance**, i.e., make an (interest-bearing) advance payment?

~~Temporary wooden cross grave marker~~	☐ yes	☐ no
~~Temporary tablet grave marker~~	☐ yes	☐ no
Maintenance fee for a collective ~~burial plot~~ / tree, ~~niche~~ /garden	☐ yes	☐ no
~~Inscription at communal burial site / niche slab~~	☐ yes	☐ no
~~Grave~~ care (maintenance and plants)	☐ yes	☐ no
~~Headstone / niche slab (am including sculptor's quote)~~	☐ yes	☐ no
Funeral costs (death certificate, ~~cushion, casket, etc.~~) NOK	☐ yes	☐ no

I would like the person reporting my death to contact the following person(s) (surname, first name, address, telephone number(s), e-mail):

1. _____

2. _____

Place and date: _____ **Signature:** _____

(delegation to an authorized agent **not** possible)

Leaflet No. 9 contains useful information for the Agreement on Funeral Arrangement Wishes. It is available free of charge from the Funeral and Cemeteries Office and at www.stadt-zuerich.ch/bestattungsamt (forms, leaflets). The Funeral and Cemeteries Office will be pleased to answer any questions you may have or help you to complete the forms.

To be completed by the Graves Administration:
Counseling by: _____
Date: _____ *Funeral and Cemeteries Office, Signature* _____
Version: 6.2012/beb

Department of Presidial Affairs

Figure 9

Figure 8 & 9: Agreement on Funeral Arrangement Wishes, modified proposal. Stadt Zürich (2012). Modified by Author. [PDF]. Available at: https://www.stadt-zuerich.ch/content/dam/stzh/prd/Deutsch/Bevoelkerungsamt/Formulare%20und%20Merkblaetter/BFA_Formulare_Merkblaetter/Bestattwuensche_andere_Sprachen/Formular%20BW_e.pdf (Accessed: 30 Ocotber 2022)

	CHURCHYARD	CEMETERY	PARK	GARDENS & PARK	GARDENS & FORESTS OF REMEMBRANCE
YEAR	0-1800	1800-1950	1950-2050	2050	2150
INHABITANTS ZURICH	17'200	494'000	1'521'000	1'882'000	2'100'000
DEATHS PER YEAR (ZH)	175	5'708	11'814	17'000	20'076
SOCIO-CULTURAL CONTEXT	Church and State non-differentiated	Enlightenment	Secularization	Global Ecological Crisis	Global Ecological Crisis
PERCEPTION OF DEATH	Death Accepted	Death Taboo	Fear of Death	Symbolical Death	Death is Nature
DISPOSAL METHOD	Burial	Burial + Cremation	Burial + Cremation	Natural Organic Reduction	Natural Organic Reduction
PLACEMENT	Centre of the City	Outside of the City/ Rural area	Within the City	Within the City	Within the City
FEATURES	Row of graves	Row of graves + trees and Shrubs	Parks + Graves	Memorial Gardens	Gardens and forests of Remembrance
BUILDINGS	Church	Mortuary + Crematory	Mortuary + Crematory + Gardner's House + Chapel	Mortuary + Chapel + Technical Infrastructure + Gardening Space	Mortuary + Chapel + Technical Infrastructure + Gardening Space
CARETAKERS	Church + Family	State Undertakers + Family	State Undertakers	State Undertakers +Gardner + Family	State Undertakers +Gardner + Family + General Public
BOUNDARIES	Wall and gates, strict delimitation	Wall and gates, strict delimitation	Walls, gates and fences open access 24/7	Gradual deconstruction of walls	No strict boundaries

RESEARCH SYNTHESIS

PROJECT PROPOSAL

Figure 10: Research synthesis and project proposal. by Author (2022). [table]

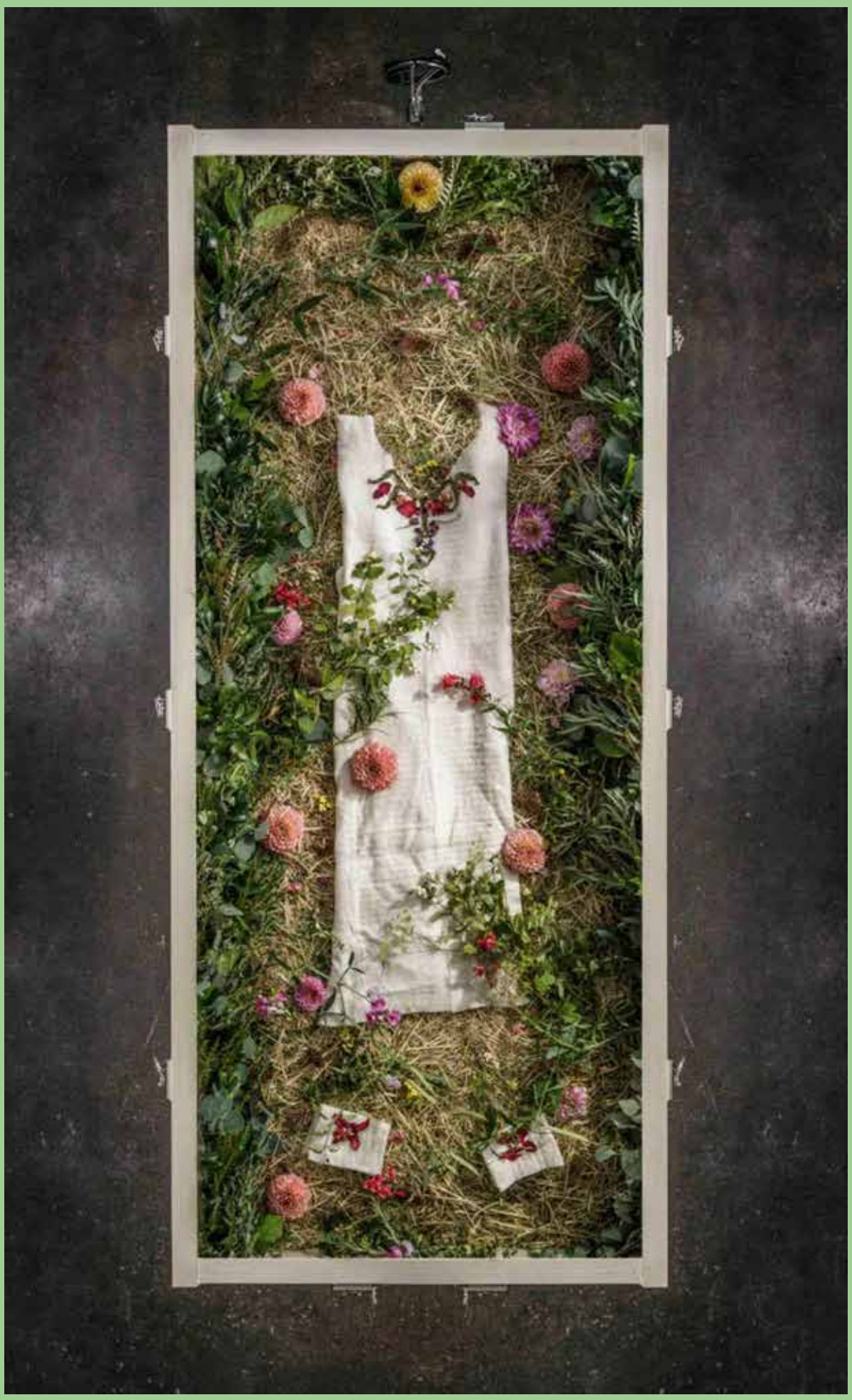


Figure II: Return Home Company: Natural Organic Reduction, laying in. Source: https://returnhome.com/ [Accessed II Nov. 2022]

2. RECOMPOSE
- NATURAL ORGANIC REDUCTION (NOR)

"I bequeath myself to the dirt, to grow from the grass I love; If you want me again, look for me under your boot-soles."
- Walt Whitman. Song of myself. 2013

2.I ALTERNATIVE BURIAL METHODS

Cremation has become somewhat a default choice because it is cheaper than burial and requires less organisation. However, there are an increasing number of solutions to alternative burial methods. Here are the most popular methods:

BIODEGRADABLE URNS
Many have looked for ways to go "back to nature" by maintaining the idea of burial and incorporating cremation. Thus, biodegradable urns are some of the most popular options nowadays. However, this method still entirely depends on cremation and thus does not solve the problem of the ecological impact of cremation on the environment.[8]

"CAPSULA MUNDI"
In this option, the deceased is placed in a biodegradable pod on top of which lies a tree. As the body decomposes, it acts as a natural fertilizer for the tree. This project however remains very theoretical. (Figure I2)[9]

ALKALINE HYDROLISIS
This method consists in decomposing the body using water and chemicals that are slightly heated. By exposing the body to this mixture, for a total of approximately 3 hours, the body is broken down into bone fragments just like cremation. [10]

THE MUSHROOM SUIT
This suit is an outfit that covers the corpse and is made of mushrooms that allow the body's nutrients to return to earth and foster growth. Moreover it cleans the toxins in our body and is therefore not toxic for the environment (figure I3).[11]

The problem with most of the solutions proposed is that they are either simply alternative methods still highly influenced by cremation and therefore not necessarily better for the environment or completely natural. The completely natural methods such as simply burying a body in an ecological manner take up space and time. The advantage of a method like the one developed by recompose (natural organic reduction or human composting) is that it uses technology to control a natural process. It is therefore:

-Eco-friendly

-Good for the environment as the soil then acts as a fertilizer

-Does not require an excessive amount of space reserved

-Faster than outdoor composting

[8] https://www.weareatticus.com/articles/burial-alternatives-costs-ultimate-list-of-interment-substitutes (Accessed 05 Nov. 2022)

[9] Ibid

[10] https://www.cremationassociation.org/page/alkalinehydrolysis (Accessed 05 Nov. 2022)

[11] https://www.weareatticus.com/articles/burial-alternatives-costs-ultimate-list-of-interment-substitutes (Accessed 05 Nov. 2022)

Figure 12: Capsula Mundi. Source: https://www.dezeen.com/2019/03/31/capsula-mundi-egg-shaped-burial-pod/ (Accessed 05 Nov. 2022)[image]

Figure 13: Mushroom Burial Suit. Source: https://www.weareatticus.com/articles/burial-alternatives-costs-ultimate-list-of-interment-substitutes (Accessed 05 Nov. 2022)[image]

2.2 SOIL vs HUMAN COMPOSITION - WE ARE NATURE

SOIL

"Soil can no longer be conceptualised as a neutral surface, it demands to be understood as a living, dynamic and processual 'thickness' - as a volume in four dimensions. Soils, although degraded and fragmented, require a new gaze. They need to be re-articulated in a new project of space aimed at the construction of a shared, productive and inhabited nature. All forms of urbanity contain strong ecological potential and are all, today, the testing ground on which to re-conceive new relations among soil, city and society."
- "The project of Soil" OASE #110 [12]

[12]Peleman et al. The Project of Soil. 2022.

In our environment, soil/dirt plays a critical role in the creation of living beings and the health of ecosystems. Soil not only absorbs carbon dioxide from the air but also creates a home for animals and contains nutrients for plants as well as trees (figure 14).

Therefore, the ecological impact of human composting isn't simply in the reduction of CO2 emissions but also in the creation of dirt that naturally benefits our environment. Ultimately natural organic reduction produces earth that can help re-mediate the quality of the soil in certain areas.

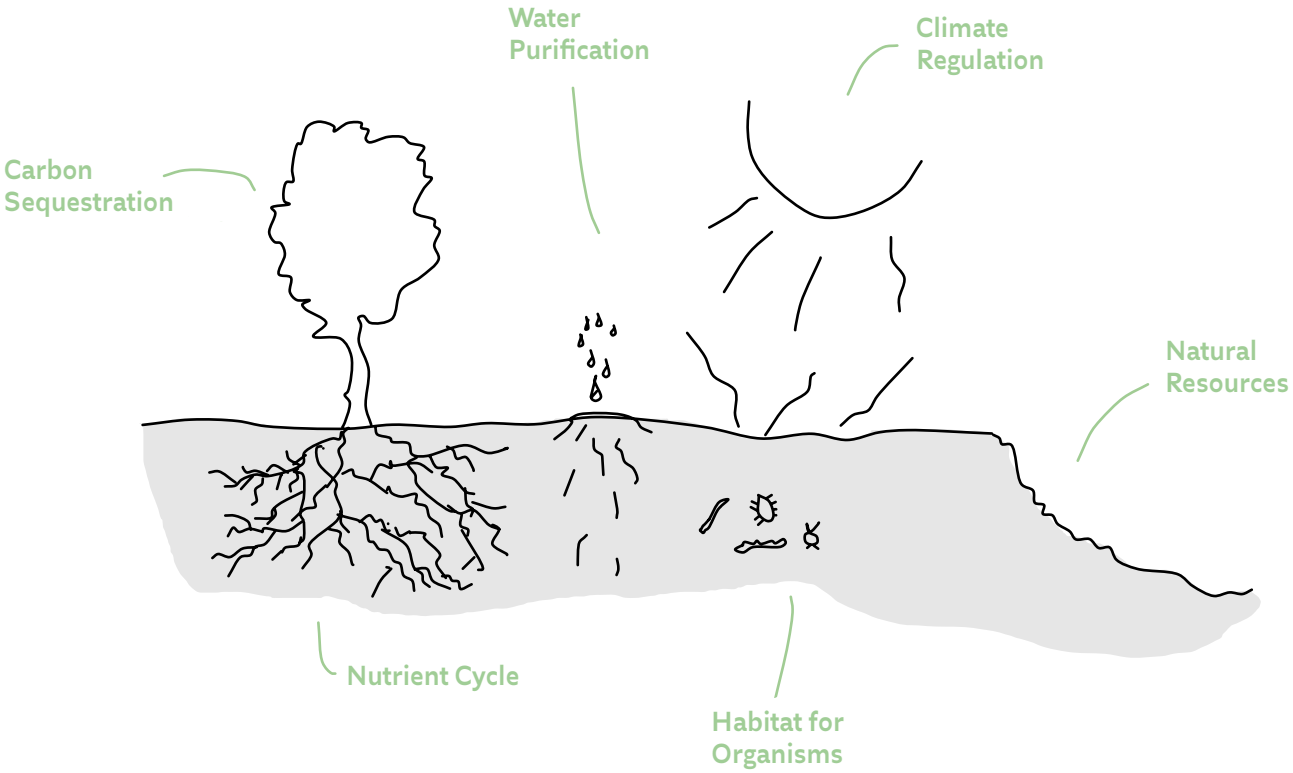


Figure 14: The Functions of Soil. Redrawn by Author. (2022). Source: Food and Agriculture Organization of the United Nations (2015). Available at: https://qph.cf2.quoracdn.net/main-qimg-d379a383181f28de5abac634f732e867-lq[Accessed 12 Oct. 2022]. [Sketch]

COMPOSITION OF THE HUMAN BODY

When looking at the elements that constitute the human body, it is interesting to notice that 99% of a body is made of six elements: oxygen, carbon, hydrogen, nitrogen, calcium and phosphorous (figure 15).[13]

These Elements are essentially the same that constitute the Earth. Our bodies are thus ideally composed to contribute to a natural ecosystem (figure 16).[14]

If we consider that our bodies can contribute beneficially to the natural environment, we must consider these alternatives that enable our bodies to reintegrate nature in the most natural way.

In Sihlfeld Cemetery, nature is abundant and therefore the simple transformation of bodies into soil can enrich the quality of the existing earth in Sihlfeld; earth that has been polluted due to earthen burial. Moreover, using this soil to grow more trees and plants can help the ecosystems.

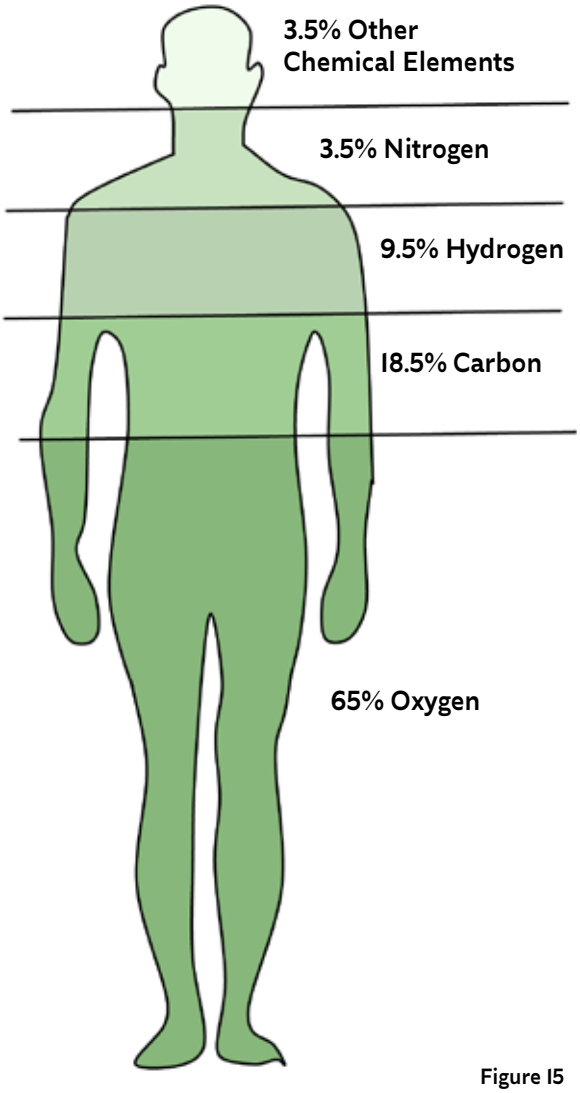


Figure 15

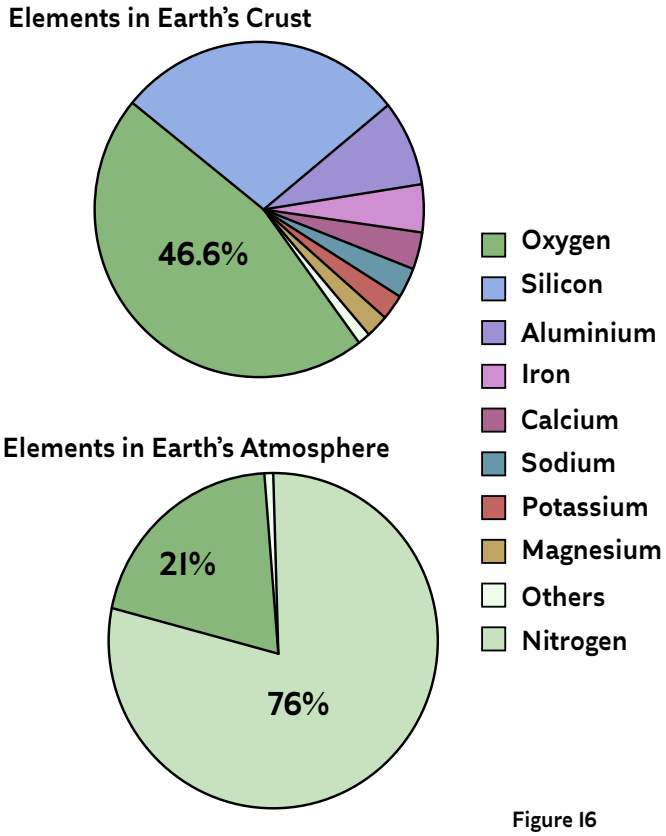


Figure 16

[13] http://deathlab.org/body-composition/ (Accessed 12 Oct. 2022)

[14] Ibid

Figure 15: Constituents of the Human Body. Redrawn by Author. (2022). Source: Scienceabc (2022). Available at: https://www.scienceabc.com/humans/what-elements-are present-in-the-human-body.html [Accessed 12 Oct. 2022]. [Diagram]

Figure 16: Constituents of the Earth's Crust and Atmosphere. Redrawn by Author, C. (2022). Source: Pearson Education (n.d.). Available at: https://www.emsisd.com/cms/lib/TX21000533/Centricity/ModuleInstance/5456/Percentage_of_Elements_PowerPoint.pdf [Accessed 12 Oct. 2022]. [graph]

2.3 RECOMPOSE -HUMAN COMPOSTING

Recompose is an American company that has elaborated a system allowing the decomposition of a human body organically within approximately 2-3 months. Human remains are transformed into dirt/soil. This method produces less carbon emissions and consumes a lot less energy than earthen burial or cremation (figure I7 & I8). The system is based on livestock composting (figure I9). The body is wrapped in an organic shroud and covered with organic matter. It is then placed in a Vessel for 30 days, the control of the air allows an acceleration of the decomposition of the body. The remains are also heated to 55 degrees thus killing of contagions. The earth is then cured for 6-8 weeks, filtered (to extract bigger pieces of bones or implants) and then tested (to be sure that it is safe for the environment. The final volume of earth obtained is equivalent to 0,8 cubic meters per body. This earth is then disposed of either by the family of the deceased or by Recompose(figure 20).[I5]

Recompose is not the only company operating this kind of system. As a matter of fact, there are several companies such as this one already active in the United States. However, in Switzerland, such companies have not seen the light yet. The proposal of the project is to create the infrastructure necessary at Sihlfeld cemetery for such a process. The design of the technical infrastructure as well as the way the earth can be used within the park of Sihlfeld constitute the main design task (see chapter 5). However, the challenge that inevitably appears is that of the ritual that such a system evokes and how to design this ritual to find a new meaning in the process (figure 2I).

[I5] https://recompose.life/ (Accessed 25 August 2022)

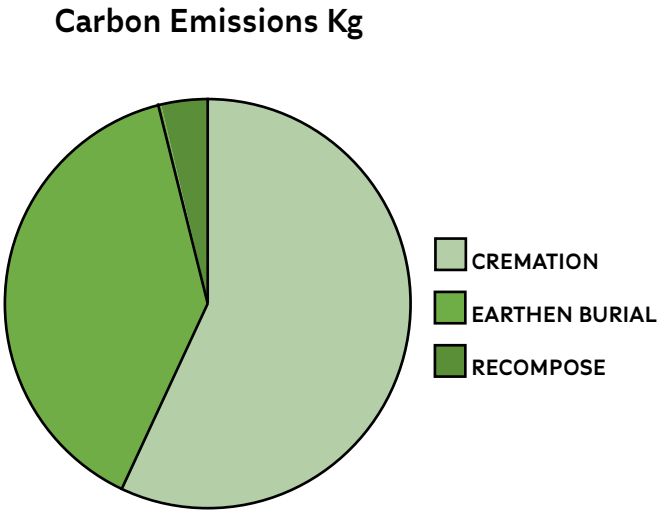


Figure I7: Carbon Emissions in Kg comparison. by Author. Data Source: http://deathlab.org/funerary-processes/ [Graph].

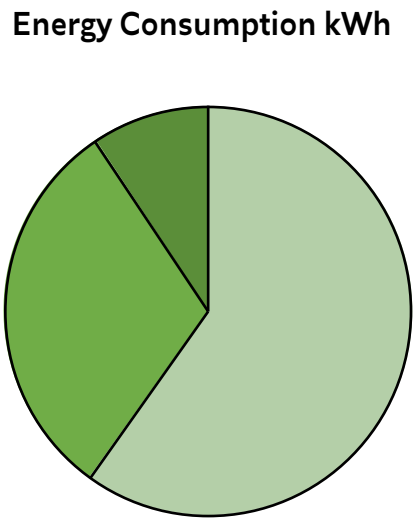


Figure I8: Energy Consumption in kWh comparison. by Author. Data Source: http://deathlab.org/funerary-processes/ [Graph].

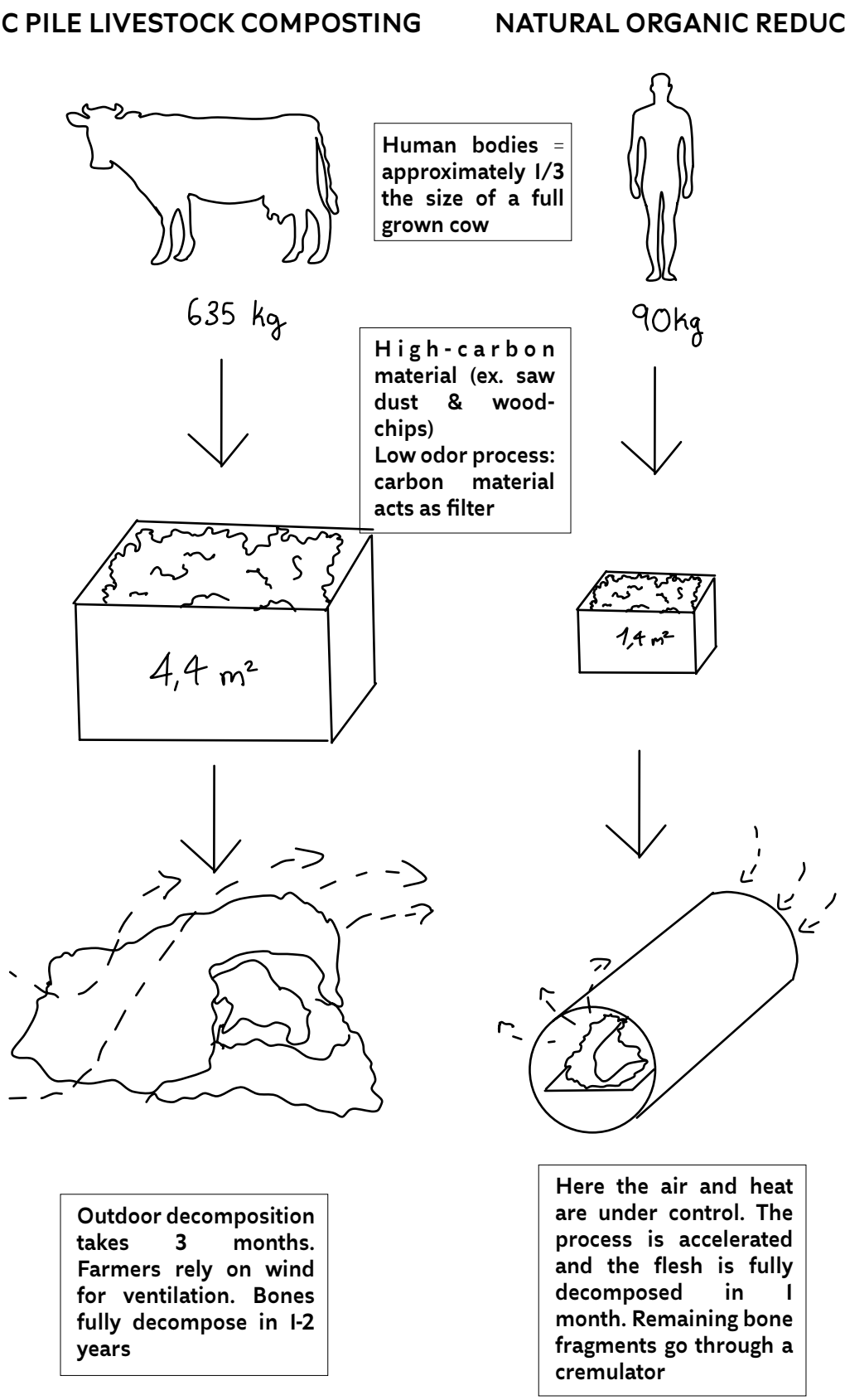


Figure 19: Livestock Decomposition applied to human body. Redrawn by Author. Spade, K. (2013). Of Dirt and Decomposition. [online] p.42. Available at: https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=2213&context=theses. [Sketch]

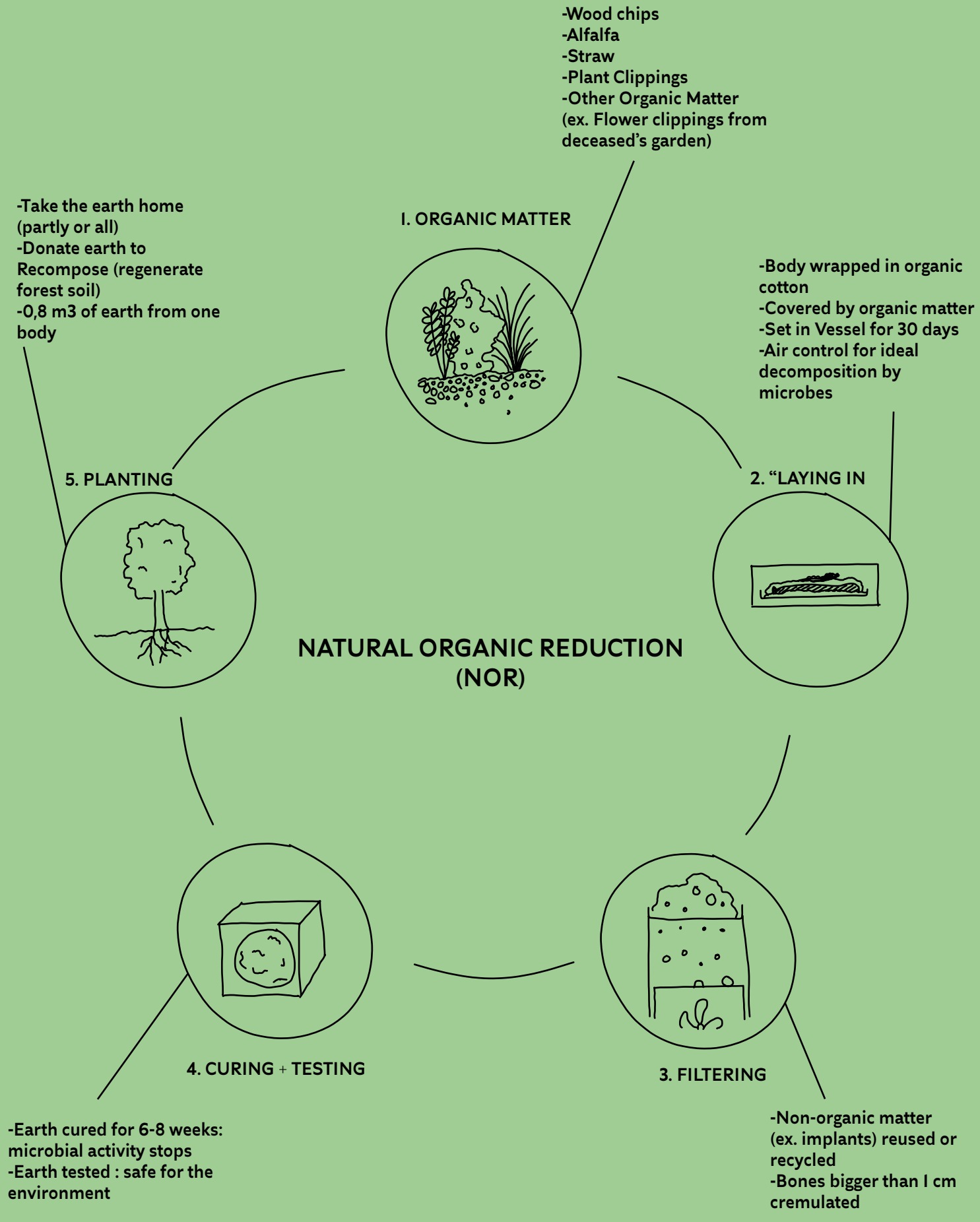


Figure 20: Recompose process. Redrawn by Author (2022). System Source: Recompose (2021). Available at: https://recompose.life/ [Accessed 25 August 2022]. [Diagram]

Figure 2I: Recompose laying in ceremony. Source: https://www.nytimes.com/interactive/2022/12/05/opinion/human-composting-new-york.html [Accessed 27 January 2023] [Image]

3. DEATH IN ZURICH
- TRADITION, CULTURE & PERCEPTIONS

"The natural process of corruption and decay has become disgusting, as disgusting as the natural process of birth and copulation were a century ago; preoccupation about such processes is (or was) morbid and unhealthy, to be discouraged in all and punished in the young."
-Geoffrey Gorer[16]

3.1 POPULATION & DEATH
- STATISTICS

The canton of Zürich, with its 1.521 million inhabitants, is currently home to 17.6% percent of Switzerland's population (figure 22).[17] Moreover, a total of 67'088 people die each year in Switzerland, therefore 11'814 die in Zurich (figure 23).[18] In 2050, it is projected that the Canton of Zurich will house 1.882 million people: 18% of Switzerland's population (figure 24).[19] The Swiss Federal Office of Statistics predicts that a total of 95'000 deaths will be recorded yearly in 2050 (figure 25). Thus if 18% percent of those deaths happen in the canton of Zurich, there will be a total of 17'100 deaths per year in 2050 in Zurich.

The reference of 2050 is used as it is an important ecological date set by the Swiss confederation. Death and population statistics guide us in understanding the needs in cemetery capacity on the logistical and spatial scale in the upcoming years. In the city planning interventions taken by the Confederations to reach these goals, spatial planning of cemeteries is not part of the equation. However, the proposal projected by this thesis asserts that albeit the small role cemeteries and more precisely body disposal methods play in the climate crisis, they could be part of an ecological urban solution. The project proposes that in 2050 all bodies in Zurich (17'100 a year) will therefore not be buried or cremated but rather composted.

The project then imagines how this system would alter the cemetery after 100 years. The predictions of population and death count in the year 2150 are harder to find and remain inaccurate. However, according to U.N. projections, there will be a total of 2'100'000 inhabitants in Zürich in 2150 and 20'000 deaths a year.[20] These numbers guide the design proposal of the cemetery garden over the course of 100 years from 2050 to 2150.

[16]Gorer, Geoffrey. Death, Grief and Mourning: A study of Contemporary Society. 1965. p. 196

[17]www.citypopulation.de (Accessed 12 Oct. 2022)

[18]www.macrotrends.net(Accessed 12 Oct. 2022)

[19]Swiss Confederation, FSO. 2018.

20 https://www.macrotrends.net [Accessed 25 Jan. 2023]

Figure 22: Population Distribution per Canton in Switzerland, 2018. by Author. (2022). Source: http://www.citypopulation.de/en/switzerland/cities/ [Accessed 4 Oct. 2022]. [Graph]

Figure 23: Amount of Deaths per Year in Switzerland and Zurich. by Author. (2022). Source: FSO (2018). Available at: https://www.bfs.admin.ch/bfsstatic/dam/assets/16644533/master [Accessed 4 Oct. 2022]. [Graph]

Figure 24: Zurich's Population Evolution Forecast. Redrawn by Author. United Nations (n.d.). Source: https://www.macrotrends.net/cities/22606/zurich/population. [Accessed 4 Oct. 2022]. [Graph]

Figure 25: Development of number of deaths in Switzerland 1990-2050. FSO (2018). Source: FSO (2018). Available at: https://www.bfs.admin.ch/bfsstatic/dam/assets/16644533/master [Accessed 4 Oct. 2022]. [Graph]

2018

POPULATION DISTRIBUTION SWITZERLAND

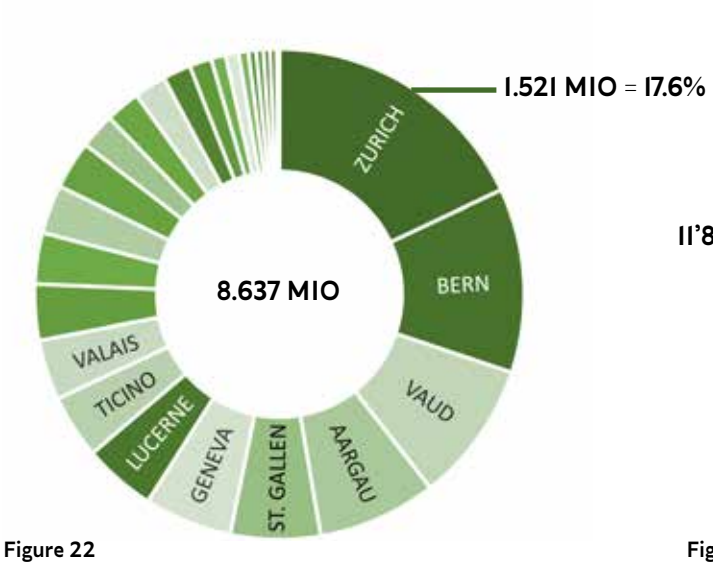


Figure 22

AMOUNT OF DEATHS YEARLY (2018)

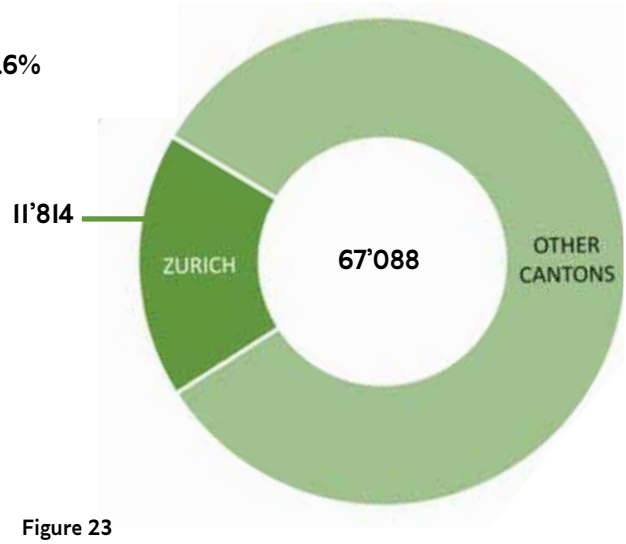


Figure 23

2050

ZURICH POPULATION GROWTH FORECAST

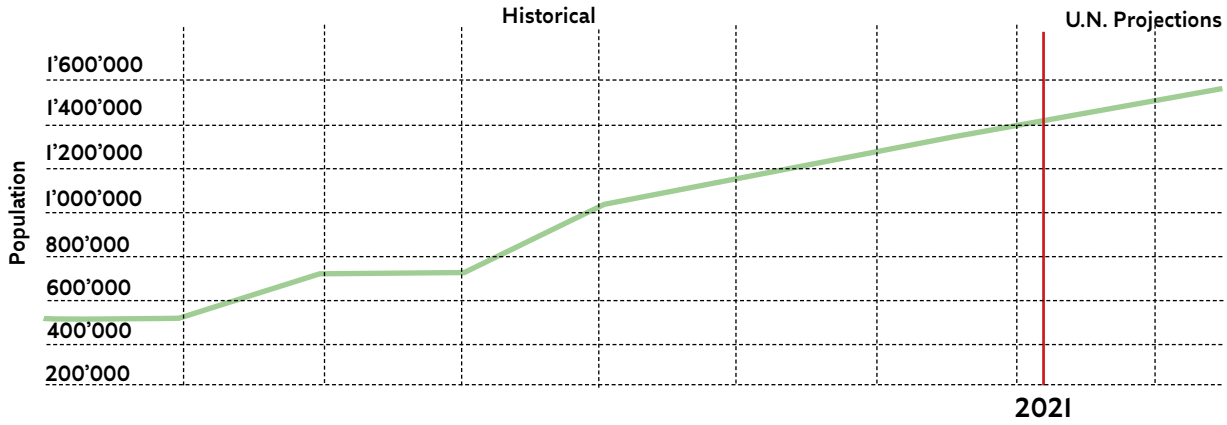


Figure 24

POPULATION FORECAST 2050 ZURICH: 1'882'00

DEVELOPMENT OF NUMBER OF DEATHS, 1990-2050

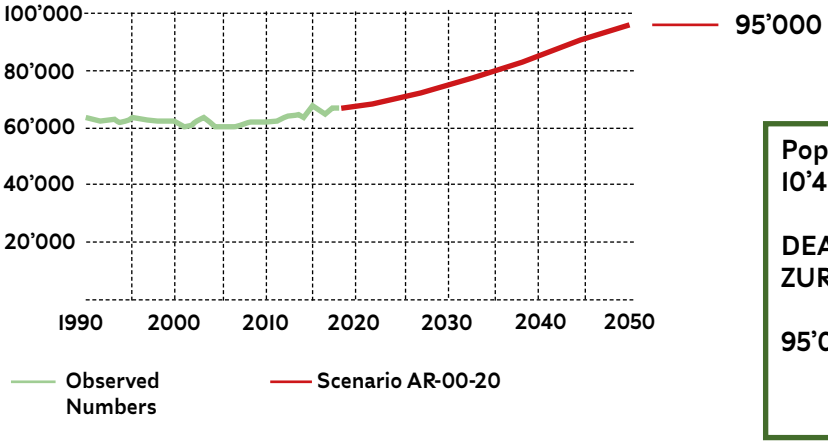


Figure 25

Population forecast Switzerland 2050: 10'400'000 (ZURICH= 18%)

DEATHS PER YEAR IN THE CANTON OF ZURICH IN 2050:

95'000 X 18%

3.2 THE PERCEPTION OF DEATH -FROM ACCEPTED TO TABOO

From the Idea of Death to the Idea of Mortality

Throughout the middle-ages and as far back as the history of death practices goes, there was a big sensibility towards the moment when one died. The physical death generally happened in bed and surrounded by people. The dying man knew he would die and accepted it even though he regretted leaving his life. With the renaissance came an important schism in the Christian religion. The Christian religion changed, and the clergymen stopped deathbed conversions. According to Ariès this is a major influence in the way death was perceived: the idea of death (the final moment; the actual act of dying) is replaced by the idea of mortality. The focus is therefore on life and the constant awareness throughout life that we are mortal. [21]

This new distance in the attitudes towards death has a consequence on cemeteries. Before, cemeteries were churchyards: their position next to churches was essential. Being buried ad sanctos was crucial. In fact, it was so important to be buried close to the saints that many churches were used as burial grounds as well (chambers, charnels, sarcophagus...), the richer people were, the closer to the saints they were buried. With the distancing of the self to death, cemeteries started being relocated.[22]

From the Victorian Death to the Modern Death

According to Ariès, there is a revival of the cemetery and the approach towards death in the 19th century: "So the public cemetery becomes the focus of all the piety for the dead. [...] it becomes a "cultural institution"; I would even call it a religious institution.".[23] Gorer explains that from the 13th century all excessive feelings regarding death were "repressed or ritualised. But after the eighteenth century we sense a rising need to proclaim one's grief, to advertise it on the tombstones, which now becomes something it was not, the privileged place of memory and regret."[24] Gorer highlights that: "Children were encouraged to think about death, their own deaths and the edifying or cautionary death-beds of others. It can have been a rare individual who, in the 19th century with its high mortality, had not witnessed at least one actual dying, as well as paying their respect to 'beautiful corpses'; funerals were the occasion of the greatest display for working class, middle class and aristocrat. ."[25] This era was marked by progress and change. The 19th century was overwhelmed with technical and intellectual advances which made it hard for people to find meaning. According to Tara Heimberger, death was therefore an anchor. It was the one thing that people were sure of the "memento mori", Latin for "remember, we must die" became extremely popular.[26] It allowed people to psychologically hang on to the thing they could be sure of.

Death Taboo

A shift occurs in the perception of death from the end of the 19th century to the 70's as death becomes a taboo. Many factors influenced this evolution from death being accepted to taboo. First, there is a massive decline in religious belief. With the decline of religion and rituals people trouble to find the appropriate way to mourn. Another influential element is the decrease of mortality rate as medicine starts to rise due to important advances in science. The third important change is the increase in violent deaths with World War I or the introduction of cars in everyday life. Thus, in a short period of time, death became a taboo: therefore, prohibited by custom rather than by law.[27]

Sanitary questions become central and thus cemeteries are relocated outside of the city boundaries.

In the 1960's however, people started to write about the sociological aspect of death, another shift in perception arises: death is less a subject of taboo but still something that we do not openly talk about; "death hidden" as Philippe Ariès calls it.

Although there has been a definite evolution of the perception of death, it remains a topic that people have difficulty talking about. When reading Gorer's book, it is impressive to notice how little has changed in our ways of dealing with death. On one hand, although religious belief has suffered a decline in the past century, death remains a religious preserve. It is extremely rare that a body is disposed without a ceremony. Nearly all death ceremonies remain religious despite a certain decline in religious funerals.[28]

On the other hand, Gorer talks about how we tell children about death. He notices how rarely people tell children that someone has "died" and how often people use euphemisms. Paradoxically, people who aren't religious have a tendency of using religious euphemisms such as "gone to heaven".[29]

The Fear of Death

The fear of death is largely due to the mystery it carries but also our natural reaction when witnessing death. Grief is an "endopsychic" reaction and "the work of mourning can be assisted or impeded, and its beginning outcome facilitated or rendered more difficult by the way in which the mourner is treated by his society in general [...] Similarly, the aid which ritual may give in dealing with grief and providing patterns for mourning is almost completely ignored."[30]

It is therefore up to society to create adequate environments for new rituals surrounding the theme of death. In this sense, cemeteries or places of burial must create a healthy environment not only for the dead but for the living as well. Ideally, death should be represented through a reassuring and peaceful environment for our perceptions to change.

Most cemeteries in Switzerland are places where trees and grass weave themselves between rows of tombstones. The use of plants and trees in cemeteries illustrates the importance of nature when it comes to create a serene and peaceful environment (figure 27, page 31). Nature is often the symbol of a neutral, reassuring, comforting and regenerating space. Therefore, the importance of nature in Sihlfeld cemetery is primordial.

[21]Ariès, Philippe. The Hour of Our Death: The Classic History of Western Attitudes Toward Death Over the Last One Thousand Year. 1977. p. 314

[22]Ibid. p. 318

[23]Ibid. p . 524

[24]Ibid. p. 529

[25]Gorer, Geoffrey. Death, Grief and Mourning: A Study of Contemporary Society. 1965. P. 195

[26]Heimberger, Tara. The Victorian Obsession with Death. 2016. p. 2

[27]Ariès, Philippe. The Hour of Our Death: The Classic History of Western Attitudes Toward Death Over the Last One Thousand Year. 1977.

[28]Gorer, Geoffrey. Death, Grief and Mourning: A Study of Contemporary Society. 1965. p. 20

[29]Ibid. p. 11

[30]Ibid. p. 150-151

3.3 MOURNING AND RITUALS -SYMBOLS OF GRIEF

MOURNING

Ariès explains that the high symbolic of death and mourning rituals was still very present during the beginning of the 20th century. At that time, death belonged to the a community: "it altered the space and time of a social group". "The shutters were closed in the bedroom of the dying man, candles were lit, holy water was sprinkled; the house filled with grave and whispering neighbours, relatives, and friends. At the church, the passing bell tolled and the little procession left carrying the Corpus Christi." [31]

Even after death, appeared in physical signs: a notice of bereavement was hung on the door of the house, all doors and windows were shut except the front door that was left open for visitors, at the church the whole community would gather, then a slow procession to the cemetery was saluted by people passing by. " The period of mourning was filled with visits: visits of the family to the cemetery and visits of relatives and friends to the family [...] The death of each person was a public event that moved, literally and figuratively, society as a whole." [32]

Even though death remains a societal event, it is no longer as present. There is no visible sign of knowing that someone has died. In Zurich for example, the traditional hears that is visible to all has been replaced by a van. [33]

According to Gorer, the decline in mourning and in the dignity of funerals is in part due to the increase in cremation. "To choose cremation is to reject the cult of tombs and cemeteries as it has been developed since the beginning of the nineteenth century".[34]

It has reached a point at which mourning is now "suppressed" by society. Ariès declares: "Society refuses to participate in the emotion of the bereaved. This is a way of denying the presence of death[...]". "A heavy silence has fallen over the subject of death".[35]

However, it is also due to a drastic decrease in the religious landscape. The amount of people without religious affiliation has increased by 10% in 10 years in Switzerland (figure 26).

The gradual physical detachment from the process of death and from religion have led us to fear death. Therefore, the search for a new meaning to give to death is present. The project proposes that natural organic reduction can design new forms of ritual that implicate the mourners in the process. A closer interaction with death and the natural process of decay can ultimately generate a new spirituality thus changing our perception of death.

[31] Ariès, Philippe. The Hour of Our Death. p. 558

[32] Ariès, Philippe. The Hour of Our Death. p. 558

[33] Ibid. p. 559

[34] Ibid. p. 577

[35] Ibid. p. 614

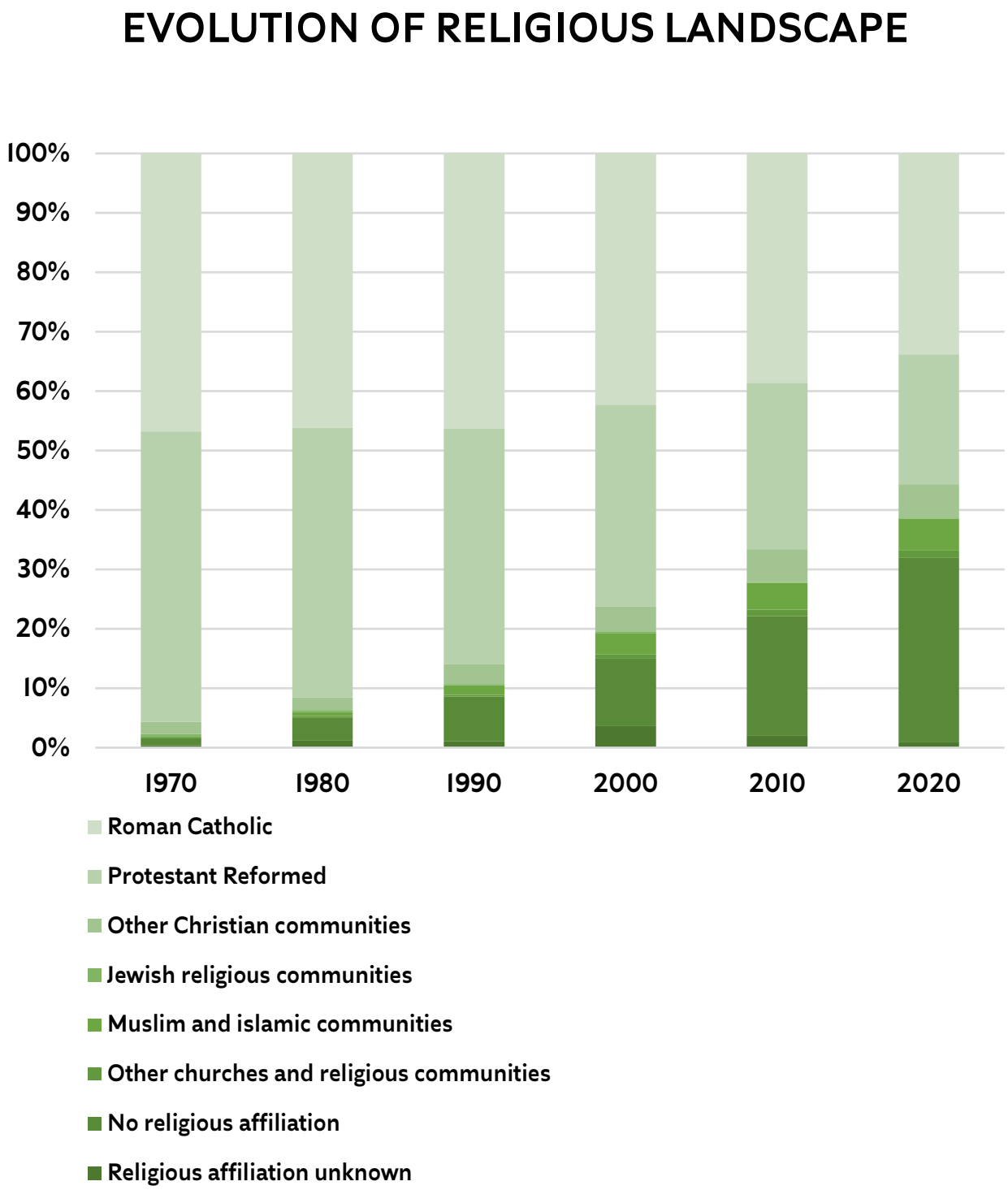


Figure 26: Decrease in religious belief, increase in secularisation. Redrawn by Author. Source: FSO – FPC (1970–2000), Structural Survey (2010–2020). [Graph].

THE ROLE OF THE RITUAL

The funeral constitutes one of the "Rites of Passage" defined by Van Gennep, moreover he defines this ritual as a "rite of separation".[36] The funeral is therefore a key ritual in life and as mentioned by Guy Cook and Tony Walter, rituals can be considered as a form of communication. [37] However, in our current funerary practices, there is a lack of movement or actions of the participants. Walter and Cook highlight this clearly by reminding us that : " This is a notable change, as a rite of passage is a distinctly embodied rite: there is a bride and groom to be married, a baby to be named, a coffin to be buried. The rite entails movement of these key actors in space and time; indeed their journeys (of the bride up the aisle accompanied by her father, of the coffin from sight) symbolize the social journeys (from single to married, from wife to widow, from child to orphan) that the rite marks and enables."[38] Their theory is that in both religious and secular funerals there is a tendency of de-ritualization.[39]

Patrick Sweeny claims that rites celebrated after a death can help in the consolation of the bereaved.[40] He even mentions that in order to go through the stages of grief, one must accomplish the following 6 actions in the first weeks after the death:

"I. They must come to believe that the death has occurred.
2. They must make sense of the absurdity of death.
3. Feelings must be expressed.
4. The body must be disposed of.
5. Relationships must be reorganized.
6. Social support must be marshalled"[41]

"The rites can provide a gradual way for parting with loved ones, and a secure containing context for expressing strong feelings. They can assist the bereaved in the task of making sense of what is happening, through the linkage of their specific story of death with the Great Stories of the Tradition. Through the rites, relationships can be re-organised and social support mustered. But maybe most important of all, the rites can enable the bereaved to do something at a time when nothing can be done."[42]

PERCEPTIONS, CEMETERIES & RITUALS

The evolution of the perception of death highly influenced the placement of the cemetery as well as its relationship with the urban fabric. (Figure 28) Thereby, it also changed the rituals regarding death (chapter 3.5) thus influencing the way we mourn and how we deal with grief. The graveyard changed from churchyard, to cemetery, to park and has now the possibility to change again. The proposal suggests that if we change our disposal methods, we don't only redefine cemeteries but also our rituals and perceptions regarding death.

