

IAL
APE

THE FUSION AND COLLISION BETWEEN
MEMORY AND ITS PHYSICAL EXPRESSION

MEMOR
BENCHSC



Cover image: A back view of a bench in a nature reserve.

Source: <https://www.xiaohongshu.com/>

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MEMORIAL BENCHSCAPE | The Fusion and Collision between Memory and Its Physical Expression

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"As Countless Unconspicuous Elements
Build an Urban Landscape,
City Memories and Personal Memories Are
Spontaneously Formed and Influenced."

The research investigates the potential for benches, a ubiquitous element of urban landscapes, to be reimagined as living memorials, thereby amplifying public awareness of urban identity and creating individual significance. Through immersive observation, the concept of "benchscapes" is introduced, encompassing both the perceived and conceived dimensions. The design of the conceived benchscape necessitates a comprehensive understanding of the urban public space, utilizing the proposed "Four-relation Model".

The study focuses on the city of Den Helder, which faces challenges regarding the erosion of its unique identity. Drawing inspiration from Avril Maddrell's "Third Emotional Space" concept, the design framework explores three distinct scales: benchscape as a whole system, benches as key players in benchscape, and bench as a living memorial in benchscape. Furthermore, by considering movement patterns and the specific requirements of different characters, the design seeks to achieve a delicate equilibrium between the perceived and

conceived benchscapes, an aspect referred to as benchscape affordance.

Ultimately, the whole benchscape family design represents a deliberate response to the main research question, effectively demonstrating how memorial benchscapes can effectively frame diverse "Third Emotional Spaces" within partially defined memorial places. By harnessing the power of benchscapes, this approach enables the construction of a cohesive network of city memories while evoking or nurturing personal recollections.

KEYWORDS:

Bench; Benchscape; Memorial; Memory; Physicality; Identity

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LANDSCAPE**

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0.1 INCONSPICUOUS ELEMENTS IN CITIES

Fig 0-1. Watercolour art painting of the abstract city pattern.
Source: <https://www.xiaohongshu.com/>

What do you see when you are walking through the streets of the city?

Is it the buildings?

Or the cars on the road?

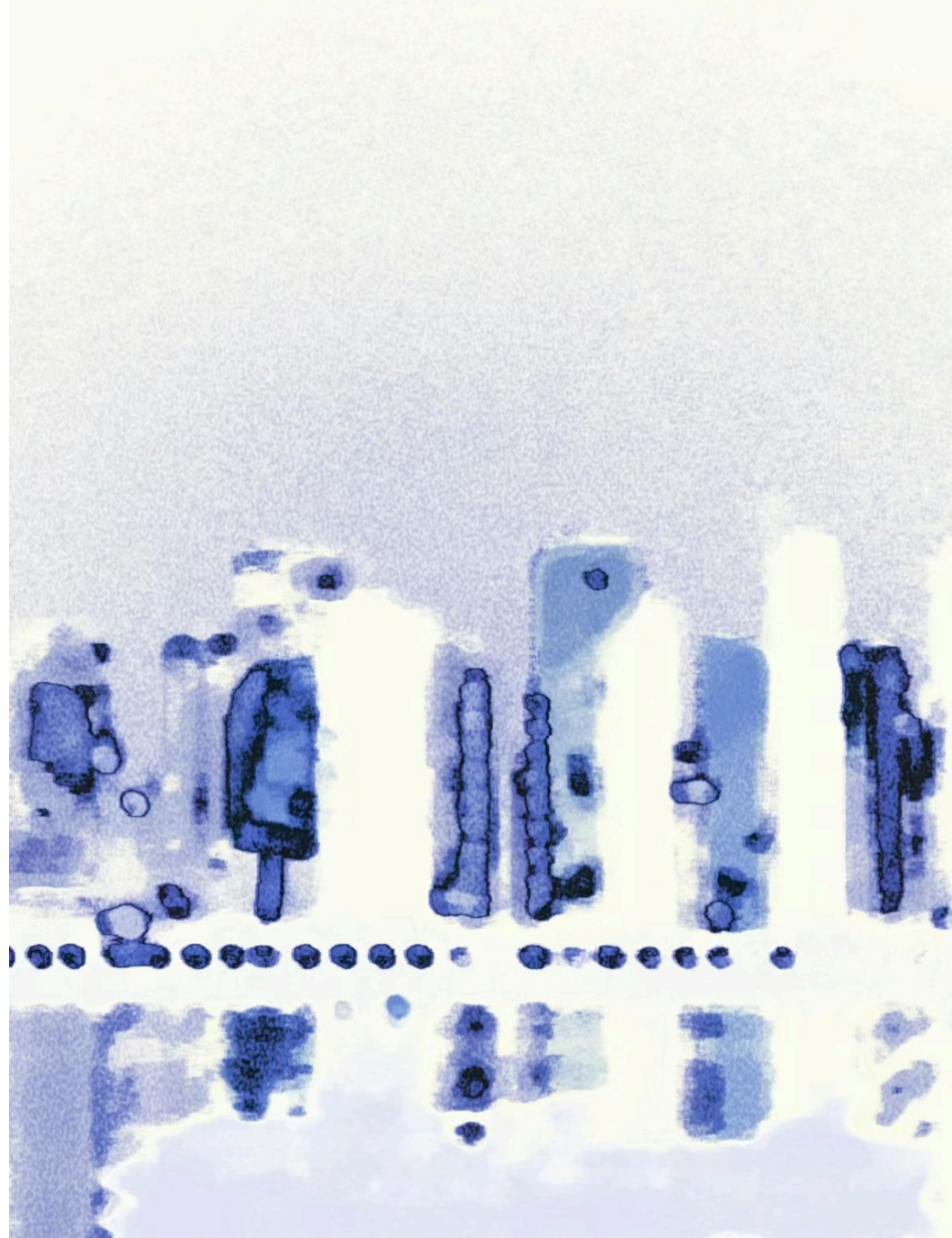
Or a street tree?

Every element of the city is a point, large or small, a component of our living environment.

Right now, when you think about what you are looking at, you are constructing your perspective on the landscape.

From my perspective, Landscape is always hidden in our daily lives, and it is everywhere. Do you realize that many tiny landscape elements are so commonplace that their aesthetics and value is overlooked?

BENCH is one of them.



INTERVIEWS WITH BENCHES 0.2

BENCH IN A CITY PLAZA

Fig 0-2. A map of the location of the two benches with imaginary dialogues in Den Helder.

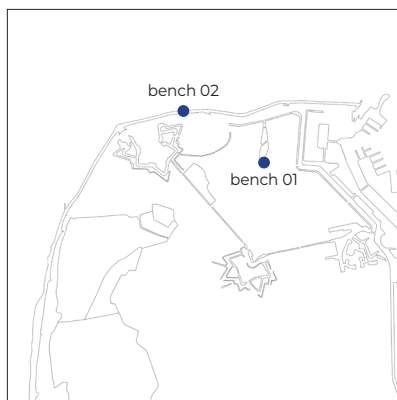
Fig 0-3. Sketches of the interview with a bench in the city central plaza at 14.30 pm, on Sept. 29th, Thursday.

Fig 0-4. Sketches of the interview with a bench on the dike at 12.30 am, on Sept. 28th, Wednesday. It shows the first talk is mainly about asking and answering questions to help understand the basic living environment of this bench.

Fig 0-5. Sketches of the interview with the same bench on the dike at 15.20 pm, on Sept. 29th, Thursday. It shows the second time is more like a talk between old friends. We were sharing the view we saw, the people we met, and the feelings at that moment.

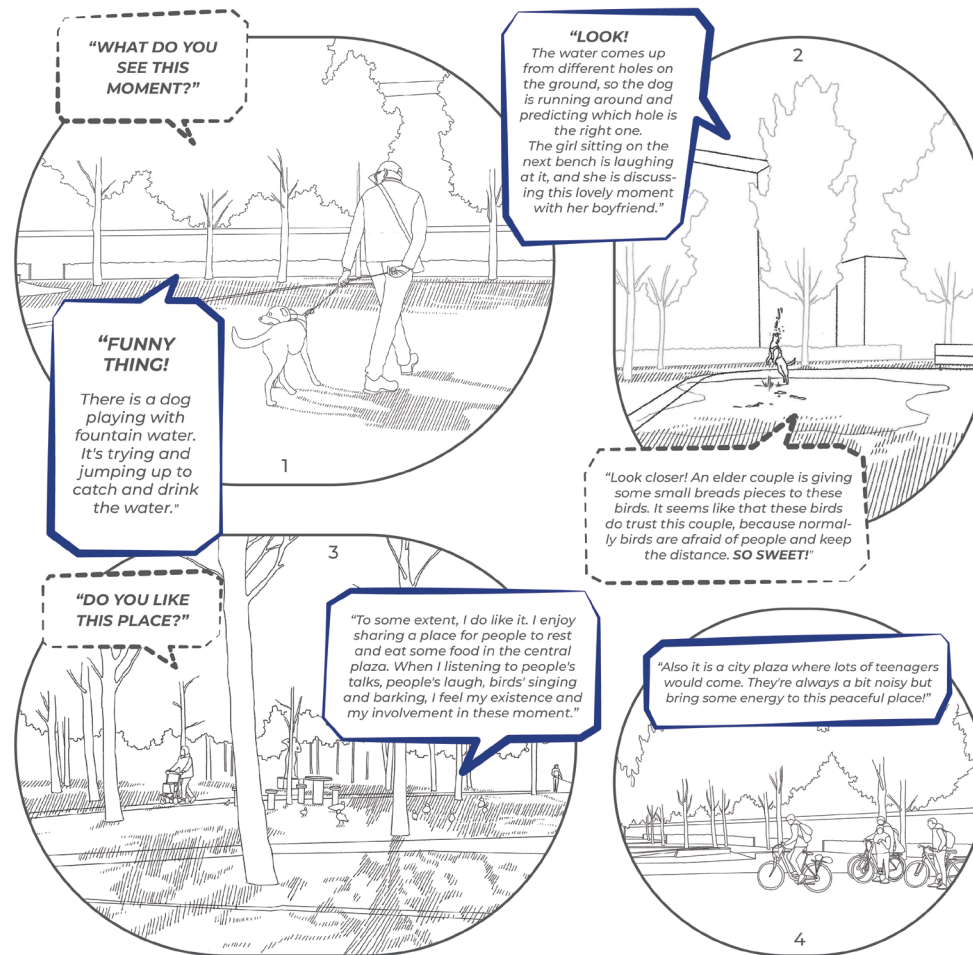
"How can we converse with those that do not speak our language? How do you give a voice to a Thing, Plant, or Animal? What does the Water tell us and what choices does the Iron make?" (Herakleitos)

To understand an element and its environment better, we could immerse ourselves in it and try to look at itself and the world from its perspective. Starting from my fascination with, the bench, I had imaginary dialogues with different benches in Den Helder and interview the same bench at different times.



LEGEND

- bench location



0.2 INTERVIEWS WITH BENCHES

BENCH ON THE DIKE

"WHAT DO YOU SEE?"

1

"I'm always looking at the sea. Sometimes there're some ships going by, while the ocean buoys are always here. I also see some people walking or cycling along the dike, and they're mainly senior persons with their dogs."

"DO YOU ONLY HEAR THE SOUND OF SEA?"

"I think I also hear many other sounds, like the noise of helicopters and sounds of footsteps, bicycle wheels and sea gulls. There are many helicopters, because there is an airport nearby.

But I'd like to say, for most of the time, I can only hear or be attracted by the sounds of sea or waves.

The sounds of sea are irregularly changing, sometimes it is moderate, and sometimes turbulent."

"HOW DO YOU FEEL FOR YOUR LIFE?"

2

"To be honest, I feel a bit lonely sometimes. I'm just sitting here and watching the endless sea. I'm always alone, not that many people will come to me and sit on me due to some water remained."

"I enjoy the sunshine this moment, and I'm glad that you can talk with me."

3

"Me too. You see! We are one in the shadow, quite sweet!"

"Hi, I come back again! You are so special, so it is quite easy for me to find you."

"I just noticed a man was sitting on you and I was a little bit hesitant to come to you, because I'm always shy and unconfident when facing strangers. But I did go and even talk to the man. I told him I did an interview with you yesterday. But he looked so confused and not that interested in my words."

"OMG!"

Maybe he thought that I'm a freak to talk with an objective. So because of my existence, he felt not that free and left just in 5 min..."

1

"Ohhh, nice to see you again so soon!"

5

"Do you see the sea gulls on the rocks? They're so conspicuous in white. But I also see some sea gulls' died bodies just lying down sidely on the edge of the rocks."

4

"Yes, and when I realize that there are some other lovely sea gulls standing on the rocks nearby, I see there is only one meter between life and death..."

"Hahaha, I don't know that You have such a rich mental activity in so short time! Don't worry about that, I feel so happy that you are the one willing to talk with me. So how is your day? Do you feel any difference here today?"

2

"More diverse sounds and talks! I feel it is so lively and energetic."

"That's also what I feel. I really enjoy various sounds and touchness, which make me feel I'm a part of the place. By the way, I like the OV bikes you ride and park here. They are in yellow and blue, and they somehow match well with the sea and the sky."

3

"Romantic! It's like yesterday we are one in the shadow, but today I feel the sea, the dike and even the whole city are one with us."

SCATTERED MONUMENTS AND MUSEUMS 0.3

Fig 0-6. A mapping of scattered monuments and museums in Den Helder, with the images of some major monuments and museums, with shows the main problem of losing city identity.

LEGEND

- monument
- ◻ museum

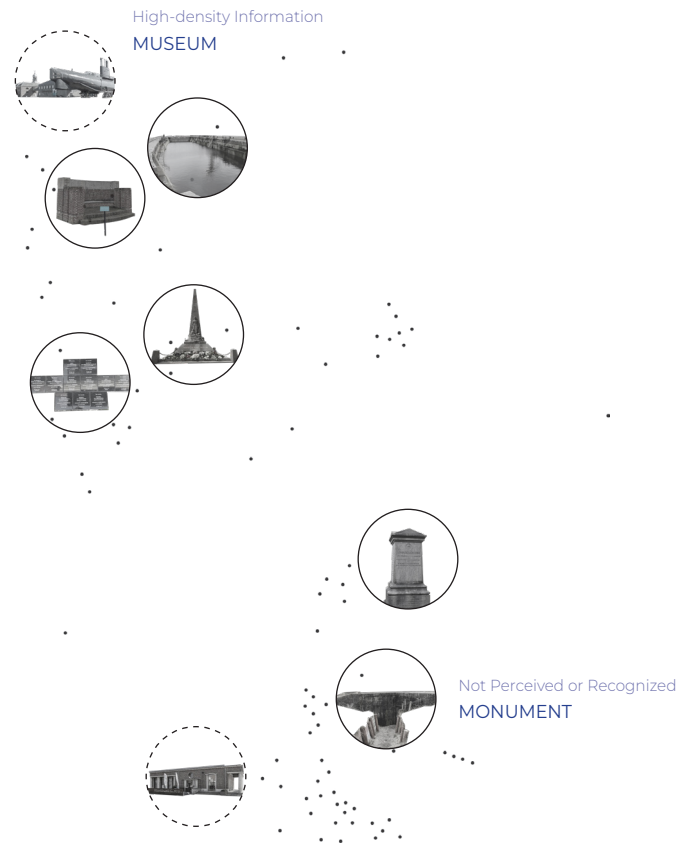
Den Helder is a city town with rich marine history and war history, but less city identity. The insiders do enjoy their lives and love this city, while the outsiders think it is just a boring city and a transfer place to Texel.

Even though there are already many scattered remnants, monuments and museums in the city, part of these monuments or remnants are not perceived and recognized by visitors and even many local people, and most of the museums are becoming less and less attractive to visitors.

The reason might be these monuments are view-only and lack information and social interaction, thus missing the public awareness of city identity and attraction to visitors. Instead, these museums are too dense with information and too saturated with technological interactive installations, making it difficult for visitors to receive and understand the vast amount of information, while also limiting their memory of the city's identity. The functional experience of these monuments and museums strays off balance to either side.

LESS CITY IDENTITY

lack of PUBLIC AWARENESS & ENGAGEMENT



0.4 FROM MONUMENT TO MEMORIAL

Fig 0-7. A framework of the living memorial as a potential, which shows the composition of the memorial benchscape and the three-layer relation between bench and memory.

LEGEND

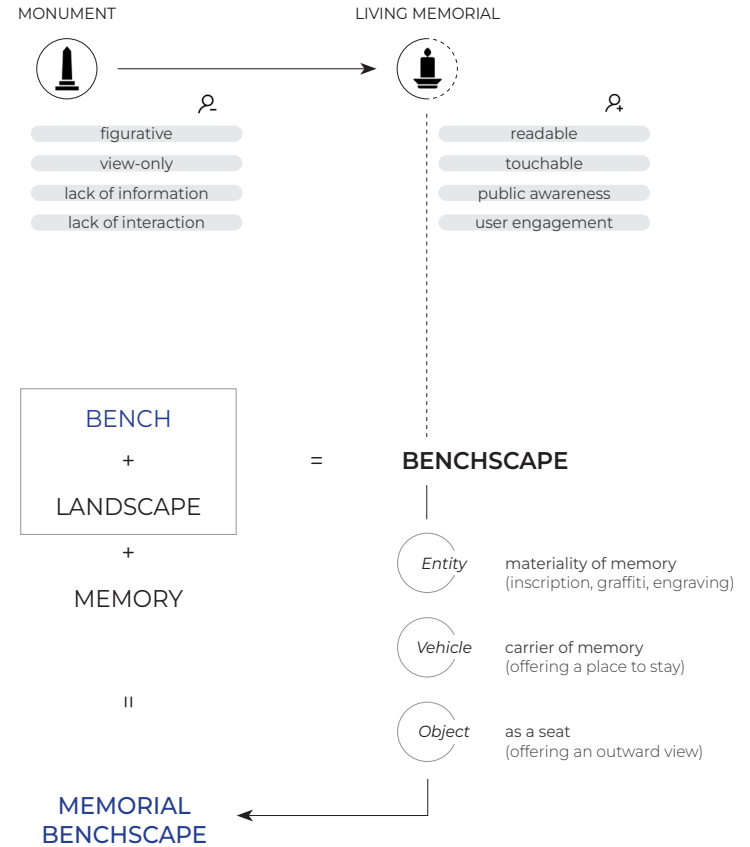
- monument
- museum
- living memorial

In order to raise public awareness of city identity and engagement with city memory, and also enhance people's connection with personal memory, more generally accessible, readable and touchable memorials become a potential cure.

Starting from my personal fascination, a bench can be not only a seat as a common, inconspicuous or functional street furniture, but also can combine with landscapes as an informal living memorial, like a witness or participant in the city or personal memory. In this way, it is worthwhile to explore, express, and strengthen the connection between a bench with the surrounding landscape and people's memory through materiality, functionality and symbolism. It would provide the possibility to visualize tangible and touchable memory, enhance city identity, and develop the new term "BENCHSCAPE".

Therefore, I come up with a hypothesis that a bench can as a living memorial to create a memorial benchscape in the public space to enhance city identity and personal meaning.

**BENCH AS
A LIVING MEMORIAL**
(More Accessible, Readable and Touchable)



BENCHSCAPE AS A LIVING MEMORIAL 0.5

MAIN RESEARCH QUESTION

Fig 0-8. An image of a memorial park bench in Hyde Park with a bottle of coke cola left on it.

"A MEMORIAL PARK BENCH IS A THOUGHTFUL WAY FOR DONORS TO REMEMBER A LOVED ONE, WHILE IT IS A PUBLIC BENCH THAT PROVIDED A PLACE FOR OTHER'S NEW MEMORY."

"HOW CAN **MEMORY AND ITS PHYSICALITY** BE SITUATED IN AND EXPRESSED THROUGH **BENCHSCAPES** TO ENHANCE **PUBLIC AWARENESS OF CITY IDENTITY** AND HELP CREATE **PERSONAL SIGNIFICANCE?**"



0.6 RESEARCH PLAN

The research is focused on Den Helder, a city in the Netherlands that has a rich marine and war history but is losing its city identity. Despite having scattered monuments and museums, many of them are overlooked due to a lack of interaction and awareness. To strengthen the connection to the city's memory, accessible and tangible memorials like benches could merge with the landscape as living memorials.

The main research question is "How can memory and its physicality be situated in and expressed through benchscapes to enhance public awareness of city identity and help create personal significance?"

The main research question of the thesis aims to investigate the potential of benchscapes as a living memorial in Den Helder. The research aim is to develop a theoretical framework of the model of environmental psychology, which can enhance the city identity of Den Helder and improve the psychological well-being of its citizens and visitors by creating personal significance through the integration of memorial benchscapes into a network of benchscapes.

To achieve these outcomes, the research is divided into four categories of subquestions. The first category focuses on defining the terms related to the research topic to create

a glossary of terms. The second category is dedicated to analyzing the physical and experiential components of memory in Den Helder. The third category aims to integrate the knowledge gained from the analyzed subquestions into a theoretical framework of the model of environmental psychology. Finally, the fourth category is focused on design-oriented subquestions to design a memorial benchscape integrated into a network of benchscapes.

1. DEFINING SUBQUESTIONS:

The goal of this set of subquestions is to gain a personal interpretation of various terms related to the thesis topic. The subquestions are divided into two sections, the first focusing on the definition of specific terms such as "memorial," "memorial place," "bench," and "memorial landscape." The second section delves deeper into the concept of "benchscape" and "memorial benchscape," with the aim of creating a new definition for "benchscape." The subquestions require reading and quoting related essays to understand the terms and provide a personal interpretation.

2. ANALYZING SUBQUESTIONS:

The goal of this set of subquestions is to gain an overview of the physical and experiential components of memory in Den Helder. The subquestions are divided into three sections,

with the first focusing on the different types of physical expressions of memory in Den Helder. The second section addresses the classification of memorial places in the city, including the defined, partly defined, undefined, and potential memorial places, and their relation to each other. The third section focuses on the different types of urban public spaces in Den Helder and their relationship with the surrounding landscape of benches and psychological well-being.

RQ 1: What are the different types of physical expression of memory in Den Helder?

RQ 1-1: What is the classification of memory?

RQ 2: How to classify defined, partly defined, undefined, and potential memorial places in Den Helder?

RQ 2-2: What is the relation between these memorial places?

RQ 3-4: Where is the different types of urban public space in Den Helder?

3. INTEGRATIVE SUBQUESTIONS:

The goal of this set of subquestions is to combine the knowledge gained from the analyzed subquestions into a theoretical framework of the model of environmental psychology. The subquestions are divided into two sections, with the first section focusing on the site-specific bench catalogue and how different types of

benches in different urban public spaces create different physical and experiential qualities. The second section addresses the relationship between benches and memory and how they can be viewed from an unusual perspective.

RQ 3: How do different types of benches of Den Helder in different urban public space create different physical and experiential qualities?

RQ 5-1: What relationship exists between benches and memory?

4. DESIGN-ORIENTED SUBQUESTIONS:

The goal of this set of subquestions is to design a memorial benchscape integrated into a network of benchscapes to enhance the city identity of Den Helder and improve the psychological well-being of its citizens and visitors. The subquestions are divided into two sections, with the first section focusing on how different compositions of memorial landscapes create different experiential qualities and the role of benchscape in this. The second section addresses the design approaches to address different memories in different benchscapes through research by design experiments.

RQ 4: What is the relation between benchscape and memorial landscape? And what is the role of the bench in benchscape?

RQ 5: What are the design approaches to address different memories in different benchscapes?

Echoing the questions and outcomes of the research, the design will begin with the following design objectives:

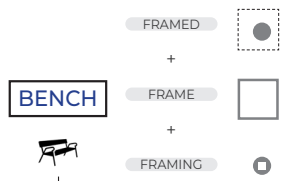
1. Working with the current urban memorial network. The existing urban memorial network in Den Helder is not very clear or well-planned. The design is to figure it out and create a more accessible and guided network of memorial places in Den Helder.
2. Enhancing the psychological well-being of citizens and visitors. The design aims to create high-level psychological well-being and significance for individuals in Den Helder through benchscapes as linkages, landmarks, and commons.
3. Designing a living memorial benchscape. The design objective is to design a memorial benchscape integrated into a network of benchscapes to enhance the city identity of Den Helder and create personal significance.
4. Addressing different memories in different benchscapes. The design objective is to explore different design approaches to address different memories in different benchscapes, as benchscapes are specific and unique in different contexts.

5. Using the site-specific bench catalogue. The site-specific bench catalogue can help understand the relationship between bench, landscape, and urban space, and also the corresponding modes of environmental psychology. The design objective is to use this catalogue to inform the design of the memorial benchscape and its integration into the larger network of benchscapes.

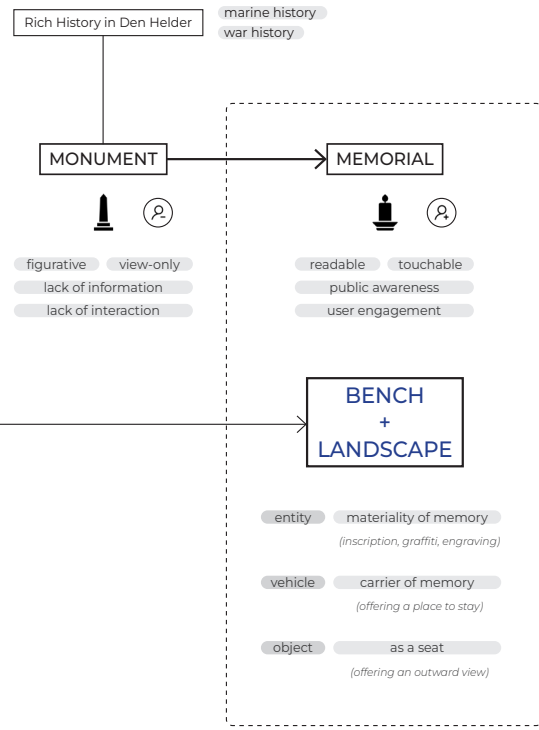
The primary objective of the design is to elevate public awareness of Den Helder's city identity and engender a sense of psychological well-being and significance for individuals through the strategic implementation of benchscapes. This will be accomplished by utilizing the benchscapes as linkages, landmarks, and commons, thereby constructing a guided and easily accessible network of memorial places throughout the city of Den Helder.

0.7 METHODOLOGY OVERVIEW

PERSONAL FASCINATION

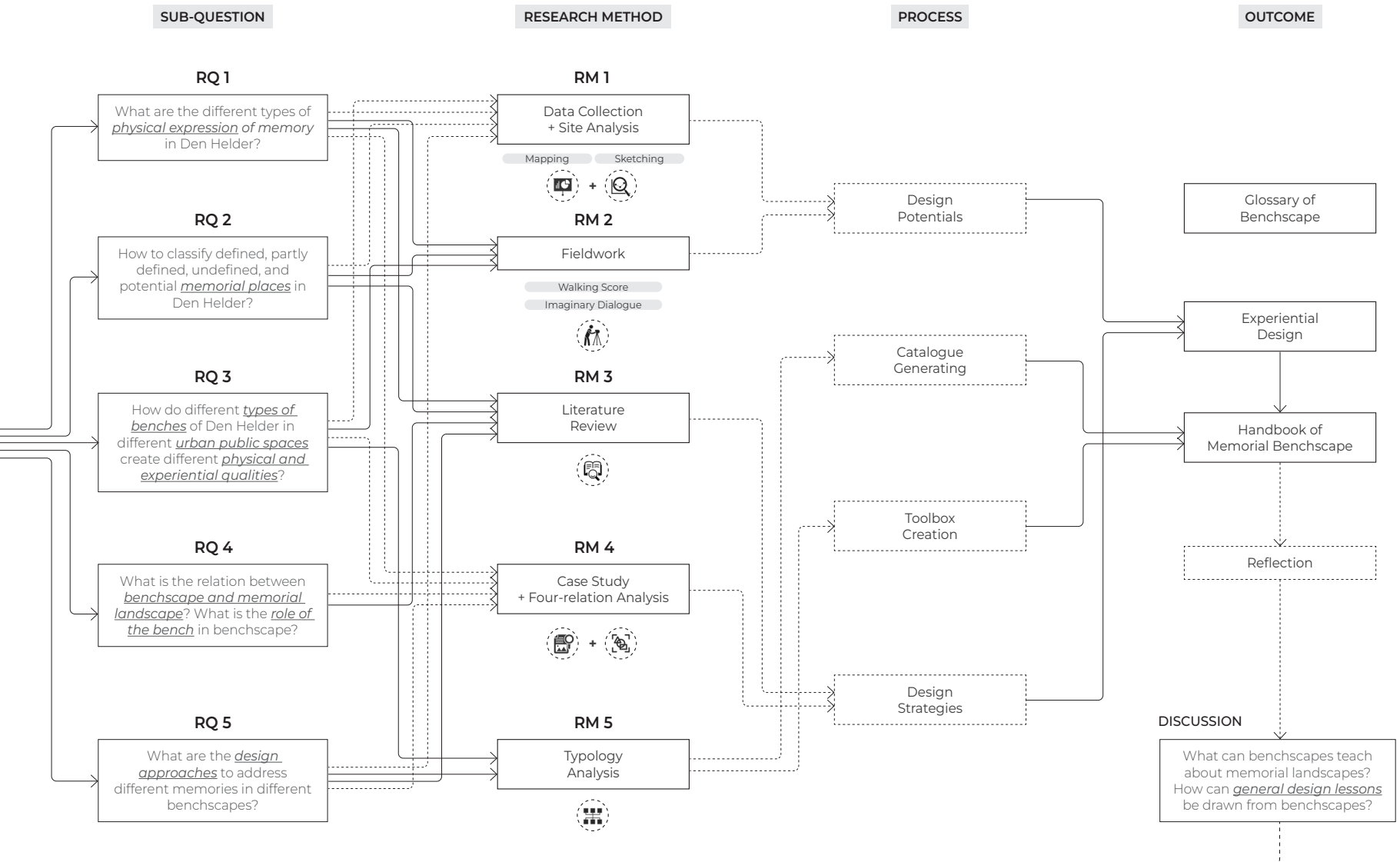


PROBLEM + OPPORTUNITY



MAIN RESEARCH QUESTION

How are the *memory and its physicality* situated in and expressed through *benhsapes* to enhance public awareness of *city identity* and help create *personal significance*?



01

**MEMORY AND
ITS PHYSICALITY**

1.1 MEMORY OF DEN HELDER

1.1.1 INTERPRETATION OF MEMORY

Fig 1-1. Four diagrams show the definitions of the four different types of memory.

Memory is a complex psychological process that involves the acquisition, storage, retention, and retrieval of information. This process is made up of three main stages: encoding, storage, and retrieval.

To understand memory, it is important to consider its temporal aspects. Sensory memories are very short-lived, lasting only a few seconds, and allow individuals to recall sensory information about their immediate environment. Short-term memories last slightly longer, typically around 20 to 30 seconds, and consist of information that is currently being attended to and processed. Long-term memories can persist for days, weeks, months, or even decades and are generally stored outside of immediate awareness but can be retrieved as needed. One of the ways to conceptualize memory organization is through the semantic network model, which posits that certain cues can trigger associated memories. For example, the recall of a specific location can activate memories associated with the place.

Memory can also be classified based on its ownership, with city memory encompassing the historical and contemporary stories of a particular location, collective memory consisting of shared knowledge and information within a social group, and individual memory pertaining to

personal experiences and recollections. It is important to note that memory is not solely a retrospective phenomenon but is also shaped by present experiences and emotions. New memories are continuously being created and encoded based on current stimuli, and past memories can be influenced and reinterpreted in light of current circumstances. Overall, memory is a complex and dynamic process that plays a fundamental role in shaping our individual and collective identities.

1 City Memory



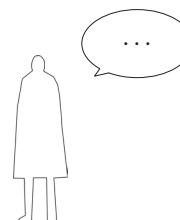
2 Collective Memory



3 Individual Memory



Living Memory



*"The endless sea, Texel as a plain.
Standing on the dike,
the city skyline is at the back,
the churches, the lighthouse,
they are all in view.*

*A man at a distance and
a bird nearby,
they are both little points."*

1.1.3 GENERAL INFORMATION: REGIONAL CONTEXT

Fig 1-2. Two Maps of the location of Den Helder in the North Holland, Netherlands, the left one is made by author, the right one is made by Jantine van Halsema.

Fig 1-3. Series of mappings show the history of natural landscape around the North Holland, including the formation of the natural landscape and first housing in Den Helder, made by Ying Han.

LEGEND

	open water/river zone
	inland water
	tidal area + flood plain
	diked tidal area + flood plain
	salt marsh
	low dune
	dune + beach walls
	high dunes
	reclamation
	peatland
	urban area



LOCATED IN THE NORTH HOLLAND

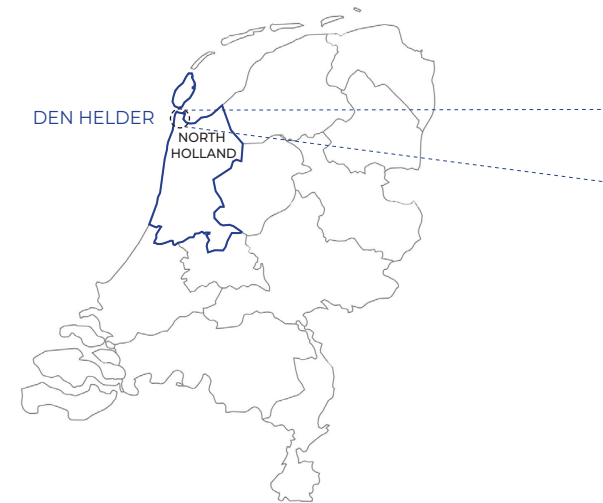
Den Helder is a municipality and city situated in the North Holland province of the Netherlands. It occupies the northernmost region of the North Holland peninsula and is renowned for housing the country's principal naval base. In addition to its military significance, Den Helder is also a vital transport hub, with the Royal TESO ferry service operating from its port to provide a crucial link between Den Helder and the northern Netherlands' Texel Island.

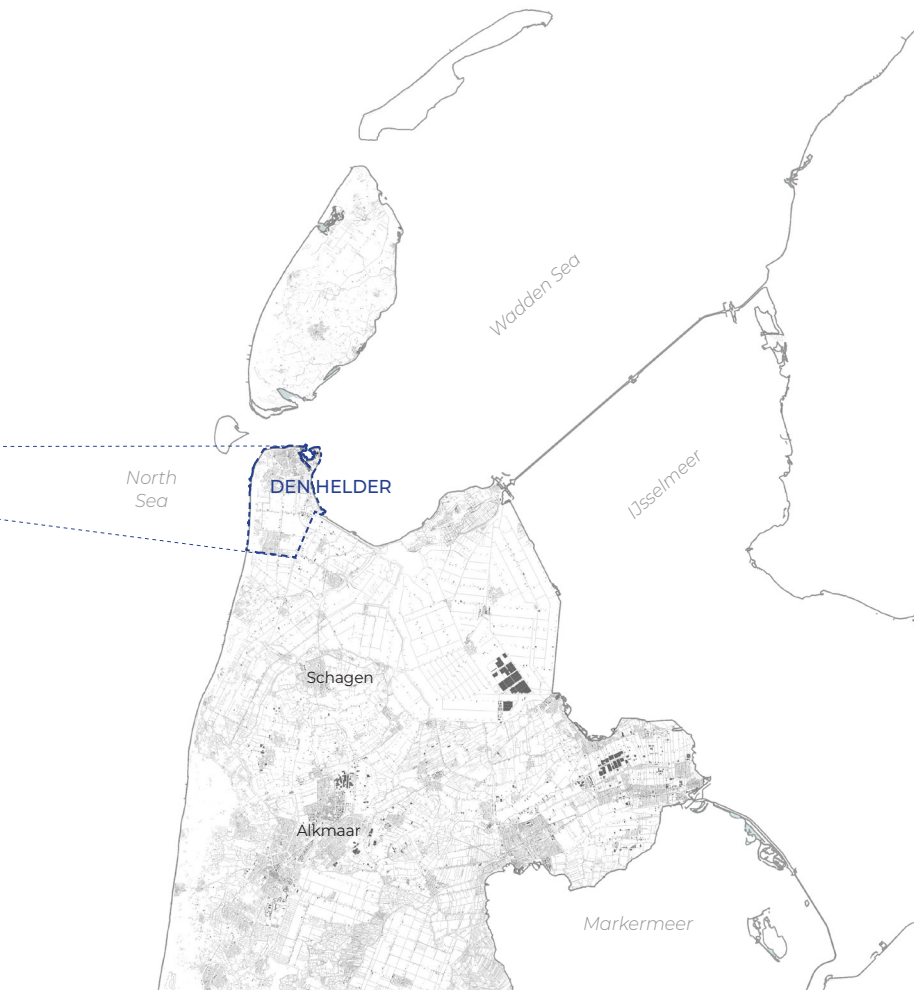
FORMATION OF THE NATURAL LANDSCAPE AND FIRST HOUSING

The contemporary landscape in and around Den Helder is the result of natural and human-made processes that have shaped the area over the centuries. Cover sands formed extensive sand plains with dams such as Texel, which created vast tidal areas to the south of the plains. Over time, sea level rise, peat growth, subsidence, tidal movement, degradation, and drift have affected the landscape.

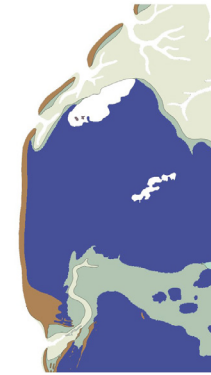
Around 1500 BC, a coastal wall emerged, followed by extensive peat bogs, with the Zeegat near Bergen separating the north and south. By 100 AD, the coast featured

downhill peatlands, influenced by the sea through tributaries of the tidal Het Vlie. In 1250 AD, a chain of islands formed as the dunes were breached, and the peat was washed away by rising sea levels, storms, and subsiding land due to peat reclamation. Oud Huisduinen and Torp date from the early Middle Ages, while Den Helder emerged around 1500 AD. The head of North Holland was once a coastal embankment structure, but it was not connected to tidal inlets such as Heersdiep. In 1610, the Zanddijk was built, and the islands were connected. With further embankments and drainage, including the Koegras polder, the current coastline gradually emerged. Den Helder became a town, while Huisduinen remained small-scale and can still be seen as a 'desert island' connected to the mainland.





5500 BC.
Sand Plains



1500 BC.
Peat Bog



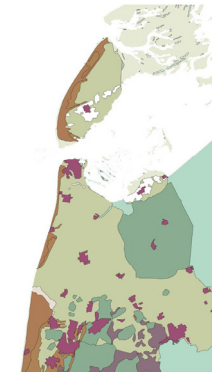
100 AD.
Declining Peatland



800 AD.
Chain of Islands



1500 AD.
Construction of the Village



2000 AD.
Embanked Area

1.1.4 HISTORICAL TIMELINE

Fig 1-4. Series of mappings and collages, which show the historical timeline of Den Helder.

Fig 1-5. A cut-out diking plan of the Zijpe by Jan van Scorel from 1553. The landscape had changed into a series of islands, behind which was a vast tidal area full of creeks, mudflats and salt marshes that only flooded occasionally at high tide. (source: Nationaal Archief The Hague, collection of Hingman domestic maps, no. access 4. VTH, inv. no. 2486)

Fig 1-6. A cut-out of a map from 1573 by Christiaan Sgrooten. Two churches are drawn, one in Huisduinen and one on the Tarp. The location of the dunes and the fairway were apparently also important, as were the names of the many creeks. Birdsand, the Cowgrass, Tuselant; many current names have a history of hundreds of years. (source: Noord-Hollands Archief Haarlem).

Den Helder has a rich and complex history, marked by various challenges and transformations. It has faced multiple floods in the past, which led to the construction of artificial dikes to protect homes and develop it into a thriving port city. However, its development was interrupted by the WWII, causing a major crisis that Den Helder has since been recovering from. Some significant events that have shaped the history of Den Helder include:

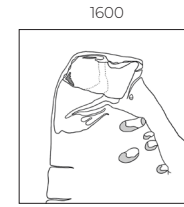
- 1. ALL SAINTS' FLOOD (1570):** This devastating flood caused part of the dunes to wash away and led to the loss of the centre of Hausduinen and Helder. Consequently, the town had to be rebuilt further inland.
- 2. A GROWING HARBOUR TOWN (1700):** The new town of Helder emerged as a thriving fishing and shipbuilding centre, and its prosperity was further boosted by the construction of the Noordhollandsch Kanaal in 1824, which connected the harbour to the hinterland and made Den Helder the harbour of Amsterdam.
- 3. FRENCH OCCUPATION (1795 - 1813):** During this period, Den Helder was visited by Napoleon and a defence line, the Defence Line Den Helder, was built around the town and harbour. Fort Kijkduin, located in Hausduinen, was also fortified.

4. WORLD WAR II (1939 - 1945): Den Helder's prosperity came to an abrupt end when Nazi Germany occupied the Netherlands in May 1940. The entire town was declared a spergebiet in 1943.

5. RECONSTRUCTION AND EXPANSION (1945 - 1980S): After the war, Den Helder underwent a period of reconstruction, with a focus on revitalising it as a naval harbour. This led to the development of the New-Den Helder and De Schooten districts, as well as the growth of Julianadorpe into a town with numerous new buildings.

6. 21ST CENTURY (2000-): In recent years, Den Helder has seen the renovation of the historic shop fronts in the city centre, including the old Willemsdorp dock. The renovation of the Defence Line Den Helder also commenced in 2011, marking an important step in preserving the town's history and heritage.

COASTLINE DEVELOPMENT

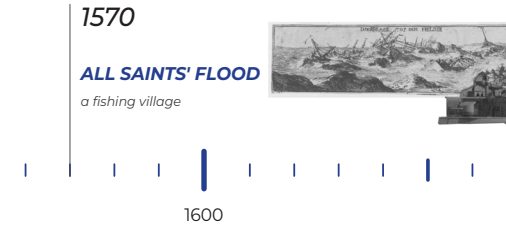


1600
Island Huisduinen with the oldest polders and various nollen.

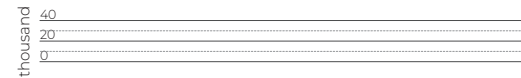


1650
Lemaire's Ooghduinpolder (1601), Zanddijk (1610) and Nieuwe Staatendijken (1642).

SIGNIFICANT EVENTS



POPULATION



CITY EXPANSION



1750



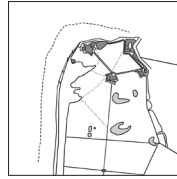
Further erosion of the North Sea coast and construction of the first Helderse sea dikes.

1800



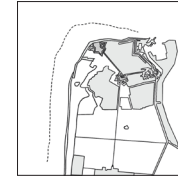
Reinforcement of the Helderse Seawall and improved port of Nieuwediep through construction of IJdam.

1850



Defense Line of Den Helder, Noordhollandsch Kanaal and Polder Het Koegras.

2020



Raising of the Helderse Seawall, further urbanization and realization of the New Port.

1700

GROWING PORT CITY



1795-1813

FRENCH OCCUPATION

The Defense Line and a ring of forts were commissioned by Napoleon.



1939-1945

WORLD WAR II

From 1943, the whole town was declared a Sperrgebiet.

2000

21ST CENTURY



1700

1800

1900

WWI

1914 - 1918

2000

Noordhollandsch Kanaal

Trade grew rapidly

1829 - 1878

RECONSTRUCTION & EXPANSION

1945-1980s



3000

17300

22700

29300

37400

5000

1830

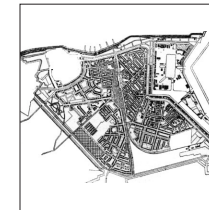
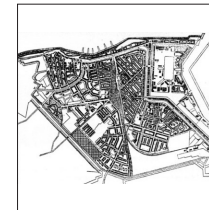
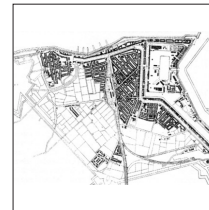
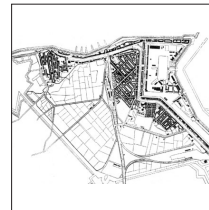
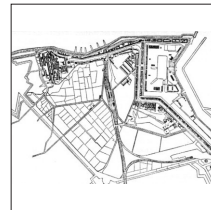
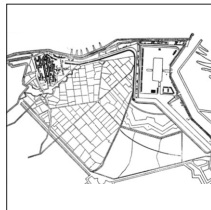
1865

1890

1920

1940

1945





fooge

Sactelodnyen



West Nieuwlandt diep
5. Maden

Die Moer Wardt

Tere

Mers diep

DEELING

Nest

8. Maden

5. Maden

DEELING

Made

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1.1.5 URBAN LANDSCAPE

01 BLUE-GREEN SYSTEM

Fig 1-7. A mapping of the dike system in Den Helder.

Fig 1-8. Images of the North Sea, the Wadden Sea, the dune and the dark dune area in Den Helder.

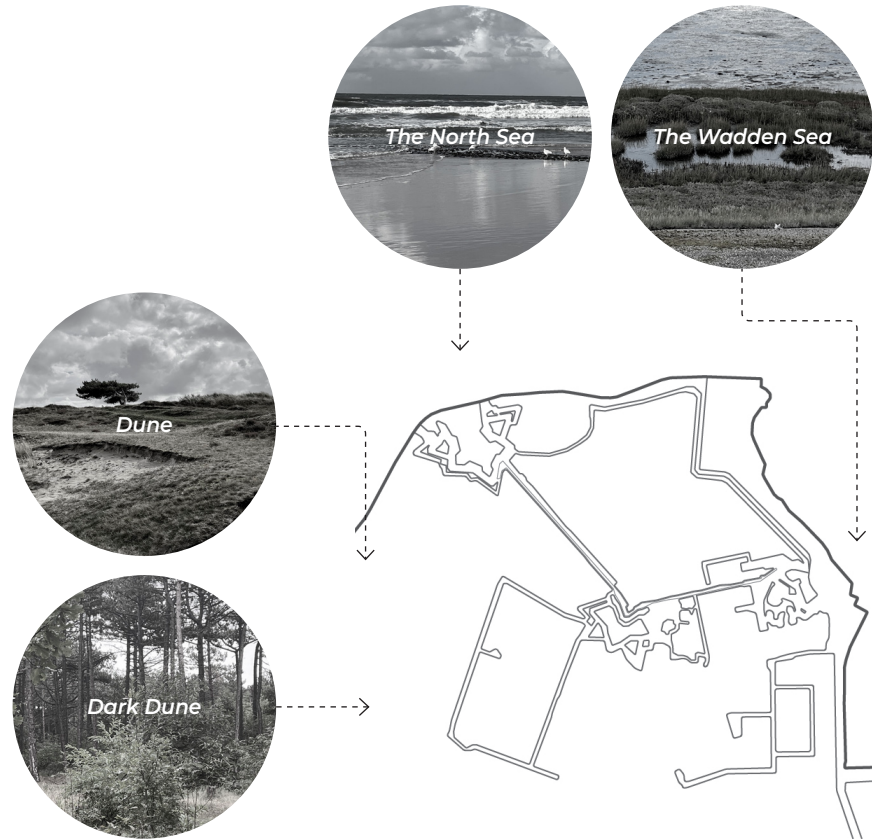
LEGEND

-  sea dike
-  canal dike
-  water dike

In Den Helder, a city known for its resourcefulness and resilience, a diverse range of natural environments can be found, including grasslands, forests, and dunes. The abundance of such environmental conditions has provided a foundation for the development of green system planning, which seeks to integrate the surrounding wild environment into the community and city center. One example of such planning can be seen in the construction of a dune park around the Nieuw-Den Helder neighborhood.

The city's history is closely tied to the sea, with the Royal Netherlands Navy making its home port in Den Helder. The sea has also been both a source of opportunity and a threat, with the construction of a sea wall (dike) in 1610 to protect against floods. This wall has been crucial in keeping the city safe from the dangers of the sea. To further connect Den Helder with the rest of the Netherlands, the Noordhollands Canal was built in the early 19th century, with construction beginning in 1819 and completion in 1824. This canal facilitated transportation between Den Helder and Amsterdam, and played a key role in the city's economic growth.

**resourcefulness
& resilience**



BLUE-GREEN SYSTEM

Water Resources & Green Soft Areas
in Den Helder

LEGEND

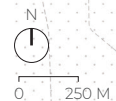
Green System

- farmland
- grassland
- meadow
- park
- scrub
- allotment
- orchard
- cemetery
- forest
- nature reserve
- dune
- dark dune

Blue System

- canal
- sea
- other water
- beach zone
- contour line

- buildings



20 m
10 m

North
Sea

Wadden
Sea



1.1.5 URBAN LANDSCAPE

02 CITY BLOCKS

Fig 1-9. Images of Lange Jaap Lighthouse, New Water Tower, Fort Kijkduin, Fort Erfprins, Fort Dirksz Admiraal, Fort Westoever, Huisduiner Church and Willemsoord, from Internet, unknown source.

Den Helder's history dates back to 745 when the first farms were built in Huisduinen, the oldest part of the city. The inhabitants lived mainly from agriculture and cattle breeding until the All Saints' Flood in 1570, which led to the rebuilding of the villages in new, dry places.

The Den Helder defence line, a complex of fortresses and defences ordered by Napoleon between 1811 and 1813, is situated in the extreme north of North Holland. It includes Fort Kijkduin and the naval docks at Willemsoord.

During World War II, most of the city was evacuated and the old center was destroyed. In the 1950s, Nieuw-Den Helder was built to address the need for additional housing, followed by De Schooten in the 1960s.

There are two main landmarks in Den Helder. The most famous is the Lange Jaap lighthouse which was built in 1877 and is the highest cast iron lighthouse in Europe at 63.45 metres. The second is the new water tower, built in 1908 in the city centre.

**Nieuw-Den Helder
1950s**

**De Schooten
1960s**



CITY BLOCKS

Landmarks & Monuments
Building Ages
in Den Helder

LEGEND

Building Ages

- 1693 - 1881
- 1881 - 1921
- 1921 - 1942
- 1942 - 1960
- 1960 - 1973
- 1973 - 1986
- 1986 - 2000
- 2000 - 2016

Other Elements

- water
- ▭ city roads
- ▭ railways
- ⊕ landmarks
- ⊕ monuments
- ⊕ viewable field
- ⊕ usable range



1.1.5 URBAN LANDSCAPE

03 War Memorials

Fig 1-10. Images of Atlantikwall bunkers, Atlantikwall Museum, Marine Museum, old navy yard Willemsoord, naval memorial, grave memorial WWI, memorial stones Cornelis Ditostraat 15 and remembrance bench Johan August de Jongh. (source: TracesOfWar.nl)

After WWI and WWII, there were lots of remnants of the war discovered and memorials built in Den Helder to commemorate some events or someone. These memorials come in a variety of sizes. For example, some museums and historical buildings are of a larger scale and are often very visible. There are also some small-scale structures scattered throughout the city, such as memorial stones.

- Bunker**
50+
- Museum**
4
- Historical building**
4
- Monument**
13
- Memorial grave**
2+
- Memorial stone**
18+
- Memorial bench**
1










WAR MEMORIALS





Traces of War
in Den Helder

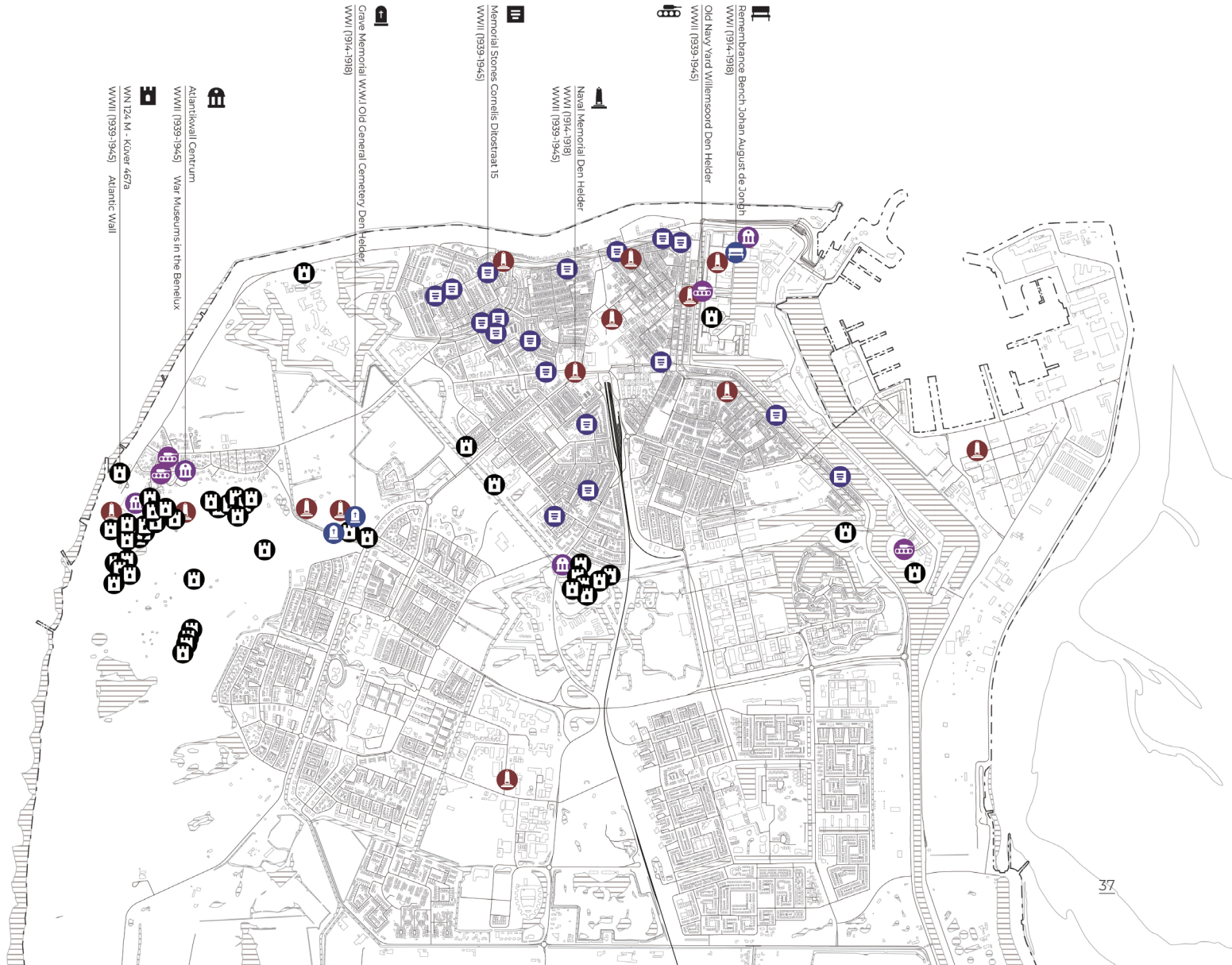
LEGEND

Memorials

-  bunker
-  museum
-  historical building
-  monument
-  memorial grave
-  memorial stone
-  memorial bench

Other Elements

-  water
-  city roads
-  railways
-  buildings



1.1.6 PROJECT DE NOLLEN

*Van de Wint, R.W.
(interviewee), Project
De Nollen. (Source:
projectdenollen.nl)*

In the inner dune area of De Nollen in Den Helder, a unique art project led by gardener and artist R.W. van de Wint has been established, bringing together various artistic disciplines as a cohesive unit.

This project has prompted many to consider the notions of place and displacement, as the individual artworks themselves become integral components of the larger environment, creating a sense of place.

The art project in De Nollen showcases the powerful impact that art and nature can have on one another, blurring the boundaries between the two and creating an immersive experience for visitors.

As you walk through De Nollen, you will encounter towering steel sculptures and structures that lead you from light to dark through underground entrances. The Virgilius building can be accessed through a narrow passage and a staircase, where two mirrored rooms filled with paintings surround you. When you leave the artwork and the artificial colors behind, the reality around you becomes even more vibrant and striking: the green grass, the blue sky, the wind, and the silence. Art and reality constantly interact with each other at De Nollen, reinforcing the experience of both. It is an experience that stays with you and forms a true sculpture in your head long after you have left the space.

IMAGES BEYOND THE NOLLS

The artworks and sculptures found on De Nollen are not only visually striking, but they also blend seamlessly with the surrounding landscape. The combination of place and image gives meaning to the whole area, and it is this symbiotic relationship that creates a unique experience for visitors.

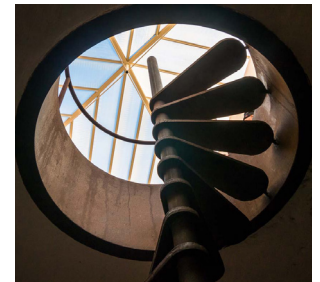
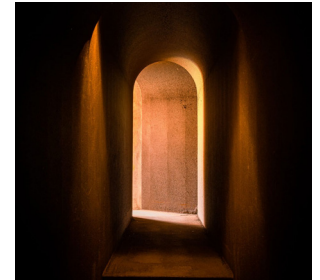
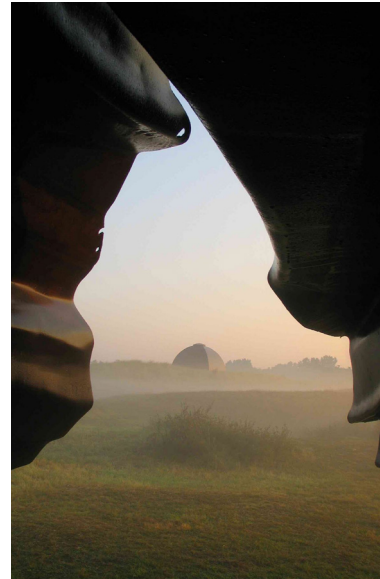
According to Van de Wint, a place only truly becomes a place when someone has spent a significant amount of time there and has developed a connection with it. For him, all projects that arise outside of this place refer back to the laboratory of De Nollen.