[36] Van Gennep, Arnold. The Rites of Passage. 1960. p. 11

[37] Cook, Guy. Walter, Tony. language and social relations in traditional and contemporary funerals. Discourse & Society. 2005. p. 367

[38] Ibid p. 377

[39] Ibid p. 384

[40] Sweeny, Patrick. Funeral Rites and the Consolation of the Bereaved. The Furrow.1992. p. 395

[41] Ibid. p. 398

[42] Ibid. p. 405

Figure 27: Gardening in Sihlfeld Cemetery. Source: Loacker und Hänsli (1989). Wo Zürich zur Ruhe kommt. [image]

CHURCHYARD
Up to 19th century

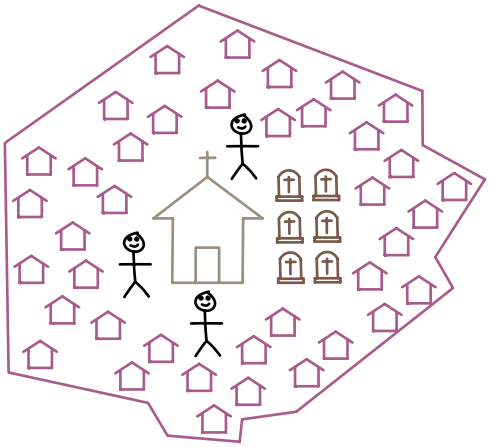
DEATH ACCEPTED

Central placement of churchyard within the city

CEMETERY
From 19th century to mid 20th

DEATH TABOO

Psychological and physical distancing to death



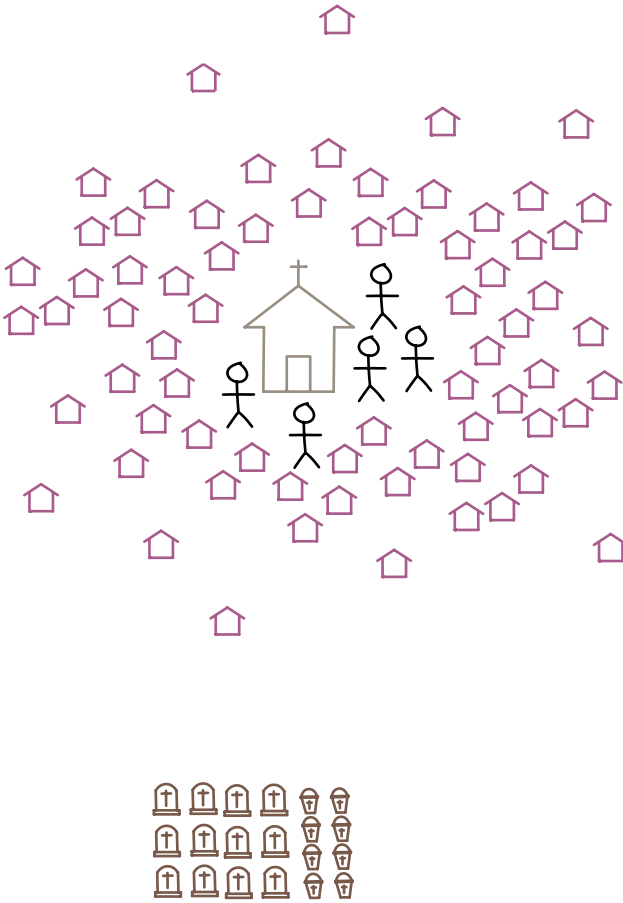


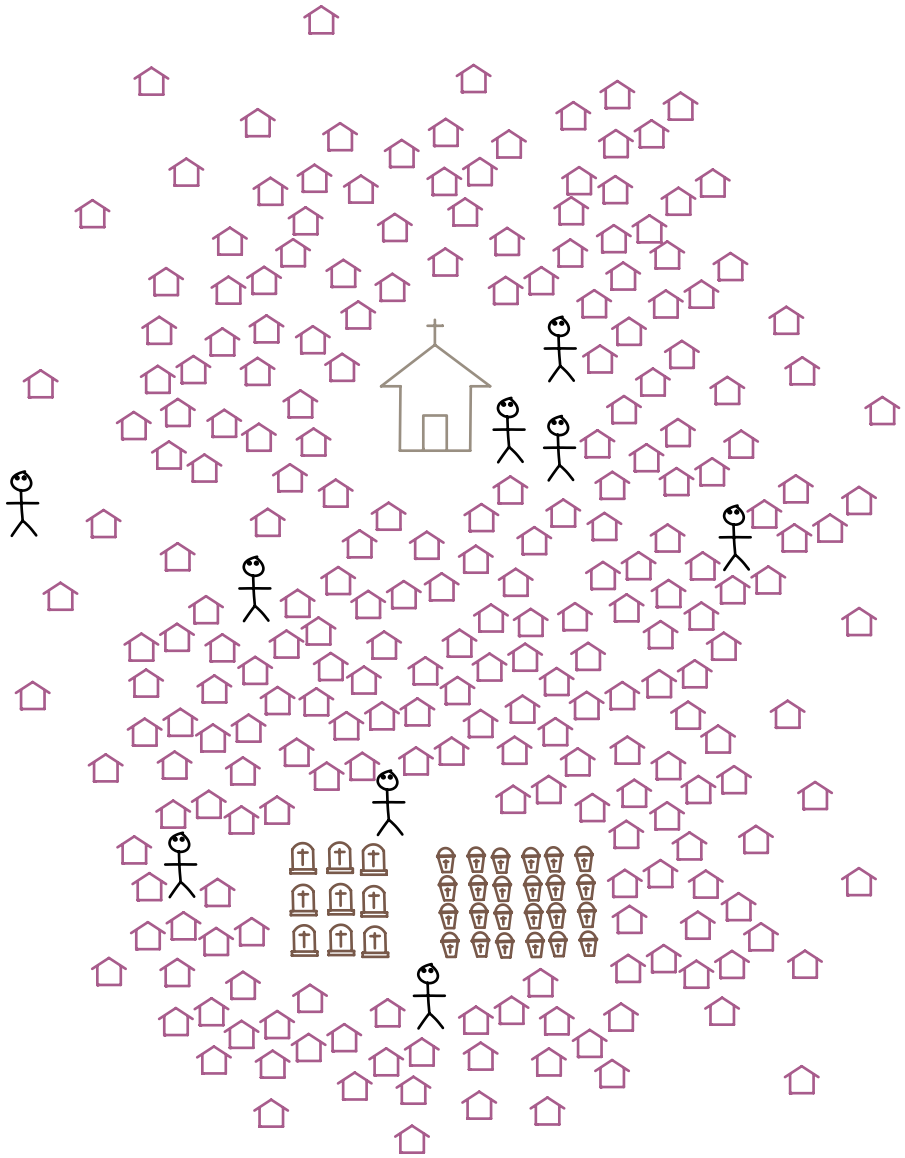
Figure 28: Co-influence of the perception of death and the physical cemetery as well as its placement in regards to the city. by Author (2022). [Sketch]

PARK

From mid 20th to now

DEATH FEARED

Increase in Cremation means less graveyards
Cemeteries become parks
Further distancing from Death as it is feared
and cemeteries no longer present death with an
abundance of tombstones



3.4 HISTORY
-BUILDING CEMETERIES

When Zwingli (1484-1531) came to Zurich and started the Reformation of the Catholic Church, he banned the use of grave markers and burials in churches; churchyards simply became empty meadow areas. It is only in 1845 that grave markers became legal again. [43]

In the 19th century, the cemeteries started being saturated and therefore many cemeteries were built. This constant increase in the number of cemeteries complicated the allocation of burial places: some family members were buried in different cemeteries. Furthermore, the question of space was still problematic: the graves were often refilled causing unsanitary and irreverent situations. Frequent complaints about the unbearable smell in the vicinity of the cemeteries required a general improvement in the burial system. [44]

In 1840, plans were made to create a central cemetery in Selnau. This project was rejected by the population because it was considered too complex. The main cemeteries of the city of Zurich, Grossmünster, Fraumünster and Hohe Promenade (figure 29), became overcrowded in the early 1870's. Additionally, the loamy nature of the soil prevented the corpses from decomposing.[45]

In 1874, the burial system which was in the hand of the churches for centuries was revised by the Federal Constitution and thus transferred to the political communities. The city of Zurich bought the area in Wiedikon, previously agricultural land, from the parishes and began planning a central cemetery (soon to be Sihlfeld Cemetery). The aim was to create a cemetery in which all residents of the city were to be buried, regardless of denomination, religion or social rank.[46]

In Zürich there are now 4 cemeteries that are over 100'000 square meters and a total of 19 publicly owned cemeteries (figure 29). The design and intention of these cemeteries are similar. Thy appeared around the same time and thus inscribe themselves in a similar context. A context where the cemeteries started being built outside the city walls, a context where cemeteries were no longer churchyards but became independent park like structures. (figure 30).[47]

There has been a clear evolution of the cemeteries that have grown to adapt to the size of the city and have found themselves once again within or at the borders of the urban fabric. This has altered the way the rituals are carried out.

Figure 29: The now closed Hohe Promenade cemetery with the cemetery chapel (today English church) and gravestones. Source: Michel, R. (2001). Der Friedhof Sihlfeld in Zürich-Wiedikon. p. 5 [image]

[43] https://art21.org/read/mark-dion-neukom-vivarium/ (Accessed 5 September)

[44] Loacker and Hänsli. Wo Zürich Zur Ruhe Kommt. 1998.

[45] Mihcel, Regula. Der Friedhof Sihlfeld in Zürich-Wiedikon. 2001. p. 5

[46] Ibid

[47] Mihcel, Regula. Der Friedhof Sihlfeld in Zürich-Wiedikon. 2001. p. 6

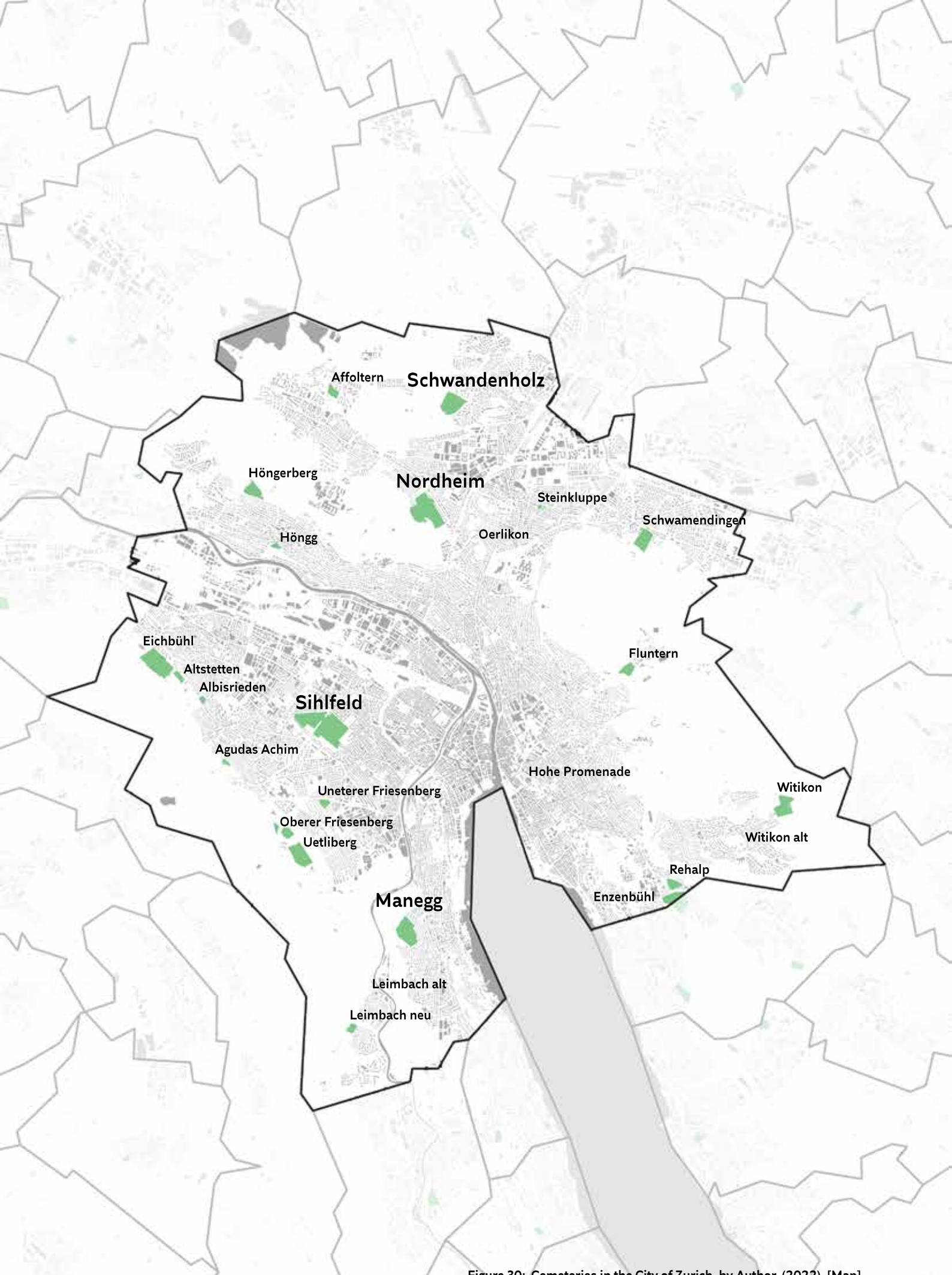


Figure 30: Cemeteries in the City of Zurich. by Author. (2022). [Map]

3.5 TRADITIONAL RITUAL EVOLUTION -CREMATION OVER BURIAL

EVOLUTION OF FUNERARY RITUALS

The sociocultural context at specific periods in history influenced the placement of cemeteries in relationship to cities. This went hand in hand with the perceptions of death. It inevitably changed the process of disposing of bodies and therefore drastically altered the rituals around death.

THE CHURCHYARD - UP TO 19TH CENTURY: The funeral and burial place merge. The site of burial is also the site of the final goodbye.

Before the creation of central cemeteries, burials took place at the "Churchyard". When someone died, it was usually at home, thus the body would be cleaned and laid out by the family. Then the wake followed. People came by to pay their final respects to the deceased. A few days after the death occurred, the burial took place. First the body was carried to the church where a funeral mass took place. Then, a second procession carried the body to the burial site (next to the church). People were present as the body was put in its grave (figure 31, "THE CHURCHYARD").[48]

THE CEMETERY - FROM 19TH CENTURY TO MID 20TH: The site of funeral and final goodbye are the same: the body is brought to the oven. Symbolism and technology merged.

When the central cemeteries were built such as Sihlfeld, the funerals drastically changed. It was no longer possible to have processions from the place of wake to the cemetery since the cemeteries were built outside of the city walls. Thus the cemeteries were equipped with mortuaries where the bodies were prepared and laid out for the wake. On the funeral day, the bodies were carried from the mortuary to the burial site where a final mass was carried out. For those who started choosing cremation, the body was brought from the wake to the crematory. There, the final goodbyes were said as the body was carried directly to the oven. Some family members waited a few hours for the cremation to take place and then carried out a final ceremony for the laying in of the ashes (inside or outside of the crematory) (figure 31, "THE CEMETERY").

THE PARK - FROM MID 20TH CENTURY: The funeral and burial place are no longer merged. Only the closest people to the deceased assist the burial. The cremation and funeral are 2 distinct places. The final goodbye happens when the coffin is put into the hearse to be brought to the crematorium. The crematorium typology changes: several ovens are lined in basements, it becomes an industry.

Nowadays, the number of cremations has largely surpassed the number of burials. This has led to an "industrialisation" of funerary rituals.[49] A new spatial interruption occurred as the cremation does not happen at the same place as the ceremony. Thus, the final goodbye happens as the body is taken away by the undertaker in the hearse. Whereas the disposal of ashes usually happens in yet another place. When it comes to burials, the situation is similar since it does occur that some people are not buried next to the place of ceremony. If, however, the body is buried close to the final mass, the people who do attend the laying of the coffin in the ground are often only the closest family members (figure 31, THE PARK").

As the number of cremations in Switzerland is extremely high and the graves are turned over every 15-20 years, the cemeteries have an increasing amount of free space. ("In 1983, 30% of all deceased were incinerated. By 2013, the figure had risen to 90%"[50]), Cemeteries such as Sihlfeld are therefore transforming these free spaces into parks.
Our current ritual regarding death has thus been shaped by a cultural and religious background (figure 32). In an increasingly secular society, this ritual has become industrial and has lost its importance. Thus, the current death care system plays an important role in the ritual and must find a way to offer rituals that can therefore aid in the process of mourning. The proposal therefore imagines how the new ritual would look in regards to a secular society. A ritual based on natural organic reduction.

[48] Ariès, Philippe. The Hour of Our Death: The Classic History of Western Attitudes Toward Death Over the Last One Thousand Year. 1977. p. 496

[49] Interview Francis Müller

[50] Swiss prefer cremations to burials - SWI swissinfo.ch(visited 23.01.2022)

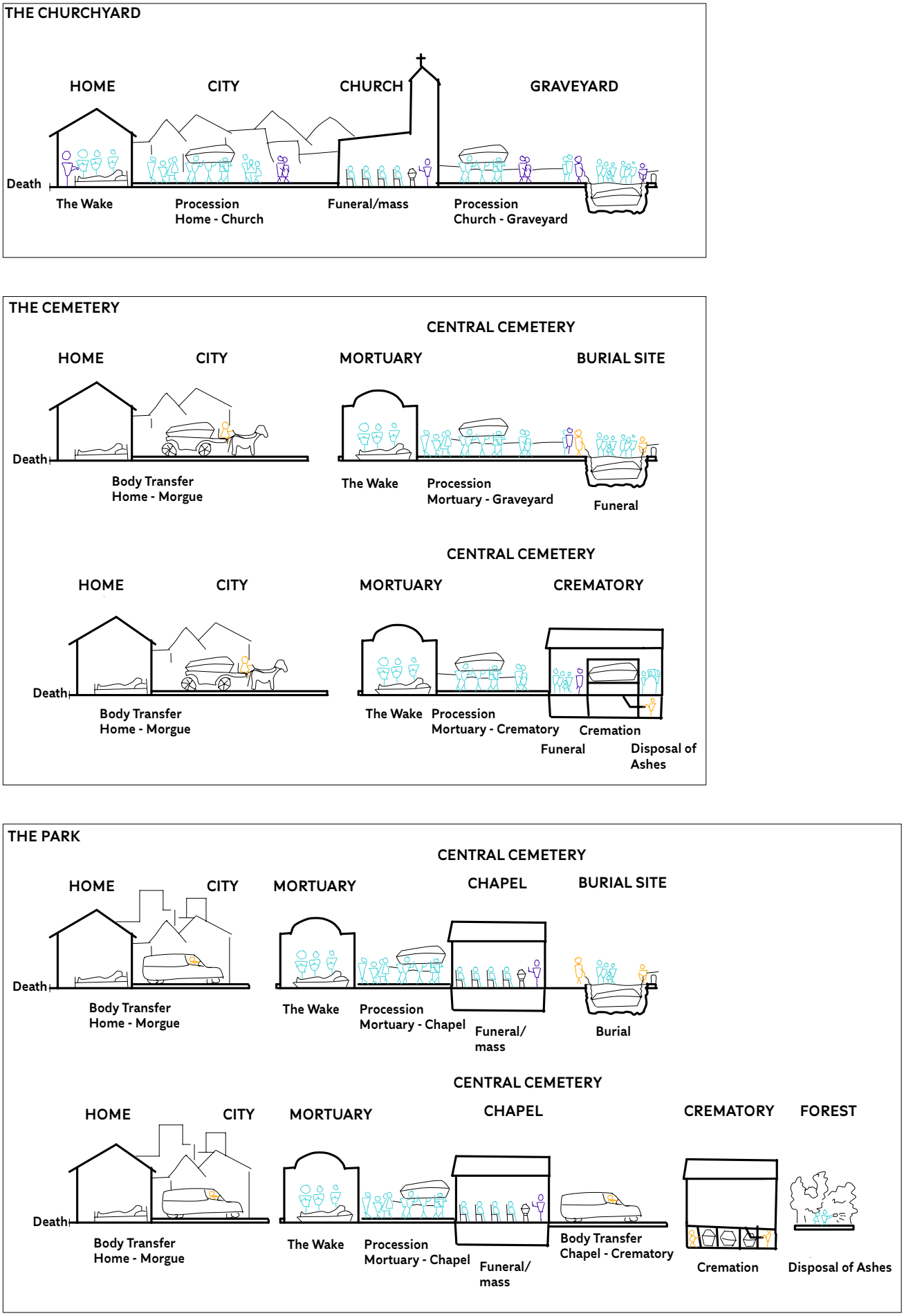
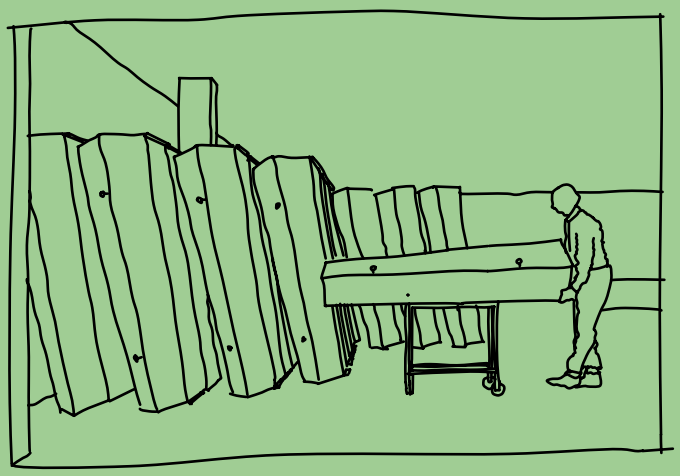


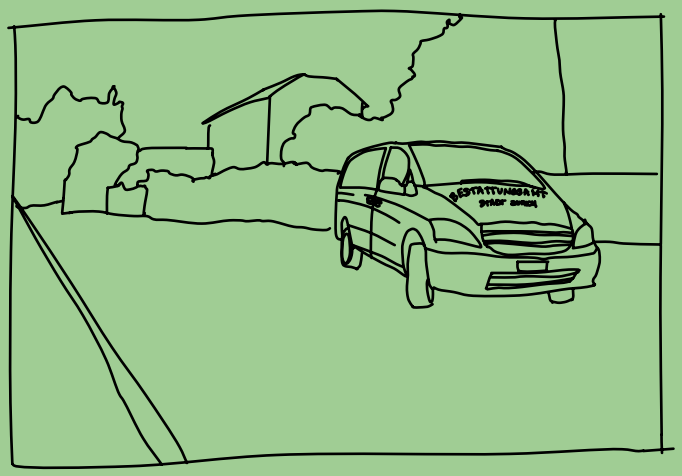
Figure 31: Evolution of Funerary Practices Overview. by Author (2022). [sketch]

3.6 CURRENT TRADITIONAL RITUALS - FROM DEATH TO DISPOSAL



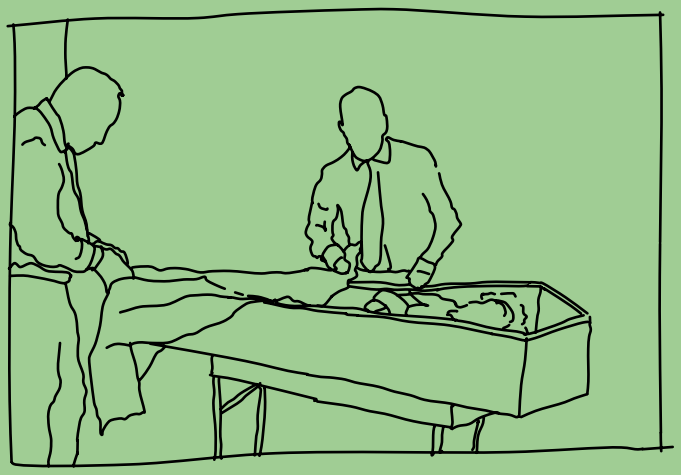
I. COFFIN CHOICE

-The Undertaker receives an official death notice
-The Undertaker chooses the right coffin size (coffins in Zurich are free of charge for the inhabitants of the city)[51]



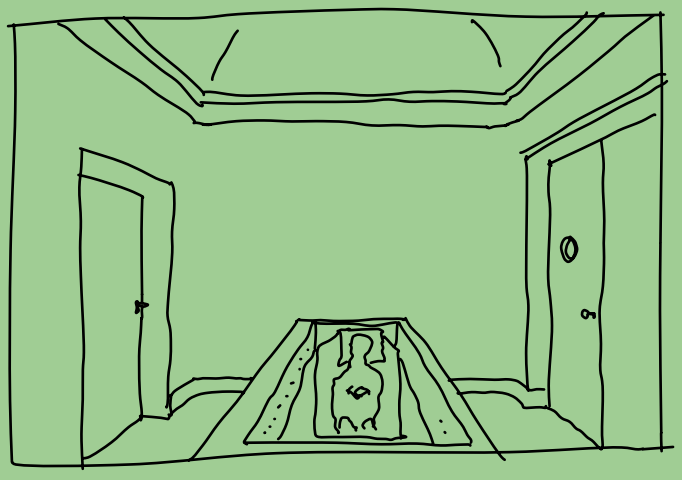
2. RETRIEVING THE BODY

-The Undertaker picks up the body
-Hospital, accidents, place of death, nursing homes etc.



3. EMBALMING

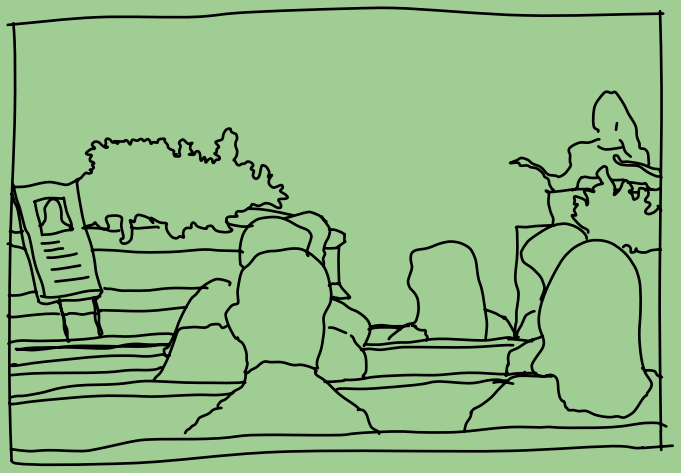
-Preparing the body for the "wake" (viewing of the body)
-Dressing
-Covering up injuries
-Laying out



4. THE WAKE

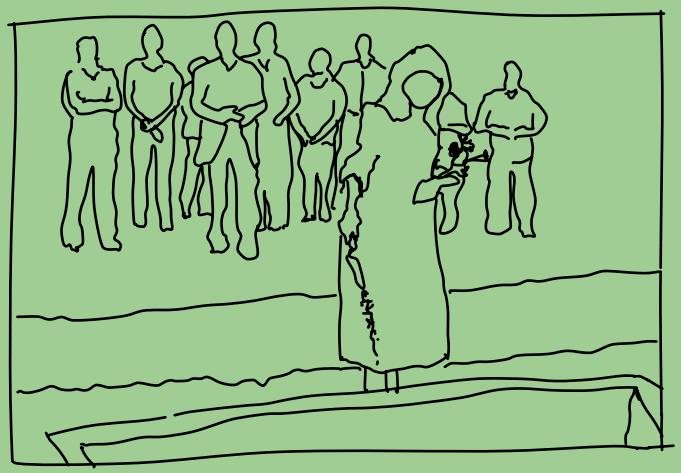
-Body is placed in a cooled room for people to come and pay their last respects
-The body remains in the room for 4-5 days

Figure 32: Storyboard of Traditional Ritual: from death to disposal of body. Drawn by Author (2022). Process source: Michael Müller. https://www.youtube.com/watch?v=o1b-Y0V_gUc&t=461s (Accessed 30 September 2022). [Sketch]



5. FUNERAL/CEREMONY

-Commemoration Ceremony
-Religious or secular



6. BURIAL

-The body is buried in a coffin, in front of a tombstone indicating year of birth and death and name
-A last ceremony can be carried out at the site of burial

OR

7. CREMATION

-The body is brought to the crematorium by the undertaker
-The body is incinerated
-The remaining ashes are cremulated

8. DISPOSAL OF ASHES

-The ashes are placed in an urn
-This urn is given to the family members
-The family decides what to do with the ashes: the ashes are put in an urn wall back in the cemetery, thrown in nature, kept at home etc.

[51] Podium Discussion. “Hallo Tod! Zurück in die Natur”, Podiumsgespräch über Alternative Bestattungsformen. 2022

4. SIHLFELD CEMETERY -ZURICH'S CENTRAL CEMETERY

"Besides, it is always the others who die." (D'ailleurs, c'est toujours les autres qui meurent)
-Marcel Duchamp's epitaph

4.1 SIHLFELD CEMETERY CONTEXT

The change in death care over the past centuries has largely influenced cemeteries such as Sihlfeld Cemetery.

Sihlfeld is currently the biggest cemetery in the city of Zurich (285'000 sqm) as well as the biggest continuous green space (figure 33).[52]

Big parts of the cemetery no longer carry their original function of graveyard and have already been turned into parks. The cemetery thus has a hybrid function for various actors. The fact that it is now mostly a park has attracted a crowd of people that contrasts with the idea of a memorial. Sihlfeld cemetery is situated in the residential area of Wiedikon. It is adjacent to a school with sports fields, residential buildings (between 4 to 6 stories high), allotment gardens and streets (figure 24-34).

The site is divided in several parts that mark the gradual adaptation of the cemetery over time to the sociocultural context. This can clearly be felt when looking at the different entrances to the cemetery. The historical Sihlfeld A entrance (figure 34) is in a classical style whereas the entrance to Sihlfeld E is entirely modern with apparent concrete structures (figure 35).Although this fragmentation of the cemetery can clearly be observed, it is hard to notice that this green space is a cemetery from the outside.

Indeed, a row of dense vegetation separates the school sports fields from the urn wall belonging to the cemetery (figure 36) so that when looking from the school, it is impossible to perceive that a cemetery lies right beside it (figure 37).

This hiding of the cemetery from the exterior gaze is clear throughout the cemetery. Where there is a road, there is a wall. Even in spaces in-between the cemeteries vegetation take over and hides the cemetery park. For example between Sihlfeld E and DI there are allotment gardens (figure 38). Further down this road where there are no allotment gardens, there is a car park, lined with trees that hide the 2 sides of the cemetery (figure 39).

This closed aspect of the cemetery is once again related to the past and how the cemetery has evolved. For a long time, the cemetery had opening hours and would close during the night. Its unique function was that of a cemetery. However, when the cemetery transformed into park, it no longer had opening hours but the structures of the prior function remained. These witnesses of change give the park its historical value, a historical value that is important to understand in order to propose an alternative project for the cemetery of Sihlfeld.

[52] Loacker and Hänsli. Wo Zürich Zur Ruhe Kommt. 1998. p. 131

Figure 33: Map with context of Sihlfeld in relationship to the city of Zürich. by Author (2022). Source: map generated with QGis. [Map]


Sihlfeld Cemetery
BUILT
Buildings
FOREST
Forest
forest
LANDUSE
Landuse
cemetery
commercial
industrial
park
recreation_ground
retail
allotments
Residential
residential
WATER
Water
N

Figure 34: View from Aemtlerstasse to main entrance gate. by Author (2022). [image]

Figure 35: Main entrance to Sihlfeld E from West side. by Author (2022). [image]

Figure 36: Urn Walls facing School: relics of Sihlfeld B. by Author (2022). [image]

Figure 37: Sports Fields next to School. by Author (2022). [image]

Figure 38: Allotment Gardens between SIhlfeld D and E. by Author (2022). [image]

Figure 39: Parking in-between Sihlfeld C and D. by Author (2022). [image]

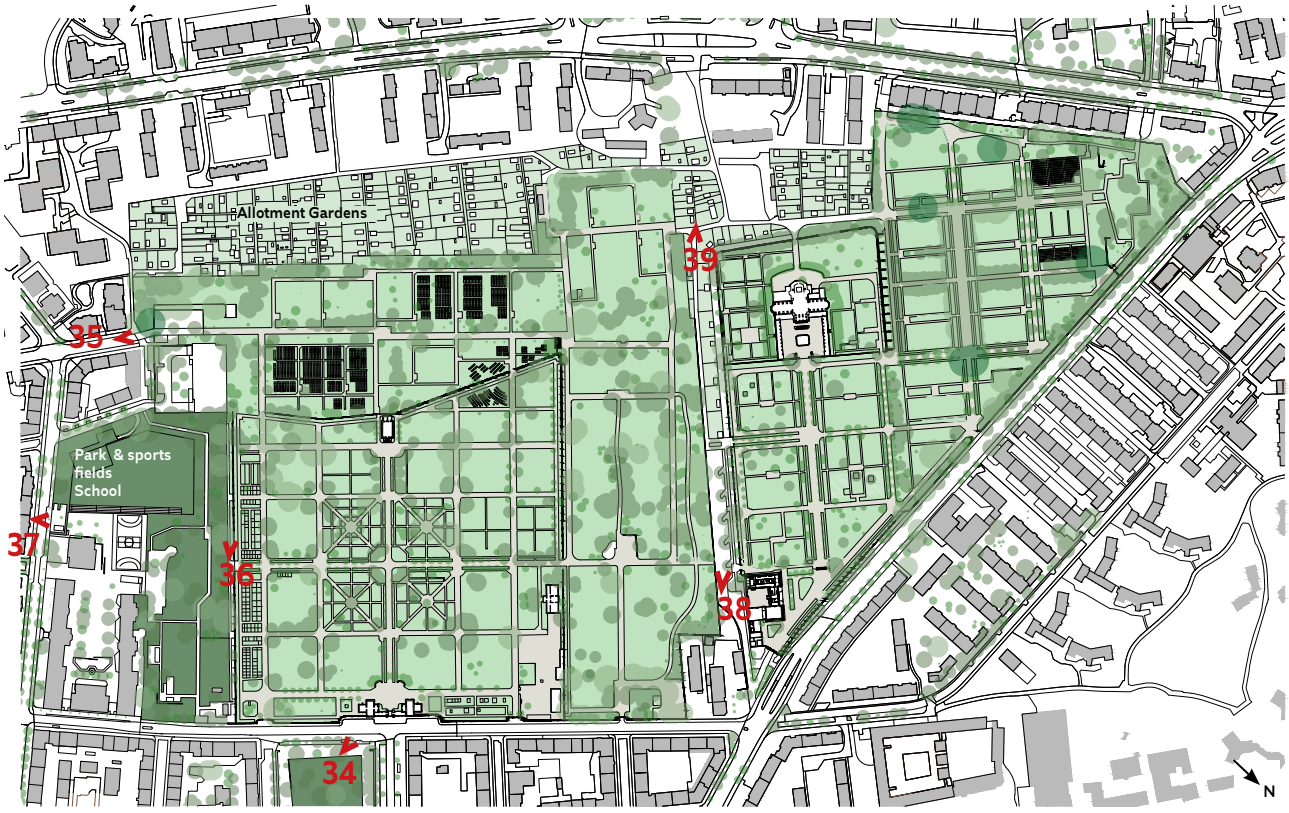


Figure 40: Map of Sihlfeld Cemetery. by Author (2022). Source: Stadt Zürich. [Map]

4.2 HISTORY
-A PALIMPSEST OF ZURICH'S GROWTH

The cemetery of Sihlfeld inscribes itself in the historical context described in chapter 3.4. The cemetery was established in order to solve the issue of the cemeteries within the city. These had become overcrowded and insalubrious. It is also in this context that cemeteries and funerals shifted from the hands of the church to those of the state (chapter 3.4 History - Building Cemeteries, page 34).

The architecture and concept of the cemetery was designed by Arnold Geiser (1844-1909). The aim was to create a non religious style with a symbolic language based on antique buildings. On Sunday, October 7 1877, the north-eastern half of today's Sihlfeld A was inaugurated. In 1892, the other half of Sihlfeld A opened and so did the crematory. This was the very first crematory in Switzerland and one of the first in Europe. [53]

Sihlfeld A forms the core of today's Sihlfeld Cemetery, it is under monument protection. At the end of the central axis stands the old crematory in the form of a small temple. [54]

The expansion of the cemetery with parts B (now belonging to the school next to the cemetery), C, D, and E followed the expansion of the city on a physical level as well as a political level (figure 42-45). [55]

PIECING TOGETHER SIHLFELD (figure 41)

Before Sihlfeld was built, the land used was agricultural land in a place that was set far from the city boundaries (figure 42).As mentioned previously, the first parts of the cemetery that were built were the 2 parts of Sihlfeld A in 1877 and 1892. Almost at the same time, in 1877, Aussersihl Cemetery was built and in 1876 Sihlfeld B was erected. Between 1893 and 1902, these 2 previously separate cemeteries, were incorporated in Sihlfeld Cemetery.[56] (figure 43)

In 1921, Aussersihl was converted into a public park.
The current Sihlfeld C was opened in 1902. (figure 44) Later, as a prolongation of the cemetery, Sihlfeld DI was set up between 1915 and 1917. From 1931 to 1932, Sihlfeld D was expanded to include part DII (figure 45). In 1958, the city council of Zurich decided that the cemetery sections A, B and C were to be gradually turned into parks. This was a way of improving the poor supply of open space in district three. Six years later another section of the cemetery was built: Sihlfeld E in 1964. [57]

In 1969, Section B became a public facility now known as Aemtlerwiese. Then, between 1983 and 1987, graves were cleared from Sihlfeld C so that it could be radically transformed into a park. As a reaction to these changes, in 1991, parts A and C requested to be preserved legally. Therefore in 1997, the entire complex was placed under protection. In addition, selected burial sites are now under monument protection. Sihlfeld A is considered a valuable witness of times and a garden monument.[58]

[53]Mihcel, Regula. Der Friedhof Sihlfeld in Zürich-Wiedikon. 2001. p. 7

[54]Mihcel, Regula. Der Friedhof Sihlfeld in Zürich-Wiedikon. 2001. p. 8

[55]Mihcel, Regula. Der Friedhof Sihlfeld in Zürich-Wiedikon. 2001. p. 9

[56]Maerki, Faye. Der Friedhof als öffentliche Parkanlage? 2011. p. 8

[57]Ibid. p. 12

[58]Ibid. p. 12

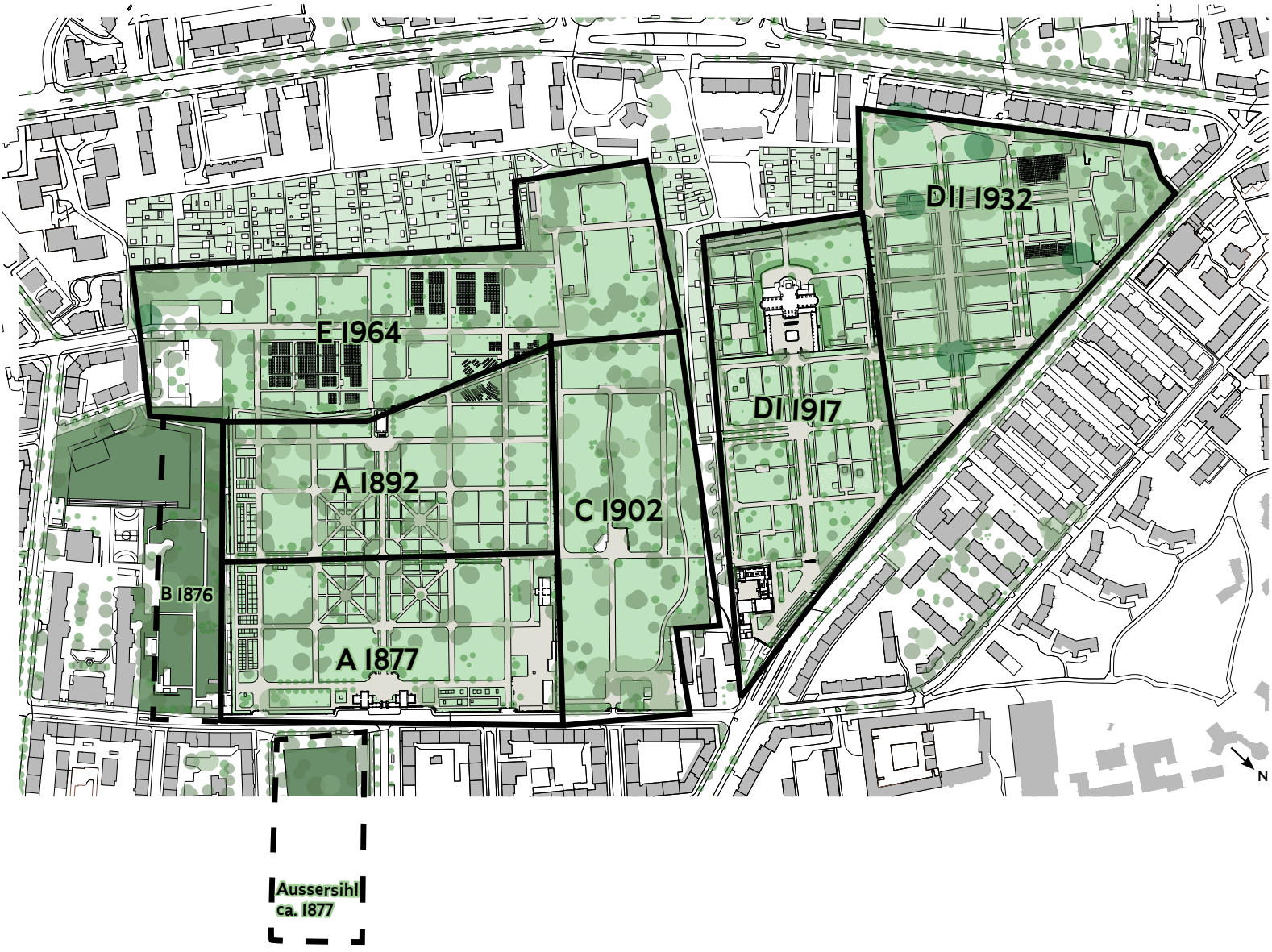


Figure 4I: Map with parts of the cemetery and when they opened. by Author (2022). Source: Rohrer-A. & Hager (1998). Anthos : Zeitschrift für Landschaftsarchitektur = Une revue pour le paysage. [map]

Figure 42: Zurich Map 1876: Before the central cemetery was planned, the site was agricultural land. Source: geo.admin.ch. [Map]

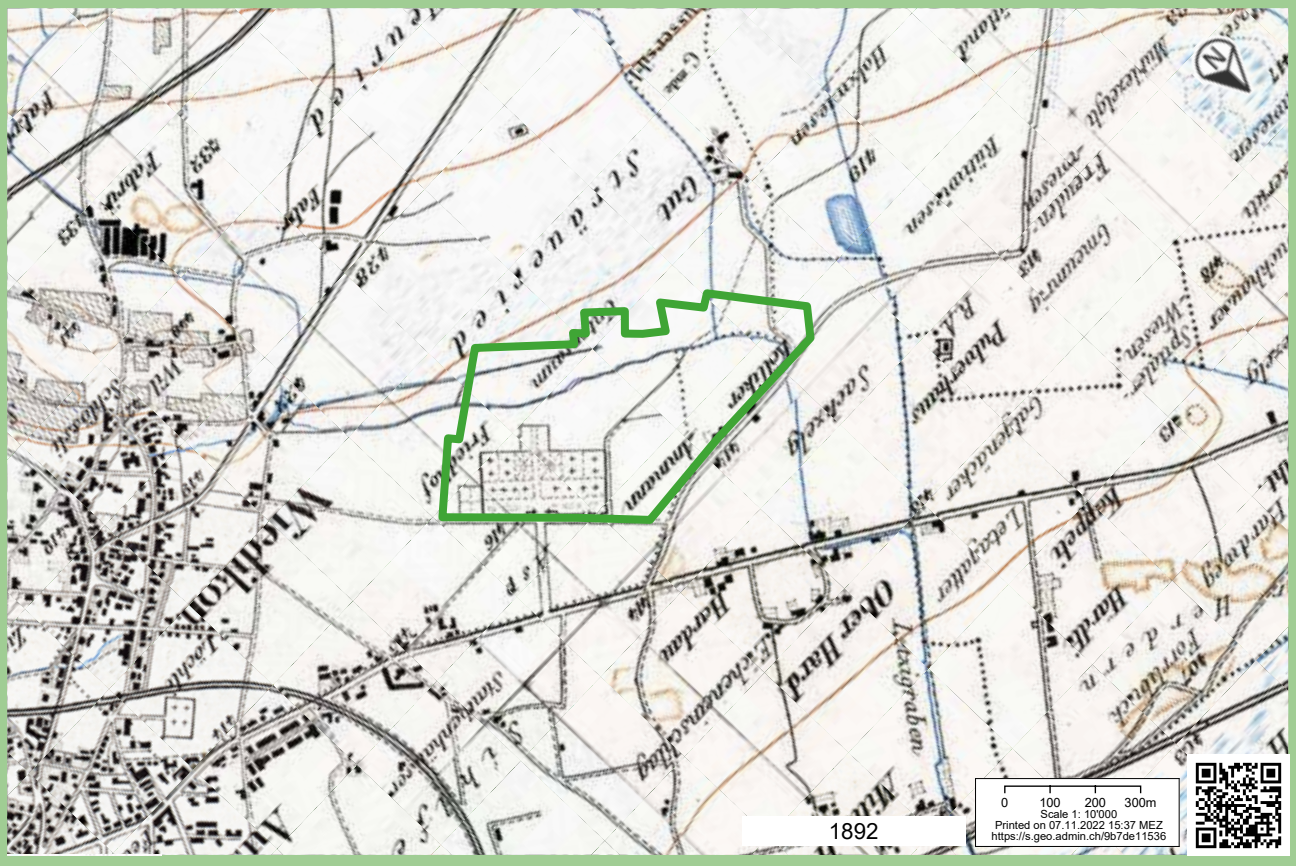


Figure 43: Zurich Map 1892: Central Cemetery Sihlfeld A is built before 1892, there is only the lower half of Sihlfled A. Source: geo.admin.ch. [Map]

Outline of Cemetery Now

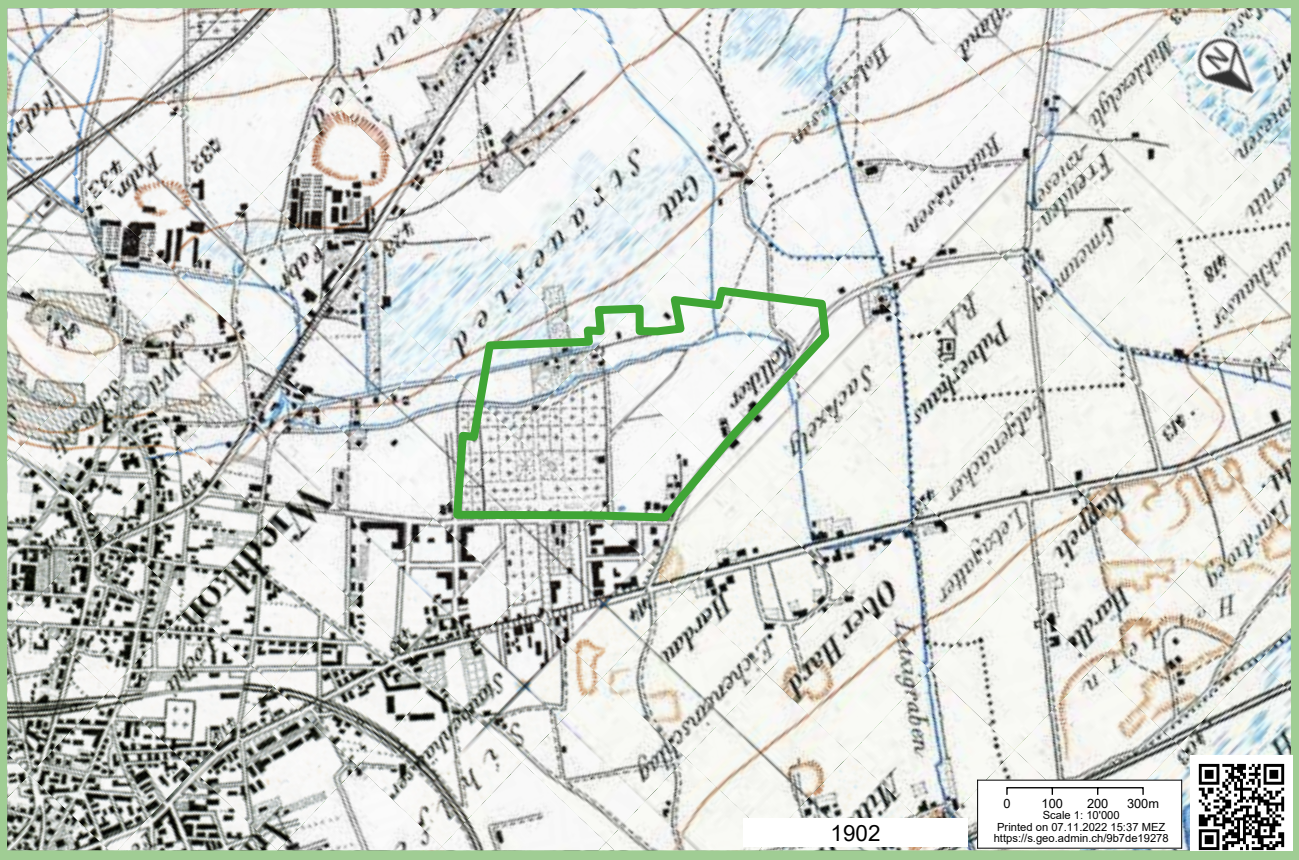


Figure 44: Zurich Map 1902: Now parts A and B are complete, there is also the Aussersihl part of the cemetery that has been added. Source: geo.admin.ch. [Map]

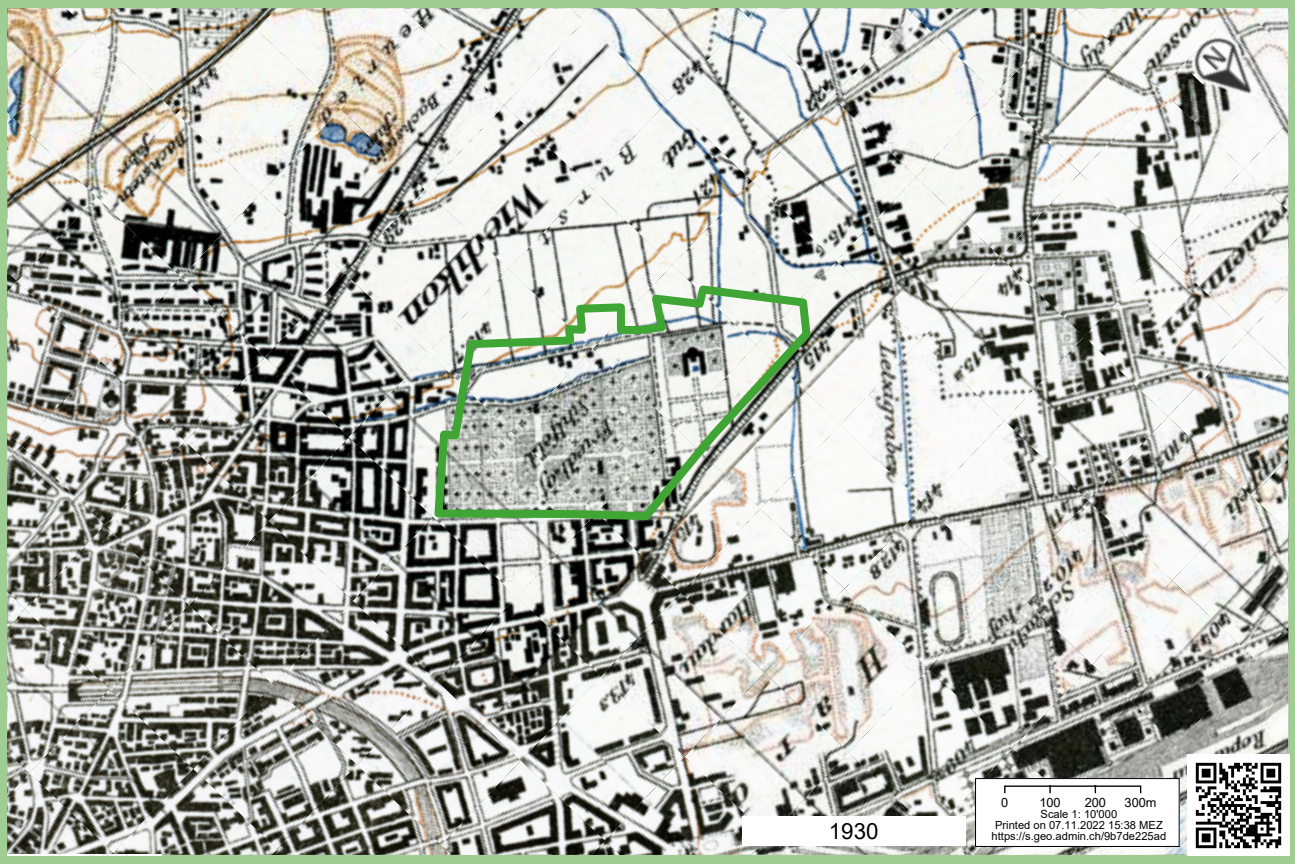


Figure 45: Zurich Map 1930: the plan of the cemetery starts resembling what it is now. Sihlfeld DII and E aren't built yet and B still belongs to the cemetery but will soon be removed. Source: geo.admin.ch. [Map]

When Sihlfeld was originally designed, it was meant to be a graveyard (figure 46). However now, in Switzerland, 9 out of 10 people are incinerated (this is an extremely high rate that is only matched by a few other countries such as Japan). The direct consequence of a high cremation rate is a drastic decrease in tombs and tombstones. (Figure 47 shows the amount of tombstones in 1923 that were then replaced by park like fields, figure 48). Thus, there is also a drastic decrease in people that visit cemeteries for their primary function: a place of commemoration.[59] The majority of people seen within the cemetery are people who seek the comfort and quite of the park as well as its nature, for leisure purposes.