Van de Wint believes that art in public spaces can sometimes be a loss of place, as the relationship between place and image is not always self-evident. In these situations, the autonomy of the works of art becomes essential. Artworks are often "placeless" in public spaces, and as a result, they do not distinguish between De Nollen and other places. While the context may change, the poetry and allure of artworks can remain constant, demonstrating the enduring power of art to enhance our understanding of the world around us.

*"The landscape turns into sculpture.
sculpture into painting.
painting into sunlight.
and sunlight returns to the landscape."*

*"My words are my images.
my images are my paintings.
my paintings are my buildings."*

Fig 1-11. Images of R.W. van de Wint (1942-2006) and Project De Nollen. (Source: projectdenollen.nl)



1.2 MEMORY'S PHYSICALITY IN DEN HELDER

1.2.1 URBAN PUBLIC SPACE

Fig 1-12. Four diagrams show the definitions of and differences between public, semi-public, semi-private and private space.

Urban public space refers to the outdoor areas that are situated among buildings and allow for communication, transit, and social interaction of the inhabitants within a city. These spaces may be public, semi-public, or private, and are often delimited by the facing of buildings or natural physical barriers such as rivers, seas, or topographic reliefs.

Public space is a type of urban space that is easily accessible to the general public at any time of day or night. Streets are the most obvious example of public space, as people can physically enter and exit them at any time. Public spaces are essential for fostering social interaction and community building, and they provide a shared sense of identity and belonging for city dwellers.

Semi-public spaces, on the other hand, are areas where some degree of control is exerted over when access is allowed. While these spaces allow general public access, they may also have specific entry and exit points or limited hours of operation. Examples of semi-public spaces include plazas, squares, and parks. These spaces are essential for creating opportunities for social interaction and community building, while also allowing for some degree of management and control.

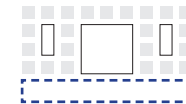
Semi-private spaces are areas of the urban environment that tend to be private and which a member of the general public

will only enter if they have a reason to do so. These spaces are often associated with individual properties, such as front gardens or yards.

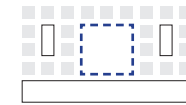
Finally, private space refers to outdoor areas that are exclusively for the use of the residents of a property. These spaces may take the form of gardens, roof gardens, or balconies, and they allow residents complete control and a higher degree of security and privacy.

Urban public space often serves as a memory place, where individuals and communities can commemorate significant events or people in their history. Memorials, monuments, and other forms of public art are often placed in urban public spaces, such as parks or plazas, to serve as physical representations of a collective memory. These spaces can also be used for public gatherings or ceremonies to remember and honor the past. In addition, the design and layout of urban public spaces can also serve as a way to preserve and highlight the historical significance of a particular area, such as the preservation of historic buildings or landmarks. Overall, urban public space plays an important role in shaping the memory and identity of a community, and serves as a tangible reminder of its shared history and culture.

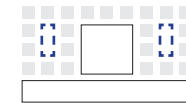
1 Public Space



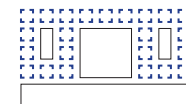
2 Semi-Public Space



3 Semi-Private Space



4 Private Space



URBAN PUBLIC SPACE

Urban Public/ Semi-Public/
Semi-Private Space
in Den Helder

LEGEND

Urban Space

- public space
- semi-public space
- semi-private space

Other Elements

- water
- city roads
- railways
- buildings

Dune & Beach

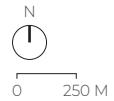
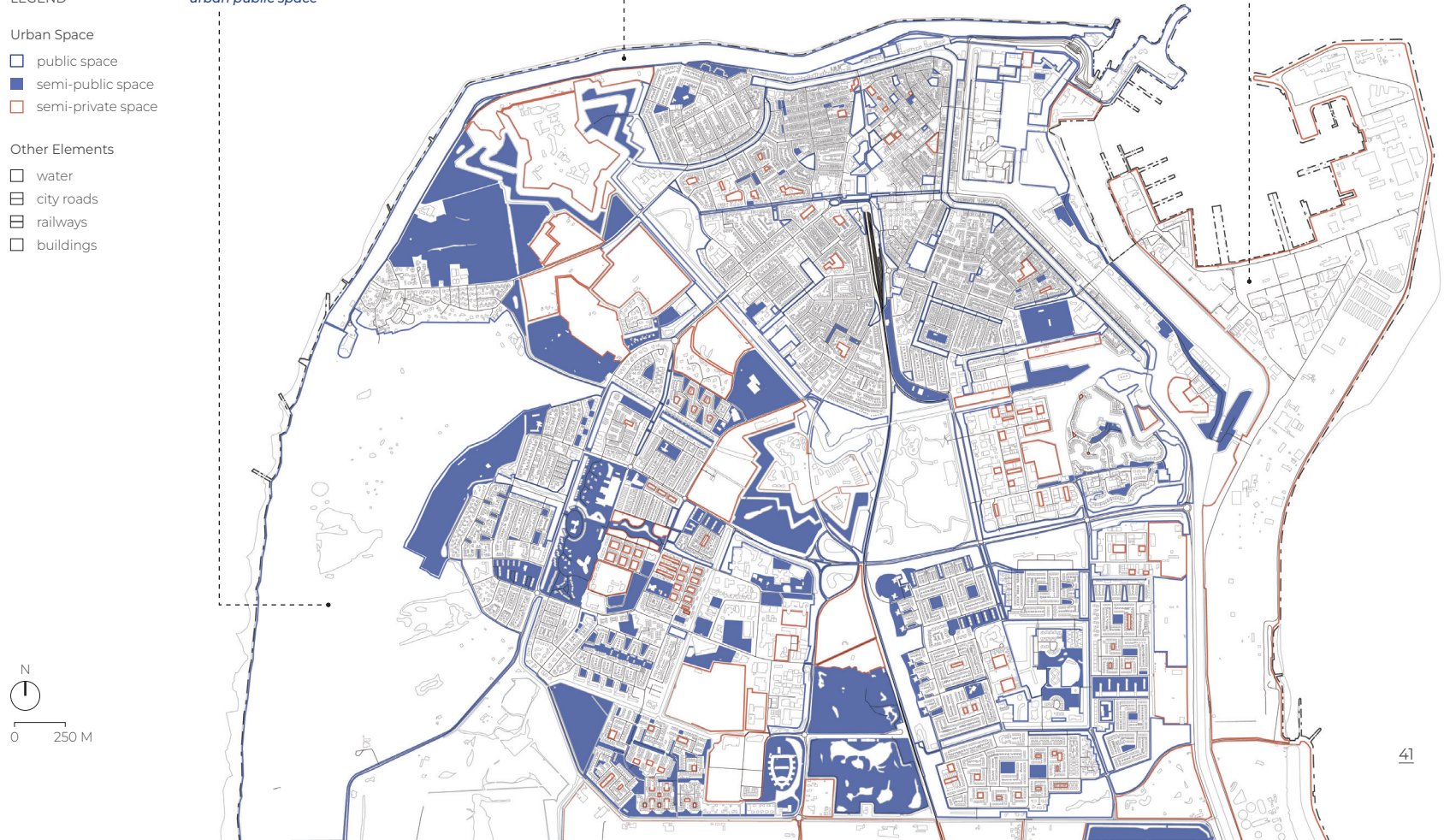
PARTLY ACCESSIBLE
urban public space

Dike

TOTALLY ACCESSIBLE
urban public space

Military & Industry Lands

NOT ACCESSIBLE
urban semi-private space



1.2.2 PHYSICAL EXPRESSION OF MEMORY

01 MEMORY PLACE

Fig 1-13. A mapping of the memory place in Den Helder during six phases of city history, made by Borui Xiong and adapted by author. (data source: TracesOfWar.nl)

Memory is not just an abstract concept, it is also deeply tied to physical places and spaces. The places we inhabit, the streets we walk, and the buildings we enter all have the potential to become memory places. These physical locations hold significant historical, cultural, or personal meaning for individuals or groups, and serve as sites for memorialization, commemoration, and reflection.

One type of memory place is the monument or memorial. These physical structures serve as tangible reminders of important events or people and are designed to evoke emotions and memories in those who view them. They often feature inscriptions or symbols that communicate a particular message or meaning, and can serve as a focal point for public gatherings or ceremonies. Another type of memory place is the museum or archive. These institutions are specifically designed to collect, preserve, and display artifacts and documents related to the past. They provide a physical space for people to learn about and engage with history, and can help to create a shared sense of identity and understanding within a community.

Memory places can also be more personal, such as the childhood home of a beloved family member or a favorite park where important moments were shared with loved

ones. These places hold a special significance for individuals and can serve as a source of comfort or inspiration throughout their lives. Finally, public spaces themselves can become memory places through their association with important events or movements. For example, a city park that was the site of a significant protest or demonstration can come to represent that moment in history and hold a special place in the memory of those who participated. Overall, the physicality of memory places is a crucial aspect of our relationship to the past. These places serve as tangible links to our shared history and help to shape our understanding of ourselves and our communities.

Den Helder is a prime example of this relationship between memory and its physicality, with a history that can be traced through its natural, cultural, and industrial memory sites.

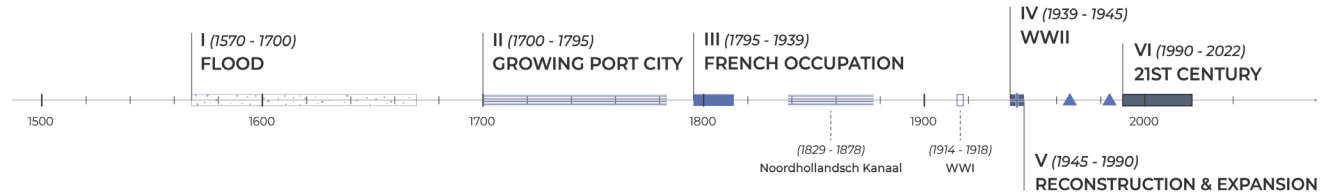
In the first phase, the village was hit hard by the All Saints Flood of 1570, which caused the disappearance of many houses and the destruction of the diked seepage between Helder and HUISDUINEN. The DUNES, which formed from the remains of the old Wadden island Huisduinen, were also affected.

In phase II, the city decided to convert the channel to the east of Helder, the NIEUWEDIJEP, into a harbor by deepening

it. In phase III, after the surrender of the Dutch fleet to the French cavalry in 1795, THE DEFENSE LINE DEN HELDER was built, which included a retranchement (RING OF FORTS) around Den Helder and its harbors. The navy remained in Den Helder after the departure of the French in 1814, which led to the development of the port into its most important base. The construction of LANGE JAAP LIGHTHOUSE with lamps in 1822 and the canal that connected the village with the NOORDHOLLANDSCH KANAAL in 1829 also had a significant impact on the physicality of the area. Phase IV marked a significant decline for Den Helder as large parts of the city were abandoned and many buildings were demolished due to the construction of THE ATLANTIC WALL. In phase V, reconstruction began, and the Oude Helder became a residential area with contemporary architecture. Finally, in phase VI, plans were made to renovate the city center to make it more lively. The physicality of Den Helder's history is clearly evident in the changes to the land, the construction of RIJKSWERF WILLEMSOORD and NAVY MUSEUM, and the demolition and reconstruction of residential buildings.

MEMORY PLACE

in Den Helder
during six phases



LEGEND

Phase I (1570 - 1700)

- nature (sea & dune)
- cemetery & shipyard

Phase II (1700 - 1795)

- ▨ harbour

Phase III (1795 - 1939)

- fortress
- lighthouse & water tower
- port building

Phase IV (1939 - 1945)

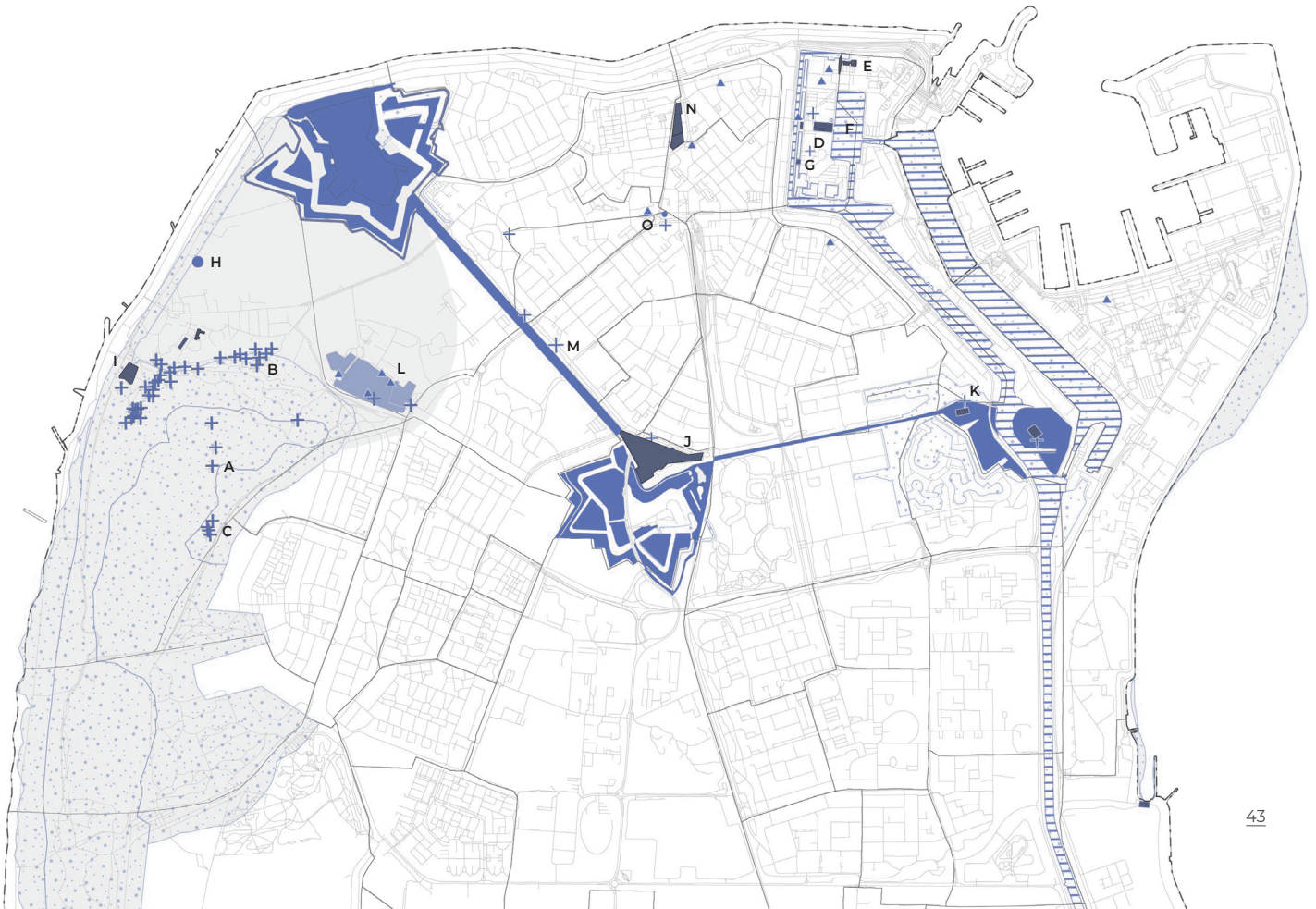
- + Atlantic Wall bunker
- WWII construction

Phase V (1945 - 1990)

- ▲ post-war monument

Phase VI (1990 - 2022)

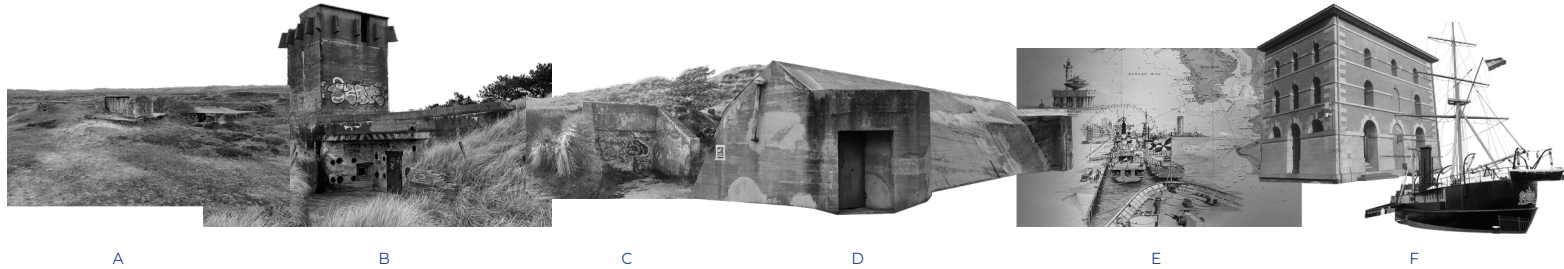
- museum & memorial park



1.2.2 PHYSICAL EXPRESSION OF MEMORY

02 TYPOLOGY OF MEMORY'S PHYSICALITY

Fig 1-14. Series of collages and images of different memory's physicalities in Den Helder, which shows the type and materiality of the physicalities and the atmosphere of the memory places. The outlines show the plan pattern of the physical expression of memory.



A

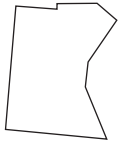
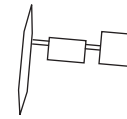
B

C

D

E

F



BUNKER 1

BUNKER 2

BUNKER 3

GERMAN
BUNKER

NAVY
MUSEUM

WILLEMSOORD
DOCK



scattered ruins
bunker & dune

scattered ruins
bunker & dune

scattered ruins
bunker & dune

contrast exhibition
bunker

collective exhibition
historic objects
(painting & model)

repurposing & remained
catering & shipyard
(ship & old building)





SHIP
WRECK



contrast exhibition
ship wreck



LANGE JAAP
LIGHTHOUSE



solitary landmark
lighthouse



FORT KIJKDUIN
MUSEUM



repurposing exhibition
building & facility



FORT DIRKSZ ADMIRAAL



remained ruins
bunker & remnant



FORT
WESTOEVER



repurposing farmland
bunker & topography



CEMETERY



collective & personal
commemoration
gravestone (text)



BEELDENFORT
MUSEUM



repurposing
exhibition & installation
sculpture



COMMUNITY
PARK



scattered installation
stone (text) & **BENCH**



NAVAL
MONUMENT



centralized installation
monument (text)



1.2.3 CLASSIFICATION OF MEMORIAL PLACES

*Refer to Wikipedia,
adapted and extended by
the author.*

A "memory place" is either spontaneously or intentionally designed to serve as a system for retaining or reorganizing fragments of memory. A "memorial place", on the other hand, is specifically designed as a system for retaining or reorganizing fragments of memory in order to provide ongoing care for the deceased and offer comfort to the bereaved. Broadly speaking, a "memory place" can include a "memorial place", which is a type of memory place that focuses more on the emotional and symbolic aspects of a memorial, and aims to bridge the gap between the spaces of life and death, as well as support the preservation and creation of memories.

In other words, a "memory place" can be classified and further categorized into four types of "memorial places", including "defined memorial places", "partly defined memorial places", "undefined memorial places", and "potential memorial places". (as perceived in Den Helder).

In these memorial places of Den Helder, there are various physical expressions of memory, which can be categorized into four main types: remnants, monuments, buildings, and landscapes. These physical expressions of memory can appear in a single type in a given memorial place, or they can be a combination of two or more types. For example, the memorial place in

the dune area features a combination of memorial remnants and monuments in the form of solid constructions, as well as a memorial landscape consisting of the surrounding dune scenery.

Here are some examples of the different types of physical expressions of memory:

1. MEMORIAL REMNANTS + MONUMENTS:

Solid constructions that serve as tangible reminders of the past, such as ruins, walls, or fragments of buildings.

2. MEMORIAL BUILDINGS:

Solid functional blocks that are built with the intention of serving as a permanent reminder of an event or person, such as a museum or memorial center.

3. MEMORIAL LANDSCAPES:

Spatial scenery that serves as a reminder of a past event or person, such as a natural area or a designed garden.

In order to enhance the monumental identity of the city, there is currently a conscious effort being made in Den Helder to preserve historical remains and build new monuments or memorial areas. As a result, an unprogrammed memorial network has emerged in the city, which includes two recognized memorial routes and three unprogrammed memorial routes.

The two recognized memorial routes in Den Helder are:

1. THE DEFENSE LINE: The 'Stelling of Den Helder' is one of the oldest military defensive lines in the Netherlands, commissioned by Napoleon to protect the navy base at Willemsoord. The 'stelling' has played a significant role in shaping the landscape and identity of Den Helder, and is an important part of the city's authenticity.

2. THE WILLEMSOORD COMPLEX: The unique Willemsoord complex, which used to be the shipyard and maintenance yard for the Royal Netherlands Navy, has been beautifully restored over the years and is gradually developing into an open city district. This complex is a magnificent cultural heritage site that adds to the city's monumental identity.

In general, the efforts to enhance the monumental identity of Den Helder by preserving historical remains and building new monuments or memorial areas lack planning and have resulted in the emergence of an unprogrammed memorial network.

MEMORIAL PLACE

Classification of Four Basic Types of the Memorial Place in Den Helder

Fig 1-15. Several Images of four different types of memorial places (defined memorial places, partly defined memorial places, undefined memorial places, and potential memorial places) in Den Helder.

LEGEND

- ▲ defined memorial place
- defined memorial place
- + partly defined memorial place
- partly defined memorial place
- + undefined memorial place
- undefined memorial place
- undefined memorial place
- ▨ potential memorial place

1 "Defined Memorial Place"



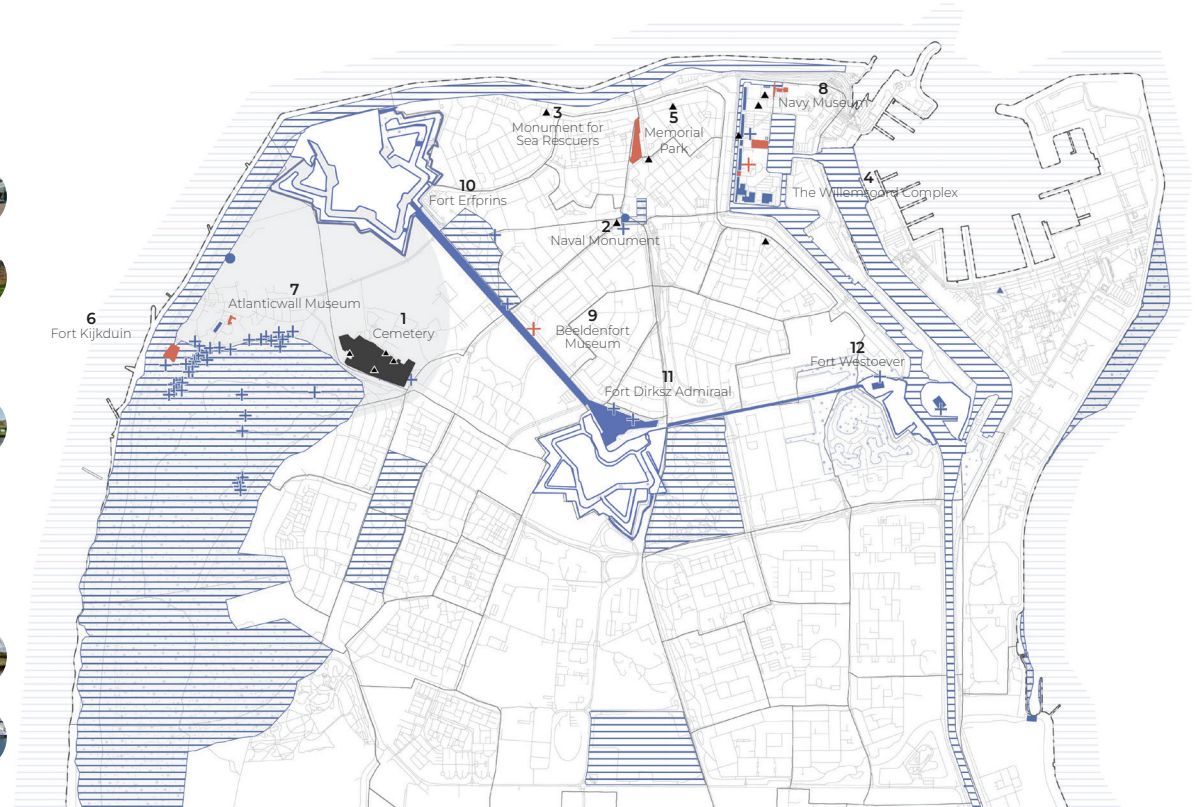
2 "Partly Defined Memorial Place"



3 "Undefined Memorial Place"



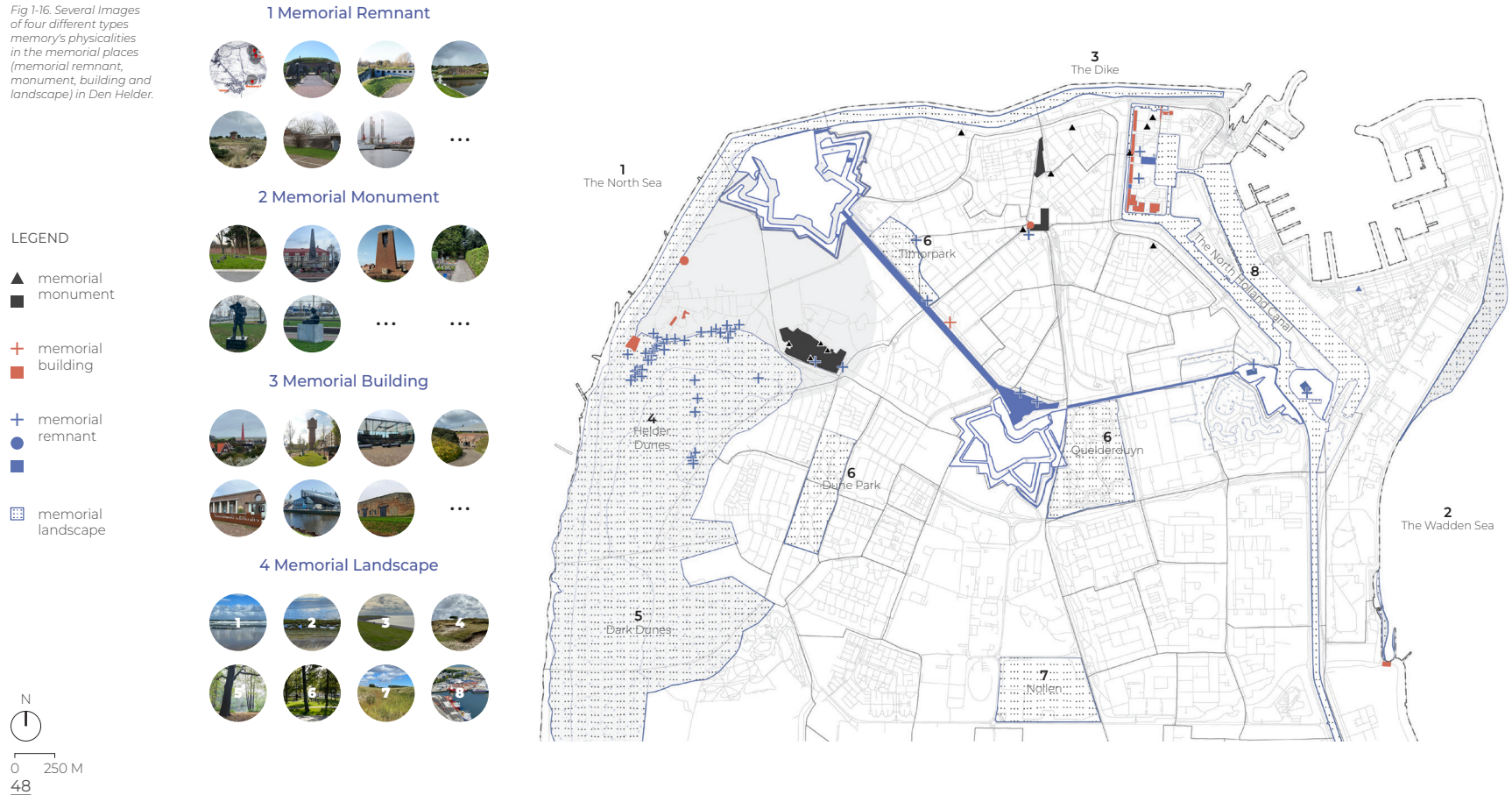
4 "Potential Memorial Place"



MEMORIAL PLACE

Classification of Different Types of Memory's Physicality of the Memorial Place in Den Helder

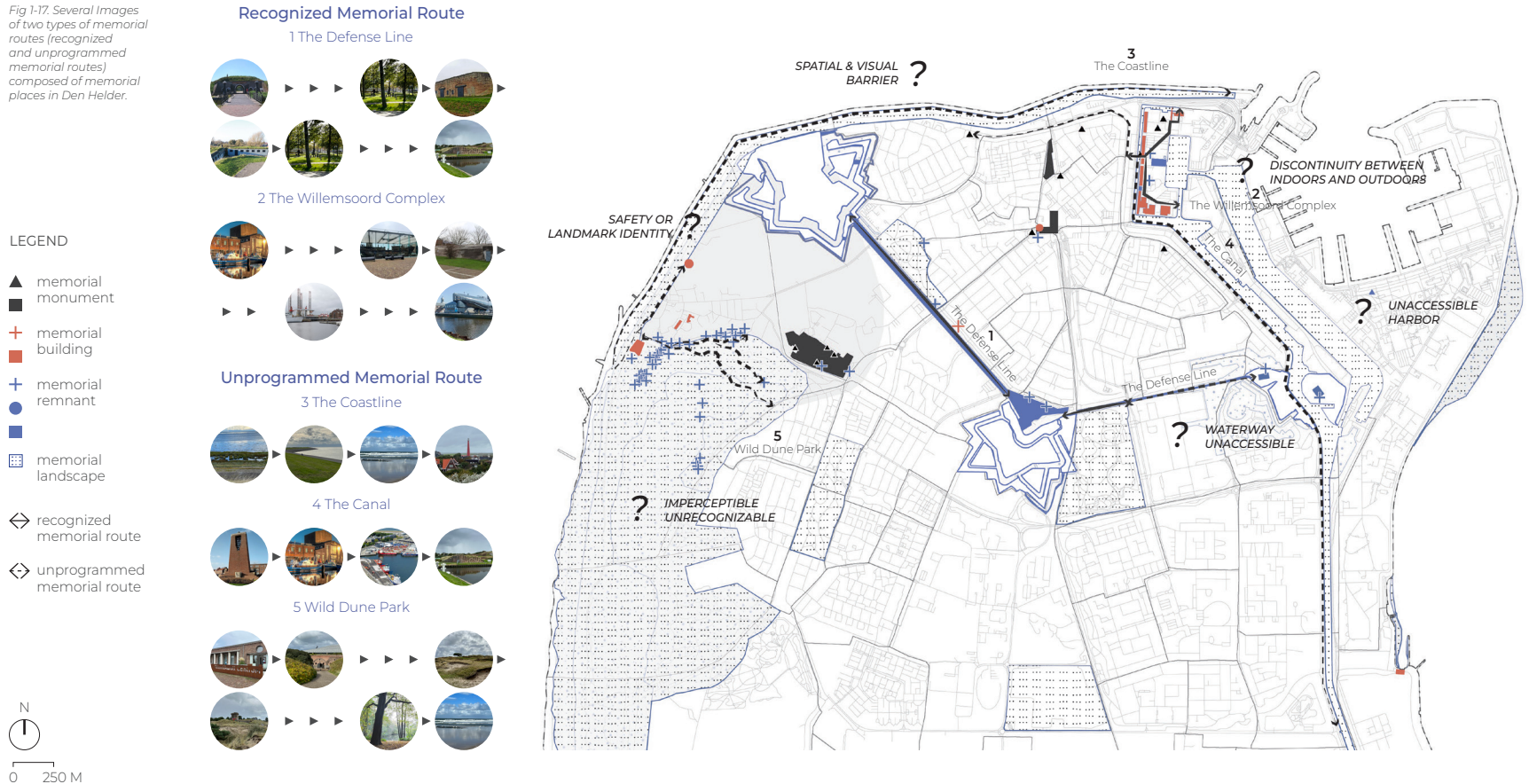
Fig 1-16. Several Images of four different types memory's physicalities in the memorial places (memorial remnant, monument, building and landscape) in Den Helder.



MEMORIAL NETWORK

Current Situation of the Recognized and Unprogrammed Memorial Routes in Den Helder

Fig 1-17. Several Images of two types of memorial routes (recognized and unprogrammed memorial routes) composed of memorial places in Den Helder.



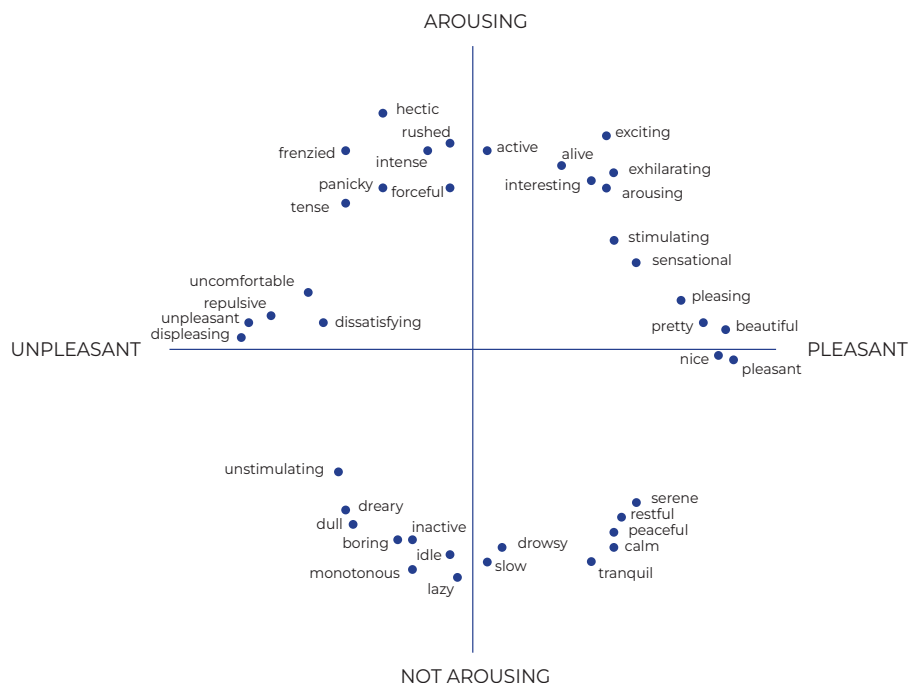
1.3 PEOPLE AND/IN SPACE

1.3.1 ENVIRONMENTAL PSYCHOLOGY

Fig 1-18. Example of an environmental psychology model with two axes that shows various adjectives to indicate the level of pleasure (X-axis) and arousal (Y-axis), by Russell and Lanius, 1984.

The environmental psychology method of Mehrabian and Russell (1974) is a widely used approach to assess and describe environmental experiences. This method employs three emotional dimensions - pleasure, arousal, and dominance - to characterize human perceptions of physical environments.

Despite being a popular method for several decades, debates have persisted among psychologists, including Russell (1980), Russell and Pratt (1980), Russell et al. (1981), Russell and Lanius (1984), Russell et al. (1989), Russell and Carroll (1999), Russell and James (2003), and Zajonc and Markus (1984), regarding the precise interpretation of these dimensions in relation to cognition and affect, as well as the role of dominance. Although Yani-de-Soriano and Foxall (2006) demonstrate that dominance is a valid environmental descriptor on par with pleasure and arousal, many studies have overlooked or entirely ignored dominance (Russell 1980; Russell et al. 1981; Chebat and Michon 2003; Mattila and Wirtz 2006; Kuppens 2008). These studies use models with two axes, with pleasure and arousal on the horizontal and vertical dimensions, respectively. The literature also shows a broad range of adjectives used to operationalize pleasure and arousal.



INTERPERSONAL DISTANCE 1.3.2

"THIRD EMOTIONAL SPACE"

Fig 1-19. Edward T. Hall's personal reaction bubbles, showing radius in feet and meters, 1966.

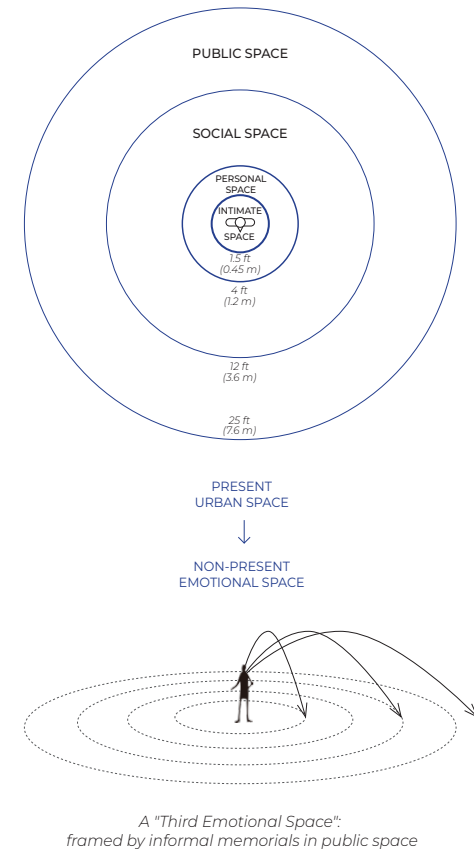
Fig 1-20. The flexible dimension of the "Third Emotional Space", which can present in intimate, personal, social and public space, by author.

The distance surrounding a person forms a space. The space within intimate distance and personal distance is called personal space. The space within social distance and out of personal distance is called social space, and the space within public distance is called public space. (Edward T. Hall, 1966) Personal space is the region surrounding a person which they regard as psychologically theirs. Most people value their personal space and feel discomfort, anger, or anxiety when their personal space is encroached. Permitting a person to enter personal space and entering somebody else's personal space are indicators of perception of those people's relationship. An intimate zone is reserved for close friends, lovers, children and close family members. Another zone is used for conversations with friends, to chat with associates, and in group discussions. A further zone is reserved for strangers, newly formed groups, and new acquaintances. A fourth zone is used for speeches, lectures, and theater; essentially, public distance is that range reserved for larger audiences. Edward T. Hall divided human interpersonal distance (relative distance between individuals) into four different zones.

The practices related to absence-presence are intersecting with the increasing trend of commemorating private grief and remembrance of individuals in public spaces

through the establishment of informal memorials. These memorials create a "Third Emotional Space" for the bereaved, which serves as a frame for embodied-emotional and performative remembrance that mediates between absence and presence, and other related dichotomies. (Avril Maddrell, 2016)

Avril Maddrell's contemporaneous study of memorial benches in a coastal setting has highlighted the "discursive location of a loved one in an ideal setting," which is rooted in a sense of home and belonging. Memorial benches offer an emotional space for the bereaved, providing a continuum of relationship between the bereaved and the deceased, ranging from remembrance, a sense of continuing bonds, and spiritualist beliefs. Moreover, Maddrell argues that informal memorials in public spaces can be seen as constituting a liminal "Third Emotional Space" that affords a public mapping of private emotion. This space facilitates the ongoing negotiation of absence-presence in the medium term, mediating between private and public, domestic and institutionalized spaces of memorialization, different notions of the sacred, sad and happy memories, and between absence and presence. Compared with the theory of Interpersonal Distance, the "Third Emotional Space" is out of all the four spaces.



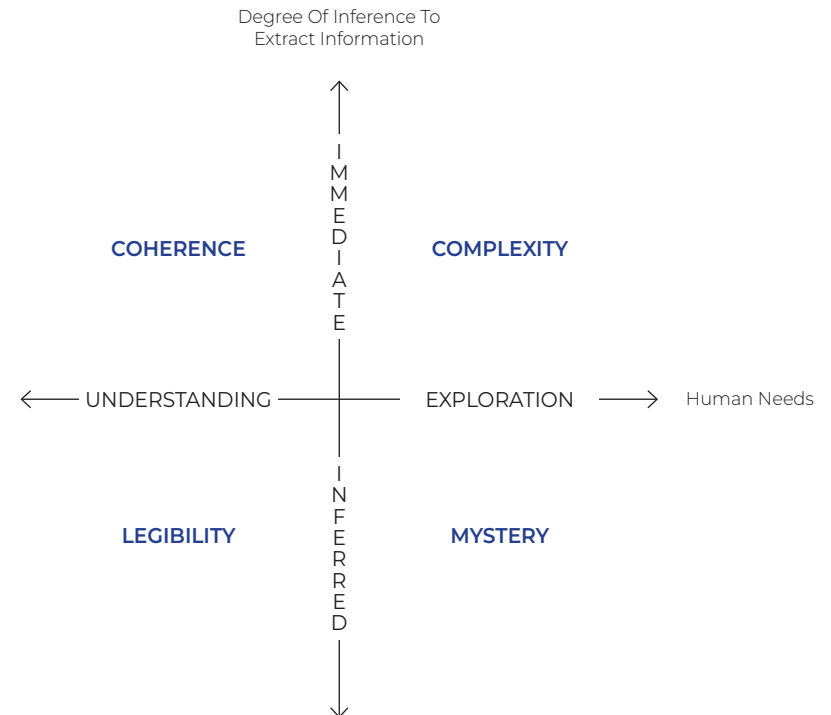
1.3.3 COHERENCE, COMPLEXITY, LEGIBILITY AND MYSTERY

Fig 1-21. The preference matrix of the four different experience: coherence, complexity, legibility and mystery, by Rachel Kaplan and Stephen Kaplan, 2005.

Understanding and exploration form one axis of the matrix. Understanding refers to the cognitive process of making sense of something, which can be attained through formal education or direct experience. For instance, when individuals visit a new town or building without any maps or directions, it can be overwhelming, but they may use certain cues to familiarize themselves with their surroundings. On the other hand, exploration refers to the innate human drive to seek out new experiences and insights about the environment.

The second dimension of the matrix is the degree of inference required to evaluate a situation. Some aspects of the environment are subject to quick and intuitive judgments, whereas others necessitate more comprehensive and rigorous analysis. A proficient storyteller can evoke a sense of anticipation and adventure while also assuaging any concerns about safety.

Even places that are familiar to individuals can continue to inspire exploration and present new opportunities for discovery. Places to which individuals feel strongly attached can provide comfort and intimacy, while also offering new avenues for further investigation and understanding.



SOCIO-CULTURAL IDENTITY OF PLACE 1.3.4

Fig 1-22. The diagrams of policy directions to foster an urban sense of place (or place making), by John Montgomery, 1998.

Fig 1-23. Two diagrams show the relations between activity, image and form in perceived benchscape and conceived benchscape, by author.

The principles of place making provide a comprehensive model that combines all the critical elements of a good place.

ACTIVITY

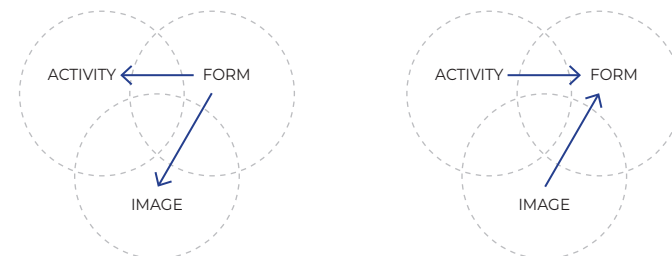
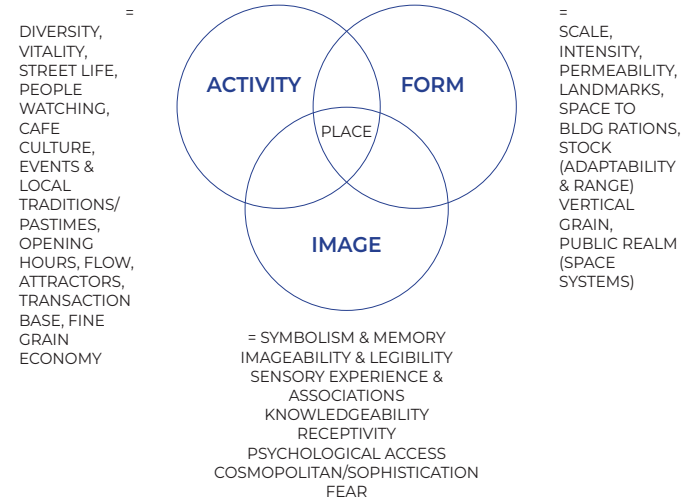
Urban vitality comes from a combination of vitality and diversity. Vitality refers to the liveliness of a place, while diversity involves a mix of land uses, businesses, opening hours, street markets, cultural and meeting places, unit sizes, innovative architecture, and an active street life.

IMAGE

The identity and image of a place are not the same. Identity refers to the objective characteristics of a place, while image is a combination of how a place is perceived and its identity. A city's legibility affects the knowledge one gains about it, with paths and landmarks playing different roles. Space, as well as buildings, can take on symbolic meaning and is therefore of cultural importance.

FORM

Lynch and Alexander wrote about qualities that urban design should aim for to create a sense of place. Lynch identified five dimensions of city performance: vitality, sense, fit, access, and control. Urban places should allow for a degree of uncertainty, disorder, and chaos while being built up along certain principles. The physical form of the city should allow for organic growth and development.



"PERCEIVED BENSCHCAPE"

"CONCEIVED BENSCHCAPE"

02

**MEMORY, BENCH,
BENCHSCAPE**

2.1 FROM BENCH TO BENCHSCAPE

2.1.1 WHAT IS A BENCH?

Fig 2-1. Series of diagrams of different types of formal and informal benches.

Fig 2-2. Images of a formal bench on the dike of Den Helder and an informal bench near Rotterdam Blaak Station.

A bench is a long seat, usually made of wood or metal, with a backrest and sometimes armrests. It is designed to accommodate two or more people and is often found in public places like parks, gardens, and city streets. Benches can also be used in private settings, such as in a backyard or on a patio. They can be decorative or functional, and are often used for sitting and resting, as well as for socializing and enjoying the outdoors. Benches come in a variety of sizes, styles, and materials, and can be customized to suit different needs and preferences.

A bench is not merely a common, unremarkable, and utilitarian piece of street furniture found in urban public spaces. It is also capable of serving as an informal living memorial, blending into the surrounding landscape as a witness or participant in both city and personal memory.

In terms of the configuration of the benches, they can be divided into the following two basic types of benches - formal and informal. In the following research, the main focus is on formal benches, located in urban public spaces and subject to municipal management.

FORMAL BENCH

A formal bench is typically defined as a long seat made of wood or metal, with or

without a backrest and arms, designed to accommodate more than one person. It is a standardized piece of furniture that is commonly found in public spaces such as parks, plazas, and gardens.

Formal benches are typically designed with a specific aesthetic in mind, and they may feature ornamental details such as carved wood or decorative metalwork.

INFORMAL BENCH

On the other hand, an informal bench is a type of furniture that is characterized by its unconventional size, form, and material. Rather than conforming to standard dimensions and design conventions, an informal bench is often created with the intention of providing seating for more than one person in a unique and creative way. Examples of informal benches might include rocks arranged in a garden to create a seating area, or tree stumps that have been cut and shaped to provide a place to sit.

01 FORMAL BENCH



+backrest+armrests

+backrest

+armrests

02 INFORMAL BENCH



garden rocks

tree stumps

sitting wall



Fig 2-1



Fig 2-2

2.1.2 BENCH & MEMORY: FRAMED, FRAME, FRAMING

Fig 2-3. A bench on the dike facing the North Sea in Den Helder.

Fig 2-4. Another bench in Fort Dirksz Admiraal facing the stunning and open lake view.

Fig 2-5. A bench with graffiti in Kijkduin in Den Haag.

“Benches are a key player in these landscapes.”



Fig 2-3

“Benches are perspective-sharers.”



Fig 2-4

“Benches have their own life story.”



Fig 2-5

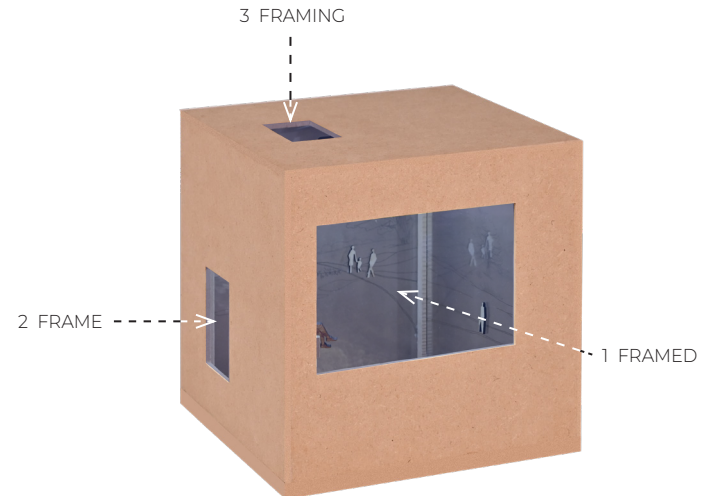
Fig 2-6. The box model with three perspectives, which conceptualizes "FRAMED, FRAME, FRAMING" perception. The scenario is located in the dune area of Den Helder, by author, in the TU Delft Workshop of "one model, one section".

FRAMED: Benches can be seen as more than just a piece of furniture - they are a key player in the landscapes that surround them. The bench and its surroundings, including the landscape and human interaction, are framed by people as they observe or capture it through their eyes or cameras.

FRAME: Furthermore, benches can act as perspective-sharers by offering a unique vantage point for those who sit on them. Whether it be a scenic view or a bustling cityscape, a bench can frame the environment in a way that allows people to better appreciate and understand their surroundings.

FRAMEING: Lastly, benches have their own life story - they are framing some unique characteristics inside, such as inscriptions, graffiti, engravings, or other traces. In this way, benches become more than just a place to sit - they are a reflection of the people who have used them and the stories they have to tell.

Whether it is a bench on a busy street corner or a quiet park, each one has its own unique story to be discovered and shared. By "FRAMED, FRAME, FRAMING", we can gain a deeper understanding and appreciation for the role they play in our lives and the cultural landscape around us.



2.1.3 PERCEIVED BENCHSCAPE

Fig 2-7. Three main components of benchscape perceived by users in reality, including "FRAMED, FRAME AND FRAMING".

Fig 2-8. The three images of the conceptual model show the view from the three different perspectives of the box (Fig. 2-4), which explain the three dimensions of perceived benchscape, by author and group of model workshop.

The benchscape perceived by users can be integrated into the perception of the three dimensions of "FRAMED, FRAME, FRAMING", which help users gain a deeper understanding and appreciation for the role of benchscape play in our lives and the cultural landscape around us.

1. FRAMED:

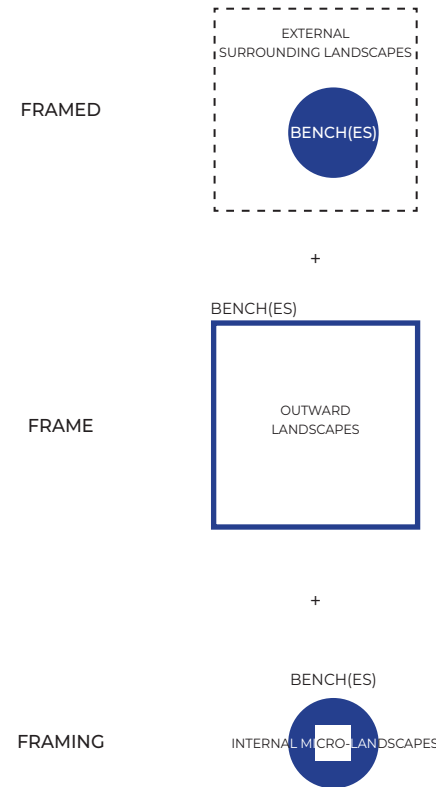
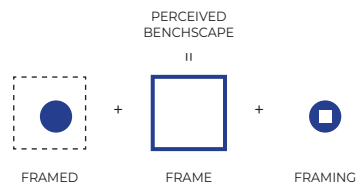
One or multiple benches with its or their external surrounding landscapes (landscape and human interaction) framed by people's cameras or eyes;

2. FRAME:

A bench as a frame to frame a view-led outward landscape, including visual, auditory and olfactory landscapes;

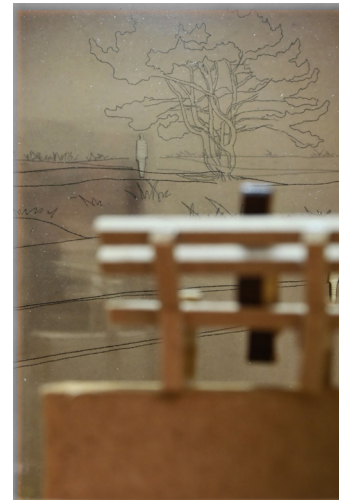
3. FRAMING:

A bench itself framing the internal micro-landscapes, e.g. gravings, inscriptions, graffiti and other traces of human and non-human.





1 FRAMED



2 FRAME



3 FRAMING

2.1.4 CONCEIVED BENCHSCAPE

Fig 2-9. Three dimensions of benchscape conceived by designers, including "URBAN PUBLIC SPACE, PHYSICAL QUALITY AND EXPERIENTIAL QUALITY".

Fig 2-10. The series of sketches of the location and its surface of the same bench in the dune area and its surroundings, as well as the configuration, arrangement and orientation of the bench. A section shows the atmosphere and provided view with some user interactions and thoughts. (see more research in "SITE-SPECIFIC BENCH CATALOGUE OF DEN HELDER")

Different from a perceived benchscape, a conceived benchscape is highly related to its location - an urban public space, where the designer supposes to place the benches. Besides, its physical and experiential qualities also need to be considered.

1. URBAN PUBLIC SPACE:

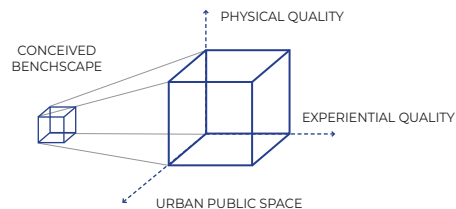
The location and space surface of a bench or benches and the surroundings, which related to user groups, and the social and spatial quality of the space;

2. PHYSICAL QUALITY:

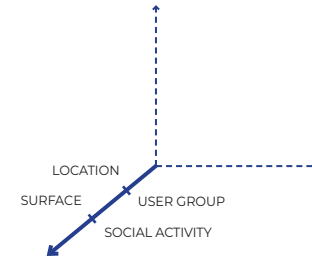
The configuration, arrangement and orientation of a bench or benches;

3. EXPERIENTIAL QUALITY:

The number of people who can sit on the bench at one time as well as the potential body postures and interactions between users and benches, which contribute to the provided view and personal thoughts.

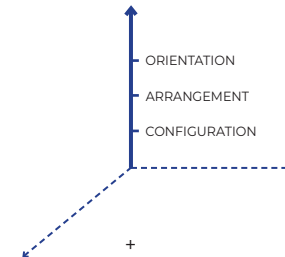


URBAN PUBLIC SPACE



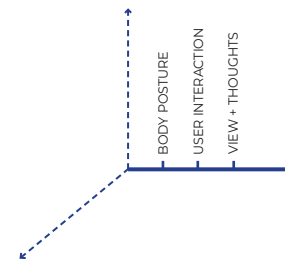
+

PHYSICAL QUALITY



+

EXPERIENTIAL QUALITY



FRAMING



=

FRAMED



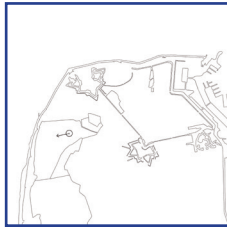
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FRAME



=

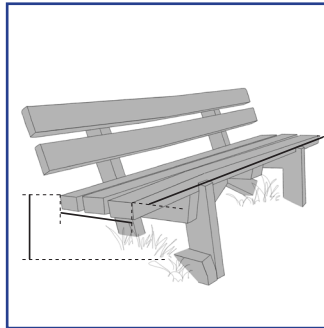
LOCATION



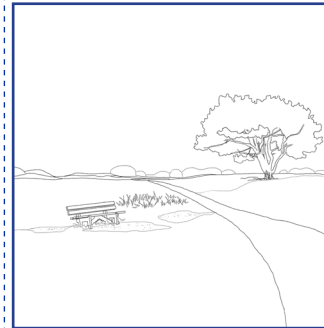
SURFACE



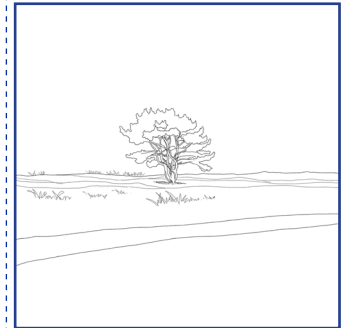
CONFIGURATION



ARRANGEMENT



ORIENTATION



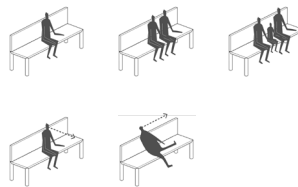
USER GROUP



SOCIAL ACTIVITY



SITTING NUMBER + BODY POSTURE



ATMOSPHERE + USER INTERACTION



VIEW + THOUGHTS



2.2 BENCHSCAPE IN DEN HELDER

2.2.1 BENCH DISTRIBUTION

Fig 2-11. Image of a model of bench distribution and related urban public space in Den Helder, by author and group of model workshop.

LEGEND

- T** bench
- T** memorial bench
- T** urban public space
- outline of urban public space

The presence and distribution of benches in urban public spaces play a crucial role in shaping people's experiences and perceptions of place. As micro-places embedded within larger social environment, such as city parks, cemeteries, or coastlines, benchscapes are deeply site-specific, with their sensory, functional, and symbolic values often contingent upon the properties of the surrounding space. Understanding the configuration and arrangement of benches within specific urban contexts is thus essential for comprehending their social and cultural significance. Moreover, the varied distribution and positioning of benches across different public spaces cater to the diverse needs, preferences, and behaviors of different user groups.

In essence, benches serve as essential elements in creating a sense of community and belonging within the urban landscape. Whether located in a bustling city park or a serene cemetery, benches provide individuals with a space to rest, reflect and engage with their surroundings.

BENCH DISTRIBUTION IN URBAN PUBLIC SPACE OF DEN HELDER

Den Helder is home to numerous benches, ranging from well-designed and well-maintained to worn and forgotten. However, the majority of these benches

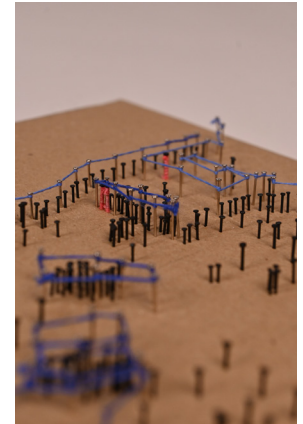
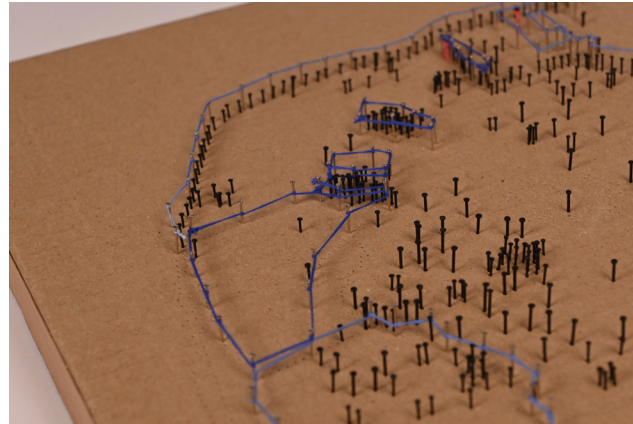
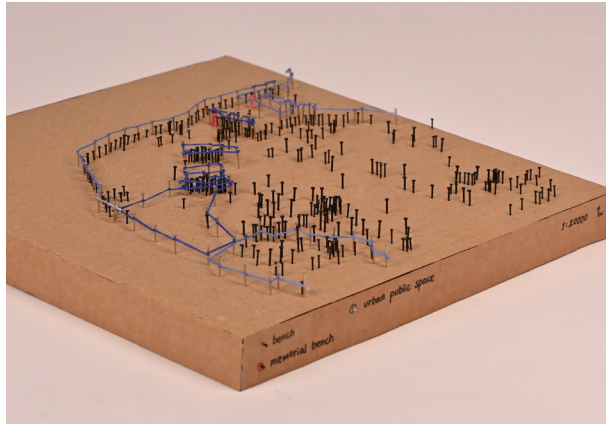
are merely functional urban fixtures, with only two designed as memorial benches. Furthermore, the distribution of benches throughout different urban public spaces varies, potentially creating opportunities for memorialization. For instance, the distance between two benches along the dike is consistently 100 meters, serving as a measurement and potentially invoking a sense of remembrance.

BENCH DISTRIBUTION IN MEMORIAL PLACE OF DEN HELDER

In memorial places such as cemeteries and parks, the physicality of memory is more prominent, requiring a greater number of benches for gatherings. Conversely, linear passages such as the dike and canal require benches as rest points. The relationship between benches and the physicality of memory in these spaces differs; a bench near remnants will serve a different function than one situated in a spatial landscape. Within the city of Den Helder, three memorial benches can be found, one of which is designed as a remembrance bench for a hero, while the other two serve as city identity benches.

In order to comprehensively understand and redesign the benchscape of Den Helder, it is necessary to compile a site-specific bench

catalogue. Such a catalogue would help conclude the bench design toolbox and enable a more intentional exploration of memorialization through bench design.



BENCH DISTRIBUTION

Benches in Urban Public Space
of Den Helder

LEGEND

City Benches

- normal bench
- memorial bench

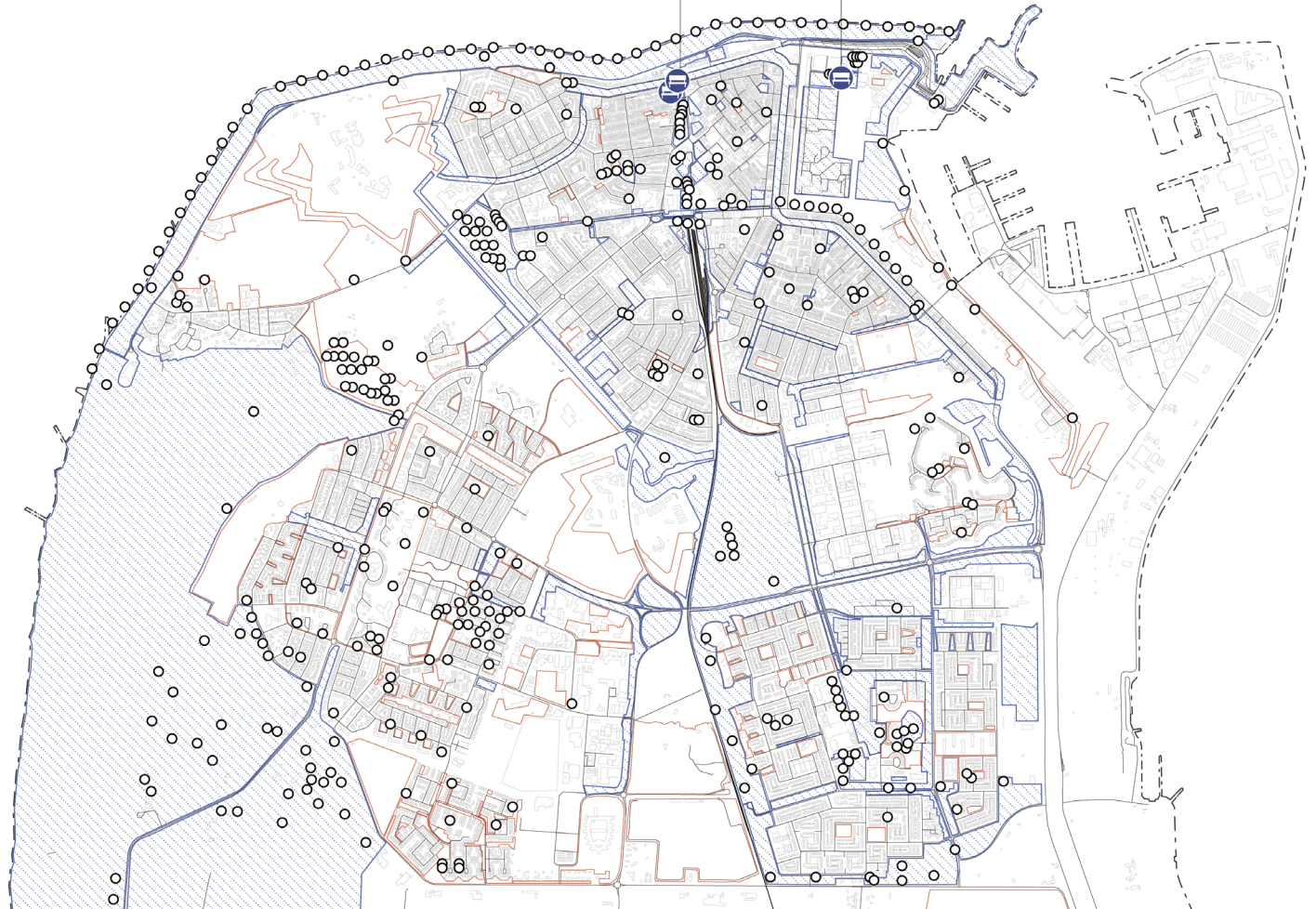
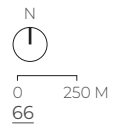
Urban Public Space

- ▨ public space
- ▨ semi-public space

Other Elements

- ▭ city roads
- ▭ railways
- ▭ buildings

- ▭ Remembrance Bench
Johan August de Jongh
WWI (1914-1918)
- ▭ City Identity Bench
(logo of city landmarks)
21st Century



BENCH + MEMORIAL PLACE

The Relations between Bench Distribution and Different Types of Memory's Physicality in the Memorial Place of Den Helder

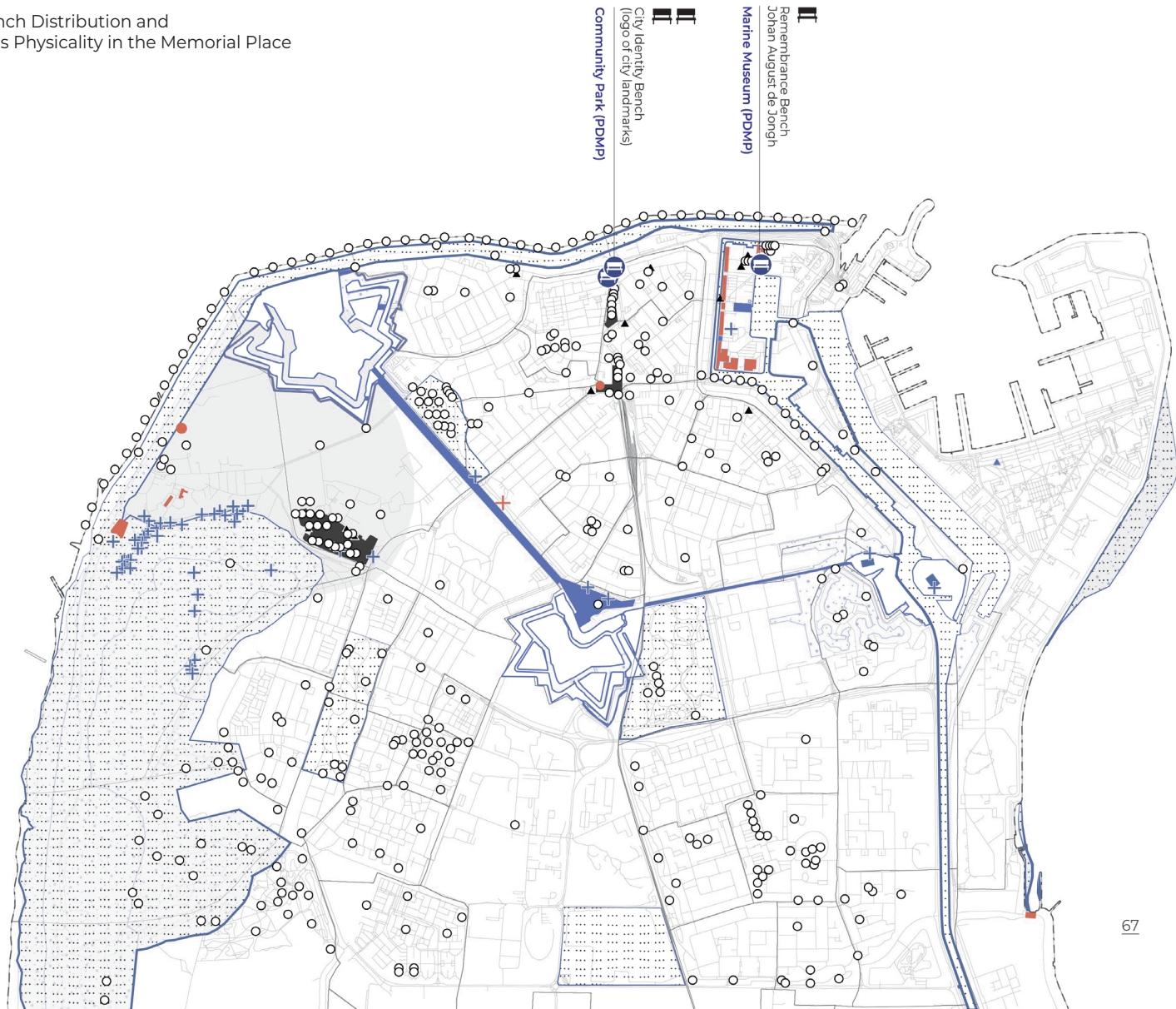
LEGEND

City Benches

- normal bench
- memorial bench

Types of Physical Expression of Memory

- ▲ memorial monument
- memorial building
- + memorial remnant
- memorial remnant
- memorial landscape



TWO MEMORIAL BENCHES

Fig 2-12. A map of the location of the two types of memorial benches in Den Helder.

Fig 2-13. An image (left) of the memorial bench at the end of a community park in Den Helder.

Fig 2-14. An image (right) of the memorial bench at the corner of a parking plaza in Marine Museum Area of Den Helder.

LEGEND

- location of memorial bench

Within the city of Den Helder, there are three memorial benches can be found, one of which serves as a remembrance bench for a hero, while the other two are designed to reflect the city's identity.

MEMORIAL BENCH A

The first two benches are situated at the end of a community park, nestled at the back of the external wall of a churchyard, and next to a city road. The bench is part of the City Identity Benches, consisting of two benches located next to a group of memorial stones that commemorate the Jewish citizens who lost their lives during the Second World War. The City Identity Benches are made of high-quality materials and feature a cut-out steel plate engraved with iconic landmarks of the city. These landmarks include the water tower, lighthouse, ships, and houses near the dike. The benches are designed to promote community engagement and serve as a reminder of the city's cultural heritage and identity.

MEMORIAL BENCH B

The second bench is located in the northeast corner of the Marine Museum parking plaza. This bench, called the Remembrance Bench, is dedicated to Lieutenant Johan August de Jongh of the destroyer HMS Pangrango. De

Jongh lost his life on 4 October 1917 while saving the life of sailor Bartholomew Bleije. The Remembrance Bench serves as a fitting tribute to Lieutenant de Jongh's bravery and heroism.

The Marine Museum is an important cultural landmark in Den Helder and is dedicated to preserving the maritime history of the city. The Remembrance Bench is situated in the heart of the museum area and serves as a poignant reminder of the sacrifices made by brave sailors during times of war.

FOUR-RELATION ANALYSIS MODEL

To analyze the current situation of these two memorial benches in the surrounding landscape, a four-relation analysis model is proposed to assess the connections between different elements of a memorial landscape based on four fundamental aspects: Material Relation, Visual Relation, Functional Relation, and Routing Relation. These aspects take into account the physical and experiential qualities of the landscape, including the physical relation of materials, the visual connection, the function of the space, and the experiential quality of the routing.

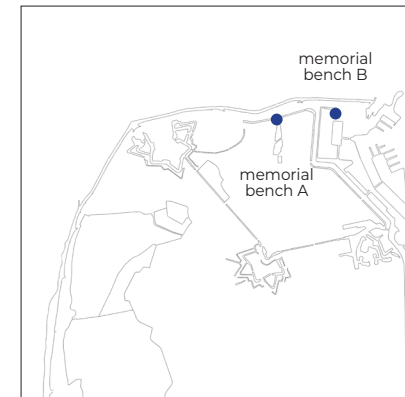




Fig 2-13



Fig 2-14

2.2.2 MEMORIAL BENCH A - CITY IDENTITY BENCH

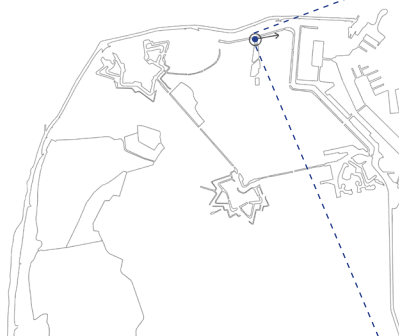
01 CURRENT BENCHSCAPE

Fig 2-15. Series of sketches and images show the urban public space of the memorial bench A placement, and physical & experiential quality of the bench and its surroundings.

LEGEND

- the bench
- other bench
- building
- road
- water
- tree

LOCATION



SURFACE



USER GROUP



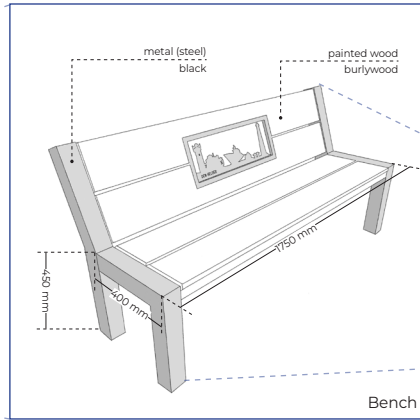
LEVEL OF PUBLIC ENGAGEMENT



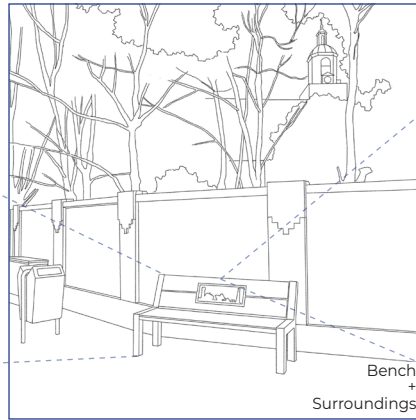
LEVEL OF ACCESSIBILITY



CONFIGURATION



ARRANGEMENT



ORIENTATION



02 WALKING THROUGH THE PARK

Fig 2-16. A map and images of serial vision show the sequence of walking through the community park, including the physical and visual connection.

Time: December 3rd, Saturday, 13:30 pm.

LEGEND

Bench Distribution

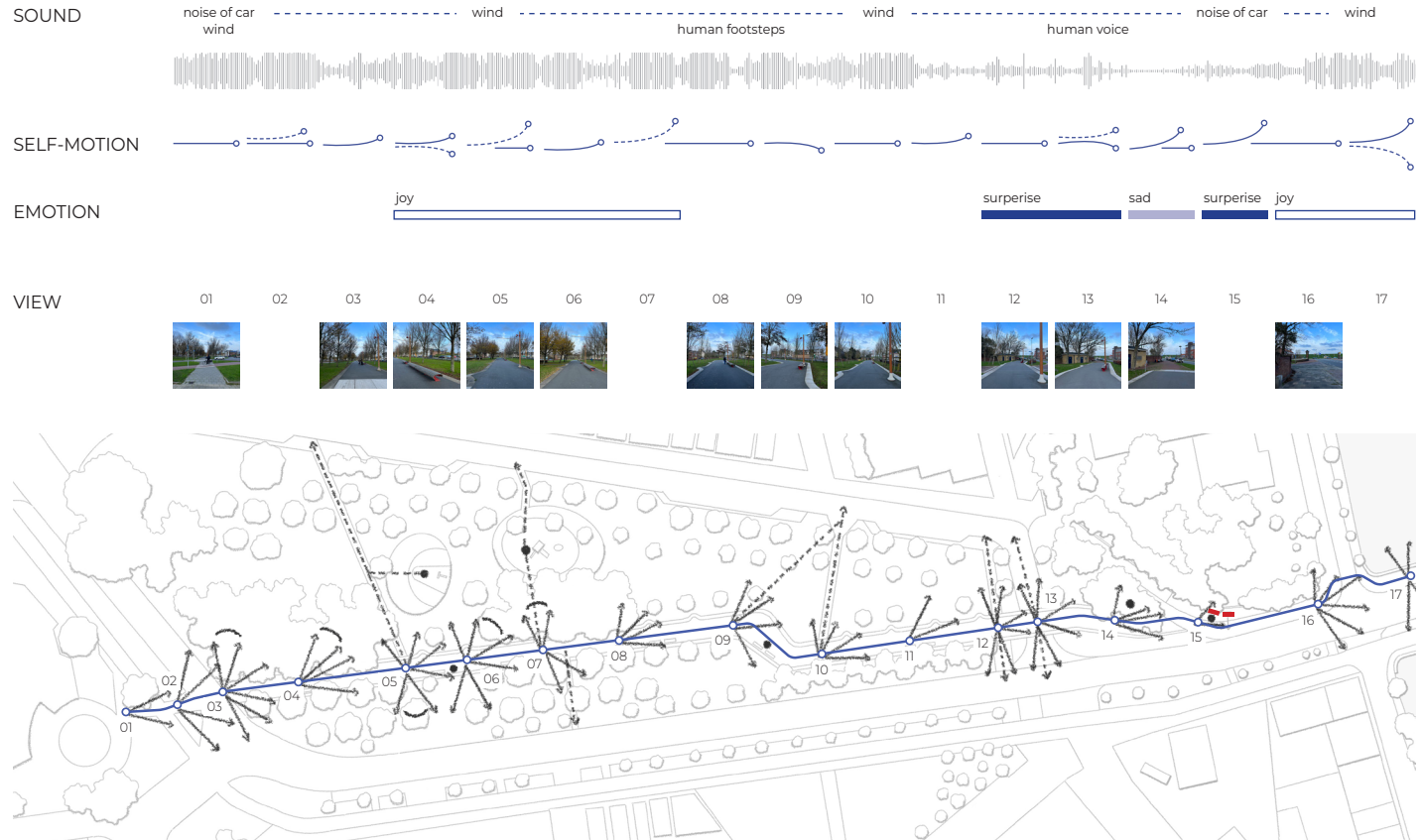
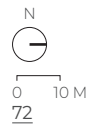
- the bench
- other bench

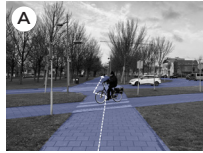
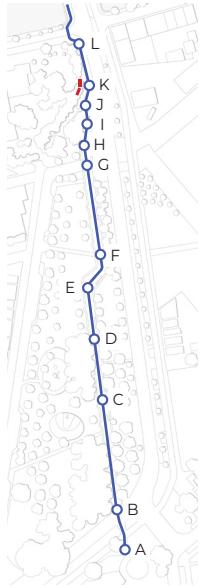
Routing

- ↖ view
- ↗ view of enclosure
- route
- stopping point

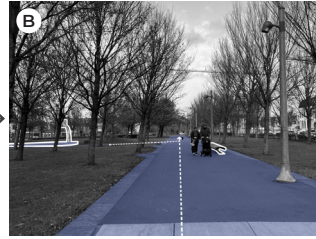
Other Element

- ▭ building
- ▨ road
- water
- tree

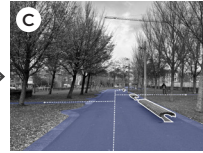




The south entrance of the community park.



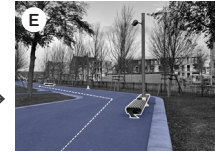
A main linear path and a basketball court.



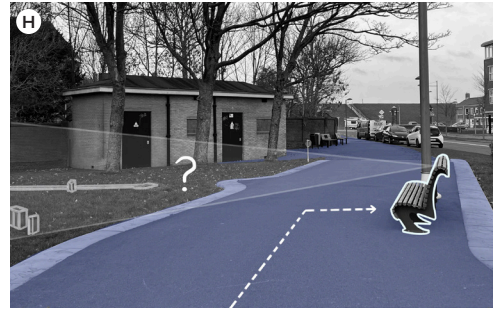
A playground on the left.



One right-hand turn.



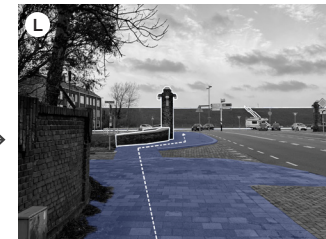
One group of memorial stones on the left-hand.



Two special benches at the corner of a wall.



The two benches are city identity benches. They both have a cut-out steel plate engraved with iconic landmarks of the city, including the water tower, the lighthouse, the ships, and houses near the dike.



One bridge across the canal and the dike.

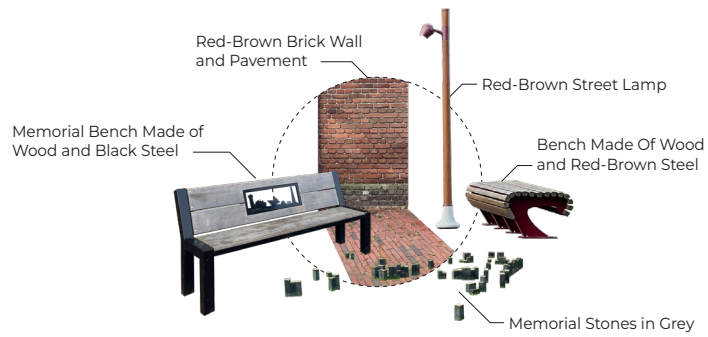
Sitting on the bench and looking at the memorial stones which are in memory of the Jewish fellow citizens who were killed during the Second World War.

These two benches are attractive to newcomers, but the location and atmosphere are not a good choice to stay and commemorate.



03 FOUR-RELATION ANALYSIS

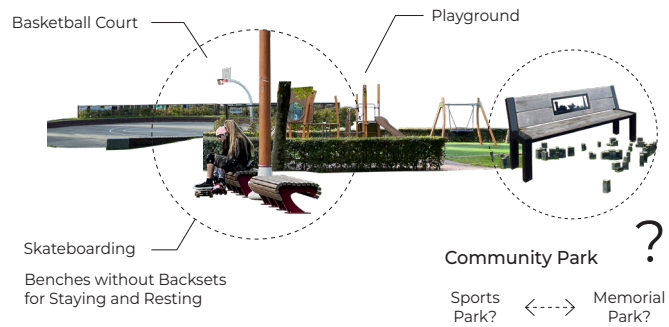
Material Relations



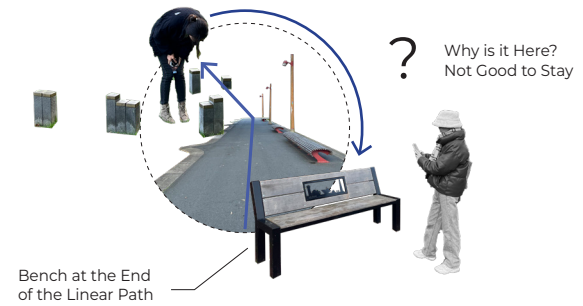
Visual Relations



Functional Relations

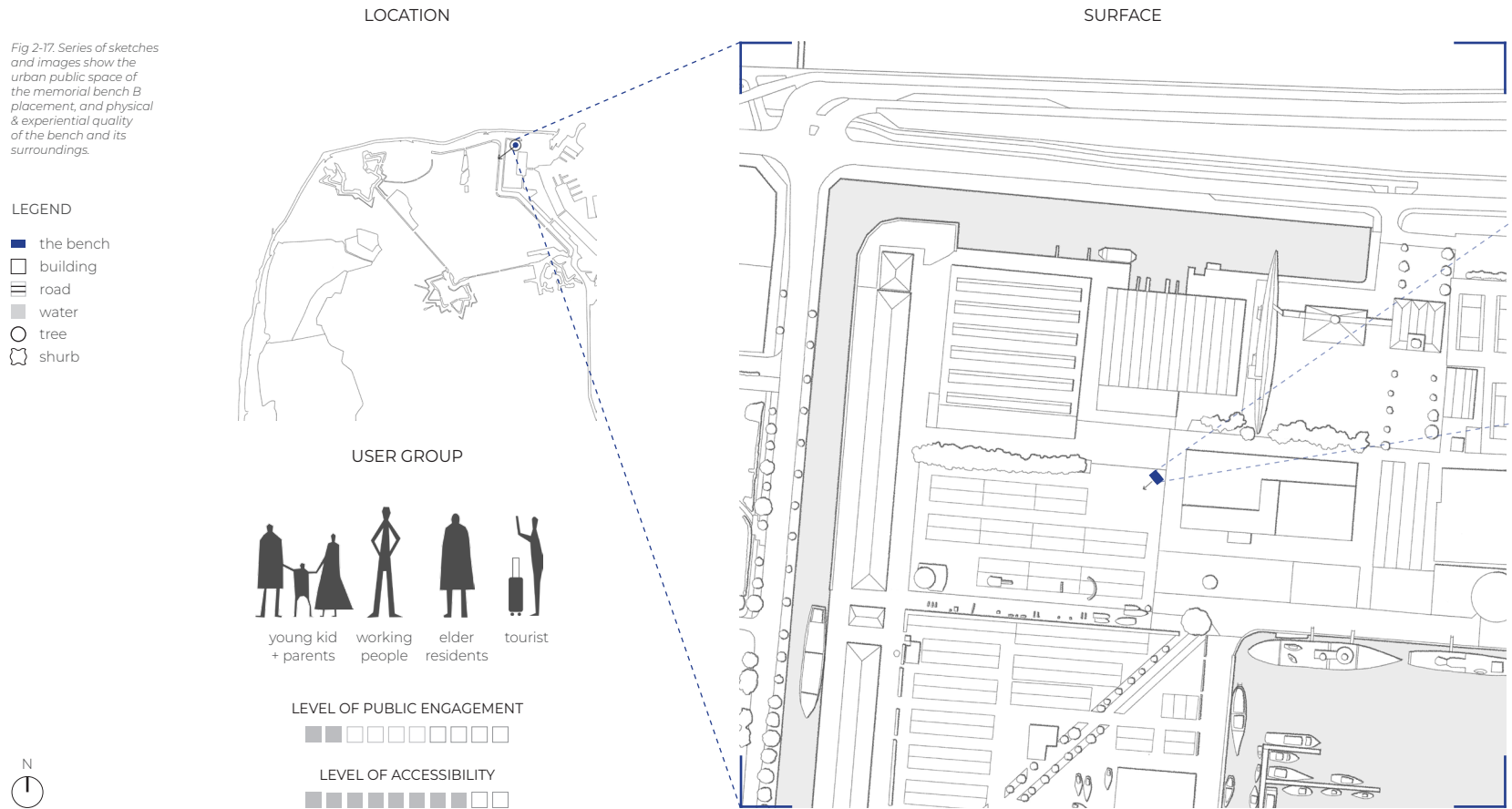


Routing Relations

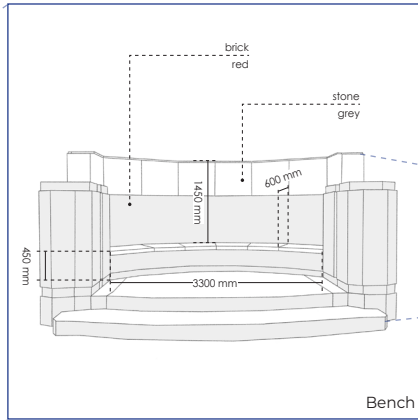


2.2.3 MEMORIAL BENCH B - REMEMBRANCE BENCH

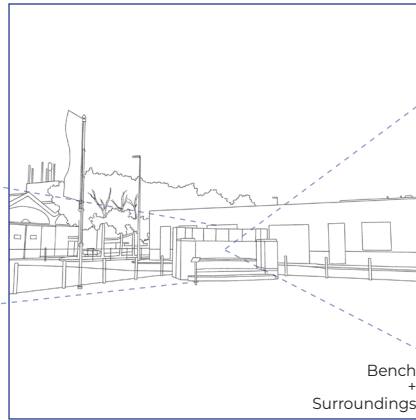
01 CURRENT BENCHSCAPE



CONFIGURATION



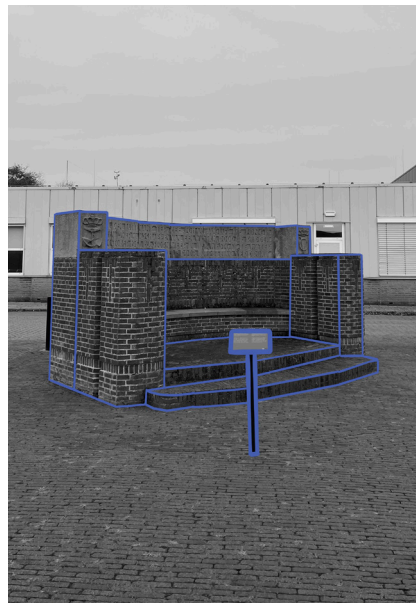
ARRANGEMENT



ORIENTATION



solitary



02 | 2.2.3 MEMORIAL BENCH B - REMEMBRANCE BENCH
 02 WALKING THROUGH THE PARK

Fig 2-18. A map and images of serial vision show the sequence of walking to the Marine Museum, including the physical and visual connection.

Time: December 3rd, Saturday, 15:00 pm.

LEGEND

Bench Distribution

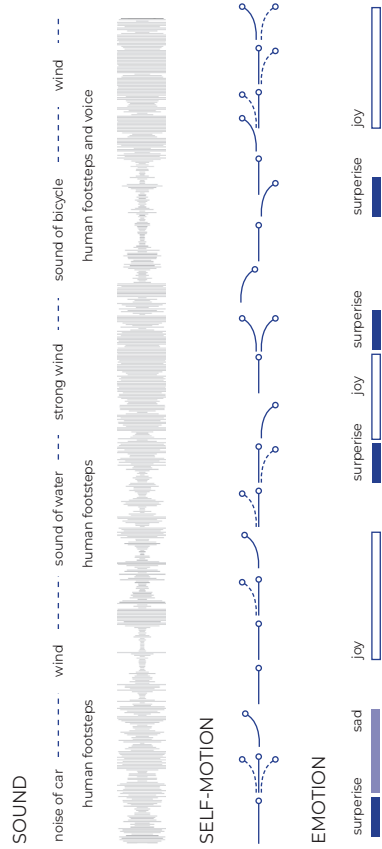
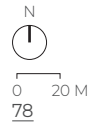
- the bench
- other bench

Routing

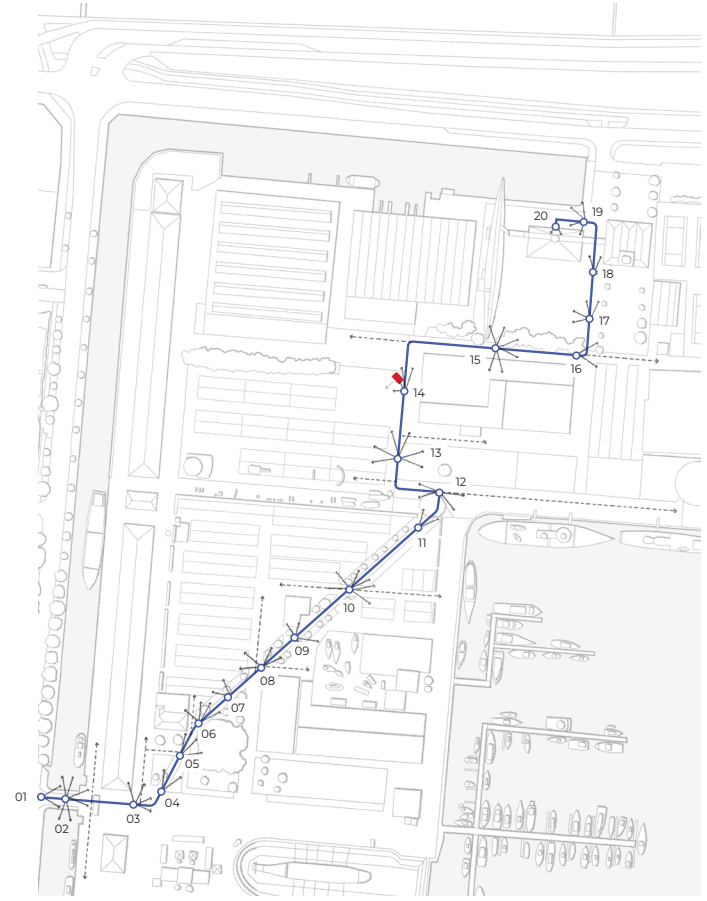
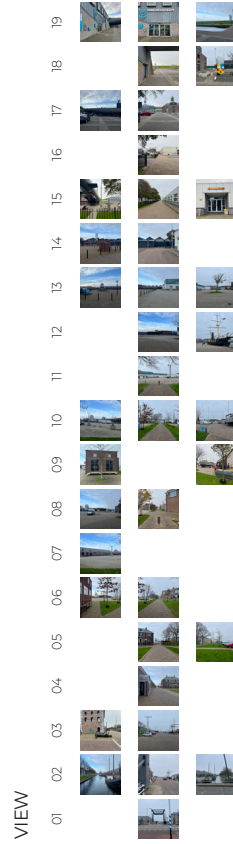
- △ view
- route

Other Element

- building
- ▨ road
- water
- tree



EMOTION

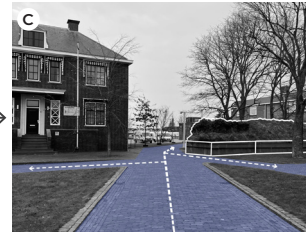




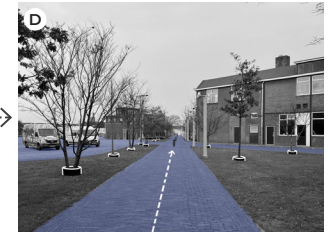
An main entrance of the port area.



Cars and remnants along the road.



A linear path with a hidden bunker on the right-hand.



Linear planted pot trees on double side.



Turn left, turn right, and walk along the edge of a parking plaza.



Linear path into an open plaza.



Linear planted pot trees on double side.



A large parking plaza on the left-hand.

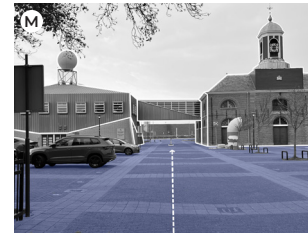


The memorial bench is an inconspicuous structure at the corner of the parking plaza. Its appearance is not very attractive to visitors, so people at a distance cannot notice it. Only someone who gets closer to it will read and understand it. As a part of the Marine Museum, this bench lacks a relation with other monuments or remnants, which makes it harder to be recognized.

Turn right to the museum.



A linear path with a fence on the left.



At the south side of the Marine Museum Gallery.



Turn left into the museum yard.



The dike in front of eyes.

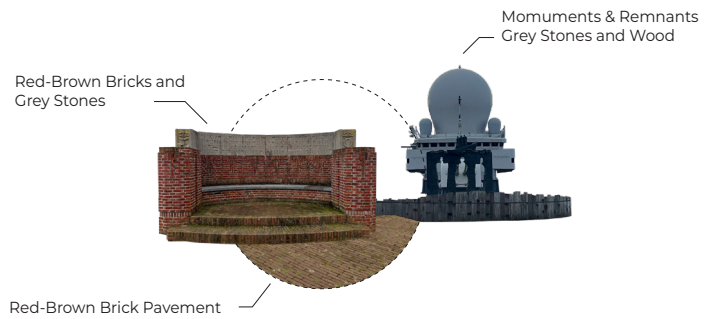


In front of the gate of Marine Museum.

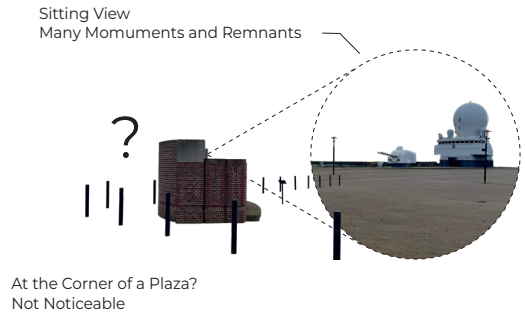


03 FOUR-RELATION ANALYSIS

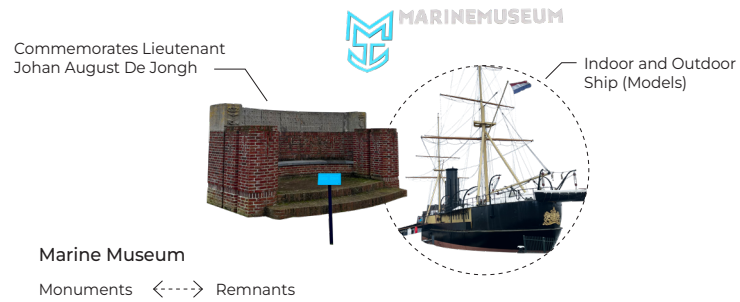
Material Relations



Visual Relations



Functional Relations



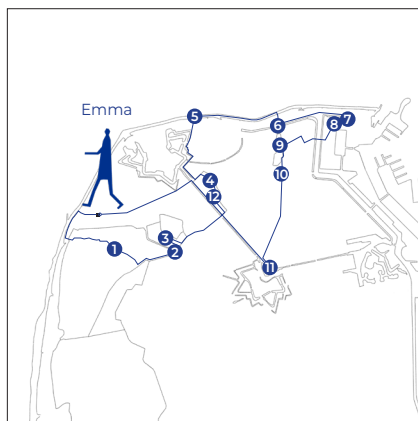
Routing Relations



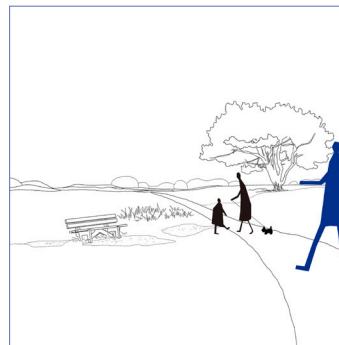
2.2.4 24H BENCH STORY

Fig 2-19. A series of sketches show one day of Emma's bench story.

Emma (65-year-old woman)
 "My husband and I live in Huisduinen for many years. I always enjoy walking around the city, from the sea dike to the dune area, and sometimes I would walk my dog or meet with my friends at Timorpark or the central park.
 I found that the story of people and benches goes on 24 hours a day. People always sit on the benches, to rest, to talk, to enjoy the moment. Even at night, the benches are used as a home for homeless people. For example, here is one day of my walking route on a Saturday, and the bench story I saw and perceived."

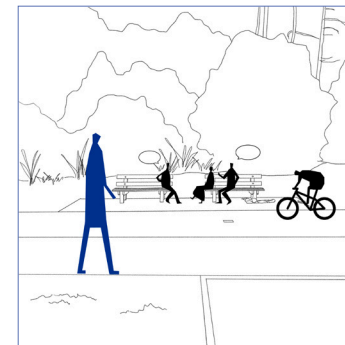


08:00



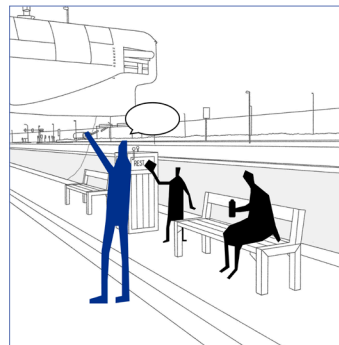
Walking in the dune area, I met Mary and her son, they would like to rest for a while.

09:00



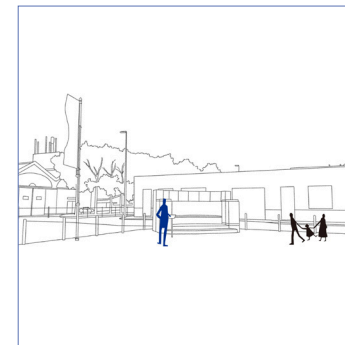
Some people were sitting on the two benches next to the road and enjoying talking.

15:00



My friends invited me to visit Marine Museum, and we just arrived at the front door.

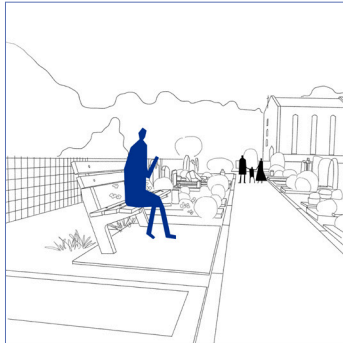
16:00



I found a memorial bench with its information board in the outdoor Marine Museum.

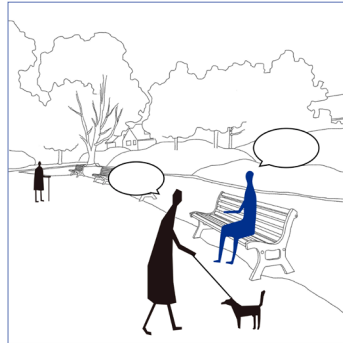


10:00



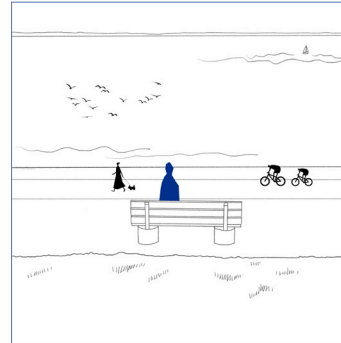
I came to the cemetery and sat on a bench to empty myself and meditate.

11:00



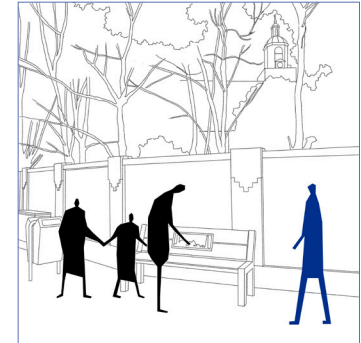
I met some dog walkers in Timorpark, and some of them would talk with me.

13:00



After lunch, I went to the dike and sat on one of the benches to enjoy the sea view.

14:00



When I just arrived at the central park, I see some visitors looking at this special bench.

16:30



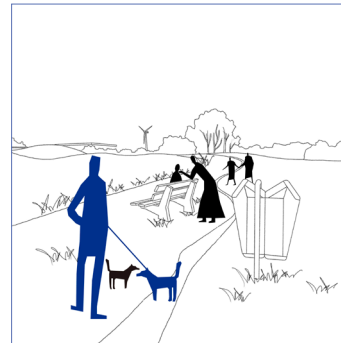
In the afternoon, some teenagers came to the central park and they enjoyed roller-skating.

17:00



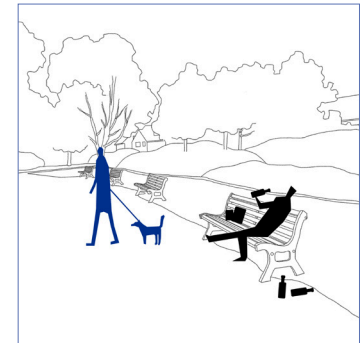
I was really tired, so I decided to rest on a bench for a while.

17:30



My husband brought me our dog, and later I walked around Fort Dirksz Admiraal.

20:00



When I was walking back home, I found a vagabond lying on a bench and drinking.

03

**BENCHSCAPE AS
MEMORY'S PHYSICALITY**

3.1 MEANINGFUL BENCHES

Fig 3-1. Series of images show the six meaningful benches, the "Happy to Chat" Bench, the After Life Bench, the Nature Sacred (Journal) Bench, the Ljubljana City Bench, the Coronacrisiskruk Portable Social-Distancing Bench, and the bench in the Reflection Pool in Bloedel Reserve.

There have been many meaningful benches designed and placed around the world, most of them placed in urban parks or on countryside journeys, some are used as memorials, some to provide a social venue, some to share stories and so on.

"HAPPY TO CHAT" BENCH (Cardiff, UK)

Allison Owen-Jones was walking her dog in Roath Recreation Ground in Cardiff when she noticed an elderly gentleman sitting alone on a bench. Uncertain whether he wanted company, she came up with an idea that eventually went global. The retired lecturer from Cardiff and Vale College printed out a sign that could be attached to the bench, reading: *"Sit here if you don't mind someone stopping to say hello."* These "Happy to Chat" benches are now a permanent feature in Cardiff, with three brightly-colored benches installed. *"If you're having a bad day just having a chat with someone can make a difference."* Allison hopes that these benches will be used to combat loneliness and become a staple in every major town.

AFTER LIFE BENCH (Cardiff, UK)

The 'After Life bench', one of two donated to the city in January by Ricky Gervais, provides a non-judgmental space for people

to share difficult stories and feelings. The bench, created in collaboration with suicide prevention charity CALM, encourages talking, listening, and reflection. In Victoria Park, Cardiff, a 28-year-old hairdresser shares her father's story and the impact it had on her mental health. The bench's woodwork is inscribed with *"Hope is everything"*, which serves as a fitting backdrop to Lucia's unwavering sunny disposition, even during this meaningful conversation.

NATURE SACRED (JOURNAL) BENCH (Baltimore, USA)

What exactly is a "Nature Sacred Journal Bench?" It is a specially designed bench that features a compartment under the seat to store a pen and blank journal, allowing anyone who wishes to write messages or inscriptions. These can range from observations about nature, expressions of emotions or fears, encouragements, suggestions for those in need of help, as well as drawings, jokes, favorite poems, and quotations. Beneath the seat in every bench is *"a pocket that holds a journal that collects the nature-inspired musings, from the whimsical to the profound"*.

LJUBLJANA CITY BENCH (Ljubljana, Slovenia)

In the southeast corner of Tivoli Park, a bronze statue of Edvard Kocbek sits on a

bench. While this statue was built long after the breakup of Yugoslavia, Kocbek's life story is closely intertwined with the stories of the other two monuments. He was not only a renowned poet but also played a significant political role during and after World War II.

CORONACRISISKRUK PORTABLE SOCIAL-DISTANCING BENCH (Amsterdam, Netherlands)

Dutch design firm Object Studio has created CoronaCrisisKruk, a bench with a handle that is designed to promote social distancing. The bench allows users to sit together while remaining apart, with ruler-style measuring lines etched into the sides to help people remember and visualise the safe distance to keep. The design is intended to alleviate anxiety during the pandemic. The first benches are located in the Noorderpark, with the Amsterdam Museum purchasing one for its courtyard. The benches can be moved and placed anywhere for two people to sit while remaining 1.5 metres apart. The benches also feature social distancing puns, including "met afstand het leukste park," which translates to "by far the nicest park".

BENCH IN THE REFLECTION POOL IN BLOEDEL RESERVE (Bainbridge Island, USA)

The Reflection Pool, designed by nationally renowned landscape architect Thomas

Church in 1970, offers a striking contrast to the wilder landscapes of the Reserve. Discreetly nestled behind a wall of hedges, the pool's carefully manicured straight lines stand in stark juxtaposition to the surrounding unruly natural forest. Prentice and Virginia Bloedel, the founders of the Bloedel Reserve, chose to keep the design of the Reflection Pool simple, creating a tranquil and meditative space. They believed that additional design elements would detract from the pool's intended purpose. At the end of the pool, a flat stone lies level with the ground, serving as a perpetual memorial. The stone covers a small chamber that houses the ashes of both Prentice and Virginia Bloedel. As the poet Alphonse de Lamartine once wrote, *"Are not the best beloved of years around your heart forever?"* - a sentiment that seems particularly fitting in this serene and contemplative setting.

"HAPPY TO CHAT" BENCH



NATURE SACRED (JOURNAL) BENCH



CORONACRISISKRUK PORTABLE SOCIAL-DISTANCING BENCH



AFTER LIFE BENCH



LJUBLJANA CITY BENCH



BENCH IN THE REFLECTION POOL IN BLOEDEL RESERVE



3.2 VARIOUS ROLES OF BENCH IN BENCHSCAPE

3.2.1 CASE A - CELESTIAL VAULT

Fig 3-2. Two sections of the two benches (Celestial Vault & Panorama in the dunes).

Fig 3-3. An image of an aerial view of Celestial Vault, by Siebe Swart, 2009.

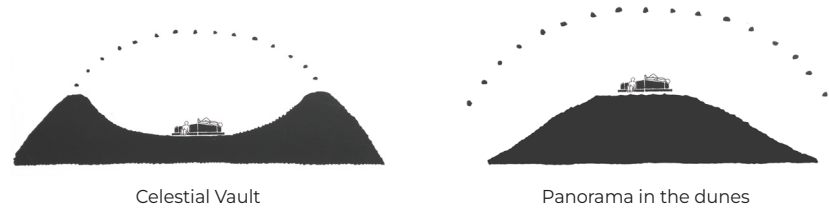
Fig 3-4. A group of images and collages show the benchscape in Celestial Vault from three perspectives of "FRAMED, FRAME, FRAMING".

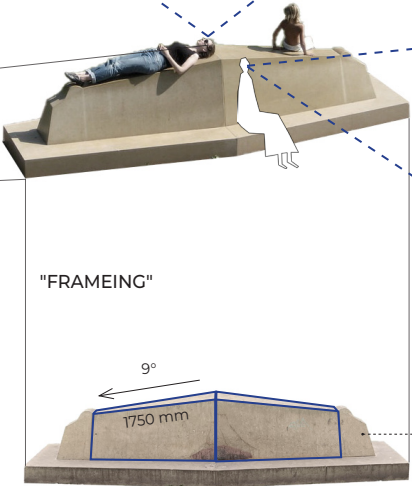
Location: Kijkduin, The Hague, Netherland
Landscape Architect: James Turrell (USA)
Construction Time: 1996

Artist James Turrell has created a unique space in the dunes, where the tangible presence of light adds to the experience of gazing at the sky. Accessing this space requires climbing wooden stairs up the dune and then walking through a six-meter-long concrete passageway. Inside the artificial crater, grassy slopes and a large natural stone bench provide a place for two people to recline and observe the sky as a vault. Another bench, offering panoramic views of the sea, beach, and surrounding countryside, is located on a higher dune. "For Turrell, light and space themselves are the object and one of the points he wants to make is that, during the act of observation, the observer should experience that he/she is observing."

Benchscape: A concrete bench with a specific configuration placed in the center of the dune to invite people to lie down or sit on it and enjoy the view of the sky shaped by the vault and the axis view framed by the entrance tunnel

The Role of Bench in Benchscape:
 As a special (central) element





3.2.2 CASE B - PRINCESS DIANA'S MEMORIAL

Fig 3-5. The concept diagram of Princess Diana's Memorial, which shows "Reaching Out-Letting In", by Gustafson Porter.

Fig 3-6. An image of an aerial view of Princess Diana's Memorial, by Jason Hawkes.

Fig 3-7. A group of images and collages show the benchscape in Princess Diana's Memorial from three perspectives of "FRAMED, FRAME, FRAMING", by Peter Guenzel and H  l  ne Binet.

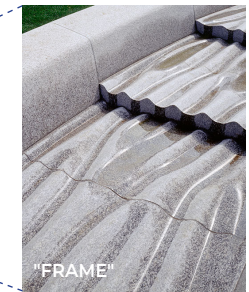
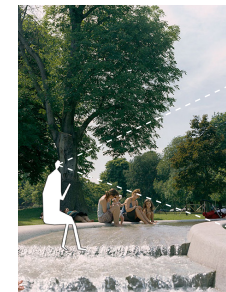
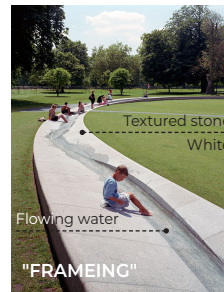
Location: Hyde Park, London, UK
Landscape Architect: Gustafson Porter + Bowman
Construction Time: 2004

This fountain, which was opened in July 2004, is not just an ordinary water feature. The Memorial consists of an oval-shaped body of water that seamlessly blends with the natural contours of the site, using the topography to guide the water in two directions downhill.

The design by Gustafson Porter + Bowman embodies the idea of "Reaching Out-Letting In", inspired by the Princess of Wales' most cherished qualities of inclusiveness and accessibility. The presence of the fountain in the midst of an open landscape exudes a dynamic energy that radiates outward and simultaneously draws people towards it. Along the length of the fountain, various elements such as textured stones and water jets have been incorporated to enhance its visual appeal.

Benchscape: An oval bench with a fountain which has been created by texturing the stone or by adding jets of water to express the qualities of the Princess of Wales and draws people toward it

The Role of Bench in Benchscape: As a common element (by-product)



CASE C - HIGH LINE PARK 3.2.3

Fig 3-8. A photo of an aerial view of High Line Park, which shows the soft and unscripted pavement, by Iwan Baan.

Fig 3-9. A photo of a perspective of High Line Park, which shows the growing vegetation on the track of the concrete paving, by Iwan Baan.

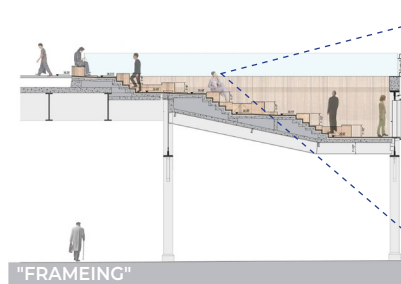
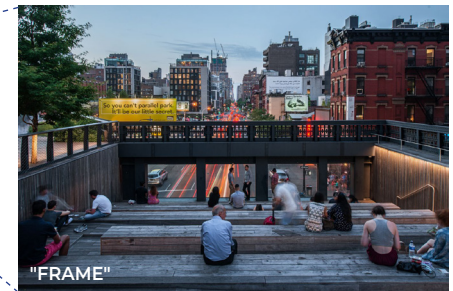
Fig 3-10. A section and a photo of a perspective of the 10th avenue square and sunken overlook, made by James Corner Field Operations and by Iwan Baan.

Location: New York, USA
Landscape Architect: James Corner Field Operations & Piet Oudolf
Construction Time: 2009, 2011, 2014, 2019

The High Line utilizes an innovative agriculture approach that blends agricultural and architectural principles to create a digitized surface consisting of discrete paving and planting units. These units form a range of gradients from fully paved to lush, vegetation-filled biotopes. The paving system features pre-cast concrete planks with open joints that allow wild grasses to emerge through sidewalk cracks. The units have tapered ends that merge with planting beds, creating a "pathless" landscape that provides an unstructured environment for visitors. The design addresses multiple civic issues, including reclaiming neglected public spaces, reusing outdated infrastructure, and promoting sustainability through preservation. The park accommodates natural and cultivated features, offering a unique mix of intimate and social experiences for visitors.

Benchscape: benches with their surrounding soft pavement and vegetation in different location for seating and gathering

The Role of Bench in Benchscape:
 As a common element or a linkage



3.2.4 CONCLUSION: THE ROLES OF BENCH IN BENCHSCAPE

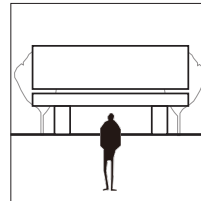
Fig 3-11. A group of diagrams show the various roles of the bench in benchscape, including as a landmark, as a linkage, as a key element or a common element.

By case-study and personal observation, it is found that benches play a vital role in benchscapes, serving both a functional and aesthetic purpose in landscape architecture. With careful consideration of their placement, design, and purpose, benches can enhance the overall design of outdoor space.

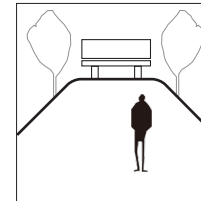
It can serve as a landmark, with exaggerated dimensions and high topography that draw attention to a particular area. Additionally, benches can act as a linkage element that provides rest points and guides visitors through the space. Moreover, benches can also serve as key elements that convey a specific meaning or purpose, such as memorial benches that provide a space for reflection and remembrance, or benches that create a symbolic transformation by the particular material or shape. These benches not only contribute to the visual aesthetic of the design, but also provide a meaningful experience for visitors. Commonly, benches are utilized as rest points in a public space for relaxation and contemplation. They can also form a place for people to gather and socialize, creating a sense of community and encouraging interaction between visitors. Additionally, benches can be strategically placed to lead the eye towards a particular view or focal point, enhancing the overall experience and enjoyment of the space.