[59] Podcast: la nouvelle vie des cimetières. 2016.https://www.rts.ch/audio-podcast/2016/audio/la-nouvelle-vie-des-cimetieres-suisses-25450193.html

Figure 46: Sihlfeld Cemetery original drawing. Source: image of drawing from archives of Stadt Zurich. [Accessed: 12 Oct. 2022]. [drawing]

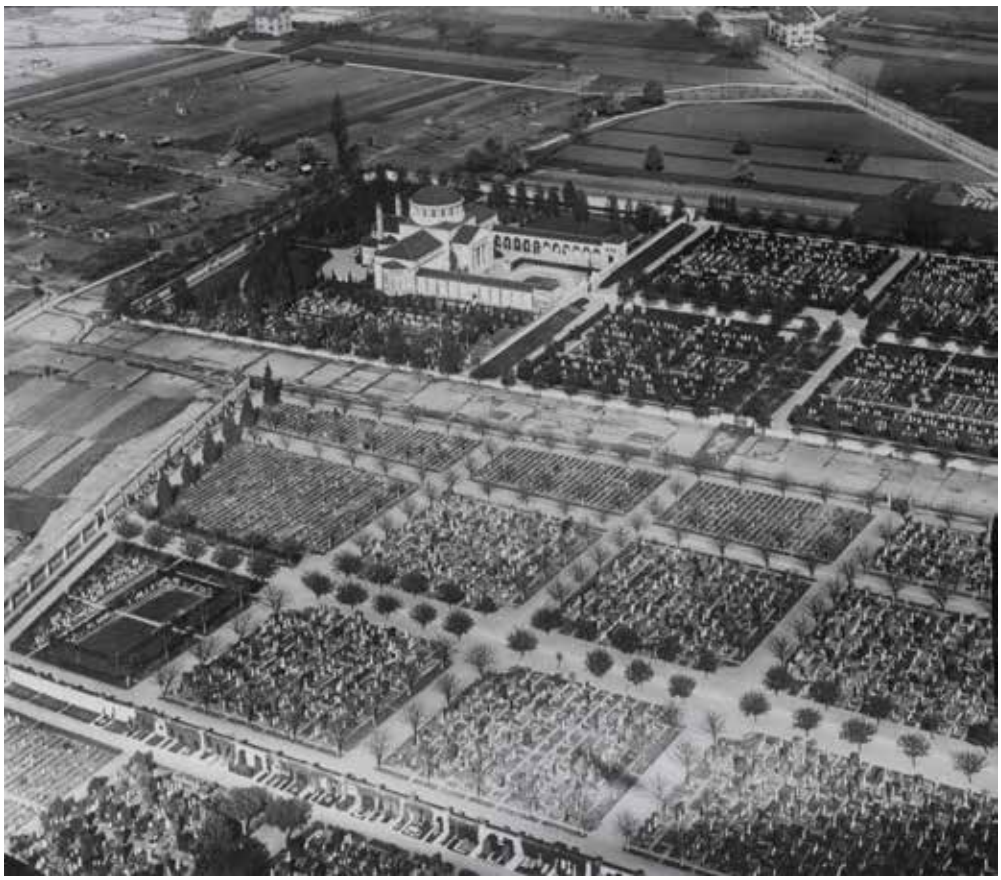


Figure 47: Sihlfeld Cemetery Image 1923. Source: https://ba.e-pics.ethz.ch/catalog/ETHBIB.Bildarchiv/r/500588/viewmode=previewview/qsr=Sihlfeld [Accessed: 16 Oct. 2022]. [photograph]

Figure 48: Sihlfeld Cemetery Image 2022. Source: Google Earth Pro [Accessed: 4 Nov. 2022]. [screen capture]

4.3 THE CEMETERY PARK - NATURE IN THE CEMETERY

Nature in all its shapes, sizes and forms is extremely present within the cemetery. As there is a decreasing amount of tombs, there is an increase in Park surfaces (figure 49). Some of these are clearly used as park with clean cut grass whereas as others are fields where nature is given the liberty to grow (figure 50), these contrast with the few neighbouring plots that still contain rows of graves (figure 51). The cemetery is also bordered on most sides by natural features such as allotment gardens or parks (figure 52).
A park demands however a lot of maintenance, a maintenance that is carried out by Grün Stadt Zürich (figure 53 : sprinkler turned on for bushes and trees).

Figure 49

Figure 50

Figure 51

Figure 52


Figure 53

Figure 49: Sihlfeld D. by Author. (2022). [img]
Figure 50: Sihlfeld C: field. by Author. (2022). [img]
Figure 5I: Sihlfeld A: row graves. by Author. (2022). [img]]
Figure 52: Sihlfeld E entrance, allotment garden adjacent. [img]
Figure 53: Sihlfeld A: left entrance. by Author. (2022). [img]

Nature in the cemetery is highlighted by signs indicating the benefits of certain zones for certain animals (figure 54). Moreover, the city has created ways to emphasize this nature with, for example, a walk that brings you to see different trees in Sihlfeld and explains how these trees benefit the environment (figure 55).

Figure 54: "Foxhole" explanation sign Sihlfeld. Source: https://www.attilio-meyer.ch/blog/die-neue-signaletik-im-friedhof-sihlfeld-klar-modern-und-barriere-freundlich/ [Accessed 28 Jan. 2023]. [image]

Figure 55: Tree Observation Walk proposed by Stadt Verkehr 2025 Zurich. Source: https://www.stadt-zuerich.ch/ted/de/index/stadtverkehr2025/routen/plan_sihlfeld_baum.html. [screen capture]

THE CEMETERY PARK

The swelling in free space in cemeteries has led to an increase in pressure on the land that is precious due to its position within the urban context. In 1958, to compensate for the lack of green infrastructure within the city, it was decided that vacant plots in cemeteries would be used as parks. The problematic of the cemetery park lies in its multi-functionalities that are, to most people, contradictory. The previous Sihlfeld B and Aussersihl were easily transformed into traditional parks because of their peripheral placement in relationship to the main cemetery. However, Sihlfeld E, was defined as a Park for "Silent use because of its placement within the still active cemetery. [60]

When talking about their vision for the future of municipal cemeteries in the upcoming years, Grün Stadt Zürich writes: " Cemetery areas that are not required for burials for the time being, are available to the public as quiet and extensive parks. No commercial use takes place here and only events appropriate to the location take place".[61]

Conversations on transforming Sihlfeld C into a traditionally defined park have taken place, however the complex nature of a park must be taken into consideration. There are three key ecological problems when it comes to transforming Sihlfeld into a Park. The open spaces appear as meadows however there cannot be a large variety of flowers or plants on these fields. This is because, traditionally, the over-fertilized top 20 to 30 cm layer of graveyard plants is removed to allow new flowers to grow but this was not done so the quality of the topsoil is bad. Secondly, "art historical and garden monument" values that were given to Sihlfeld E place its trees and vegetation under protection. Thirdly, the way the border plants, shrubs and hedges are dealt with should be reconsidered: north of Sihlfeld C, Sihlfeld E is directly visible and being dug for new graves. [62]

In fact, it may come as a surprise that there is not enough ground for new graves. Indeed, when seeing all the free space available, it is hard to imagine such a situation. This is because, a cemetery floor plot can hold a maximum of three layers of graves as well as four to six urns however it takes 70 years before the ground can be used again for burial plots. [63]

The need to enrich and heal the ground of Sihlfeld Cemetery is therefore clearly stated. The proposal of the project to create rich and fertile soil is thus compatible with the necessity to regenerate the ground of the cemetery. Thus transforming the cemetery into a garden can heal the soil, the soul of the people mourning by giving them physical activity, and act as a habitat for the already present ecosystems (figure 56 & 57).

Moreover, the mixed function of the cemetery with the park makes the transformation of a cemetery into a garden relevant. Let's remember that from the Middle Ages to the modern period, cemeteries were already multifunctional. They were used as public squares: places of justice, marketplaces, meeting places, workplaces, playgrounds, festival grounds etc. [64]. The idea of placing mourning, leisure, social interaction, politics and economics in one place did not pose many problems. This was probably due to the fact that the ideology of a grave (a physical mourning place) did not exist as the graves were communal: this is of course also a witness to a time that perceived death with acceptance.

[60] Maerki, Faye. Der Friedhof als öffentliche Parkanlage? 2011. p. 6

[61] Ibid. p. 7

[62] Ibid. p. 23

[63] Ibid. p. 24

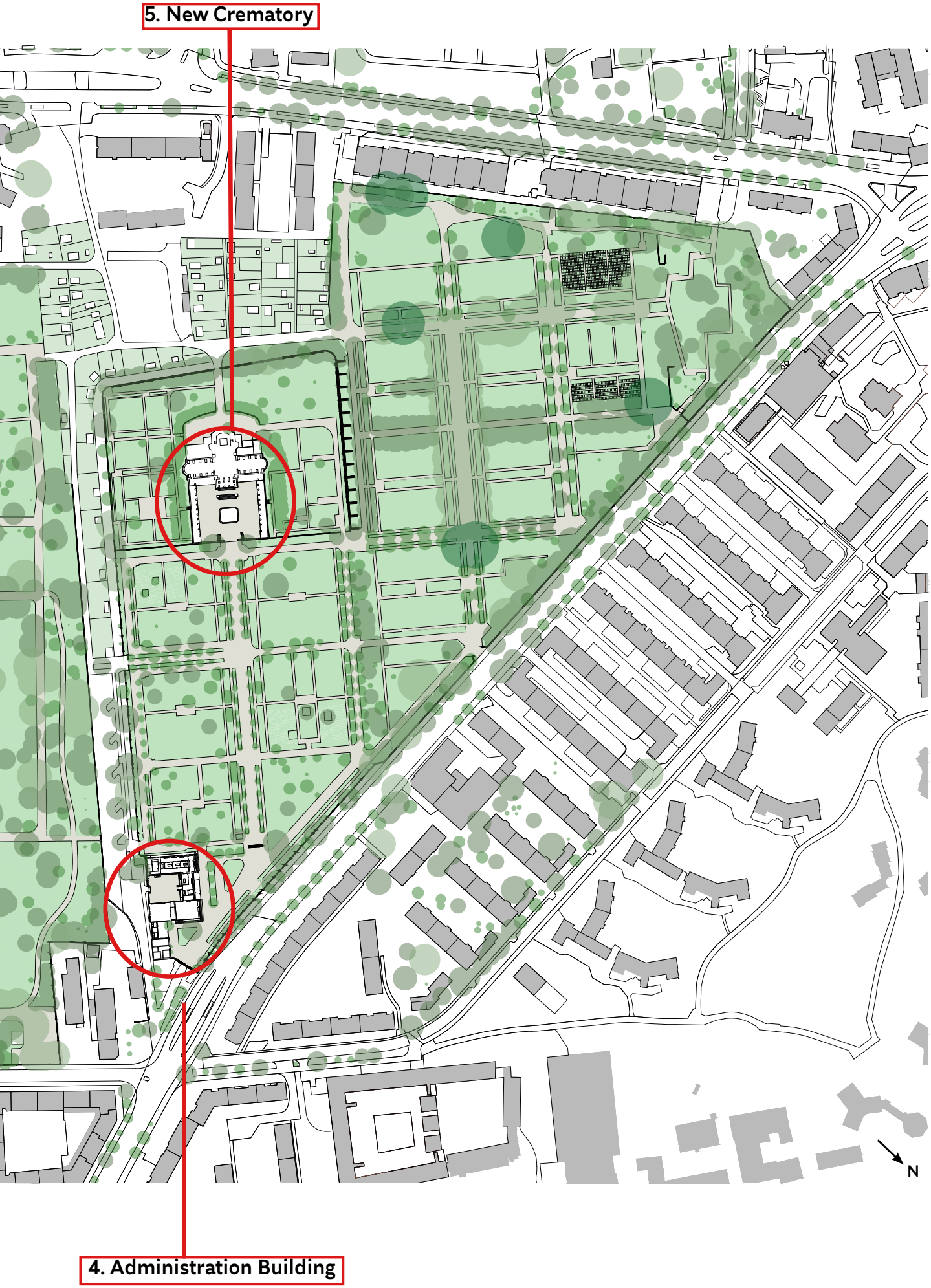
[64] Ibid. p. 26

Figure 56: Sheep in-between cemetery wall and allotment gardens. Source: Loacker und Hänsli (1989). Wo Zürich zur Ruhe kommt. [image]

Figure 57: Cat sitting on grave in SIhlfeld Cemetery. Source: Loacker und Hänsli (I989). Wo Zürich zur Ruhe kommt. [image]

4.4 HISTORICAL EVOLUTION OF BUILDING USES

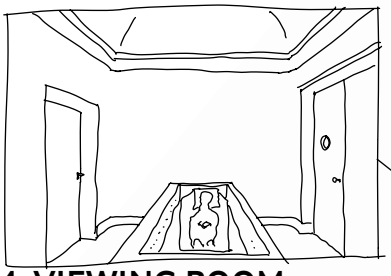
Figure 58: Sihlfeld plan with building numbers indicated. Stadt Zürich (n.d.) [PDF]


5. New Crematory
4. Administration Building
N

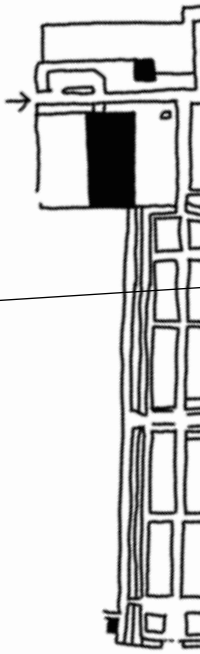
As the cemetery adapted to the size and organisation of the city, buildings changed, buildings were built. This has made Sihlfeld Cemetery a patchwork that has recorded time and keeps on adapting and being used to meet the needs of the city (figure 59).

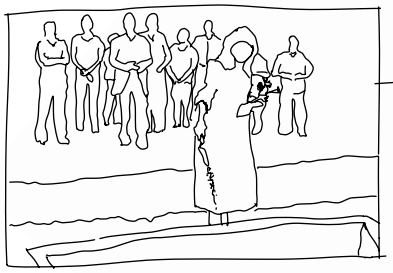
Since 1992, the cremation rate has not ceased to increase. Therefore, Sihlfeld's old crematory was soon no longer enough. In 1992, the last cremation took place in Sihlfeld D's crematory and nowadays all cremations happen in Nordheim. The old crematory is currently used as an abdication chapel. The other buildings within the cemetery have slightly altered functions but remain in general administrative or storage for equipment. The Parking and Storage building created in 1959 has gradually lost its function and is now a shared building with offices that have nothing to do with the cemetery. The new building programmes have ceased to carry the symbolic that they originally had.

Figure 59 shows how the different steps of a traditional death care ritual within Sihlfeld have a tendency of underutilising buildings and the space available. The ritual is mainly concentrated in the main mortuary building. The buildings were designed in a symbolical way and their new programmes as well as protected status have a tendency of making them underutilised. The project proposal tends toward a greater use of the cemetery space and also the cemetery buildings. Generating more movement and life within the buildings and the park.

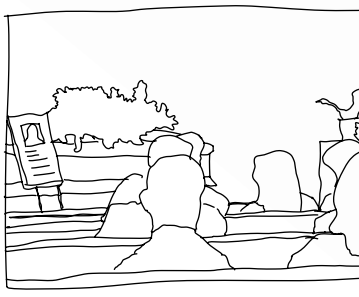


4. VIEWING ROOM

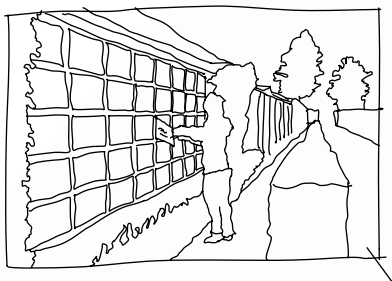




6. EARTHEN BURIAL

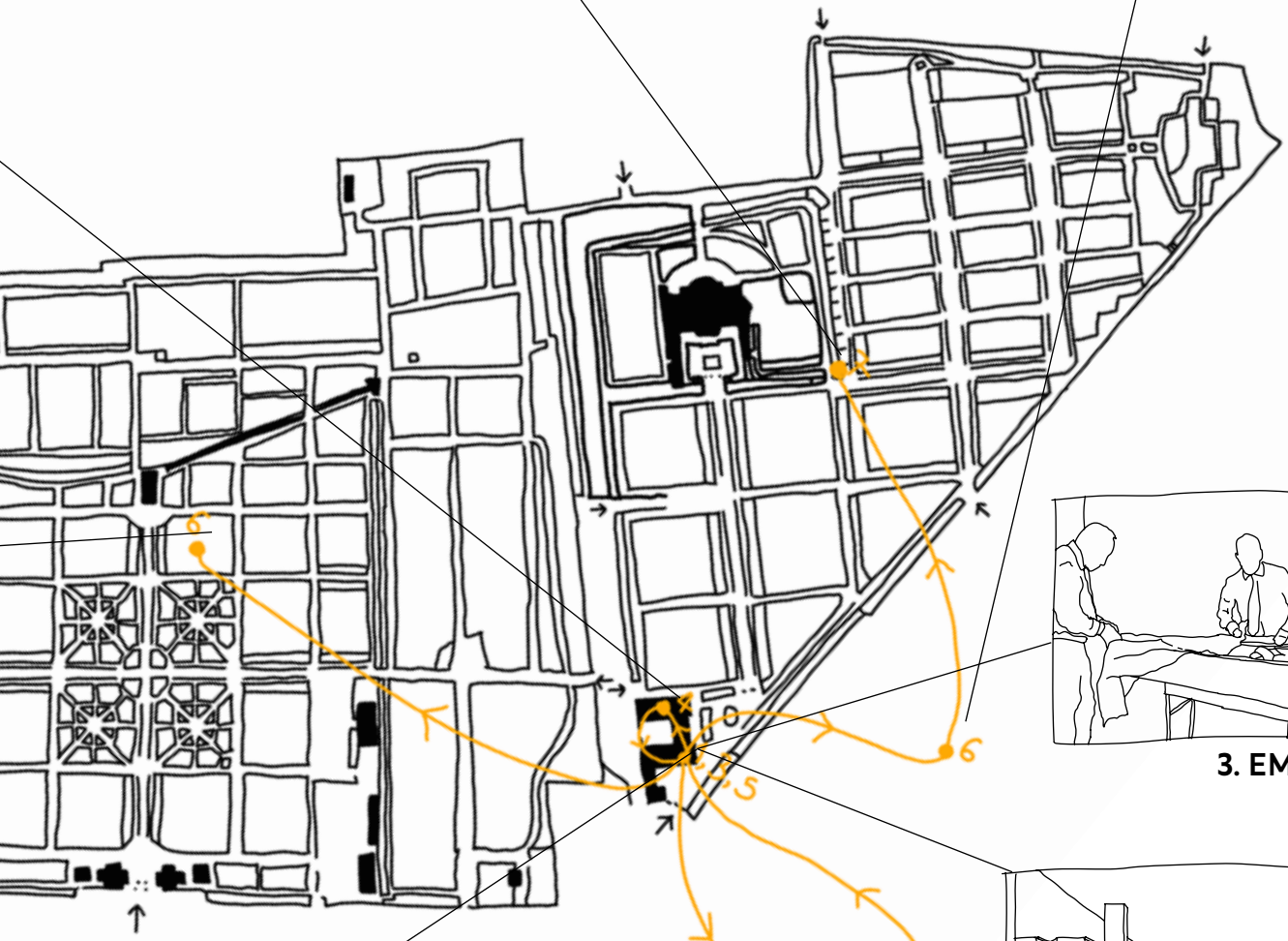


5. FUNERAL/RITUAL

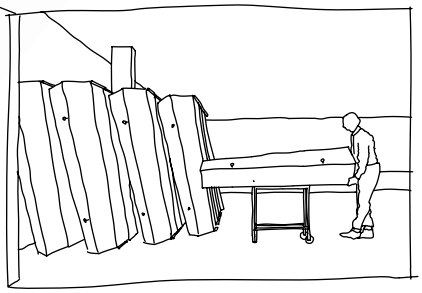


7. DISPOSAL OF ASHES

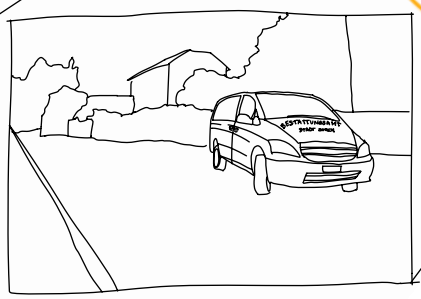
6. CREATION



3. EMBALMING



1. COFFIN CHOICE



2. RETRIEVING THE BODY

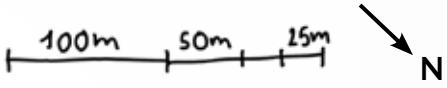


Figure 59: Traditional Ritual in Sihlfeld Cemetery Now. by Author. (2022). [sketch]

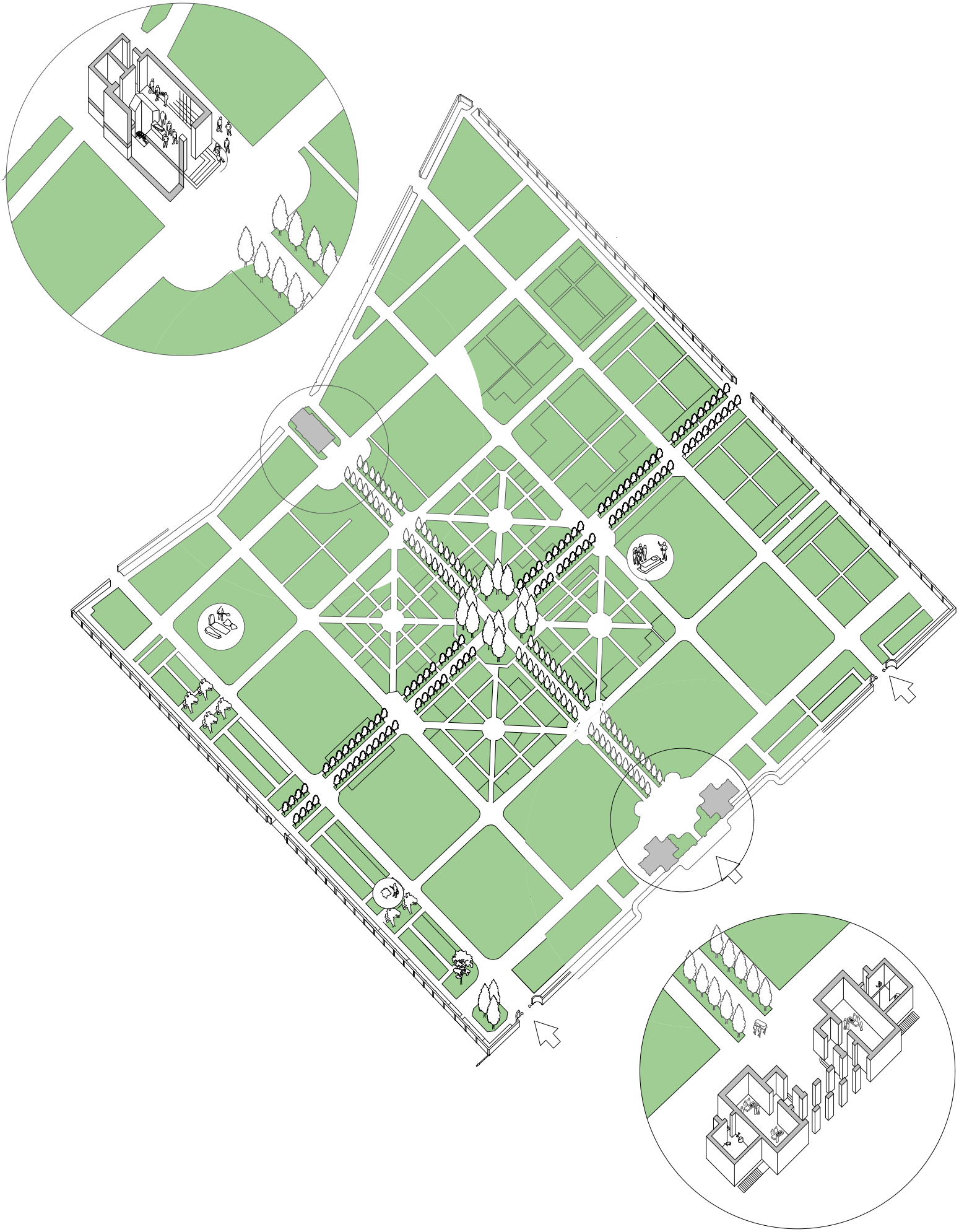


Figure 60: Sihlfeld Cemetery building uses I889-I898. by Author.(2022). Source: Loacker und Hänsli (I998). WO Zürich zur Ruhe Kommt. [sketch]

From 1889-1898 (figure 60)

When the cemetery was first designed and imagined (Sihlfeld A) two buildings were planned. The first building was the entrance gate. As practices changed and the cemetery left the city centre, it became necessary to have a place at the cemetery where the wake could take place. Therefore, the Entrance Gate was originally designed as a mortuary. A space in this building was also left for the gardener. Shortly after this building was erected, the first crematory in Switzerland was built. The crematory was placed at the extremity of Sihlfeld A in line with the main-entrance gate. The path leading to the crematory was lined with trees. Thus the mourners were invited to carry the coffin from the wake (entrance building) to the crematory where the coffin was placed on a table. This table then moved the coffin into the oven. Some mourners stayed a few hours until the ashes were ready and set in an urn. They then proceeded in placing the ashes in a memorial (either in the crematory our outside).

Building I: Main Gate Building (figure 61)

This symmetrical axis building had 3 tasks to fulfil. The first was that it had to be functional: 2 separate buildings with, on one side the gardener's house and on the other the mortuary. The second task was adequate architectural representation. The third concern the theme of life and death. Both architecturally and iconographically, the portal complex had to show the thematic of the transitory element of dying and burial. The entrance is composed of a triumphal arc and arcades. In the pediment there are attributes of death and resurrection (two inclined torches, laurel wreath). The buildings contain triangular pediments and acroteries create the allusion to a temple complex. The mortuary was decorated with coffered ceilings and a meandering frieze of skulls. [65]

[65] Stadt Zürich VI. Die Kunstdenkmäler des Kanton Zürich. 2016. p. 118

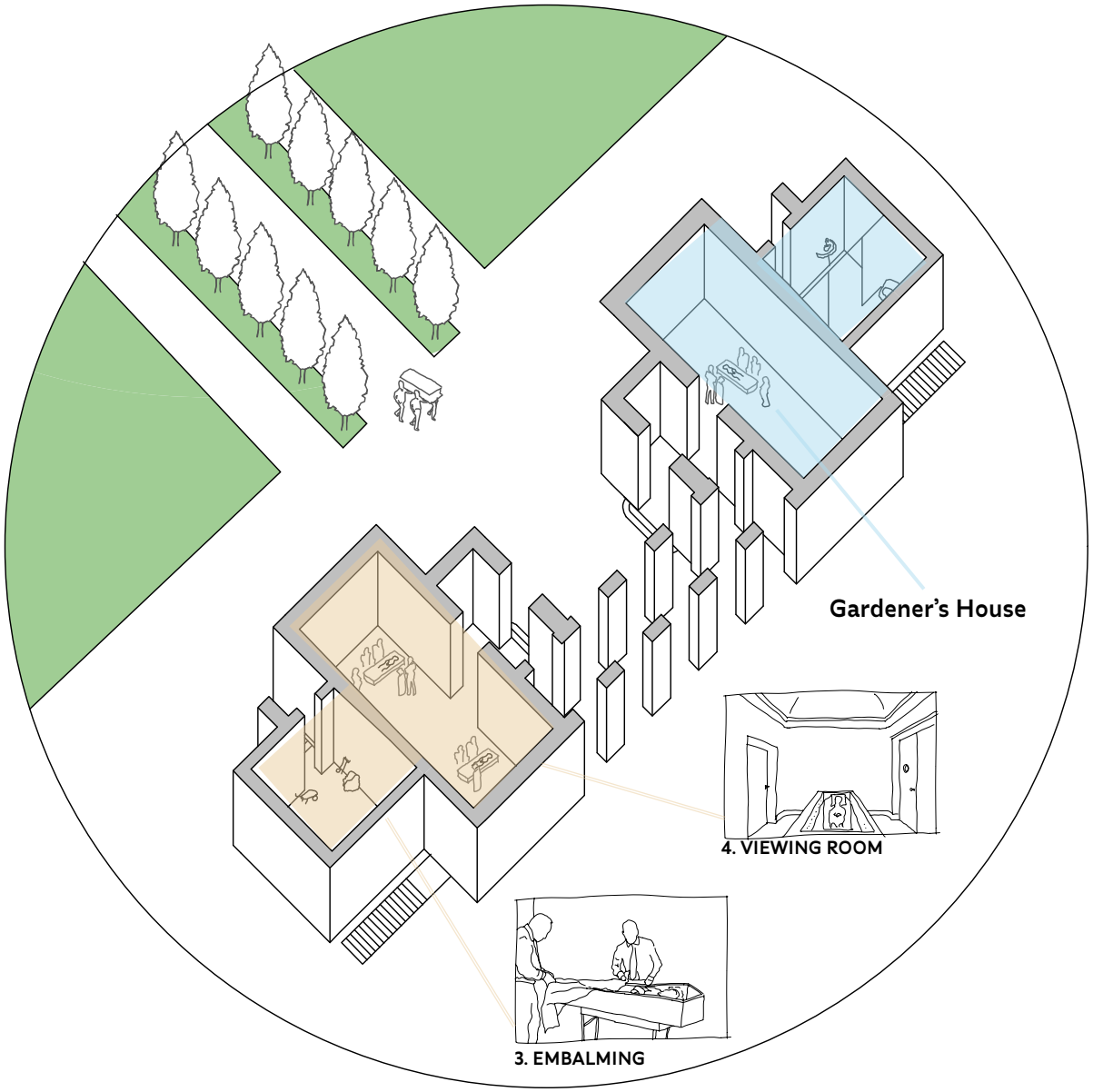


Figure 61: Entrance Building use from 1889-1898. by Author.(2022). Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

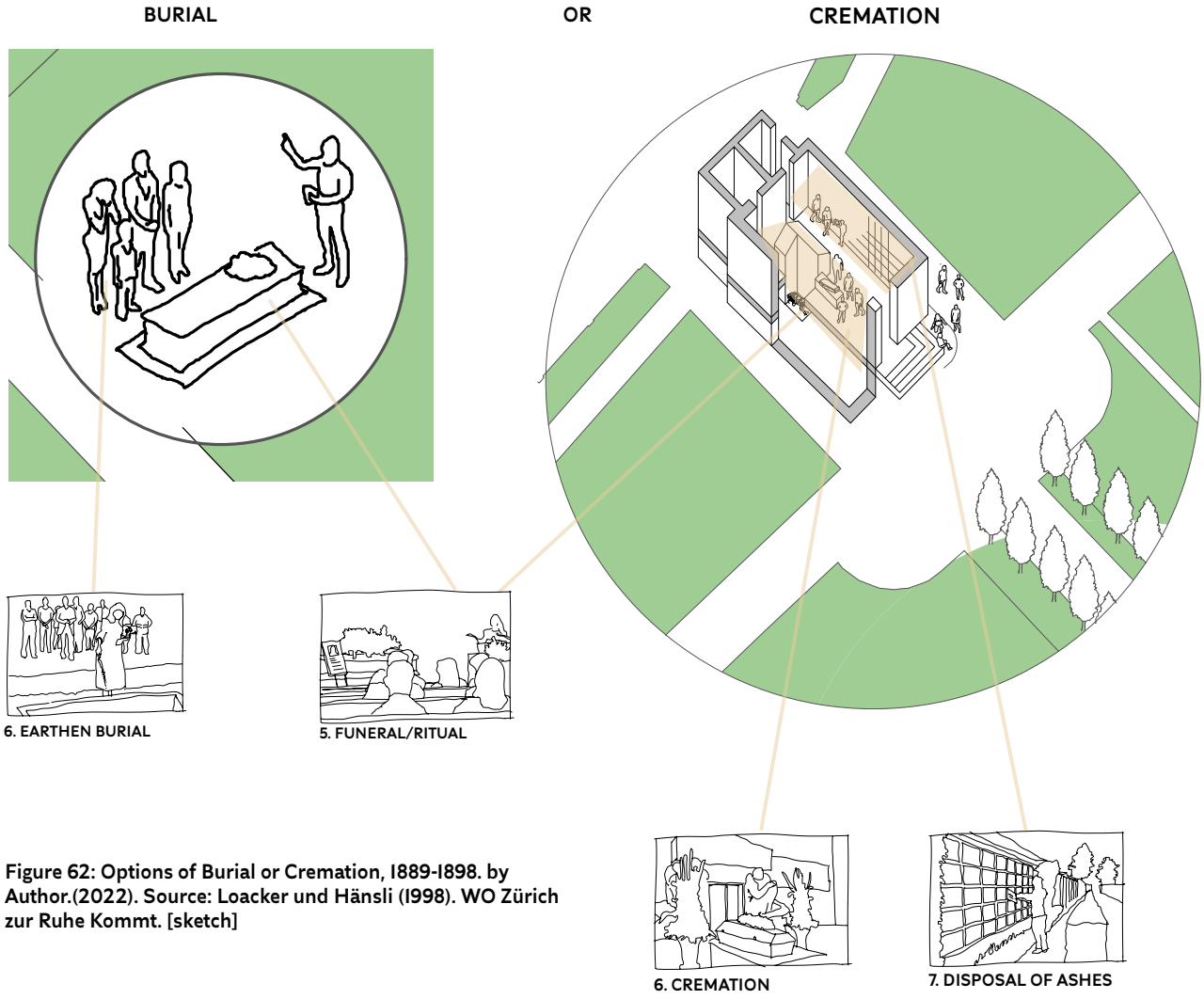


Figure 62: Options of Burial or Cremation, 1889-1898. by Author.(2022). Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

Building 2: Old Crematory (figure 65)

When the cemetery opened, in 1877, plans had already been made to build a crematorium. In 1889, the crematorium in Sihlfeld A is therefore the first crematorium in Switzerland, the third in Europe. Geiser had planned the crematorium in formal analogy to the gabled buildings of the portal complex, but more simply and in exposed brick (figure 63). The formal model was Roman temples, therefore the portico is reduced to a an edicule with Tuscan columns. The crematorium was engineered by Emile Boury and the interior was designed to integrate urns in the walls of the building. (figure 64).[66]

Just like the main entrance building, the first crematory was designed in a classical and symbolical secular style. The importance of these buildings lies not only in their classical and symbolical nature but most importantly in their historical values. They represent technical and societal change.

[66] Stadt Zürich VI. Die Kunstdenkmäler des Kanton Zürich. 2016. p. 117

Figure 63: Old Crematory exterior photo. Archive Stadt Zurich (1877). [img]

Figure 64: Old Crematory original interior. Archive Stadt Zurich (1877).
[img]

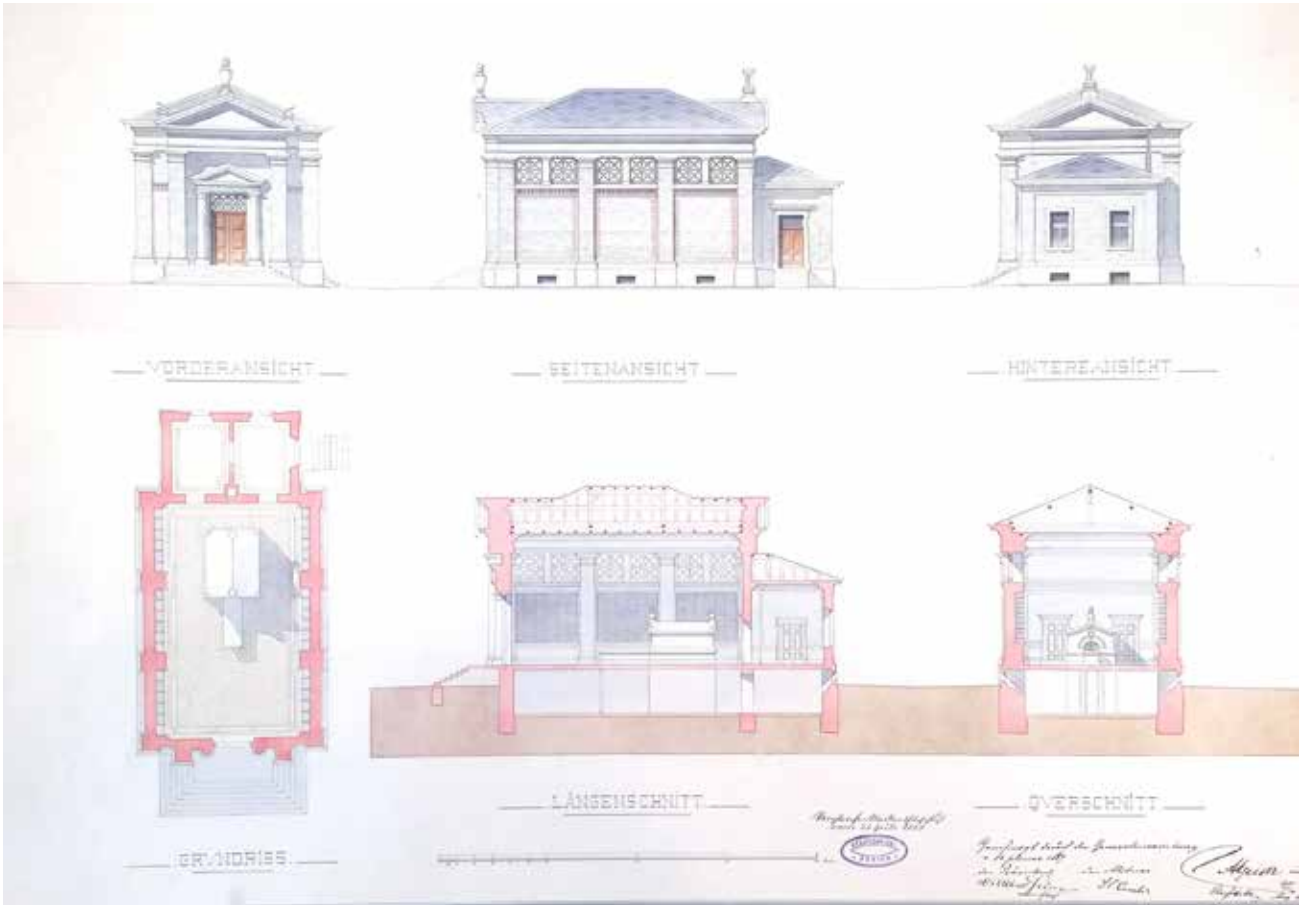


Figure 65: Crematory Plans. Archive Stadt Zurich (1877). [Plans]

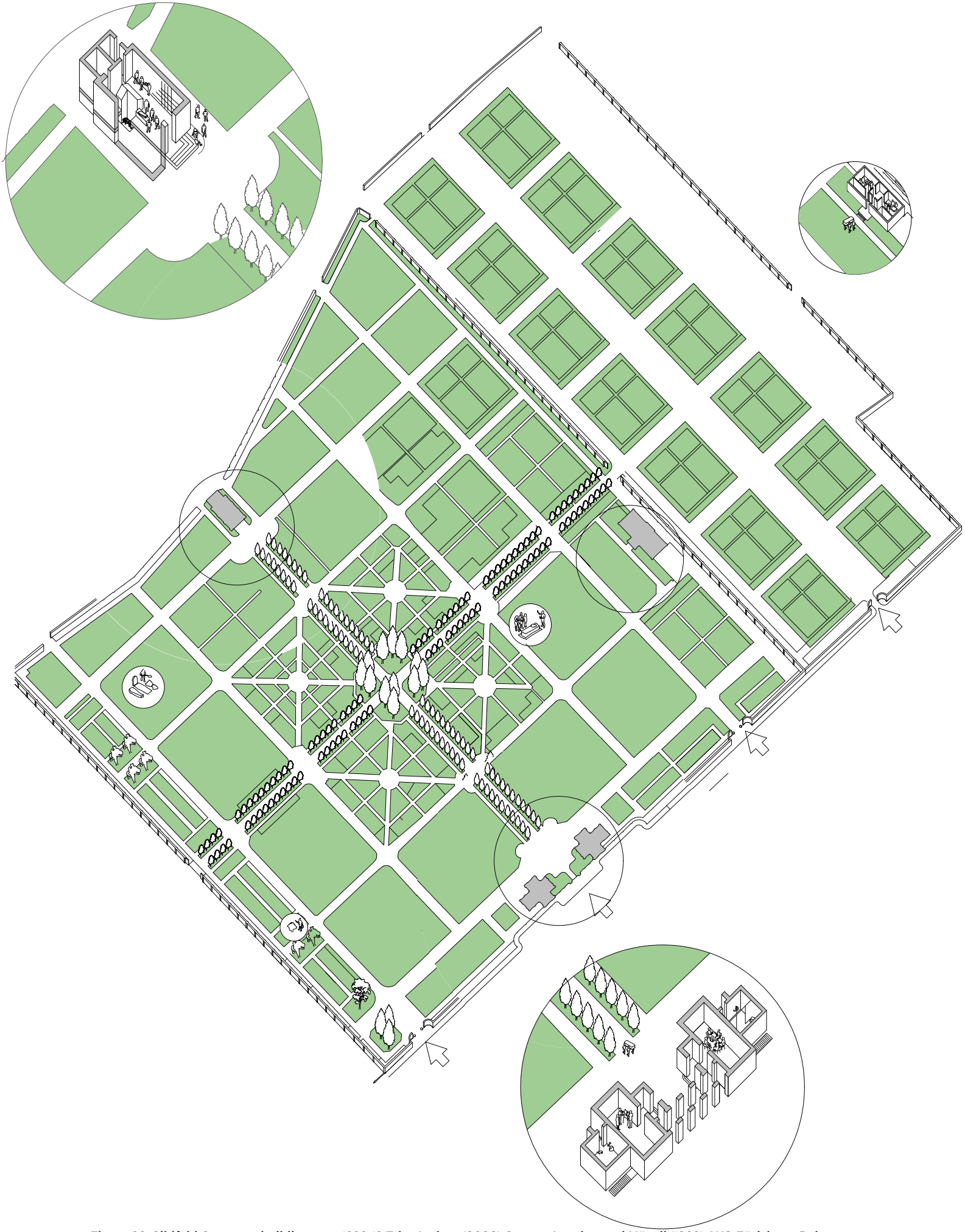
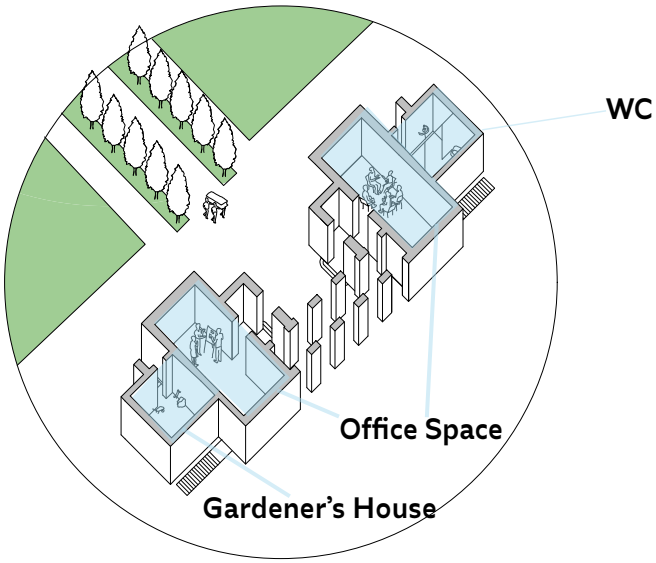


Figure 66: Sihlfeld Cemetery building uses 1898-1917. by Author. (2022).Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

From 1898-1917 (Figure 66)

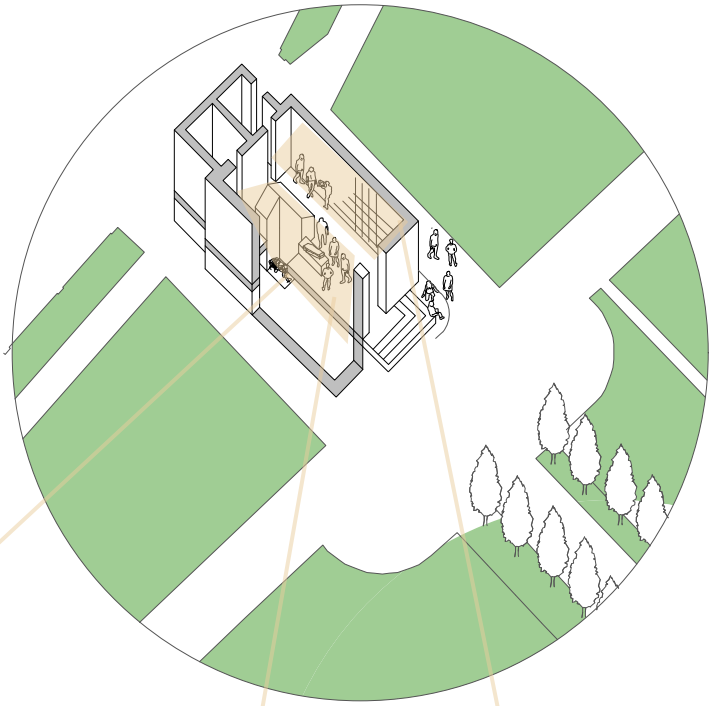
As the cemetery grew and Sihlfeld C was built to accommodate more graves, it became necessary to have more building space. At this time, although the crematory was used, cremation still remained banned by the Christian religion and was viewed as a new technology that people were sceptical about. However the main issue remained that the mortuary was too small. Therefore in 1898 a new mortuary was built on Sihlfeld A. This allowed the cemetery to gradually give more space to the gardener in the entrance building but also to transform part of the entrance building into offices for administrative purposes. In 1904, a common storage building for machines and equipment was built on Sihlfeld A.



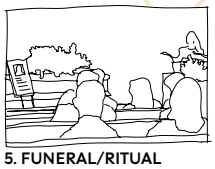
Building I: Main Gate Building (figure 61)

When the new mortuary is built, the main entrance building changes function. The former mortuary space becomes office space.

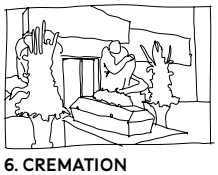
BURIAL OR CREMATION



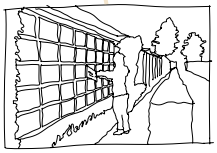
6. EARTHEN BURIAL



5. FUNERAL/RITUAL



6. CREMATION



7. DISPOSAL OF ASHES

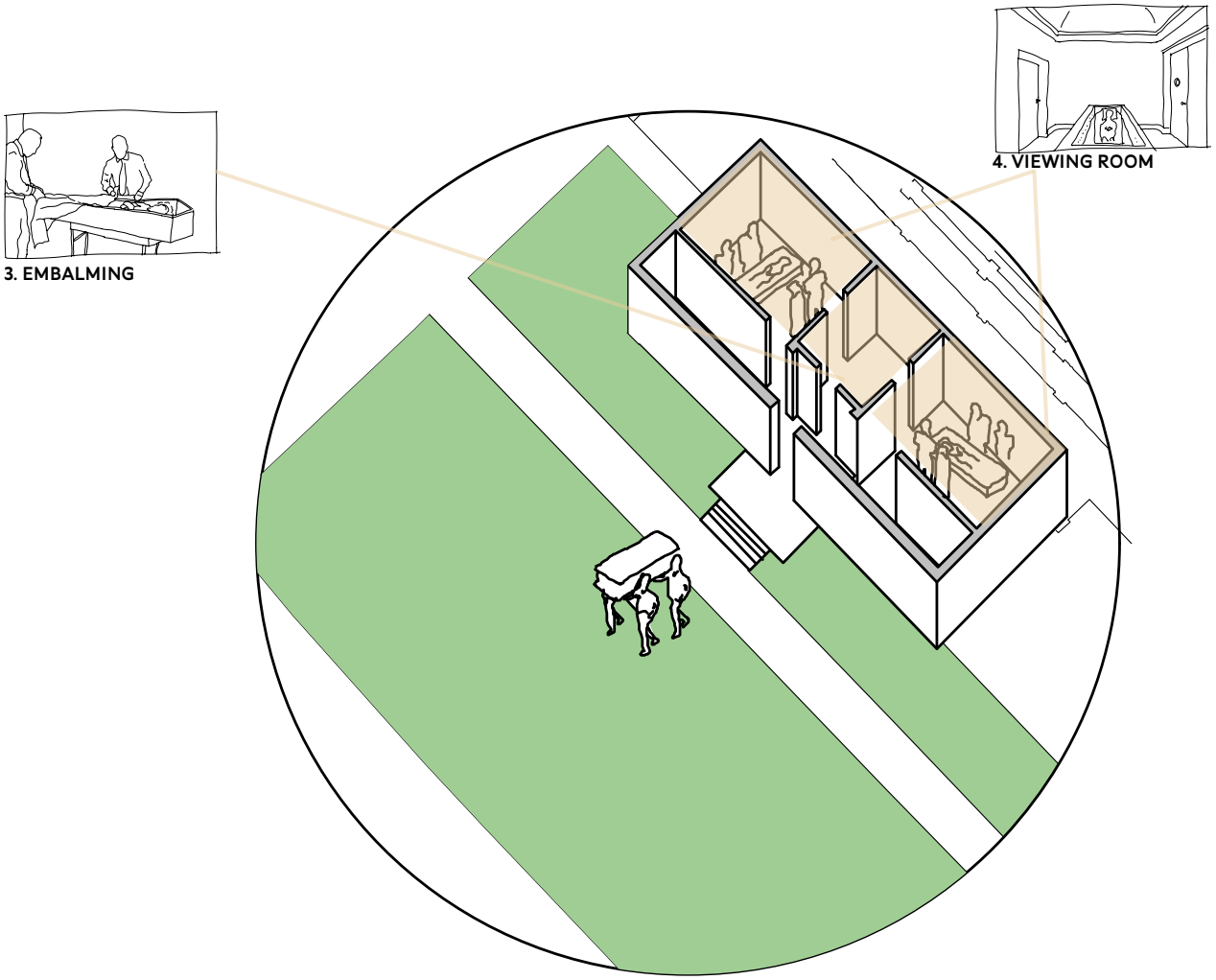


Figure 67: Sihlfeld Cemetery New mortuary uses 1898-1917. by Author. (2022).Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

Building 3: New Mortuary (figure 67)

In 1898, 7 years after the opening of the second half of Sihlfeld D and 10 years after the opening of the crematory, the need for a bigger mortuary arose.[67] Thus the new mortuary was built at the edges of Sihlfeld A.

This additional building remains within the classical style that was used for the main entrance building and the crematory, however it is rather built in a humble manner. A simple house with no symbolical pretension(figure 68). A traversing corridor distributes the different viewing rooms and autopsy spaces. A simple and efficient building plan that resembles that of a house: a familiar space designed to reassure the mourners. (figure 69)

The fact that this building resembles a traditional house, brings us back to the original rituals regarding death care. Formally the wake, now pursued in the mortuaries, was done at home.