A. LANDMARK

A-1
Exaggerated Dimensions

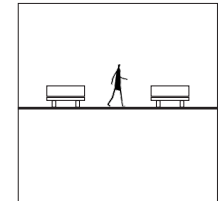


A-2
High Topography



B. LINKAGE

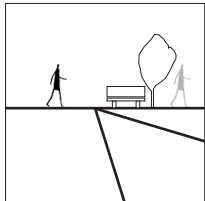
B-1
Rest Points



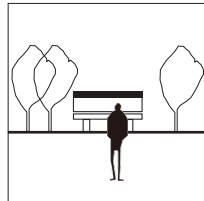
C. SPECIAL ELEMENT

D. COMMON ELEMENT

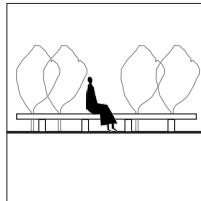
B-2
Way-finding



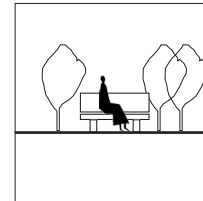
C-1
Memorial Bench



C-2
Symbolic Transformation



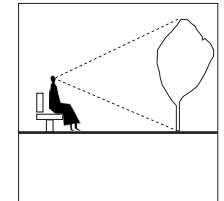
D-1
Rest Points



D-2
Social Place



D-3
Leading A View



3.3 BENCHSCAPE IN MEMORIAL LANDSCAPE

3.3.1 FOUR-RELATION ANALYSIS MODEL

Fig 3-12. A diagram show the basic four aspects of the four-relation analysis model.

The proposed four-relation analysis model is a product of a comprehensive analysis of the current state of memorial benches in the surrounding landscape. (See 2.2.2 & 2.2.3 *Two Memorial Benches*)

Specifically, the model examines the various roles that benchscapes play in memorial landscapes by evaluating and analyzing the connections between the different elements of a memorial landscape and their corresponding physical and experiential qualities in terms of the following four fundamental aspects.

1. Material Relation:

The physical relation of materials of all the elements in the landscape, such as pavements, walls, sculptures, buildings, benches, and so on.

2. Visual Relation:

The visual connection is based on the spatial quality, especially the line of sight correlation with key elements and also elements like benches which offer people a sitting view.

3. Functional Relation:

The function of a place depends on the physical quality provided by the various elements of the space, which themselves have their basic and derived functions. The functional relation is to analyze the connection between these two dimensions.

4. Routing Relation:

The elements in a landscape can be recognized as stopping points along the routes. The experiential quality of the routing is directly related to the location and physical quality of the elements.



CASE STUDY 01: 3.3.2 THE PENTAGON 9/11 MEMORIAL

Fig 3-13. A collage of the attack on the Pentagon on SEPTEMBER 11, 2001, by Ms. Sharon E Walker.

Fig 3-14. An image of the Pentagon 9/11 Memorial, shortly before it opened, from Wikipedia.

Location: Arlington, Virginia, USA
Landscape Architect: Julie Beckman & Keith Kaseman (KBAS Studio)
Construction Time: 2008
Area: 1.93 ha

Adjacent to the point of impact of American Airlines Flight 77, the Pentagon Memorial is a place like no other. Inviting personal interpretation on the part of the visitor, the Memorial provokes thought yet does not prescribe what to think or how to feel. Both individual and collective in nature, the Memorial intends to record the sheer magnitude of that tragic day by embedding layers of specificity that begin to tell the story of those whose lives were taken. "I like that it is a collective memorial, but still has an individual feel to it," Jim Laychak, one of two family members of victims on the committee, said. "In an elegant way, the memorial tells the story of what happened at that place at that time."

The Benchscape:

184 memorial benches with each victim's name engraved at the end of the cantilever, hovering above a pool of water that glows with light at night

The Role of Bench in Benchscape:



a special (heart) element



01 FUCTIONAL RELATION

Fig 3-15. An aerial plan view of the Pentagon 9/11 Memorial, which shows the components of the memorial and memorial unit benches as symbols of victims, by KBAS Studio and redrawn by author.

LEGEND

-  bench type 1 for pentagon victims (125)
-  bench type 2 for American Airlines Flight 77 victims (59)
- A memorial gateway
- B locator stone
- C limestone zero age line with inlaid date and time
- D age wall
- E asphalt bike trail
- F perimeter bench
- G ornamental grasses
- H concrete paver path
- I perimeter bench
- J age line
- K memorial unit
- L gravel paving





The National 9/11 Pentagon Memorial is a national memorial dedicated to the tragic events that occurred on Sept. 11, 2001. All 184 lives lost in the attack on the Pentagon as represented by “Memorial Unit” benches. These benches are positioned according to the year and date of birth of the victim. Organized by a timeline based on the ages of these individuals, 184 Memorial Units are uniquely placed along Age Lines parallel with the trajectory of Flight 77— each marking a birth-year, ranging from 1998 to 1930. Highly articulate in its form and placement, the Memorial Unit is the heart of the project, as each Unit demarcates a special place dedicated to each individual. As such, directional orientation inherent to the cantilevered Unit provides specificity to whether an individual was aboard Flight 77 or in the Pentagon at the time of impact. Each individual’s name is engraved at the end of the cantilever, hovering above a pool of water that glows with light at night.

THE PENGATON
9/11 MEMORIALS
(184 BENCHES)



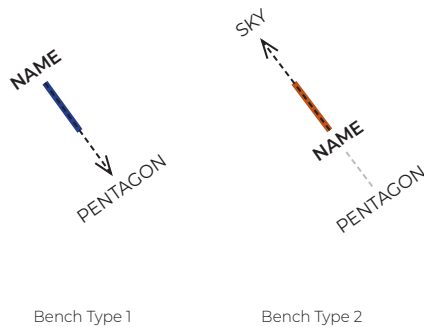
Fig 3-16. An aerial plan view of Earth Memorial, which shows two types of benches in an opposite directional orientation, by KBAS Studio and redrawn by author.

LEGEND

-  bench type 1 for pentagon victims (125)
-  bench type 2 for American Airlines Flight 77 victims (59)
-  paperbark maple
-  = 
-  = 
-  name inscription

The Memorial Benches are thoughtfully oriented in two directions, offering unique views and contemplation opportunities for visitors.

1. For the Pentagon Victims, the name plate faces towards the Pentagon when read, providing a direct connection to the location where the tragedy occurred.
2. For the Flight 77 Victims, the name plate faces towards the sky with the back of the bench towards the Pentagon. This orientation creates a contemplative space for visitors to remember those who perished aboard the flight and to reflect on the sense of loss and tragedy.



03 ROUTING RELATION

Fig 3-17. Mapping of the memorial route between the Pentagon Memorial and Arlington National Cemetery.

Fig 3-18. An aerial plan view of the Pentagon 9/11 Memorial, which shows different lines and paths with their symbolization, by KBAS Studio and redrawn by author.

To begin your visit to the National 9/11 Memorial, head to the Pentagon Memorial entrance marked by a black granite stone. The second stone displays the names of all 184 victims in alphabetical order, with birth year listed to locate their unit. A tree-lined corridor leads to the Memorial's Zero Line, etched with the date and time. The 184 Memorial Units are arranged by age lines of stainless steel strips, with an Age Wall growing one inch per year in height above the perimeter bench.

LEGEND

- ▶ main entrance
- American Airline Flight 77 trajectory
- - - zero line "SEPTEMBER 11, 2001 9:37 A.M."
- ▬ age wall
- ▬▬ age lines
- ▭ bench type 1 for pentagon victims (125)
- ▭ bench type 2 for American Airlines Flight 77 victims (59)
- paperbark maple

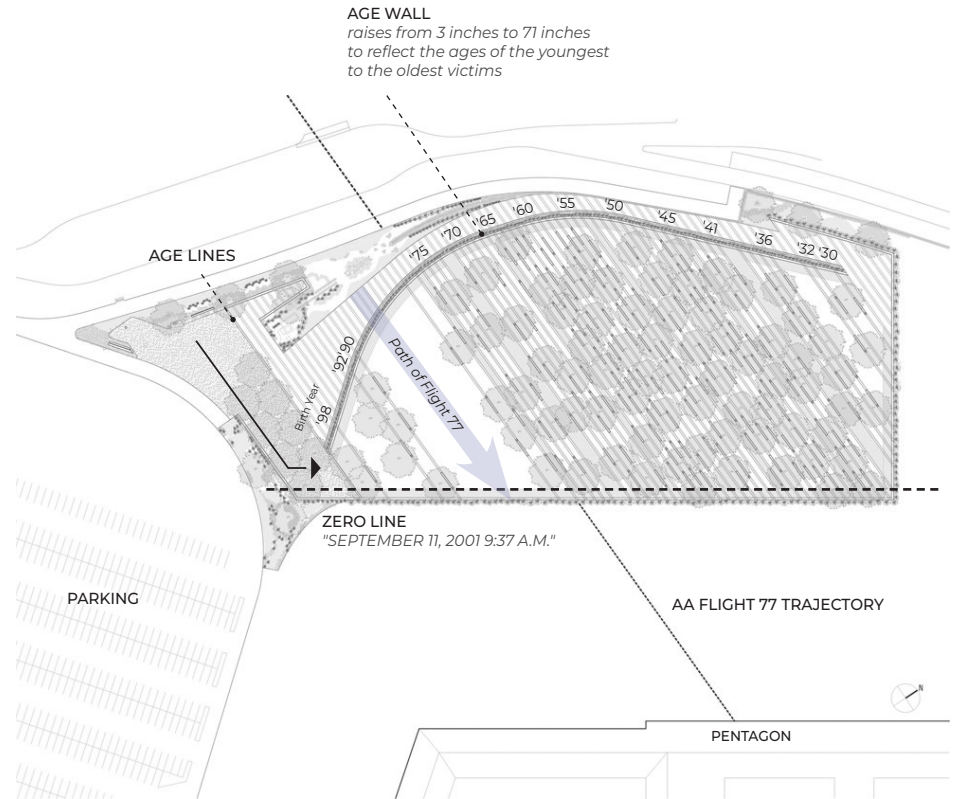
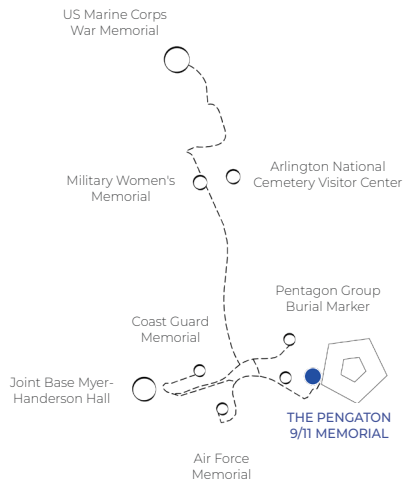
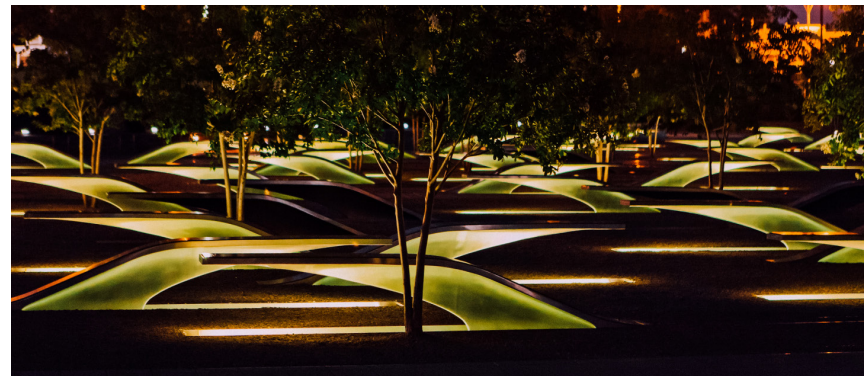
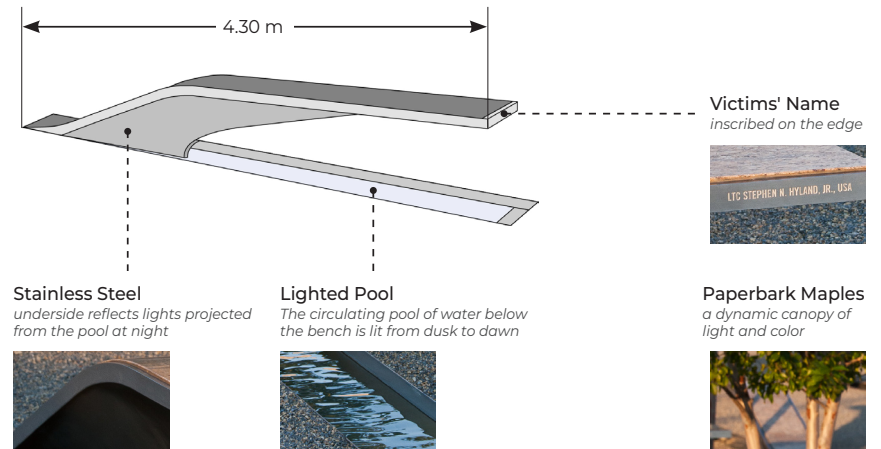


Fig 3-19. A diagram of the details of one memorial bench, by KBAS Studio and redrawn by author.

Fig 3-20. An image of the Pentagon 9/11 Memorial with lighting at night, from The Pentagon 9/11 Memorial Official Website.

The Memorial Units are situated within an environment designed to engage visitors' senses and celebrate life. To achieve this, all materials used contribute to a tactile experience. The Memorial Units are shaded by a grove of Paperbark Maples, whose growth is encouraged through a porous stabilized gravel system that allows visitors to hear their footsteps and those of others. The grove of trees is free to grow directly through the gravel without protective grates. The canopy of the trees will create a dynamic interplay of light and color throughout the day and across seasons, registering their growth through elegantly exfoliating bark. The Memorial Park is surrounded by a continuous perimeter bench, which is lined with a soft border of ornamental grasses.

Each Memorial Unit consists of a stainless-steel cantilevered bench featuring a lighted pool of flowing water and a permanent etched tribute to each victim of the attack.



3.3.3 CASE STUDY 02: THE THIRD TRAIN

Fig 3-21. A picture taken on November 11, 1918 shows signatories of the Armistice treaty, by association wagon de l'Armistice.

Fig 3-22. A picture taken on June 22, 1940 shows signatories of the Armistice treaty, by association wagon de l'Armistice.

Fig 3-23. An image of the garden of the Third Train, which shows a people sitting on the rail-like bench, by Pierre-Yves Brunaud.

Location: Compiègne, France
Landscape Architect: Gilles Brusset, Marc Blume, Francesca Liggieri
Construction Time: 2019

The Armistice Glade located in the Forest of Compiègne holds great historical significance as it was the site of the signing of the Armistice that marked the end of World War One. On November 11, 1918, the Armistice was signed in a railcar which has since become a famous symbol of the event. Visitors to the site can take a memorable walk through The Garden of the Third Train, a collaborative project between French landscaper Marc Blume, artist Gilles Brusset, and architect Francesca Liggieri. The garden is designed to guide visitors along the path from the car park to the glade, creating a special atmosphere before reaching the location of the Armistice. The project is a Franco-German initiative and adds to the significance of the site as a symbol of peace and reconciliation between nations.

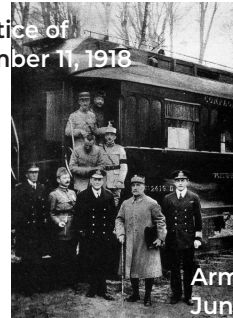
The Benchscape:

a black wooden bench decorated with tens of mirrors for sitting or lying down on it on a summer evening and contemplating the sky of peace filtered by the foliage

The Role of Bench in Benchscape:

a special element

Armistice of
November 11, 1918



Armistice of
June 22, 1940

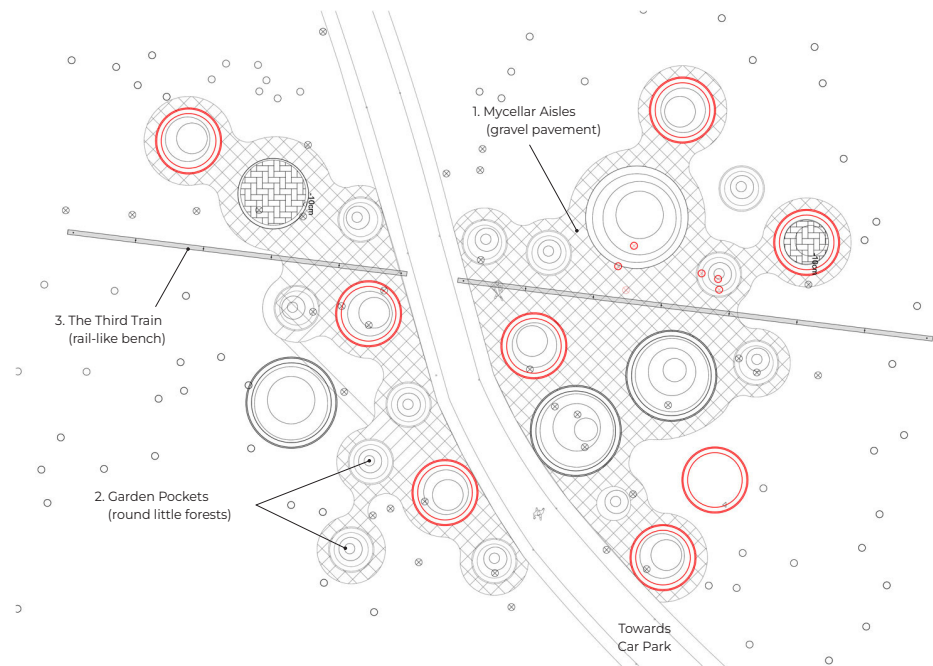
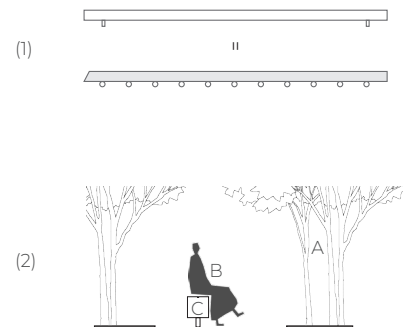


Fig 3-24. Two diagrams of the symbolic functions of the rail-like bench in the garden.

Fig 3-25. A map of the garden of the Third Train, which shows three main components inside, by paysarchitectures and redrawn by author.

The garden of the third train is an undergrowth garden which embraces the vastness of humus. It takes on the perception of the visitors through their movement in space and encourage the discovery of a peaceful place by offering new, wringly and random paths.

1. The rail-like bench echoes the two trains in which the Armistice of the 11th of November 1918 and the one of the 22nd of June 1940 where signed in the glade of Rethondes, and reflects the peace.
2. The rail-like bench takes place like a third component between the trees and the people: a link that associates contemplation, meditation and celebration of life.



02 MATERIAL RELATION

Fig 3-26. A group of images of the garden of the Third Train, which shows the details of materialization, by Pierre-Yves Brunaud.

Light in the Underwood is a key feature of this garden, which guides visitors towards the glade through a playful interplay of light and vegetation. The garden's plants are carefully selected to let light through, creating a rich spatial experience for visitors as they make their way through the garden.

The Earth and Stone Allees are designed to provide visitors with a dry path through the underwood. Inspired by the pattern of mycelium networks, these allees create a capillary maze in the undergrowth that invites exploration.

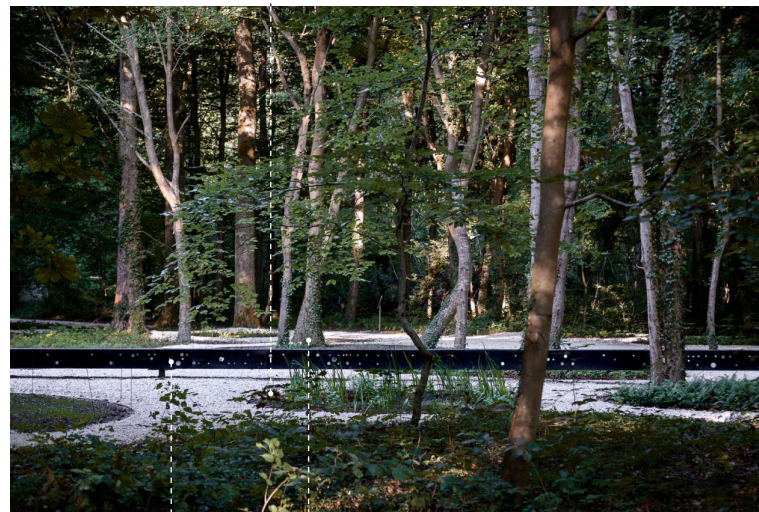
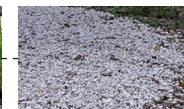
The Gardened Shapes are circular areas defined by the allees and planted with a variety of forest flora. Partially sealed with clay, these shapes prevent rainwater from flowing away and represent miniature forests within the larger garden.

At the heart of the garden, the Third Train is a striking wooden sculpture that spans 70 meters in length. Floating above the ground, the sculpture points towards the center of the glade and intersects the underwood horizontally. Adorned with countless mirrors that reflect the sky, the Third Train shimmers like a precious jewel amidst the trees. Visitors can sit or lay down on it and gaze up at the peaceful sky filtered through the foliage on a summer evening.

grass, fern; steel;
sealed with clay



gravels, stones;
earth



black painted wood;
tens of mirrors



beeches

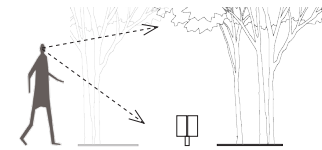
Fig 3-27. Three sections of the main visual sequences in the garden of the Third Train.

Fig 3-28. Three images and collages of the main visual sequences in the garden of the Third Train.

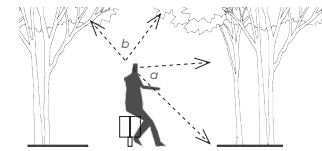
1. Walking into the garden: Inside the undergrowth, the three designers thought about a symbolic and plastic parallel between the trails of the trenches of the Great War and the shapes drawn by the filaments of the mycelium network. Following this pattern, the paths of the garden make their way windingly through the foliage, creating rounded and planted areas where different essences of the forest can be seen.

2. Sitting on the rail-like bench: Adding itself to this maze leading to the discovery of the undergrowth, an elongated rail-like bench crosses the garden and takes place like a third component between the trees and the people: offering a view to link them and associate contemplation, meditation and celebration of life.

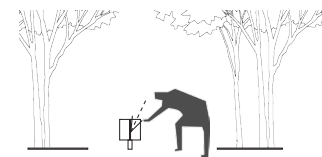
3. Looking at the mini mirrors: A multitude of mirrors is inserted in this 70-meter wooden bench reflecting the sky and the leaves like a third train reflecting peace.



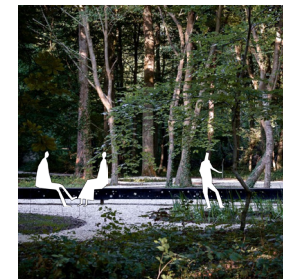
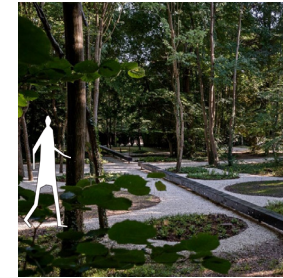
1) Walking from car park into the garden and looking at the third train of peace



2) Sitting on the rail-like bench and looking at the rounded and planted little forests



3) Looking at the mirrors inserted in the rail-like bench reflecting the sky and the leaves



04 ROUTING RELATION

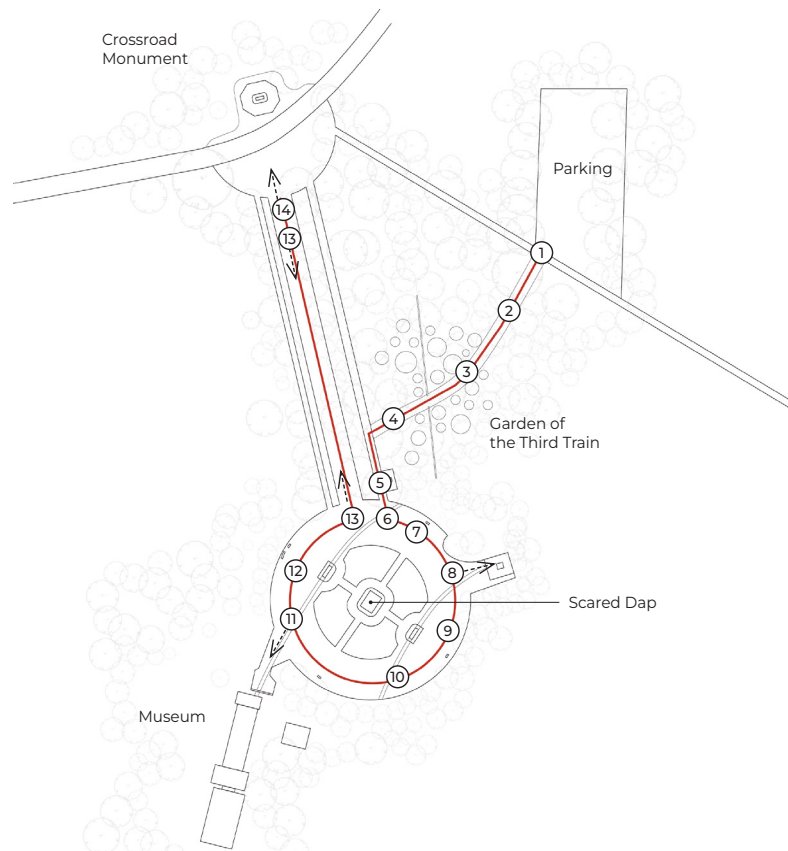
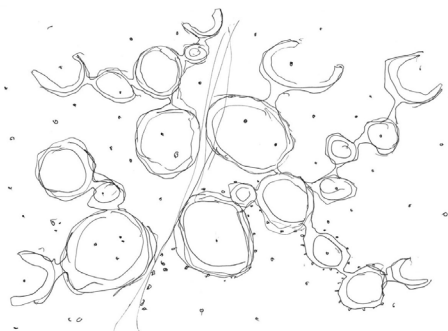
Fig 3-29. A drawing of the design concept of the Third Train, by Gilles Brusset.

Fig 3-30. A route map of the Armistice memorial park, which shows the main walking route and sequence.

Fig 3-31. The serial vision of a main walking route in the Armistice memorial park, which shows the garden of the Third Train as a memorable walk joining the car park to the glade.

The Extension of the Routes is inspired by a symbolic and visual parallel between the trenches of World War One and the network of mycelium in the forest. The allees and paths of the garden echo this pattern, suggesting an unlimited space that expands as visitors walk through it.

At the heart of the garden is the Third Train, a 70-meter wooden sculpture that serves as the principal axis of the composition. The sculpture echoes the two trains in which the Armistice of November 11, 1918, and the June 22, 1940, were signed in the glade of Rethondes. Decorated with mirrors that reflect the surrounding foliage, the Third Train is a striking and evocative symbol of peace and reconciliation.



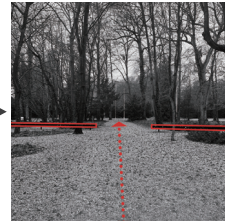
CHAPTER 1
entrance



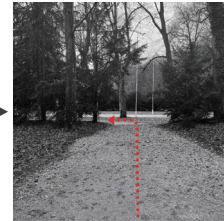
1. car park entrance.



2. the garden of the Third Train.

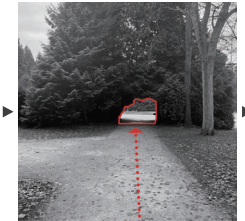


3. the rail-like bench.

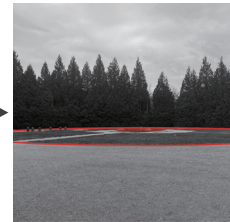


4. the end of the Third Train.

CHAPTER 2
a passage

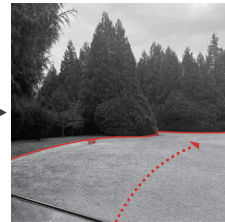


5. a tree framing a gate.

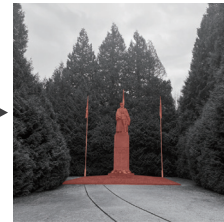


6. WWI Armistice location.

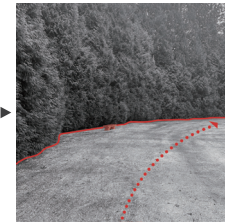
CHAPTER 3
loop route



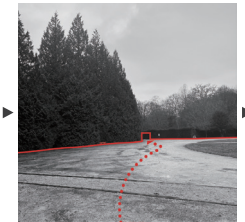
7. a memorial bench.



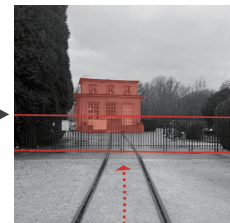
8. glade of the Armistice.



9. another memorial bench.



10. a way to the museum.

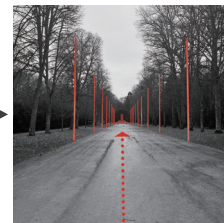


11. the Armistice Museum.



12. the Peace Alliance.

CHAPTER 4
the axis




13. an axial path to the
Monument Armistice.



14. the Monument Armistice.



15. looking backward to the
WWI Armistice location.

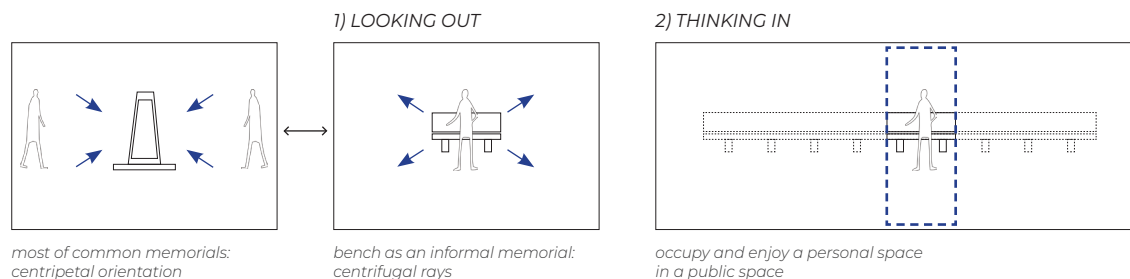
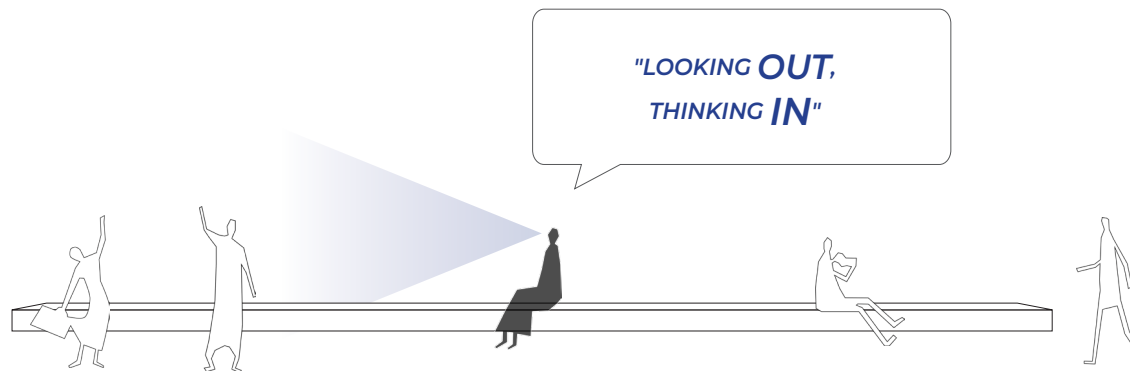


04

DESIGN A
BENCHSCAPE FAMILY

4.1 DESIGN CONCEPT

Fig 4-1. A group of diagrams show the design concept of "LOOKING OUT, THINKING IN" of the memorial benchscape.



DESIGN STRATEGY: "THIRD EMOTIONAL SPACE" 4.2

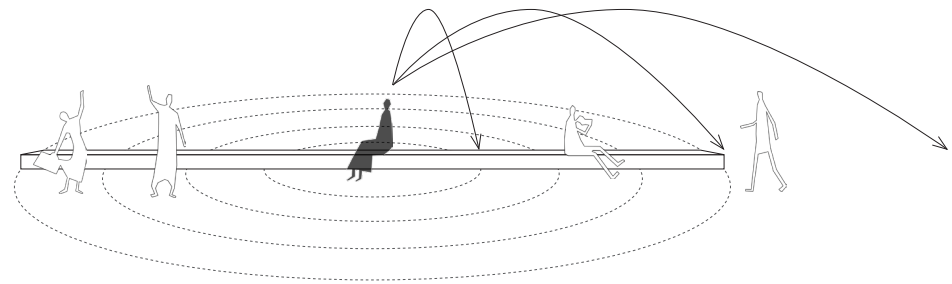
Fig 4-2. A diagram of the design strategy "Third Emotional Space", which shows the concept of "To Place Individual Memory in Public Space".

The concept of "Third Emotional Space" as the main design strategy refers to the emotional and performative space created by informal memorials in public spaces. By mediating between absence and presence, and between private and public spaces of memorialization, it fosters a sense of emotional connection and reflection. Benchscapes can be utilized to create a "Third Emotional Space" in the city by providing a place for individuals to sit and reflect, promoting a sense of attachment between the person and the space they occupy. This, in turn, can lead to "looking out, thinking in" and enhance the identity and memory of the city while also generating personal meaning.

Moreover, memorial benchscapes can address the deficiency of public spaces that permit emotional and social connections in many urban areas. Since public spaces are often designed for functional purposes, they may not afford opportunities for emotional reflection and social engagement. Benchscapes can reintroduce emotional and social connections into these spaces, creating a more comprehensive and meaningful experience for individuals in the city. Ultimately, memorial benchscapes can contribute to the creation of a "Third Emotional Space" in the city, providing a public representation of private emotions

and facilitating the ongoing negotiation of absence and presence.

"A 'Third Emotional Space' is framed by INFORMAL MEMORIALS to mark private grief and remembrance of individuals in public space." (Avril Maddrell, 2013)



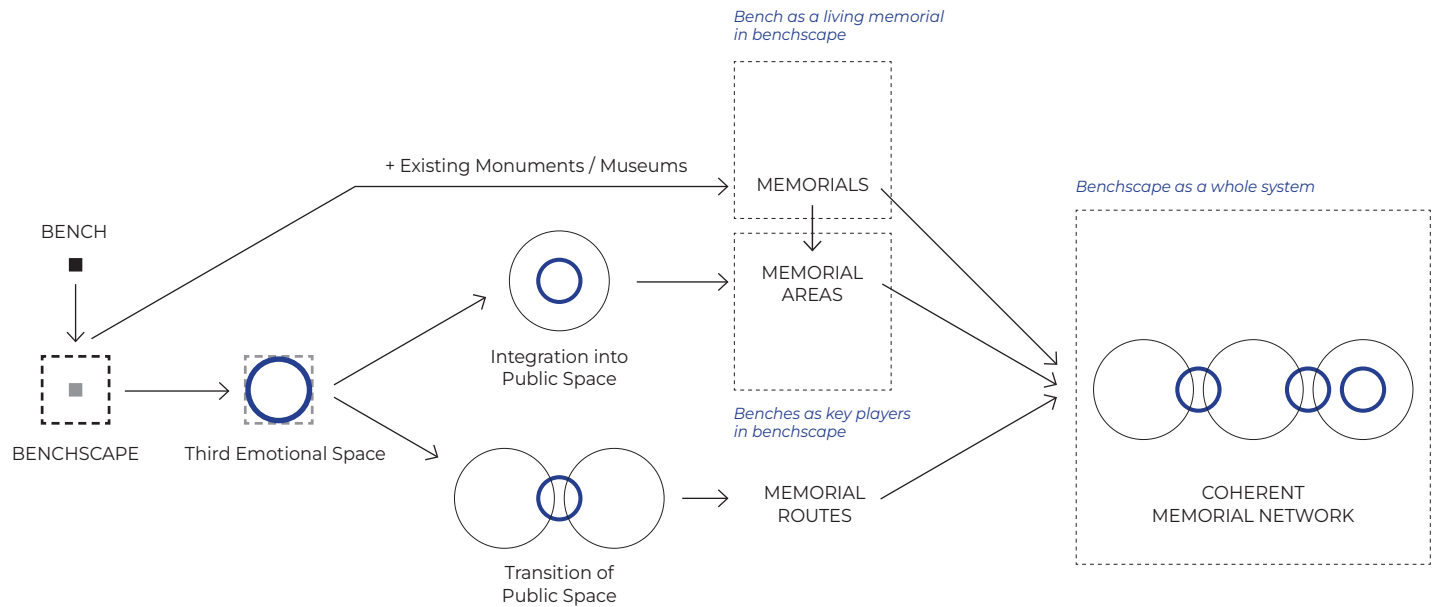
"Third Emotional Space"
= To Place Individual Memory in Public Space

Non-present Emotional Space

1. Less-located
2. Specific Locations to Help Think Inwards

4.2.1 FRAMEWORK

Fig 4-3. The framework of design concept shows that "Benchscapes, as living(informal) memorials, frame various 'Third Emotional Space' into the integration and transition of urban public space."



VARIOUS "THIRD EMOTIONAL SPACES" 4.2.2

Fig 4-4. Three diagrams of the three different types of "Third Emotional Space" with different components.

LEGEND

- bench (B)
- existing memorial (EM)

Den Helder is home to numerous memorials, monuments, and museums scattered throughout the city. While some of these sites exhibit exceptional design and hold the potential to establish meaningful "Third Emotional Spaces" for individuals, others may not engage individuals to the desired extent. As a remedy, it is proposed to introduce newly designed memorial benchescapes, which can seamlessly integrate with existing memorials to augment their value and establish more profound emotional spaces in Den Helder. The proposed benchescapes will serve as informal memorials and will be classified into three distinctive types, each tailored to frame a unique "Third Emotional Space." These benchescapes will be strategically placed throughout the city, offering individuals a serene space to reflect, recollect, and pay homage. The overarching goal is to create a more unified and meaningful memorial landscape that not only captivates individuals but also enhances their emotional connection to the city.

The main components of the "Third Emotional Space" are **BENCHES** and **MEMORIALS**. There are three different compositions following:

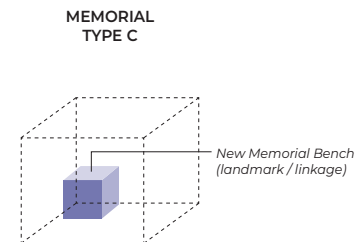
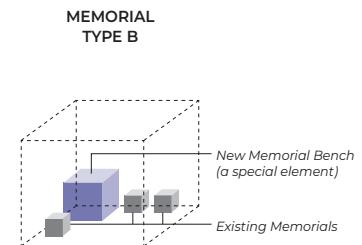
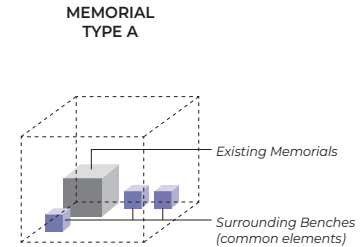
1. Existing Memorials
+ Surrounding Benches:

Some well-designed monuments and unique remnants can be used to frame "Third Emotional Spaces", and in this case, benches always work as common elements around or next to them.

2. Existing Memorials
+ New Memorial Bench:

Benchscape as a key player combines with the existing monuments or remnants to create a "Third Emotional Space" in an urban public space.

3. New Memorial Bench:
Benchscape as a living memorial provides groups or individuals more opportunity to perceive, explore and create personal significance in these "Third Emotional Spaces".



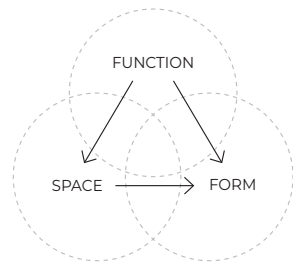
4.2.3 DESIGN TOOLBOX

01 VARIOUS TYPES OF BENCHES

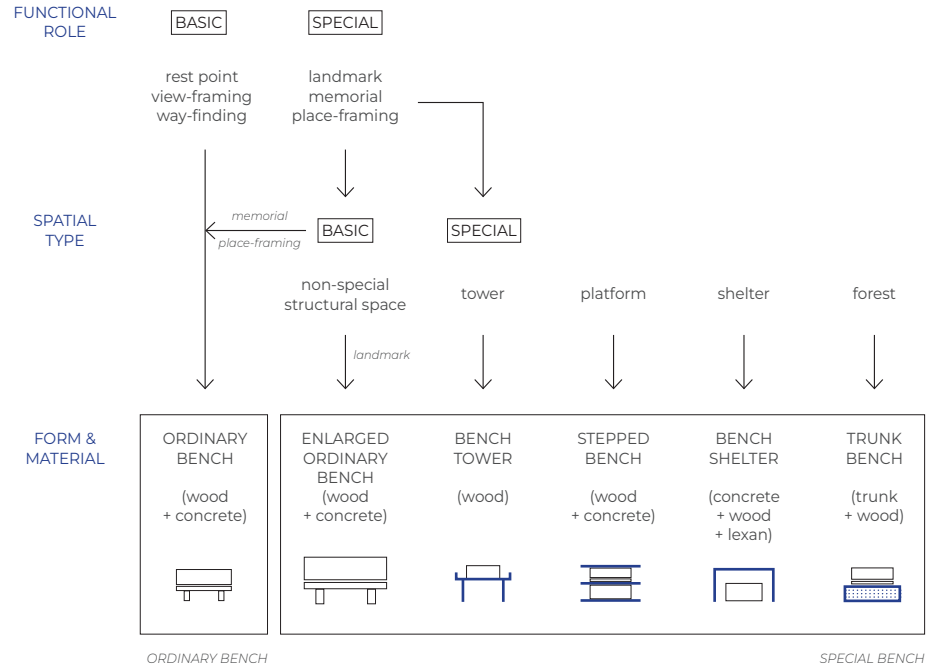
(Ordinary Bench & Special Bench)

Fig 4-5. A diagram of the triangular model of bench type design and the framework of the design principle of the six types of benches.

The design of the bench types in Den Helder is based on the need for different functions of the bench (refer to the research on the role of a bench in benchscape), including the most basic functions such as rest point, view-framing and way-finding, as well as other additional functions such as landmarks, memorials and framing social spaces. Based on the functional design, the spatial type of its surroundings is then considered. If it is framed by a special structure such as a tower, shelter, platform or forest, then special bench forms are considered, such as wooden benchtowers, concrete benchshelters, stepped benches and trunk benches. In the case of non-special structural spaces, such as open green spaces with no additional functional significance, ordinary forms of benches are generally used.



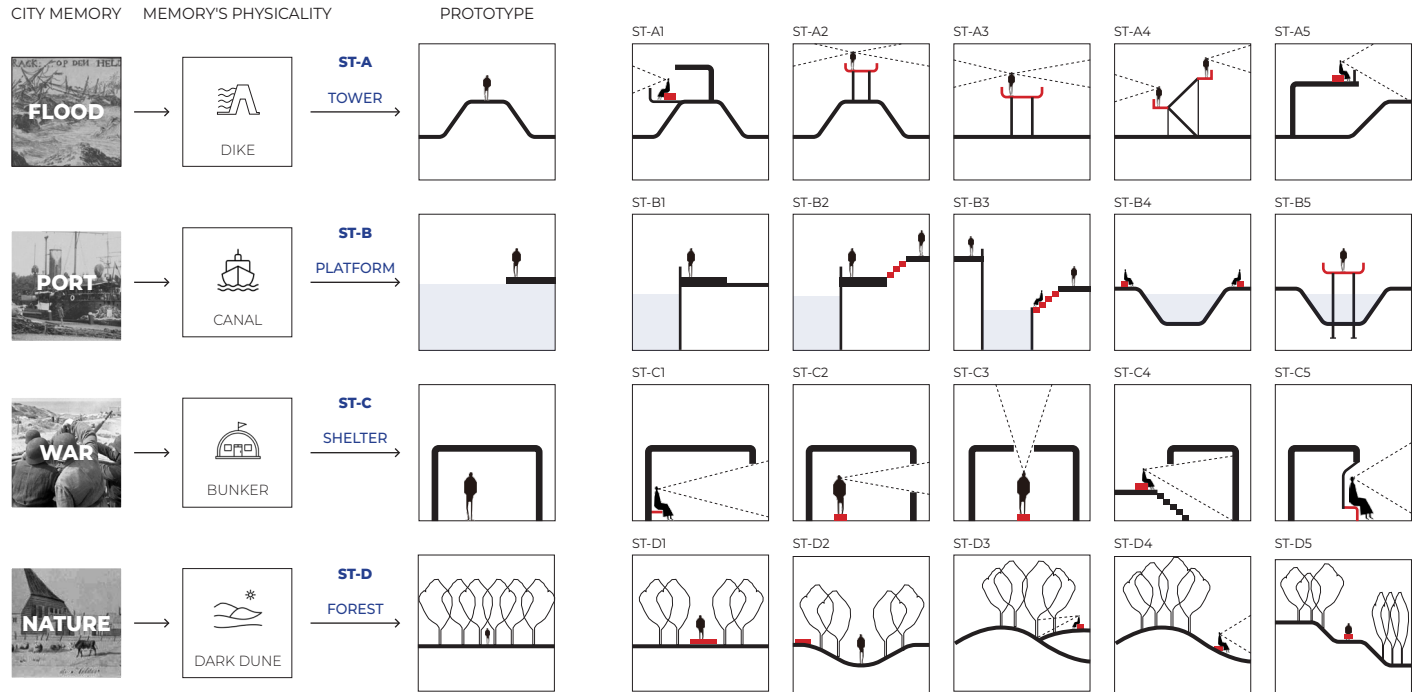
Triangular Model of Bench Design



Design Principle of the Six Types of Benches

SPECIAL SPATIAL TYPOLOGY OF "THIRD EMOTIONAL SPACE" 02

Fig 4-6. A series of images, icons and sections show the design toolboxes of four special spatial typologies of "Third Emotional Space" in Den Helder. The toolbox starts with the special city memory and its physical expression, and then transforms into four spatial prototypes with their variations.



4.3 BENSCHCAPE AS A WHOLE SYSTEM

4.3.1 CURRENT SITUATION: STOPOVER FOR TEXEL

Fig 4-7. Three diagrams of the three main challenges and opportunities of Den Helder.

1 STOPOVER FOR TEXEL

Den Helder has long served as a stopover for tourists traveling to the popular destination of Texel. It faces several challenges that hinder its appeal as a tourist destination. One of the most significant problems is the lack of infrastructure or clear guidance to support tourism. While Den Helder has a ferry terminal that connects it to Texel, it has struggled to establish a clear city identity, and outsiders often view it as a boring transfer place. This is one of the main problems that need to be addressed to retain visitors in Den Helder.

"The boat to Texel is not the only nice thing about Den Helder!"

2 UNPROGRAMMED MEMORIAL NETWORK

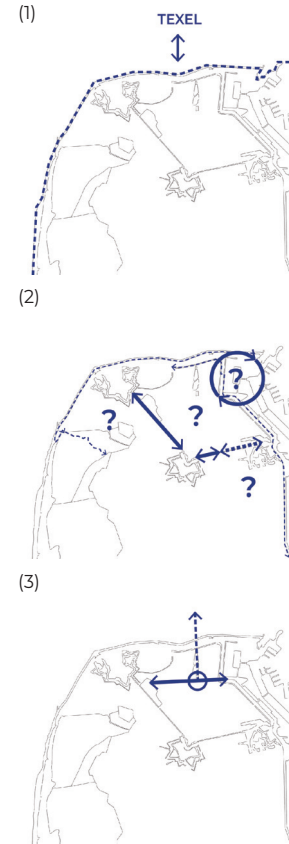
To enhance the city's monumental identity, Den Helder has developed some historical places to memorial areas and there are also several potential memorial zones. All of these memorial places form an unprogrammed memorial network in Den Helder, including the Defense Line and the Willemsoord Complex. However, the Defense Line is working as a physical and visual barrier for the three towns, it is needed to link this historical site to the city center and further enhance public engagement. What's more, with the abundant natural resources like

sea, beach and dune at the back of the residential areas, the challenge would be how to link the wild landscape to the city.

3 CITY CENTRAL AXES

In addition, Den Helder's central green corridor, which serves as the center and transition of the east-west axis in the city, also has a hidden axis in the form of a demolished old railway from the central station to the sea dike. At present, this green corridor is not coherently connected as before, which poses a challenge in terms of guiding visitors to the city's important identity - the sea dike as part of the coastline.

In general, improving the infrastructure to support tourism, linking historical sites to the city center, linking the wild landscape to residential areas, and reviving the green corridor as city axes coherently in both east-west and north-south directions are crucial steps to retaining visitors in Den Helder and improving the connection between city memory and residents' individual memory.



MONOTONOUS TOURING ROUTE

Den Helder as a stopover for Texel

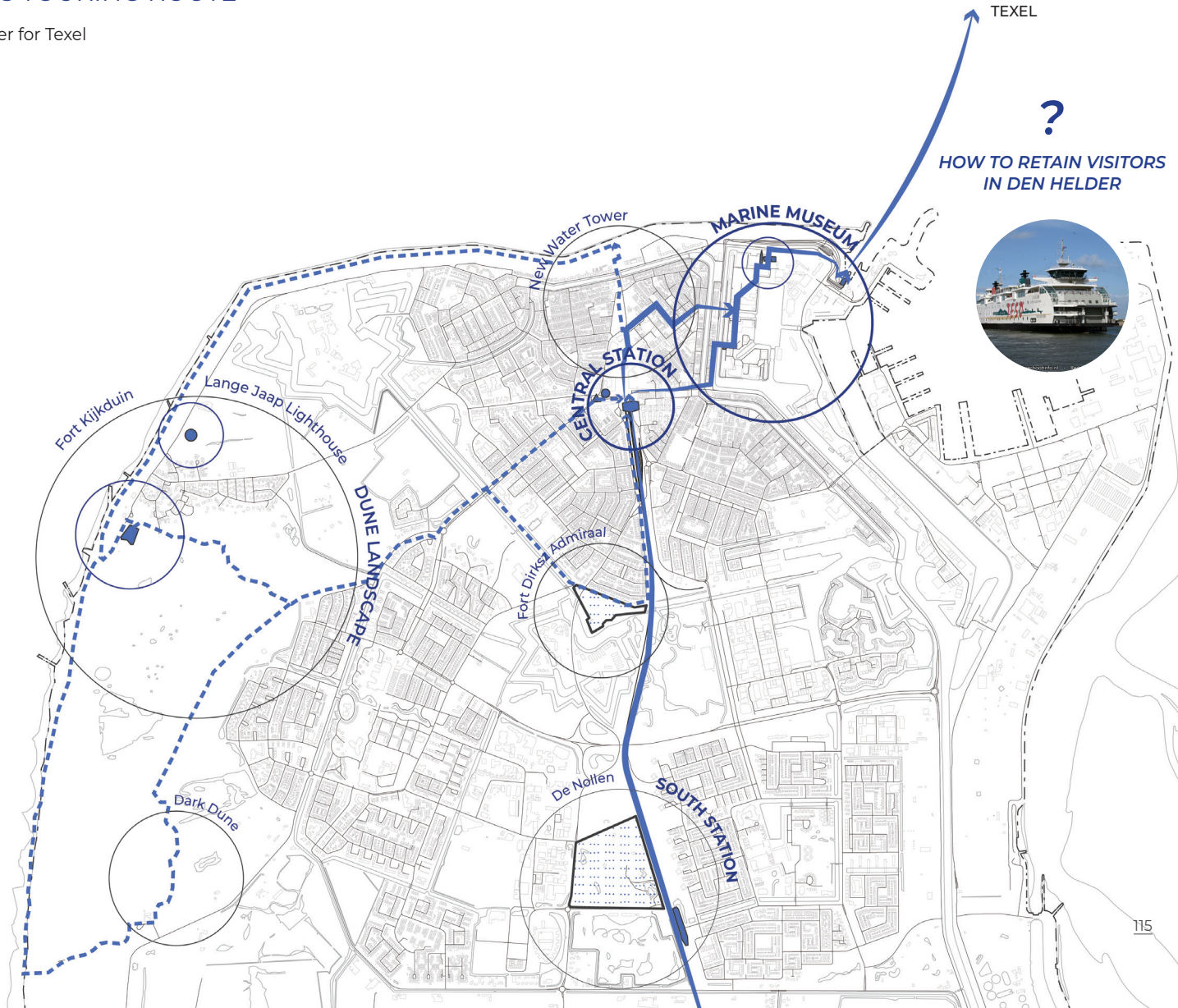
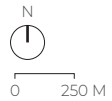
LEGEND

Tour Route

- visiting place
- visiting point /building
- main staying area
- secondary staying area
- ↔ half-day touring route
- ↔ one/two days touring route

Other Elements

- buildings
- ▬ city roads
- ▬ railways



UNPROGRAMMED MEMORIAL NETWORK

Two Recognizable Memorial Routes
& Three Unprogrammed Potential Memorial Routes
in Den Helder



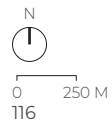
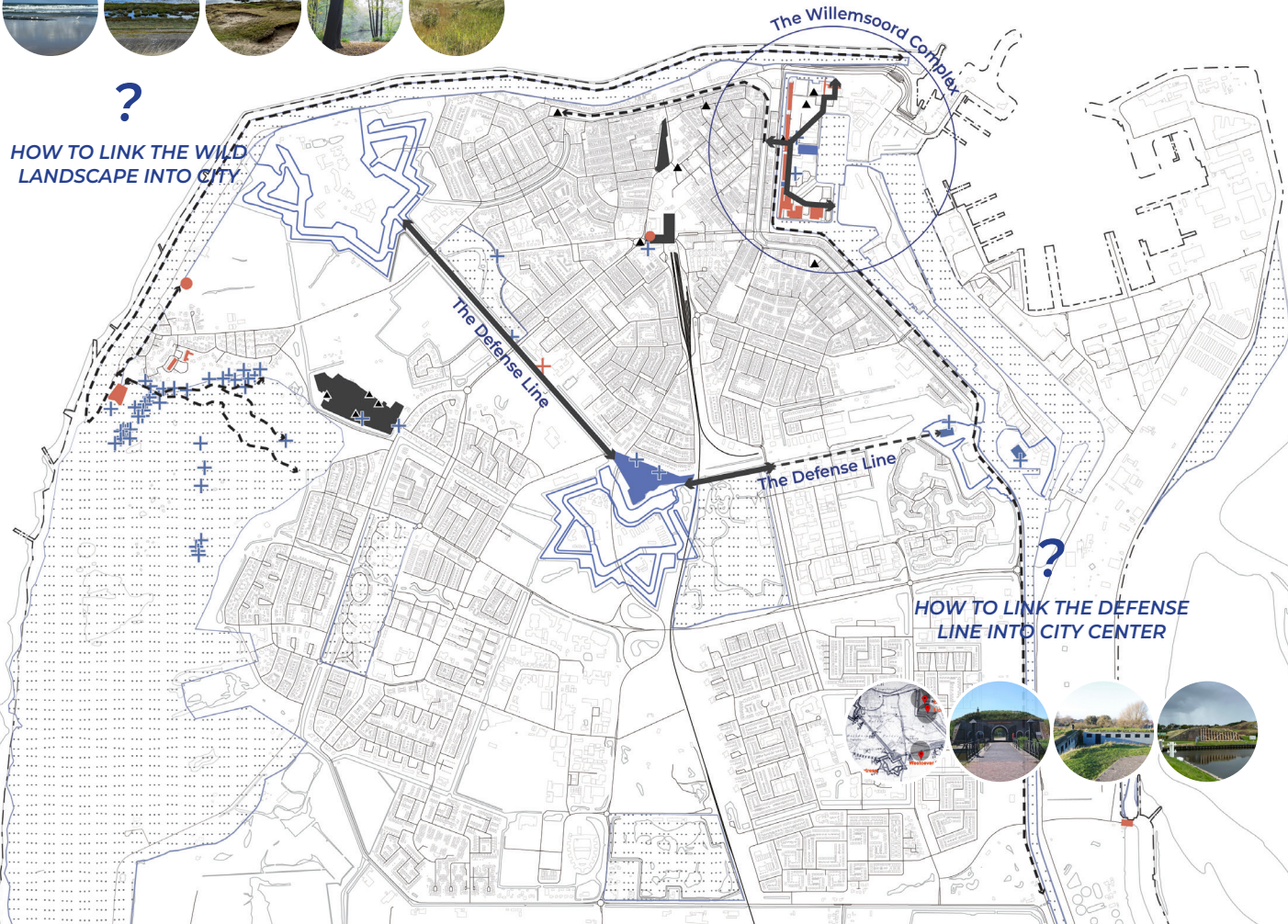
LEGEND

Memorial Network

- remnant
- monument
- memorial building
- ▨ memorial landscape
- ↔ recognizable memorial route
- ↔↔ unprogrammed memorial route

Other Elements

- buildings
- ▨ city roads
- ▨ railways

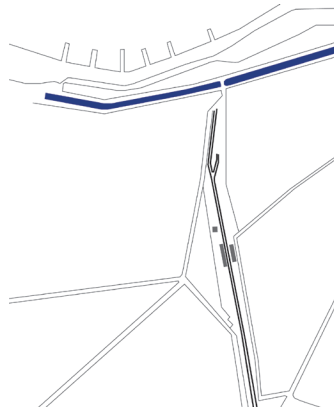


CITY CENTRAL AXES

Central Station as a Transition of the East-West Axis & a Hidden North-South Axis in the history of Den Helder

LEGEND

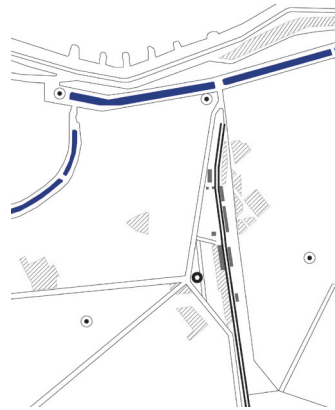
- water tower
- monument
- + historical building
- ▨ greenland
- building
- water
- city road
- ▤ railway



1865

OLD STATION CONSTRUCTION

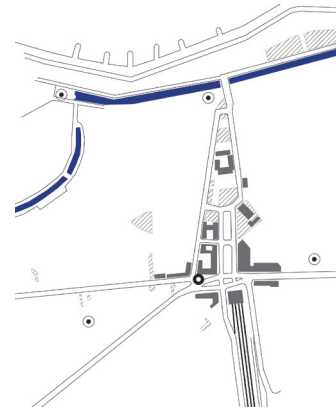
In 1865, with the railway between Den Helder and Alkmaar, there finally was a rapid connection with the hinterland.