[67] Loacker and Hänsli. Wo Zürich Zur Ruhe Kommt. 1998. p. 207

Figure 68: New Mortuary. by Author (2022). [img]

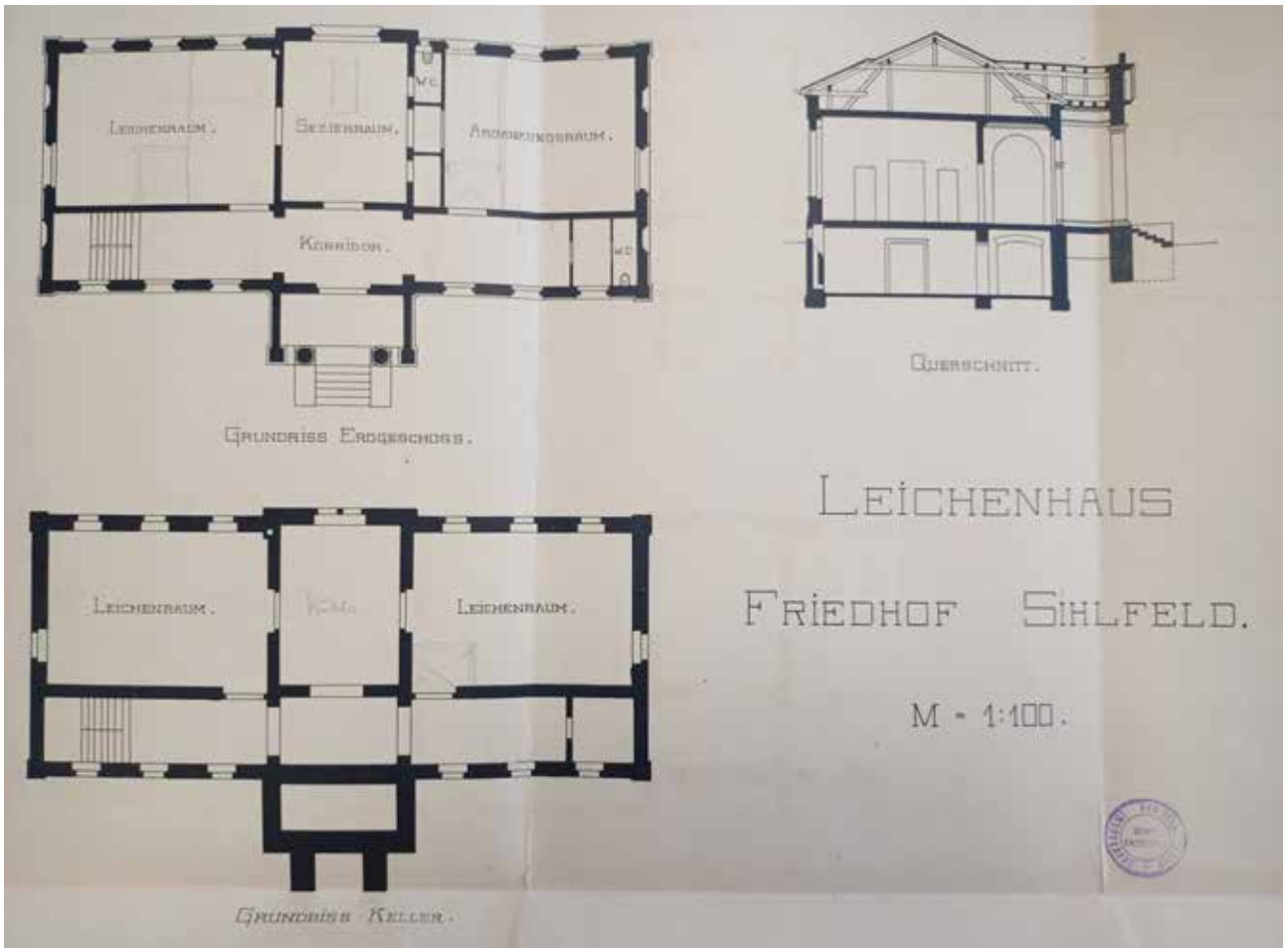


Figure 69: New Mortuary Plans. Archive Stadt Zurich (1898). [Plans]

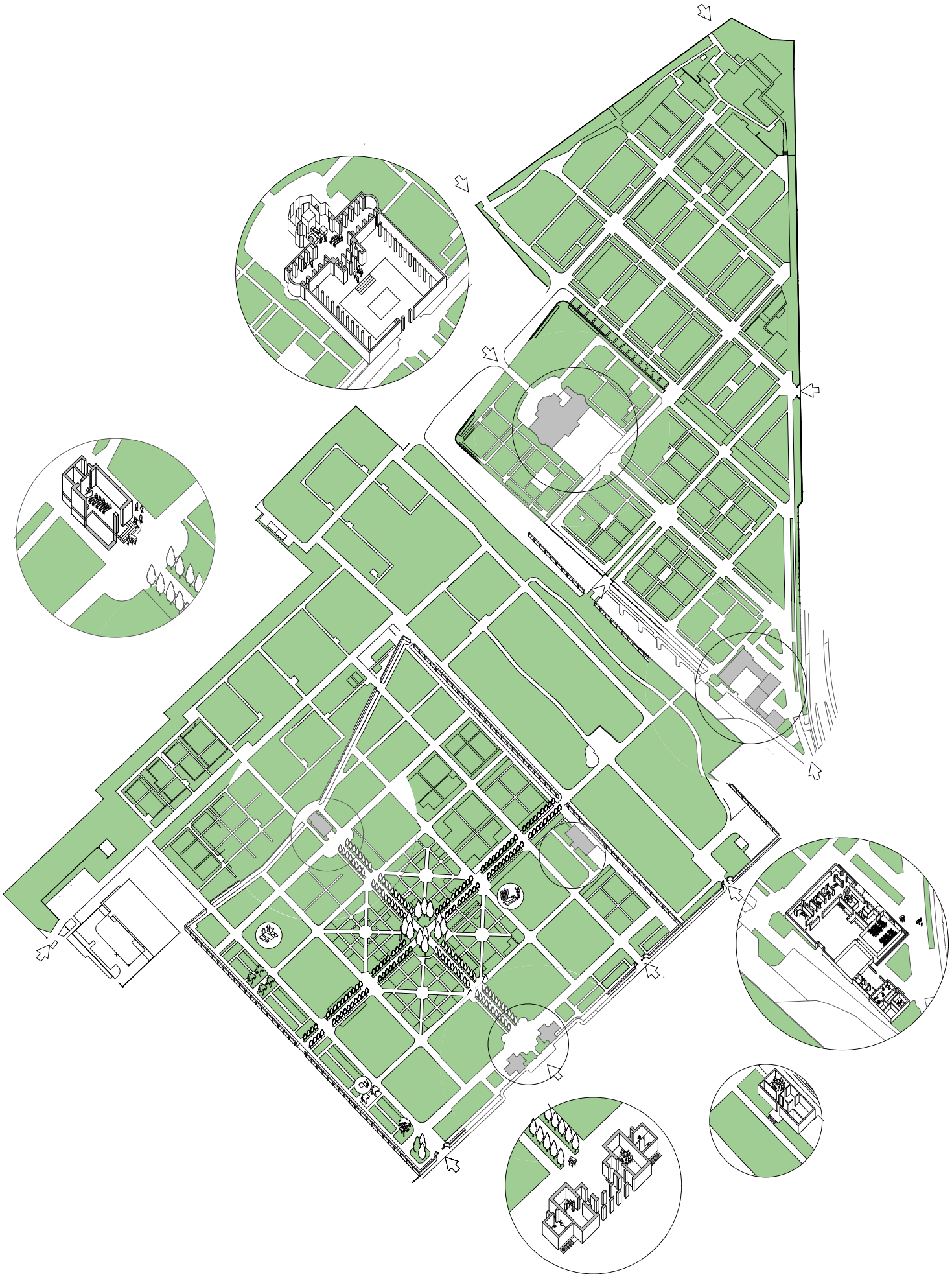


Figure 70: Sihlfeld Cemetery building uses 1917-1992. by Author. (2022). Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

From 1917-1992 (Figure 70)

Gradually the first Crematory built in Sihlfeld A became insufficient as cremation became the popular option. Therefore, in 1915, the new crematory was built in Sihlfeld D. To follow the growth of the cemetery, a new mortuary/ administration building/gardener's house was built in 1917. The mortuary that had been in use before became was no longer used as a mortuary but gradually took on administrative functions. The crematory in Sihlfeld A became an abdication chapel. The main entrance gate transformed over time to become mainly an administrative building. Moreover in 1959 when Sihlfeld E was developed, an administration building was built for the parking of hearse's and storage of equipment.

Building 2: Old Crematory (figure 71)

The building, now plastered and no longer with apparent bricks, was stripped of its furnishings in 1936 when it was converted into a chapel for abdication (figure 71). The room was decorated with a mural by Karl Walser on the back wall.

Five angels surround an open sarcophagus, at which a mourner bends down bows down and doves fly to the sky (figure 72).

The removal of the crematory removes an important historical and symbolical value to the building.[68]

[68]Stadt Zürich VI. Die Kunstdenkmäler des Kanton Zürich. 2016. p. 117

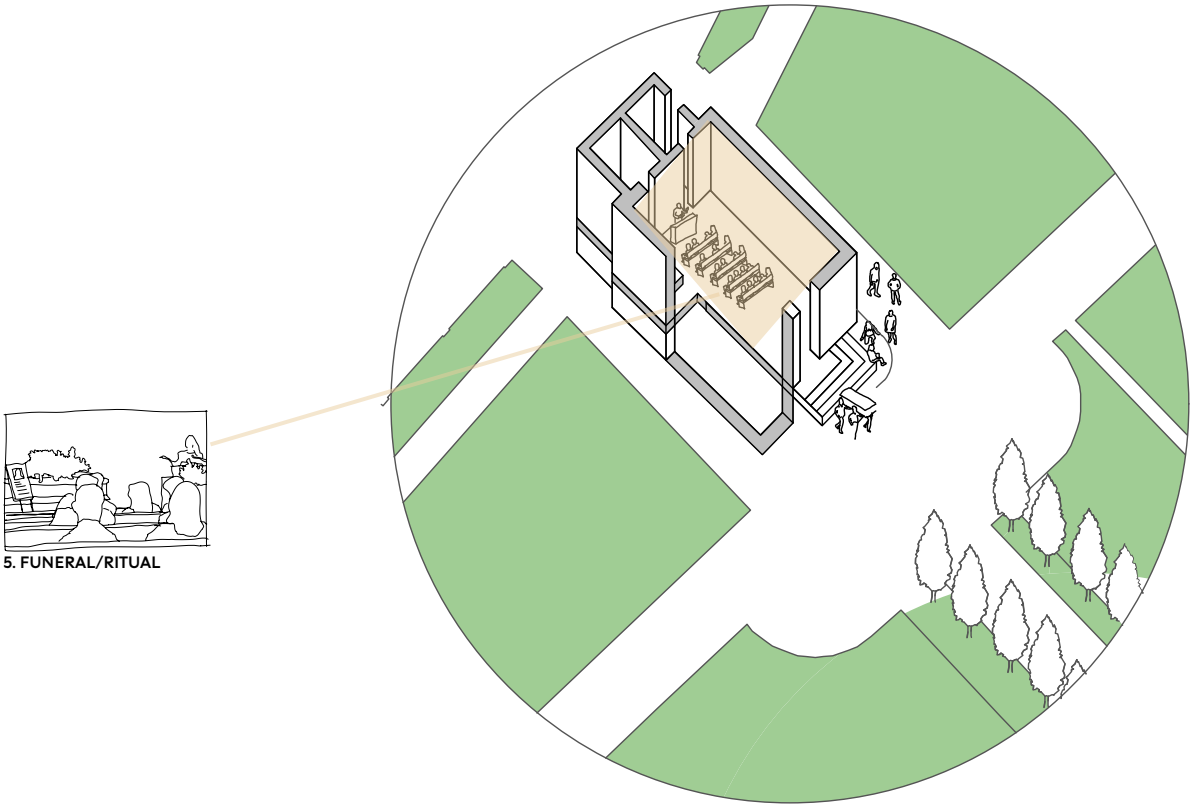


Figure 71: Sihlfeld Cemetery crematory uses 1936-now. by Author. (2022). Source: Loacker und Hänsli (1998). WO Zürich zur Ruhe Kommt. [sketch]

Figure 72: Old Crematory chapel interior after 1936. Source: Stadt Zurich. [img]

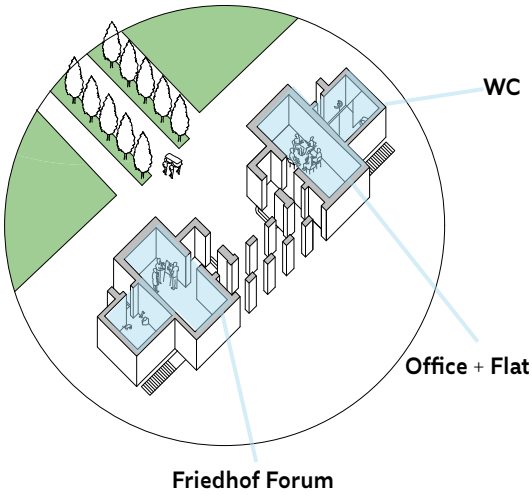


Figure 73: Entrance Buildings Now. by Author. (2022). [sketch]

Figure 74: Entrance Buildings, Friedhof Forum exhibition space. by Author. (2022). [img]

Building I: Main Entrance Building (figure 73)

In the building on the right, friedhof forum settles in 2012 (figure 74)and in the building on the left, the offices of the cemetery as well as a flat.

Over time the building has shifted use, as the original architectural structure of the building has remained the same (figure 76), gradually the building lost its original function completely. The symbolism remains however the historical value of the ritual within the building is lost.

Figure 75: Entrance Buildings, view from inside cemetery. by Author. (2022). [img]

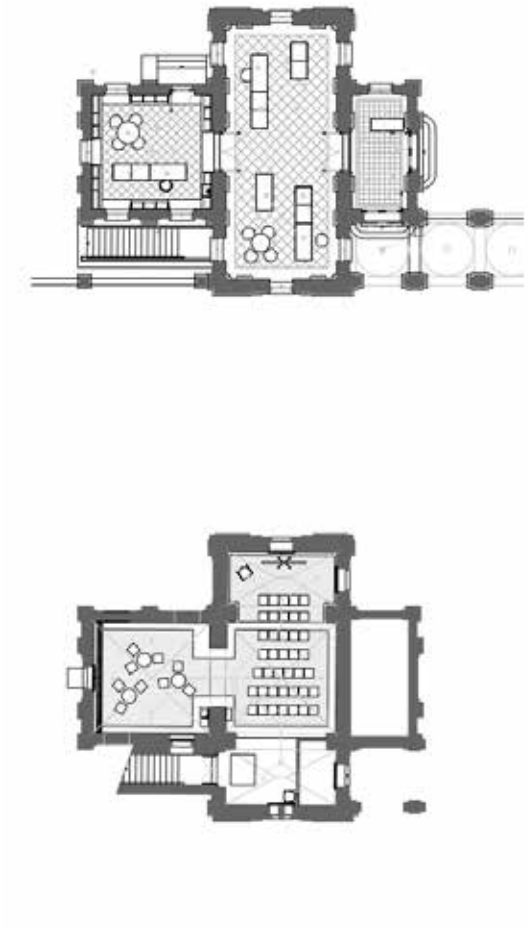


Figure 76: Plans of Main entrance gate left building. Stadt Zürich Amt für Hochbauten (2012) Source: https://www.stadt-zuerich.ch/prd/de/index/bevoelkerungsamt/rund-um-den-tod/friedhoefe/friedhof_sihlfeld_aed.html [PDF]

Building 4: Administration Building (figure 77)

"Saying goodbye to a deceased person is a journey with many stations. One of them is the place of interment - where many where many relatives visit their dead for the last time. This place, the laying out hall in the Sihlfeld cemetery, has been redesigned by Bosshard Vaquer Architects."[69]

The mortuary was built a long with the extension of Sihlfeld cemetery D in 1917 and has been in use ever since.[70] The Building is U shaped to have on one side, a chapel and a technical storage room and on the other, the autopsy and viewing rooms. A narrow part for toilets link this building to a gardner's house (figure 78).

However the new gardener's house is no longer a gardener's house but a an office.

The building with its symbolical statues and arcades reflects the main garden gate and first crematory. Friezes and ornaments depict symbolical references to death (figure 79). Moreover, the building acts as an innovative technical machine as the viewing rooms (figure 80) that hold the bodies are cooled through new technologies inspired by mortuaries in Germany (in the archives of the city of Zürich, the exchanges with crematoriums in Germany are accessible).

[69] Stadt Zurich Amt für Hochbauten.2004. p. 1

[70] Loacker and Hänsli. Wo Zürich Zur Ruhe Kommt. 1998. p. 207

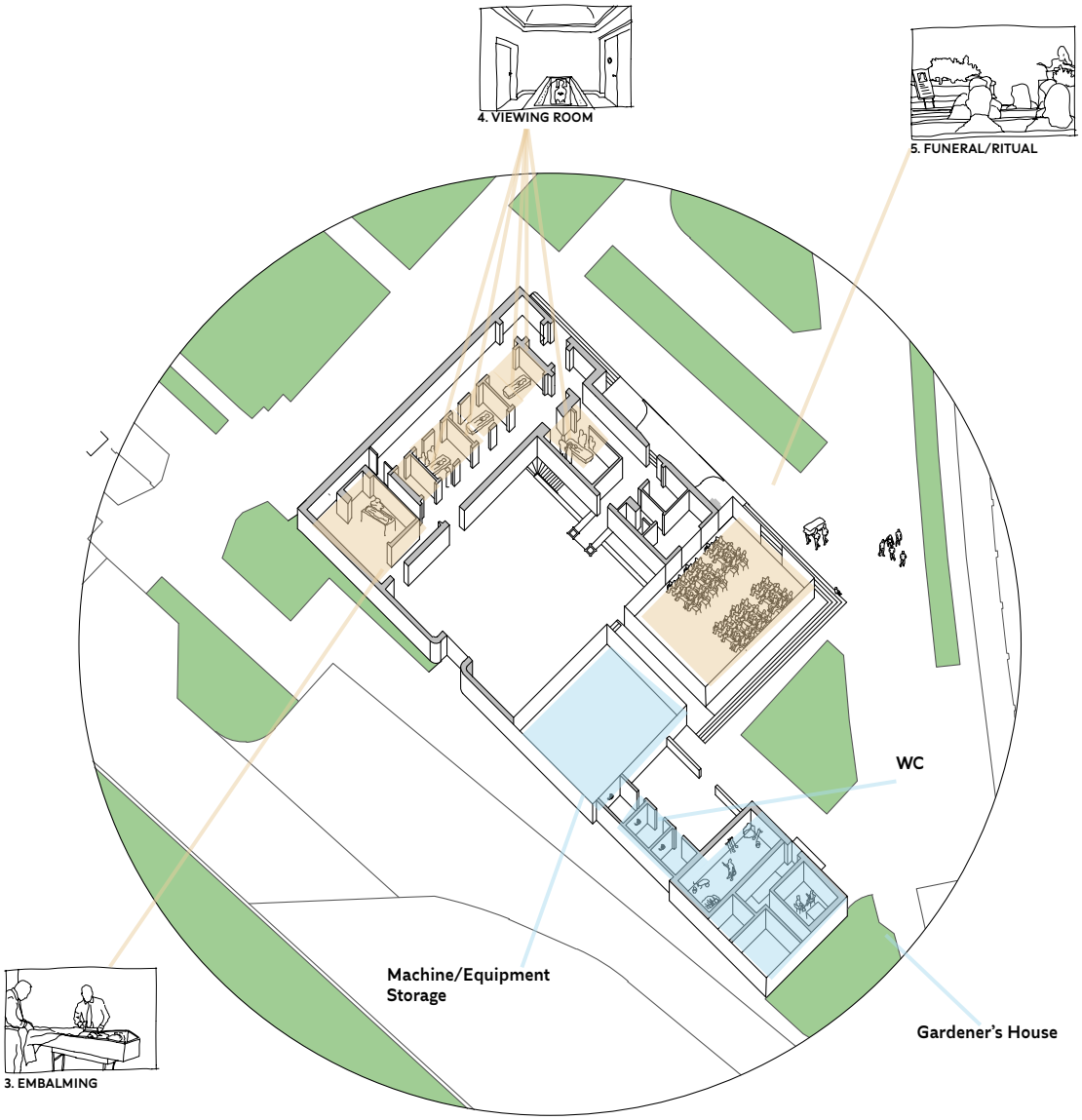


Figure 77: Sihlfeld Cemetery building uses 1917-1992. by Author. (2022). Source: Loacker und Hänsli (1998). Wo Zürich zur Ruhe Kommt. [sketch]

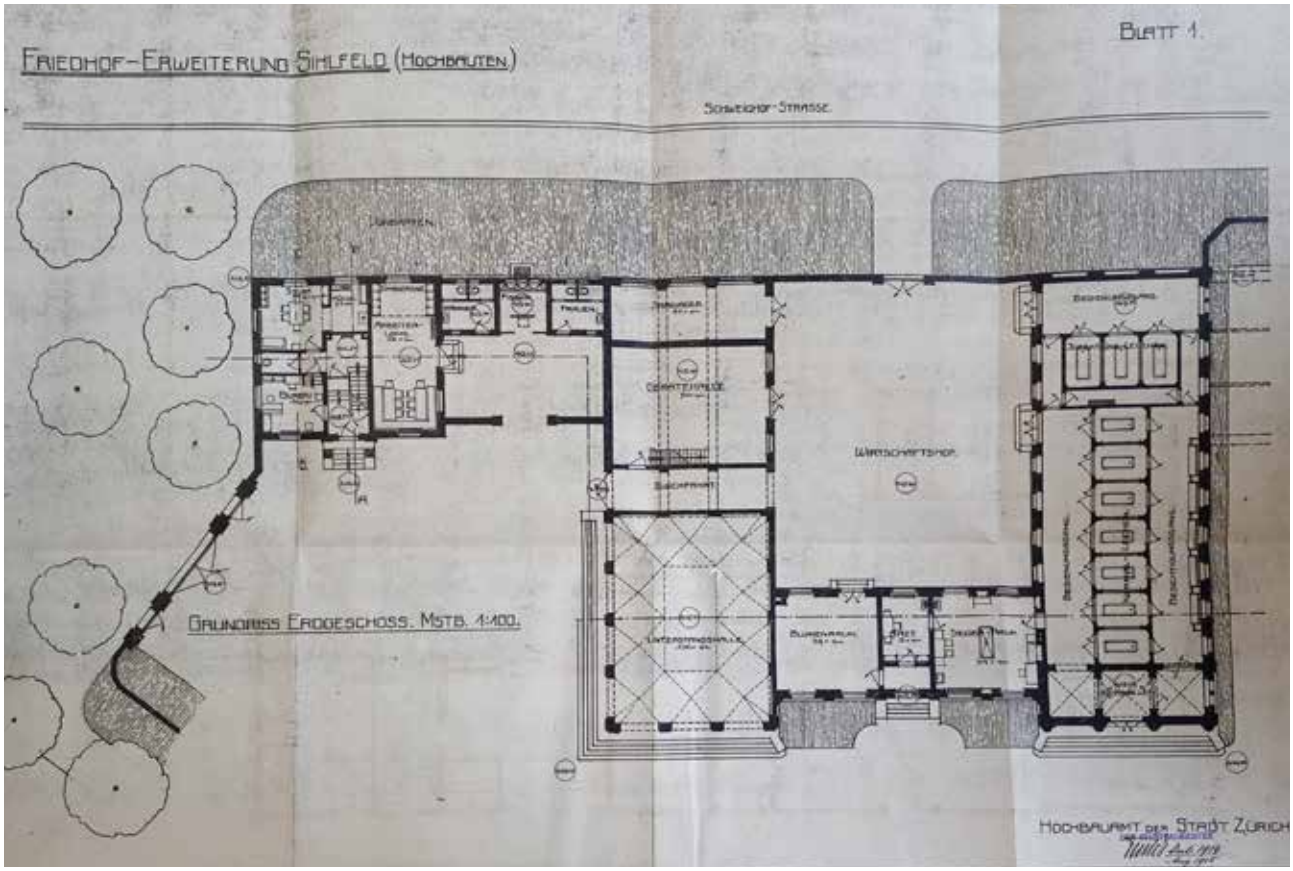


Figure 78: New Administration Plans. Archive Stadt Zurich (1914/15). [Plans]

Figure 79: New Mortuary Exterior. by Author. (2022). [img]

Figure 80: New Mortuary. by Author. (2022). [img]

Building 5:The New Crematory (figure 81)

The new crematory was built in 1915 and replaced the old crematory oven with 2 new ones. It was used until 1992 when Nordheim crematory replaced Sihlfeld's. It has been used as an urn hall and abdication building since then.

Architect Albert Fröhlich succeeded in symbolically interpreting the cremation as a hymn to the 'immortality of the soul redeemed by fire'.
Last cremation in Sihlfeld: 24 September 1992. [71]

Comparable to the other buildings built previously on site, the building is classical and symbolical. Arcade wings wrap the entrance courtyard in which a pond sits.

The building is preceded by a vestibule (pranos with doric columns to which the portals are inserted) (figure 82-85).

The symbolism of death in this building is inspired by the Greek mythology. The two atlases kneeling next to the entrance of the gate that leads the coffins to the 2 ovens, are symbols of suffering and mourning (figure 83). In the pediment the following inscription is written : "Flame dissolve/ The Perishable/ Free the Immortal". [72]

[71] Loacker und Hänsli, Wo Zürich zur Ruhe kommt. 1998. p .141

[72] Stadt Zürich VI. Die Kunstdenkmäler des Kanton Zürich. 2016. p. 119

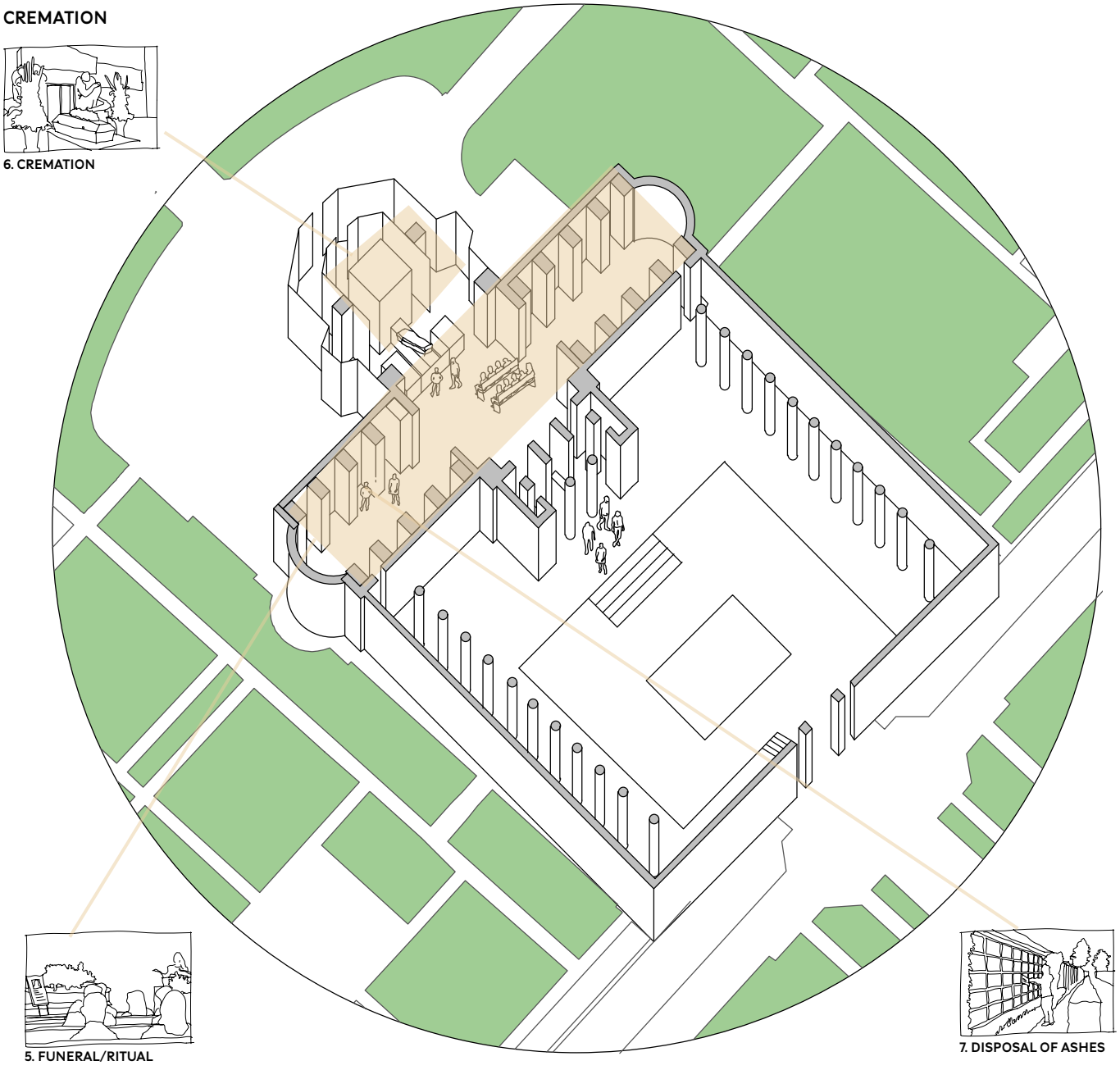


Figure 81: Sihlfeld Cemetery Crematory D 1917-1992. by Author. (2022). Source: Loacker und Hänsli (1998). Wo Zürich zur Ruhe Kommt. [sketch]

Figure 82: New Crematory exterior photo. by Author. (2022). [img]

Figure 83: New Crematory Interior view of oven.
Source: https://www.stadt-zuerich.ch/prd/de/index/bevoelkerungsamt/rund-um-den-tod/friedhoefe/friedhof_sihlfeld_aed.html

Figure 84: New Crematory Interior View Chapel.
Source: https://www.stadt-zuerich.ch/prd/de/index/bevoelkerungsamt/rund-um-den-tod/friedhoefe/friedhof_sihlfeld_aed.html

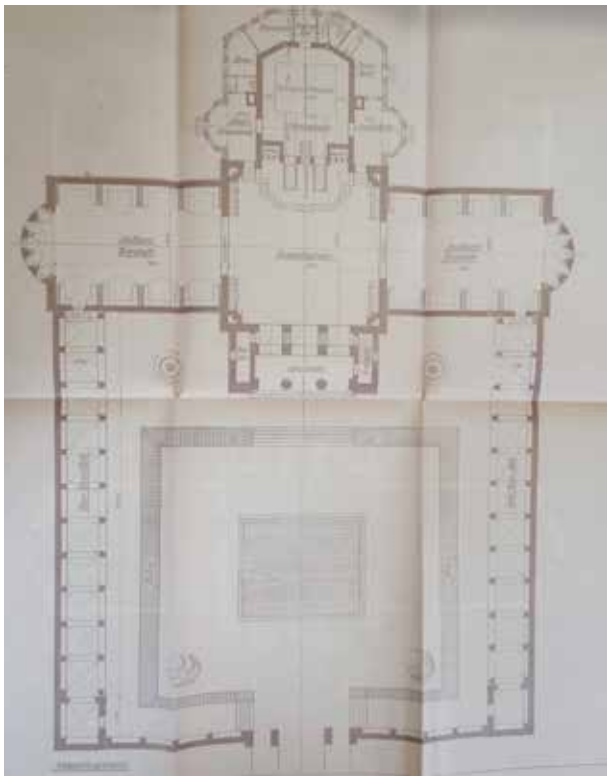


Figure 85: New Crematory Floor Plan. Archive Stadt Zurich (1915). [Plan]

Building 6: Common Storage Building (figure 88)

In 1904, a common equipment storage was built. This is mostly for the storage of machines and equipment used by the gardeners. This simple structure detaches from the other buildings on site and fulfils a completely functional role.
It is a simple rectangular building with a large door and a high ceiling on the ground floor. A small attic for storage runs throughout the building. In front of it a large surface is kept for the manoeuvring, parking and stocking of machinery. (Figure 86 & 87)
The functionality of the building is the primary design guideline which thus does not give it a symbolic or historic value.

However its function illustrates the need for equipment and space for the caring of the nature on site. As machinery needs to be used to care for the nature, there is also a need for storage place.

Figure 86:Equipment Storage Building, gate view from inside Sihlfeld A. by Author (2022). [img]

Figure 87:Equipment Storage Building. by Author (2022). [img]

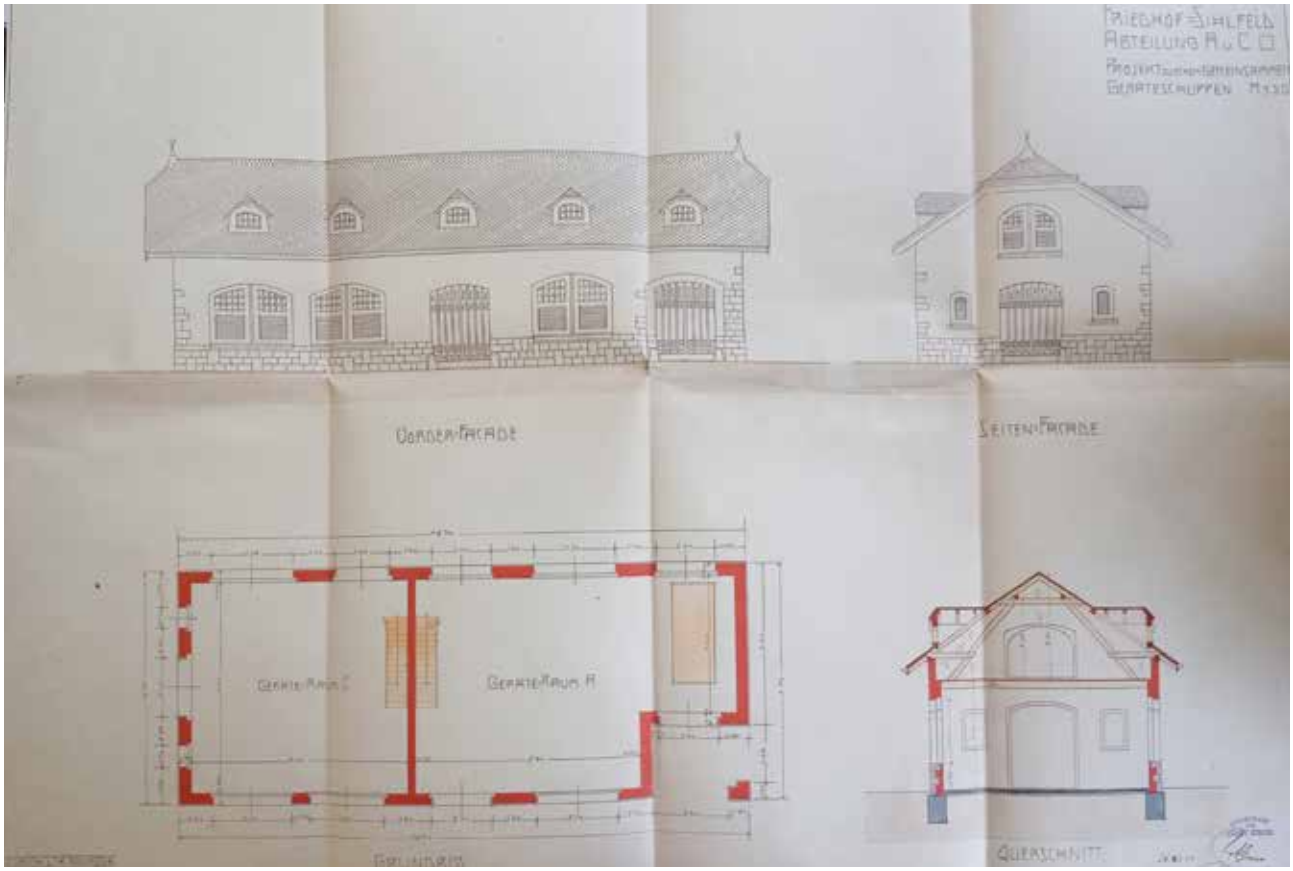


Figure 88:Equipment Storage. Archive Stadt Zurich (1904). [Plan

Building 7: Administration Offices

"To the right of the portal there is a windowless, defensively walled service building of the funeral and cemetery office on three sides. It houses the vehicle fleet, the coffin magazine and an archive. Connected to this building by a concrete traverse, on the left side of the path there is a caretaker's house."[73]

Nowadays, this building is used as the parking for hearses and other vehicles for the funeral home. It is a shared building that also houses IMMO Zentralwächserei (a laundry service) and a fire department.

It is a large building that does not seem to be used to its full capacity as most of the rooms adjoining the parking are empty.

Moreover, this building with its apparent concrete stands out from the style of the other buildings that are part of Zurich's built heritage.

This building does not seem to be used to its full extent. It closes of from the exterior of the cemetery with almost no openings (figure 89) and opens towards the cemetery with its glass brick facade (figure 90). A beam joins it to a small house used for office purposes (figure 91). Therefore forcing the visitor that enters to pass under this beam and marking the act of entrance into the cemetery park.

A large parking lot and spaces around it render it adequate to be renovated and re-purposed for the project proposal.

[73]Loacker und Hänsli. Wo Zürich zur Ruhe kommt. 1998. p. 148

Figure 89:Funeral Home Parking and Storage Entrance. by Author (2022). [img]

Figure 90:Funeral Home Parking and Storage view from cemetery. by Author (2022). [img]

Figure 91:Funeral Home Parking and Storage caretaker's house. by Author (2022). [img]

SYNTHESIS OF BUILDINGS IN SIHLFELD (figure 92)

Within the cemetery/park of Sihlfeld there are a total of 7 buildings most of which were built progressively as the cemetery was extended (figure 41, page 45). These buildings have adapted to the context in time and thus have mostly changed their original programme.

Like the orthogonal grid structure of the park, they are witnesses of social, political and cultural evolution. They carry traces of innovation (cremation and mortuary cooling system). A great attention was carried to symbolic architectural language used: one that had to be non-religious. Therefore symbols coming from ancient Greek/ Rome and Egypt is present throughout the buildings. These also extend to portals and structures.

This symbolism rendered the buildings 1 to 5part of the heritage constructions of the city of Zurich that are placed under protection. This has had the advantage of keeping these buildings more or less true to their original designs. However the frequency at which they are currently used (especially the crematoriums) have rendered them, to some extent, obsolete. Buildings 1 to 5 have also lost their original value within the rituals (the crematoriums are now ceremony rooms).

The project proposal aims not to alter these buildings but to keep them as they are and use them more extensively for the new ritual emerging from natural organic reduction. The only building that does not have the symbolic and historical value is therefore the building that can be re-purposed and extended to incorporate the facilities necessary for human composting.

BUILDING NAME	YEAR BUILT	TOTAL SIZE (SQM)	ARCHITECT	ORIGINAL PROGRAMME	PROGRAMME NOW
1 Main Gate Buildings	1877 renovation: 2012	422	Arnold Geiser	-Gardner's Room -Mortuary	Left: -Friedhof Forum Exhibition Space and Library -Conference Room Right: -Toilet -Offices -rented flat
2 Old Crematory	1887-1889 renovation: 1991	320	Arnold Geiser	-Crematory	-Chapel
3 New Mortuary	1898	456	Arnold Geiser	-Mortuary	-Office space -Magazine Office
4 Administration building	1916-1917	Mortuary + chapel: 912 Gardner's house: 450 total: 1362	Friedrich Wilhelm Fissler	-Administration Building Sihlfeld D -Gardner's House -Mortuary	-Mortuary -Abdication Chapel -Library
5 New Crematory D	1913-1915 1945 con-version	1200	Albert Fröhlich Project called 'Peace'	-Crematory -Abdication Chapel	-Meeting room and office for gardener's
6 Equipment storage	1904	300		-Equipment storage	-Offices for Magazine
7 Funeral Home Driving Service	1959	1500 (first floor and underground) 960 (for other floors) total: 4920	Philipp Bridel	-Parking for Hearse -Office Buildings	-Parking -Laundry Service -Offices
		---------- TOTAL: 8'980			

Figure 92: Comparison of buildings in Sihlfeld Cemetery. by Author. (2022). Source:Loacker und Hänsli (1998). Wo Zürich zur Ruhe Kommt [table]

Figure 93: Propaganda for Cremation in Zurich 1874. Source: Zemp, Ivo. Die Architektur der Feuerbestattung eine Kulturgeschichte der Schweizer.2012. [image]

4.6 CREMATION HISTORY -SYMBOLIC TO INDUSTRIAL

EVOLUTION OF CREMATION FROM 1800 - NOW

The act of cremation: burning a body, existed long before the first crematoriums were built. However, the catholic church, that reigned state and religion for a noticeable period of time in history, rejected cremation as a form of burial. It was only tolerated again during the Second Vatican Council (1962-1965).[74]

The history of modern cremation started around the 18th century but only started growing in the 19th century. Modern cremation exists thank to the intellectual, technical and socio-cultural factors. These have also highly influenced it's evolution through time. [75]

For some time in history, fire was a form of punishment and purification. During the witch hunt period (15th to 18th century), the church burned people who seemed like rebels or were simply outside of the norms of society. This was a way of blaming people for disasters or epidemics.[76]

The real turning point in the 1800 that made cremation possible again was the "siècle des lumières" (Enlightenment). Human reason stood in opposition to the divine faith as a new authority. This was expressed in a scientifically based criticism of the Christian Church and its doctrine. This aroused an interest for Greek and Roman antiquity as well (figure 93). [77]

The French revolution brought a reversal of social values and a change of people's relationship to religion.[66]The growing awareness of hygiene and the emancipation of the church from funerals allowed new cemeteries to be built.[78]

As Technology and science became important, crematoriums started being developed. By the beginning of WWI, several furnace's had been built. [79]The war brought a rationing of fuel and coal, thus many crematoriums had to close temporarily (Zürich from October 1917 to November 2018). [69]

This allowed research into alternative ovens. Thus, in 1933, the world's first electrically operated cremation facility opened in Biel. [80] The incinerators of today follow the current state of the art and differ primarily in the use of the various energy carriers. Gas, oil or electrical energy are used to generate heat, while fuels such as wood, coal or coke are practically no longer in use.[81]

The architecture of the crematoriums reflects the ideas of death in the respective temporal circumstances. From 1889 to the 1930's, crematoriums were based on "one-room temple like" structures (Sihlfeld Crematorium A). At a certain point of creativity, emerged a symbolic type of crematorium with historical references (Sihlfeld D). After WWII, there is a shift in perception of death and the "functional" type appears. The emotional rite and technical side (cremation) become separate. [82]

Public health care in the 19th century required not only a morally irreproachable and vital person, but also a clean death. Cremation ideally provided the means required to dispose of the remains hygienically and discreetly.

This behaviour towards the dead body brought with it an unexpected taboo and extended to the entire realm of death. The representative mourning hall of the crematorium and its image-intensive symbolism took the place of the repressed, invisible combustion apparatus as a substitute myth. With this, the change in the act of burial took place on a purely psychological and intellectual level. [83]

[74]Zemp, Ivo. Die Architektur der Feuerbestattung eine Kulturgeschichte der Schweizer.2012. p. 8

[75]Ibid. p. 21

[76]swissinfo.ch (2009)

[77]Zemp, Ivo. Die Architektur der Feuerbestattung eine Kulturgeschichte der Schweizer.2012. p. 27

[78]Ibid. p. 32

[79]bid. p. 44

[80]Ibid. p. 84

[81]Ibid. p. 86

[82]Ibid. p. 87

[83]Ibid. p. 90

4.6 CREMATION TODAY

In 1992, the last cremation took place in Sihlfeld, from then on all cremations took place in the new crematory: Nordheim Crematory.

NORDHEIM CREMATORY

Around 10% of people who die in Switzerland are cremated in Nordheim. 6'000 people are cremated there yearly thus making it one of the largest crematoriums in Europe. The building hosts 6 ovens that are constantly in use even at night (figure 94 & 95). There is also one oven that is not in use but exists for back up purposes.[84]

The cremation process lasts two and a half hours. Some bodies take more time to disintegrate, for example people who have undergone chemotherapies slow the process. The employee checks regularly throughout the process. It first takes 10 minutes to burn the coffin before the body starts to ignite. The temperature in the oven climbs up to 1'400 degrees. After the body is disintegrated, the ashes drop down one floor where they are cremulated and put in an urn. [85]

The reason why cremation is so popular is because it is the simplest and cheapest method. It has to some extent become default also because it allows more flexibility when it comes to where the ashes are laid. Therefore the project aims to propose a method that brings us closer to the process and offer a new ritual, thus removing this non-symbolic value to the method of disposition of human remains.

Figure 94: Nordheim Crematory Hallway. Source: https://rossmaier.com/joomla/12-projekte/bearbeitung/im-bau/92-krematorium-nordheim.html [image]

[84] https://www.limmattalerzeitung.ch/limmattal/zuerich/krematorium-nordheim-asche-zu-asche-staub-zu-staub-ld.1817401 (Accessed 10 Oct. 2022)

[85] Ibid

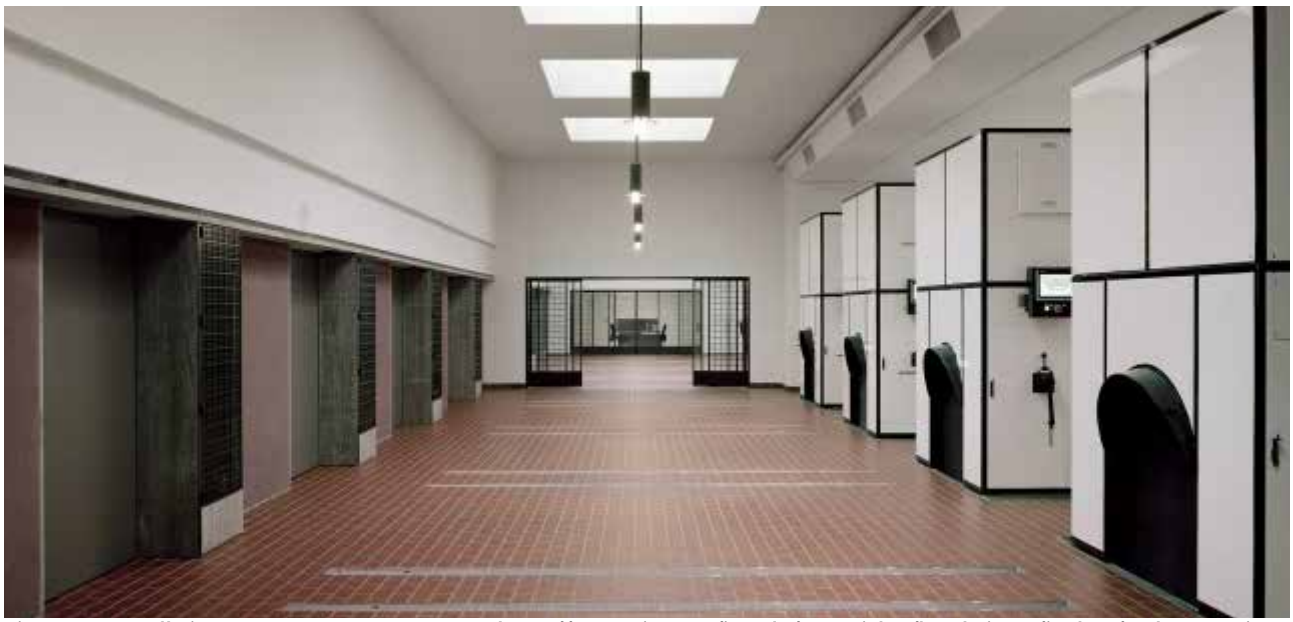


Figure 95: Nordheim Crematory Ovens. Source: https://rossmaier.com/joomla/12-projekte/bearbeitung/im-bau/92-krematorium-nordheim.html [image]

2023

Figure 96: Sihlfeld Cemetery D, fountain and benches. past situation and future imaginary. by Author (2022). [collage]

5. PROJECT PROPOSAL - AN ECOLOGICAL CEMETERY CYCLE

"La mort est une néantisation toujours possible de mes possibles, qui est hors de mes possibilités" ("Death is an always possible neantisation of my possibilities, which is outside my possibilities")
-Jean-Paul Sartre[85]

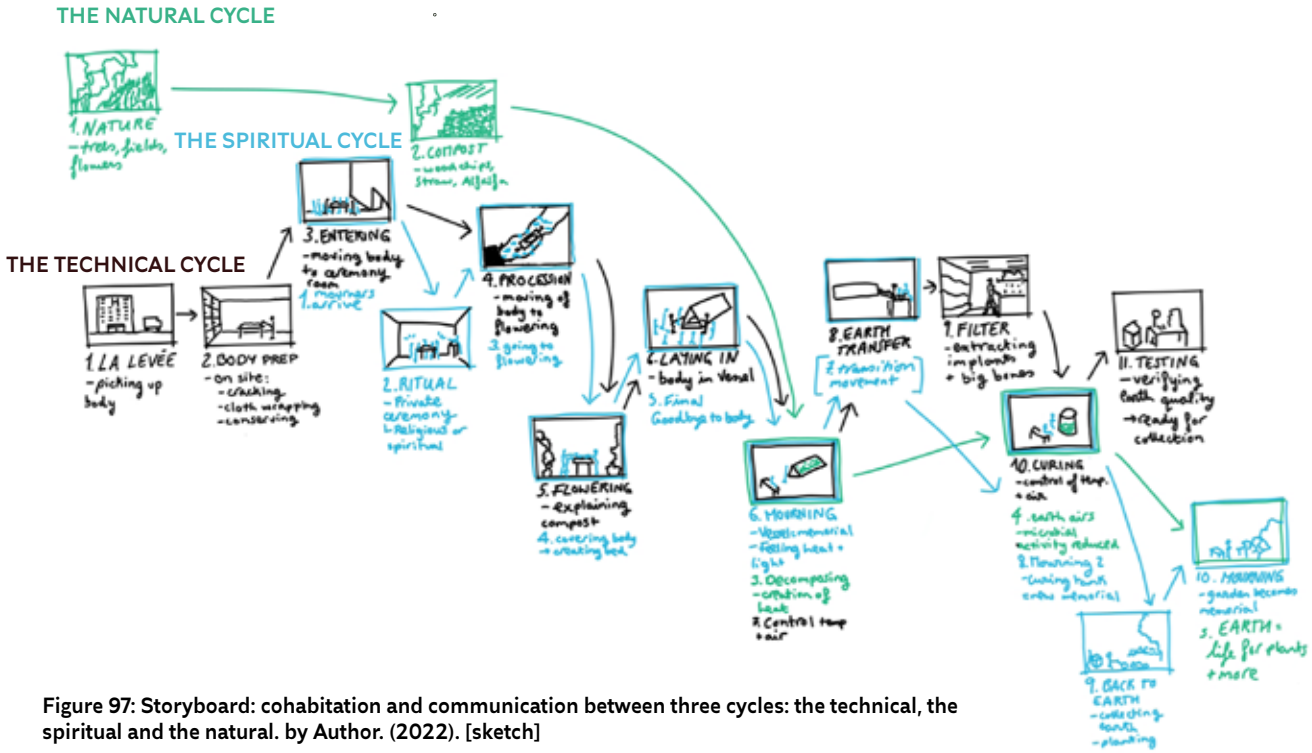


Figure 97: Storyboard: cohabitation and communication between three cycles: the technical, the spiritual and the natural. by Author. (2022). [sketch]

5.1 PROGRAMME -TECHNOLOGY AND NATURE AT THE SERVICE OF SPIRITUALITY

The project is threefold:

-Spiritual
-Natural
-Technological

The project primarily offers a new form of ritual thanks to the new process of natural organic reduction. This ritual engages the mourners to take actively part in the process, a process that is longer than the traditional. Therefore the design of the green space and the design of the buildings follow rules dictated by the ritual.

Although the technical infrastructure allowing the decomposition of the body is a major part of the project, the most complex programmatic question is how to bring together technical infrastructure , nature and spiritual spaces (figure 97).

Creating a new system allowing the decomposition of human bodies, implies a new way of dealing with death and mourning. Thus, a new spirituality emerges. The space for spirituality and rituals: the 'human space', is just as important as the space for technical infrastructure.

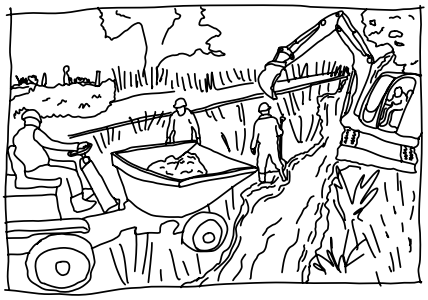
Moreover, the 'human space' not only encompasses the spiritual/mourning space but also the public park: the gardens of remembrance.

Nature, Technology and spirituality will find their place in the cemetery. A maximum of communication between the three will generate mutually beneficial conditions.

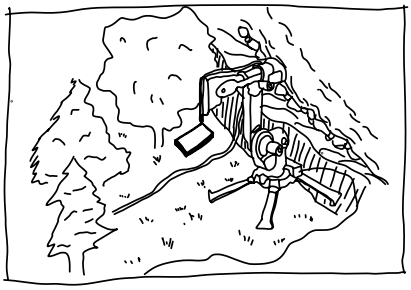
The project uses nature to its full extent thanks to technology. It becomes a complex machine that decomposes and regenerates itself (figure 98).

NATURAL CYCLE

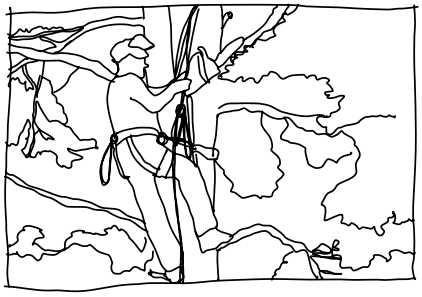
TECHNOLOGICAL CYCLE



I. RESTORING THE HISTORICAL RIVER



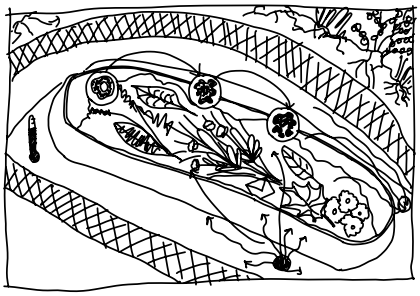
X. ON-SITE 3D PRINTING



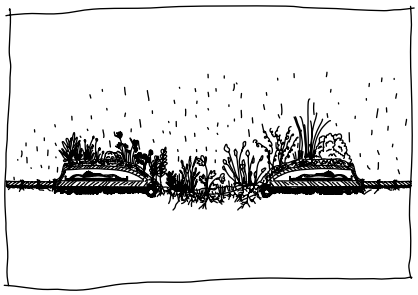
II. WOOD WORKING

VI. FLOWERING

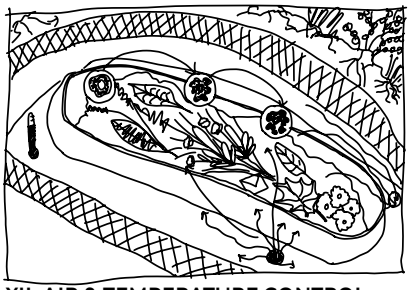
XI. MYCELIUM BRICK PRODUCTION



III. NATURAL DECOMPOSITION

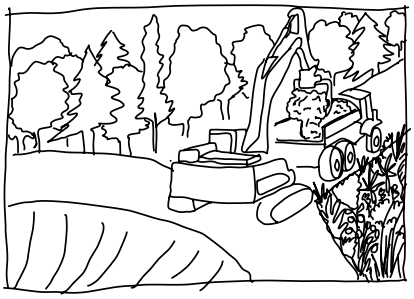


VII. TOPOGRAPHY CREATION

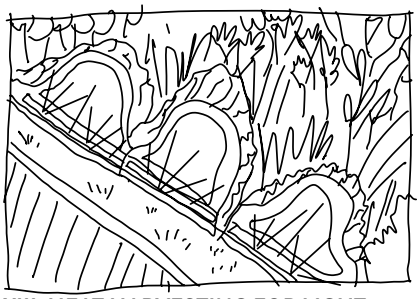


XII. AIR & TEMPERATURE CONTROL

IV. EARTH NOURISHING SOIL

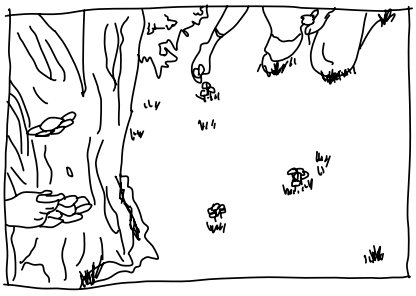


VIII. CLAY QUARRIES

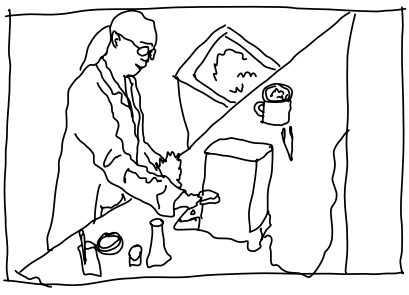


XIII. HEAT HARVESTING FOR LIGHT

V. GARDENS OF REMEMBRANCE



IX. MUSHROOM HARVESTING



XIV. EARTH TESTING

Figure 98: New Ritual time-line comparison: a longer ritual. by Author. (2022). [sketch]

BUILDING NAME	TOTAL SIZE (SQM)	PROGRAMME NOW	PROJECT PROGRAMME	DISTRIBU-TION SQM
1 Main Gate Buildings	422	Left: -Friedhof Forum Exhibtion Space and Library -Conference Room Right: -Toilet -Offices -mietwohnung	Left: -Friedhof Forum Right: -Arrival gathering space	Friedhof forum: 211 Gathering spcae: 211
2 Old Crematory A	320	-Chapel	-Funeral/ritual room (chapel)	320
3 New Mortuary	456	-Office space	-gardner's house	4556
4 Administration building	Mortuary + chapel: 912 Gardners house: 450 total: 1362	-Mortuary -Abdication Chapel -Bibliothek	- Mortuary	1362
5 New Crematory D	1200	-Abdication Hall	-Funeral/ritual room (abdication hall) + technical unit	1200
6 Equipment storage	300	-Equipment storage	-Equipment storage -Gardener's House	300
7 Funerl Home Driving Service	1956	-Parking -Laundry Service -Offices	-House of Rest	4'960
8 2 Flowering Pavilions	2100	Flowering Ceremonies	-Ceremony space Crematory A -Ceremony spcae Crematory D	-150 -150
8. House of Construction	4400	Construction and stocking	-stocking earth and wood -wood and mycelium construction -3d printing	-300 -100 -100

Figure 99: Change in building functions and additional infrastructure. by Author. (2022). [table]

- Renovation
- Additional constrctions: pavilions

In Chpater 4, the symbolical and historical value of the main gate building, the old crematory, the old mortuary, the administration building and the new crematory have been highlighted.

The project proposal (figure 99), aims to keep or bring back this symbolism by using the buildings for the new ritual process. Therefore, the historical crematroies keep their current use: abdication chapels. The main entrance building remains a space for the friedhof forum and offices. The new mortuary stays the office space for the gardeners.

The new parts of the ritual demand alternative spaces. Therefore the "Funeral Home Driving Service" building is renovated to house the technical infrastructure necessary for the control of natural organic reduction. This building becomes the house of rest and therefore houses the resting blocks thus becoming important in the ritual. The additional spaces for rituals such as flowering will be situated in pavilions.

NUMBERS & INFRASTRUCTURE
- HOW MUCH FOR HOW MANY

Decomposing 7'832 bodies in Sihlfeld in 2050 implies that Sihlfeld must have the following facilities: 653 Vessels (1 Vessel is approximately 1,20 x 1,20 x 2,50 m), 1'300 curing containers (1 curing container of 1,20 x 1,20 x 1,20 m), a filtering lab equipped with a cremulator, a laboratory for the testing of the earth and a technical office for the regulation of the air within the vessels.[86]

In order to estimate the size of the building necessary for such a process, we can compare the amount of vessels and the size of Recomposes' facility (figure 100-101) to the amount of Vessels needed at Sihlfeld. Thus, the total size of building needed would be 14'955 square meters.

[86] https://recompose.life/planning-ahead/#how-it-works. (Accessed 1 Sept. 2022)

[87] https://olsonkundig.com/projects/recompose-seattle/ (Accessed 12 Oct. 2022

RECOMPOSE SEATTLE

2021
ARCHITECTS: OLSON KUNDIG
SIZE: 18'500 SQUARE FOOT = 1'719 SQUARE METERS
NUMBER OF VESSELS: 75 [87]

RECOMPOSE IN SIHLFELD

(653/75) x 1'719 =

14'955 sqm

Figure 100: Recompose Project Facility Render. Olson Kundig Architects (2016). Available at: https://olsonkundig.com/projects/recompose-seattle/[Accessed 12 Oct. 2022]. [Render]

Figure 101: Recompose Ceremony Render. Olson Kundig Architects (2016). Available at: https://olsonkundig.com/projects/recompose-seattle/[Accessed 12 Oct. 2022]. [Render]

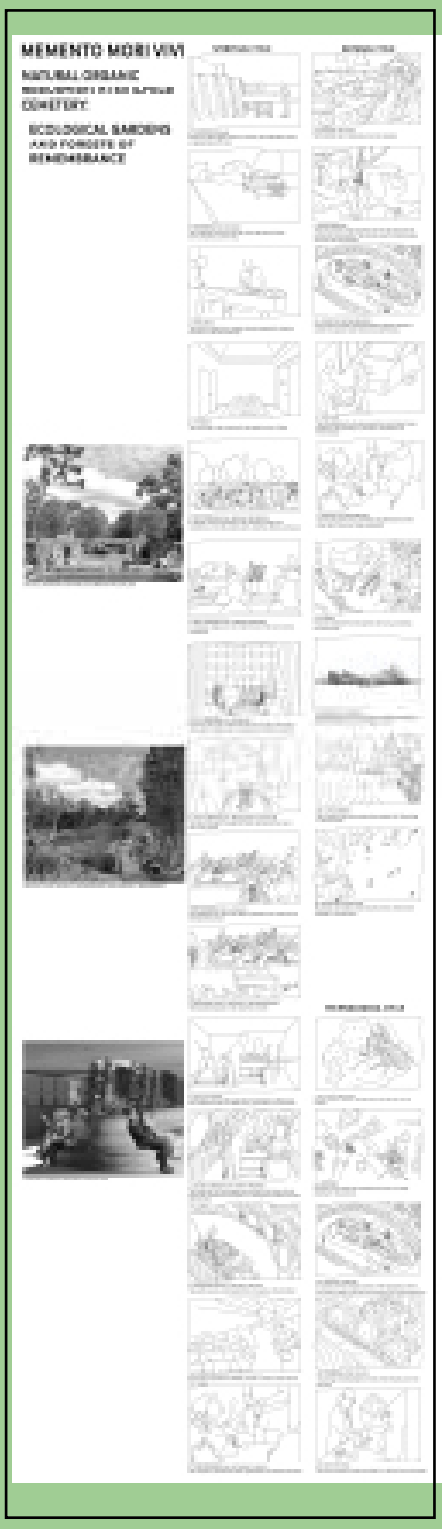
PHASE 2 - FS 2023 - DESIGN

6. PROJECT DESIGN
- ECOLOGICAL GARDENS AND FORESTS OF REMEMBRANCE

[88] St Mary Magdalene Church, Milk Street London, Inscription

“ Grass of levity,
Span in brevity,
Flowers’ felicity,
Fire of misery,
Winds’ stability,
Is mortality.” [88]

A NEW RITUAL


MEMENTO MORI VIVI
NATURAL ORGANIC
ECOLOGICAL BAROQUE
AND FORGETS OF
REMEMBRANCE


2023
2050

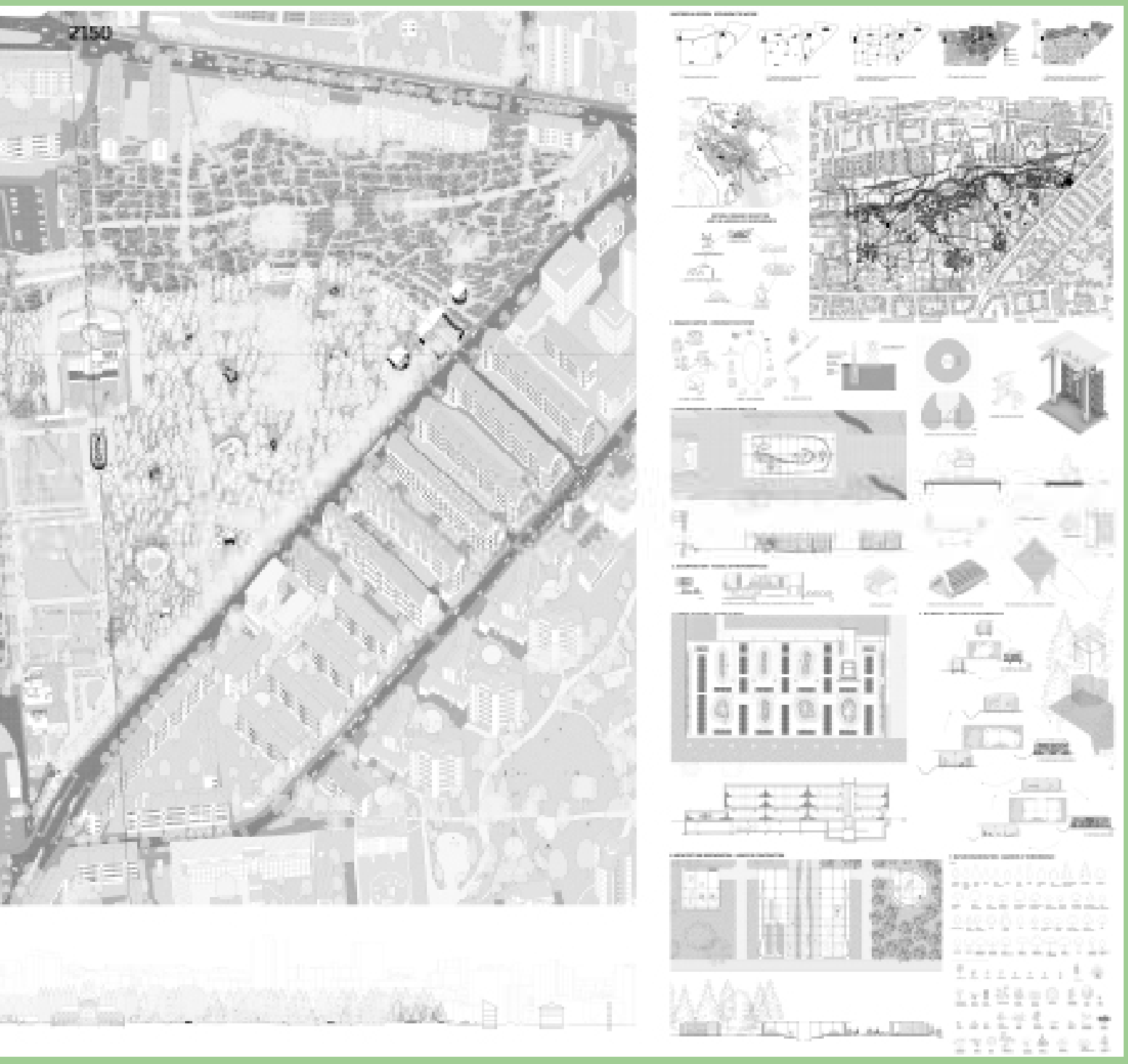
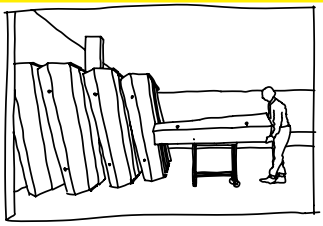
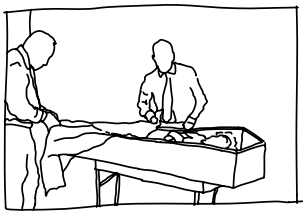


Figure 102: Project submission, poster 6.2m x 2.9 m. by Author. (2022). [drawings]



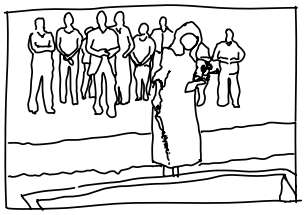
1. THE COFFIN STORAGE

2. RETRIEVING THE BODY



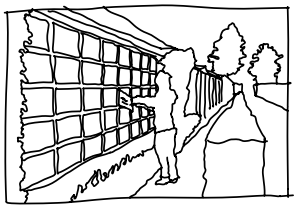
3. EMBALMING

6. FUNERAL/ CEREMONY



7.1 EARTHEN BURIAL

7.2 CREMATION



8. DISPOSAL OF ASHES

DEATH

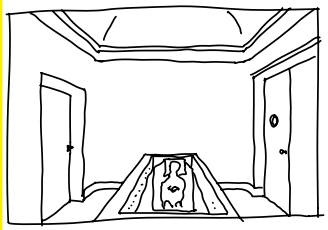
1 week

2 weeks

3 weeks

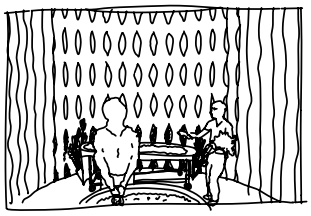
1 mo

OFFICIAL DEATH CERTIFICATE



4. THE WAKE

5. ARRIVAL PROCESSION



7.3 FLOWERING

8.1 PROCESSION TO LAYING IN

9. LAYING IN

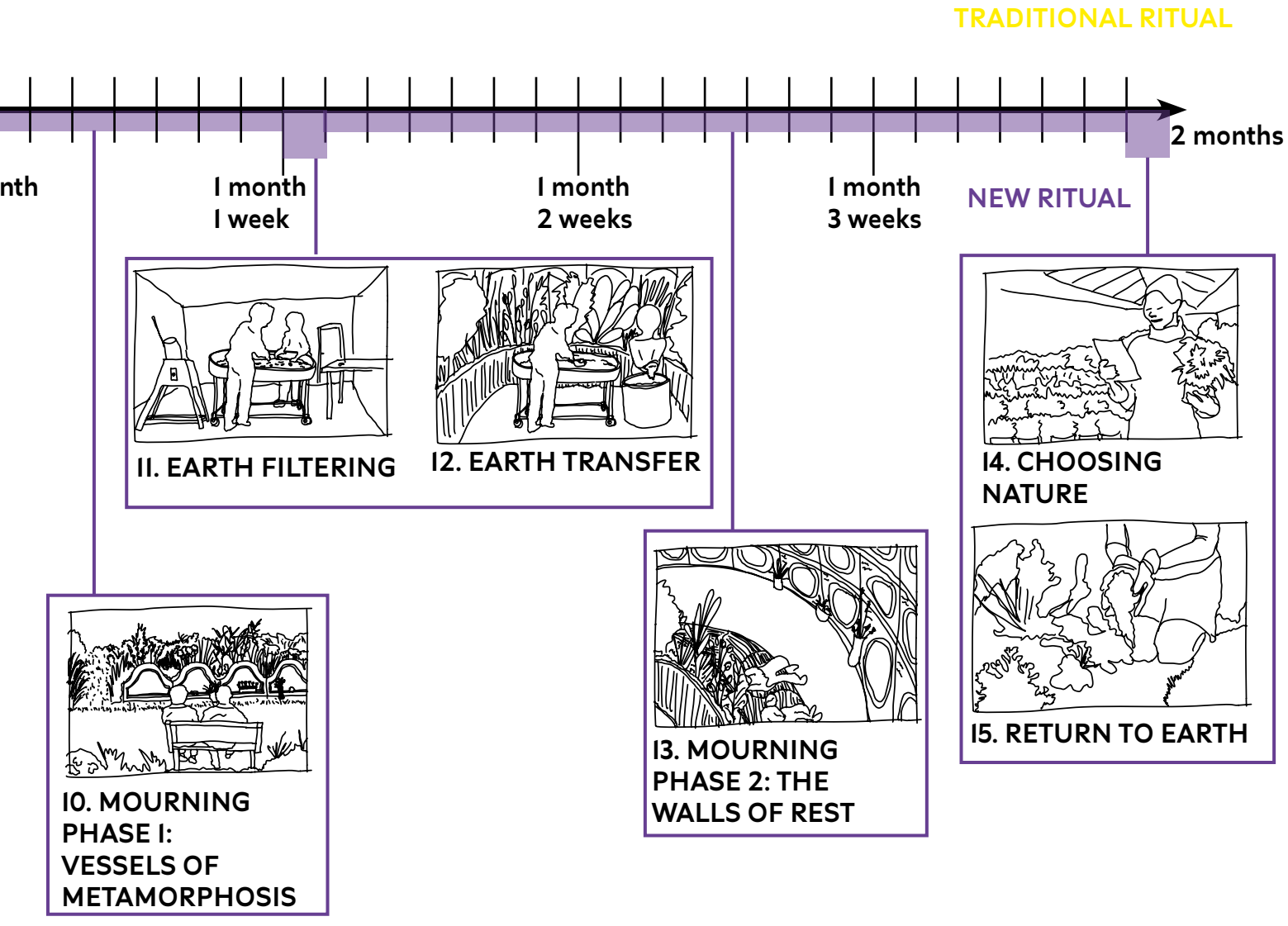
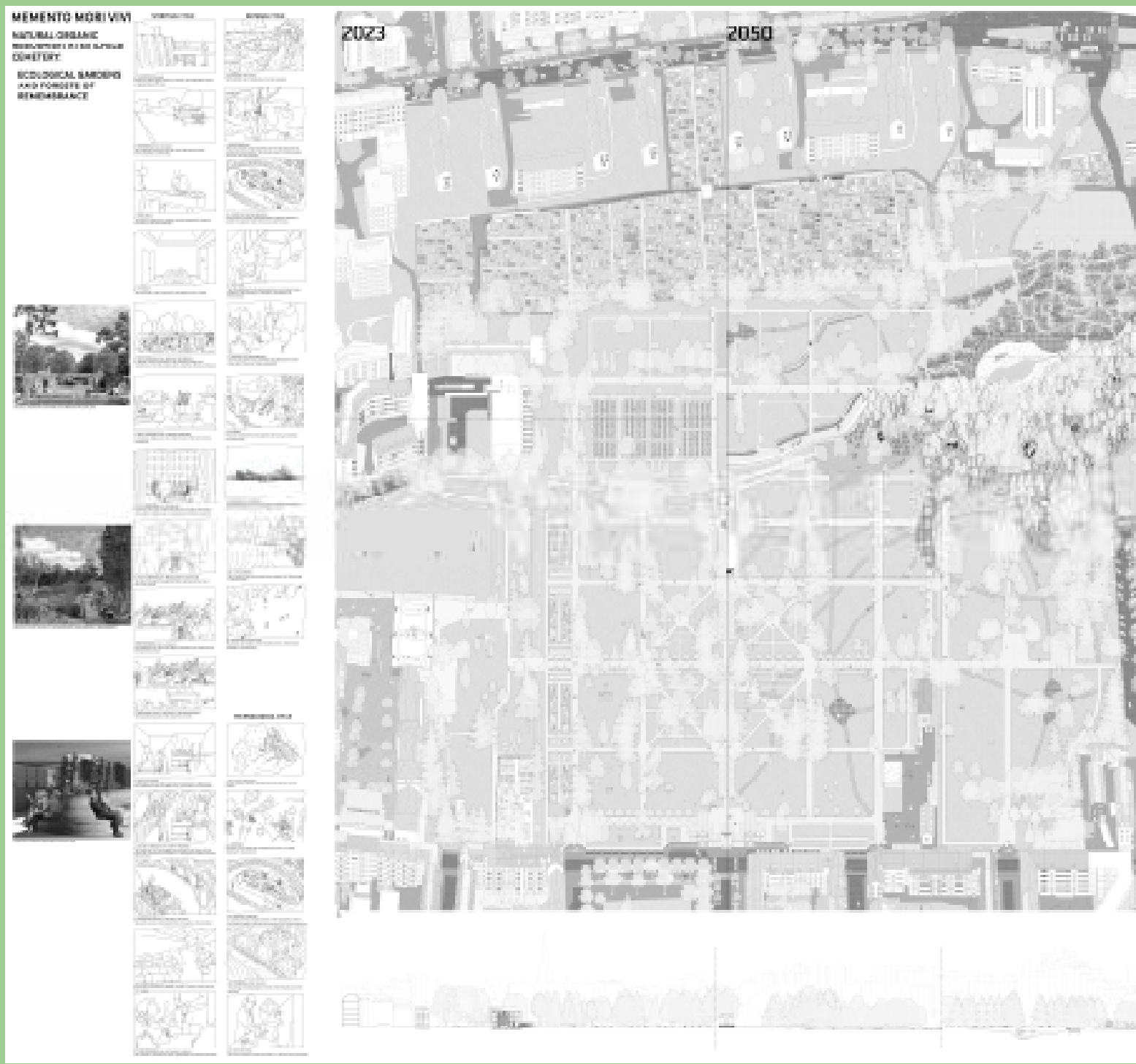
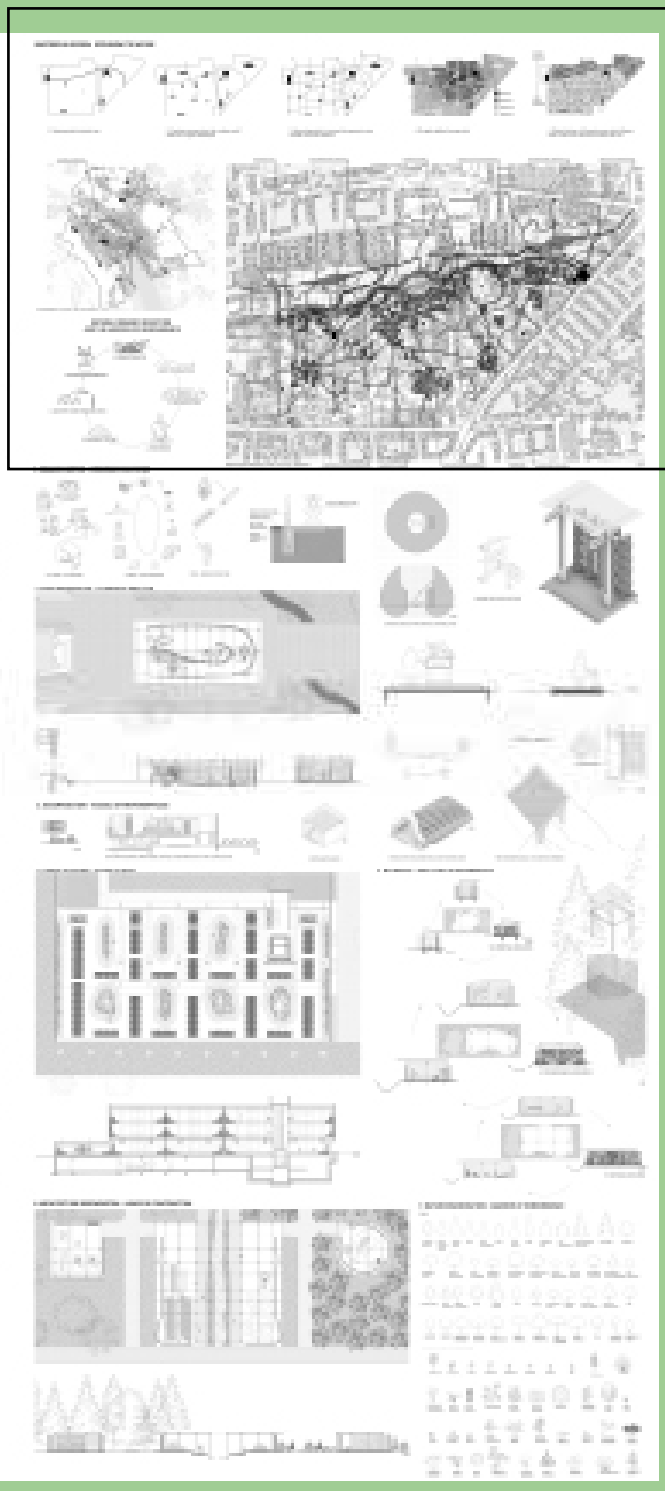
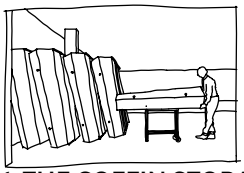


Figure 103: New Ritual timeline comparison: a longer ritual. by Author. (2022). [sketch]

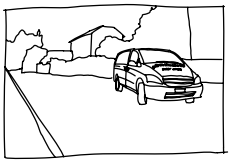

MEMENTO MORI VIVI
NATURAL ORGANIC
ECOLOGICAL SAMSARA
AND FORGETS OF
REMEMBRANCE
2023
2050



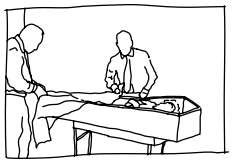
6.1 MASTERPLAN DESIGN -BACK TO NATURE



1. THE COFFIN STORAGE



2. RECOVERING THE DECEASED



3. EMBALMING

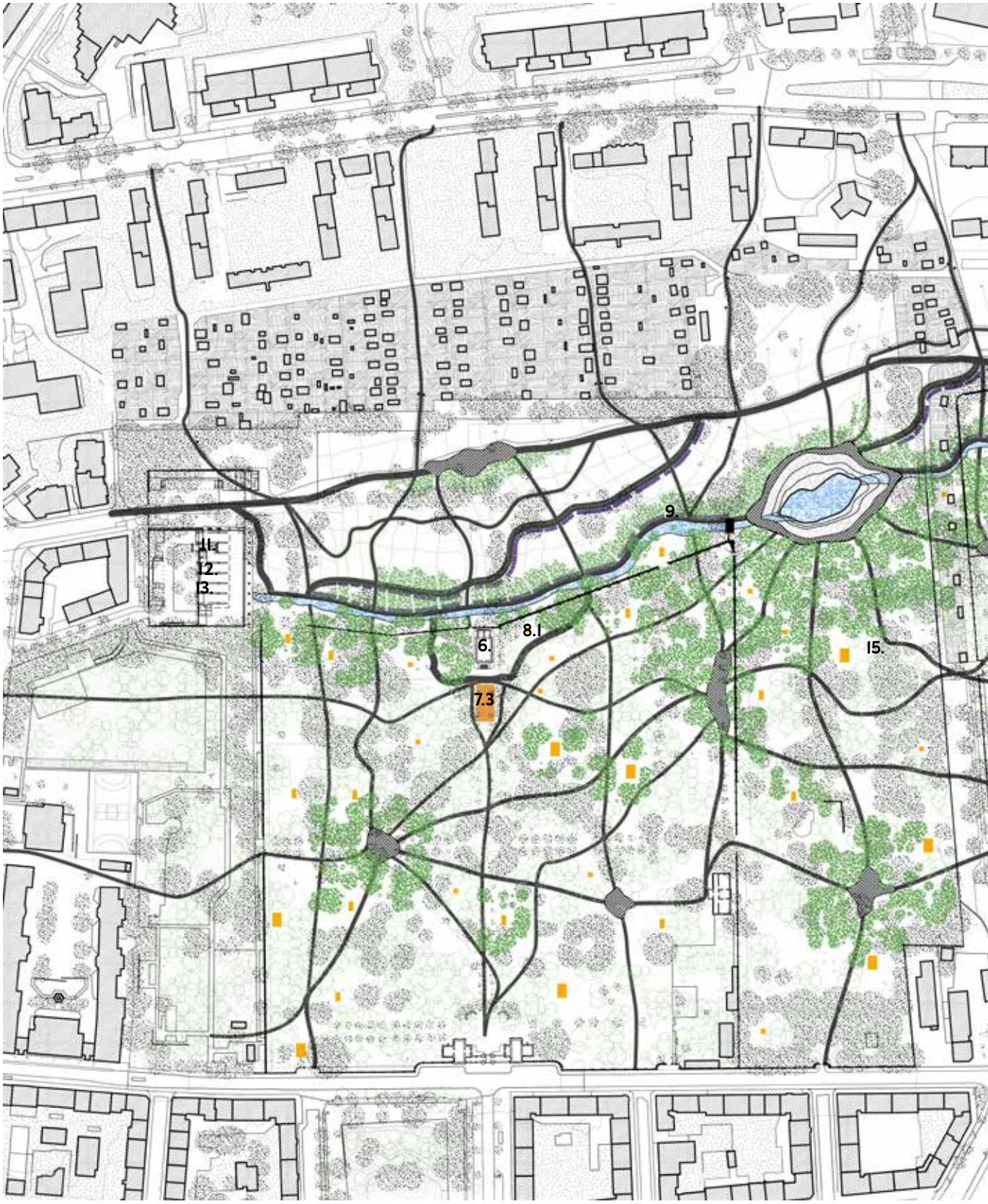
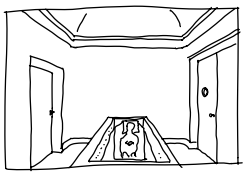
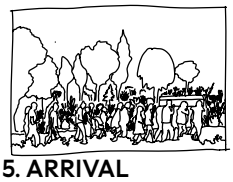


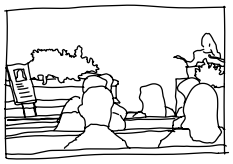
Figure 104: Masterplan 2050: integrating NOR and its ritual. by Author. (2022). [plan]



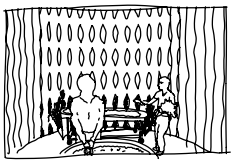
4. THE WAKE



5. ARRIVAL PROCESSION



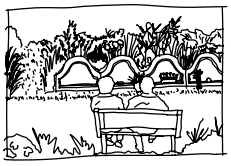
6. FUNERAL/ CEREMONY



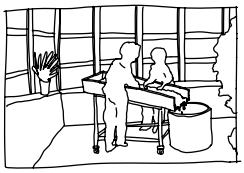
7.3 FLOWERING

8.1 PROCESSION TO LAYING IN

9. LAYING IN: VESSELS OF METAMORPHOSIS



10. MOURNING PHASE 1: PAVILIONS OF REMEMBRANCE



11. EARTH FILTERING

12. EARTH TRANSFER

13. MOURNING PHASE 2: THE WALLS OF REST

14. CHOOSING NATURE

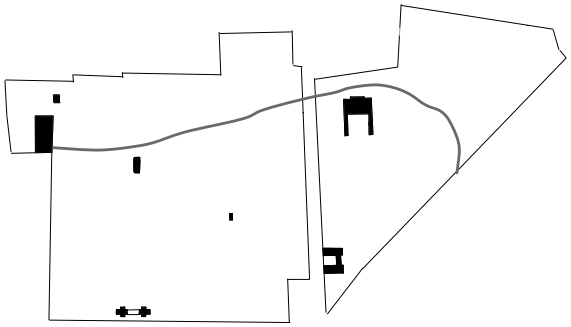
15. RETURN TO EARTH

- Vessels of Metamorphosis
- Pavilions of Remembrance
- Flowering Pavilions

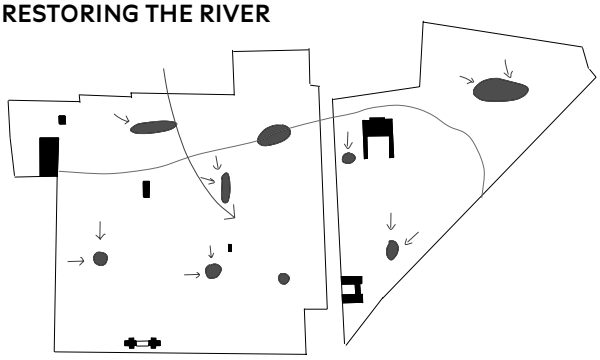
MASTERPLAN DESIGN

The current cemetery is defined by a linear grid. The parts of the process corresponding to the traditional ritual create 2 boulevards that follow this grid.

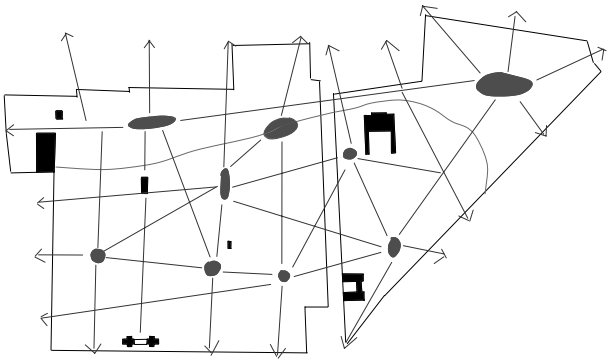
The design of the masterplan aims to decompose this grid with the goal of returning to a certain form of natural state (figure 105). The first move to do so is the restoration of the historical creek that used to cross the site (figure 106). In a second phase, the observation of surface runoff water led to the creation of squares through the site (figure 107). Connecting paths join the squares to one another and also connect Sihlfeld to the exterior urban context. These new paths define plots that are gradually transformed in 4 phases. The final aim is to generate gardens of remembrance by planting perennial gardens north of the river and by planting trees south of the river (figure 109 - 110). The planting of the trees is based on a simulation of the historical forest that used to be in Sihlfeld in 3000 BC (figure 108).



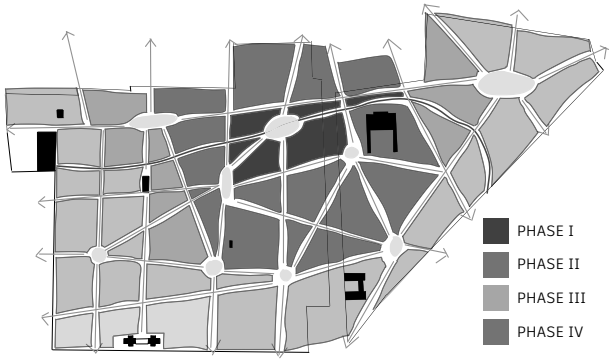
1. RESTORING THE RIVER



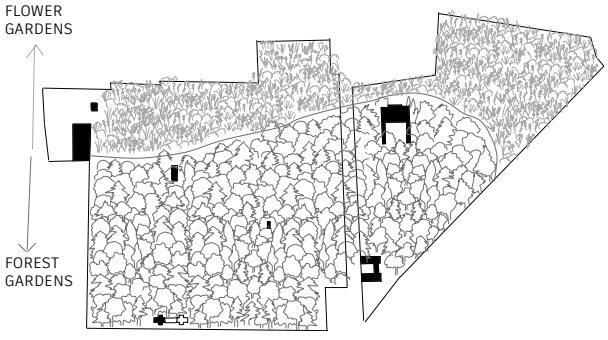
2. CREATING SQUARES ACCORING TO RUNOFF WATER



3. CONNECTING PATHS



4. PLOTS AND PHASES



5. GARDENS OF REMEMBRANCE

Figure 105: Masterplan design concept. by Author. (2023). [sketch]

Figure 106: Historical map with river overlaid on orthophoto. Source:maps.geodamin.ch. [map]

Figure 107: Surface water runoff depth. Source:maps.zh.ch. [map]

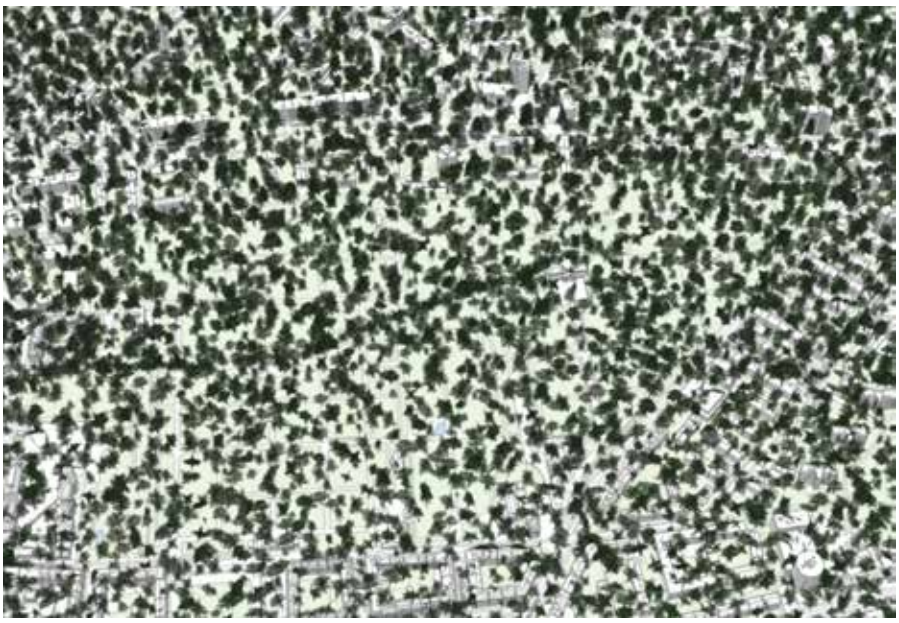


Figure 108: Simulation of historical forest Sihlfeld, Zürich 3000 BC. Source:https://3d.stzh.ch/appl/3d/zuerich_4d_extern. [map]

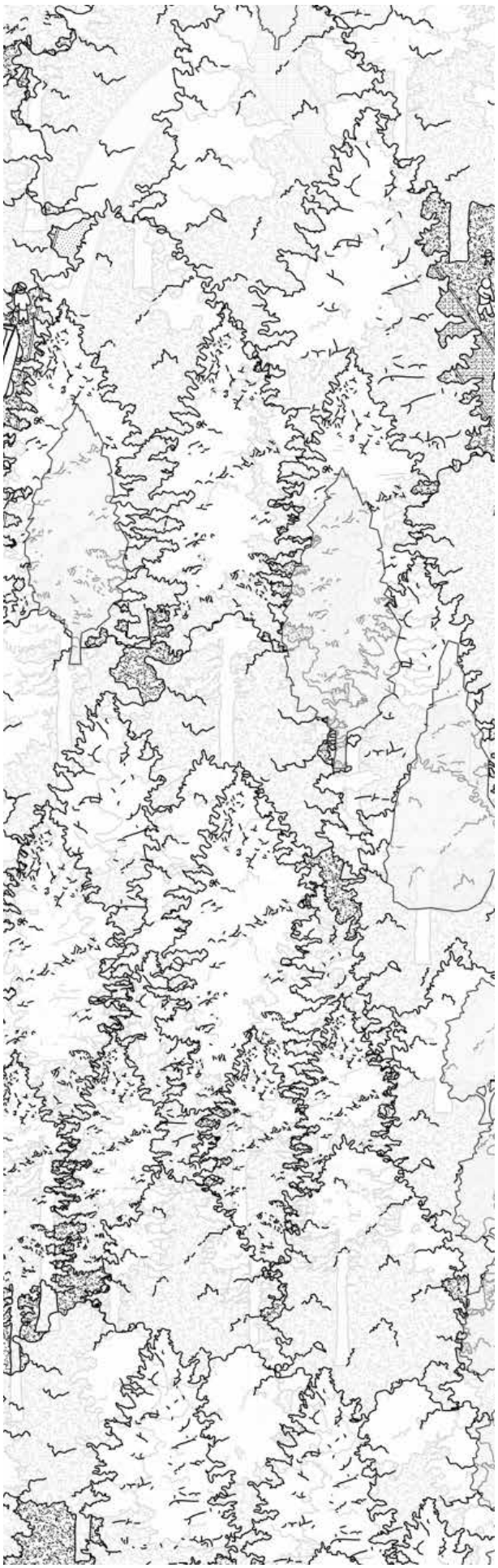


Figure 109: Forests of Remembrance, axonometric drawing extract. by Author (2023). [drawing]

Figure 110: Gardens of Remembrance, axonometric drawing extract. by Author (2023). [drawing]

ARCHITECTURE & LANDSCAPE DESIGN

The design of the landscape and architecture follows the process of natural organic reduction: a process of decomposition.

As nature is created, it is also used. It becomes source of construction material but also plays a role in the decomposition of the bodies. Parallel to the decomposition of the bodies, there is a progressive decomposition of the architecture and ultimately a decomposition of the perception of death in our society. The decomposition then leads to a regeneration (figure III).

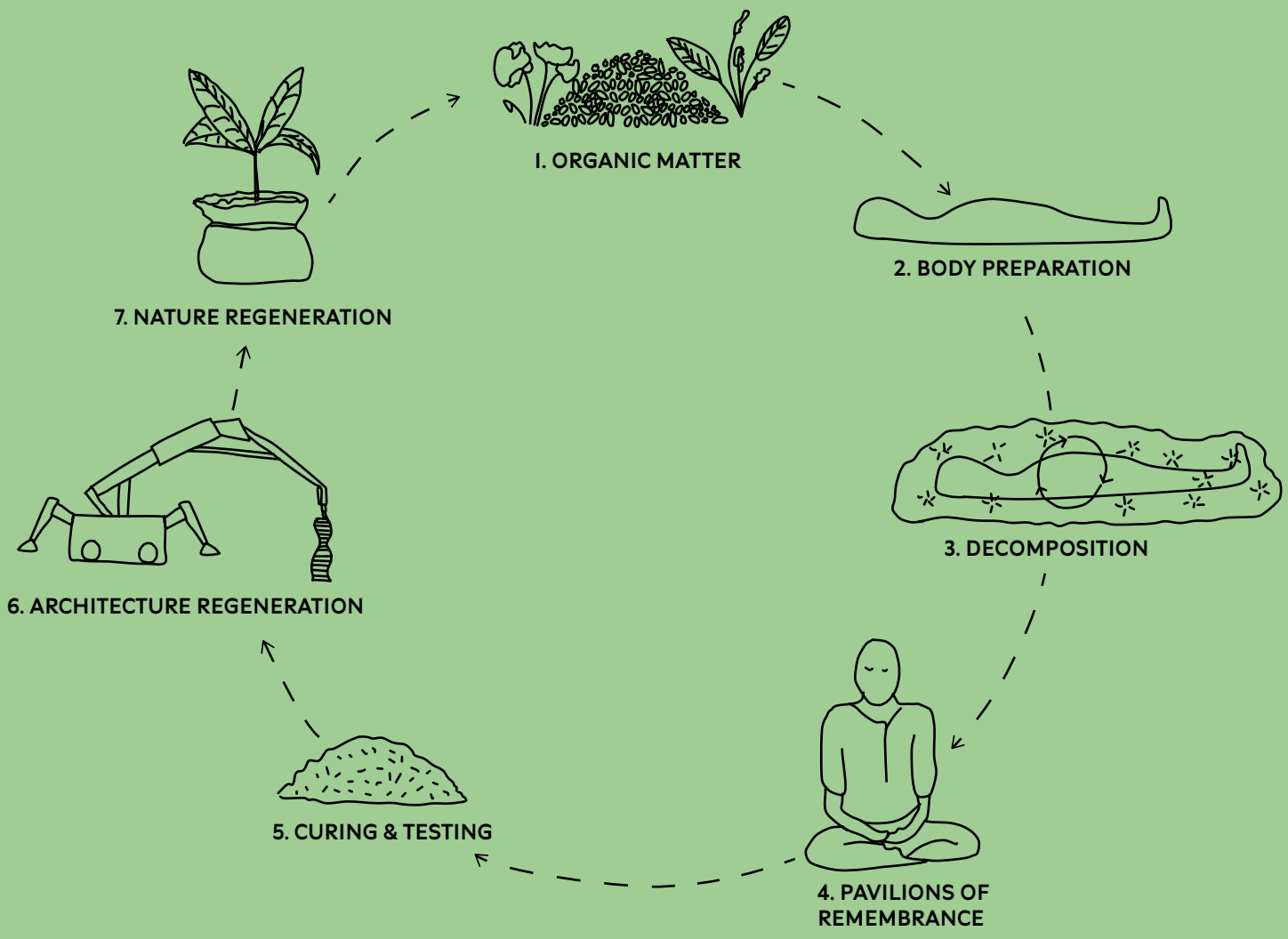
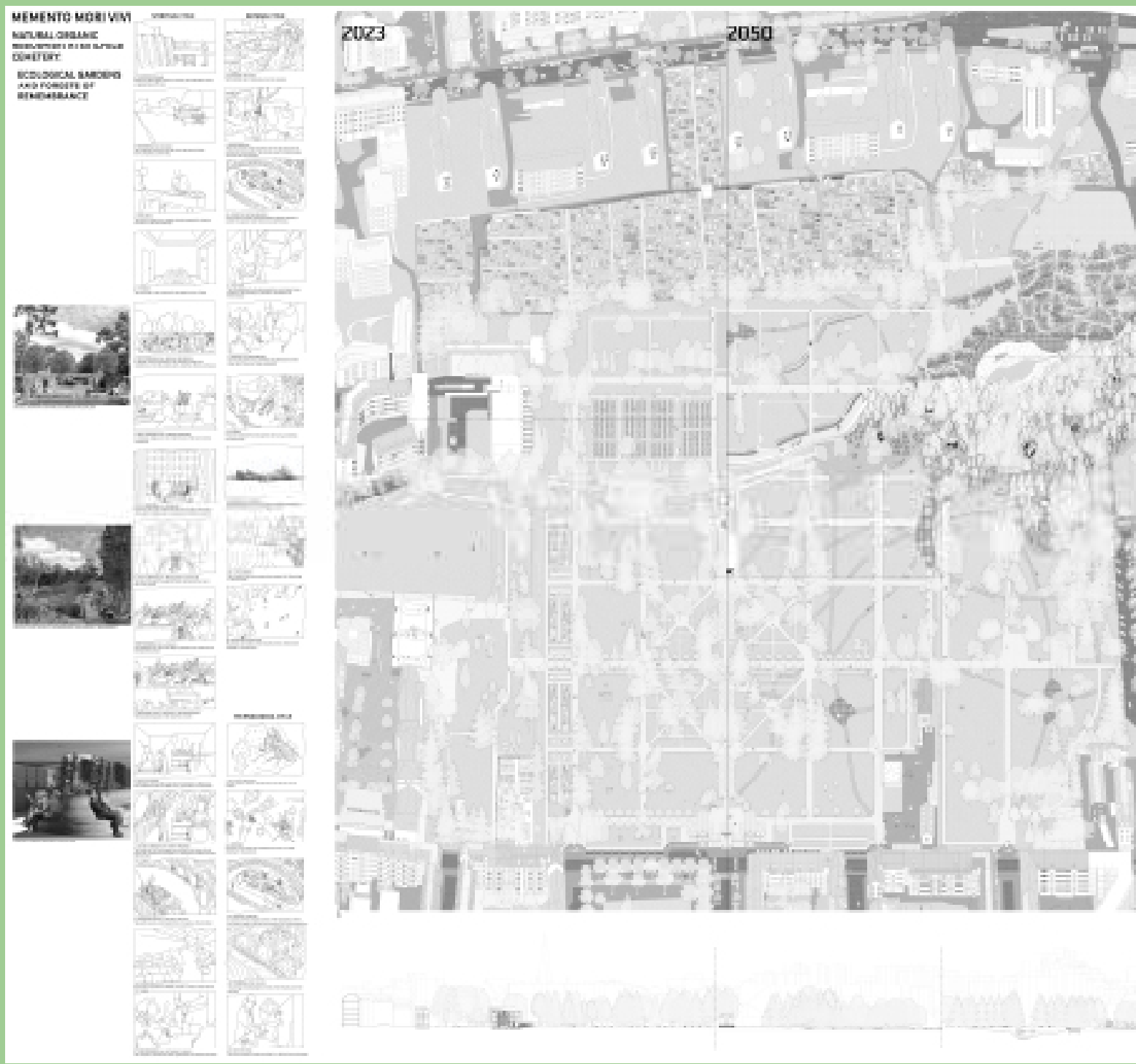
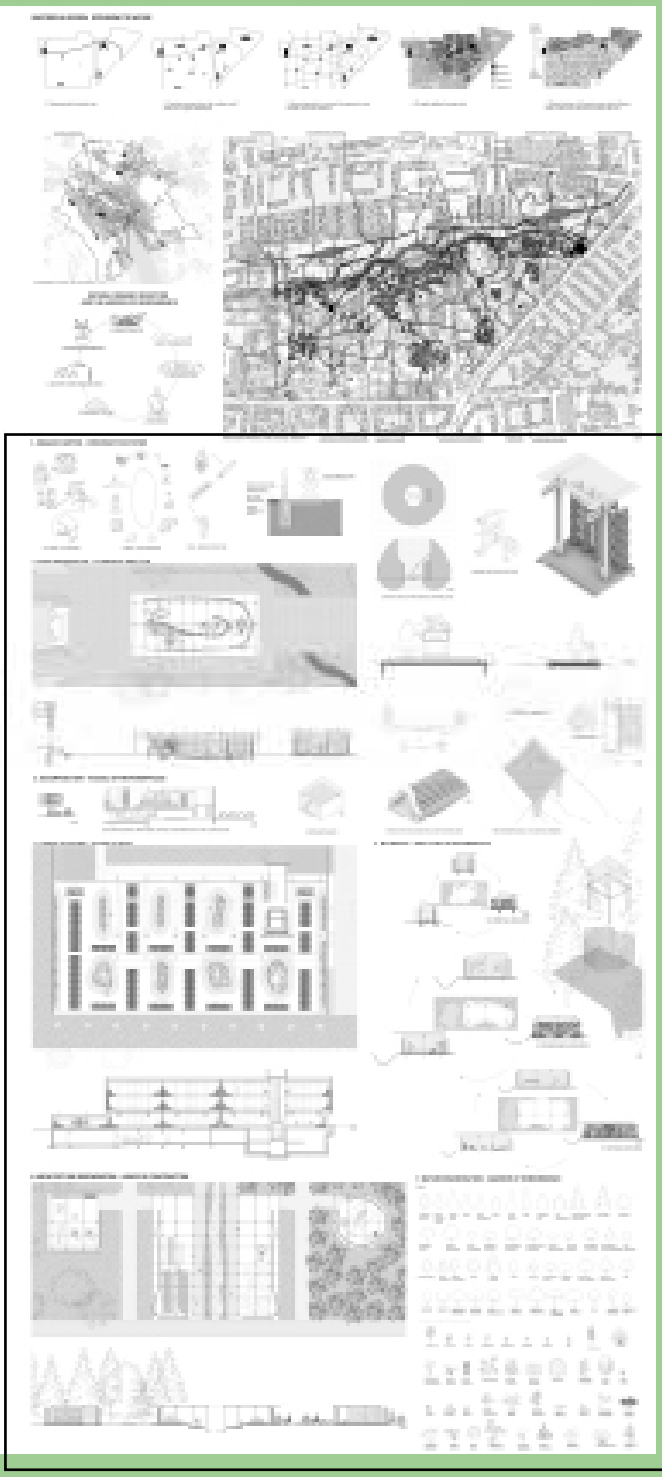


Figure III: Project cycle: natural organic reduction and the gardens of remembrance. by Author. (2022). [sketch]


MEMENTO MORI VIVI
NATURAL ORGANIC
ECOLOGICAL SAMSARA
AND FORGETS OF
REMEMBRANCE
2023
2050



ARCHITECTURE & LANDSCAPE DESIGN

6.2 ORGANIC MATTER -CONSTRUCTIVE SYSTEM

The constructive system is based on an approach of minimal intervention with materials found on site. Therefore, there are three main materials used: clay, fungi and trees (figure 112).

Historically, the site of Sihlfeld and it's surroundings were used for agriculture and clay mines. The clay quality of the earth made it adequate for quarries and thus, brick fabrics emerged in the region (figure 113).

A quarry north of Sihlfeld C, in line with the river, acts as the main source of clay for the project. A clay that is then mixed with fibres and directly 3d printed to build pavilion shells, vessels and structures for the curing containers. (figure 114)

A basic wooden structure covers the pavilions and fungi found on site is used to create mycelium bricks.

The pavilions, exposed to weather conditions, go through their own cycles of decomposition. The mycelium bricks first start to grow and then entirely decompose, gradually opening the structure to the exterior. These are replaced every 4 years. The 3d printed shells start to break and crumble and are partially or entirely reprinted every 16 years. Finally, the wooden structure exposed to humidity slowly looses its strength and is replaced every 32 years in average.