1958

OLD STATION DEMOLISHMENT

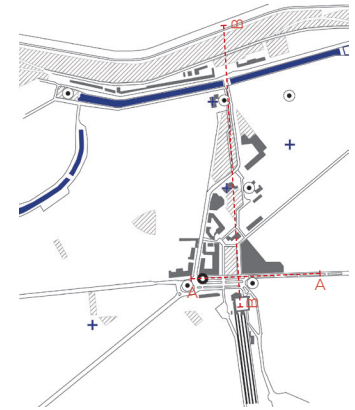
In 1958, the station was demolished to make room for the new city centre.



1971

NEW STATION & NEW CITY CENTER

The new station was built 150 metres from the location of the old one.



2022

GREEN CORRIDOR DEVELOPMENT

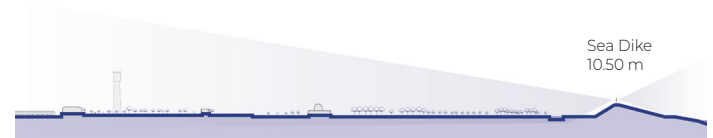
Three separate green parks were constructed in the new city centre due to some buildings built in the half way.

New Water Tower
41.25 m



SECTION A-A

Sea Dike
10.50 m



SECTION B-B



4.3.2 MEMORIAL NETWORK OF DEN HELDER

The proposed future memorial network will primarily serve two groups of people - visitors and residents. It is intended to provide a unique and meaningful experience for those interested in exploring the history and culture of Den Helder.

The network will commence with the construction of two primary memorial structures, each catering to a specific audience. The first structure, designed for visitors, will focus on guiding them by city axes through the historical landmarks and cultural hotspots of the city. The second structure will cater to the local residents, providing them with an opportunity to connect with the physical landscapes of memory that surround them.

MEMORIAL STRUCTURE A (VISITORS)

The majority of visitors are likely to take the train to Den Helder and disembark at the Central Station Den Helder. The central green corridor serves as a city gate and marks an axis that follows the old railway, leading visitors to the dike and the sea. Additionally, the road in front of the central station directs people to explore the two main cultural identities of the city - its port and war history - in separate directions. The eastern path leads to the port area and continues in the Willemsoord Complex,

while the western path gradually connects the Timorpark, where a hidden bunker is located near the entrance, to the wild dunes where a group of bunkers are preserved, and ultimately to the dark dunes, where nature reigns supreme.

Moreover, the new memorial structure is integrated with the existing defense line and made more accessible by linking it to the existing path along the North-Holland Canal. Along the main structure, there are five or more paths leading to the coastline, allowing visitors to experience mental freedom and relief as they reach "the end of the land."

Some visitors may prefer to drive directly to the port area for the Marine Museum or Texel. In this case, the sea dike in front of the Marine Museum would serve as an important potential guide to encourage visitors to explore the beautiful coastline.

MEMORIAL STRUCTURE B (RESIDENTS)

The structure for Den Helder's residents starts from the center of three separate residential areas, each with a unique community park theme. The central green corridor guides visitors to the dike and the sea, while the dune park leads to the dune area, and the future canal park will lead to the North-Holland Canal. All three parks

serve as outward transitions that connect the physical landscapes of memory. Additionally, the three parks will be connected by existing or potential memorial areas, combining with the defense line to create a cohesive and integrated memorial structure.

INTEGRATED MEMORIAL STRUCTURE

These two basic structures will be integrated into a new memorial structure of Den Helder, which encourages people to choose different options for memorial routes. Whether visitors or residents are invited to join each other to explore the city memories by "looking out, thinking in", and create new meaningful individual memories in Den Helder.

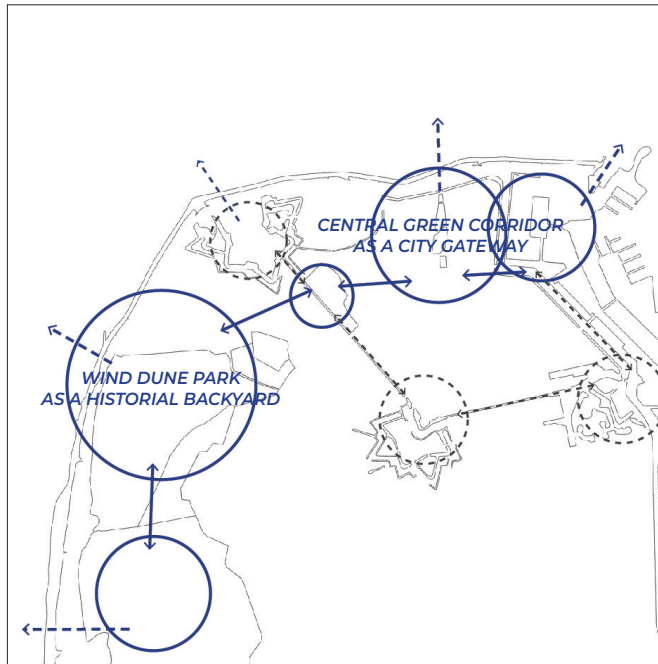
Fig 4-8. Two maps of the basic memorial structures A and B for visitors and residents.

LEGEND

- primary memorial area
- ⊖ other existing memorial area
- ↔ main connection of the structure
- ↔ secondary connection of the structure

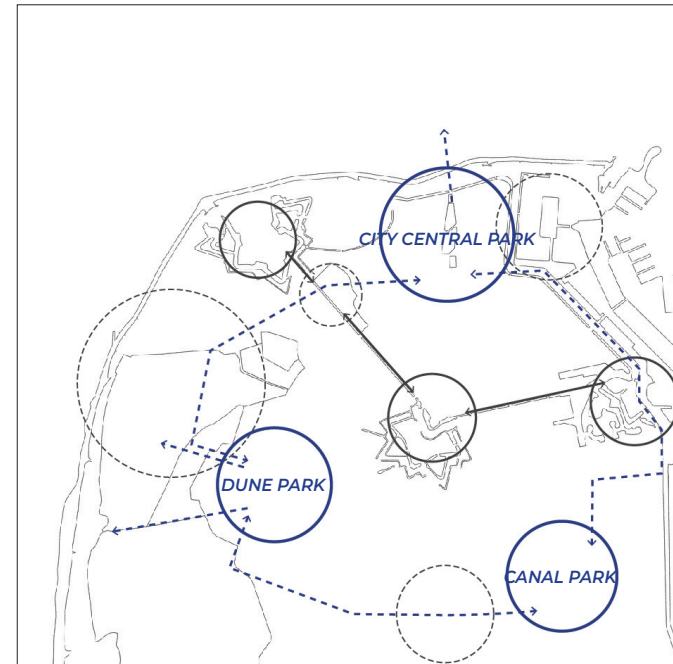
MEMORIAL STRUCTURE A (VISITORS)

GUIDED BY CITY CENTRAL AXES
 ALL END AT
 "THE END OF THE LAND"



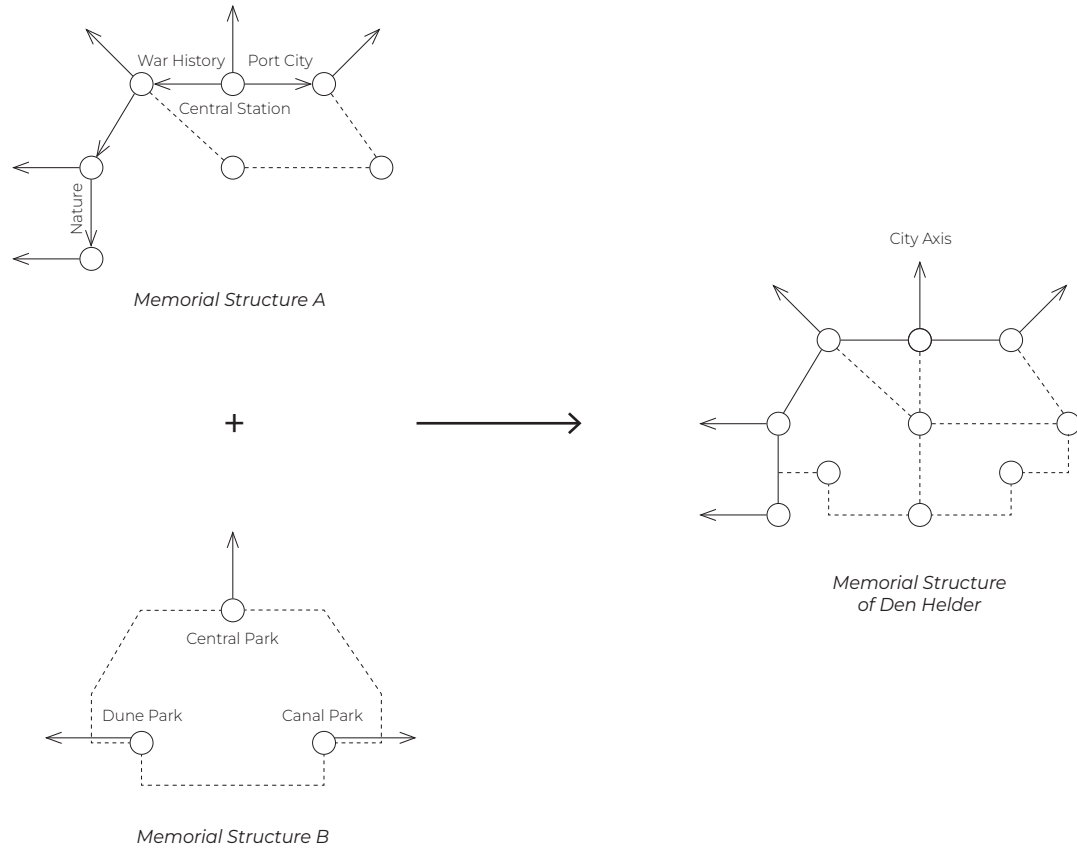
MEMORIAL STRUCTURE B (RESIDENTS)

THREE COMMUNITY PARKS
 AS GUIDANCE OF
 "NATURAL LANDSCAPES"



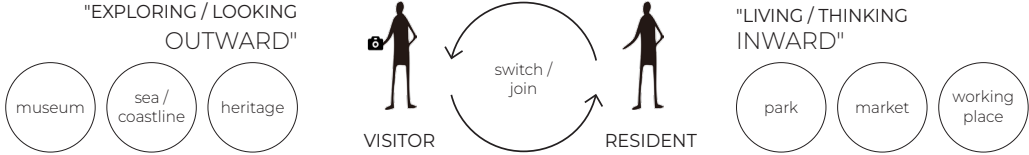
02 INTEGRATED MEMORIAL STRUCTURE

Fig 4-9. A group of diagrams of the basic memorial structures A and B for visitors and residents; an integrated memorial structure of Den Helder with "Third Emotional Spaces".



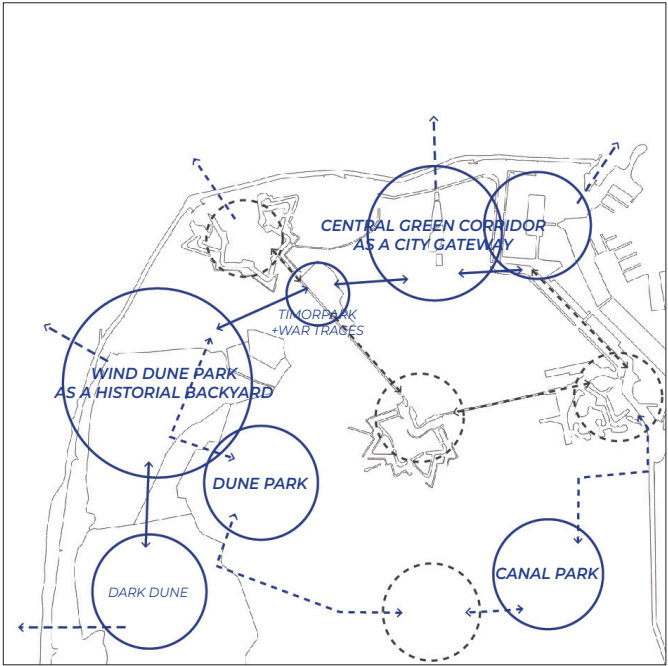
MEMORIAL STRUCTURE: 03
"LOOKING OUT, THINKING IN"

Fig 4-10. A map of the new integrated memorial structure of Den Helder, which encourages both visitors and residents to explore the rich city memories by "looking out, thinking in".



LEGEND

- primary memorial area
- ⊖ other existing memorial area
- ↔ main connection of the structure
- ↔ secondary connection of the structure



MEMORIAL NETWORK

“The Proposed Memorial Network of Den Helder Does Not Focus on Highlighting Several Recognizable Routes, but on Creating a Memorial Benchscape Family by Integrating New Benches, Existing Benches, and Memorials. Thus, the Benchscape in Den Helder as a Whole System is Encouraging and Guiding People to Explore City Memories and Create Individual Living Memories.”

LEGEND

Memorial

- memorial area
- remnant
- ▲ monument
- memorial building

Memorial Route

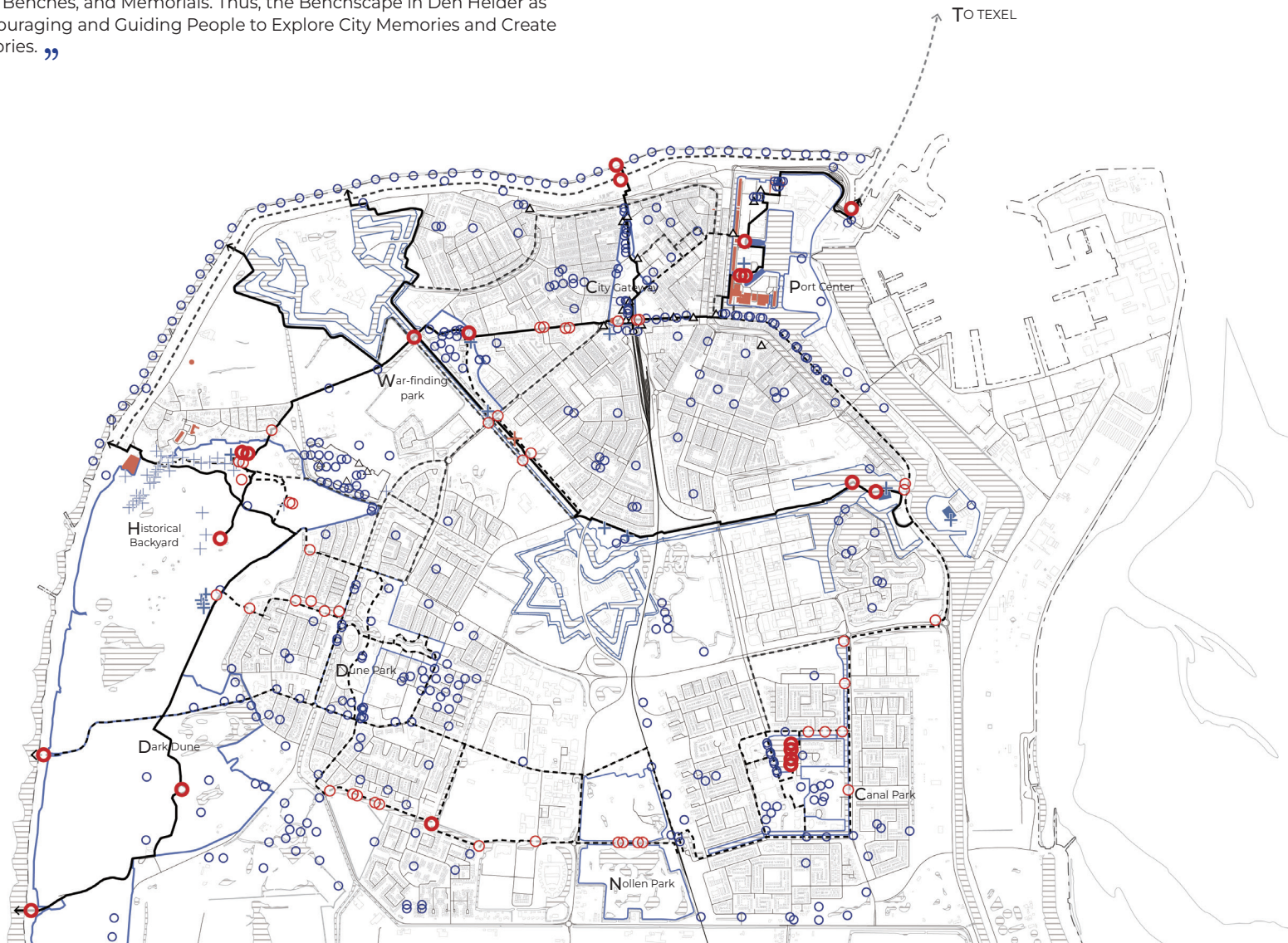
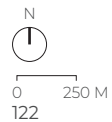
- primary memorial route
- secondary memorial route

Bench

- existing ordinary bench
- new ordinary bench
- new special bench

Other Elements

- buildings
- city roads
- railways



SIX TYPES OF BENCHES

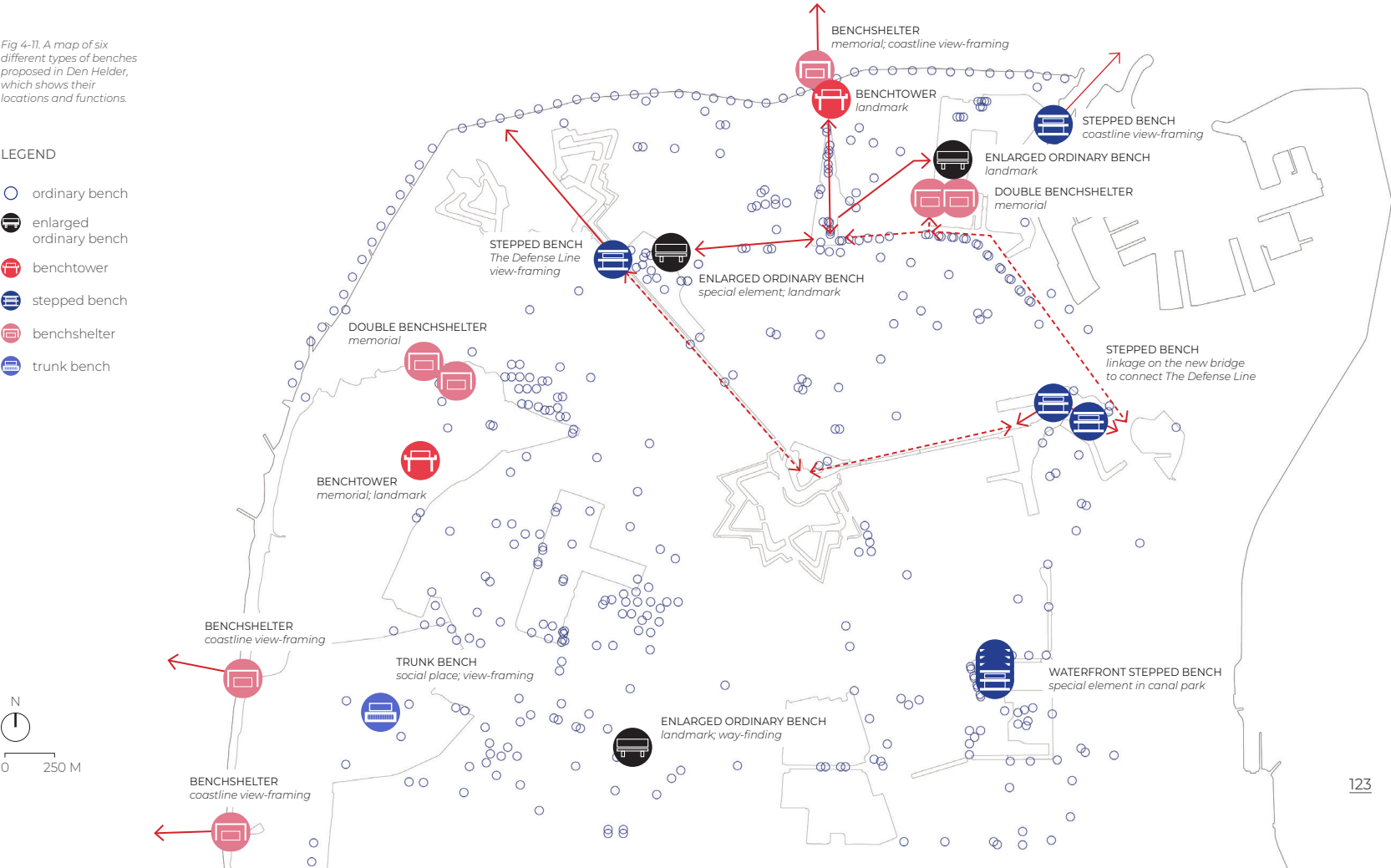
in proposed memorial network
(ordinary bench + special bench)

“ The Six Types of Benches with Ordinary or Special Forms Play Different Roles in the Whole Benchscape System to Help Frame the Memorial Network as a New Significant Exploration Layer of Den Helder. ”

Fig 4-11. A map of six different types of benches proposed in Den Helder, which shows their locations and functions.

LEGEND

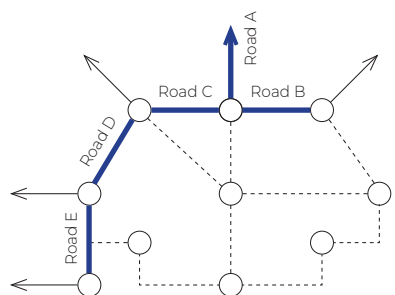
-  ordinary bench
-  enlarged ordinary bench
-  benchtower
-  stepped bench
-  benchshelter
-  trunk bench



PRIMARY MEMORIAL ROUTE

Fig 4-12. Two diagram show the primary memorial route in the new memorial structure, and the proposed new frame of benchescape in this route planning.

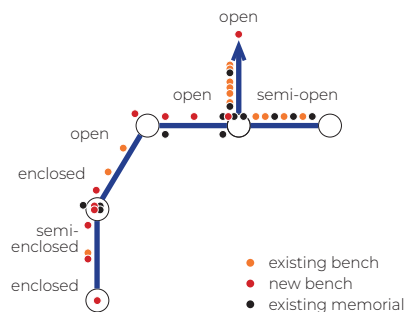
Fig 4-13. A map of the proposed primary memorial route and five diagrams show the spatial sequence of the five roads in the main memorial routes.



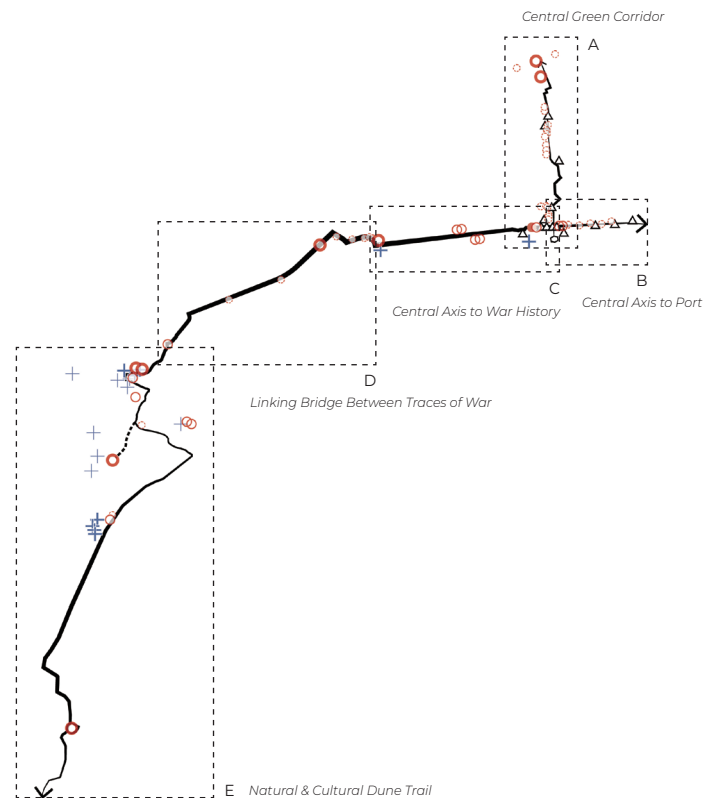
LEGEND

- + remnant
- △ monument
- existing formal bench
- new formal bench
- new informal bench
- tree
- hedges
- ▬ walking path

Main Route in Memorial Structure



New Frame of Benchescape



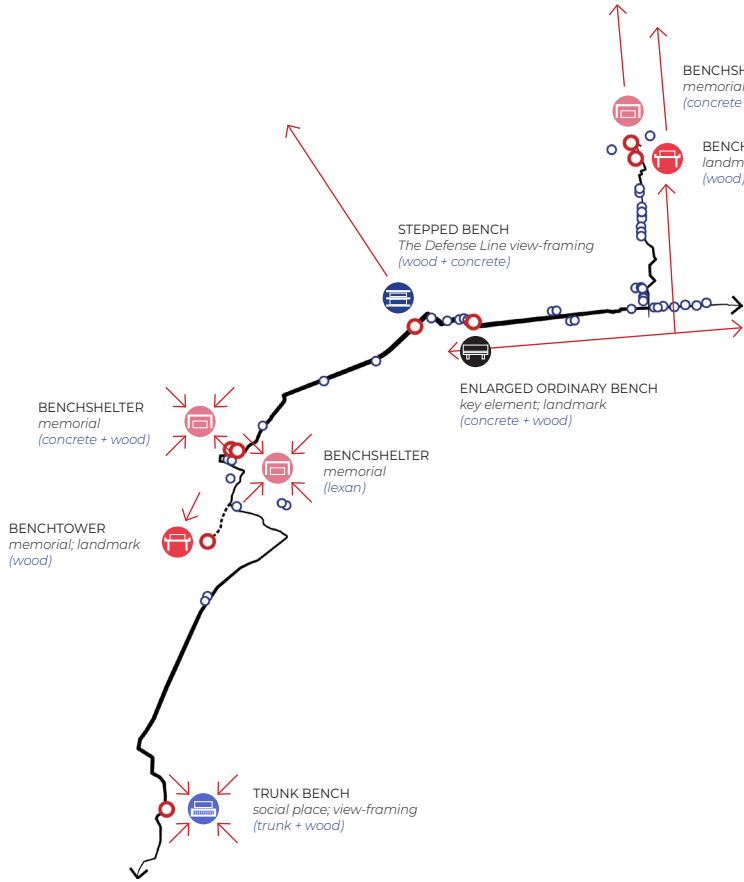
The primary memorial route can be basically divided into five roads, which are proposed to be framed by benches and/or memorials.

FOUR-RELATION ANALYSIS OF VARIOUS TYPES OF BENCHES ON THE PRIMARY MEMORIAL ROUTE

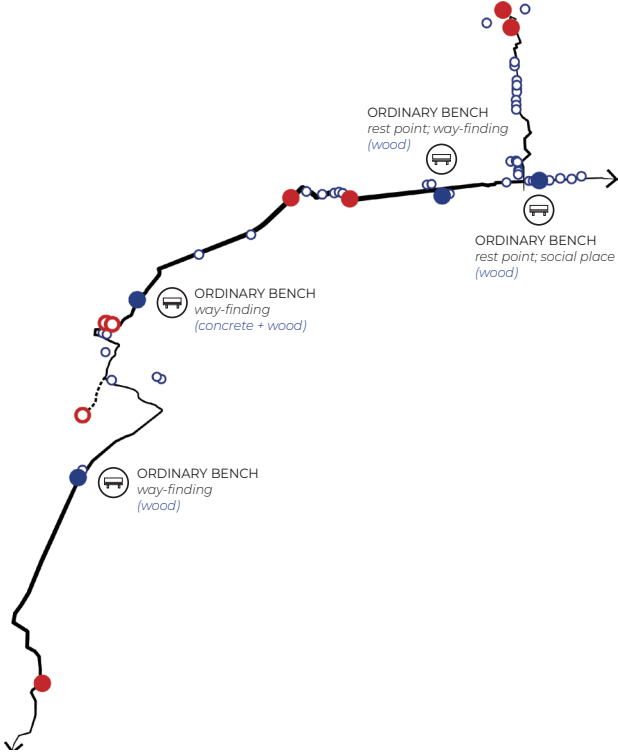
Fig 4-14. Two maps of the different types of benches on the primary memorial route with their functions, materials and visual connections in-between.

LEGEND

- ordinary bench
- special bench
- enlarged ordinary bench
- benchtower
- stepped bench
- benchshelter
- trunk bench
- ordinary bench



The map highlights the five types of special benches on the primary memorial route, and according to their special functional roles, they are made of different materials and have different visual relations.



The map points out the nine benches selected for detail design in five memorial roads and an additional description of the functional role and materials of the ordinary benches therein.



4.3.3 MEMORIAL ROAD A - CENTRAL GREEN CORRIDOR

01 CURRENT SITUATION: INCOHERENT PHYSICAL CONNECTION

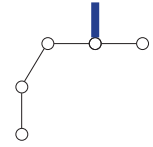
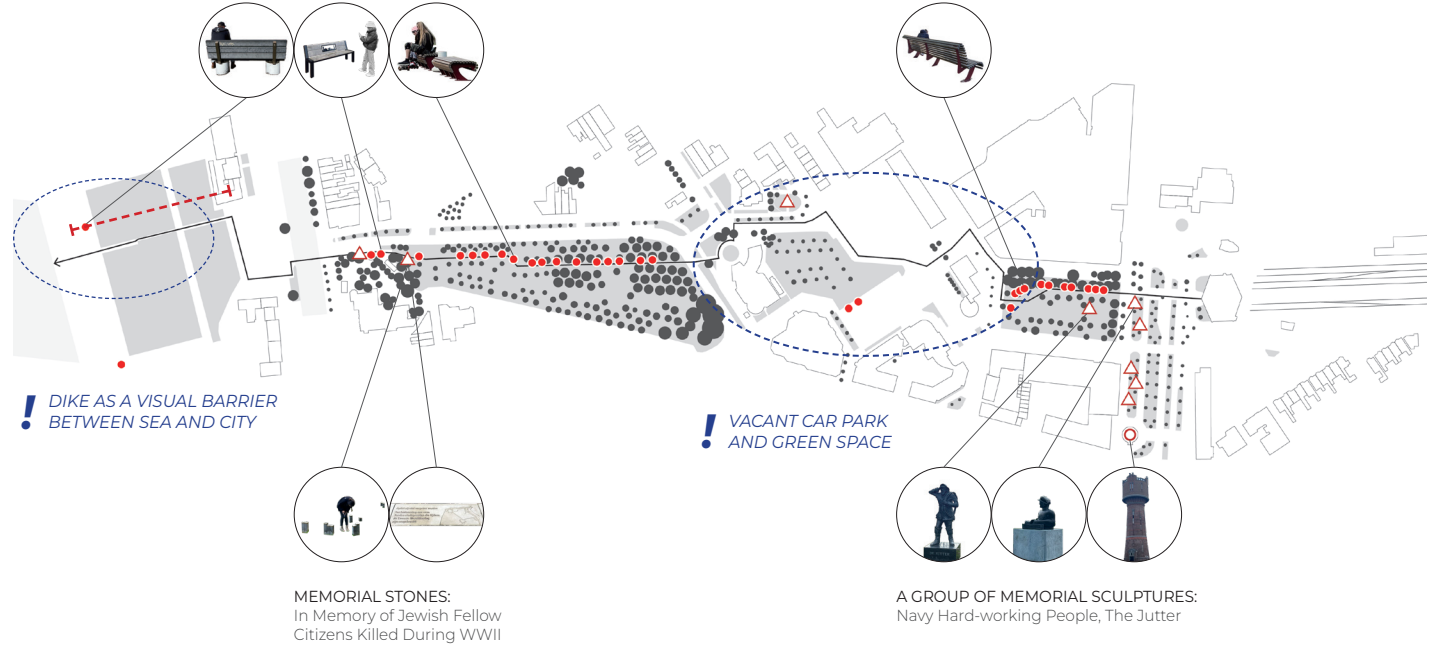


Fig 4-15. A street map and a section of memorial road A, which show the current situation of a past (hidden) city axis from central station to the sea dike with good visual connection and poor physical connection.

LEGEND

- bench
- △ monument
- grassland
- water
- ▭ city road
- building
- tree



! DIKE AS A VISUAL BARRIER BETWEEN SEA AND CITY

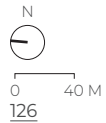
! VACANT CAR PARK AND GREEN SPACE

MEMORIAL STONES:
In Memory of Jewish Fellow
Citizens Killed During WWII

A GROUP OF MEMORIAL SCULPTURES:
Navy Hard-working People, The Jutter

Sea Dike
10.50 M

New Water Tower
41.25 M



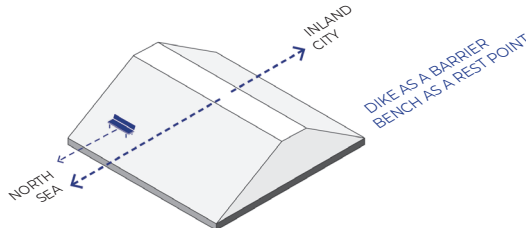
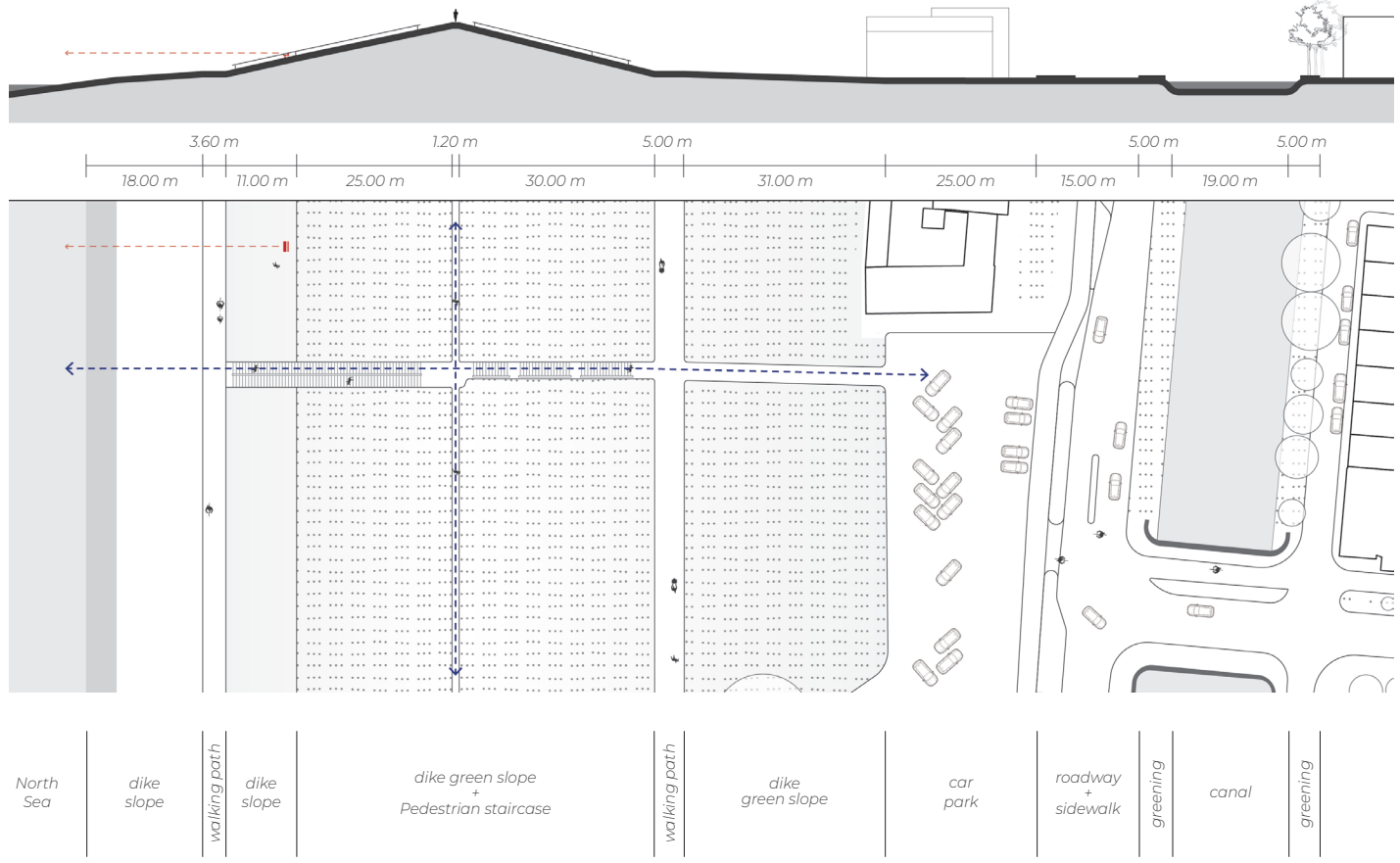


Fig 4-16. A road cross-section of the sea dike, which shows the good visual connection between sea and city standing on the dike and the benches along the dike as view frames.



1:1100

02 AFTER INTERVENTION:
COHERENT GREEN CORRIDOR AS A CITY AXIS

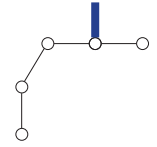
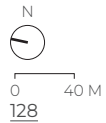
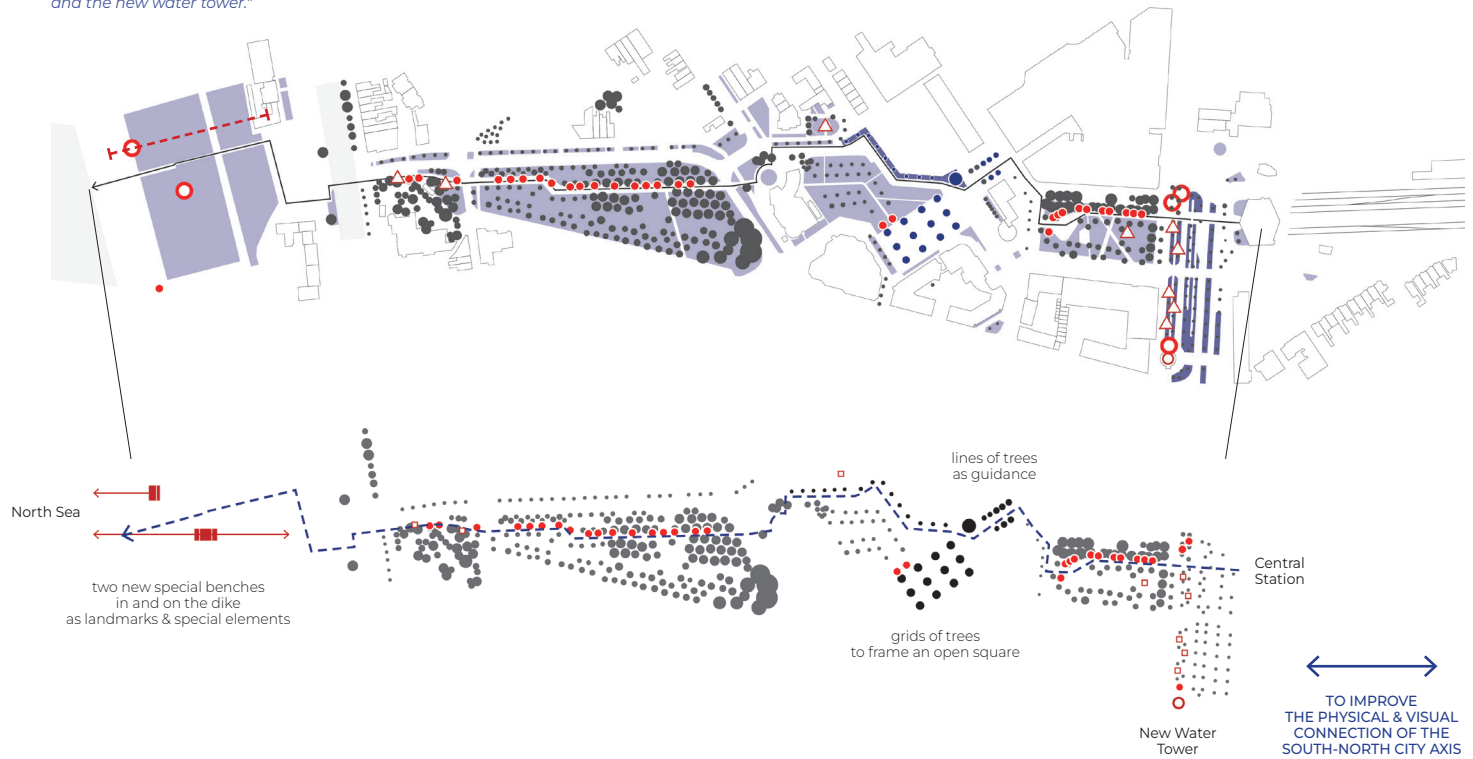


Fig 4-17. A street map and one analysis map of memorial road A, which show the road vision after intervention.

"Central green corridor as a walking city axis to link the new benchtower complex and the new water tower."

LEGEND

- existing bench
- new bench
- grassland
- water
- ▭ city road
- ▭ building
- tree
- new tree



BENCHSHELTER
 memorial; coastline view-framing
 (concrete + wood)

BENCHTOWER
 landmark
 (wood)

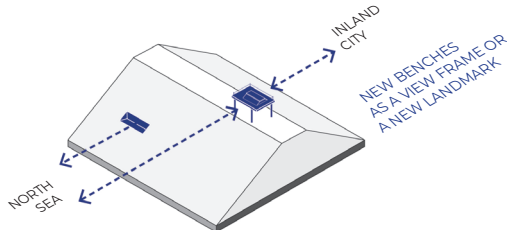
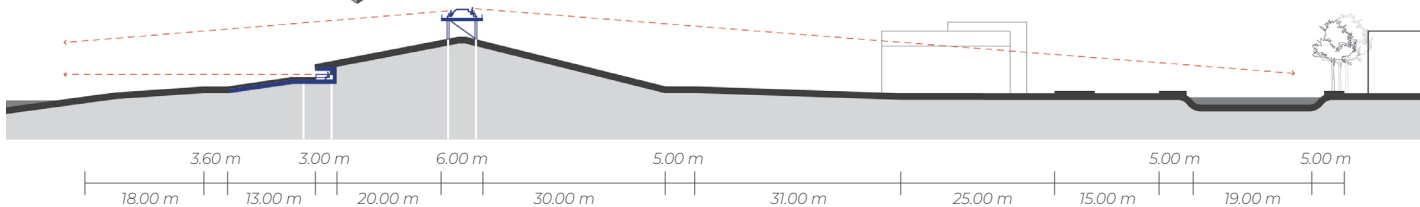
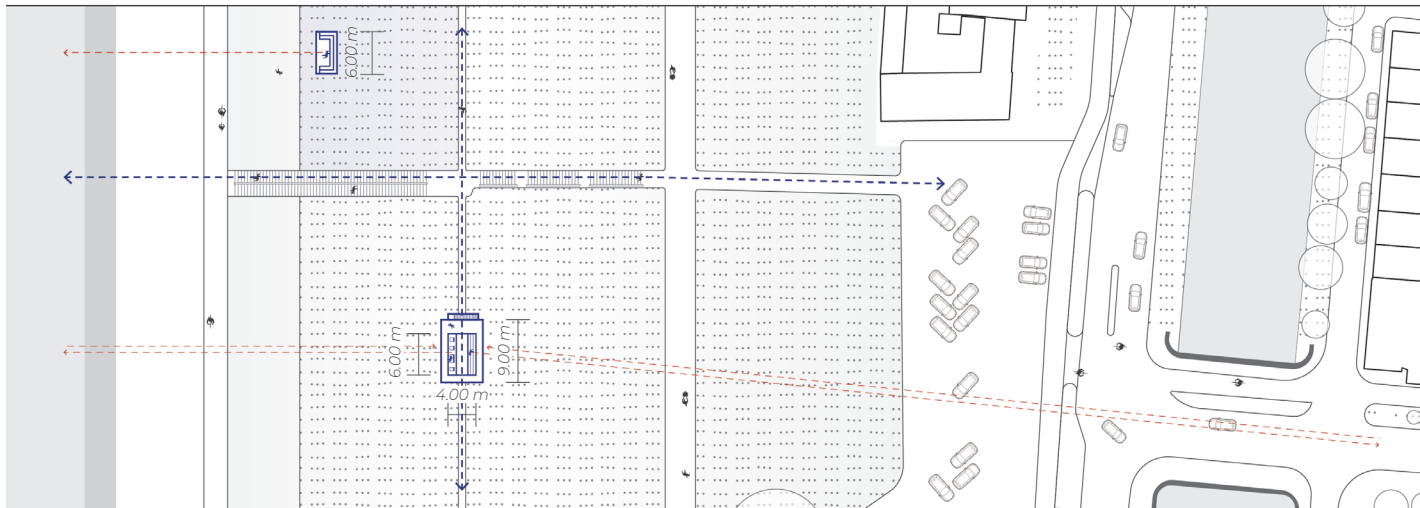


Fig 4-18. A road cross-sections of the road A after intervention, which shows a new benchtower on the dike and a new embedded bench shelter in the dike as view frames and a new city landmark to enhance the south-north city axis.



LEGEND

- tree
- water
- building
- ▨ grassland
- new bench



1:1100

4.3.4 MEMORIAL ROAD B - CENTRAL AXIS TO PORT

01 CURRENT SITUATION: PLENTY OF MONUMENTS

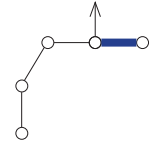
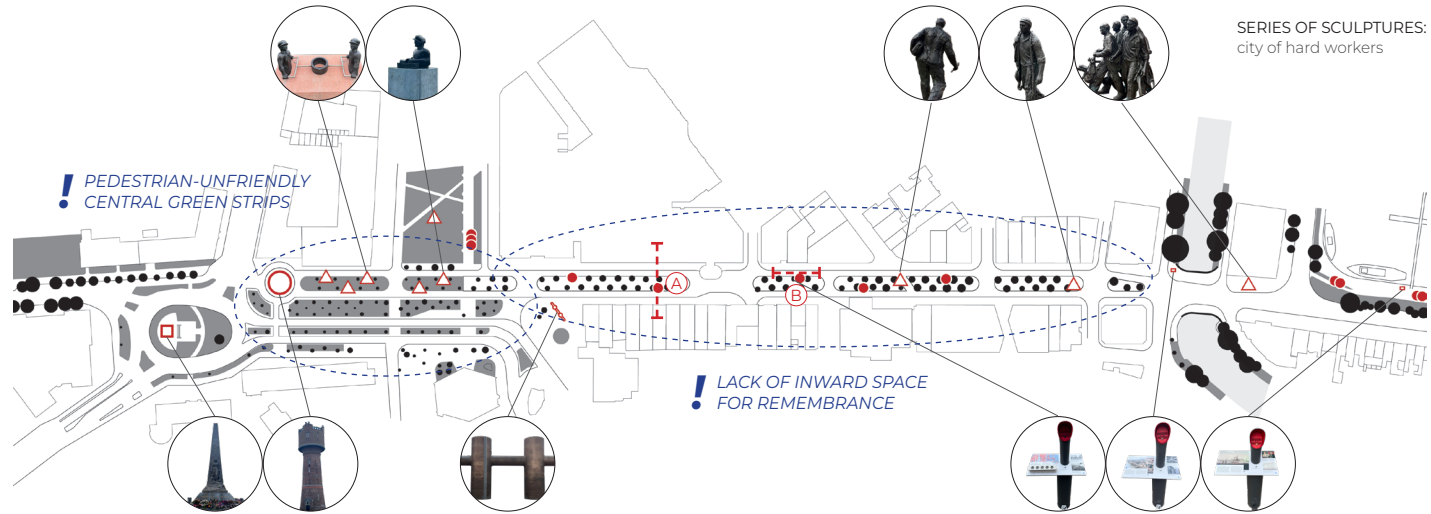


Fig 4-19. A street map and a section of memorial road B, which show the current situation of plenty of monuments, information boards and landmarks.

LEGEND

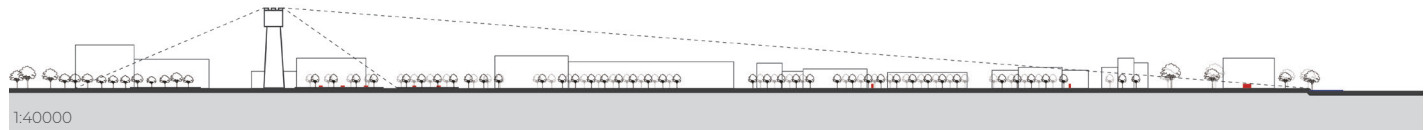
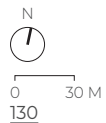
- bench
- ▲ monument
- grassland
- water
- ▭ city road
- building
- tree



SERIES OF SCULPTURES:
city of hard workers

LANDMARKS:
Naval Monument,
New Water Tower

SERIES OF INFORMATION BOARDS:
the development of Beatrixstraat, history of city of hard workers and the legacy of Napoleon



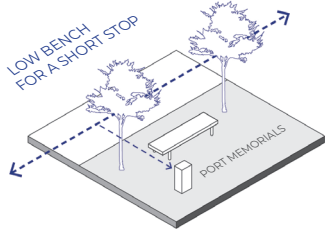
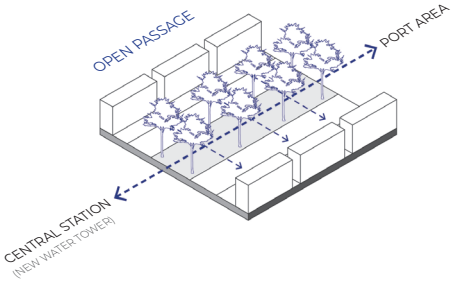
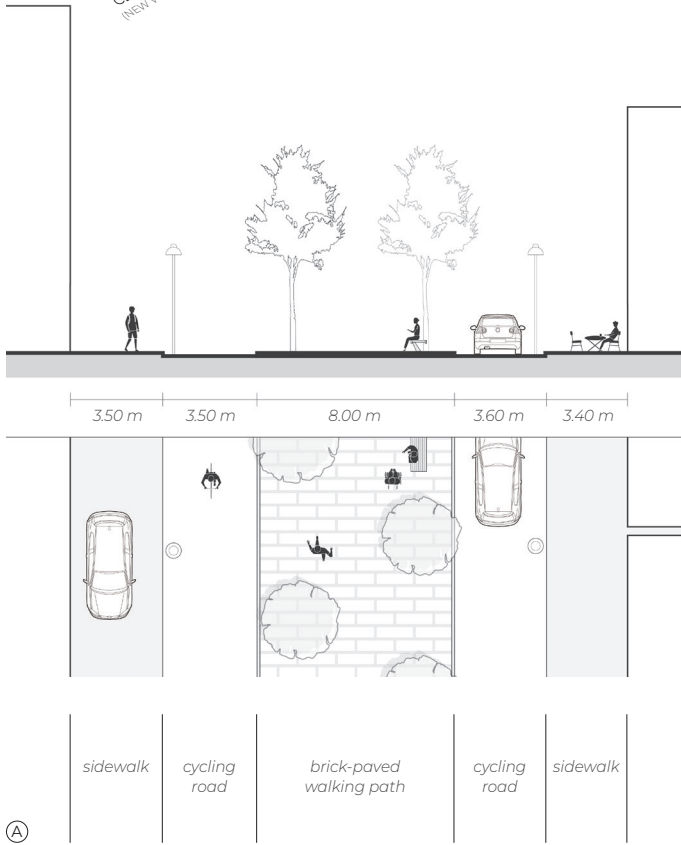


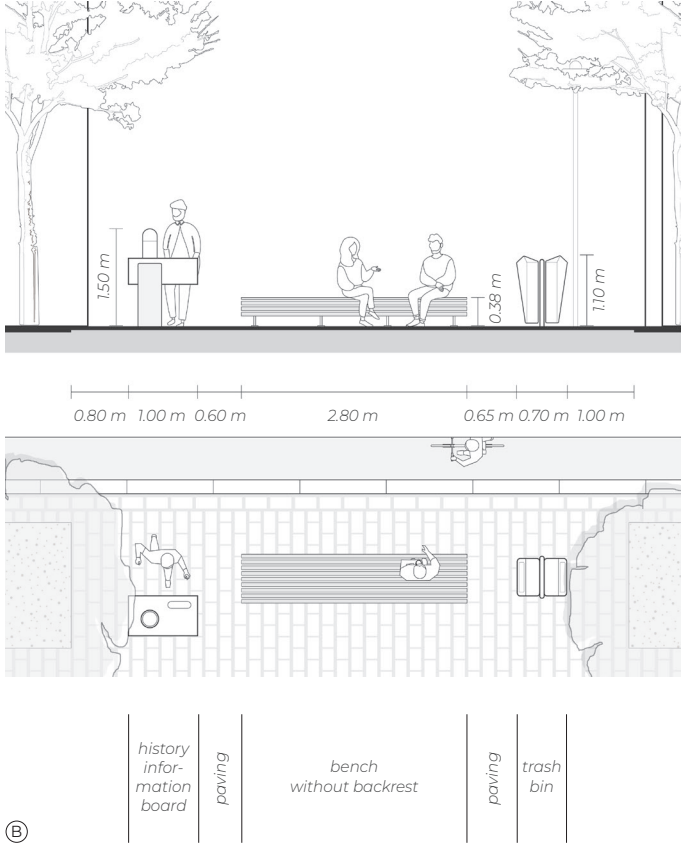
Fig 4-20. A road cross-section of the road B in current situation, which shows the fully paved walking path guiding to the port area. A detail section shows the configuration of a bench, a trash bin and a history information board.

LEGEND

- tree
- pavement
- building



(A)
1:300



(B)
1:100



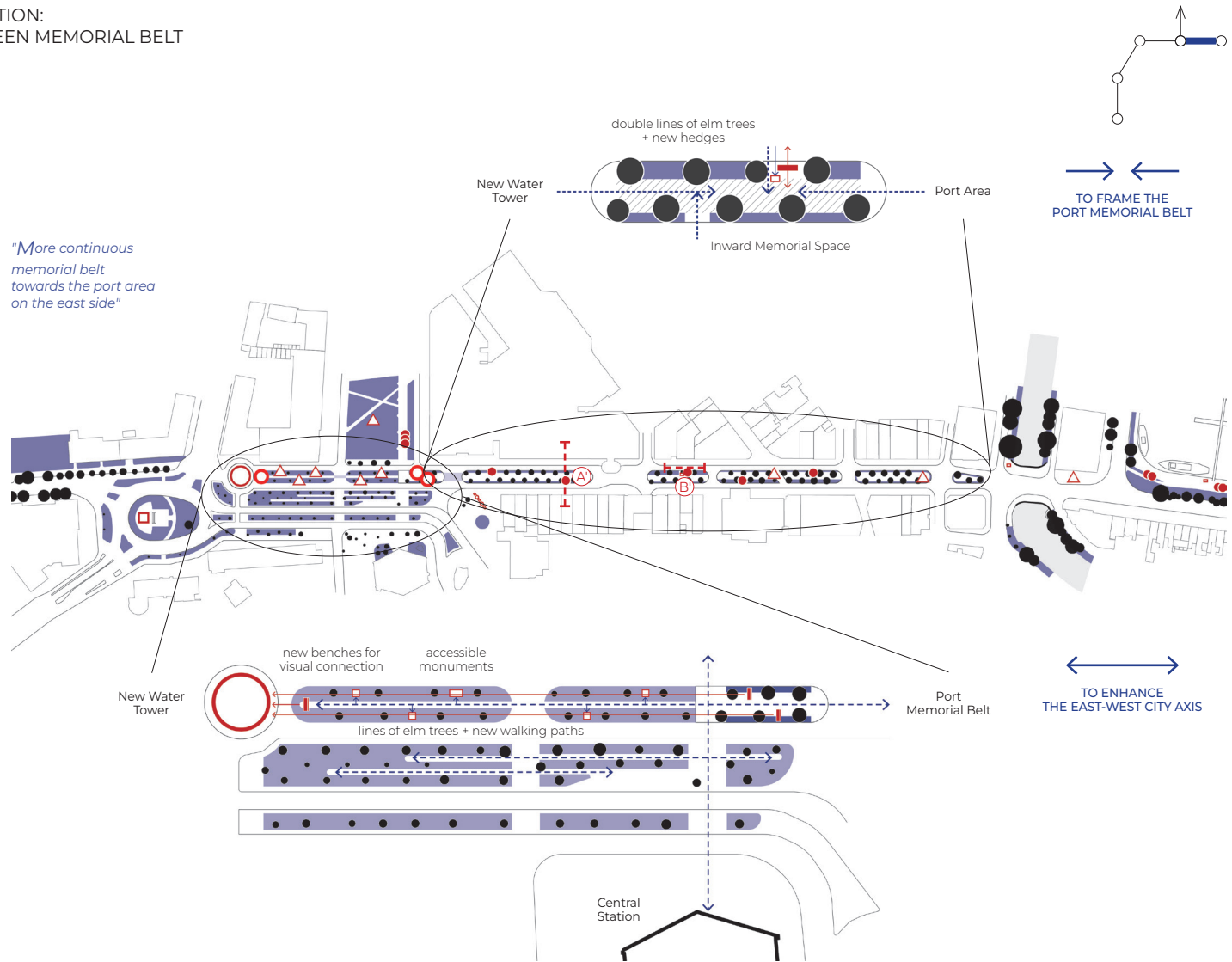
02 AFTER INTERVENTION:
A COHERENT GREEN MEMORIAL BELT

Fig 4-21. A street map and two detail maps of memorial road B, which show the road vision after intervention.