The architectural language of the pavilions mimic nature. The pavilions are like trees whose leaves change, grow, fall and adapt.

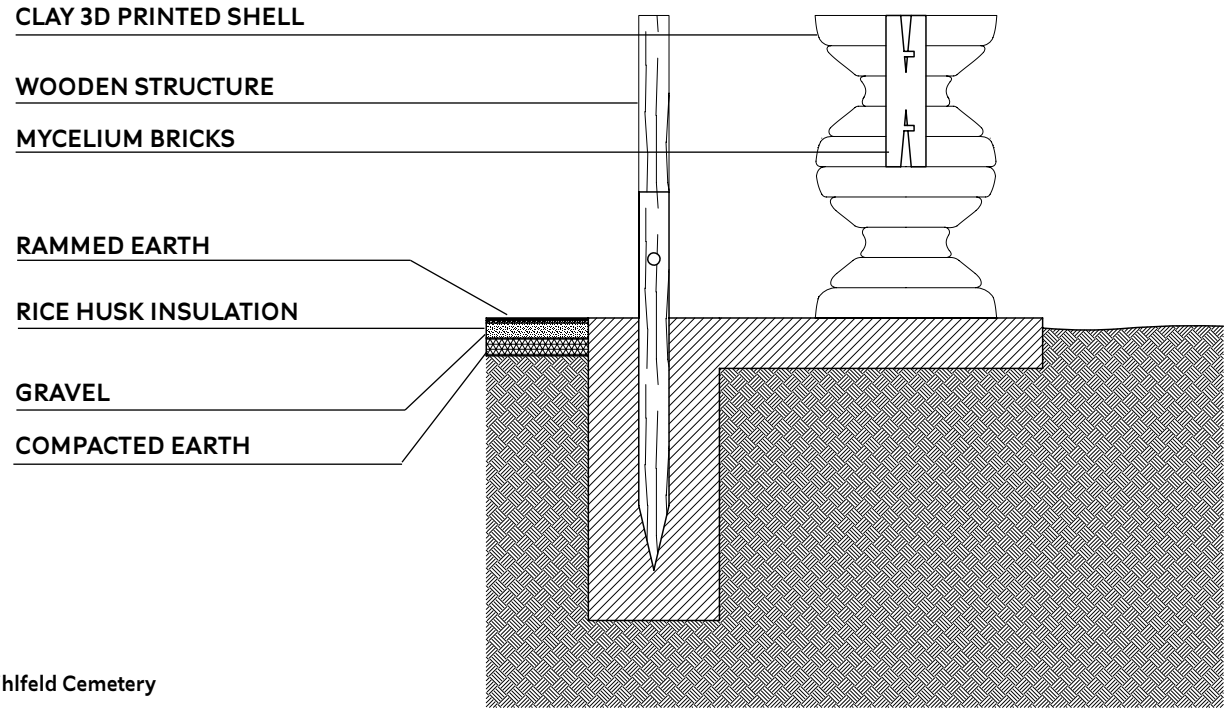


Figure 112: Foundation construction system detail 1:20. by Author.

Figure 113: 1945 abandoned quarry Wiedikon. Source: https://ba.e-pics.ethz.ch/main/ gallery view. [image]

Figure II4: Quarry & forest, axonometric drawing extract, 1:250. by Author (2023). [drawing]

CLAY EARTH - 3D PRINTING (figure 115)

The 3d printed clay shells are like the branches of a tree: frail yet robust, they support themselves and their leaves (mycelium bricks). They organically follow the offset of the void drawn by the existing and planted trees. The rough organic layering of clay earth envelops the users with the warmth of its natural colour (figure 116).The Construction-3D maxi printer (figure 117-118) is used to print these delicate shells. If the length of the shells surpasses the printable area of the printer, several printers can be combined.

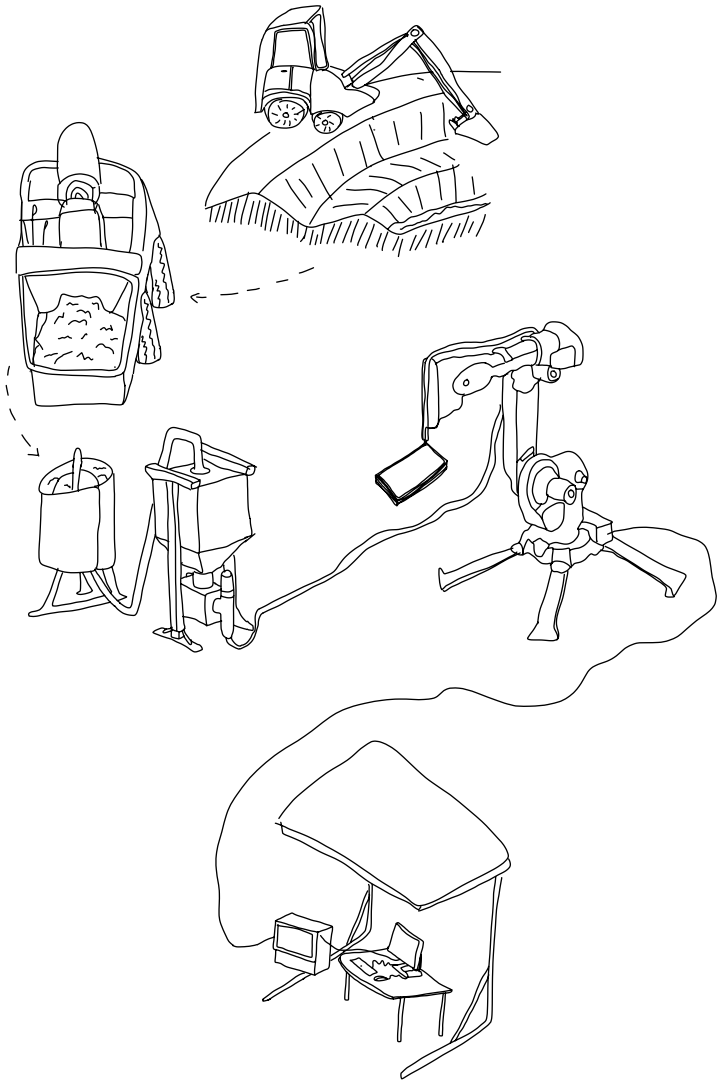
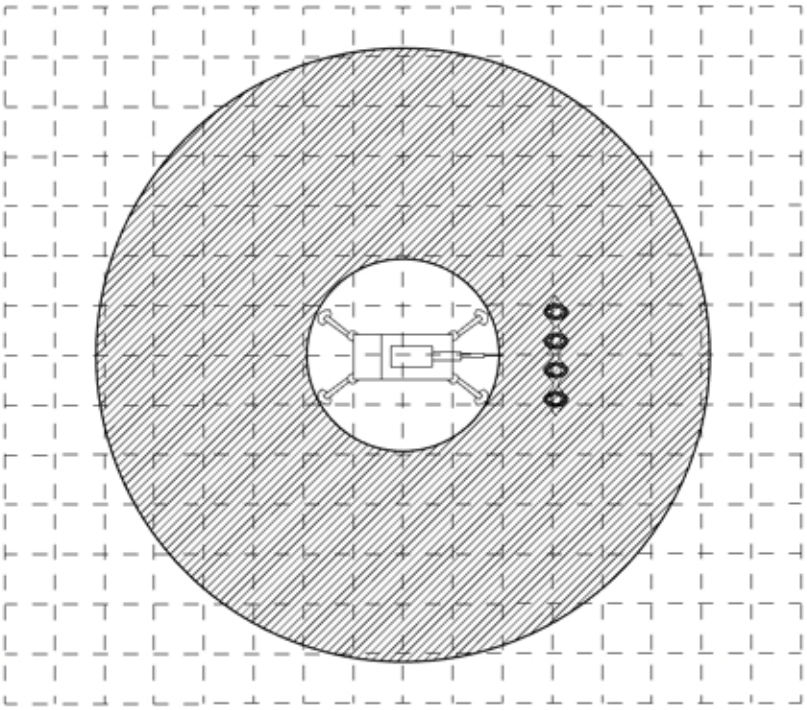


Figure 115: Clay Processing scheme for 3d printing. by Author. (2023). [sketch]

Figure 116: 3d Printed clay house, Tecla, by architect Mario Cucinella. Source: https://www.archdaily.com/960714/tecla-technology-and-clay-3d-printed-house-mario-cucinella-architects. Image by: Iago Corazza. [image]

Figure 117: Construction 3d Maxi Printer. Source: https://en.constructions-3d.com/la-maxi-printer . [image]



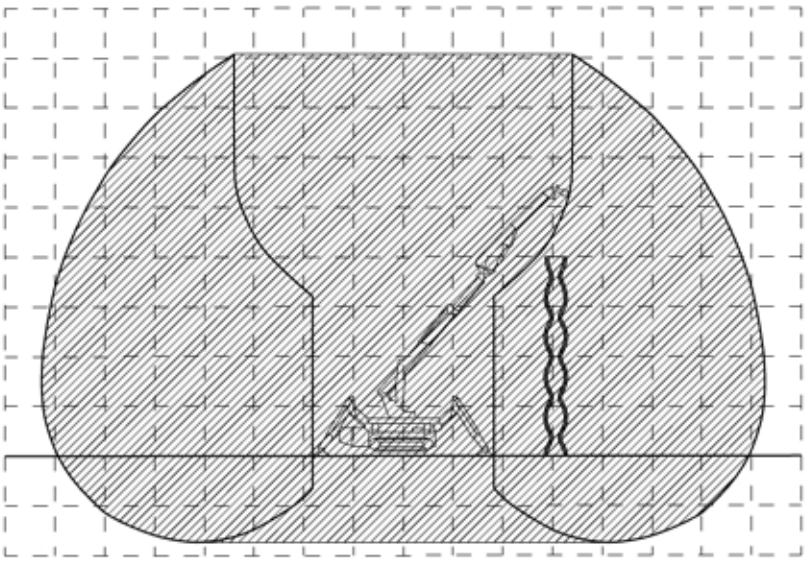


Figure 118: Construction 3d Maxi Printer, printable area, 1:150. Source: https://en.constructions-3d.com/la-maxi-printer . by Author. (2023). [drawing]

TREES- WOODEN STRUCTURE (figure 119)

On the other hand the wooden structure that covers the pavilions are built in a standard traditional lightweight wooden structure with simple wooden joints inspired by traditional wood building techniques (figure 120). The veins of the wood and its structure contrast and anchor the shells (figure 121).

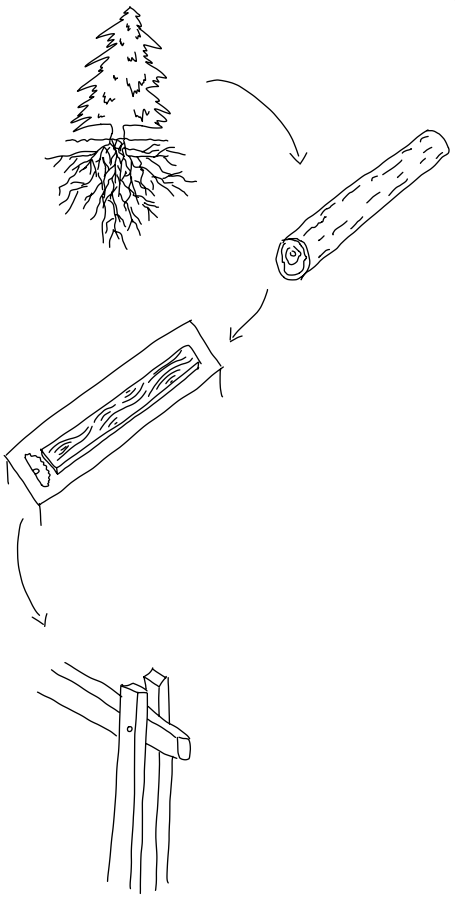


Figure 119: Wood Processing scheme. by Author. (2023). [sketch]

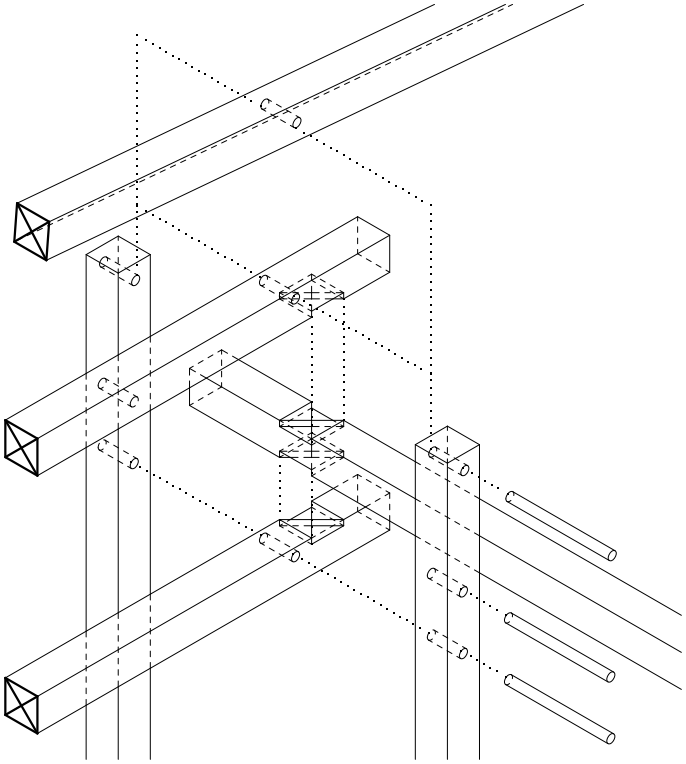


Figure 120: Wooden roof joint detail 1:20. by Author (2023). [image]

Figure 121: ALICE, Ist Year architecture student projects 2015-2016 Source: https://www.domusweb.it/en/news/2016/07/18/alice_house_1.html. Image by: Dylan Perrenoud [image]

FUNGHI- MYCELIUM BRICKS (figure 122)

The bricks bring life to the shell as they gradually decompose and create different environments in time (figure 123-124).

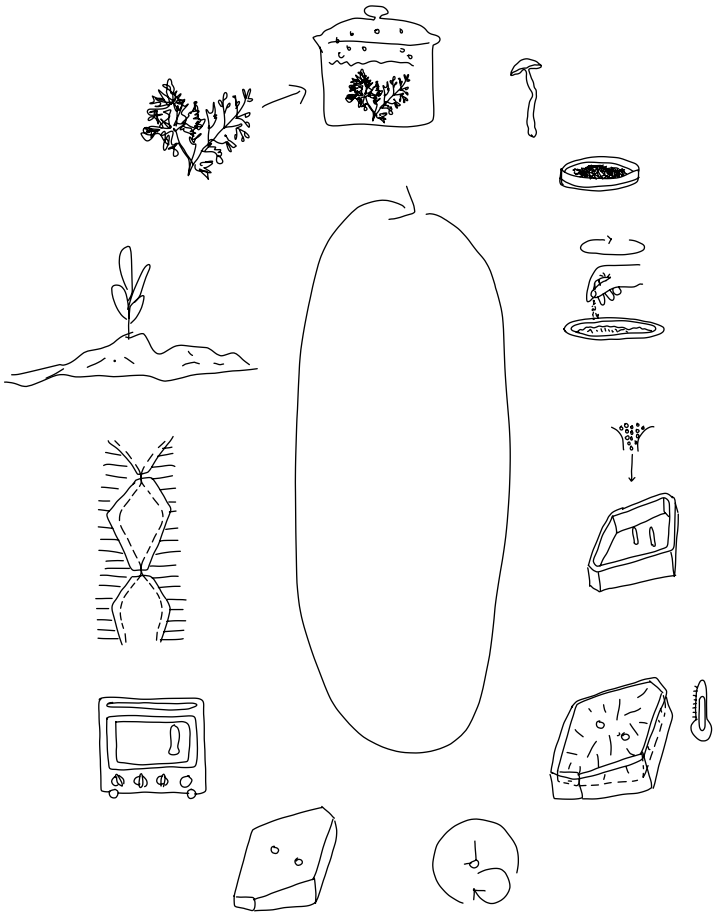


Figure 122: Funghi Processing scheme for Mycelium bricks. by Author. (2023). [sketch]

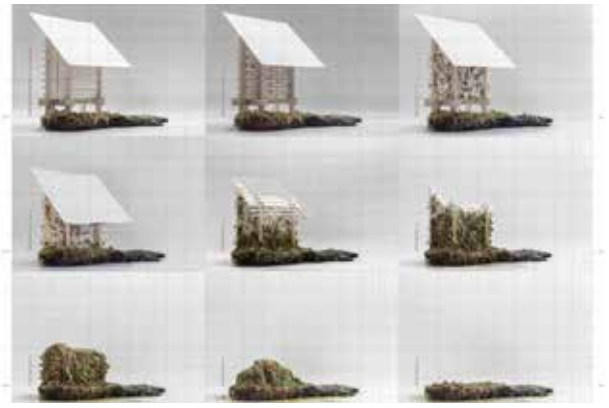


Figure 123: James Emery BA, Year 3, student project AA. Source: https://pr2020.aaschool.ac.uk/James-Emery [Accessed 28 Jan. 2023] [image]

Figure 124: BIOHM, Mycelium bricks for construction. Source: https://www.greentracearchitect.co.uk/post/mycelium-construction-materials [Accessed 28 Jan. 2023] [image]

Figure 125: Flowering pavilion facing Crematory D. by Author. (2023). [collage]

6.3 BODY PREPARATION -FLOWERING PAVILIONS

For the decomposition to take place, the body must be layed on a bed of organic matter (mainly wood chips, straw and alfalfa) and covered with it as well.

On the first day of ceremony, people enter the cemetery from the north of the river and cross the gardens to either one of the old crematory buildings. As they cross the gardens, they are invited to pick flowers and plants that are then layed out next to the transporter("coffin") for the ceremony.

After the main ceremony, the closest family memebers bring the body down (figure 126-127) into the flowering pavilion mirroring the historical crematory. They are first led to an intimate space where they uncrover the transporter to expose the body wrapped in its shroud. They then proceed further to the end of the pavilion where they cover the body with organic matter as well as the flowers collected upon arrival. After this, they push the body back up the ramp and along the patch of garden leading out of the pavilion (figure 128).

The body is then taken to a Vessel of Metamorphosis.

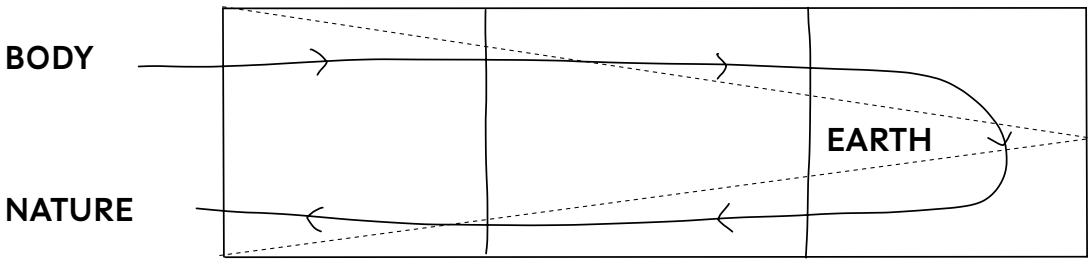


Figure 126: Design concept: movement in plan of flowering pavilion ceremony. by Author. (2023). [sketch]

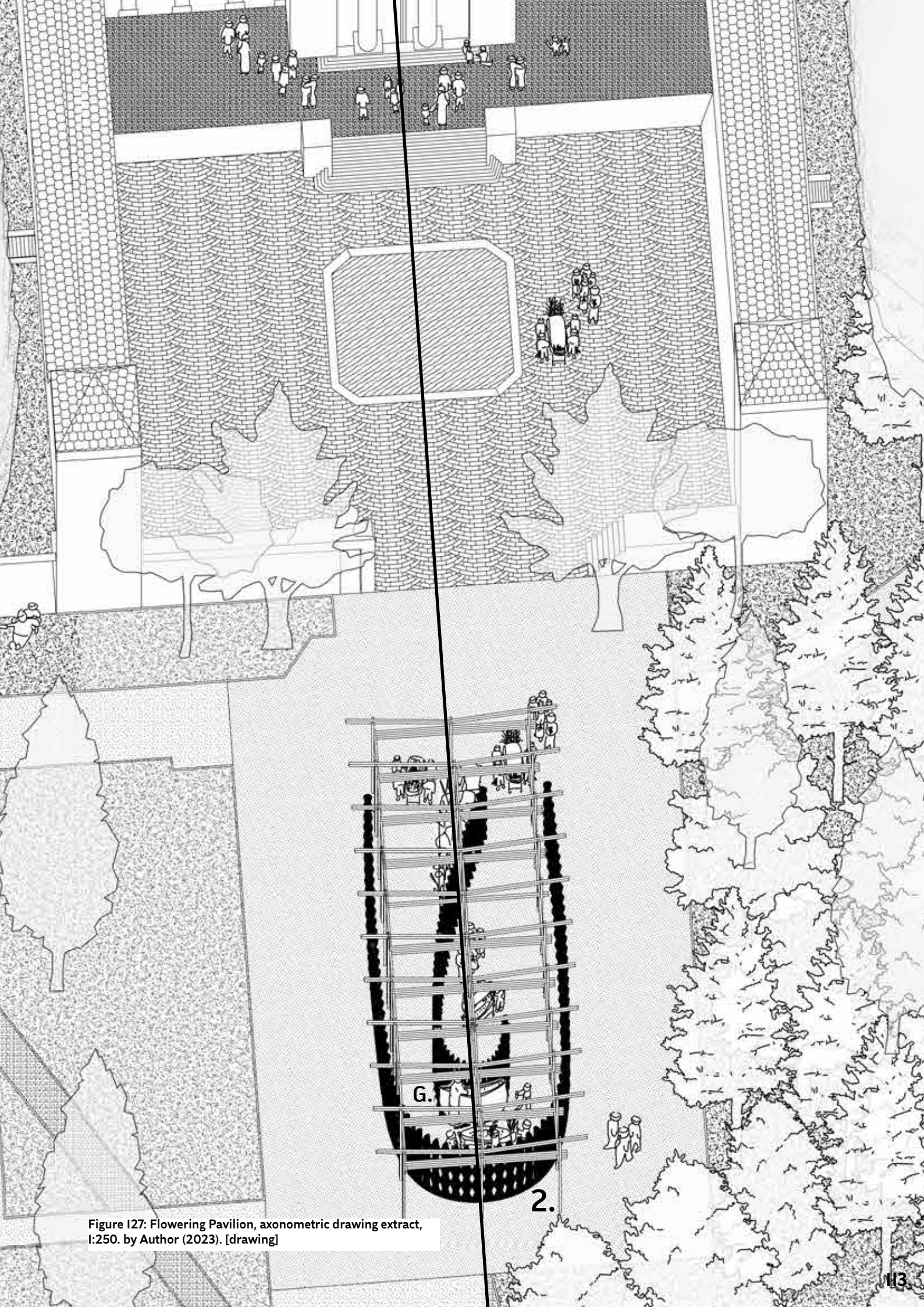


Figure 127: Flowering Pavilion, axonometric drawing extract, 1:250. by Author (2023). [drawing]

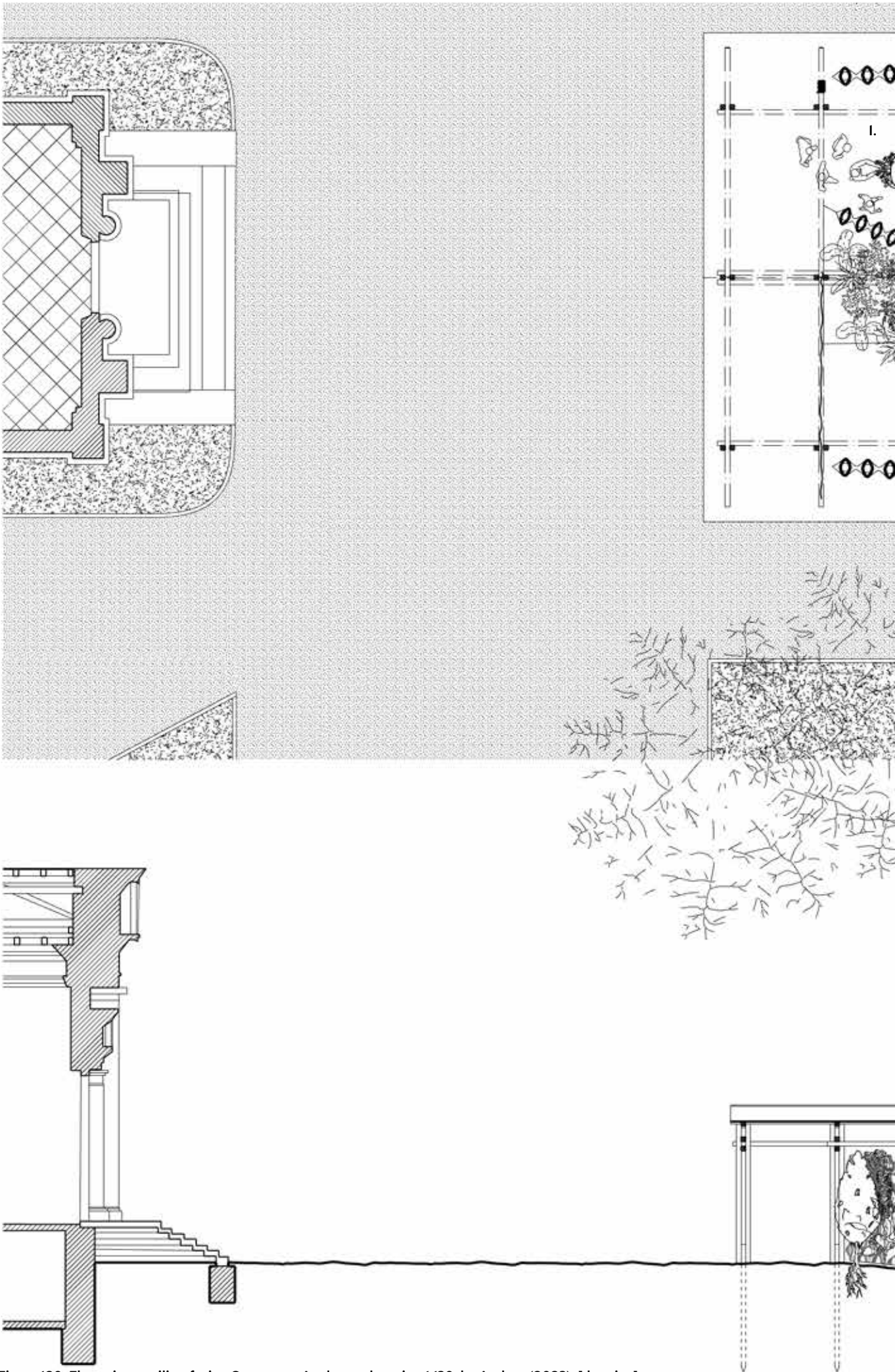
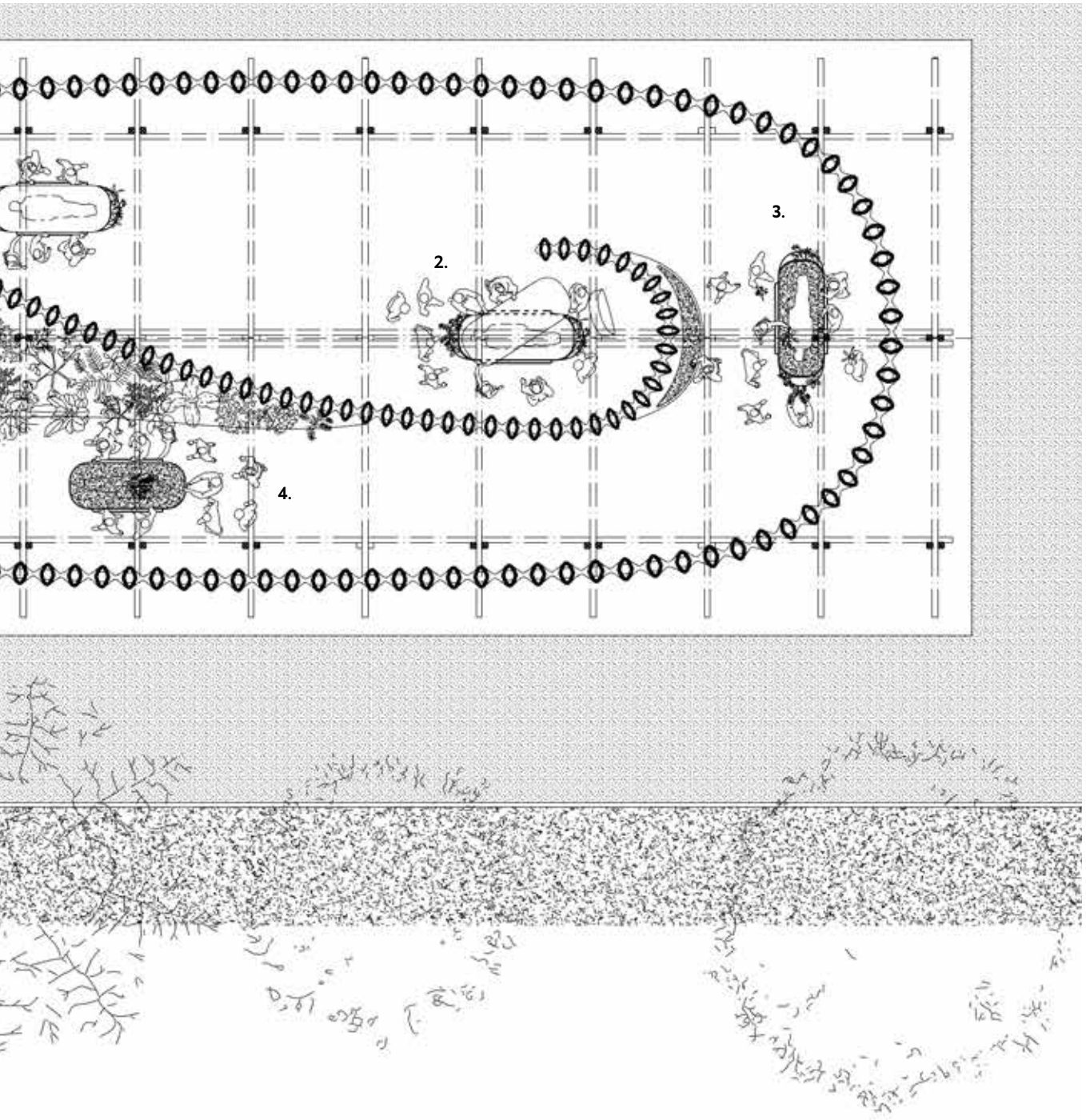
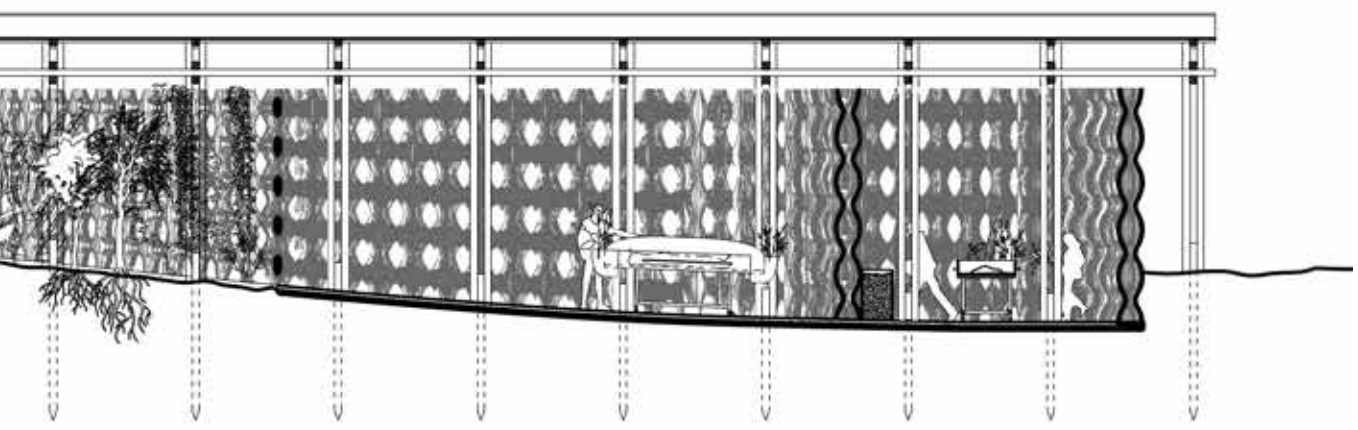


Figure 128: Flowering pavilion facing Crematory A, plan and section 1:130. by Author. (2023). [drawing]



1. Entrance
2. Body exposing
3. Flowering ceremony
4. Exit



PATHS & BRIDGES & WALLS

The decomposition of the grid of the actual cemetery not only translates on a physical and visual level (from straight paths to natural curved paths) but also aims to reduce hierarchy. Hierarchy in the existing paths of the cemetery create vertical and horizontal axis that highlight this grid. Therefore in the masterplan there are two types of paths: the natural and spiritual paths.

The natural paths are narrow paths made of wood chips reminding us of forest paths. These paths constitute the main typology of paths (figure 129).

The spiritual paths are slightly wider than the natural paths and theses are smooth rammed earth paths. The purpose of these paths are to make the journey from the flowering pavilion to the vessels a smooth journey. They allow the body to be pushed along them delicately (figure 130).

The bridges that connect the gardens of remembrance to the forests of remembrance are made from the material of the existing walls. The existing walls are torn down to accommodate the new plots and open the cemetery to the city context. These walls go from separating elements to connecting (figure 131).

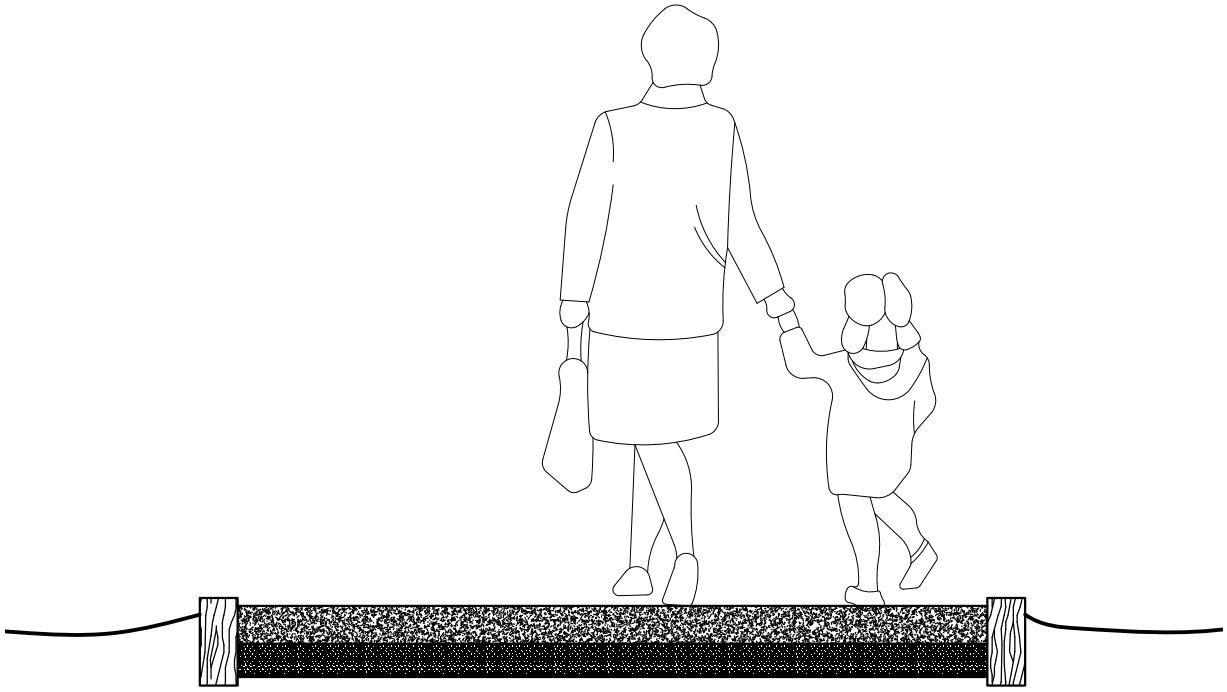


Figure 129: Natural Paths, 1:20 by Author. (2023). [drawing]

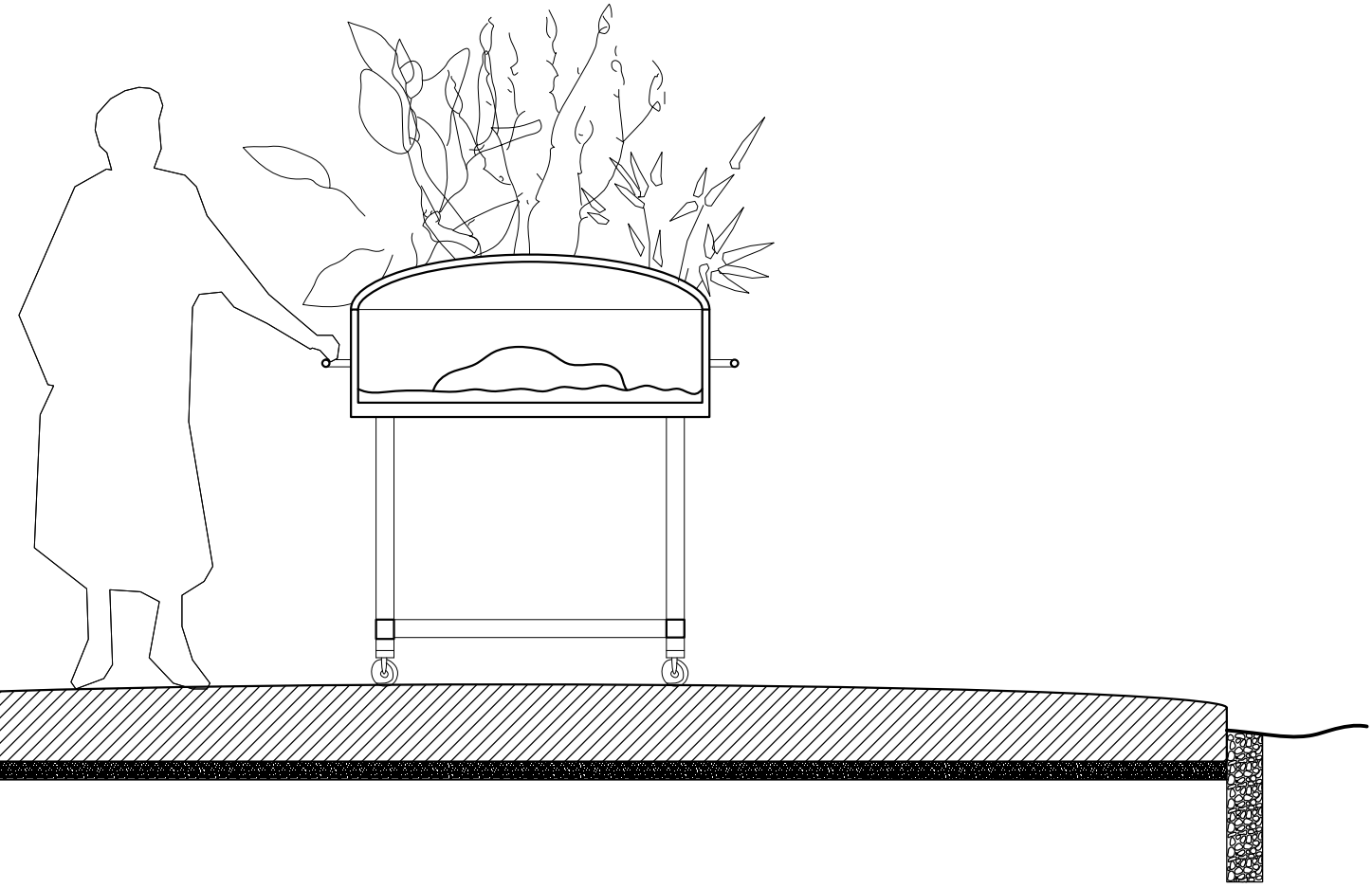


Figure 130: Spiritual Paths, 1:20 by Author. (2023). [drawing]

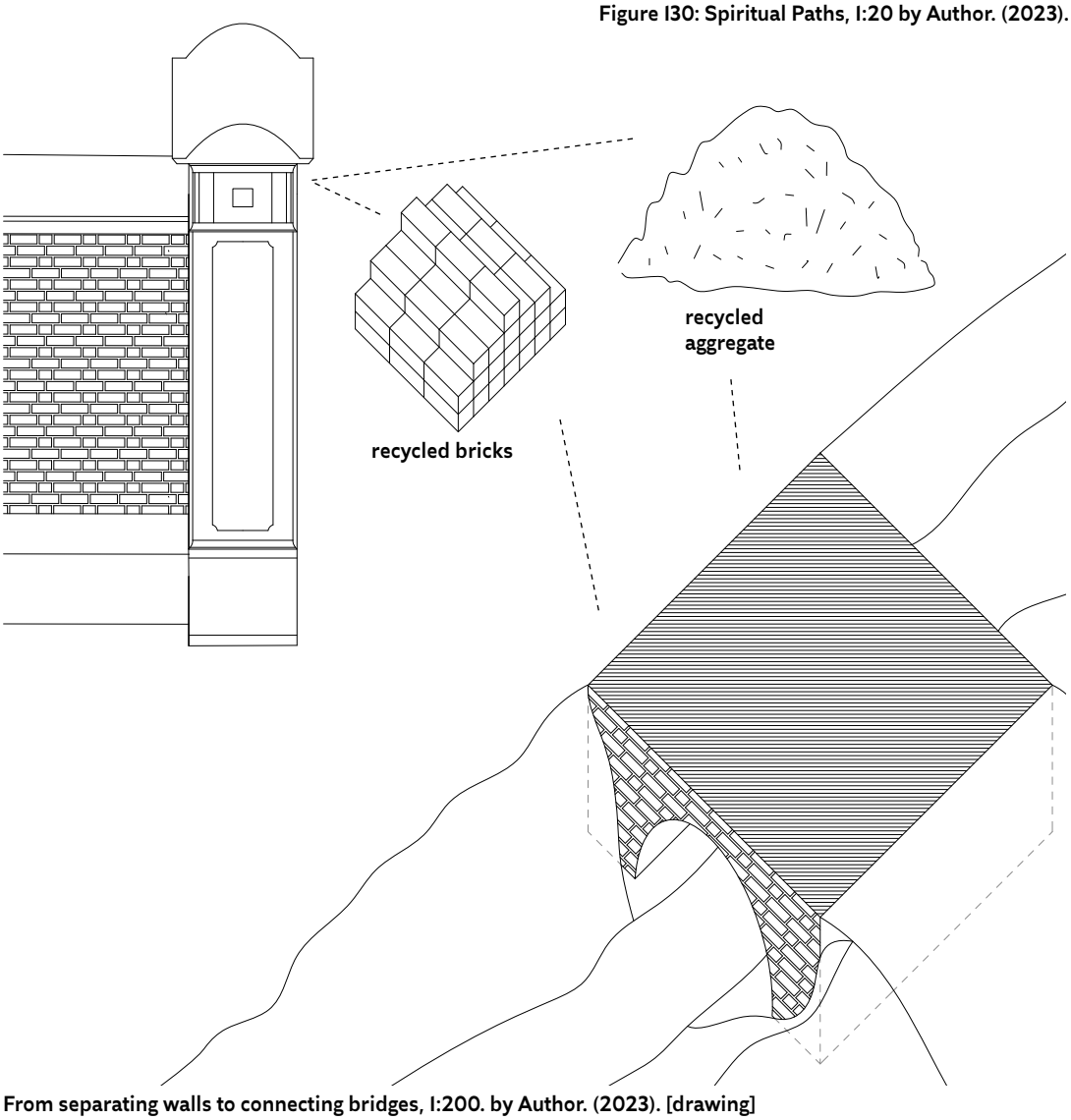
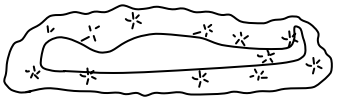


Figure 131: From separating walls to connecting bridges, 1:200. by Author. (2023). [drawing]

Figure 132: Gardens of Remembrance, Vessels and River imaginary. by Author (2022). [collage]

6.4 DECOMPOSITION
-VESSELS OF METAMORPHOSIS



NUMBER OF VESSELS NEEDED IN SIHLFELD FOR 2050: 653

After the flowering ceremony, there is the laying in (figure 134). The body is carried to one of the Vessels where it is left for a month to decompose (figure 133).

Throughout this period of time, there is a constant control of the air flow and temperature to ensure an efficient decomposition process (figure 135). The heat generated by the decomposition is tranformed into energy that is used to light up the Vessel.

The vessels are 3d printed as well. Their enveloppe forms a skin useful for insulation but also for the planting of perennials (figure 136).

The vessels are aligned in groups and form a natural landscape adequte for planting gardens. They therefore physically integrate and become part of the gardens. When it rains, the natrual topography creates water gardens. (figure 137).

The groups formed by these vessels are called clusters and are organised according to regions.

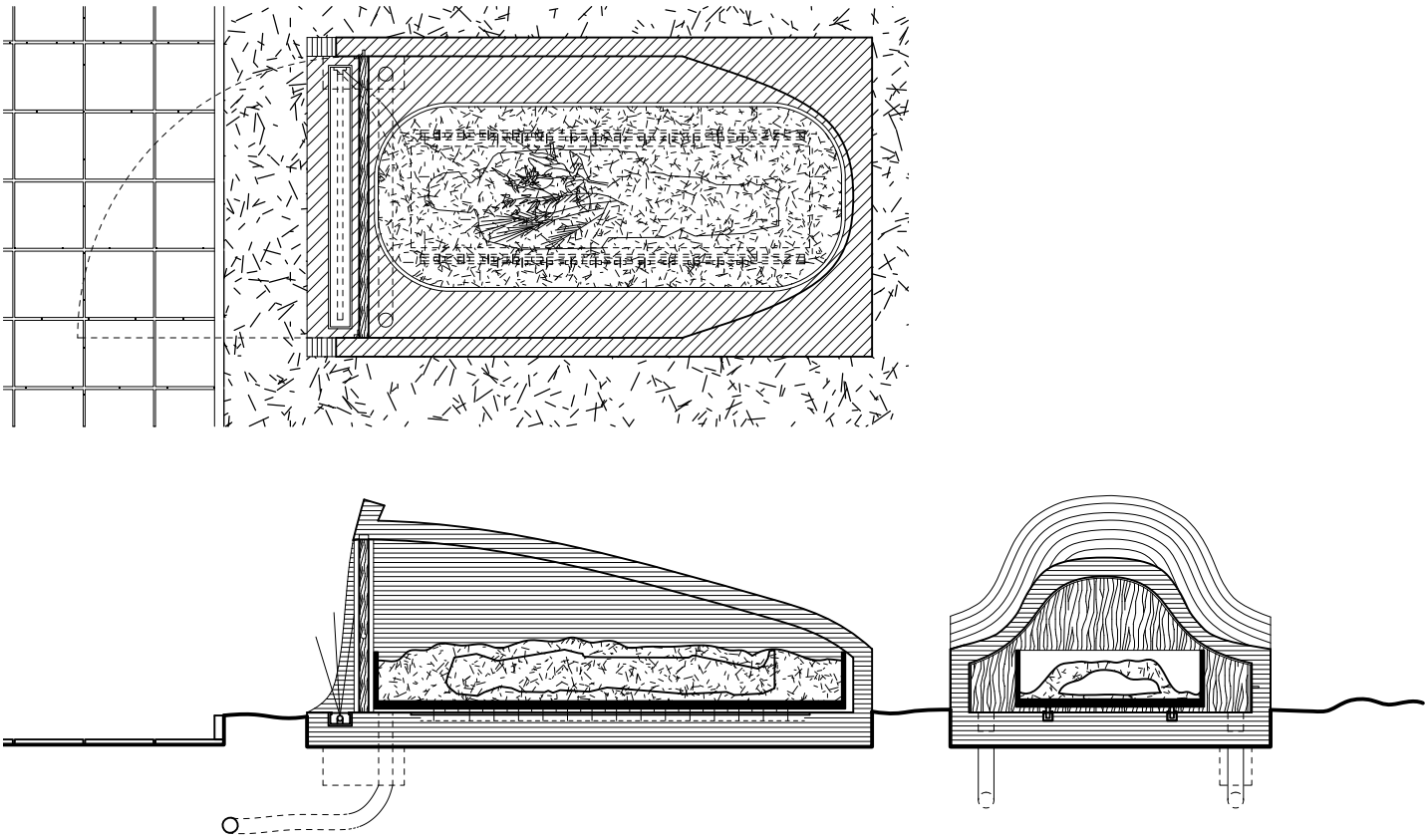


Figure 133: Vessels of Metamorphosis plan and sections 1:40. by Author. (2023). [drawing]

Figure 134: Vessels of Metamorphosis, axonometric drawing extract, 1:250. by Author (2023). [drawing]

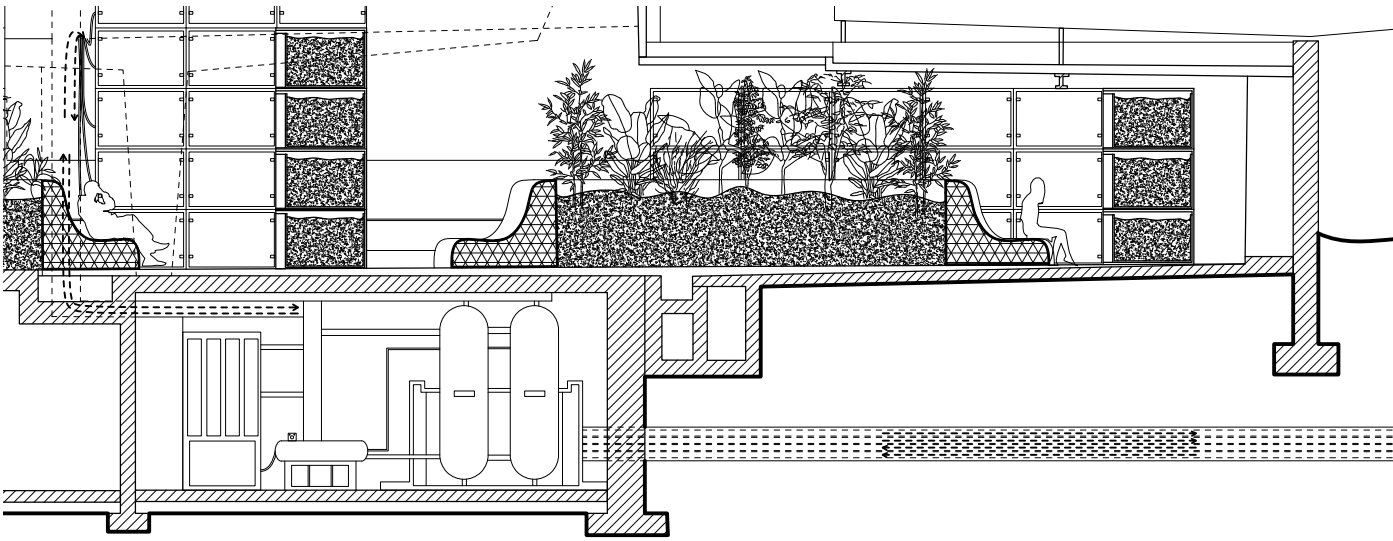


Figure 135: Air flow control system, 1: 100. by Author. (2023). [drawing]

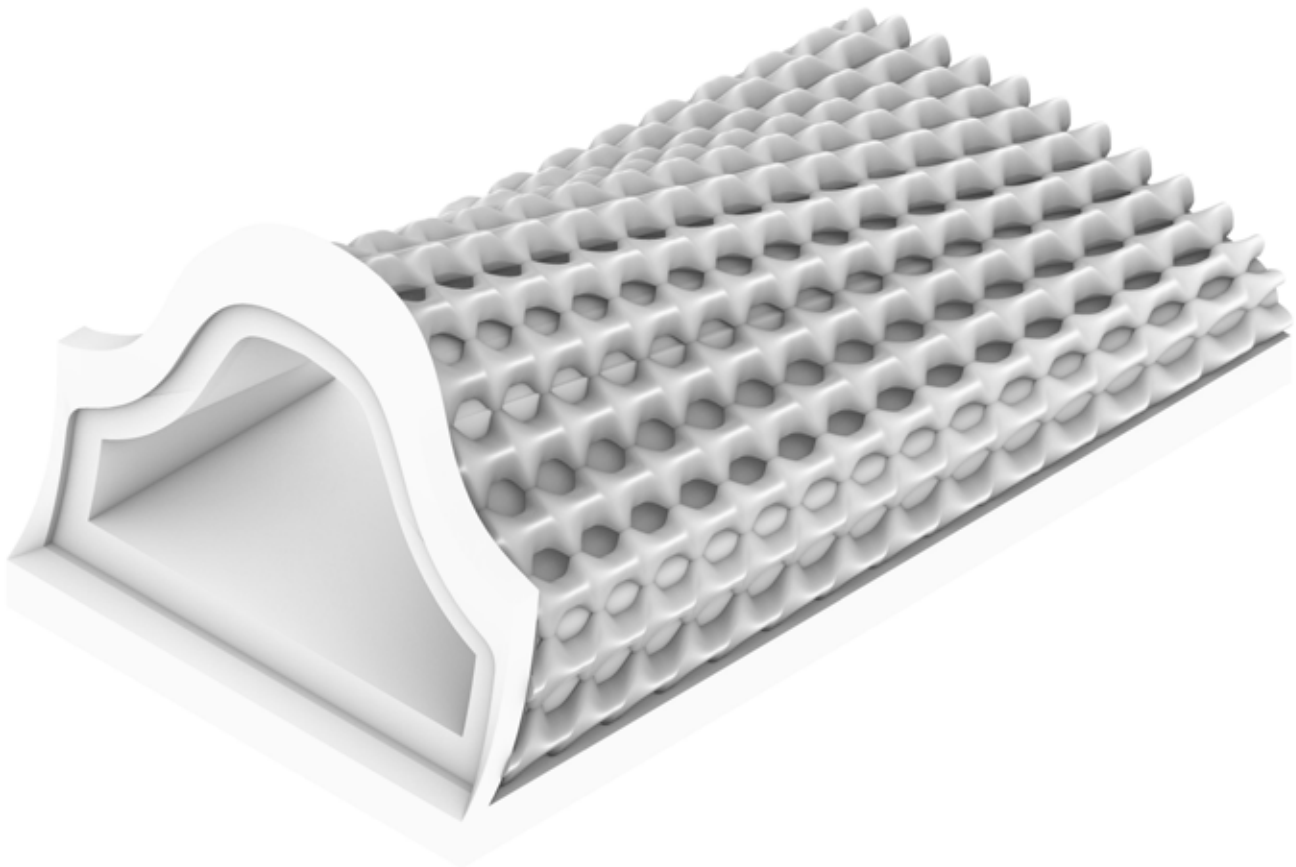


Figure 136: Vessel enveloppe structure, 1:20. by Author. (2023). [image]

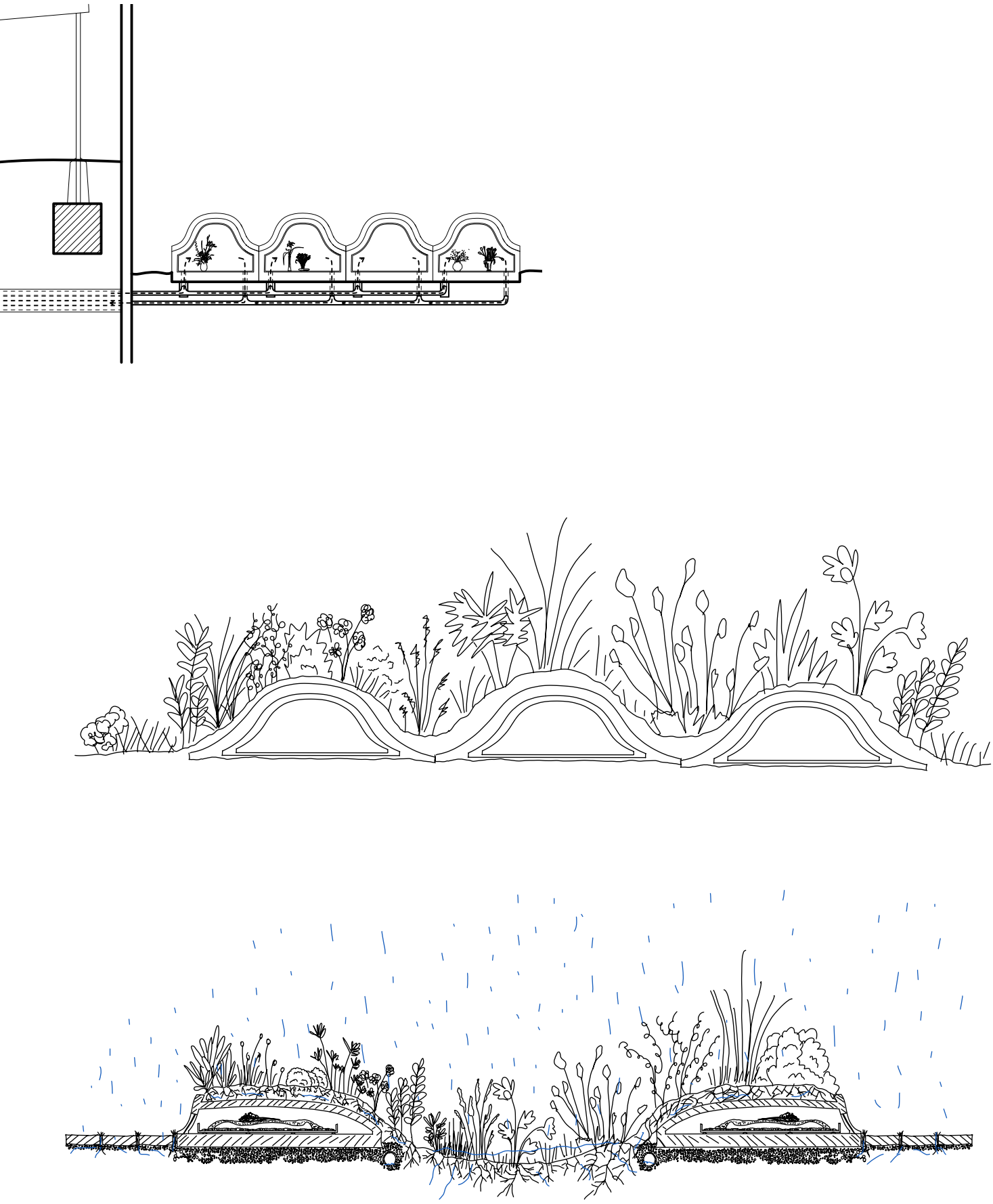


Figure 137: Vessels of Metamorphosis, integration in the Gardens of Remembrance. by Author. (2023). [sketch]

6.5 MOURNING
-PAVILIONS OF REMEMBRANCE

As mentioned in chapter 6.2, the constructive system of the pavilions is based on a concept of decomposition (figure 138). Therefore, not only do the flowering pavilions evolve, change and decompose but so do the pavilions of remembrance.
These pavilions are placed in each plot south of the river (forest side) and follow 3 typologies. The smallest modules are the spiritual pavilions, the medium are the technological pavilions and the largest are the natural.
Theses allow the park to engage in workshops, and other public activities to add some dynamic movement to the forests of remembrance.
The pavilions change function according to their state of decomposition. Here are the activities proposed (figure 140):

Flowering pavilion:
-Full mycelium: meeting space
-Expanding mycelium:
meditation room
-Decomposed mycelium: exhibition space

Technological pavilion:
-Full mycelium bricks: tech lab
- Expanding mycelium : pottery workshop
-Decomposed mycelium: pop-up store

Natural pavilion:
-Full mycelium: seeding house
-Expanding mycelium : flowering atelier, flower drying
-Decomposed mycelium: plant store

Life cycle:

-Every 4 years: new mycelium bricks
-Every 16 years: reprint shells
-Every 33 Years : replace wooden structure

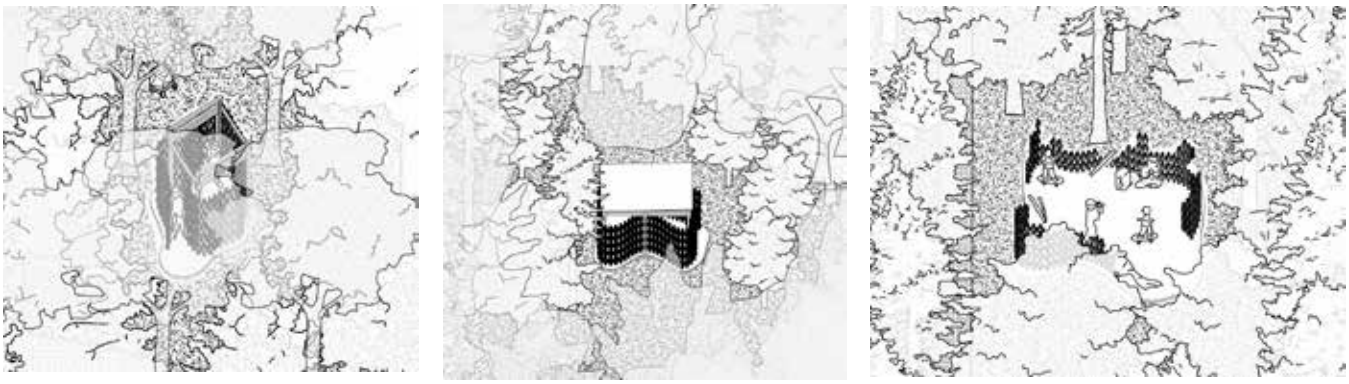


Figure 138: 3 pavilion typologies at different stages of decomposition, axonometric drawing extract. by Author (2023). [drawing]

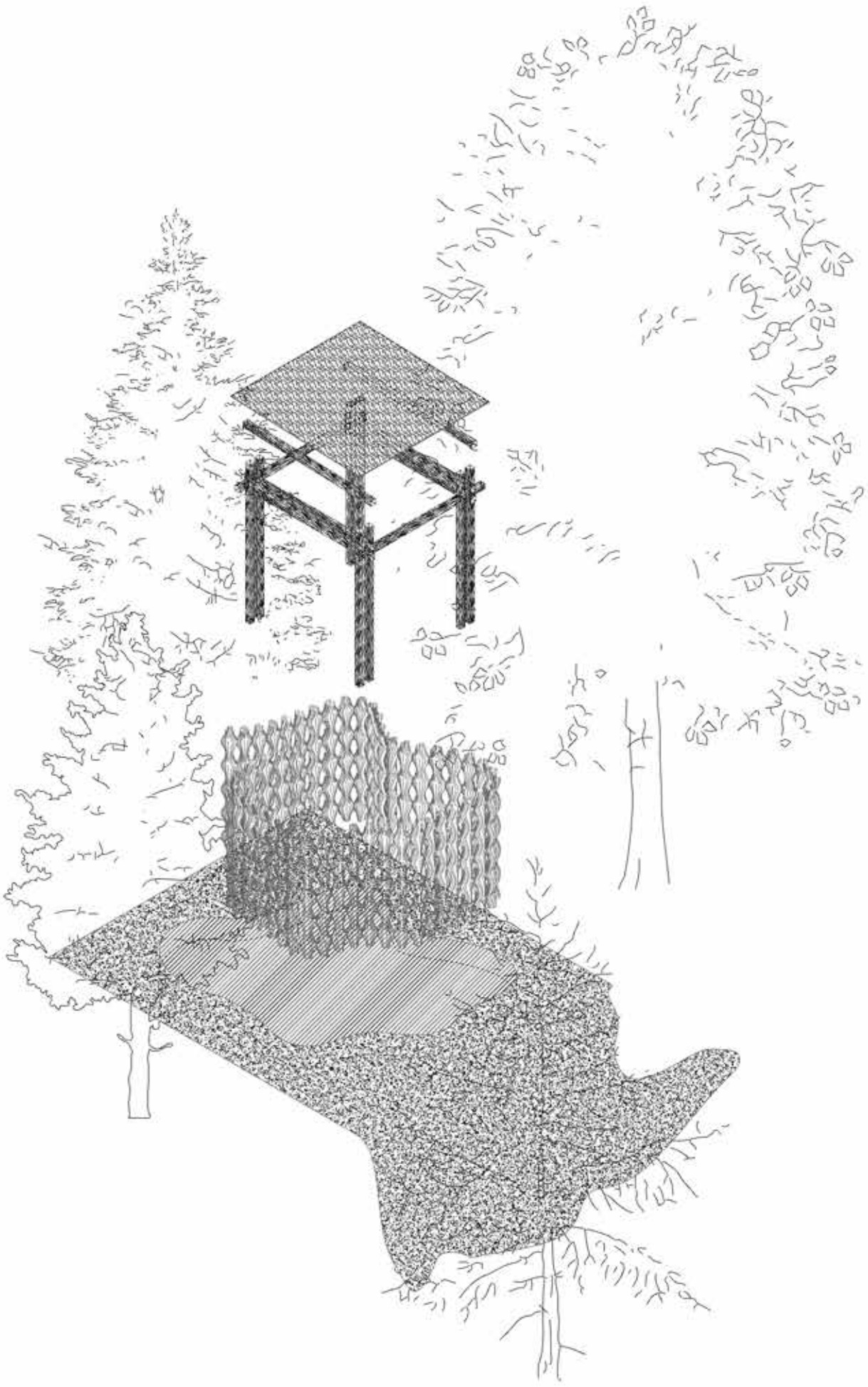
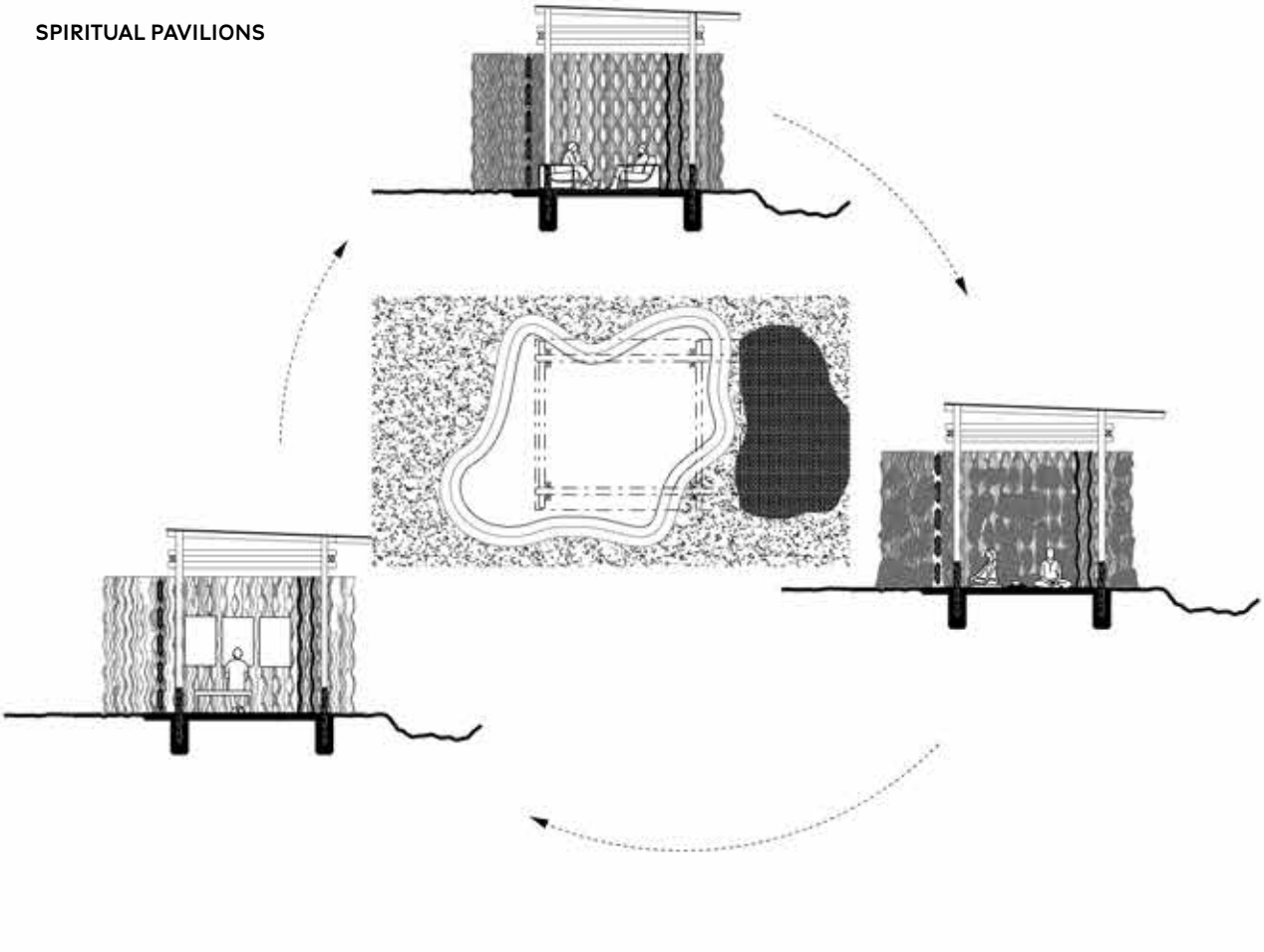
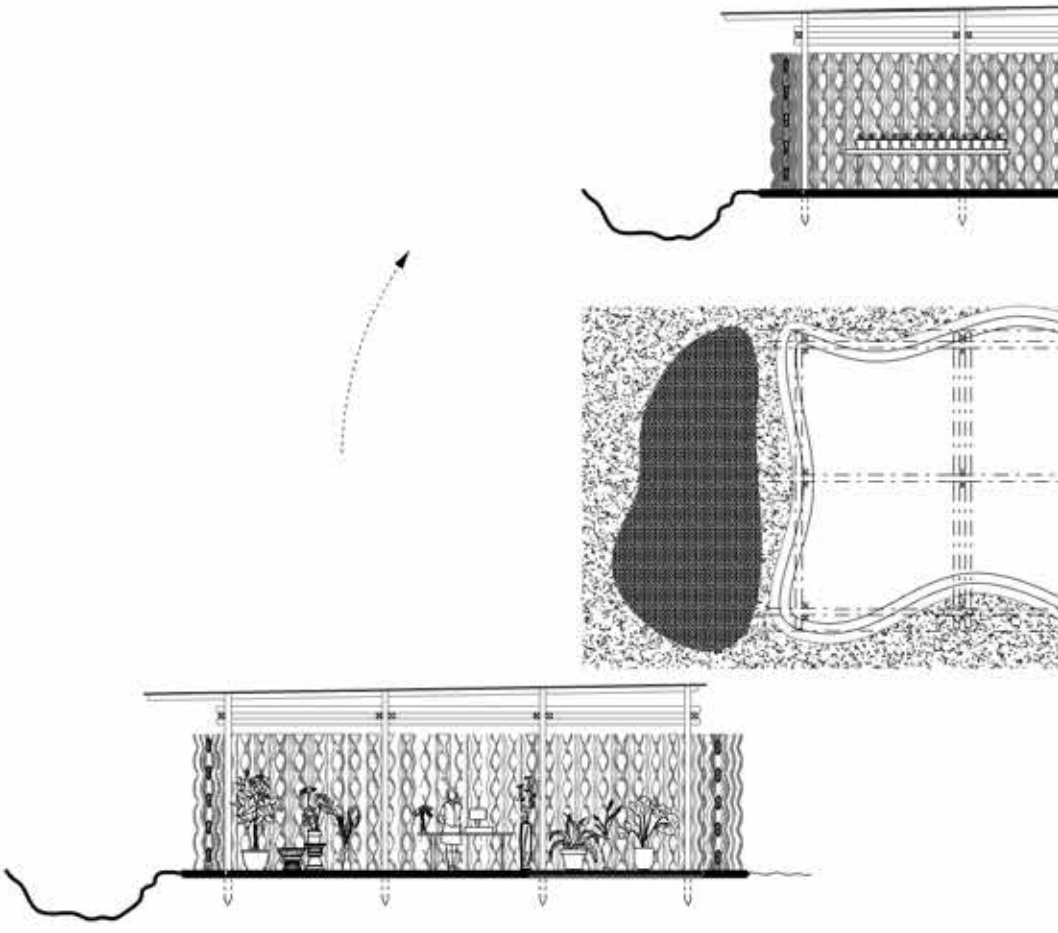


Figure 139: Exploded axonometric spiritual pavilion I: 150. by Author. (2023). [drawing]

SPIRITUAL PAVILIONS



NATURAL PAVILIONS



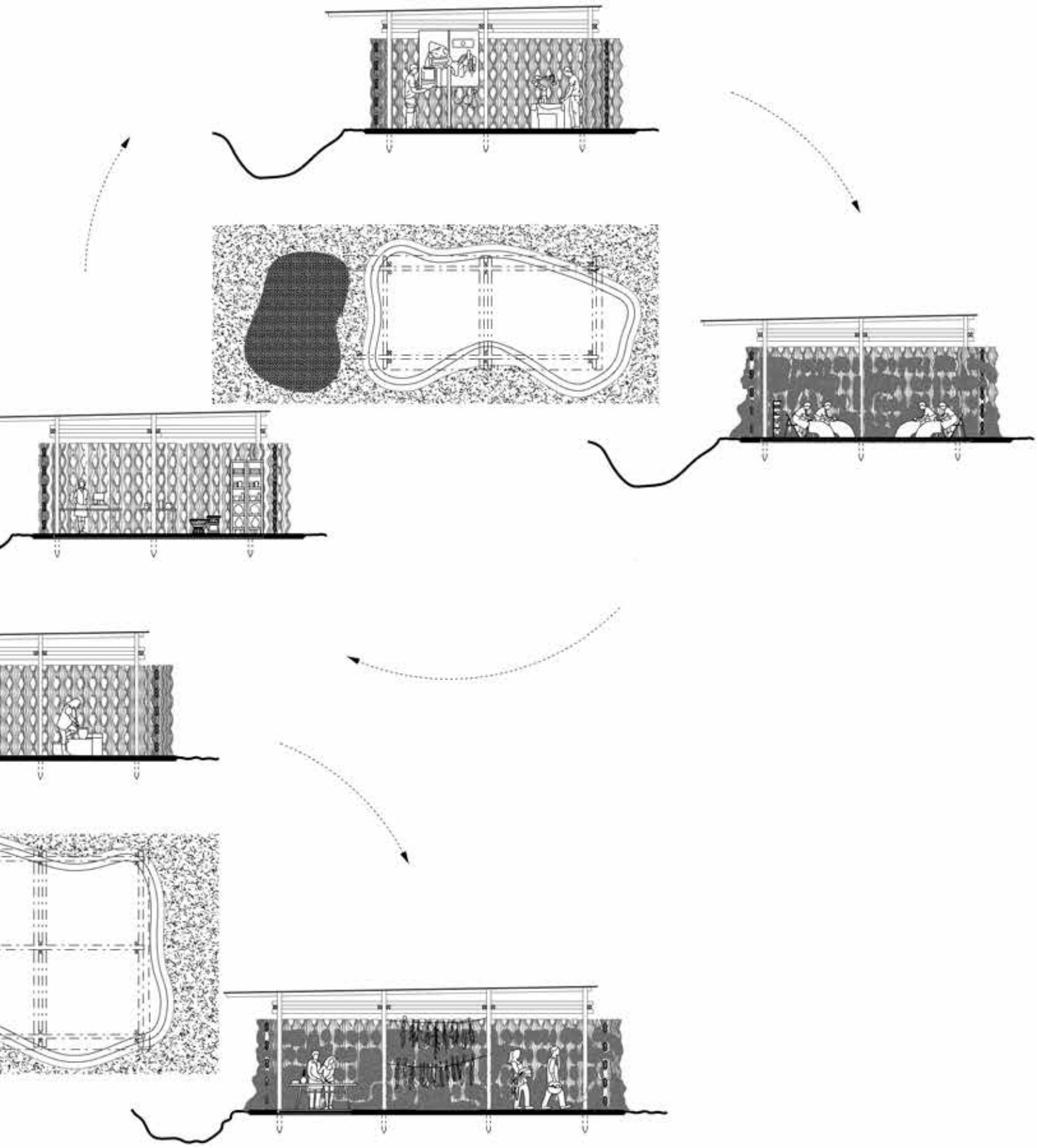


Figure 140: Spiritual pavilion, technological pavilion, natural pavilionI: 150. by Author. (2023). [drawing]

Figure 141: House of Rest, imaginary. by Author. (2023). [rendering/collage]

6.6 CURING & TESTING -HOUSE OF REST

Once the body has decomposed the compost is brought to the house of rest where it is filtered and the bones over I cm are turned into a fine powder.
Then a transfer ceremony takes place and the earth is laid in a resting block (figure I42) where the microbial activity gradually stops.
The building is organised so that the technical units for control are in the basement along with the ceremony room. In the other floors the curing containers are stacked in towers. The benches are places for visiting and relaxing during this mourning phase. The benches form organic shapes, in their interior a small offset of earth acts as the rooting system for climbing plants that connect the floors to one another and to the open roof (figure I44).

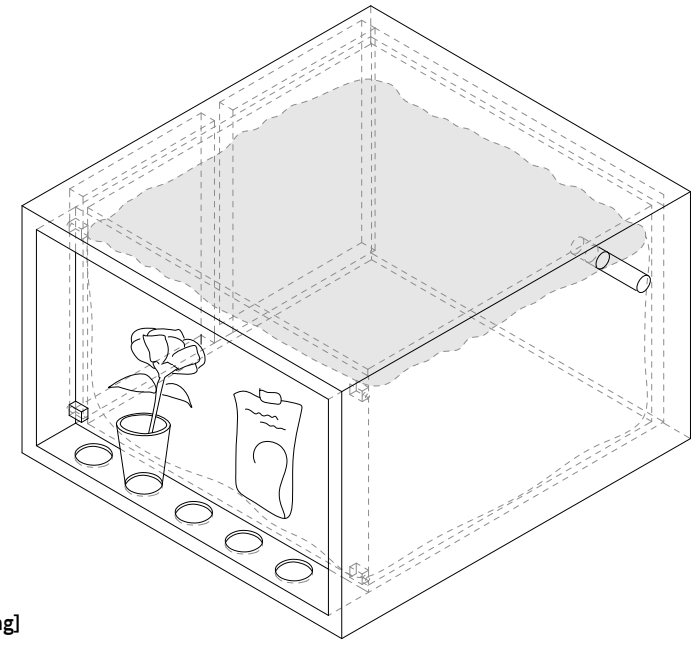


Figure I42: Earth resting block, I: 20. by Author. (2023). [drawing]

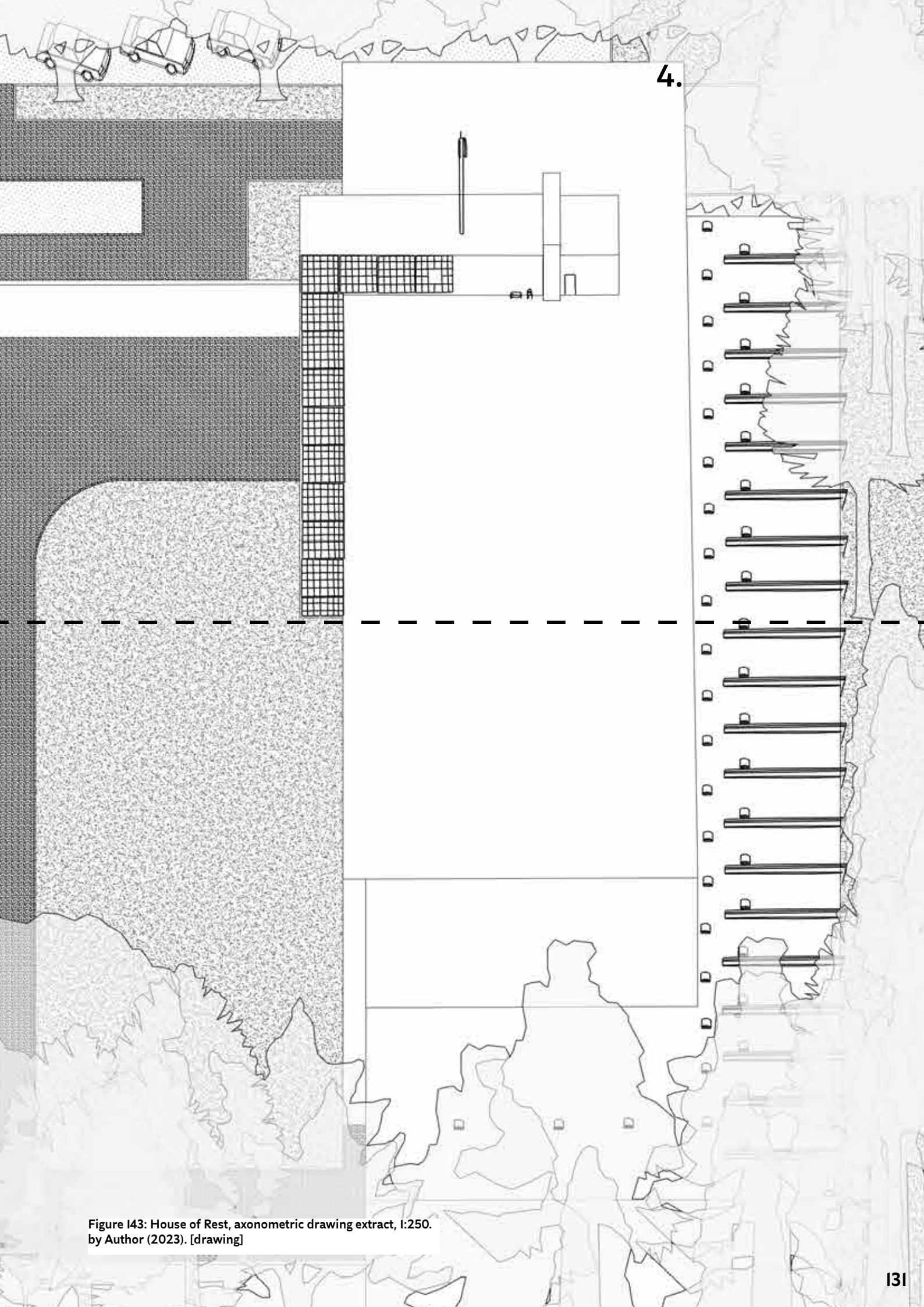
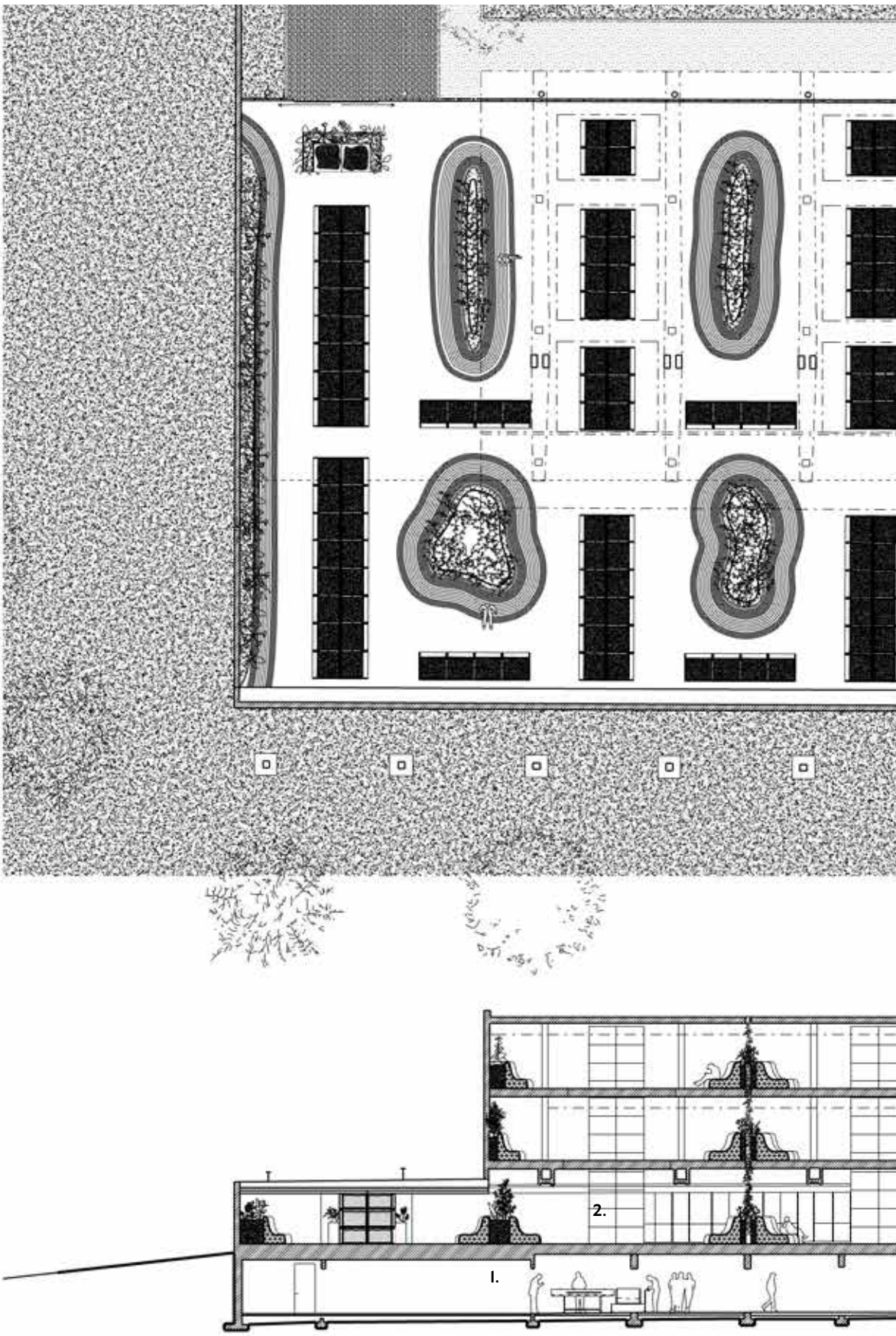
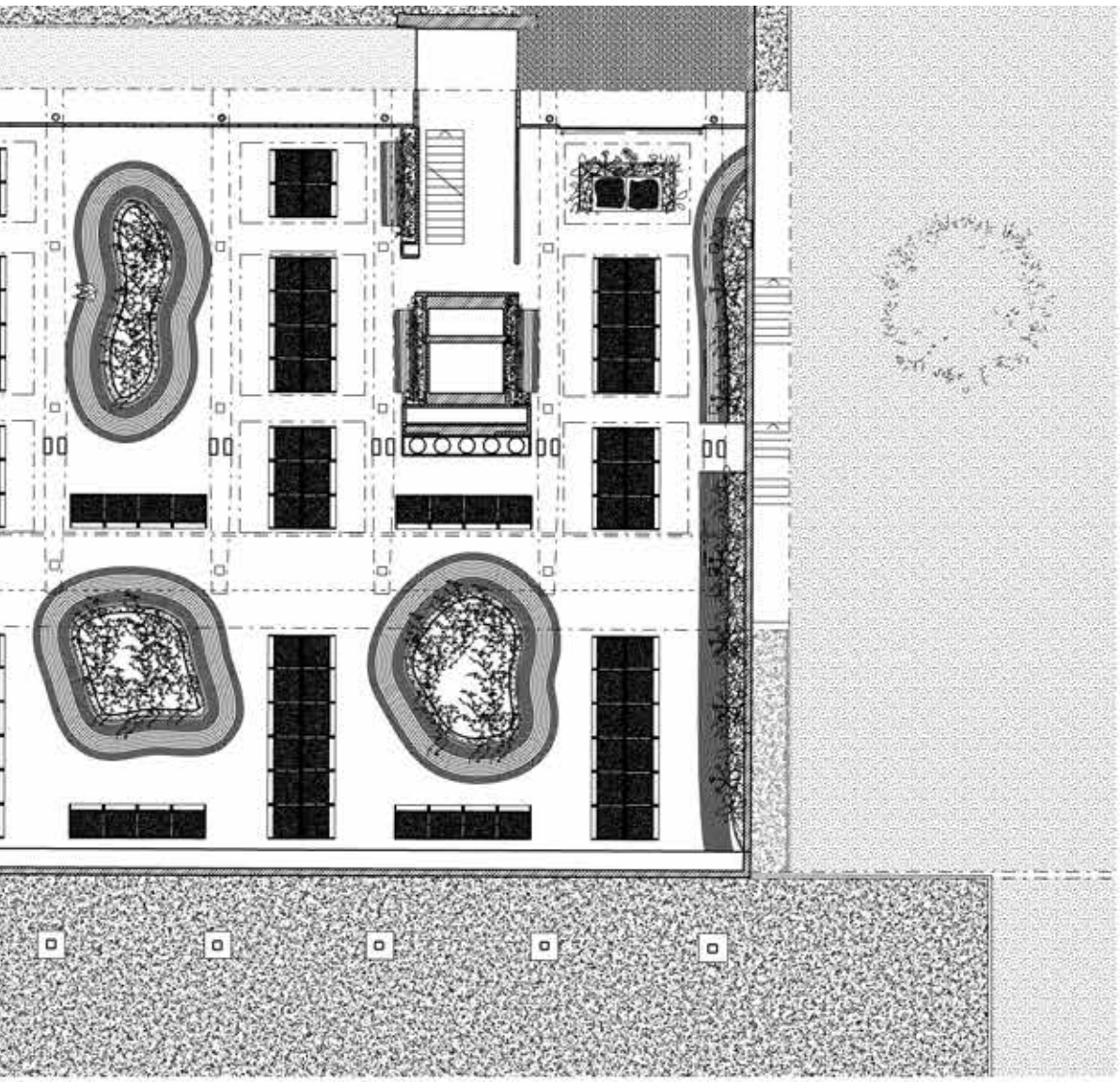


Figure 143: House of Rest, axonometric drawing extract, 1:250.
by Author (2023). [drawing]

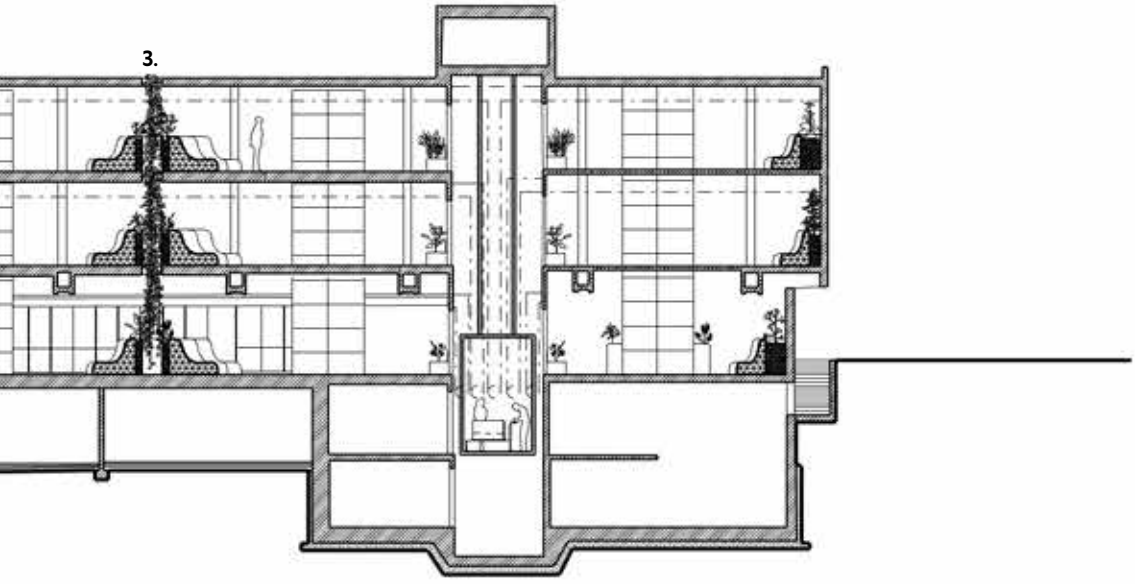


1. Earth transferring ceremony
2. Resting Blocks
3. Open roof skylight

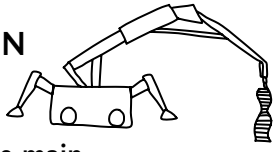
Figure 144: House of rest, 1:250. by Author. (2023). [drawing]



3.



6.7 ARCHITECTURE REGENERATION -HOUSE OF CONSTRUCTION



The house of construction (figure 145) is the main place for construction and material storing. A main building is set along the river and thus separated in two parts. On the garden part, the clay is stored and on the forest part, the wood is kept. This alley along the river generates an entrance gate gradually inviting people to enter the cemetery from the street. It also marks the start of the river.
On each side of these main building arms, two smaller pavilions are set. Within the forest, the wood and mycelium construction pavilion and on the garden side, the 3d printing lab. The shape of their shells mirror the construction system defined by the techniques and tools (figure 146).

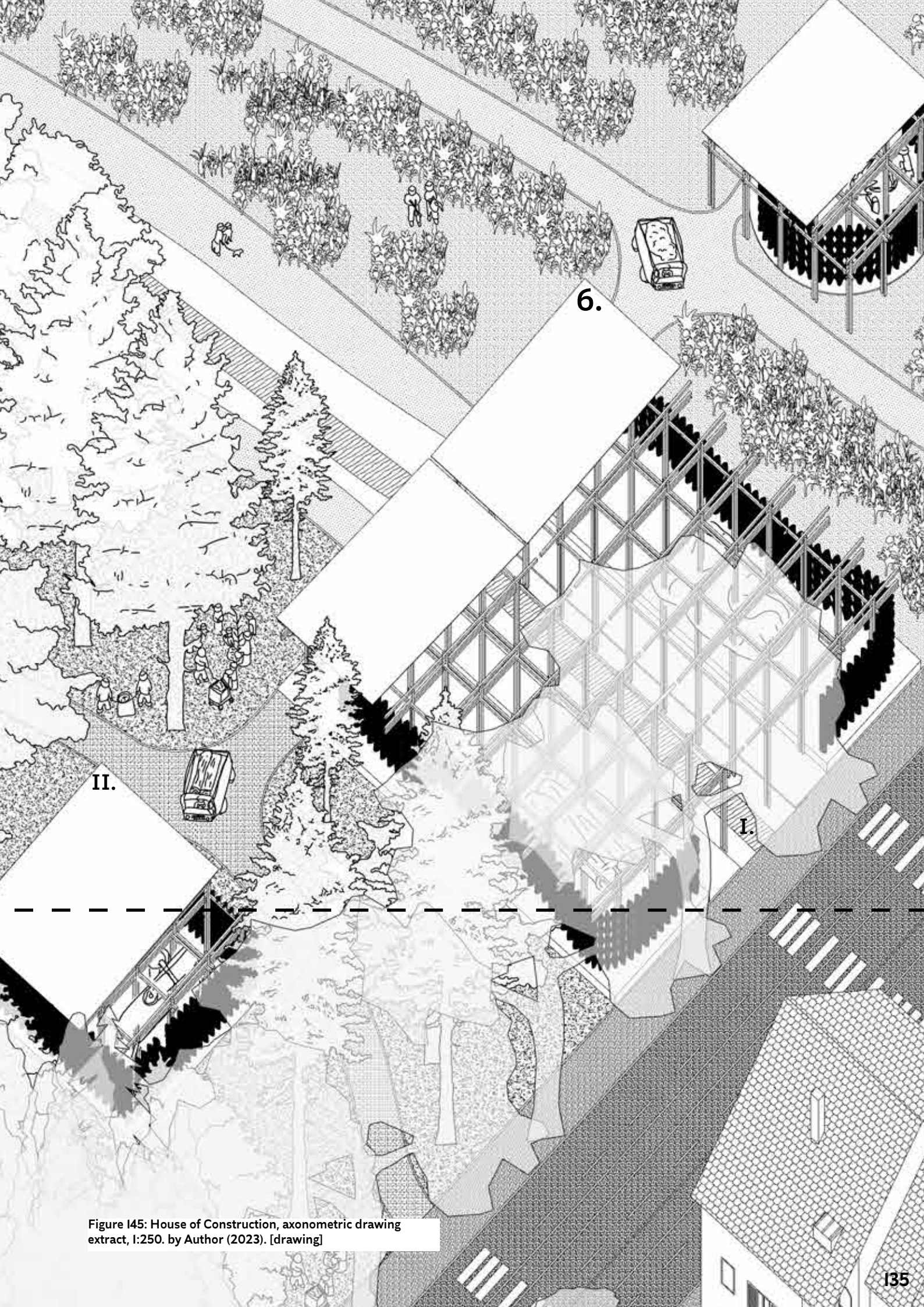


Figure 145: House of Construction, axonometric drawing extract, 1:250. by Author (2023). [drawing]

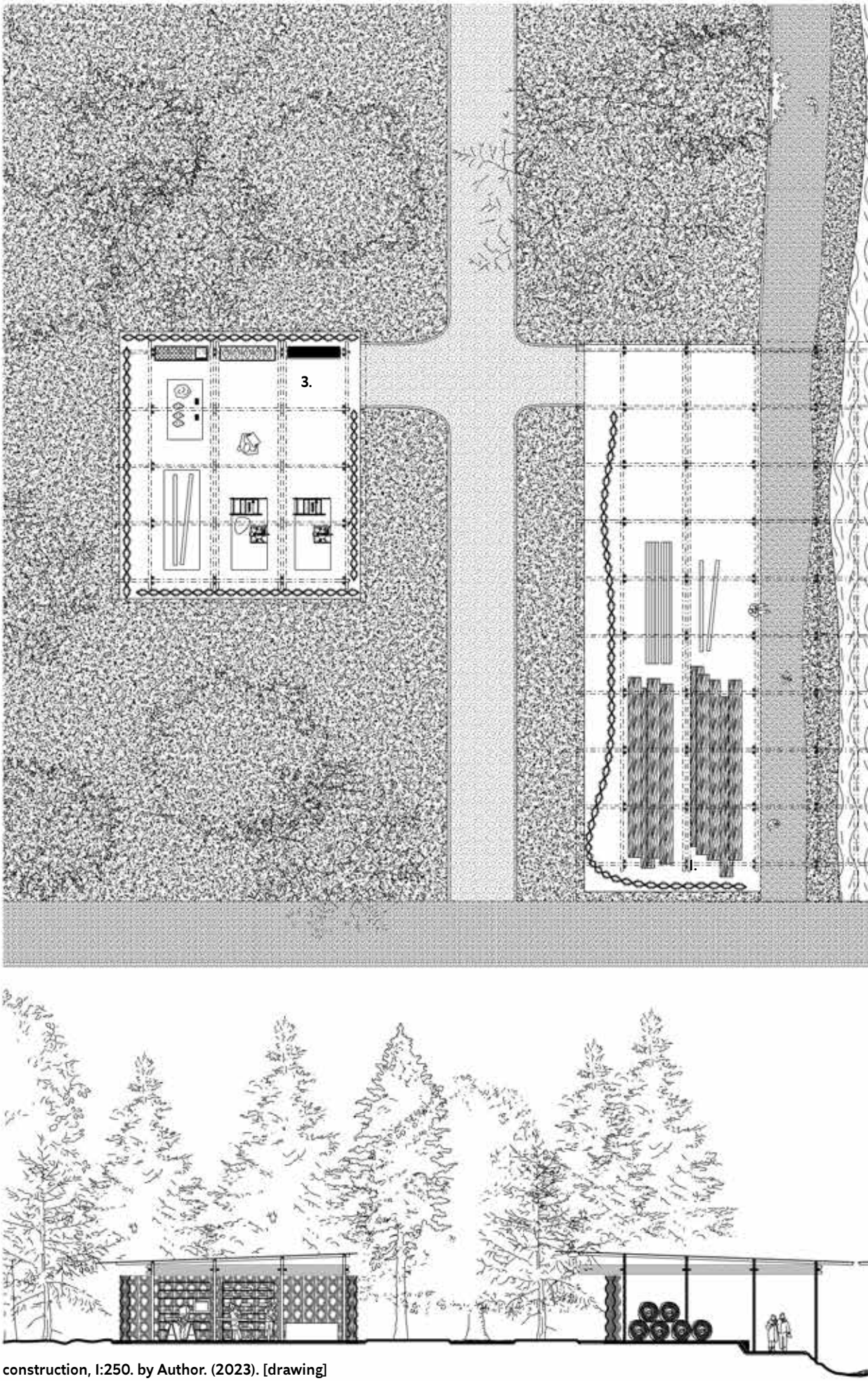
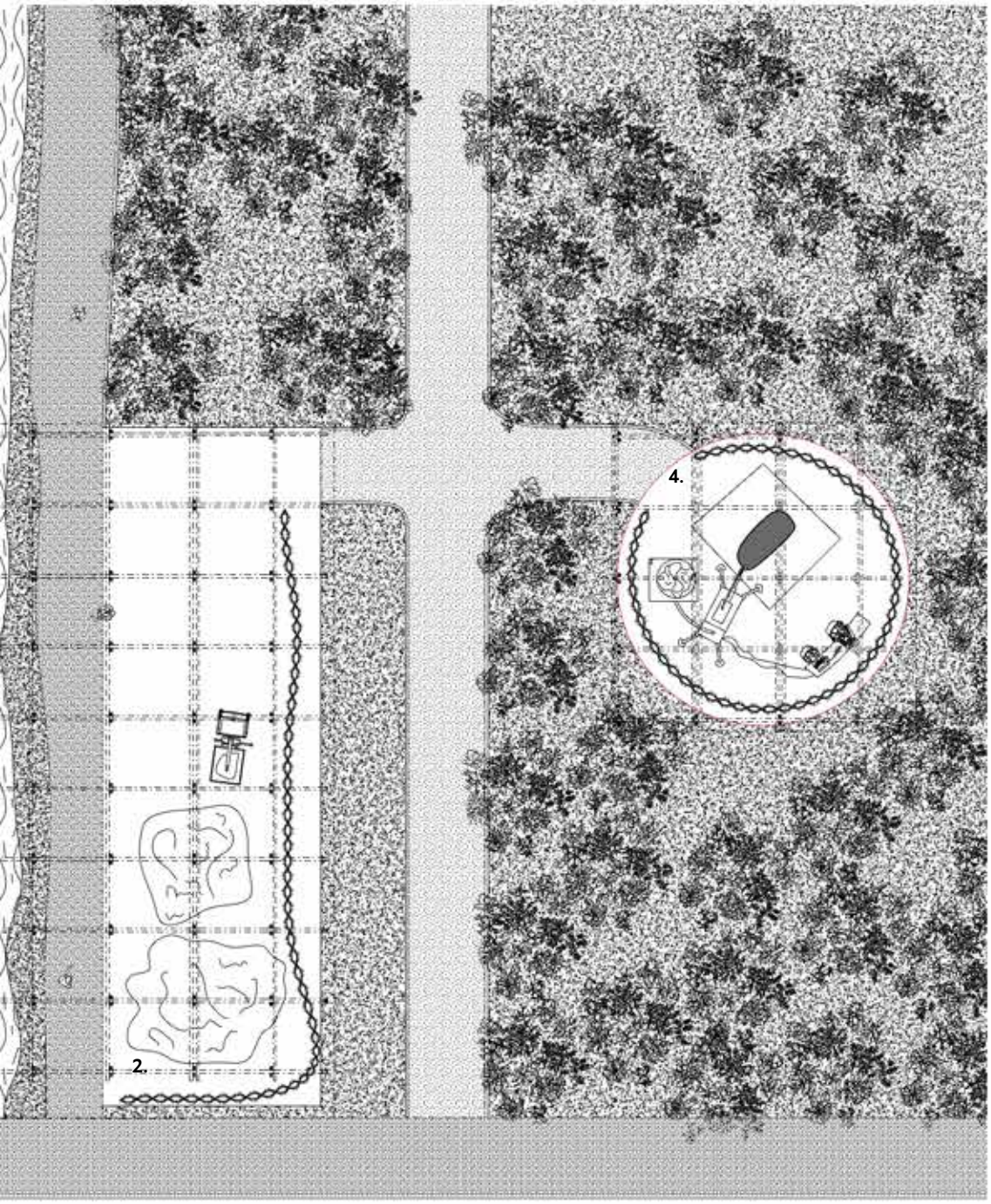


Figure 146: House of construction, 1:250. by Author. (2023). [drawing]

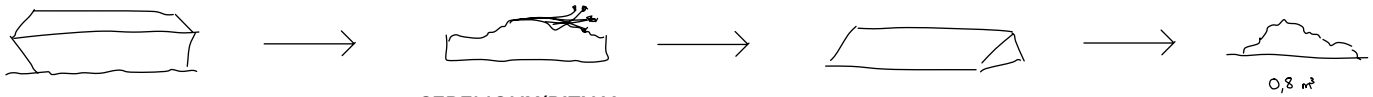


1. Wood storing
2. Earth storing
3. Wood and Mycelium Workshop
4. 3d printing lab

6.8 NATURE REGENERATION -GARDENS OF REMEMBRANCE

The process of natural organic reduction generates approximately 0.8 square meters of earth per person. The question then becomes, what happens with the earth generated (figure 147).
If you choose to dispose of the earth in Sihlfeld, you have the choice between perennials in the gardens of remembrance or trees in the forest of remembrance (figure 148).