LEGEND

- existing bench
- new bench
- △ monument
- greenland
- water
- ▭ city road
- ▭ building
- tree

"More continuous memorial belt towards the port area on the east side"



ORDINARY BENCH
rest point; social place
(wood)

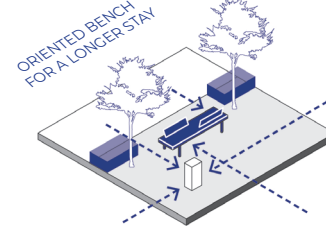
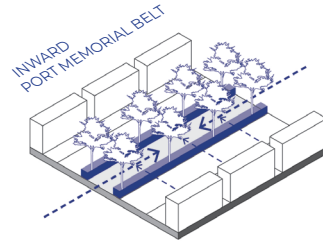
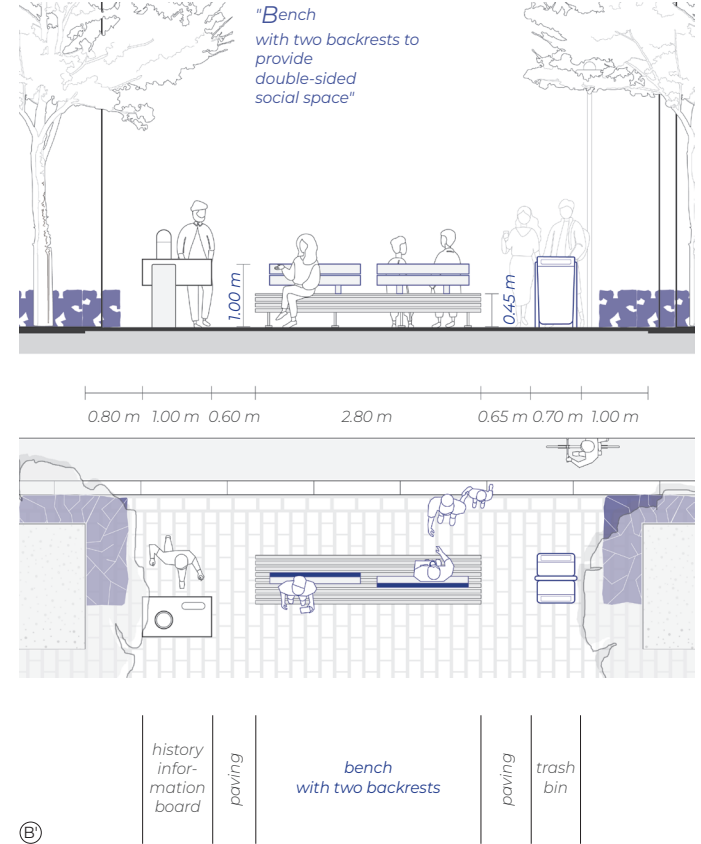
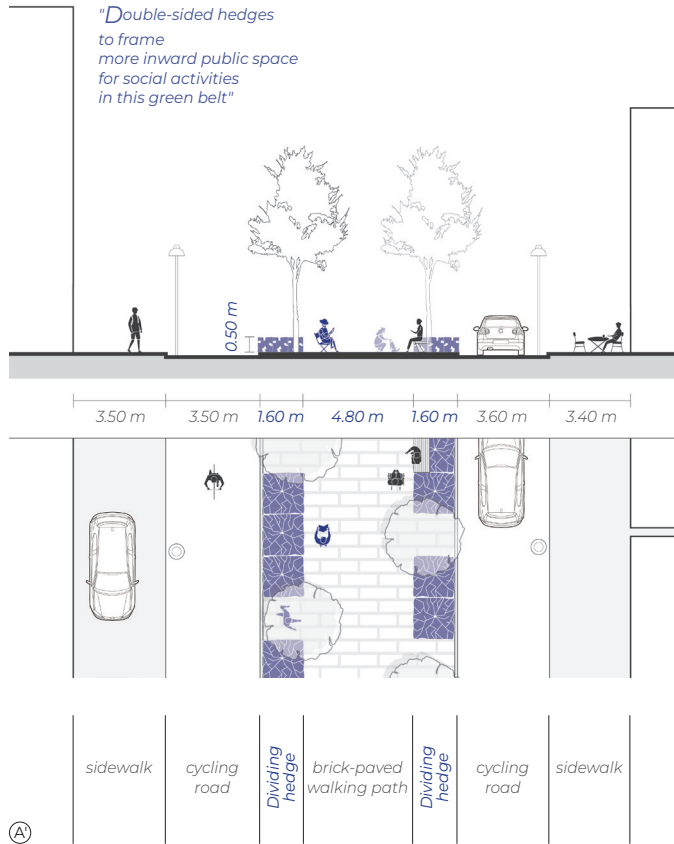


Fig 4-22. A road cross-section of the road B after intervention, which shows the dividing hedges framing a new inward social activity belt. A detail section shows the new configuration of a bench with two backrests and a rotated trash bin.

LEGEND

- tree
- pavement
- building
- hedge



A
1:300

B
1:100

4.3.5 MEMORIAL ROAD C - CENTRAL AXIS TO WAR HISTORY

01 CURRENT SITUATION: A STRAIGHT ROAD FROM CENTER TO TIMORPARK

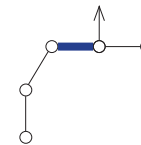
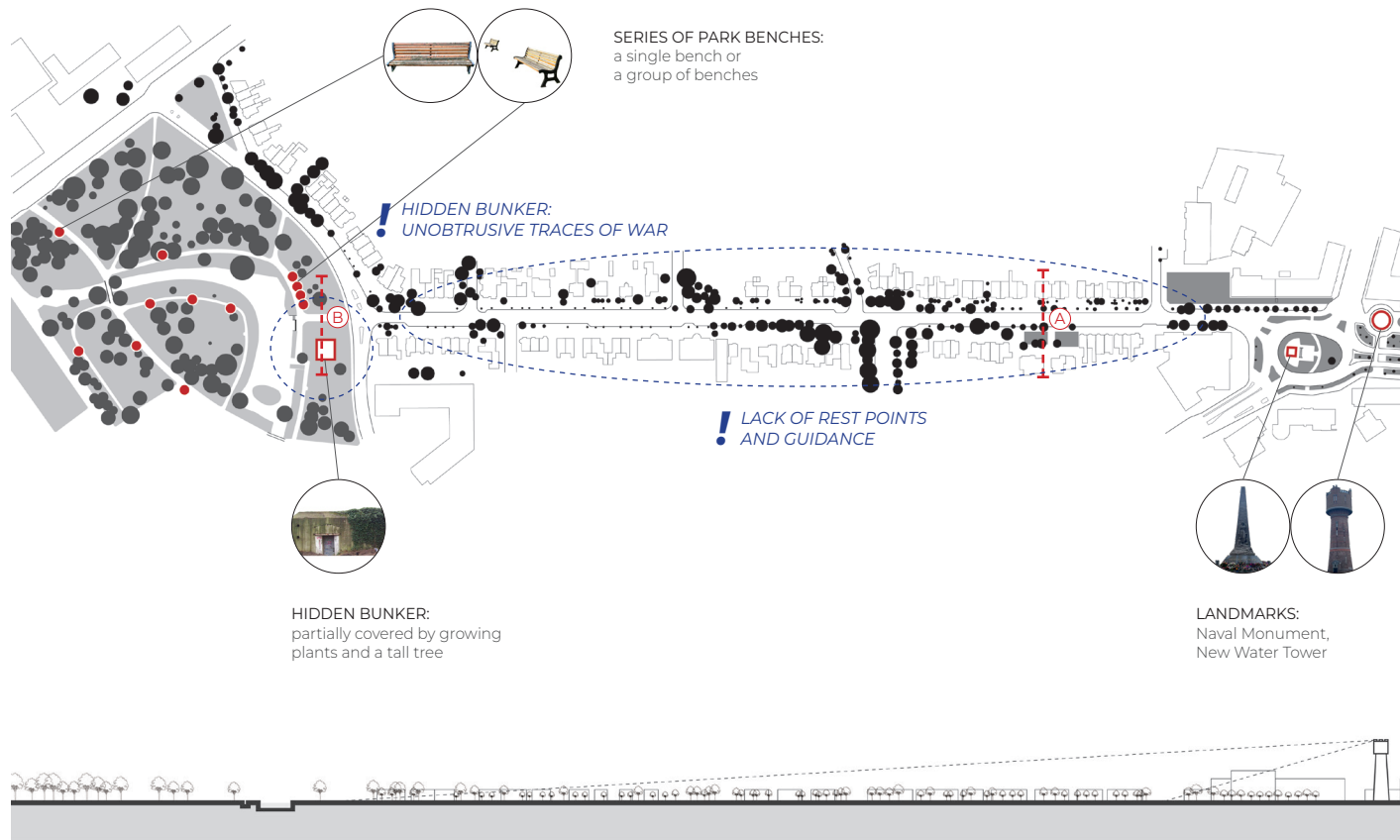


Fig 4-23. A street map and a section of memorial road C, which show the current situation of a coherent path from the center station to Timorpark with a clear visual connection.

LEGEND

- bench
- grassland
- water
- city road
- building
- tree



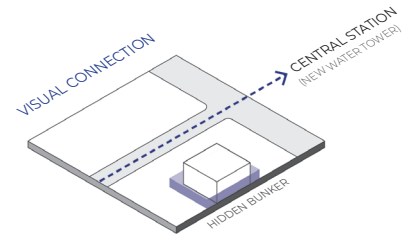
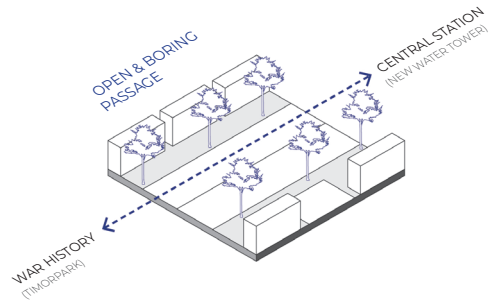
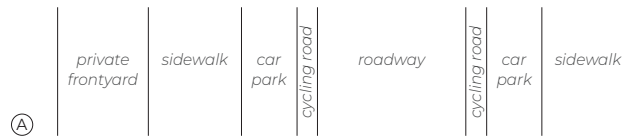
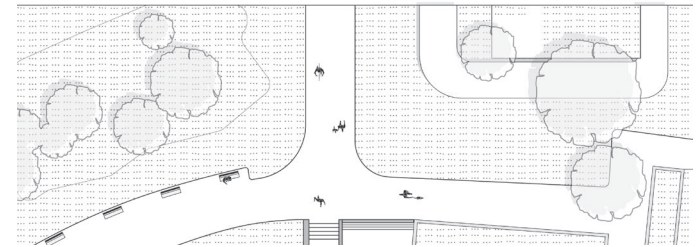
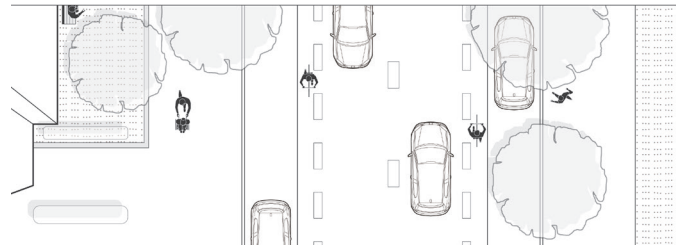
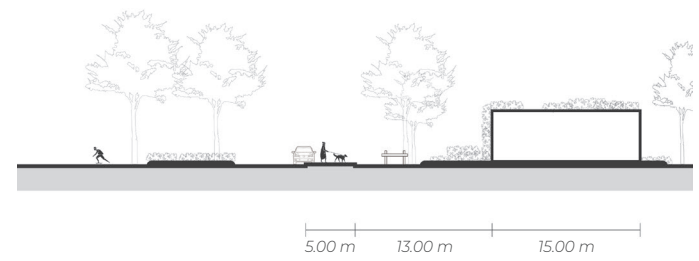
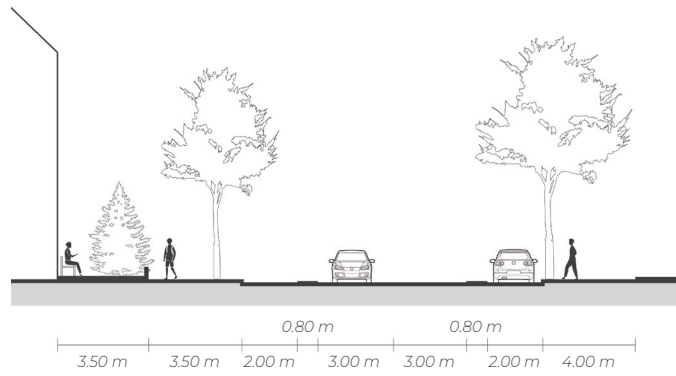


Fig 4-24. Two road cross-sections of the road C in current situation, which show the two sidewalks guiding to Timorpark and starting exploring traces of war history in the city.

LEGEND

- tree
- pavement
- building
- ▨ grassland



1:250

1:800



02 AFTER INTERVENTION:
A LINEAR ENTRANCE TO TRACE WAR HISTORY

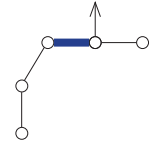
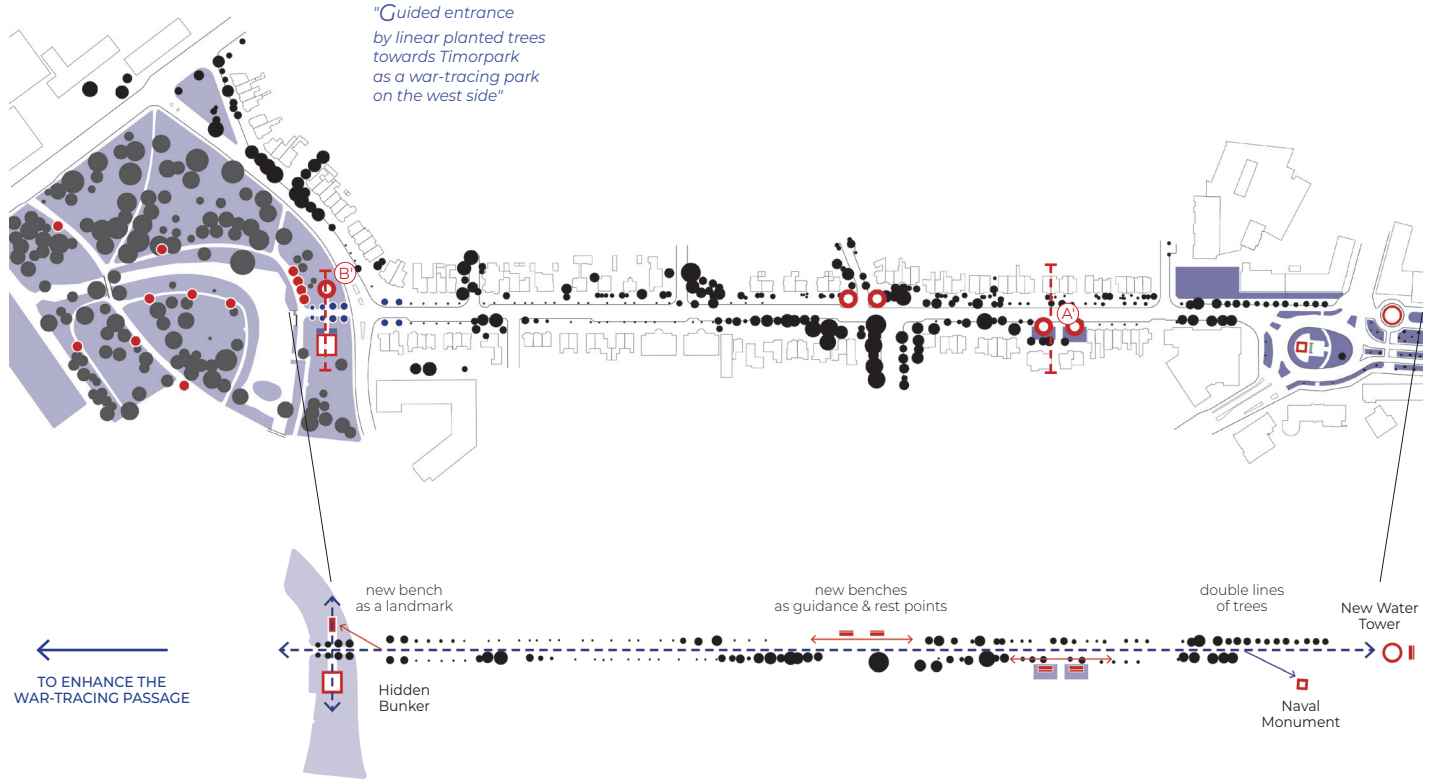


Fig 4-25. A street map and one analysis map of memorial road C, which show the road vision after intervention.

LEGEND

- existing bench
- new bench
- grassland
- water
- city road
- building
- tree
- new tree



ORDINARY BENCH
rest point; way-finding
(wood)

ENLARGED ORDINARY BENCH
key element; landmark
(concrete + wood)

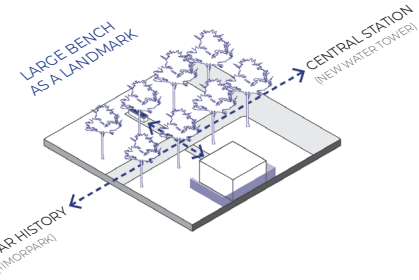
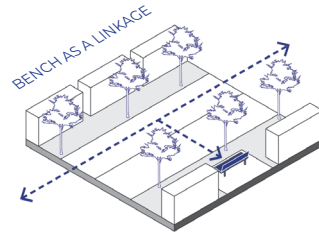


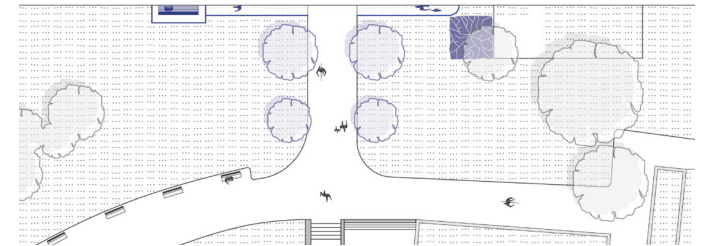
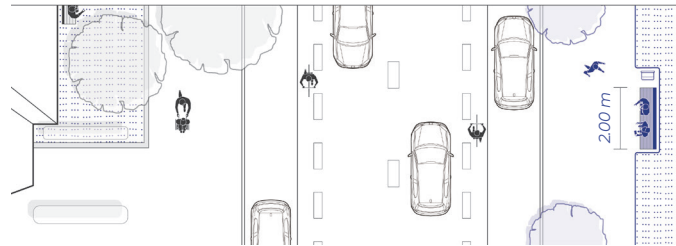
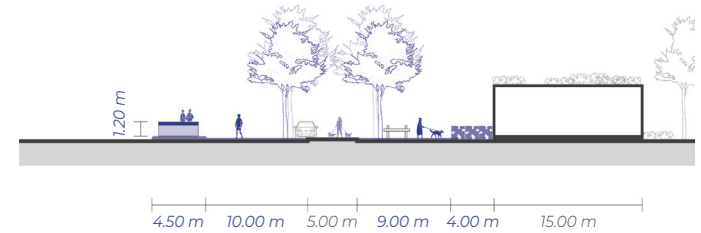
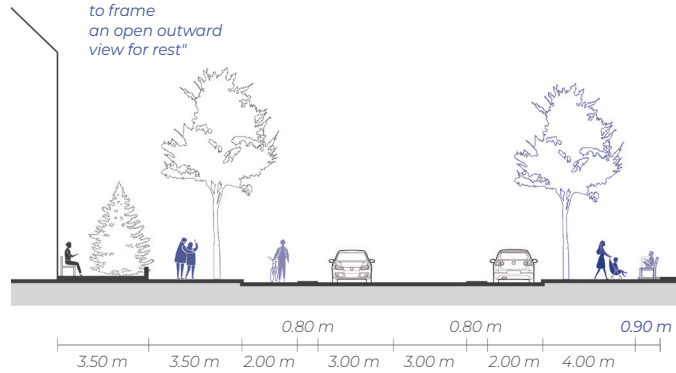
Fig 4-26. Two road cross-sections of the road C after intervention, which show the new rest points along the road and a new bench landmark aligned with the hidden bunker at the entrance of Timorpark.

"Double roadside benches to frame an open outward view for rest"

"Linear trees and an exaggerated bench aligned with the hidden bunker to enhance the axis from the center to the park entrance"

LEGEND

- tree
- pavement
- ▭ building
- ▨ grassland
- hedge
- new bench



1:250

1:800

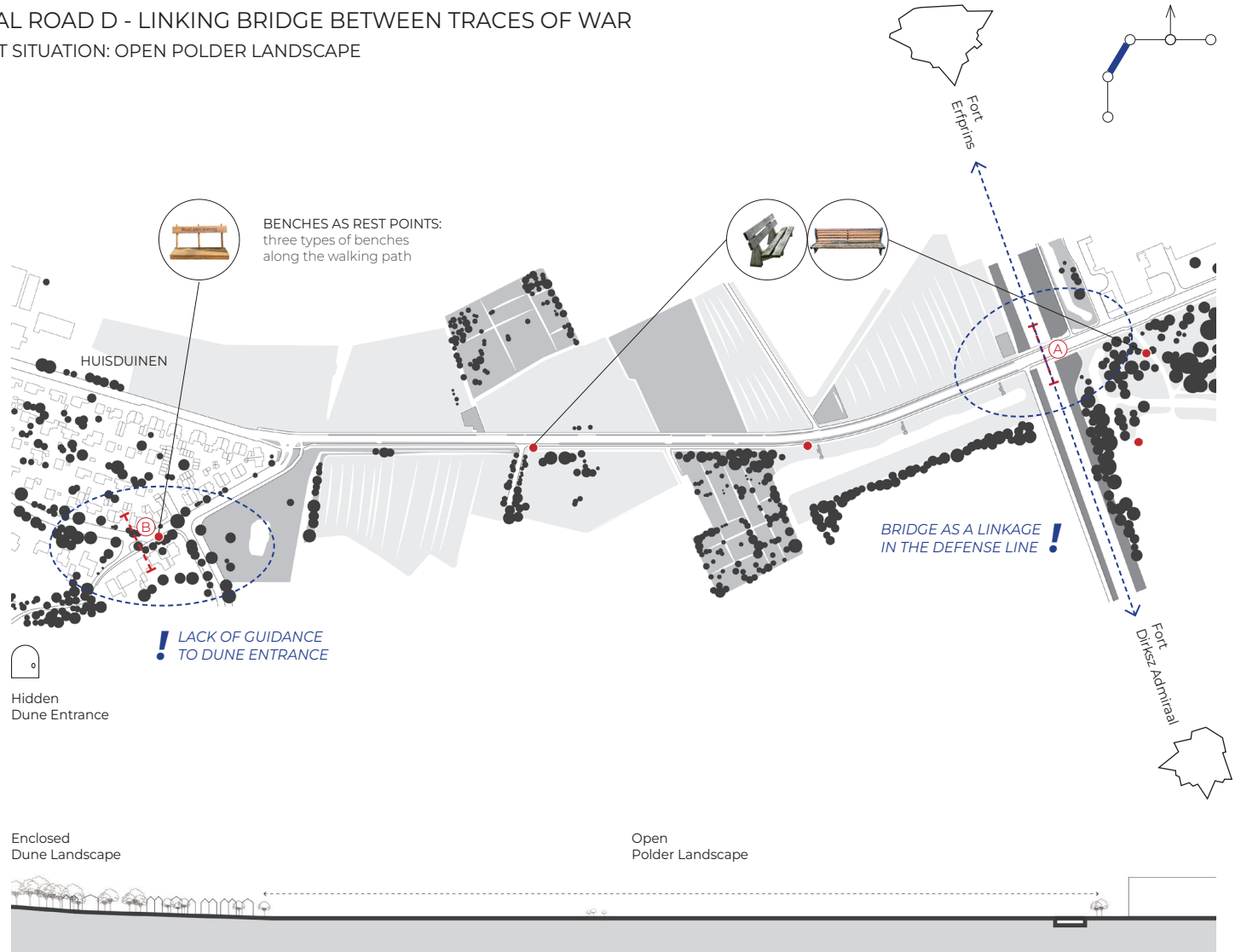
4.3.6 MEMORIAL ROAD D - LINKING BRIDGE BETWEEN TRACES OF WAR

01 CURRENT SITUATION: OPEN POLDER LANDSCAPE

Fig 4-27. A street map and a section of memorial road D, which show the current situation of an open path view along the polder landscape and across gradually enclosed space to the dune area.

LEGEND

- bench
- grassland
- water
- ▭ city road
- building
- tree



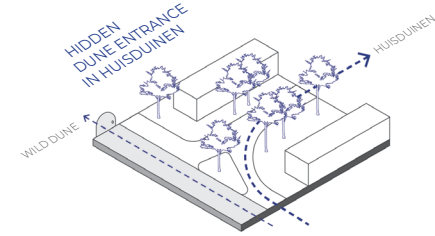
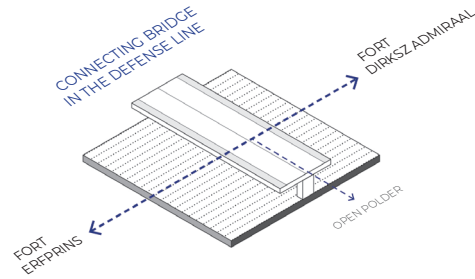
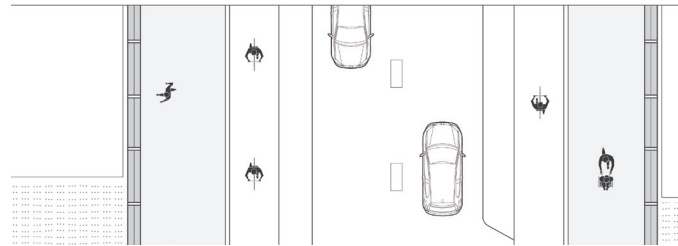
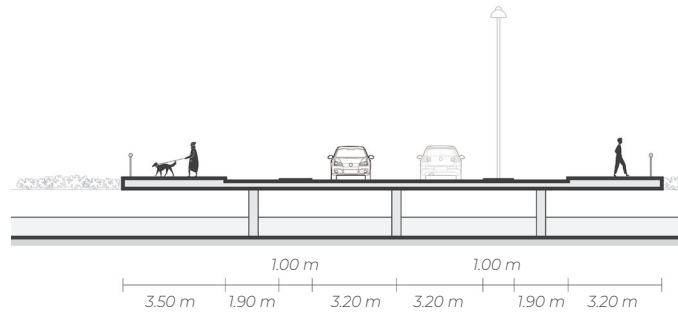


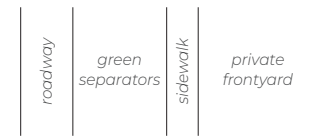
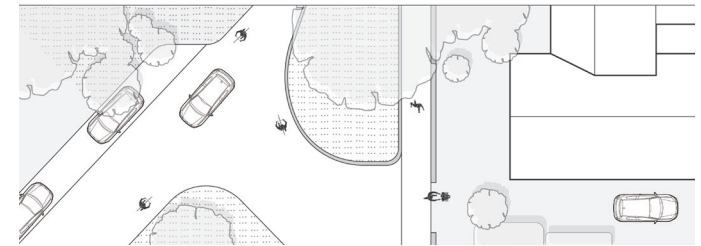
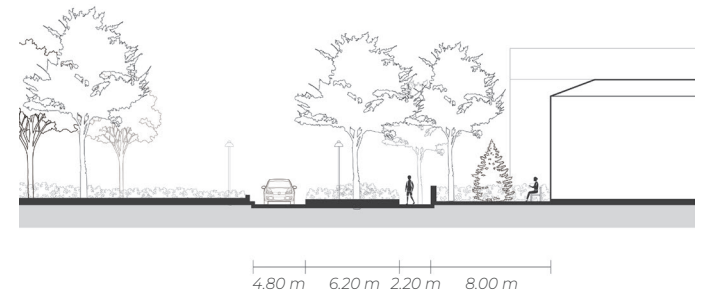
Fig 4-28. Two road cross-sections of the road D in current situation, which show the open canal, polder landscape and the hidden entrance of dune area in the old town.

LEGEND

- tree
- pavement
- ▭ building
- ▨ grassland



Ⓐ
1:250



Ⓑ
1:500



02 AFTER INTERVENTION:
OPEN POLDER LINKING URBAN PARK AND WILD DUNE

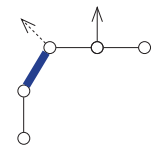
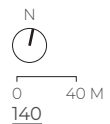
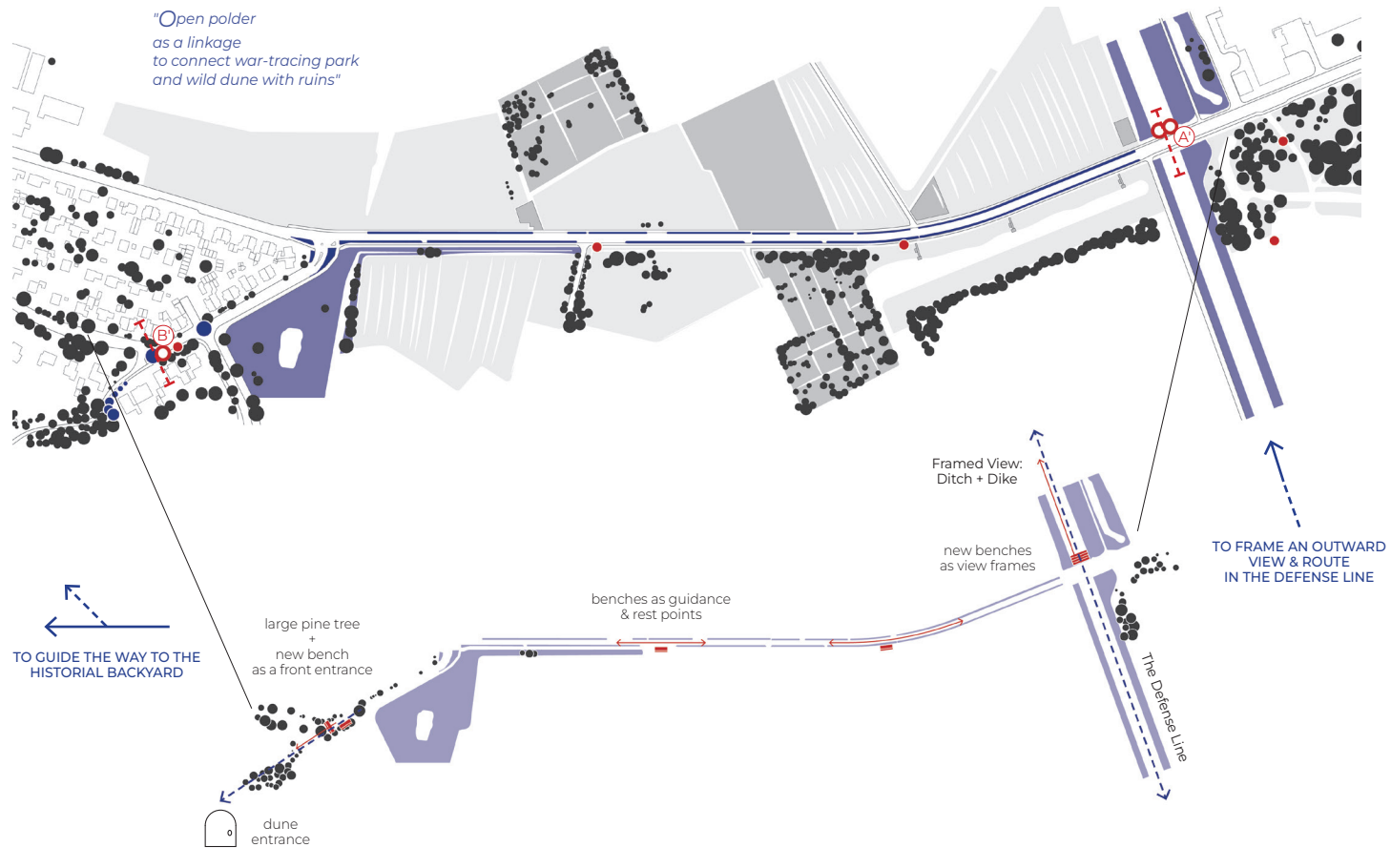


Fig 4-29. A street map and one analysis map of memorial road D, which show the road vision after intervention.

LEGEND

- existing bench
- new bench
- grassland
- polder
- water
- city road
- building
- tree
- new tree



STEPPED BENCH
The Defense Line view-framing
(wood + concrete)

ORDINARY BENCH
way-finding
(concrete + wood)

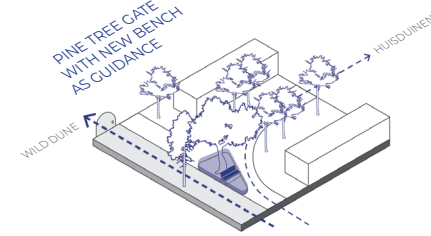
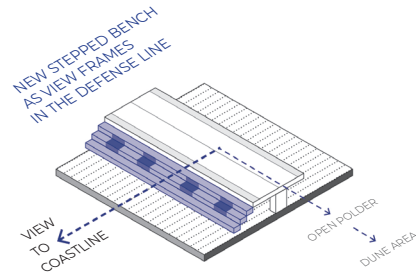


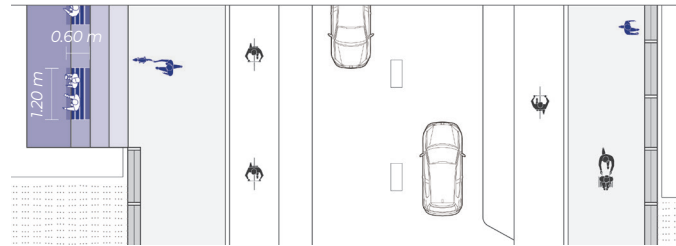
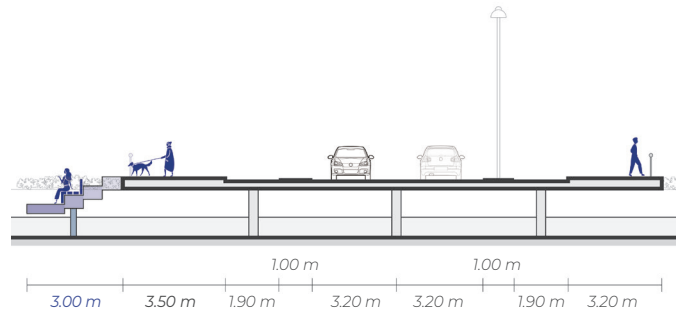
Fig 4-30. Two road cross-sections of the road D after intervention, which show new waterfront stepped benches along the bridge and a new pine tree with a bench as a way-finding gate to wild dune area.

"Waterfront stepped benches to offer a new frame of the waterline of the defense line and a more personal staying space along the urban bridge."

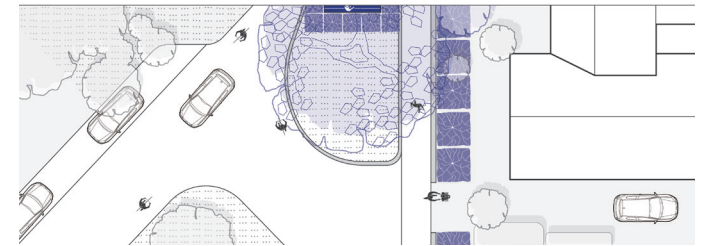
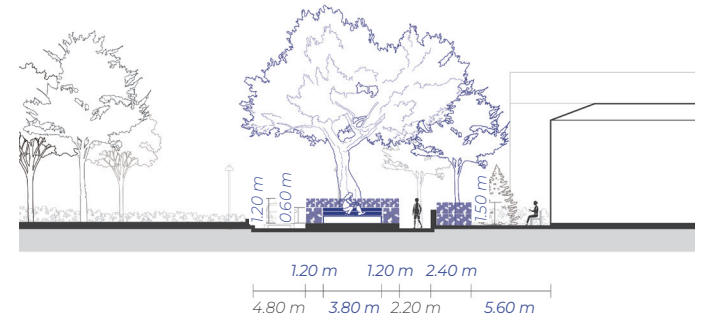
"Pine trees with a concrete and wooden bench to frame a new front gate of the historical wild dune"

LEGEND

- tree
- pavement
- building
- ▨ grassland
- hedge
- new platform
- new bench



1:250



1:500



4.3.7 MEMORIAL ROAD E - NATURAL & CULTURAL DUNE TRAIL

01 CURRENT SITUATION: A PASSAGE BETWEEN TWO DUNES

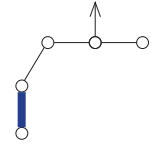
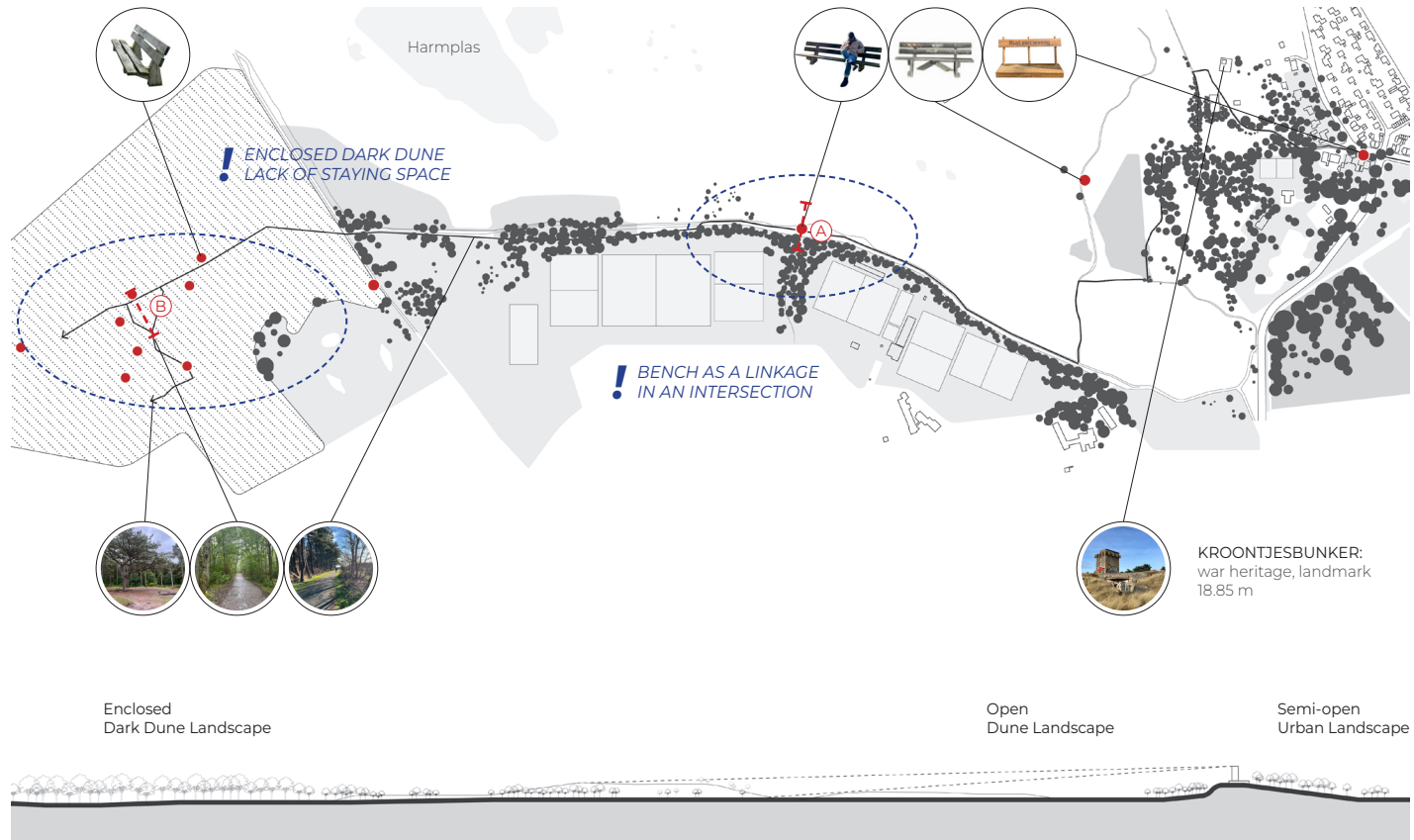


Fig 4-31. A street map and a section of memorial road E, which show the current situation of mystery dune landscape with both open and enclosed passages and spaces.

LEGEND

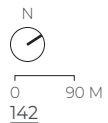
- bench
- grassland
- forest
- water
- city road
- building
- tree



Enclosed
Dark Dune Landscape

Open
Dune Landscape

Semi-open
Urban Landscape



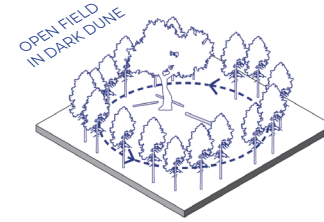
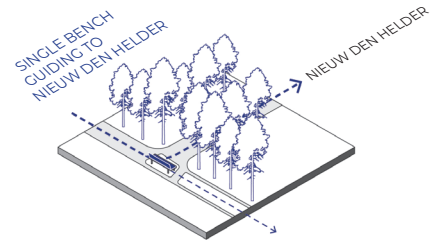


Fig 4-32. Two road cross-sections of the road E in current situation, which show the linear path from dune to dark dune and an open field with lots of woods in the dark dune.

LEGEND

- tree
- ▭ pavement
- ▭ building
- ▨ grassland



1.40 m 7.00 m 1.40 m 3.90 m 2.30 m



(A) sandy path grassland walking path grassland cycling road N

1:300



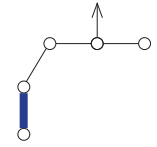
12.20 m



solitary pine tree
in an open field of dark dune N

(B) 1:300

02 AFTER INTERVENTION:
MYSTERY DUNE LANDSCAPE

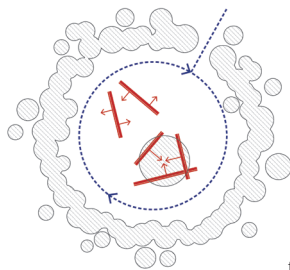
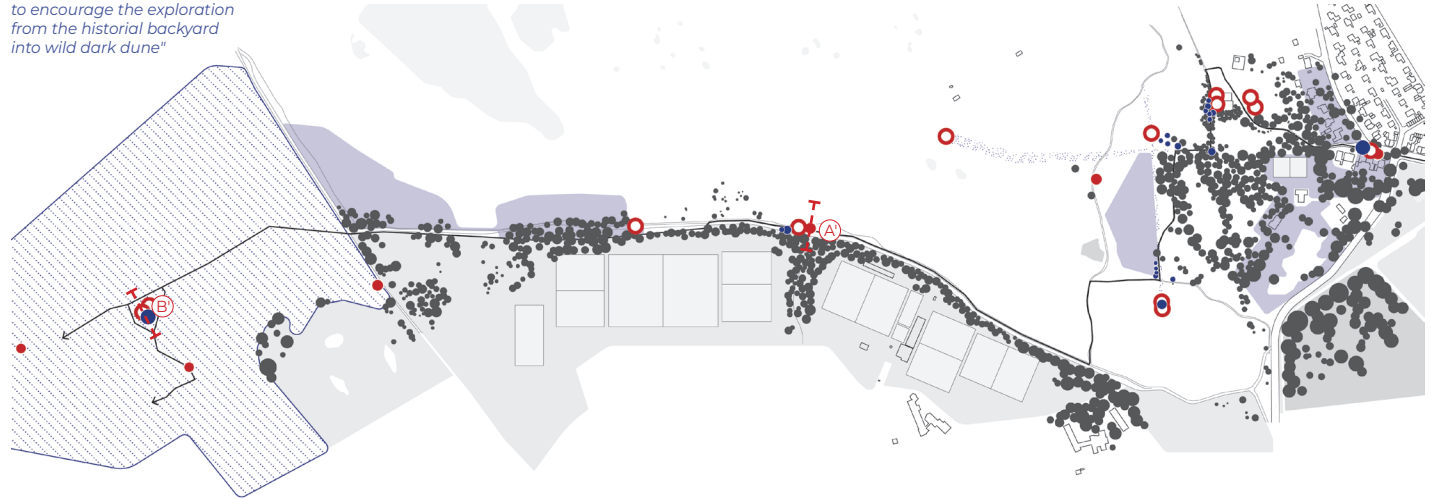


*"Dune benchescape
as a frame
to encourage the exploration
from the historical backyard
into wild dark dune"*

Fig 4-33. A street map and two analysis maps of memorial road E, which show the road vision after intervention.

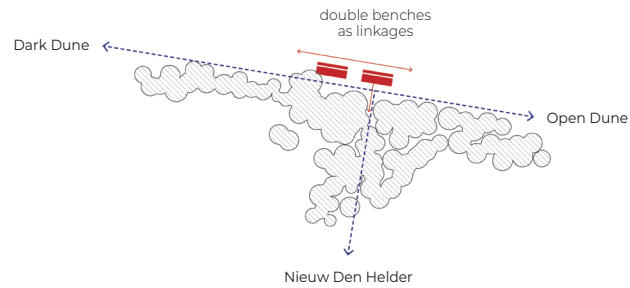
LEGEND

- existing bench
- new bench
- grassland
- polder
- water
- ▭ city road
- ▭ building
- tree
- new tree

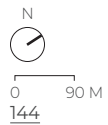


Framed View:
Tree Canopy

solitary tree in forest
+
unique benches
framing inward space



TO FRAME NEW
EXPLORATION SPACE



ORDINARY BENCH
way-finding
(wood)

TRUNK BENCH
social place; view-framing
(trunk + wood)

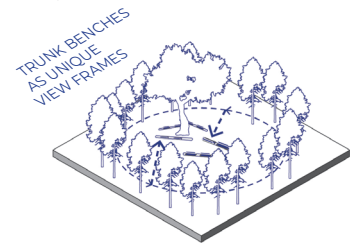
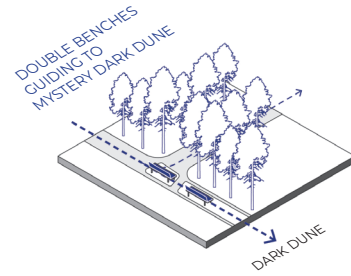
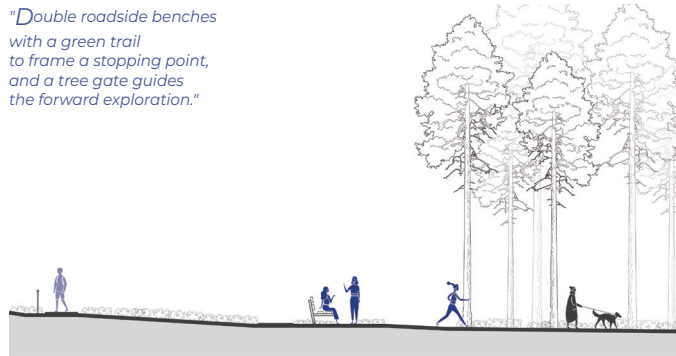
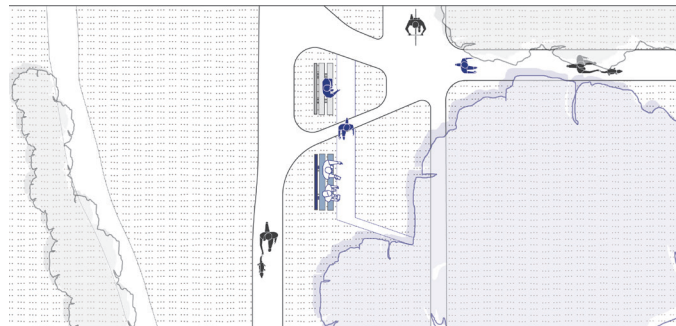


Fig 4-34. Two road cross-sections of the road E after intervention, which show one added bench as guidance to dark dune, and benches made of natural wood trunks under and around the solitary big pine tree.

"Double roadside benches with a green trail to frame a stopping point, and a tree gate guides the forward exploration."

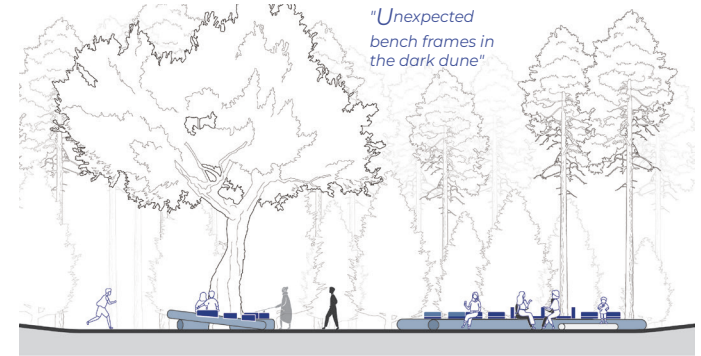


1.40 m 7.00 m 1.40 m 3.90 m 2.30 m



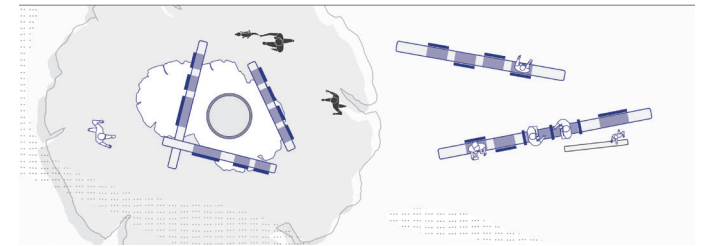
(A) sandy path grassland walking path grassland (two benches) cycling road

1:300



"Unexpected bench frames in the dark dune"

4.80 m 3.20 m 4.20 m 10.00 m



(B) solitary pine tree with a circular bench as a frame of an open vault woods as a long bench with backrests

1:300

LEGEND

- tree
- pavement
- building
- ▨ grassland
- new bench

4.4 BENCHES AS KEY PLAYERS IN BENCHSCAPE

4.4.1 NATURAL & CULTURAL MEMORIES IN HELDERSE DUINEN

The Grafheidsduinen, which situated in the Northern Dune Area of the Dutch mainland to the west of Den Helder, is a site of significant ecological and historical importance. Spanning an area of 100 hectares, it is managed by Landscape North Holland and is bounded by the Huisduinerpolder to the north and the Donkere Duinen to the south, forming part of the Natura 2000 area Duinen Den Helder-Callantsoog. The area was once the core of the Wadden island of Huisduinen, which later became fused with the mainland. The name Grafheidsduinen is derived from the Counts of Egmont, who owned the area in the past.

RESOURCEFUL BIODIVERSITY

The dunes in this area were formed from the remains of two old Wadden islands - Huisduinen and Ooghduinen. In the 16th century, the gap between these two islands closed, and the Harmplas dune lake is now located at this location.

In 1856, Grafheidsduinen was used as a water extraction area, pumping out up to 1.2 million cubic meters of water annually, which led to severe dehydration of the area. However, in 1982, the water extraction came to an end, and the groundwater level began to rise rapidly. This resurgence caused the regeneration of common heather, pennywort, tormentil, and orchids, and a

small dune lake formed in the middle of the area. The management of the area was taken over by Noord-Holland Landscape in 1992 to restore it to its natural state. In 1994, the lowest parts of the nutrient-rich soil layer were scraped off, and large grazers were introduced. Drinking water wells and military remains were removed, and unnecessary fences were pulled down.

The Donkere Duinen, which used to be a planted pine forest, but is now being transformed into a more varied and natural forest. It also features an annular duck pond with bushy banks, which adds to the area's natural beauty. Meanwhile, the Refugium is a seven-hectare nature development area located between the buildings of Nieuw Den Helder, the Grafheidsduinen, and the Donkere Duinen. This area was created by transforming sports fields into a new natural habitat, and it has become a haven for many unique plant species. The Refugium is truly an Eldorado for nature lovers.

Although the area is currently not freely accessible to visitors, an observation hut, a viewpoint, and a nature trail have been set up, and excursions are also organized.

TURBULENT WAR HISTORY









The village of Huisduinen, established in the 8th century, has a long history of battling against the water. In 1170, the village was situated on an island, and in 1570, 80%

of the village was lost to the waves. The Grafheidsduinen served as a hunting ground for them in the late Middle Ages. From 1881, the area served as a military training ground and was of great strategic importance. In addition to its rich history, there are numerous remnants of the First and Second World War in the area. During the First World War in 1916, the Dutch constructed trenches, watchtowers, and bunkers that still stand today. Additionally, the Germans built their concrete structures in the dune area during the Second World War, and one of the most notable is the "Kroontjesbunker." Around 40 bomb craters from the Second World War still exist in the Grafheidsduinen, and they have become crucial pools for flora and fauna, as water remains in them. Since 2006, these craters have also served as extinguishing reservoirs for the fire brigade, aiding them in fighting dune and forest fires more efficiently.

The Grafheidsduinen is a remarkable site with a unique blend of natural and historical features that continue to attract interest from ecologists, historians, and tourists alike.

Fig 4-35. A series of mappings and icons, which show the natural and cultural values of the Grafheidsduinen from 1850 to 2006.

LEGEND

-  historical building
-  dune (grass)
-  dune + forest
-  building
-  water
-  city road
-  water pipe
-  ditch



1850

NATURAL DUNE

The Grafheidsduinen was once the core of the Wadden island of Huisduinen, which later became fused with the mainland.



1878

WATER EXTRACTION

In 1856, Grafheidsduinen was used for water extraction, leading to severe dehydration of the area as up to 1.2 million cubic meters of water were pumped out annually.



1945

MILITARY USE

Grafheidsduinen was a military training ground from 1881, and there are numerous remnants of WWI and WWII.



2006

PROTECTED NATURE RESERVE

WWII bomb craters in Grafheidsduinen provide essential water sources for flora and fauna, and also serve as reservoirs for firefighters since 2006.














4.4.2 NATURAL MEMORY'S PHYSICALITY

01 NATURE WALK: HELDERSE DUINEN ARE VERY OLD AND BRAND NEW

Fig 4-36. A map of the walking route (4.7 km of 8.5 km) in and around the Helderse Duinen, which also shows the abundant biodiversity in the area.

LEGEND

-  Watchtower
-  Fort Kijkduin
-  Atlanticwall Musuem
-  Lange Jaap Lighthouse
-  birdingplace

-  forest
-  building
-  water
-  city road
-  main route
-  contour line (8m)

The Helderse Duinen, which is located near Huisduinen just outside of Den Helder, provides a beautiful and lesser-known dune landscape perfect for nature walks. This area is home to a diverse range of flora and fauna, in addition to many bird species, there are also plenty of mammals, such as rabbits, hares, foxes, but also mustelids such as the pine marten. Exmoor ponies and Scottish Highlanders provide grazing to keep the landscape open and varied.

The Dunes also have a rich history dating back to World War II, with bunkers and fortifications that can be explored at the Atlantikwall visitor center. For those interested in military history, Fort Kijkduin is also worth a visit. This 19th-century fortress has been transformed into a museum that showcases its history and architecture. Overall, the Helderse Duinen offers both ecological and historical significance for visitors to explore.

MAIN WALKING ROUTE

- 1 Watch Tower at De Helderse Valle
- 2 Mariëndal
- 3 North Dunes
- 4 Harmplas
- 5 Grazers of the Grafelijkheidsduinen
- 6 De Razende Bol
- 7 Kroontjesbunker
- 8 The Streepjesberg
- 9 The Refugium



Fig 4-37. A series of images of diverse flora and fauna in the dune area. (source: www.birdingplaces.eu, deheldersevallei.nl, Akiva Silver, etc.)

Fig 4-38. A collage of the biodiversity system around the dune ponds. (The former water catchment area is notable for its numerous bomb craters, which have become a hotspot for various aquatic species such as frogs, natterjack toads, small newts, and other unique water creatures.)

TOP 8 BIRD SPECIES



Common Linnet (*Linaria cannabina*)



Northern Wheatear (*Oenanthe oenanthe*)



Greater Whitethroat (*Curruca communis*)



Grasshopper Warbler (*Locustella naevia*)



Common Redstart (*Phoenicurus phoenicurus*)



Wood Lark (*Lullula arborea*)



Black-necked Grebe (*Podiceps nigricollis*)



Meadow Pipit (*Anthus pratensis*)

MAMMAL SPECIES



Scottish Highlander (*Bos taurus taurus*)



Exmoor pony (*Equus ferus caballus*)



Hare (*Lepus*)



Deer (*Cervidae*)

TREE SPECIES



Marram Grass (*Ammophila*)



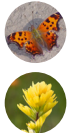
Scots Pine (*Pinus sylvestris*)



Poplar (*Populus tremula L.*)



Black Pine (*Pinus nigra*)



The reserve is of great significance for rare species like the comma butterfly and plants like the deep yellow paintbrush.



The removal of the thick, low-quality reed collar around Harmplas has allowed for the growth of vulnerable plant species like ringweed, beach centaury, heather cartel leaf and knotweed pondweed.



The black grebe has been breeding in the Harmplas in recent years.
















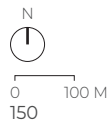
4.4.3 CULTURAL MEMORY'S PHYSICALITY

01 PARTIALLY ACCESSIBLE ROUTES

Fig 4-39. A route map of the north side of the Grafheidsduinen, which includes three main routes with different experiences.

LEGEND

-  main entrance
-  road to entrance
-  route A
-  route B
-  route C
-  existing bench
-  tree
-  building
-  water
-  city road
-  Fort Kijkduin
-  open polder
-  Nieuw Den Helder



Although most areas of the Grafheidsduinen are inaccessible, there are still three primary walking routes available on the north side that offer different experiences.

ROUTE A

The first route is the most popular and can be used for both walking and cycling. It winds through the beautiful natural scenery of the dunes, and if you pay attention, you may notice the bunkers scattered throughout the area, with the "Kroontjesbunker" serving as a recognizable landmark.

ROUTE B

The second route is less noticeable and primarily used by horseback riders. It is evident from the markings on the ground, but it lacks clear signage, making it easy for individuals to get lost along the way.

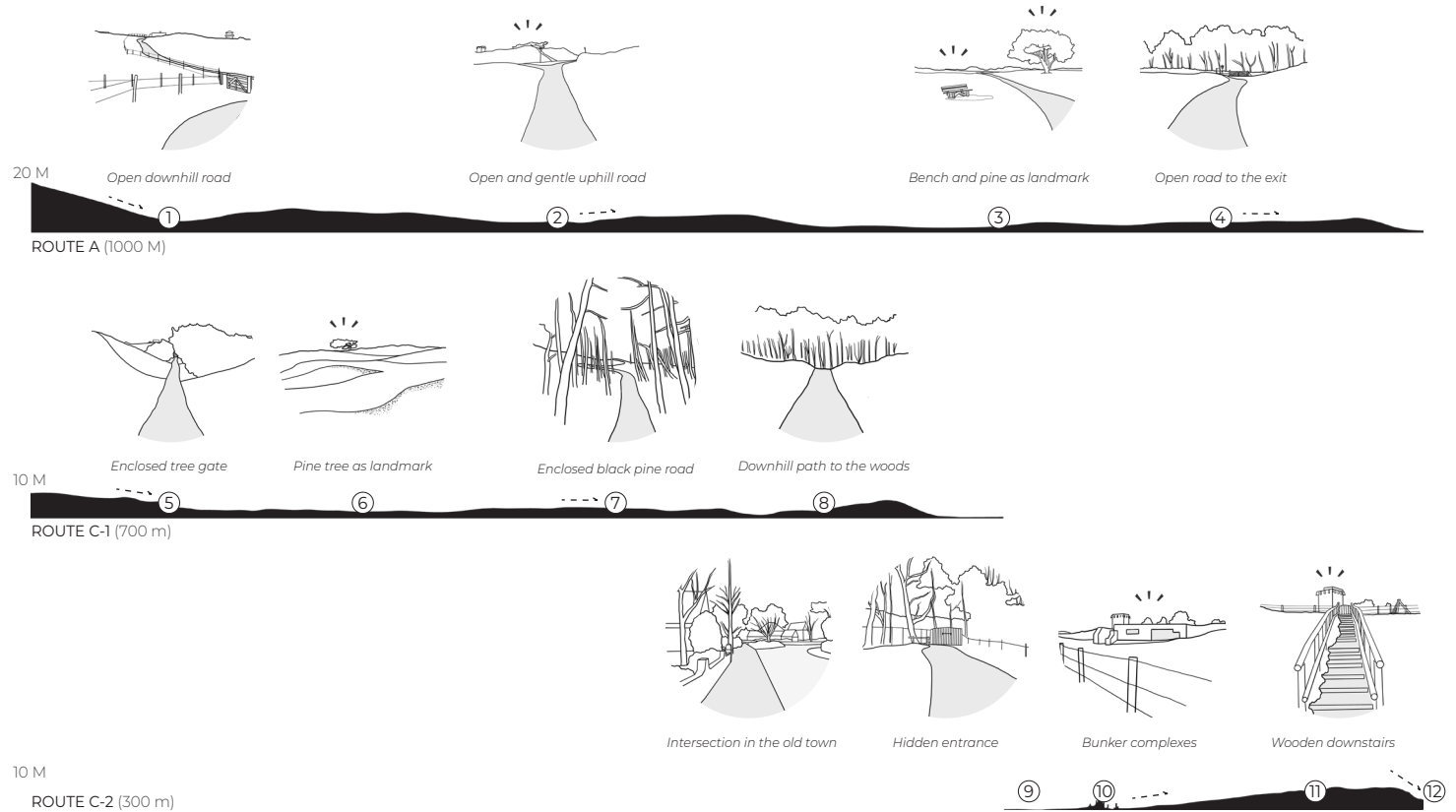
ROUTE C

The third path is the preferred choice for dog walkers. It is directly linked to the nearby community, and its accessibility makes it a popular option for residents. Additionally, the slope along the route serves as a natural barrier to larger animals, which reduces the chances of conflicts between pets and wildlife. Notably, this route boasts the most intact bunker of the three, although the inside of the structure has been left in a state of disrepair, filled with piles of trash and graffiti.



DIFFERENT EXPERIENCES ON THREE ROUTES










Fig 4-40. Three sections of the two main routes with a series of perspectives, which show the different spatial qualities and experience on the routes.



02 SCATTERED BUNKERS:
TANGIBLE MEMORIES OF THE SECOND WORLD WAR

Fig 4-41. A bunkerroute map shows the existing bunkers and three existing most visible bunkers in the dune area.

LEGEND

-  Fort Kijkduin
-  Atlanticwall Musuem
-  recognizable bunker
-  other bunker
-  forest
-  building
-  water
-  city road
-  bunkerroute

In World War II, Den Helder played a crucial role in the German Atlantic Wall, serving as a defense line to prevent Allied attacks from the west. To this end, around 800 bunkers were constructed in and around the city. Despite all the fortifications, Den Helder was bombed over 150 times during the war.

At present, in the dune area, only a few bunkers are visible by public, while others are invisible and unaccessible. Located in the dune area to the east of Fort Huisduinen, is the Flak-Gruppen-Gefechtstand (Flagruko) 123aM complex. The complex is comprised of several bunkers, including M151 and FL250 types. A concrete watchtower was constructed on top of the FL250 bunker, which was nicknamed "Kroontjesbunker" because of the shape of the tower. The command area of the bunker housed radio and transmitting equipment, as well as radar data on enemy aircraft. The watchtower was equipped with measuring equipment located under a glass dome at the top, and its power supply was provided by an independent generator. The tower was camouflaged as a house, with elongated concrete bulges installed at the top, to which planks with roof tiles were attached. After the war, the tower was nicknamed the "Kroontjesbunker" due to its distinctive shape. Additionally, a shed was constructed adjacent to the tower.

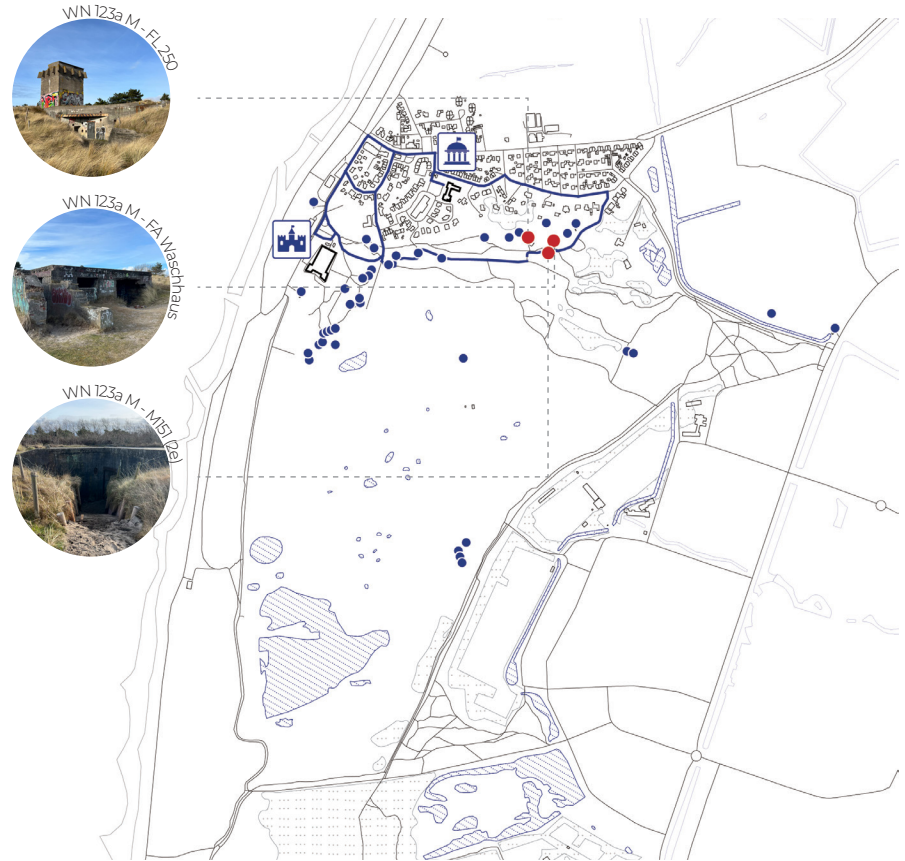


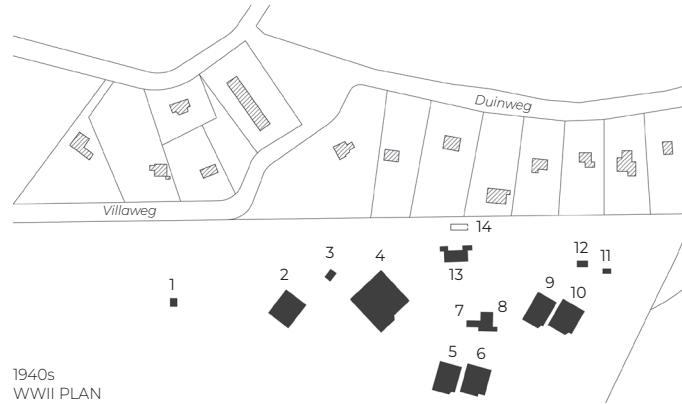
Fig 4-42. Two maps of the north entrance of the dune area, which show many scattered bunkers, their functions and present situation.

Fig 4-43. Section A-A of three visible bunker complexes in the dune area with several images inside the bunkers.

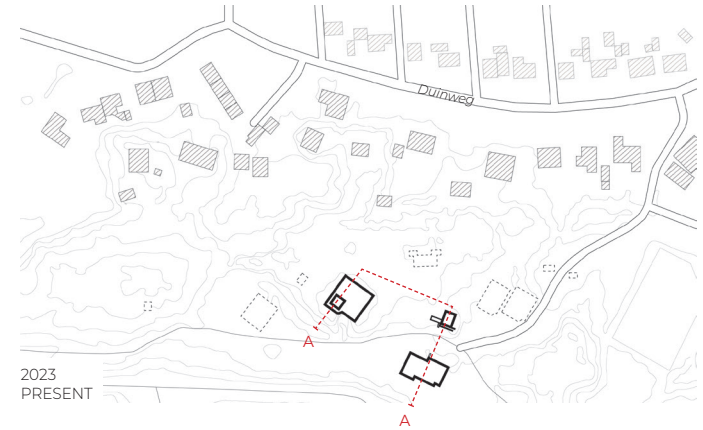
LEGEND

- (visible) bunker
- (invisible) bunker
- ▨ buildings
- ▭ city road
- contour line

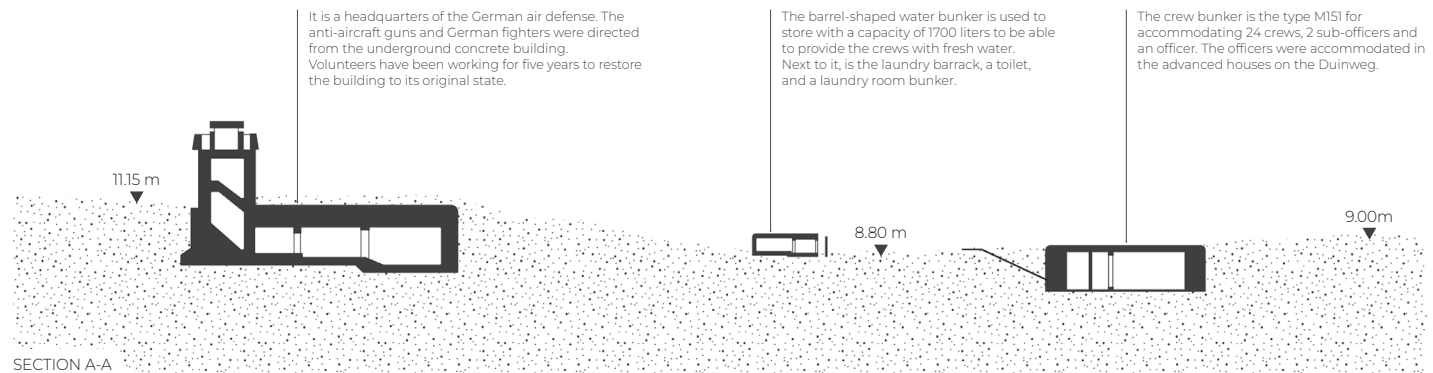
- 1 storehouse
- 2 combat shelter
- 3 water tank storage place
- 4 command post
- 5 battle shelter
- 6 battle shelter
- 7 water tank storage place
- 8 laundry room
- 9 battle shelter
- 10 battle shelter
- 11 transformer building
- 12 water tank storage place
- 13 storage place
- 14 ?



1940s
WWII PLAN



2023
PRESENT



SECTION A-A



THE ONLY ACCESSIBLE BUNKER

Fig 4-44. A series of images of the only accessible bunker complex in the dune area, which is made of a laundry bunker and a water bunker, by the author.

The walls of this shelter consist of concrete, bricks and tiles, with some weeds growing out of gaps in the surface of the walls. There is a lot of graffiti on the wall, probably painted by some of the local youth visitors.

Through a narrow door in the wall, one can see the rising marram grass and the bunker hidden half underground on the opposite side.

Sand accumulated in the bunker and human remains are left on the surface.



is in the
n footprints
ace.

At the exit of the shelter some stones and bricks have been piled up, probably from one or more visitors who had a fire party here the day before.

Standing inside the bunker, the shattered facade frames the stunning dune landscape outside, a power of this interweaving of ruin and nature.

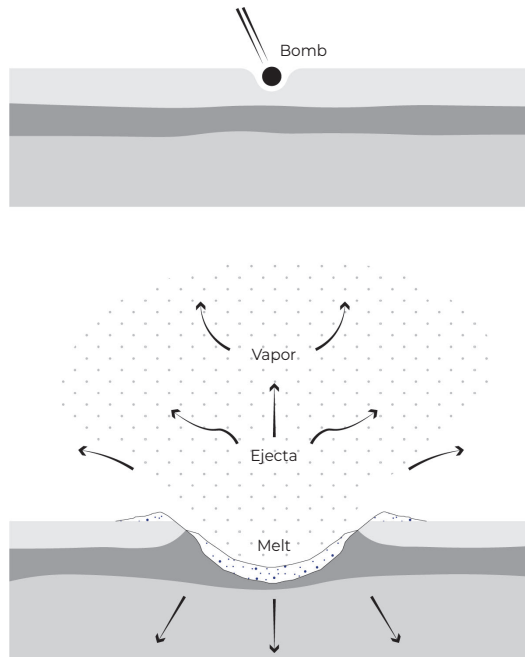


4.4.4 INTERTWINED MEMORY'S PHYSICALITIES

01 BOMB CRATERS TO ECOLOGICAL POOLS

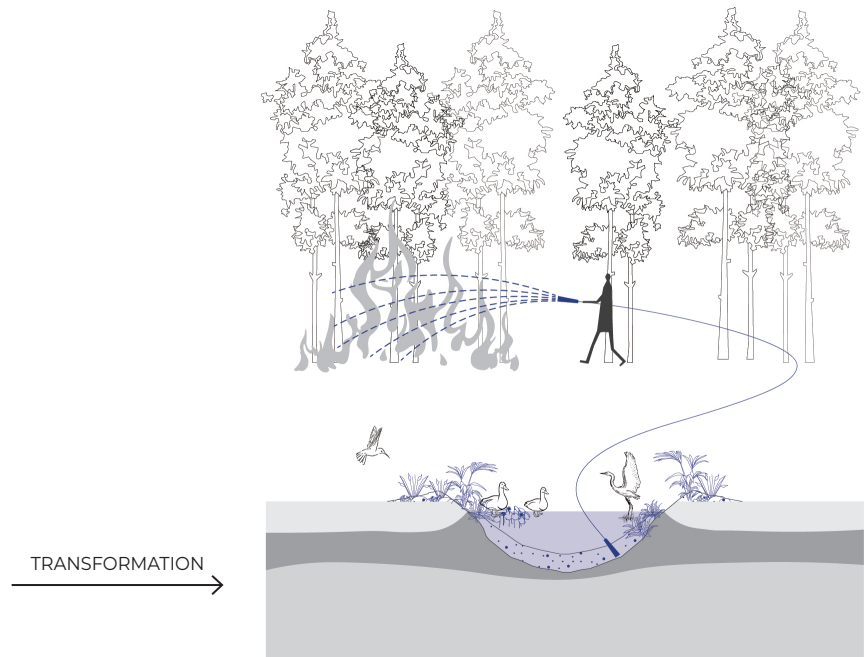
Fig 4-45. Diagrams of the transformation from bomb craters in WWII to ecological pools which also serve as reservoirs for fire from 2006.

(1) BOMB CRATER



There are about 40 bomb craters from the Second World War in the Grafheidsduinen.

(2) ECOLOGICAL POOL

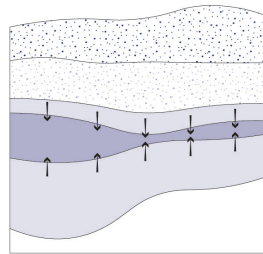


Because water remains in bomb craters, they have become important pools for flora and fauna. Since 2006, the bomb craters have also served as extinguishing reservoirs for the fire brigade, so that dune and forest fires can be better fought.

TRACES OF WATER EXTRACTION ON DUNE TOPOGRAPHY 02

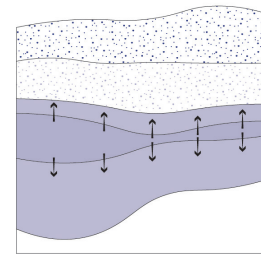
Fig 4-46. Diagrams and sections of the history of water extraction and current ditch traces in dune topography, including the changes of the groundwater level.

(1) WATER EXTRACTION (PIPES & DITCHES)

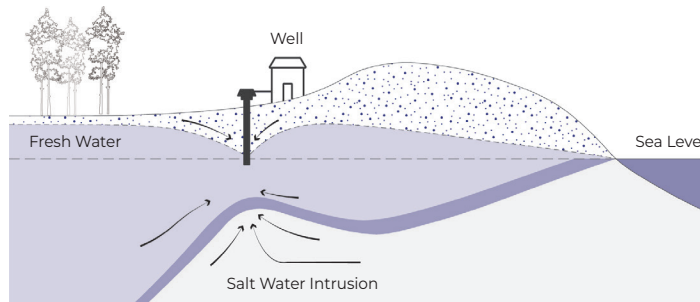


1856 - 1982
Severe Dehydration

(2) DUNE TOPOGRAPHY (TRACES)



1982 -
Rising Groundwater



The Grafheidsduinen area had been used for water extraction in 1856, with as much as 1.2 million cubic meters being pumped out every year. Unfortunately, this caused severe dehydration in the region.

In 1982, the water extraction came to a stop, leading to a rapid rise in groundwater levels, and it brought about the regeneration of various plant species. While drinking water wells and military remains were removed, many traces of old ditches are still there.

03 SAND ACCUMULATION & HUMAN INTERACTION IN/AROUND BUNKERS

Fig 4-47. An axon of the laundry and water bunker show the process of sand saltation by wind through one year, the dune building feedback dynamics (marram grass), and the prediction of the sand accumulation in/around the bunker in 2023, 2030, 2050 and 2070.

LEGEND

-  wind average speed (per month)
-  wind direction (sand saltation)
-  sand accumulation
-  marram grass
-  sandy ground
-  grassland

SAND, GRASS & BUNKER

(ONE TO HUNDREDS OF YEARS)

In the wild dune, sand saltation is processing every moment because of wind and is highly related to the different wind speeds through one year, which leads to sand accumulation especially around the bunker complexes. In addition, marram grass in the dune plays an important role in sand trapping and gets feedback of more vigorous growth.

The sands and marram grass as natural memory's tangibilities are gradually covering the outside walls and the roofs of scattered bunkers, making these cultural ruins less and less visible.

HUMAN & RUIN

(ONE DAY)

In the only accessible bunker, the stories between it and its different visitors are happening throughout the day. While homeless people use this bunker as his overnight home, some visitors come here in the afternoon and are full of curiosity about its historical functions. Even though it is like an abandoned ruin, people are interacting with it all the time.

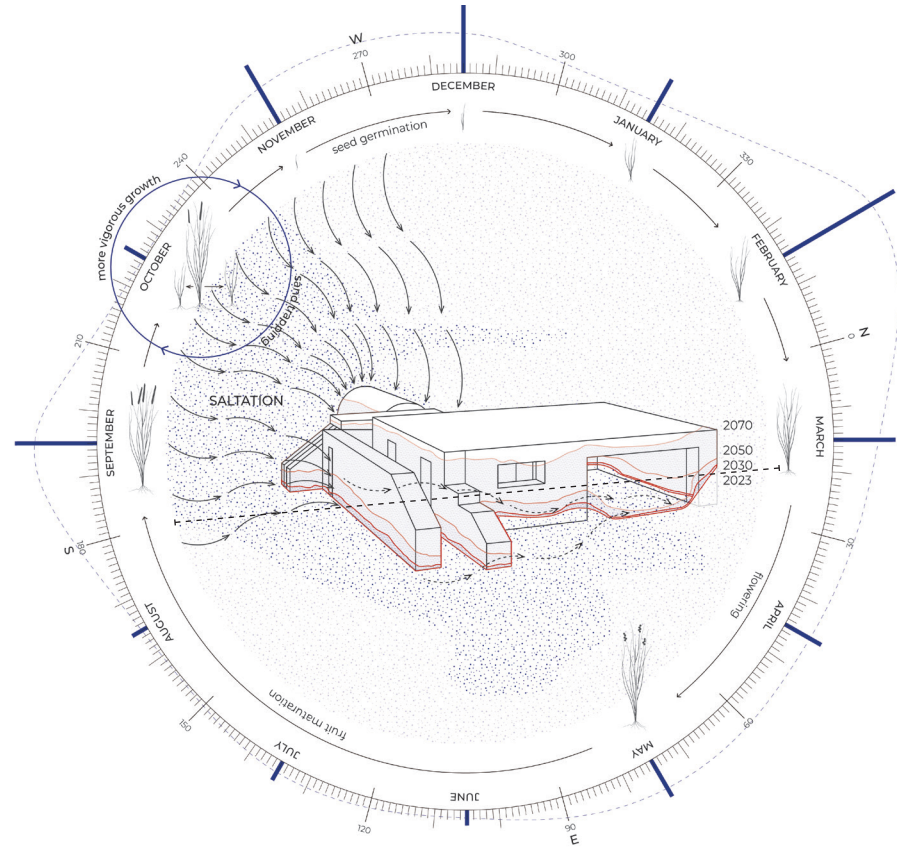
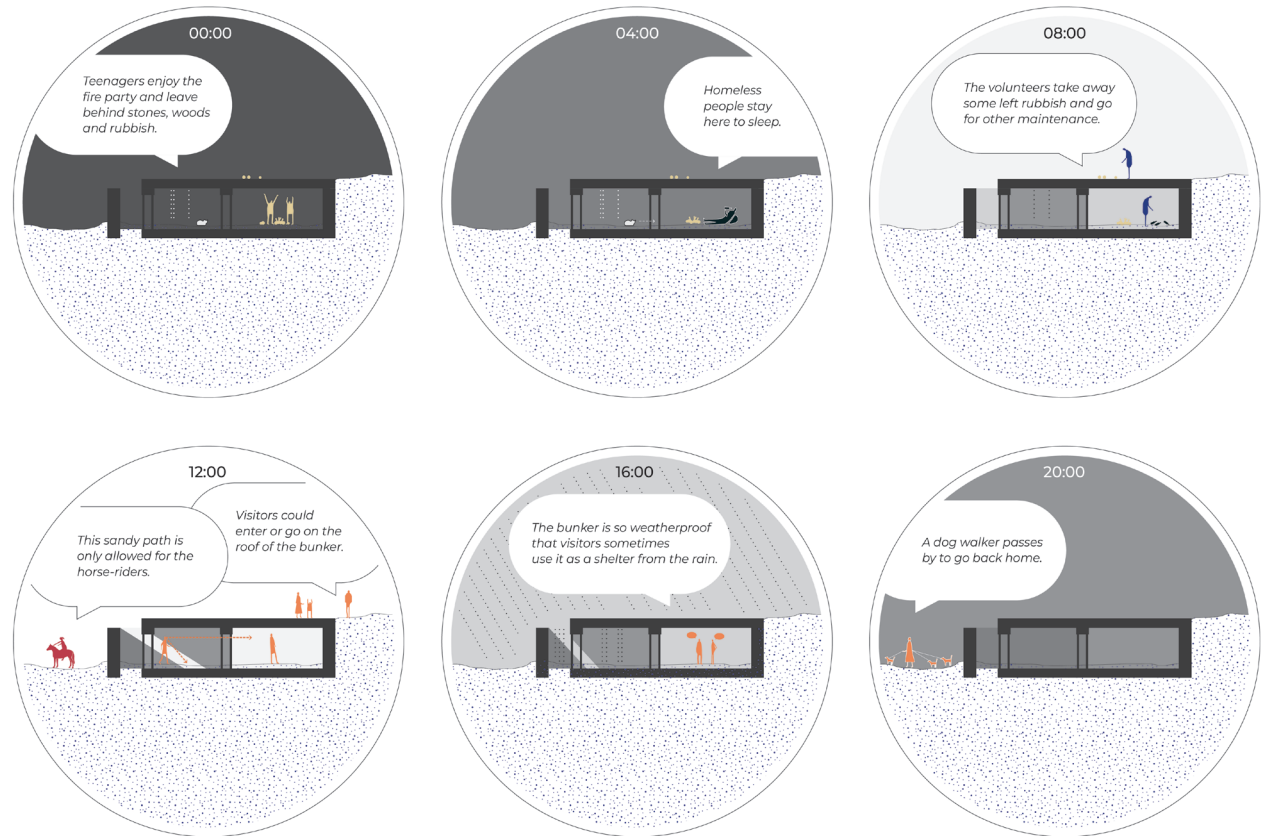


Fig 4-48. A series of sections of the bunker and its surrounding environment, which shows human (different user groups) and non-human practice in/around the bunker during one day (March 11, 2023, Saturday), which may be influenced by the light, wind, and other weather conditions.

LEGEND

- wild cat
 - homeless people
 - volunteer
 - teenager
 - visitor + dog-walker
 - horse-rider
-
- sand
 - (sunlight) shadow
 - ☐ rainwater



4.4.5 HISTORICAL BACKYARD

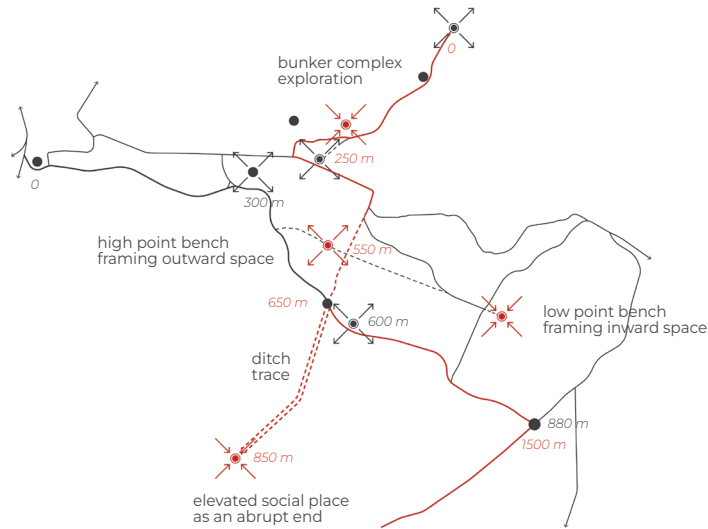
01 ROUTING & VISUAL RELATIONS

Fig 4-49. Two diagrams of the proposed routing system and new spatial sequence of the dune area, which show the memorial route with bench locations, stopping and viewing points, and the visual connection in-between.

LEGEND

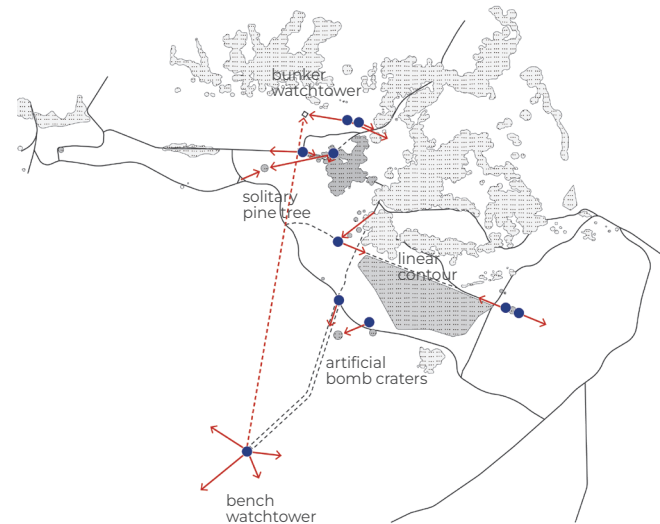
- bench (staying)
- bench (stopping)
- staying point
- stopping point
- viewing point
- walking path
- sandy path
- memorial route
- viewline
- tree

ROUTING RELATION staying + stopping + moving



The routing system is mainly focused on the balance between staying, stopping and moving. It can not only provide visitors with rest points and good views, but also guide people to explore the stories and memories of the dune area by framing inward and outward public space. In general, along the two main routes, it would offer a stopping point about each 300-meter for staying or way-finding.

VISUAL RELATION spatial sequence



The spatial sequence of the dune area starts with enclosed tree groups to more open areas. There are some solitary trees as landmarks and viewing points. All of the benches can provide people with staying points, and most of them are combined with tree compositions and supporting plants to guide a view with or without certain meaning. In addition, some of the benches and their surroundings are framing social places for user groups.

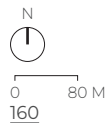


Fig 4-50. Group of images shows the design concept of different materials of new benches.

Fig 4-51. A map of the bench distribution and their basic form with materials, which also shows the functional roles of different benches in the dune benchscape.

LEGEND

- ordinary bench
- unique bench

Materials

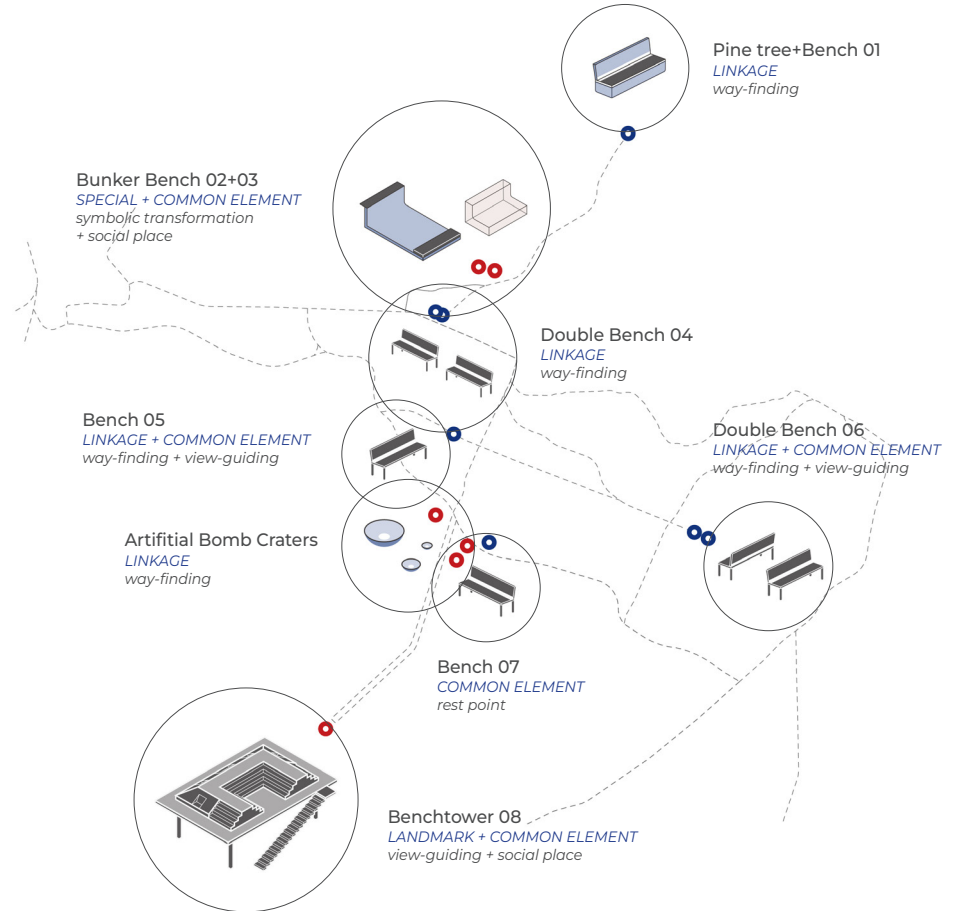
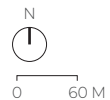
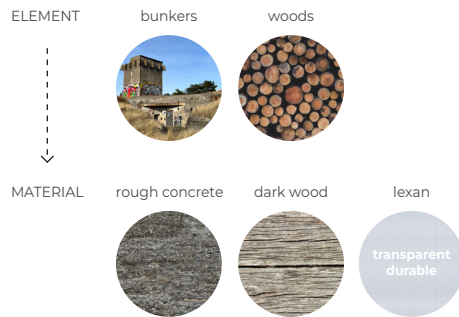
- concrete
- wood
- lexan

FUNCTIONAL RELATION

In order to guide the intertwined memory's exploration, some new benches are installed in the dune area and play different roles in the dune benchscape, such as being a landmark, a linkage for way-finding, a common element like a rest point, or a special element like a memorial.

MATERIAL RELATION

Most of the new benches are formal wooden benches like the existing one to blend with the dune landscape. Some benches are made of rough concrete and wooden pieces to reflect the human-made bunker traces in nature and also make them recognizable as sitting furniture. Only one bench in the bunker is made of lexan, which is transparent and able to look through inside.

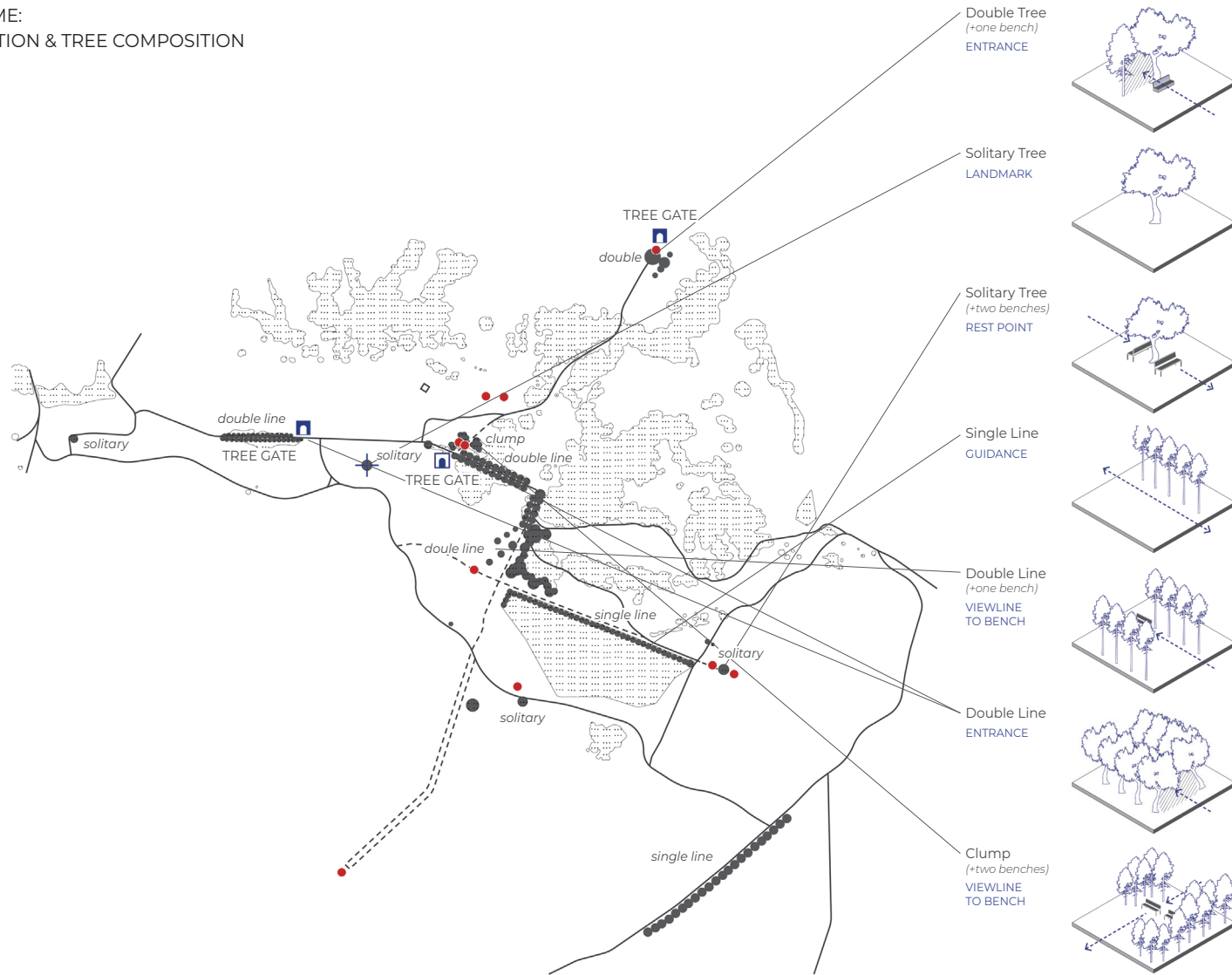


03 TWO-LAYER FRAME:
BENCH DISTRIBUTION & TREE COMPOSITION

Fig 4-52. A map of bench distribution and tree composition of the dune benchscape and a series of axonometric drawings of seven types of tree arrangement, which show the different types of tree arrangement creating different functions.

LEGEND

- bench
- tree
- ▭ walking path
- ▭ sandy path
- ▭ tree groups
- ▭ tree gate



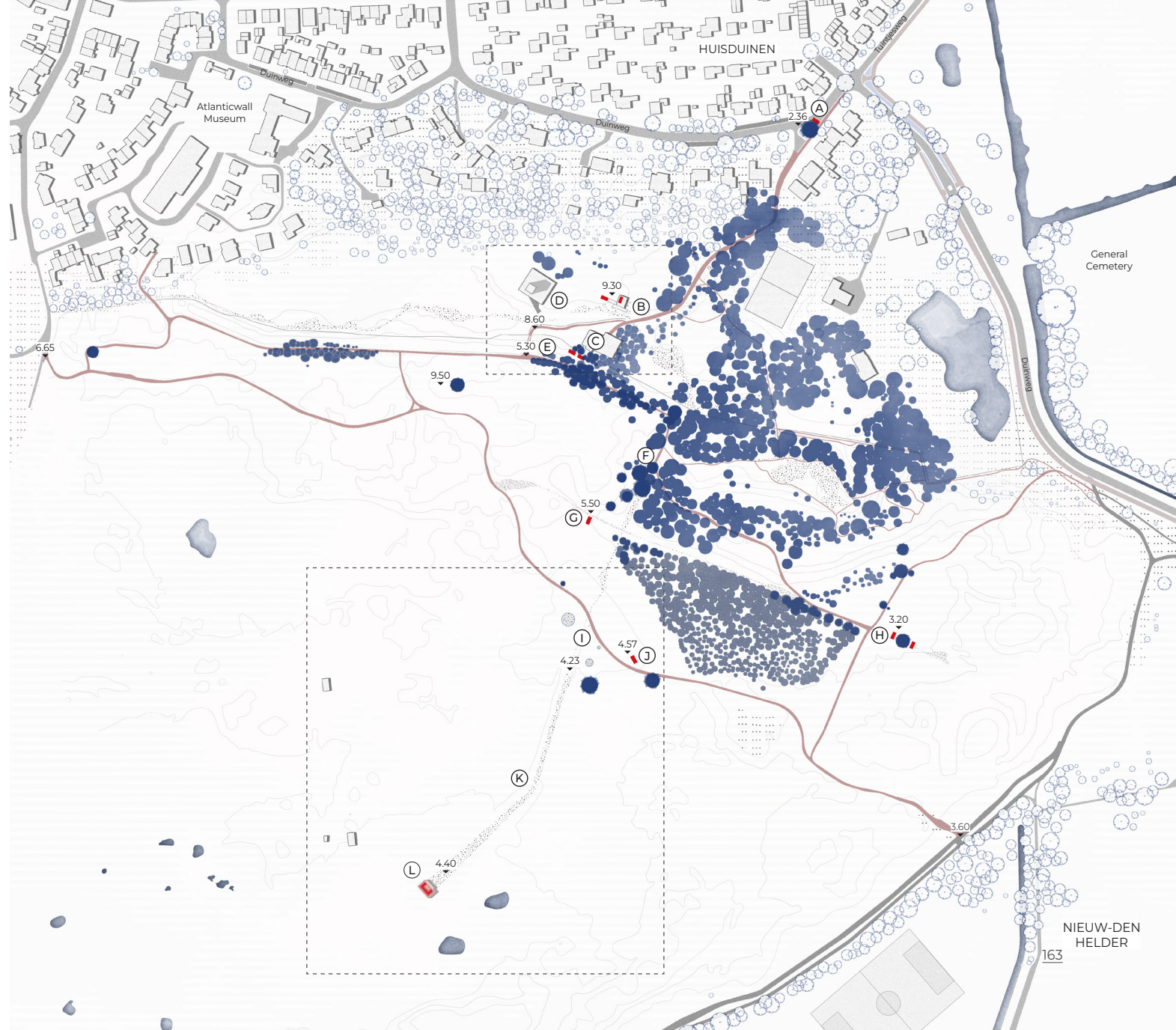
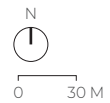
OVERVIEW OF HISTORICAL BACKYARD

NODE LEGEND

- A pine tree guide
- B historical shelter
- C concrete rooftop
- D Kroontjesbunker
- E downstairs tree gate
- F open intersection
- G highpoint bench
- H two lowpoint benches
- I artificial bomb crater
- J old bench
- K greenery ditch trace
- L wooden benchtower

ELEMENT LEGEND

- bench
- new tree
- existing tree
- outside tree
- building
- water
- city road
- walking path (dune)
- walking path
- sandy path
- contour line (2m)



4.4.6 CONCEIVED DUNE BENCHSCAPE: BENCHES AS KEY PLAYERS



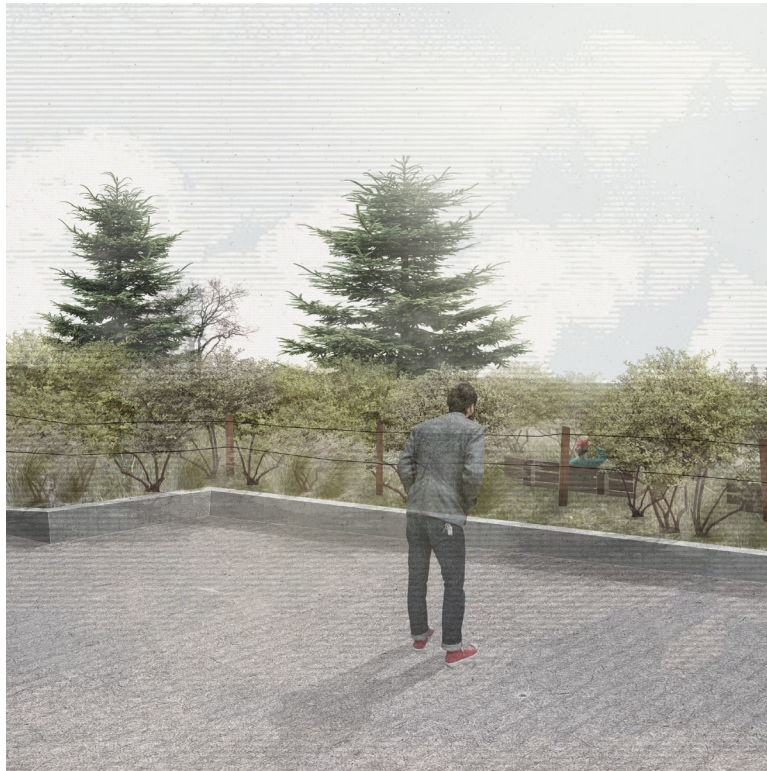
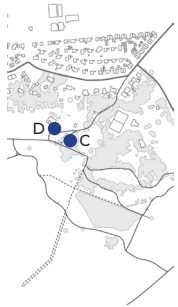
Node A - Pine Tree Guide

An unexpected scots pine tree and a new concrete bench work as a guidance of the wild dune park and frame a front gate.



Node B - Historical Shelter

Two symbolic benches are installed in and around the bunker to reflect its historical function as a shelter in the war.



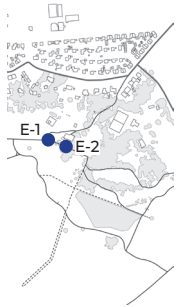
Node C - Concrete Rooftop

Double wooden benches are positioned on the rear slope of the roof of the underground bunker, and the fence makes it impossible for people to pass through.



Node D - Kroontjesbunker

The crown bunker is closed to the public, but is particularly recognizable as a cultural landmark in the dune landscape.



Node E1 - Wooden Staircase Downstairs

Walking down the stairs, a solitary black pine on the left leads one into the woods and a small signpost on the right leads one into the open path.



Node E2 - Tilting Tree Gate

The hidden double benches are framing some personal space on the left slope, while the new pine tree gate is guiding to the forest trail.



Node F - Open Intersection

Looking along the three linearly planted black pines on the right, there is a bench at the top of the slope, while the open space forward contains scattered pine cones.



Node G - Highpoint Bench

The 1.4-meter wide bench is located at the high point aligned with the contour as an axis between two tree groups of black pines and poplars.



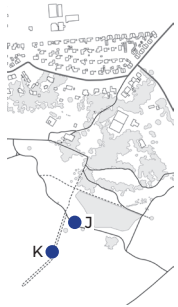
Node H - Two Lowpoint Benches

The two benches are placed in opposite directions on either side of a new solitary pine tree to enhance the contour axis in the dune and also to frame a new staying space.



Node I - Artificial Bomb Crater

Three concrete artificial bomb craters are scattered along the main path, guiding visitors to stop here to explore the traces of the ditch ahead.



Node J - Old Bench

An existing leaning wooden bench and a solitary pine tree on the main road act as special landmarks to guide visitors to stop and go forward.



Node K - Greenery Ditch Trace

It is only when entering the traces of the old ditch that the visitor will see the miniature benchtower not far away as a landmark and living memorial in the dunes.

4.4.7 PERCEIVED DUNE BENCHSCAPE: STORY BETWEEN PEOPLE AND HISTORICAL BACKYARD

Fig 4-53. Four types of human movement and the role of the bench in movement, in MSc Thesis: (not) our forest by Lotte Oppenheim, and adapted by the author.

LEGEND

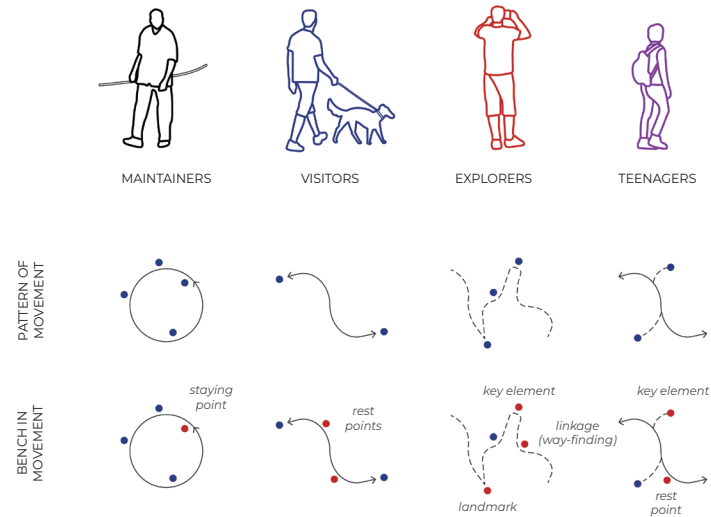
- stopping point
- bench
- movement

In essence, the design of dune benchscape is actually a search for a balance between conceived benchscape and perceived benchscape.

While a conceived benchscape is created mainly based on the four relations (material, function, visual, and routing) and benchscape affordance, a perceived benchscape is highly related to the physical conditions like topography and weather, and the influenced five senses of different users who have different feelings, knowledge, and even culture. Therefore, a meaningful and more practical dune benchscape is not only an imaginary or conceived benchscape, but also a dynamic and unrestricted benchscape that can provide various "Third Emotional Space" and be able to receive and respond to different people's interactions.

According to the site-specific dune area, the main user groups are residents in Den Helder, especially the elders, dog walkers, and some teenagers who live nearby. Sometimes several visitors would come to go hiking as explorers, and the bunker's maintainers would come every Saturday.

In general, the design of dune benchscape is to integrate the conceived benches as key players in the benchscape and the story between people and the historical backyard.



“ Movement of maintainer is continuous, with a goal and returning seasonally; Movement of visitor follows a certain route; Movement of explorer is lead by accidental search that is sparked through curiosity; Movement of teenager is a combination of the movement of visitor and explorer; The design is aware of these movements.

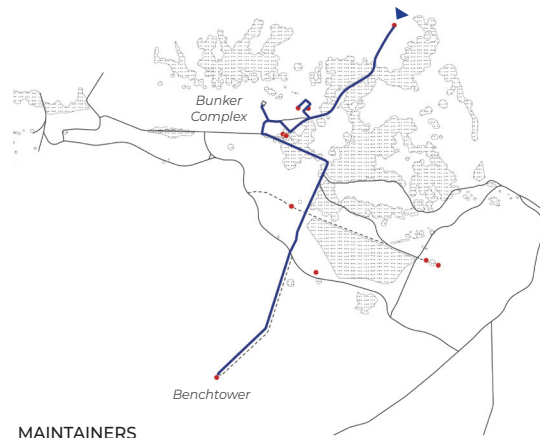
NB: The movements are archetypes, and not fixed categories. Explorers can sometimes become maintainers, explorers can sometimes become visitors. ”

POTENTIAL ROUTING OF DIFFERENT PEOPLE

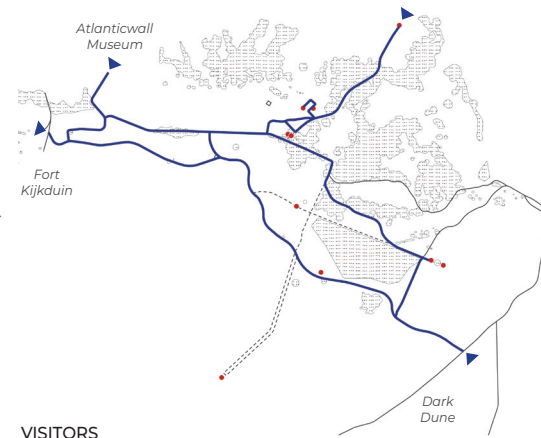
Fig 4-54. Four routing maps of different people's potential choices in the historical backyard, which show the possible entrances and stopping or staying points.