EARTH DISPOSAL OPTIONS



DEATH

CEREMONY/RITUAL

DECOMPOSITION

EARTH

HYPOTHETICAL ANALYSIS:

NUMBER OF DEATHS FROM 2050-2150: 1'850'000
VOLUMES OF EARTH GENERATED FROM 2050 TO 2150: 1'480'000 M3

HYPOTHESIS OF EARTH DISTRIBUTION:

35% -EARTH THAT IS USED OUTSIDE OF CEMETERY: 518'000 M3
-Construction Bricks
-Forest soil regeneration
-Private garden planting

39% -TOPSOIL REGENERATION IN THE CEMETERY, CREATION OF NEW PLOTS: 576'000 M3
-2cm of soil to cover the ground and regenerate the soil throughout the cemetery

12% -EARTH USED FOR PLANTING TREES : 177'600 M3
-Trees planted around green cords for coppicing and forest like environment

14% -EARTH USED FOR PLANTING GARDENS: 207'200 M3
-Gardens at the boundary with the exterior of the cemetery

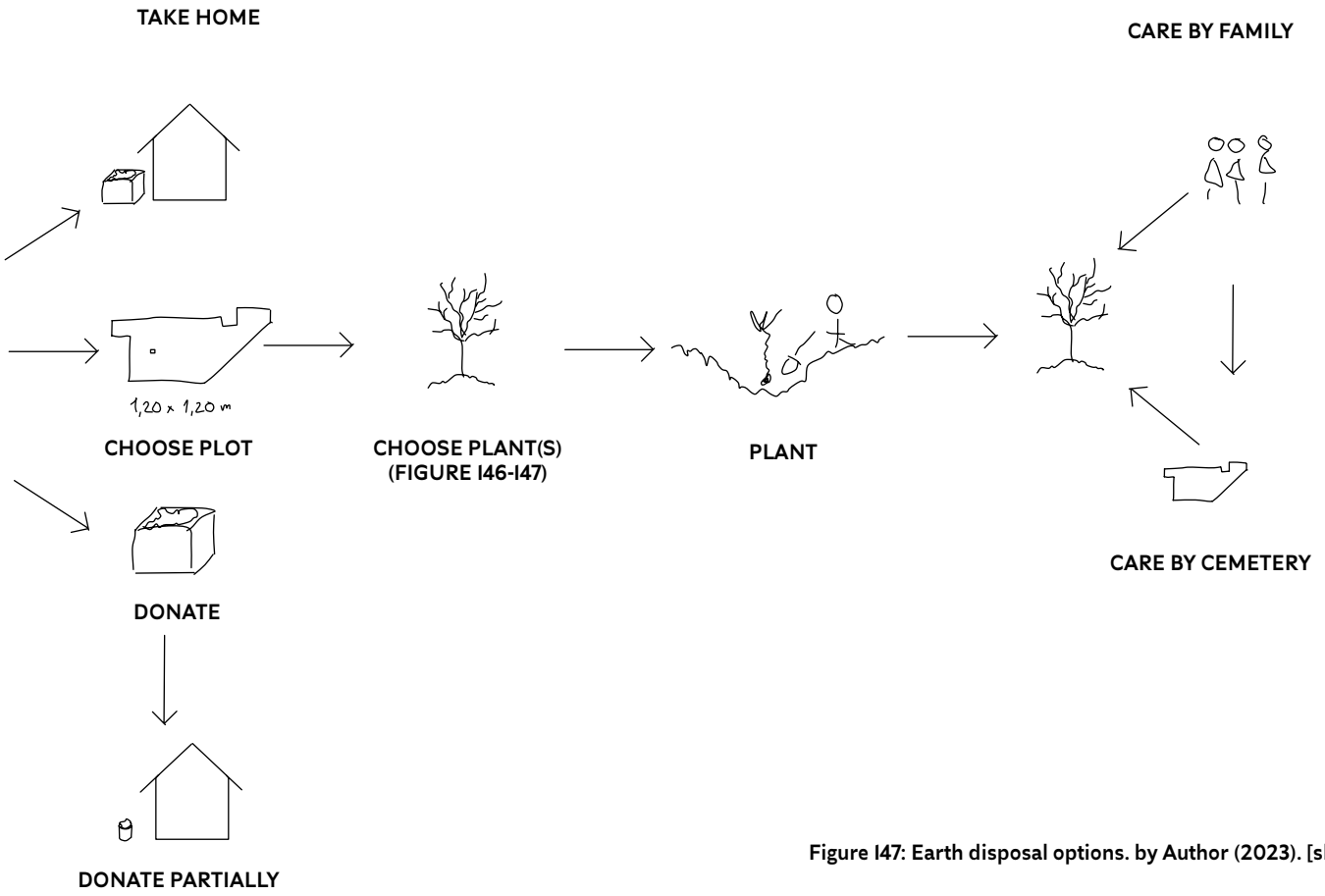


Figure 147: Earth disposal options. by Author (2023). [sketch]

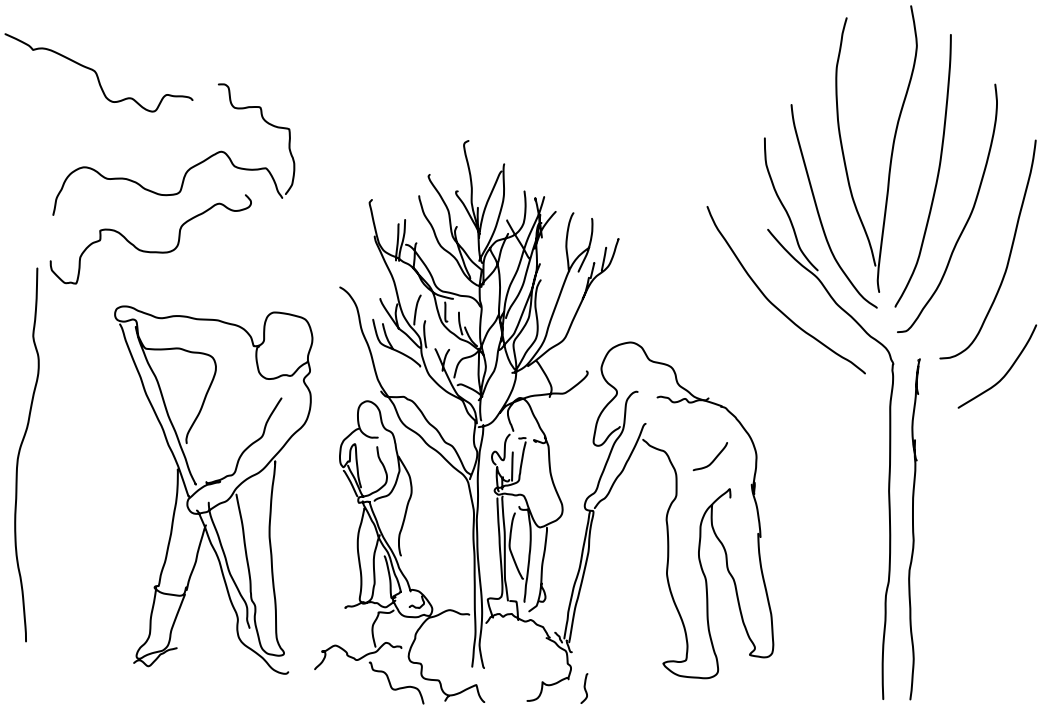


Figure 148: Tree planting in the forests of Remembrance. by Author (2023). [sketch]

Inventory of existing trees on site and proposal of trees that can be planted:

Hypothesis of the amount of Trees planted from 2050-2150: 259'000

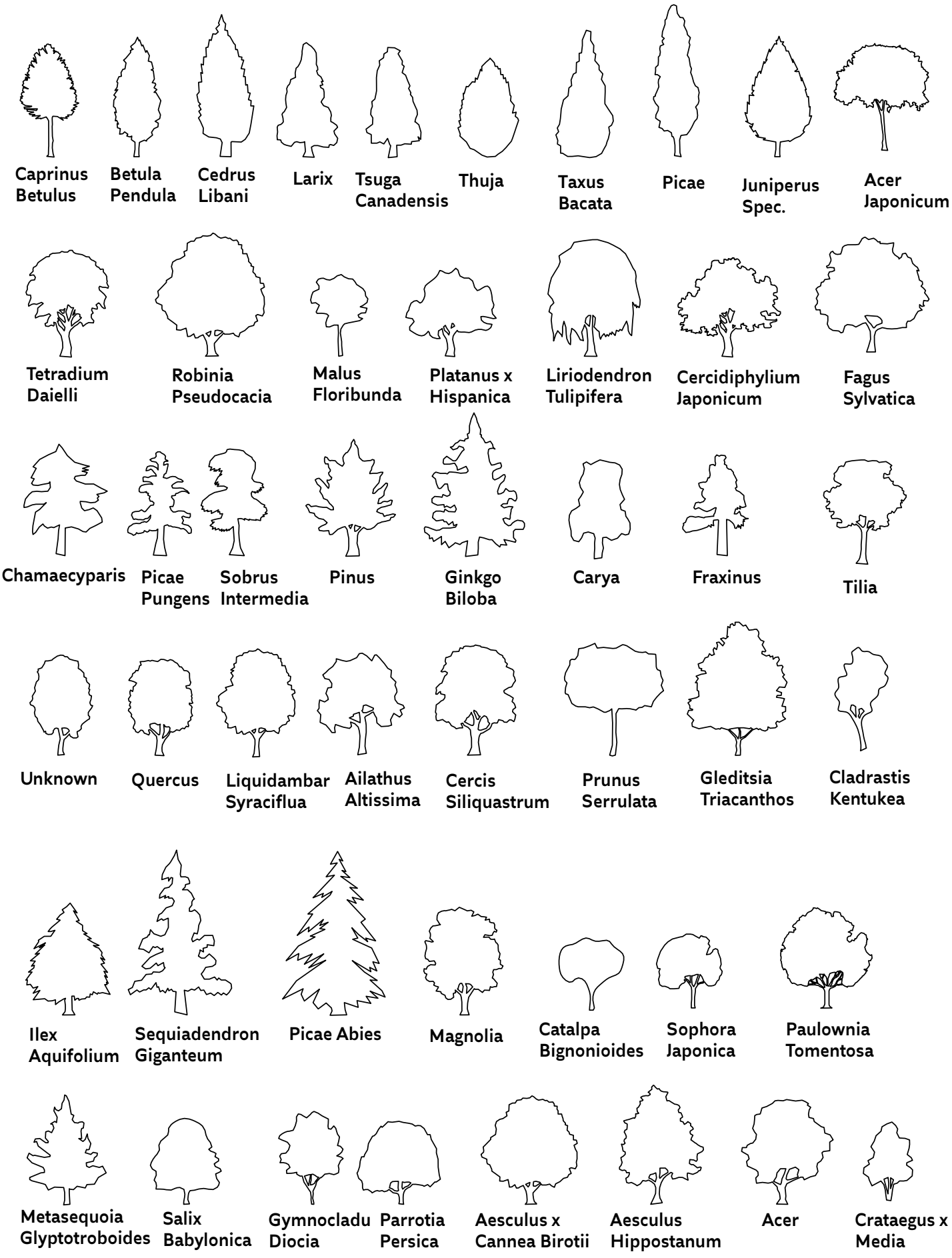


Figure 149: Tree inventory, forests of remembrance. by Author (2023). [sketch]

Inventory proposal of perennials that can be planted:

Hypothesis of the amount of perennials planted from 2050-2150: 222'000

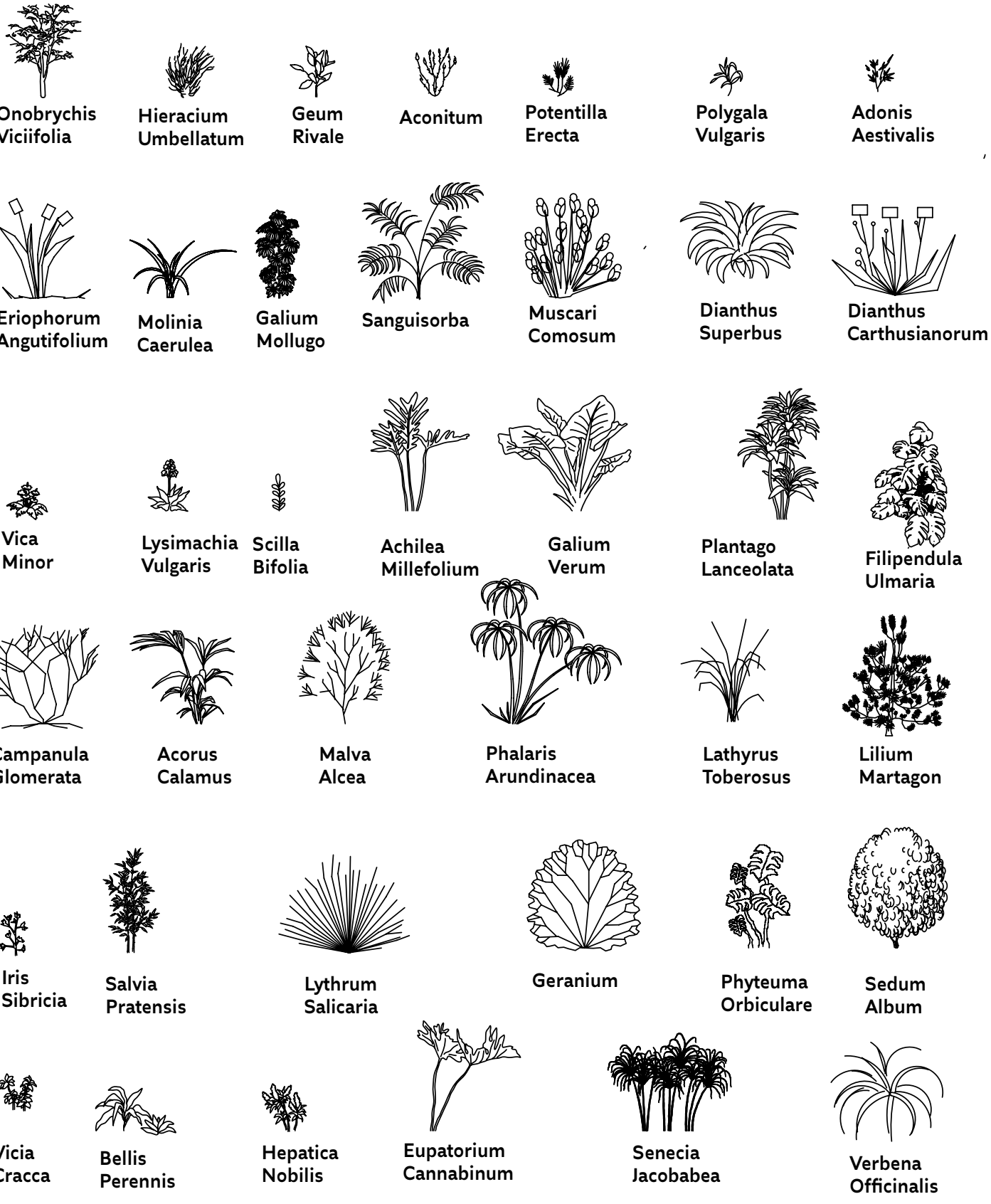


Figure 150: Perennial inventory, forests of remembrance. by Author (2023). [sketch]

9. CONCLUSION

The project developed is a master plan based on an extreme scenario. The design engages fully in a circular process. The ideology of the project is to imagine a place that becomes fully functional on its own. An isolated machine creating a balance between, man, nature and spirituality.

It is a project that fully e a process of decomposition, from human to architectural. A process that takes time. Therefore time becomes a key aspect of the design process and phasing. This mirrors the notion of time that is often associated to the act of mourning. Through this island of ecological spirituality, the aim is to imagine that the new process will change the way we deal with death. Perhaps the association of death with life, on a human and natural level will change the way we deal with our own mortality and the ones of others.

The cemetery loses it's definition of a cemetery and also its terminology to become "gardens and forests of remembrance". Thus the project goes further than simply proposing a new typology of cemetery but actually aims towards a decomposition of all our prior notions and terminologies regarding death and death-care.

The breaking of these boundaries are important to re-think death. However they are very radical. In my research on the evolution of the perception of death, it is clear that notions regarding death take time. They take time to build, to change and to evolve therefore it is optimistic and utopic to imagine that such a situation may occur in 2150.

The shift in the way we conceive death is highlighted throughout the new process and ritual. Nevertheless, conceiving such a project where nature plays a fundamental role leads us to also re-imagine our relationship to nature. Perhaps natural organic reduction and the planting of gardens of remembrance would completely change our perception of nature. Each plant and tree takes on a certain individuality and spirituality therefore rendering nature sacred.

As a conclusion, the "extreme scenario" approach to the subject is necessary to start de-constructing the foundations that are so strongly anchored in our culture regarding death care and nature. The next step that would be interesting to pursue is a realistic a approach to the system on a different scale. Perhaps an intimate and local scale could help us analyse the technical difficulties of such a process and truly start to analyse its environmental as well as emotional impact.

Figure 151: Axonometric drawing extract. by Author (2023). [drawing]


2023
2050


2150

8. APPENDIX

HOW ARE CLUSTERS AND VESSELS ORGANISED?
-Regions are allocated a number of Vessels according to their population size

DECOMPOSITIONS PER CEMETERY ACCORDING TO CEMETERY SIZE

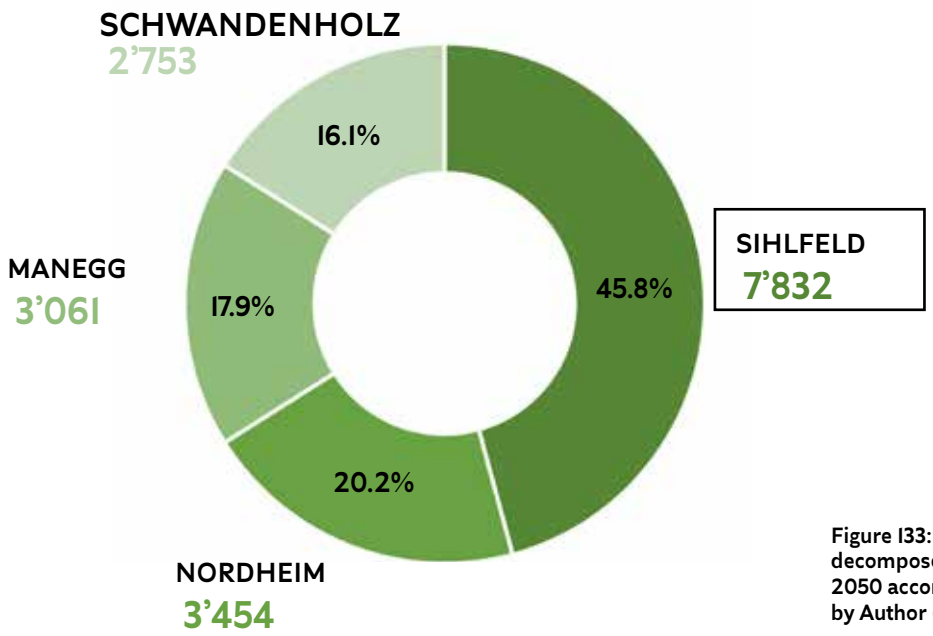


Figure 133: Distribution of bodies to decompose yearly in each cemetery in 2050 according to the size of the cemetery. by Author (2022) [sketch]

CEMETERY ATTRIBUTION ACCORDING TO POPULATION OF REGIONS

SIHLFELD CEMETERY

DISTRICT/REGION	POPULATION
ZURICH, Kreis 1	5'817
ZURICH, Kreis 3	50'104
ZURICH, Kreis 4	29'023
ZURICH, Kreis 5	15'804
ZURICH, Kreis 7	38'663
ZURICH, Kreis 8	17'818
ZURICH, Kreis 9	57'077
ZURICH, Kreis 12	32'654
BÜLACH	158'566
DIELSDORF	92'479
DIETIKON	95'438
MEILEN	107'006
TOTAL	700'449

NORDHEIM CEMETERY

DISTRICT/REGION	POPULATION
ZURICH, Kreis 6	35'355
ZURICH, Kreis 10	41'017
ZURICH, Kreis 11	76'975
USTER	136'806
HINWIL	98'201
TOTAL	388'354

MANEGG CEMETERY

DISTRICT/REGION	POPULATION
ZURICH, Kreis 2	36'025
AFFOLTERN	56'370
HORGEN	128'224
TOTAL	220'619

SCHWANDENHOLZ CEMETERY

DISTRICT/REGION	POPULATION
WINTERTHUR	174'646
PFÄFFIKON	61'597
ANDELFINGEN	32'136
TOTAL	268'379

Figure 134: Population Distribution per Kreis and District. Source for districts: http://www.citypopulation.de/en/switzerland/zurich/ . Source for Kreis: https://de.wikipedia.org/wiki/Stadtteile_der_Stadt_Z%C3%BCrich (Accessed 31 Jan. 2023) [table]

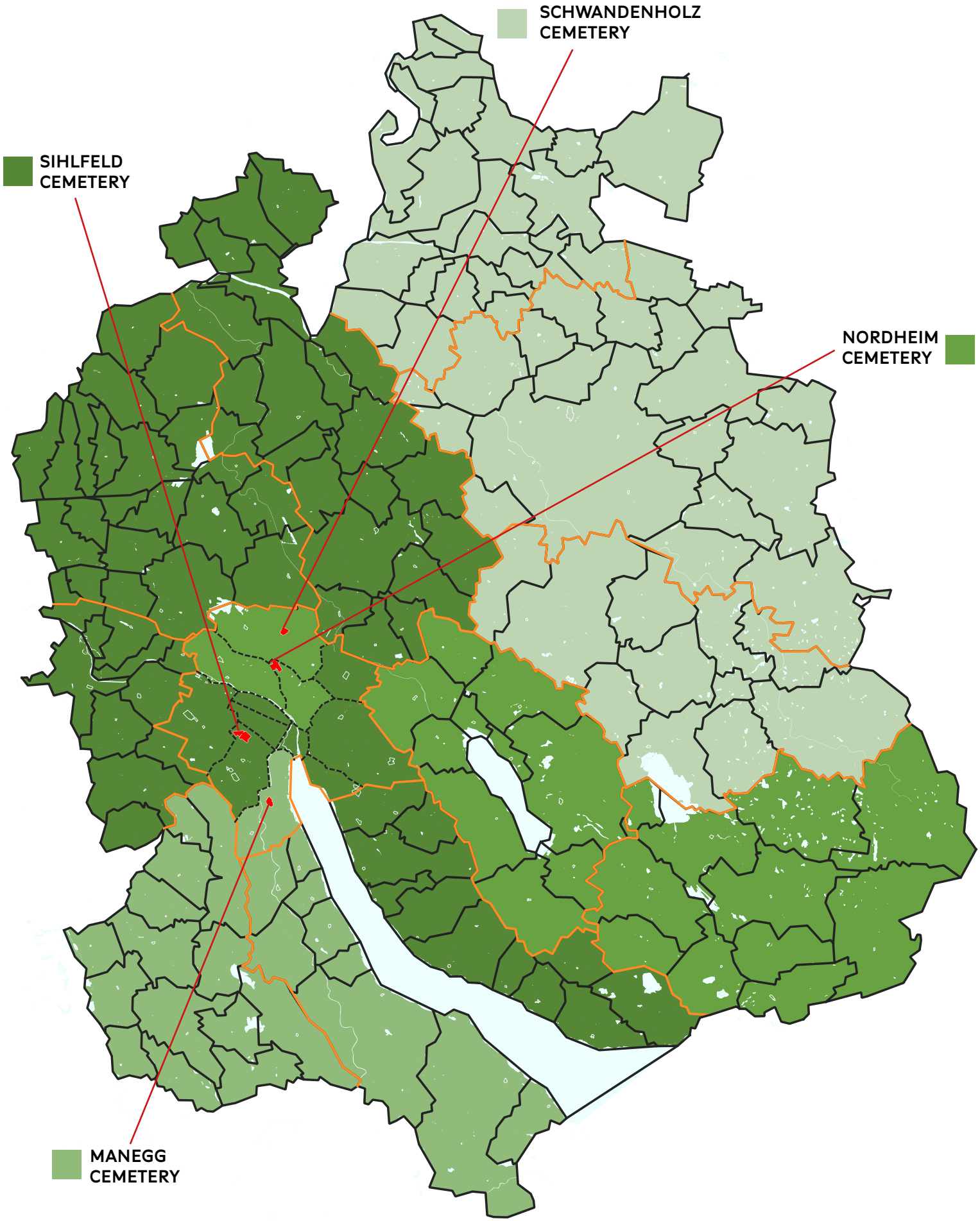


Figure 135: Allocation of Regions to 4 cemeteries according to placement and population size. by Author (2023). Map Source: QGis data [Map]

6.I THE VIRTUAL GARDEN

In order to keep track of where the earth of a certain person sites and give those who wish to have a physical place of remembrance a plot of earth, a virtual cemetery will be set up. The virtual cemetery allows you to search for a person. Every person who wishes so can then have a virtual epitaph and tombstone. Moreover, just like a social media, the page presents the person in images and text that are updated by family(figure 113-114) .

The virtual graveyard is a concept that is increasingly popular and has started to be developed in several countries.

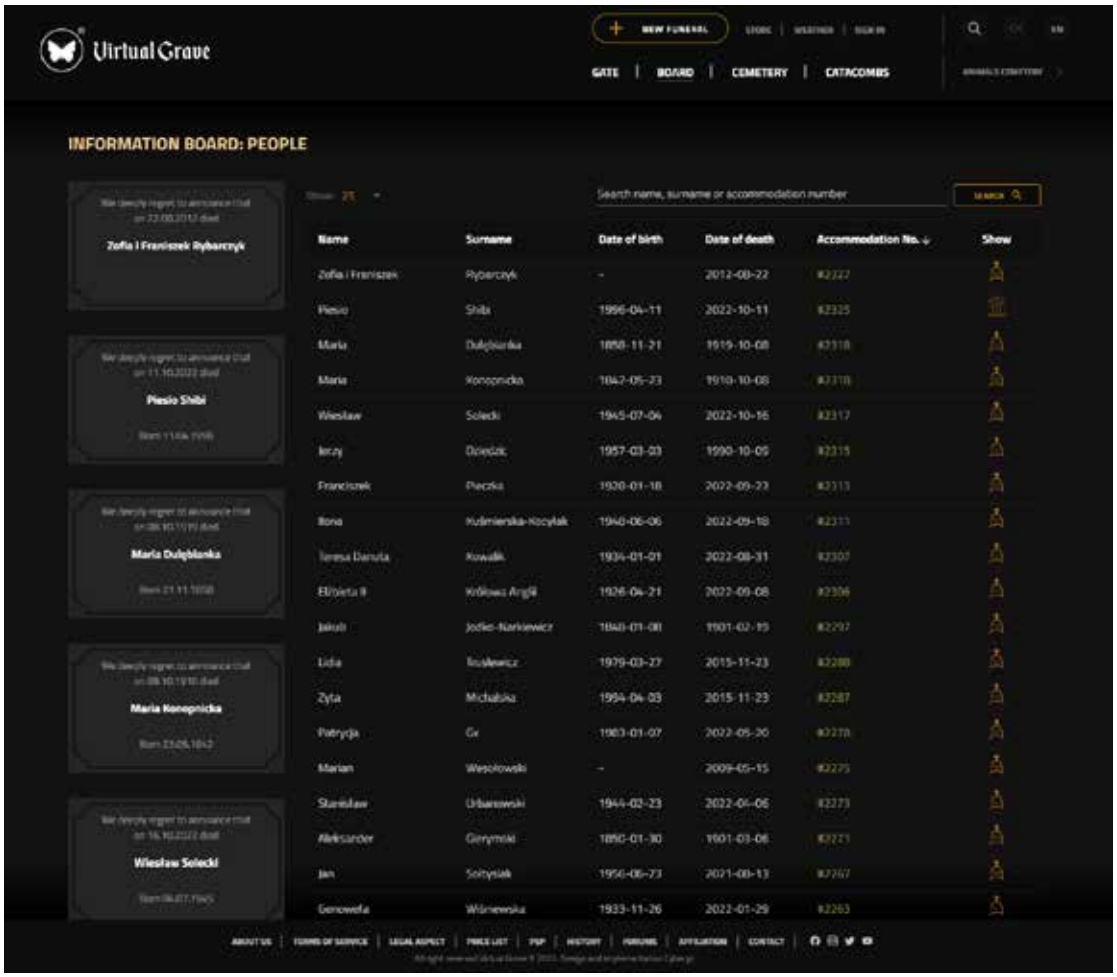


Figure 113: Virtual Cemetery online platform. Source: https://virtualgrave.eu/information-board/people (Accessed 05 Nov. 2022). [Screen capture]

Figure 114: Virtual Cemetery online platform Tomb of Maria. Source: https://virtualgrave.eu/information-board/people (Accessed 05 Nov. 2022). [Screen capture]

Moreover this virtual graveyard website will not only act as a virtual cemetery, but it will also act as a calendar of gardening activities. People will be given the possibility of participating in certain gardening activities throughout the year and seasons.

Mourners will be given the opportunity of working directly on the plots where their loved ones are (either in a Vessel or in the earth).

4 BIGGEST CEMETERIES IN ZURICH (<100'000SQM)

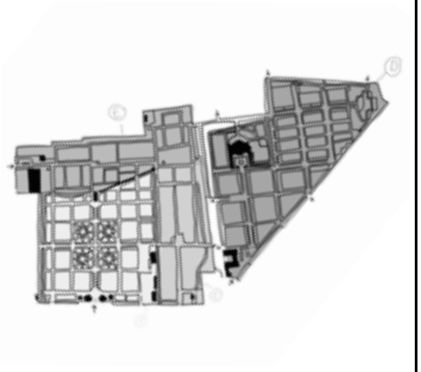
	Name	Location	Size (sqm)	Year	Plan
1	Sihlfeld Cemetery	Wiedikon	285'000	1877	
2	Nordheim Cemetery	Unterstrasse	125'992	1899	
3	Manegg Cemetery	Wolishofen	111'375	1897	
4	Schwandenholz Cemetery	Seebach	100'094	1903	

Figure 115: 4 Biggest Cemeteries in Zurich. Loacker and Hänsli (1998). Wo Zürich zur Ruhe Kommt

STAGES OF GRIEF

This fear of death is an intrinsically humanly rational reaction. Indeed, religions used to deal with death on a physical level (funerals, preparation of the body, processions etc.) but also on a psychological level. The notion of the after-life, heaven, hell: the notion of a continuity after death where important notions that religions communicated. These helped people in accepting death and finding meaning.

With the progressive desacralisation of death and decrease in religious belief (figure 15), society has failed to find a rational explanation to the ever present question: "what happens after death?". Death has thus remained in the sphere of the unknown, this lack of spirituality has led to the fear of death and this has led to a denial of death.

When Elisabeth Kübler-Ross wrote 'On Death and Dying', she interviewed terminally patients. She then established 5 stages of grief: denial, isolation, bargaining, depression and acceptance (figure 116). These described the emotional states that terminally ill patients usually faced. These can be seen as adaptive mechanisms used to make sense of an live with incurable diseases. [26]

In mourning, these stages of grief appear as well.

According to Andrew Kipnis : "Grief involves the loss of a social relationship that had served as an anchor. This loss disorients. Not knowing what to do, the grief-stricken want to be showed what to do, told what to do. A standardized ritual to follow step by step and a person to guide one through it can help. In the language of "governmentality" theorists, grief is a time to be governed, whether this governing is to be done by familial elders, religious specialists, secular ritual practitioners, or government employees." [27]

[22] Ibid
[23] Ibid. p. 559
[24] Ibid. p. 577
[25] Ibid. p. 614
[26] Kübler-Ross, Elizabeth. On Death and Dying. 1969. p . xiii
[27] Kipnis, Andrew. The Funeral of Mr. Wang. 2021. p. 92

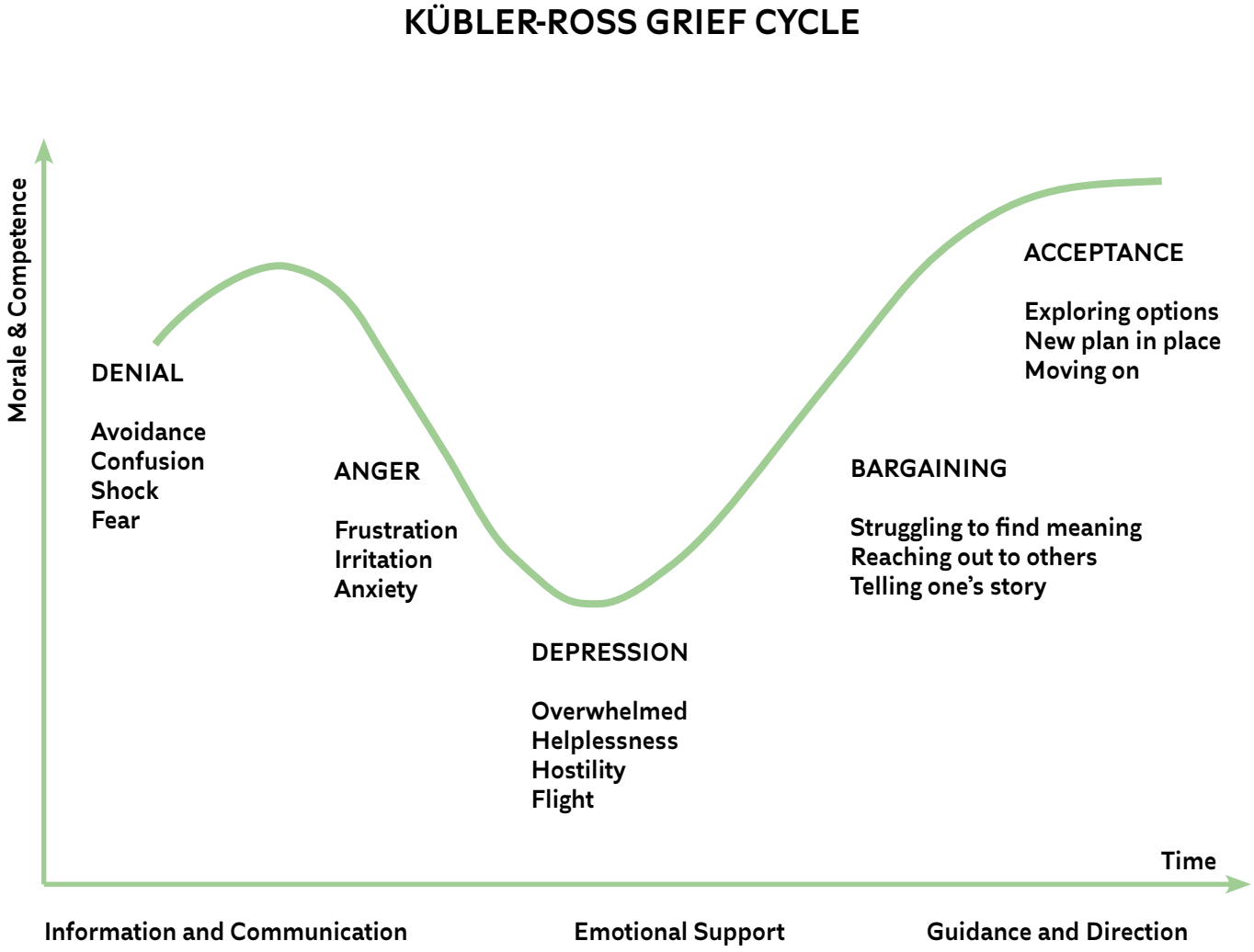


Figure 116: Kübler-Ross, 5 stages of Grief Model. Redrawn by Author (2022) Source: https://wtcs.pressbooks.pub/nursingfundamentals/chapter/17-2-basic-concepts/. [Accessed 27 Oct. 2022]. [Diagram].

ROMAN CATHOLIC FUNERAL AND REFORMED CHURCH

-The Vigil
-Mass
-Rite of Committal
-Burial/Cremation
-Post-funeral reception: Wake

Before the actual funeral, mourners are invited to go pay their respects to their loved one. This step, the vigil or, originally, the wake, used to take place at home but now usually happens at the mortuary. After approximately 3-4 days, the funeral day arrives. First, a funeral mass is given and then, a second service is observed at the site of the grave, called the "rite of committal", if the body is buried. For a long time, cremation was banned, however nowadays it is accepted. If a person is cremated, the ashes should not be scattered or kept at home but buried or put in an urn wall. After the funeral, there is often a gathering where people gather in memory of the deceased to drink and snack.[1]

The funerary rituals of the reformed church are derived of those of the Roman catholic. They differ in a few points. The first is the view of cremation: the importance of the body as a whole has never been an issue for the reformed church and therefore cremation is largely the preferred option. They also do believe in scattering ashes. Moreover, during a reformed mass, the prayers and ceremony are different from the one's of the Roman catholic. Lastly, the rite of committal does not exist at a reformed burial, however, if the mourners wish, a few prayers are spoken at the burial site. [2]

ISLAMIC FUNERAL

-Bathing
-Enshrouding
-Funeral Prayer
-Burial

The Islamic rituals around death start as soon as possible after the death has occurred with the collective bathing. The body is washed by family members of the same sex. The washing is carried out in a very specific manner: precise washing techniques, prayers uttered etc. The body is then wrapped in a cotton shroud and kept as is for several hours before being brought to the mosque. Family and friends then gather and pronounce together the funeral prayer. After that, the body is brought to the grave: a grave that should be in the direction of the Mecca.

In Islamic burials, no coffins are used, however the body is placed on its right side and covered with wood and stone. Mourners are invited to throw handfuls of earth in the grave before it is filled up. Cremation is banned by Muslims. [3]
Grave markers are to be simple and discreet, it can happen that a grave is not marked.
In Orthodox culture, when those present at the burial throw earth into the grave, they recite the following verse:
"We created you from it, and return you into it, and from it we will raise you a second time" (it being the earth). [4]

JEWISH FUNERAL

-Bathing
-Funeral
-Burial

The Jewish funerary rituals resemble those of the Muslims in some ways. The body is first prepared (washes) and then dressed in a burial shroud. This preparation is done by a group of people called the "Chrevra Kadisha" (a special group of Jewish people that ensure that proper things are done according to Jewish ritual until the burial).
Traditionally, the funeral is carried out within 24h hours after the time of death, with no public viewing. The body is place in a simple casket and the funeral can happen either at a synagogue, funeral home or graveside.
After, the funeral the mourners will have a mourning period of 7 days (according to tradition). Many Jewish communities have accepted cremation however the Orthodox and Conservative Jews have strictly prohibited cremation. [5]

[1] https://www.dignityfunerals.co.uk/arranging-a-funeral/types-of-funeral/religious-funerals/christian-funerals/ (Accessed I Feb. 2023)

[2] https://arbutusfuneralservice.com/blogs/blog-entries/2/Our-Blogs/19/Differences-Between-Protestant-and-Catholic-Funeral-Customs.html (Accessed I Feb. 2023)

[3] https://www.dignityfunerals.co.uk/arranging-a-funeral/types-of-funeral/religious-funerals/muslim-funerals/ (Accessed I Feb. 2023)

[4] https://en.wikipedia.org/wiki/Islamic_funeral(Accessed I Feb. 2023)

[5] https://www.funeralpartners.co.uk/help-advice/arranging-a-funeral/types-of-funerals/jewish-funeral-customs/ (Accessed I Feb. 2023)

SIHLFELD CEMETERY REGION DISTRIBUTION

DISTRICT/REGION	POPULATION	NUMBER OF VESSELS	VESSEL DISTRIBUTION PROPOSAL	NUMBER OF CLUSTERS
ZURICH, Kreis I	5'817	5	I CLT. of 5 VSL.	I
ZURICH, Kreis 3	50'104	47	2 CLT. of I5 VSL., I CLT. of 9 VSL., I CLT. of 8 VSL.	4
ZURICH, Kreis 4	29'023	27	I CLT. of I5 VSL., I CLT. of I2 VSL.	2
ZURICH, Kreis 5	I5'804	I5	I CLT. of I5 VSL.	I
ZURICH, Kreis 7	38'663	36	2 CLT. of I5 VSL., I CLT. of 6 VSL.	3
ZURICH, Kreis 8	I7'818	I7	I CLT. of 9 VSL., I CLT. of 8 VSL.	2
ZURICH, Kreis 9	57'077	53	3 CLT. of I5 VSL., I CLT. of 8 VSL.	4
ZURICH, Kreis I2	32'654	30	2 CLT. of I5 VSL.	2
BÜLACH	I58'566	I48	9 CLT. of I5 VSL., I CLT. of I3 VSL	I0
DIELSDORF	92'479	86	5 CLT. of I5 VSL., I CLT. of II VSL.	6
DIETIKON	95'438	89	5 CLT. of I5 VSL., I CLT. of I4 VSL.	6
MEILEN	I07'006	I00	6 CLT. of I5 VSL., I CLT. of I0 VSL.	7
TOTAL	700'449	653		48

Figure I08: Distribution of Vessels and Clusters per region according to population size. by Author (2023). [table]

RELIGIOUS LANDSCAPE CANTON OF ZURICH

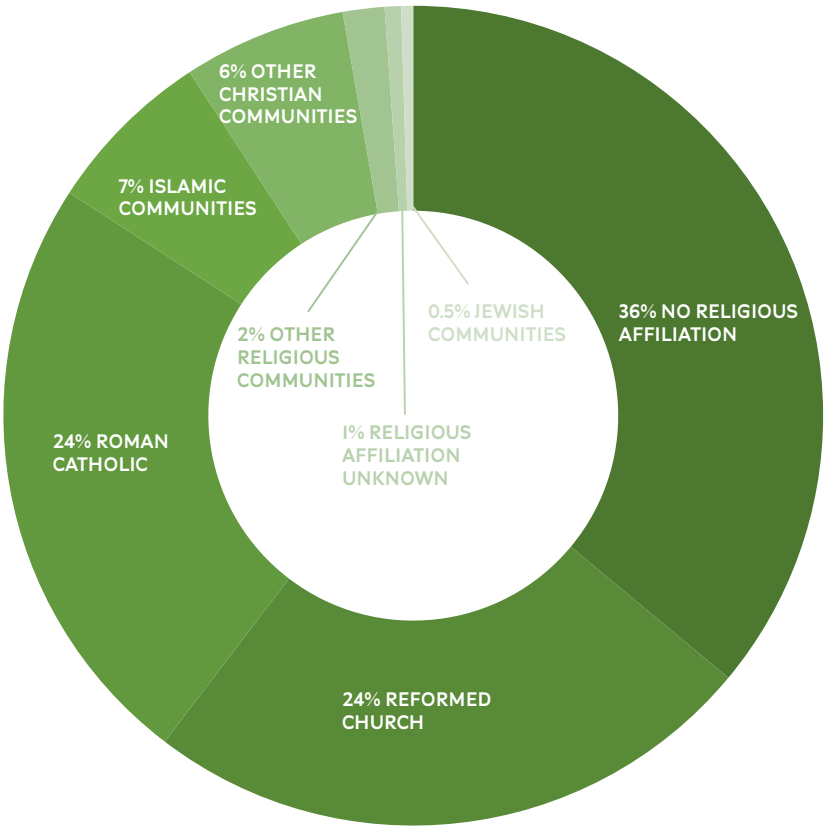


Figure I09 : Religion distribution Canton of Zürich. by Author (2022). Data Source: https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung/sprachen-religionen/religionen.assetdetail.23985070.html (Accessed 3I Jan. 2023) [graph]

6.2 ILLUSTRATIONS

-Figure 1: Sihlfeld Cemetery, Crematory D arcade view: grave, urn wall, allotment garden shed. by Author (2022). [image]

-Figure 2: Sihlfeld Cemetery Park Benches. by Author. (2022). [imgae].

-Figure 3: Churchyard, Cemetery, Park: The Evolution of the perception of Death.by Author. (2022). [Posters].

-Figure 4: Research Flow Chart. by Author. (2022). [Diagram].

-Figure 5: Water Urn alternative for disposal of ashes, Switzerland. Heid, N. (2022). [Flyer]

-Figure 6: Water Urn: how it works. Heid, N. (2022). [Flyer]

-Figure 7: Synthesis of the Evolution of death care, death perceptions and cemeteries. by Author (2022). [table]

-Figure 8: Environmental Analysis of cremation vs. burial. World Funeral News (2021). Available at: https://news.wfuneralnet.com/en/cremation-vs-burial-environment/ [Accessed 11 Oct. 2022]. [Diagram]

-Figure 9: Life Cycle Assessments for Burial and Cremation - with Ecoindicator. Keijzer, E. (2011). Graph redrawn by Author. Available at: https://core.ac.uk/download/pdf/148285704.pdf. [Graph]

-Figure 10: Carbon Emissions in Kg comparison. by Author. Data Source: http://deathlab.org/funerary-processes/ [Graph].

-Figure 11: Energy Consumption in kWh comparison. by Author. Data Source: http://deathlab.org/funerary-processes/ [Graph]

-Figure 12: Agreement on Funeral Arrangement Wishes, modified propsal. Stadt Zürich (2012). Modified by Author. [PDF]. Available at: https://www.stadt-zuerich.ch/content/dam/stzh/prd/Deutsch/Bevoelkerungsamt/Formulare%20und%20Merkblaetter/BFA_Formulare_Merkblaetter/Bestattwuensche_andere_Sprachen/Formular%20BW_e.pdf (Accessed: 30 Ocotber 2022)

-Figure 13: Agreement on Funeral Arrangement Wishes, modified propsal. Stadt Zürich (2012). Modified by Author. [PDF]. Available at: https://www.stadt-zuerich.ch/content/dam/stzh/prd/Deutsch/Bevoelkerungsamt/Formulare%20und%20Merkblaetter/BFA_Formulare_Merkblaetter/Bestattwuensche_andere_Sprachen/Formular%20BW_e.pdf (Accessed: 30 Ocotber 2022)

-Figure 14: Mushroom Burial Suit. Source: https://www.weareatticus.com/articles/burial-alternatives-costs-ultimate-list-of-interment-substitutes (Accessed 05 Nov. 2022)[image]

-Figure 15: Capsula Mundi. Source: https://www.dezeen.com/2019/03/31/capsula-mundi-egg-shaped-burial-pod/(Accessed 05 Nov. 2022)[image]

-Figure 16: The Functions of Soil. Redrawn by Author. (2022). Source: Food and Agriculture Organization of the United Nations (2015). Available at: https://qph.cf2.quoracdn.net/main-qimg-d379a38318f28de5abac634f732e867-lq[Accessed 12 Oct. 2022]. [Diagram]

-Figure 17: Constituents of the Human Body. Redrawn by Author. (2022). Source: Scienceabc (2022). Available at: https://www.scienceabc.com/humans/what-elements-are
present-in-the-human-body.html [Accessed 12 Oct. 2022]. [Diagram]

-Figure 18: Constituents of the Earth's Crust and Atmosphere. Redrawn by Author, C. (2022). Source: Pearson Education (n.d.). Available at: https://www.emsisd.com/cms/lib/TX21000533/Centricity/ModuleInstance/5456/Percentage_of_Elements_PowerPoint.pdf [Accessed 12 Oct. 2022]. [graph]

-Figure 19: Recompose process. Redrawn by Author (2022). System Source: Recompose (2021). Available at: https://recompose.life/ [Accessed 25 August 2022]. [Diagram]

-Figure 20: Livestock Decomposition applied to human body. Redrawn by Author. Spade, K. (2013). Of Dirt and Decomposition. [online] p.42. Available at: https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=2213&context=theses. [sketch]

-Figure 21: Return Home Company: same method as remcompose, laying in. Source: https://returnhome.com/ [Accessed 11 Nov. 2022]

-Figure 22: Population Distribution per Canton in Switzerland, 2018. by Author. (2022). Source: http://www.citypopulation.de/en/switzerland/cities/ [Accessed 4 Oct. 2022]. [Graph]

-Figure 23: Amount of Deaths per Year in Switzerland and Zurich. by Author. (2022). Source: FSO (2018). Available at: https://www.bfs.admin.ch/bfsstatic/dam/assets/16644533/master [Accessed 4 Oct. 2022]. [Graph]

-Figure 24: Zurich's Population Evolution Forecast. United Nations (n.d.). Source: https://www.macrotrends.net/cities/22606/zurich/population. [Accessed 4 Oct. 2022]. [Graph]

-Figure 25: Development of number of deaths in Switzerland 1990-2050. FSO (2018). Source: FSO (2018). Available at: https://www.bfs.admin.ch/bfsstatic/dam/assets/16644533/master [Accessed 4 Oct. 2022]. [Graph]

-Figure 26: Decrease in religious belief, increase in secularisation. Redrawn by Author. Source: FSO – FPC (1970–2000), Structural Survey (2010–2020). [Graph].

-Figure 27: Gardening in Sihlfeld Cemetery. Source: Loacker und Hänsli (1989). Wo Zürich zur Ruhe kommt. [image]

-Figure 28: Co-influence of the perception of death and the physical cemetery as well as its placement in regards to the city. by Author (2022). [Sketch]

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6.4 ABSTRACT & PROGRAMME

MEMENTO MORI VIVI
Human Composting in Zurich

Free Diploma Abstract
Claire Debons 17-825-951

Examinator: Momoyo Kaijima
Co-examinator: Milica Topalovic

"You and the tree in your backyard come from a common ancestor. A billion and a half years ago, the two of you parted ways... But even now, after an immense journey in separate directions, that tree and you still share a quarter of your genes." - Richard Powers

As populations continue to rise, so does the impact on our environment. In Switzerland, our legal system determines what we are allowed to do with our bodies when we die: traditional burial or cremation. These methods not only consume a lot of energy and generate carbon emissions, but also belong to a religious and cultural past that is evolving rapidly. Research has proven that alternatives to earthen burial and cremation do exist. Most of them explore an alternative way to decomposing human remains. These methods vary from: alkaline hydrolysis (chemical cremation), promession (decomposition through freezing), bio-methanization (anaerobic digestion to create biogas) to composting. Moreover, in many overcrowded cities such as New York, the space in cemeteries is very limited and thus problematic. However, Switzerland, with its high percentage of cremation (95%) is encountering the opposite problem; cemeteries are becoming anachronistic.

To limit the impact of the disposal of bodies on the environment, the project imagines a city, Zurich, in which all human bodies are neither buried in the traditional way (earthen burial) nor cremated, but rather composted using the Recompose method. Recompose is an American company that has elaborated a system allowing the decomposition of a human body organically within approximately 2-3 months. Human remains are transformed into dirt: a rich and fertile soil.

The project proposes how to re-organise and re-design the biggest cemetery of Zurich: Sihlfeld Cemetery. From forests and straw fields necessary to create the compost for the first decomposition phase, to flower gardens: places of rest for the decomposed, Sihlfeld becomes a circular machine where nature, ritual and technology interact. Sihlfeld is currently the biggest cemetery in the city of Zurich (285'000 sqm) and the largest continuous greenspace. Furthermore, Sihlfeld was home to the first crematorium in Switzerland, now it is time for it to host the first composting facility in Switzerland.
The project explores how this idiosyncratic building typology can change the way we perceive death by rendering our last impact on earth eco-fridendly.

Semester	Week	Calendar Week	Date	Co-Examinator	Schedule	Contents	Deliverables	Grading
HS22 Research Semester	1	38	Mon. 19.09.22		Desk Critique	research- Death statistics Zürich + technical infra	Text, Diagrams	20%
	2	39	Mon. 26.09.22		Desk Critique	research - Space/time hypothesis for Recompose in Zurich	Text, Diagrams, Plans	
	3	40	Mon.03.10.22		Submission of Research Vorprogramm Friday 14.10 at 16:00	research- synthesis of initial research, numbers/actors and time	Text, Diagrams, Plan, Sketch	
	4	41	Mon. 10.10.22		Desk Critique	research - Sihlfeld Cemetery	Text, Diagrams, Plan, Sketch	
	5	42	Mon. 17.10.22		Desk Critique	Defining Traditional + New ritual	Text, Diagrams, Plan, Sketch	45%
	6	43	Mon. 24.10.22		Desk Critique SEMINAR WEEK	Death, Rituals, Mourning & Grief + basic schematic design	Image of project draft	
	7	44	Mon. 31.10.22		Desk Critique	Schematic design drawing	booklet draft	
	8	45	Mon. 07.11.22		Desk Critique	research sotrytelling/ cleaning	Booklet	
	9	46	Mon. 14.11.22		Submission of Research Programmvorschlag Friday 18.11 at 16:00	research - initial project image and research synthesis	Final booklet	
	10	47	Mon. 21.11.22		Desk Critique	presentation draft: establishing a story	Booklet	
	11	48	Mon. 28.11.22		Desk Critique	presentation intermediate version	Booklet and Presentation	
	12	49	Mon. 05.12.22		Research Presentation at Professor conference Wednesday 07.12.22	research/presentation		35%
	13	50	Mon. 12.12.22		Desk Critique	what to revise	Booklet and Presentation	
	14	51	Mon. 19.12.22		Research Semester Final Review	Updating/cleaning/presenti	Booklet and Presentation, Plans and Sketches	
FS23 Master Thesis		6	Mon. 06.02.23		Submission of the definitive programme Friday 10.02.23, 16:00	research	Final Booklet	
	1	8	Mon. 20.02.23		Desk Critique	Site analysis	Plan, Section, Elvations, Model	40%
	2	9	Mon. 27.02.23		Desk Critique	Site analysis	Plan, Section, Elvations, Model	
	3	10	Mon. 06.03.23		Desk Critique	Site analysis +Project definition	Plan, Section, Elvations, Model	
	4	11	Mon. 13.03.23		Desk Critique	Site analysis +Project definition	Plan, Section, Elvations, Model, Details, Perspective	
	5	12	Mon. 20.03.23		Desk Critique SEMINAR WEEK	Site analysis +Project definition	Plan, Section, Elvations, Model, Details, Perspective	
	6	13	Mon. 27.03.23		Desk Critique- Mid Term Review	Project first draft	Plan, Section, Elvations, Model, Details, Perspective, Sketches	
	7	14	Mon. 03.04.23		Desk Critique	Project review, critical approach	Drawings, models, details	60%
	8	15	Mon. 10.04.23		Desk Critique EASTER BREAK	project redesign	Drawings, models, details	
	9	16	Mon. 17.04.23		Desk Critique- Mid Term Review	Final Project proposal	Drawings, models, details	
	10	17	Mon. 24.04.23		Desk Critique	Production of Project final representation	Drawings, models, details	
	11	18	Mon. 01.05.23		Desk Critique	Production of Project final representation	Drawings, models, details	
	12	19	Mon. 08.05.23		Desk Critique	Production of Project final representation	Drawings, models, details	
	13	20	Mon. 15.05.23		Desk Critique	Production of Project final representation	Drawings, models, details	
	14	21	Mon. 22.05.23		Submission of master thesis Fri. 26.05.23 18:30	Finalized project	Plan, Section, Elvations, Model, Details, Perspective, Sketches	

Critique with Momoyo
Official D-Arch dates