LEGEND

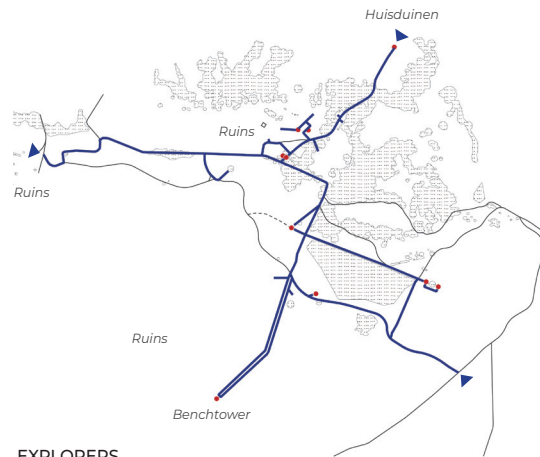
- bench
- ▲ entrance
- ▬ route
- ▭ walking path



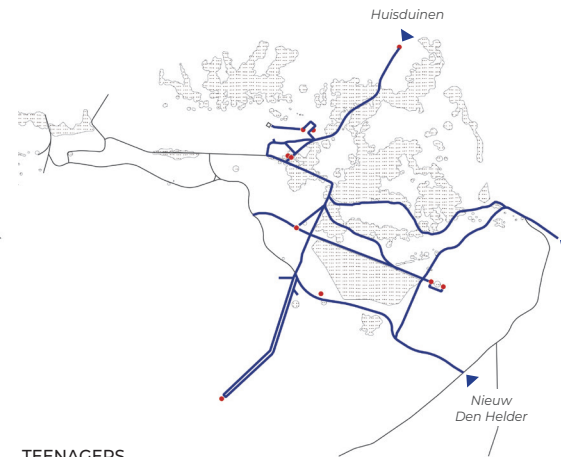
MAINTAINERS



VISITORS



EXPLORERS



TEENAGERS

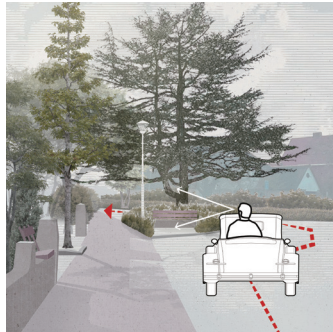
Maintainers

Visitors

Explorers

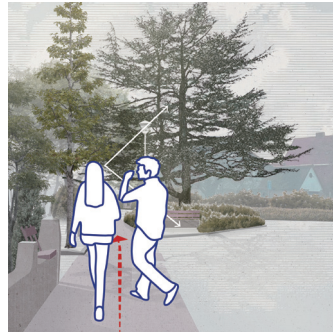
Teenagers

Node A

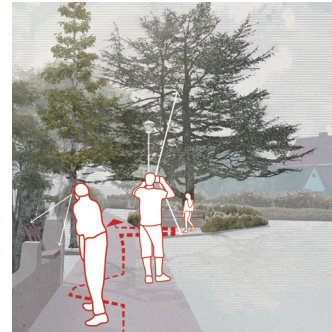


“ TODAY IS SATURDAY, OUR REGULAR VOLUNTEER MAINTENANCE DAY. I'M ALMOST AT THE DUNE ENTRANCE. ”

“ COOL! THERE ARE SOME CHANGES IN FRONT OF THE ENTRANCE. ”

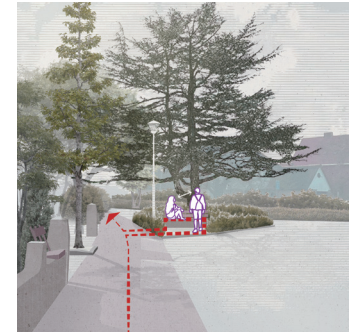


“ LOOK, SO WEIRD! THERE IS ONE EXTRA BIG PINE TREE IN THIS INTERSECTION. ”



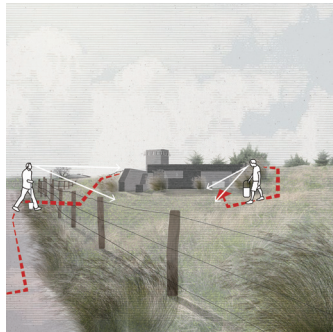
“ THIS BENCH, WITH 'RUST EEN WEINIG' WRITTEN ON IT, MAY BE KINDLY PROVIDED FOR VISITORS BY THE HOUSE OWNER. ”

“ THESE TWO LARGE PINE TREE FRAME A FORWARD WELCOMING TREE GATE. ”



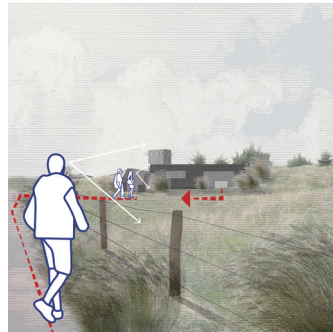
“ IT'S SO HOT AND I'M A BIT TIRED, LET'S REST ON THE BENCH UNDER THE BIG TREE FOR A WHILE. ”

Node B



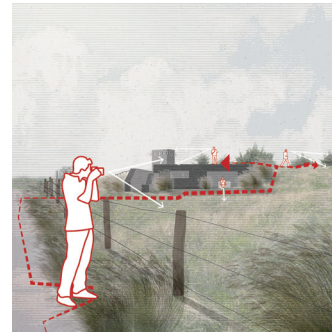
“ I'M GOING TO PLANT SOME NEW PLANTS ON THE NEW CONCRETE BENCHES. ”

“ I'M GOING TO CHECK THE INSTALLATION OF THE LEXAN BENCH INSIDE. ”

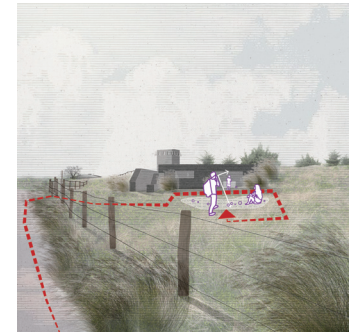


“ THERE IS AN OPEN BUNKER, WHAT IS ITS HISTORICAL FUNCTION? ”

“ NO IDEA...JUST A SHELTER? YOU SEE, THERE ARE TWO SPECIAL BENCHES. ”



“ IT IS VERY RARE TO SEE SUCH A WELL-PRESERVED SHELTER ON THE GROUND, AND IT SEEMS THAT THE TWO BENCHES IMPLIES THE FUNCTIONAL SIGNIFICANCE OF THIS SHELTER DURING WWII. ”



“ THIS IS OUR SECRET BASE, LET'S GO TO COLLECT SOME ROCKS AND WOOD TO HAVE A PICNIC AND A PARTY HERE. ”

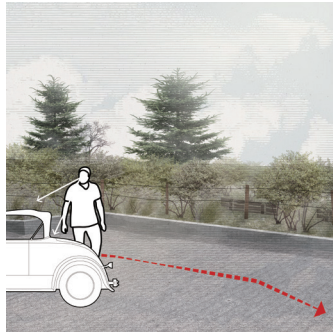
Maintainers

Visitors

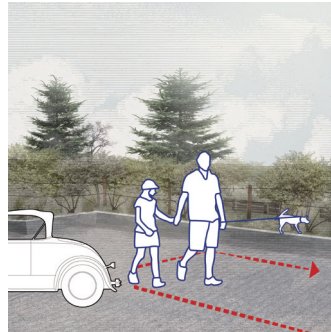
Explorers

Teenagers

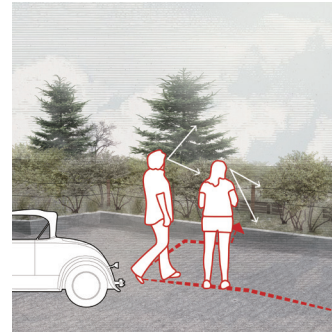
Node C



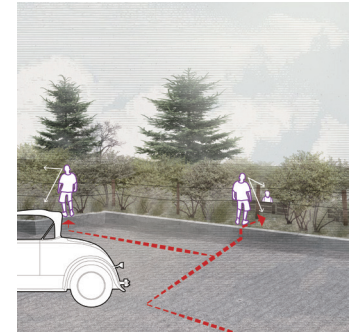
“ I ALWAYS PARK MY CAR ON THE CONCRETE ROOF OF THE UNDERGROUND BUNKER, AND I'M GOING TO WORK. ”



“ IT TURNS OUT THAT THIS IS THE ROOF OF THE UNDERGROUND BUNKER, WHICH IS NOW ACTUALLY BEING USED AS A CAR PARK AS WELL. ”



“ LOOK, THERE ARE TWO BENCHES BEHIND THE WOODEN FENCE! ”



“ WAIT FOR ME, I'M GOING TO STEP OVER THE BACK FENCE! ”

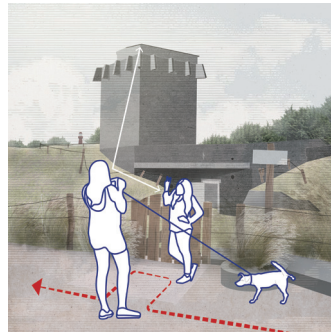
“ WOW, THEY'RE ON THE SLOPE, THAT'S FUNNY. HOW CAN WE GET THERE? ”

Node D



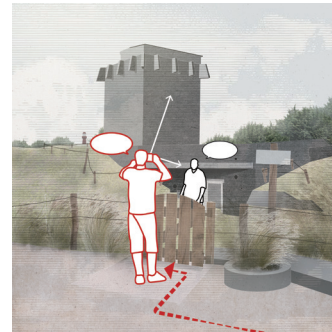
“ GOOD MORNING, JACK! HOW ARE YOU DOING? SORRY, I'M A BIT LATE TODAY. ”

“ HEY, I'M GOOD, IT'S REALLY A BEAUTIFUL DAY! LET'S START WORKING. ”



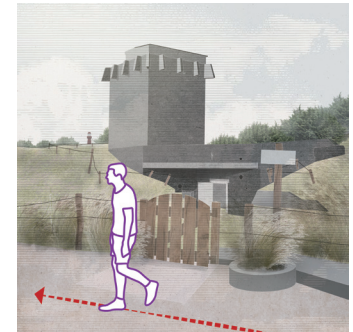
“ THIS CROWN BUNKER IS CLOSED, WE CANNOT GO INSIDE. ”

“ OH, WHAT A PITY! COULD YOU TAKE A PHOTO FOR ME? ”



“ HI, I'M WONDERING IF I WOULD COME IN FOR A VISIT PLEASE? THIS BUNKER IS A SPECTACULAR RUIN. ”

“ I'M SORRY, THIS BUNKER ONLY OPENS ON BUNKER DAY. WE'RE VOLUNTEERS. ”



“ THERE'S A STAIRCASE AHEAD, I'M GOING OVER TO SEE IT. ”

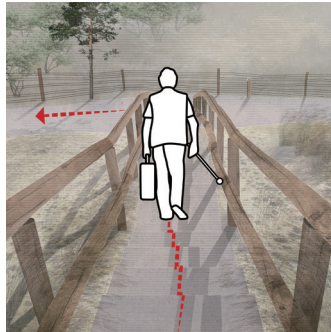
Maintainers

Visitors

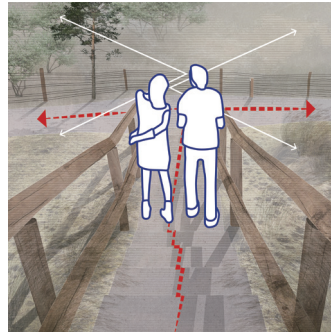
Explorers

Teenagers

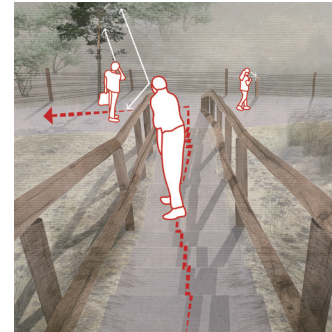
Node E1



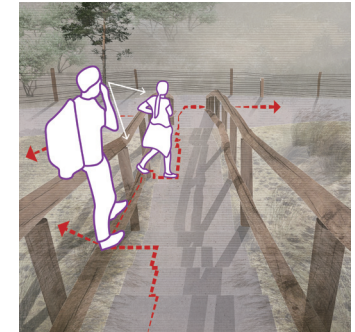
“ I'M GOING TO CHECK THE CONDITION OF THE BENCHTOWER ON THE OLD DITCH. ”



“ WHICH WAY DO YOU WANT TO GO? ”
 “ I'M NOT SURE. IT LOOKS LIKE THE LEFT SIDE IS MORE CLOSED, WHILE THE RIGHT SIDE IS MORE OPEN. ”

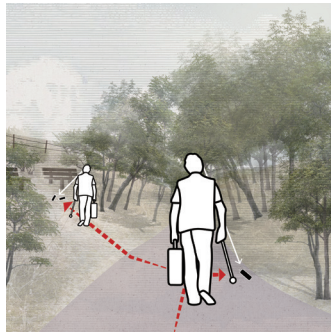


“ LET'S GO TO FIND THOSE BENCHES! ”
 “ THIS SOLITARY BLACK PINE IS VERY SPECIAL AT THIS SITE. DOES IT SEEM LIKE A KIND OF GUIDANCE FOR US? ”
 “ MIGHT BE. YOU SEE, THE WOODEN BOARD SHOWS THE WAY TO FORT KJKDUIN. ”

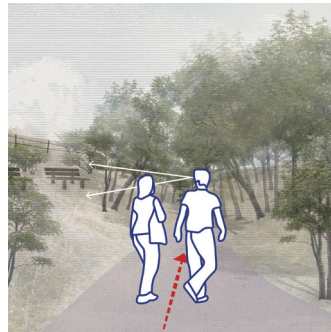


“ LISA, MOVE AWAY FOR A SECOND, I'M GOING TO SLIDE OFF THE TOP! ”

Node E2



“ SINCE THERE ARE NEW BENCHES HERE, THERE IS ALWAYS SOME RUBBISH ON THE SLOPE AND ON THE ROADSIDE. ”



“ WHY ARE THERE TWO BENCHES ON THIS SLOPE? ”
 “ HOW STRANGE, NO ONE WOULD GO UP AND SIT THERE, RIGHT? ”



“ THESE ARE THE TWO BENCHES HIDDEN BEHIND THE FENCE, WHICH CAN BE ACCESSED FROM THE SLOPE HERE. ”
 “ THAT'S COOL! AND THE TWO SLOPING TREES LOOK LIKE A TREE GATE, COULD THERE BE A FOREST BEHIND THEM? ”



“ LISA, WHY DON'T YOU DIRECTLY CROSS THE FENCE AT THE BACK? ”
 “ I WAS A BIT SCARED JUST NOW BY THE STEEPNESS OF THE SLOPE. ”

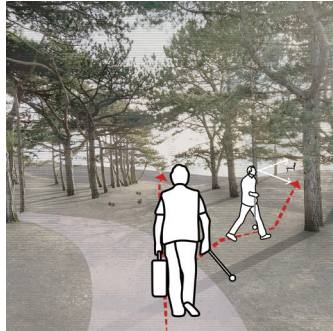
Maintainers

Visitors

Explorers

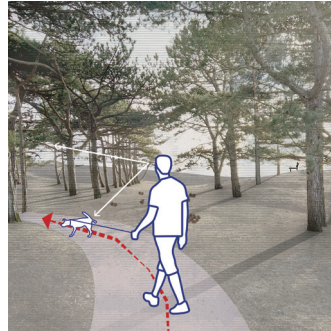
Teenagers

Node F



“ IT IS CLOSER TO BENCHTOWER BY TAKING THIS TRAIL. ”

“ YOU CAN GO AHEAD TO BENCHTOWER AND I'LL HAVE A LOOK AT THAT HIGH POINT BENCH. ”

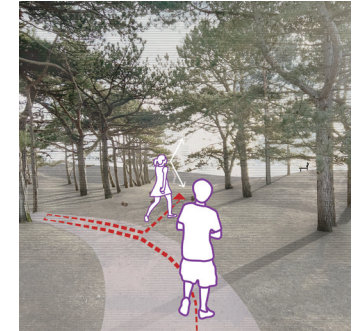


“ THE VIEW OF A GROUP OF BLACK PINE TREES WITH THE SUNLIGHT IS QUITE CHARMING! ”



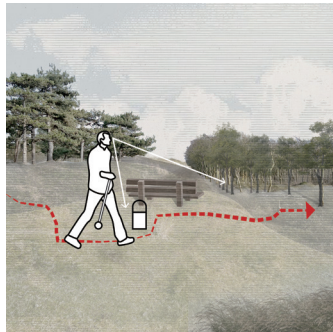
“ DAD, LOOK! THERE IS A BENCH ALIGNED WITH THE LINE OF TREES. ”

“ THERE WERE SO MANY PINE CONES ON THIS OPEN GROUND THAT I WANTED TO COLLECT SOME TO TAKE HOME. ”

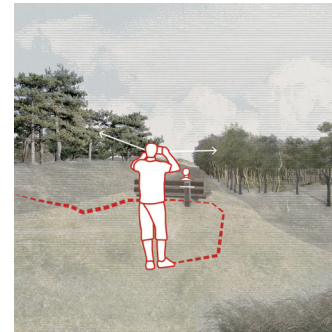
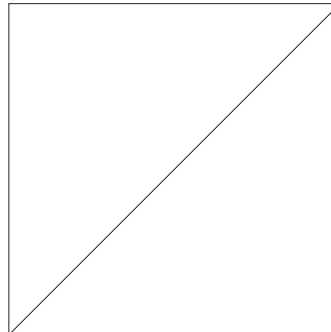


“ KIM, COME ON, RUN AFTER ME INTO THE OPEN FIELD! ”

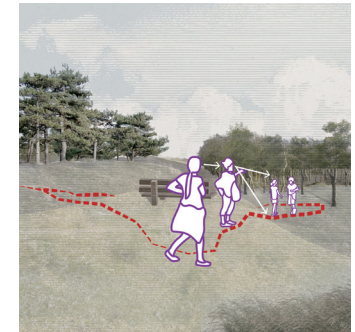
Node G



“ NICE, HOPE PEOPLE CAN ENJOY THIS CHARMING VIEW FOR A MOMENT. ”



“ THE PLACEMENT OF THIS BENCH IS GREAT AS IT SUGGESTS THE HIDDEN CONTOURS OF THE DUNES AND THE CONTRASTING VIEWS OF TWO DIFFERENT SPECIES OF TREES ON EITHER SIDE. ”



“ LISA, LOOK, THERE'S KIM AND LINDY, LET'S GO OVER AND PLAY WITH THEM! ”

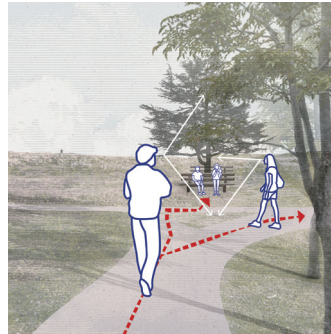
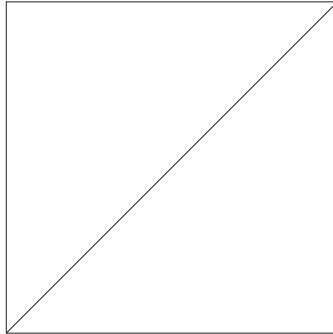
Maintainers

Visitors

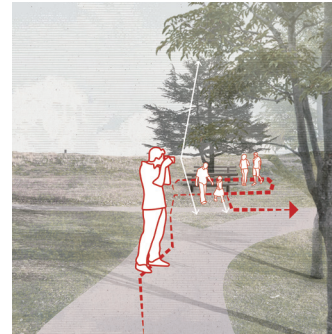
Explorers

Teenagers

Node H



“ THERE ARE TWO BENCHES AT THE END OF THE PATH. IT'S A NICE SHADY SPOT TO REST A BIT. ”



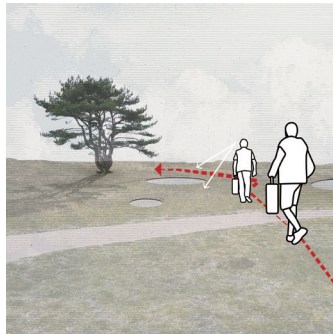
“ WHAT A STRONG SCOT PINE TREE IN THE OPEN DUNE LANDSCAPE. ”

“ THE BENCH AT THE BACK OF THE TREE IS LEADING TO AN ENDLESS VIEW, WE CAN STAY HERE FOR THE WHOLE AFTERNOON. ”



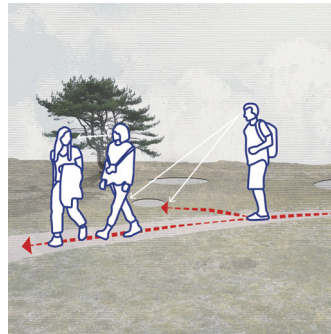
“ WHY ARE THERE SO MANY NEW BENCHES IN THE DUNES NOW? I HAVEN'T SEEN ANY BEFORE. ”

Node I

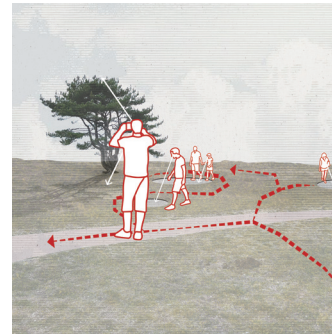


“ WE CAN GET TO BENCHTOWER BY GOING THROUGH THE GRASS ON THIS SIDE. ”

“ OF COURSE! YOU SEE, THESE CONCRETE CRATERS REALLY GO WELL WITH THE GRASSLAND. ”



“ HEY, GIRLS, DO YOU SEE THIS STRANGE CONCRETE HOLE IN THE GRASS? ”

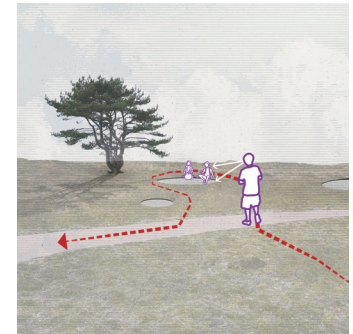


“ WHY ARE THERE SOME ARTIFICIAL CONCRETE CRATERS HERE? ”

“ NO IDEA... ”

“ MIGHT BE THE SYMBOLIC TRACES OF BOMB CRATERS LEFT AFTER WWII. ”

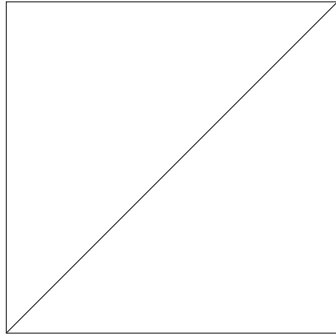
“ SHALL WE WALK TOGETHER FURTHER INTO THE DUNES? ”



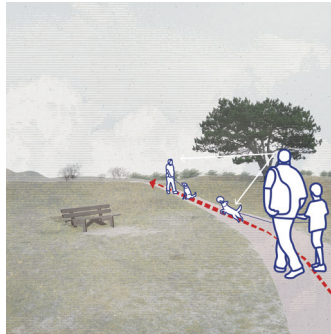
“ KIM, COME AND SIT WITH US, HERE IS AN INTERESTING ROUND PIT. ”

Node J

Maintainers

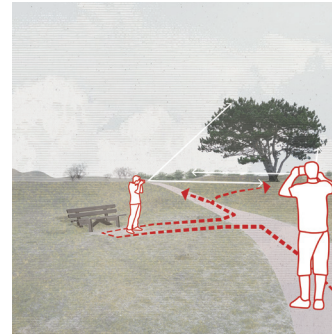


Visitors



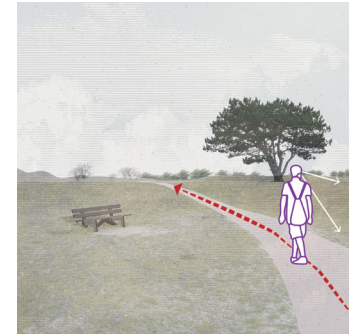
“ LOOK, SO WEIRD! THERE IS ONE EXTRA BIG PINE TREE IN THIS INTERSECTION. ”

Explorers



“ THE OLD BENCH AND THIS ANCIENT SCOT PINE TREE FRAME A LANDMARK ON THE MAIN PATH. ”

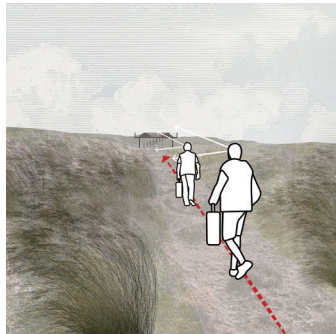
Teenagers



“ WHAT IS HAPPENING THERE? ”

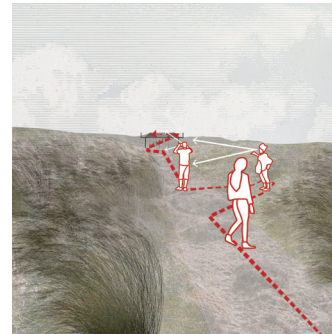
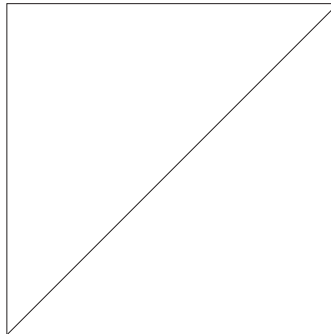
“ THE BACK LEGS OF THIS BENCH ARE SUNK DEEP INTO THE SAND, IT MIGHT HAVE BEEN HERE FOR A LONG TIME. ”

Node K



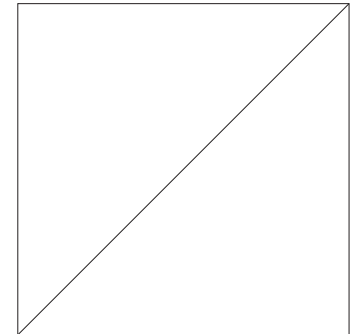
“ LOOK! THERE IS THE BENCHTOWER, SOME PEOPLE ARE STANDING ON IT. ”

“ REALLY HAPPY TO SEE THAT! LET'S GO TO DO THE REGULAR CHECK. ”



“ I DON'T REALISE THERE IS A MINIATURE BENCHTOWER NOT FAR BEHIND THE TRAIL OF THIS OLD DITCH, HOW COME WE COULDN'T SEE IT FROM OUTSIDE? ”

“ I'M GOING UP TO SEE THE VIEW OF THE SAND DUNES IN THE DISTANCE. ”



4.5 BENCH AS A LIVING MEMORIAL IN BENCHSCAPE

4.5.1 NODE B - HISTORICAL SHELTER

01 FRAMED:

BENCHES IN AND AROUND THE BUNKER COMPLEX

Fig 4-55. A plan (1:600) of the three bunker complexes around node B, which shows the new benches with their surrounding landscape and the visual connection in-between.

LEGEND

-  bench
-  building
-  walking path
-  sandy path
-  fence
-  contour line (1m)
-  viewline
-  black pine
-  other trees

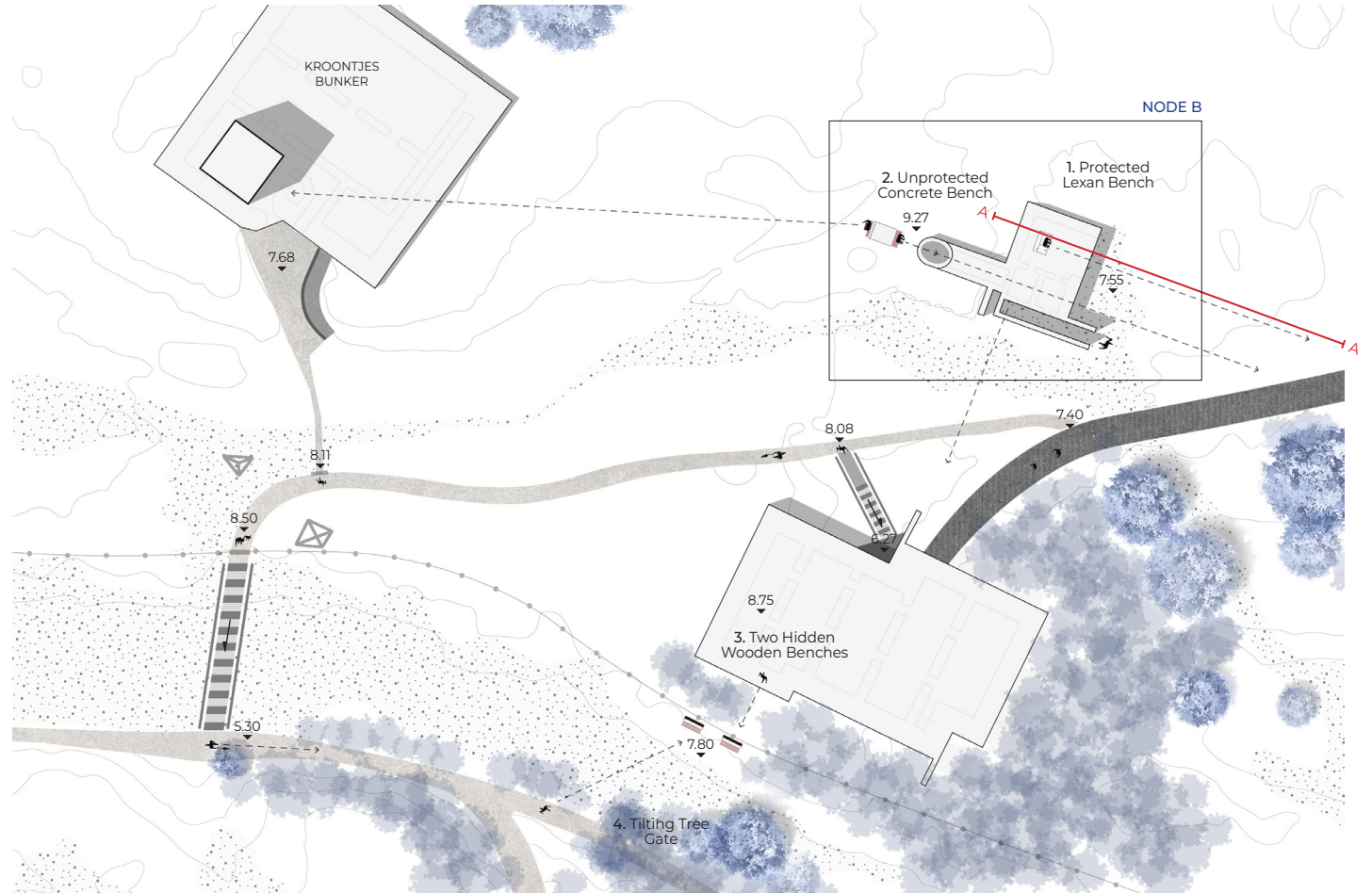
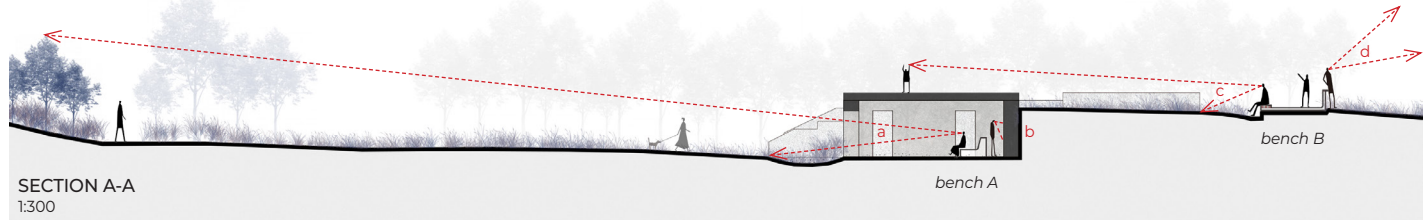
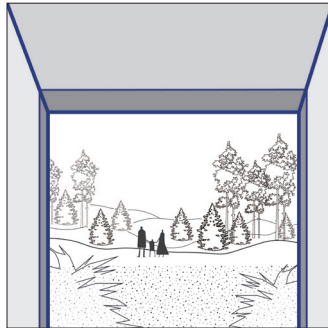


Fig 4-56. Section A-A of the sitting viewline of two new benches in and around the bunker.

Fig 4-57. Four perspectives of the different views provided by bench A and B as frames, including the frame of sitting or leaning on it and being at the front and back side of the benches.

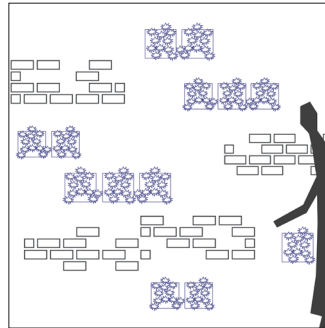


FRAME a - Wild Dune Landscape



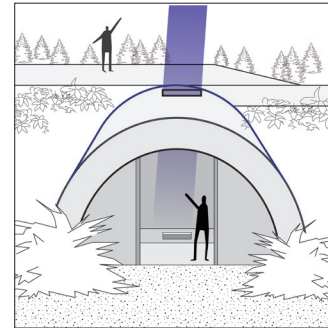
When you are sitting on bench A, you will see the wild dune landscape outside framed by a smaller frame of the bunker's broken wall and surrounding tall grass.

FRAME b - Dilapidated Walls



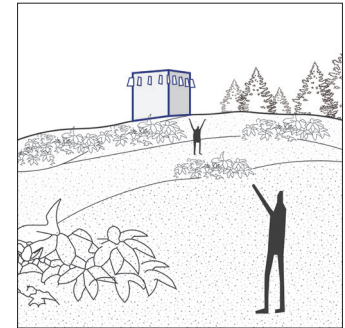
When you are leaning on the back of bench A, you will look at the several red bricks and growing moss exposed to the surface of the bunker's wall.

FRAME c - Historical Well



If you find bench B and sit in front of it, you might see the sunlight going through the sky window of the water bunker, which highlights the trace of old storage well.

FRAME d - Crown Bunker



If you'd like to lean on the back of the bench, you will definitely notice the crown bunker as a heritage landmark, which seems unattainable.

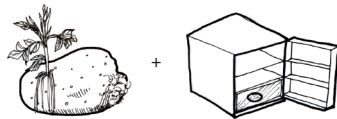
03 FRAMING:
TWO SYMBOLIC BENCHES

Fig 4-58. Two sketches of potatoes, which show the design strategies of the benches in and around the bunker, drawn by Keng-Ching Chen in the "Drawing Time" workshop (group 4).

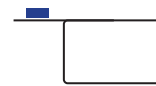
Fig 4-59. Two isometric drawings of the two symbolic benches, which show the concept, form and dimension of these two benches.

In order to reflect the historical function of the bunker complex as a shelter and the fascinating intertwine between natural and cultural memory's physicalities in this wild dune landscape, two symbolic benches are installed to play with the surroundings and offer visitors more perspectives to learn and appreciate the memorial landscape. Time is a key strategy for the design of two conceived benchescape.

One of the benches is made of rough concrete and some pieces of wooden boards. This bench is exposed to the outside and highly affected by sand accumulation and human practice through time, while another bench made of transparent lexan is placed inside the bunker and well-protected to prevent strong influence. One of its sides is opened to capture the sand.



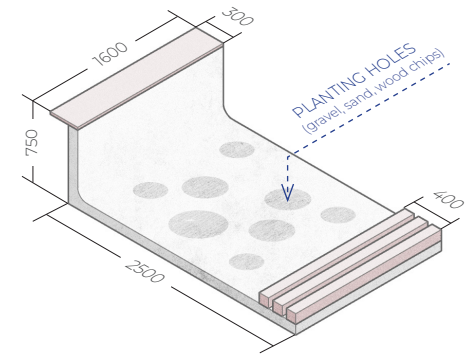
*What if a bench is a potato?
Whether we let it spoil in the air or put it in the refrigerator?
A refrigerator is always like a shelter for fresh vegetables, like bunkers are shelters in history and the wild dune.*



Bench A - outside(roof)

UNPROTECTED

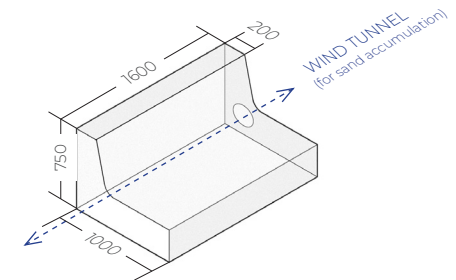
Made of rough concrete and wood
Shape like a piece of the bunker



Bench B - inside bunker

PROTECTED

Made of transparent lexan
Stay with sand accumulation



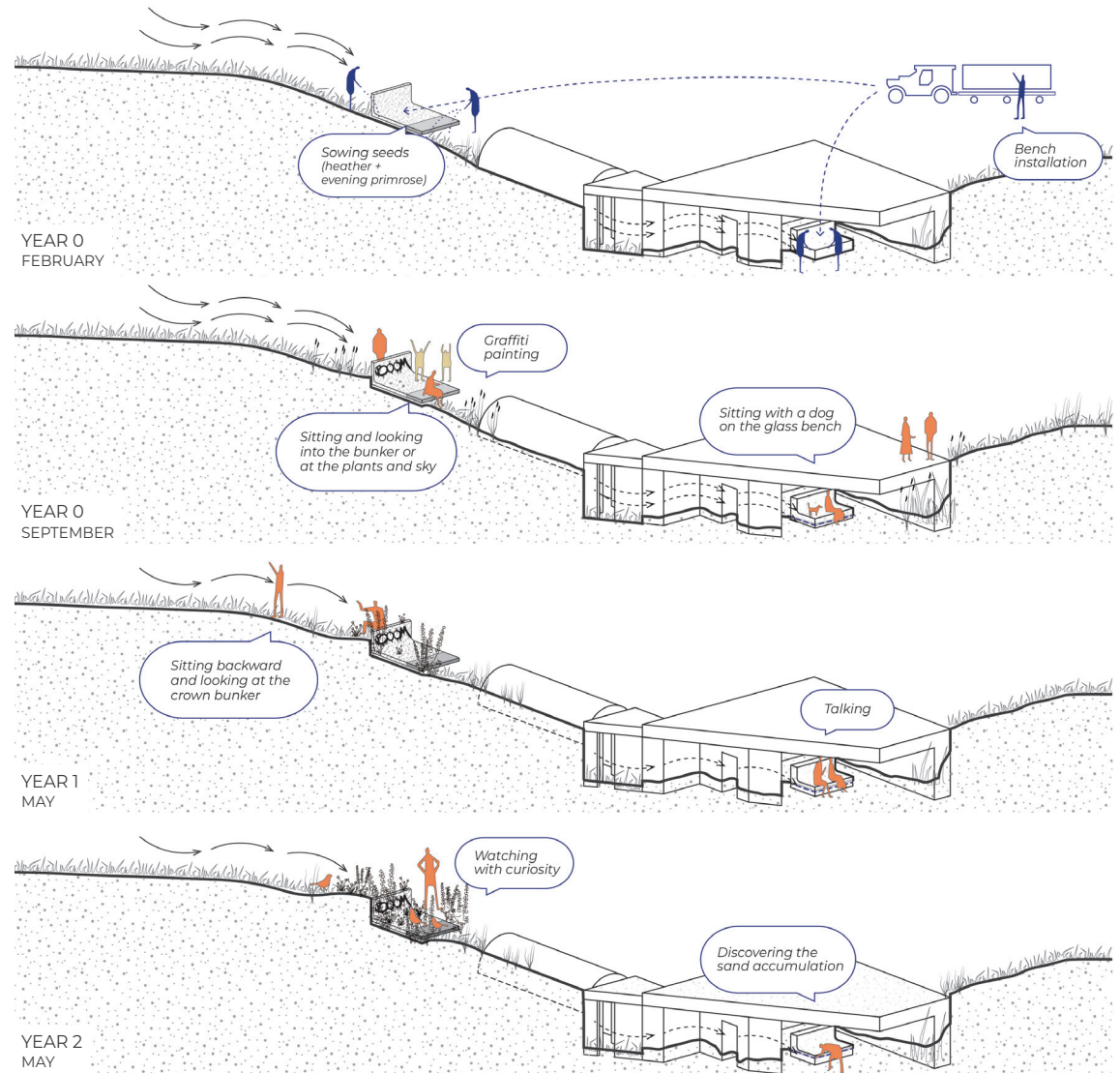
FRAMING BENCH STORY THROUGH TIME (2 YEARS)

Fig 4-60. A series of sections of the process from bench installation to two years later, which show the sand accumulation in/around the bunker (or benches) and the changing human interaction with these two benches.

LEGEND

- volunteer
- teenager
- visitor + dog-walker
- wind direction (sand saltation)
- sandy ground
- marram grass

“ With Time, the Outside Bench is Gradually Covered by Graffiti, Sand, and Plants, so Visitors Prefer Watching from a Distance than Sitting on It as Before. While the Half-open Bench Inside the Bunker Works as a Wind Tunnel to Capture and Contain the Dune Sand Inside it for Observation. ”



4.5.2 BENCH AS A MEMORIAL THROUGH TIME

Fig 4-63. The perspectives of the lexan bench inside the bunker show the human influence and natural process in and around the bench through time.

2023



Now - After Bench Installation

"Here is a new transparent bench! It has such a special design, why is one side open?"
"The seat is so wide that I can sit cross-legged."

2024



One year later - Sand Accumulation

"Look at the small hole on the right, I'm going to put the bottle in the bench."
"Looks like someone had a coke here."

2025



Two years later - Bench as a Container

"Wow this bench is totally filled with rubbish and sand, it's like an artwork now."
"No, it's so dirty, I don't want to sit here!"

Fig 4-64. The perspectives of the concrete bench outside the bunker mainly show the influence of the natural process in and around the bench through time and relevant human interactions.

2023



Now - After Bench Installation

"This seems like a piece of the bunker, oh, we can sit here too, probably designed with the transparent bench inside the bunker."

2024



One year later - Growing Plants

"So much heather and marram grass has grown in and beside these sandy soil holes."
"There are also young people graffitiing on it."

2025



Two years later - Covered by colorful flowers










"This bench was completely covered in vegetation and sand. We can only sit on the top board of it."
"Look at the birds and butterflies coming in here."

4.5.3 NODE L - WOODEN BENCHTOWER

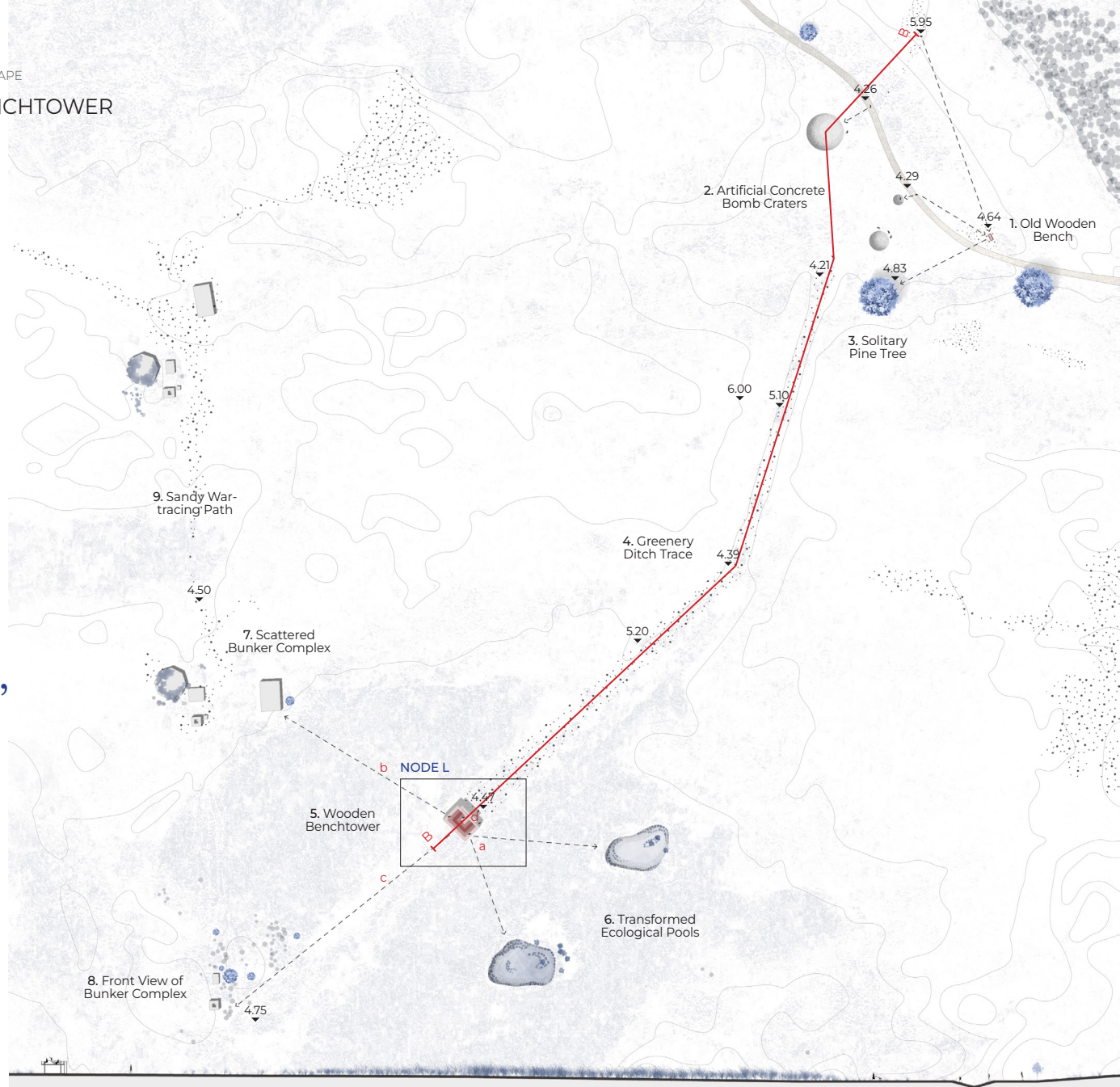
01 FRAMED:
FROM BOMB CRATERS TO
ECOLOGICAL POOLS

Fig 4-65. A plan of the benchtower hidden behind the trace of the old ditch, which shows the walking sequence from three artificial concrete bomb craters to the present ecological pools and scattered bunkers.

LEGEND

-  bench
-  benchtower
-  building
-  walking path
-  sandy path
-  contour line (1m)
-  viewline
-  black pine
-  other trees

“The Old Ditch Trace as a Hidden and Mystery Bridge Connects the Transformation from Artificial Bomb Craters to Present Ecological Pools, While the Benchtower as a Way-ending Point Offers an Opportunity to Link the War Ruins and Natural Traces.”



Node L
Wooden Benchtower



The benchtower stands on a flat area in the middle of the old ditch and plays as a new miniature landmark and observation tower guiding people to explore the hidden memories of the dunes and new personal memories.

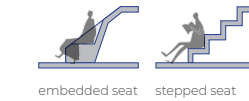
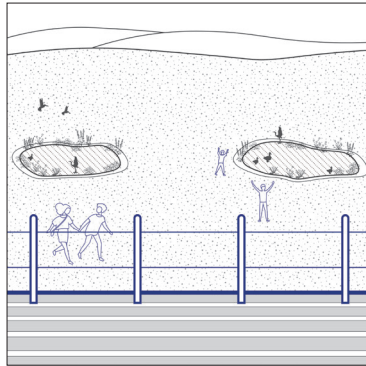


02 FRAME:
BENCHTOWER AS VIEW FRAMES

FRAME a - Ecological Pools

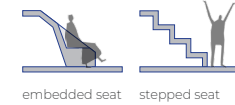
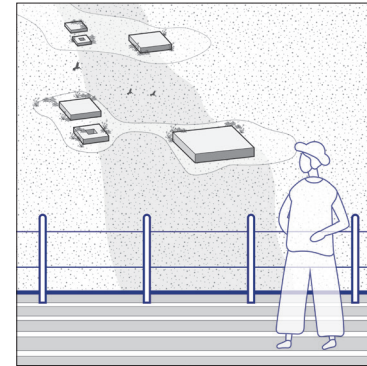
Fig 4-66. Four perspectives of the different views provided by the new bench tower, which give the opportunity to link both the cultural and natural history of the dune area.

Fig 4-67. The eight icons of the sitting postures in different kinds of seats are related to the bench tower as different frames.



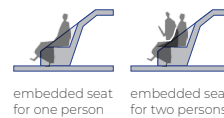
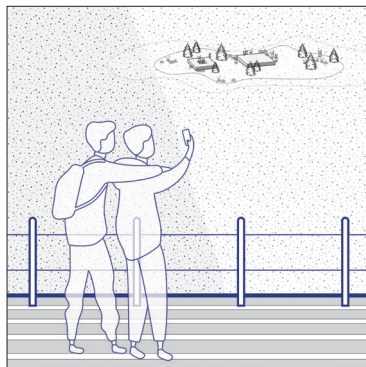
When you are sitting or standing on the left side of the bench tower, you will notice the two ecological pools that transformed from bomb craters in war history.

FRAME b - Scattered Bunkers



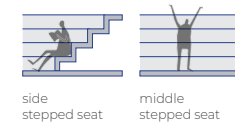
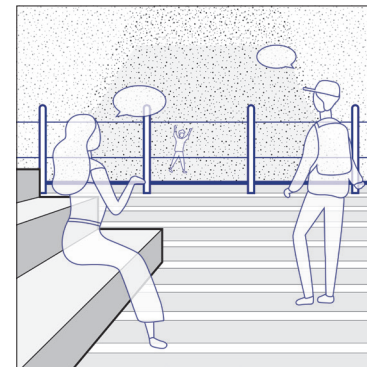
When you are sitting or standing on the right side of the bench tower, you will look at the scattered bunkers connected along a sandy belt in the dune landscape.

FRAME c - Endless Dune Landscape



If you go to the back of the center, you will look through the old ditch trace, and see the endless dune. There are several scattered bunkers with a group of vegetation.

FRAME d - Inward Social Space



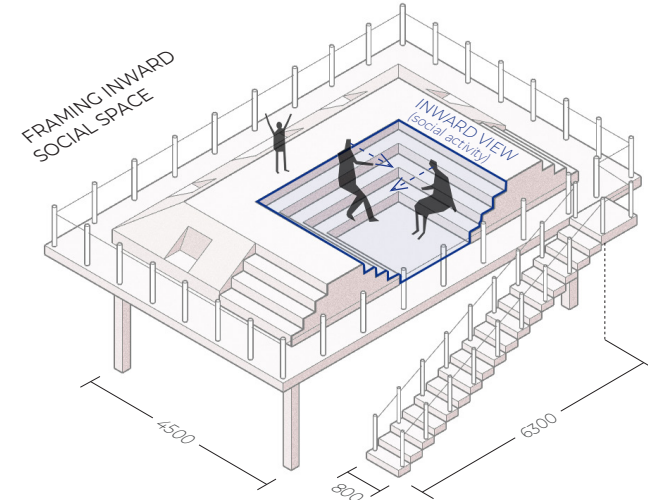
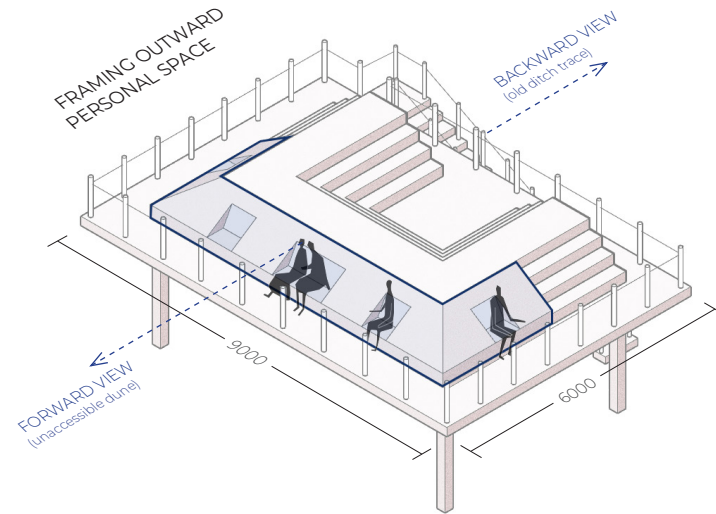
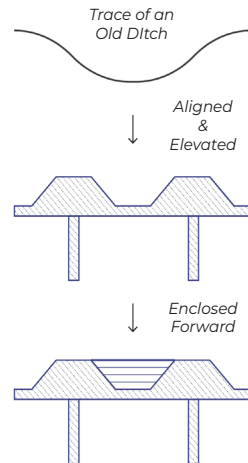
If you stay and sit at the center of the bench structure for a while, you might enjoy a talk with some friends sitting beside you.

FRAMING: 03
U-SHAPED BENCHTOWER

Fig 4-68. Three diagrams of the section show the design concept of the U-shaped benchtower and the stories that this benchtower is framing inside.

Fig 4-69. Two axons of the bench tower shows two types of functional space framed by the shape design, including the outward personal space as the "Third Emotional Space" and the inward social space.








The mini size tower is mainly composed of a platform and a special bench structure, which are framing some embedded benches for one or two people to create a relatively private space as the "Third Emotional Space" and some stepped benches for sitting or standing to enjoy a more public social space. This U-shaped bench structure is aligned with the linear trace of old ditches. The form design is to exaggerate and elaborate the special slope terrain on both sides of the old ditch and also to imply a forward ending of this informal exploration path to keep a distance from nature.

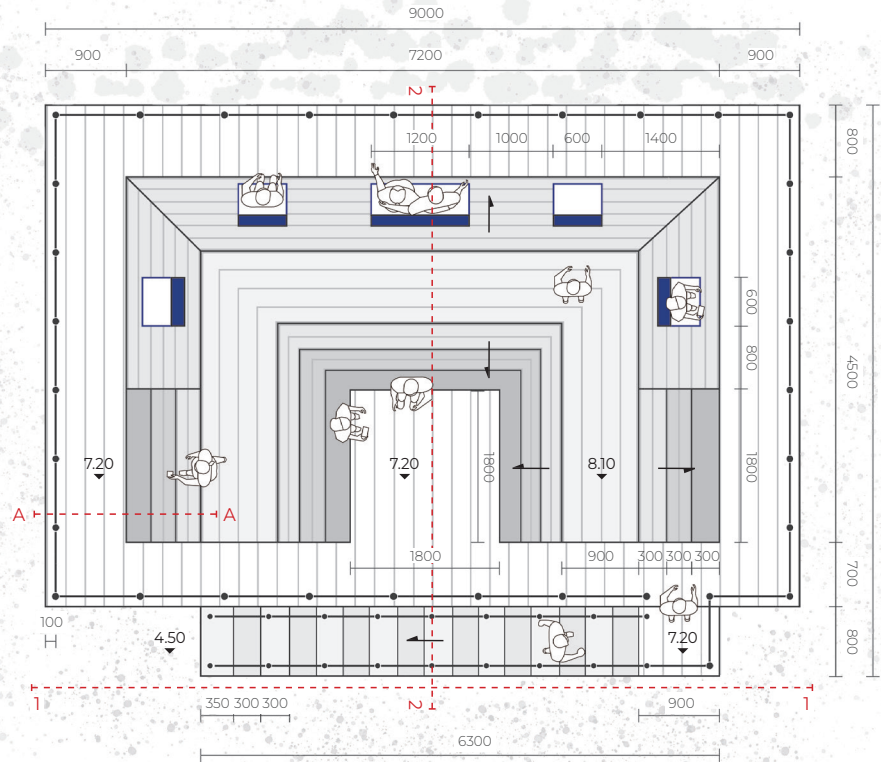


PLAN OF THE WOODEN BENCHTOWER

Fig 4-70. A roof plan of the benchtower, which show the detail design of the embedded and stepped benches on the tower.

LEGEND

-  embedded bench
-  stepped bench
-  stairs
-  wooden board
-  handrail
-  tall grass
-  sandy grassland



PLAN OF
ROOF FLOOR
1:90

The wooden benchtower is situated on a level expanse of land that was once a ditch.

Standing at a height of 2.5 meters, it resembles a miniature tower and is discernible as a landmark to passersby who traverse the old ditch, but it remains inconspicuous from a distance along the accessible path.



4.5.4 BENCH AS A MEMORIAL THROUGH SHAPE

Sunny Day

Three sides of the tower

The special U-shaped benchtower provides the visitors view-guiding from three sides to look at the unique dune memories, and at the same time, it helps evoke personal memories about the benchtower on the dike next to the city center.



Rain Day

Three times of the day

On rainy days, visitors may interact with this benchtower in different ways. While some people stand under it and use it as a shelter, others may still go upstairs to play and explore. The interactions will vary at different times of the day as well.



05

**BENCHSCAPE
AND LANDSCAPE**

5.1 CONCLUSION

Through the whole process of research and design, I constantly analyzed and looked for the answer to the main research question, "How Can Memory and its Physicality be Situated in and Expressed Through Benchscape to Enhance Public Awareness of City Identity and Help Create Personal Significance?", and finally answered the research question with a highly research-oriented design system of memorial benchscape.

Based on the deconstruction of the main research question and the formation of subquestions, the primary findings of the research are the definitions and potential relevance of memory, memory's physicality, bench, and benchscape, which demonstrates the possibility of benchscape as memory's physicality through three layers of "FRAMED, FRAME, FRAMING". This three-frame perspective also provides the interpretation of the new term "perceived benchscape", and extends to understanding "conceived benchscape" that always be concerned with one more layer of the larger context of a bench - urban public space. Secondly, by making a handbook of site-specific bench catalogue of Den Helder, I overviewed the different types of ordinary benches and their constructed benchscape. And at the same time, the analysis by a special technique of walking score help me

to figure out the sequence of a benchscape with one or more memorial benches, which concludes with a **FOUR-RELATION ANALYSIS MODEL** - material, visual, functional, and routing relations.

Furthermore, the precedent studies contribute to the finding of various roles of a bench in benchscape and the application of the four-relation analysis model in memorial benchscape design.

The chapter of Benchscape Family Design is an experimental answer to the main research question by creating a coherent memorial network in Den Helder, in which the concept of the "Third Emotional Space" is used to illustrate the personal significance of memorial public space.

The proposed memorial system is the representation of benchscape as a whole system by integrating ordinary benches and special benches and following the new memorial structure of "Looking out, Thinking in". Later I Focused on the design of one memorial area named "Historical Backyard", which demonstrates benches as key players in benchscape, discusses the balance among staying, stopping, and moving, and further compares the conceived benchscape and perceived benchscape to evaluate the benchscape affordance. Last but not least, I zoomed in on two nodes to elaborate bench as a living memorial in benchscape, in which

the three-frame offers both information about city memory and opportunity for personal meaning.

In conclusion, the study introduced a new perspective to interpreting the urban landscape, and discusses the fascinating relationship between the unbuilt environment and different people through inconspicuous elements. For future work, more social and practical aspects should be considered and experimented with to improve practical values.

"**BENCHSCAPE** WITH BENCHES AS **INFORMAL MEMORIALS**
COULD FRAME VARIOUS '**THIRD EMOTIONAL SPACE**'
IN **PARTLY DEFINED** MEMORIAL PLACES
TO CONSTRUCT **MEMORIAL NETWORK** OF CITY IDENTITY
AND FURTHER EVOKE **PERSONAL SIGNIFICANCE.**"

5.2 REFLECTION & DISCUSSION

5.2.1 REFLECTION ON RESEARCH & DESIGN

01 METHODOLOGY RELEVANCE

ACADAMIC ASPECT

With the rapid development of technology and the economy, our lives have become efficient and convenient, we are framed in multiple orderly grids. At present, even in the natural urban wilderness, we can see systematic route planning and sculptural design, powerful design elements that dominate our observation. Designers are increasingly preoccupied with design techniques and conceptual novelties, and the blueprint of the city is constantly being infused with new dense dots, with the otherwise inconspicuous objects being completely ignored.

Therefore, when confronted with abstract themes such as "place and memory", I am prompted to engage more deeply with the small landscapes of everyday life, everything that is happening, and every creature that appears, and these seem to me to be a myriad of truths hidden behind a life that people do not realize - what we take for granted or naturally existing landscapes, such as a bench on a seaside dike. Behind these countless small objects in the urban landscape, there is always a designer, a constructor, and a user, and can the user perceive or discover the personal meaning

behind them as highly functional facilities? Conversely, are the designers trying to apply interventions to create complementary values? From this reflection, the project progressively builds a study of benches (benchscape: observing or interpreting the urban landscape through the lens of benches) and the use of site-specific design to answer this reflection.

As a landscape architect, I believe my greatest strength comes from the meticulous observation, appreciation and research of every aspect of a site and the story behind it, which means I am not to create new meaning for users, but to share my view of looking at the self and world. For example, in the process of benchscape design, I apply the concept of "open narratives" suggested by Matthew Potteiger and Jamie Purinton in *Narrative Landscape* that instead of traditionally told by the authors, the spatial narrative is more about showing and offering distinct opportunities and explores how individuals construct their own experience, interpretation, and memory by making places and stories a part of them. In addition, in the context of the academic landscape profession, the aspiration of my research is to inspire more designers to develop a mindset of studying and considering urban landscapes through the lens of small physical objects. As landscape architects, it is often easy for us to move

from urban scale planning to strategy to site and detail design, and finally, the bench will become a product. But if we take a step back, as human beings - a perceiver, a bench, a street lamp, or a rubbish bin can be potential protagonists and living beings with which we interact and connect all the time, and they even become producers of memories.

THE FRAMEWORK OF METHODOLOGY

The process of site analysis is an overview of the city memories, memories' physicalities, and present benchscape to figure out the fascinating relations in-between and the potential of benchscape as living memorials. In order to better understand both conceived benchscape and perceived benchscape, I reviewed the theories about people and place in psychological, spatial, experiential, and socio-cultural aspects, which contributed to the design concept and supplemented the four-relation analysis model. Furthermore, the interventions elaborate on the possibility of a memorial benchscape as a whole system or a living memorial to enhance city identity and evoke personal meaning.

PRECEDENT STUDY

The compositional gap between a bench and benchscape guided me to explore the different roles of a bench in benchscape,

and the case studies provided me with border typologies. In addition, by analyzing the present memorial landscape from the perspective of benches through the four-relation model, it provided a unique interpretation of these projects and I also learned the more practical applications of this design approach.

During the process of the case study, I found that the four-relation analysis model was limited in that it did not explicitly state the "symbolic relation", whereas most memorial landscape designs apply explicit or implicit metaphors. However, another finding points out that "symbolic relation" is often realized in combination with one or two of the four basic relations, for example, the symbolism of the wooden benches in "THE THIRD TRAIN" is closely linked to its function and visual connections.

CHALLENGES

One greatest challenge in this research is to understand and analyse benches, benchscapes, and their relationship to place and memory from multiple perspectives, and ultimately to put them together - perhaps as a basic framework for a research methodology or a site-specific memorial benchscape design. The relationship between benchscape and memory can be seen as a microcosm of place and people, which emphasizes the interactive

nature of landscape and people - both behavioral and psychological. Therefore, memorial landscapes are no longer limited to the commemoration of history, but in this study, a broader sense of "memorial" is used, i.e. landscapes with collective or personal meaning. It is attempted to apply the environmental psychology method of Mehrabian and Russell's (1974) dimensions of arousal and pleasure to assess the psychological impact of the different types of benches and surrounding landscapes at the base, but this ultimately does not serve the practice of design with precision. It seems like a paradox to create personal meaning through design, or that we cannot precisely predict the psychology and memory of each individual. But the fascination of memory is that it is not about an object or an event itself, it is an ideology, it is not singularly anchored to an object, it is everywhere, and because of this it is open-ended, it does not require the landscape designer to hold on to it, it also leads the designer to an open-ended design in small ways - we cannot predict the meaning of design for the individual, but we can offer the possibility of interactivity through the construction of various memory's physicalities and tangibilities. During the research process, feedback was received from the mentors that there was too much focus on the spatial quality of benchscapes and visual

guidance studies, at the expense of a deeper consideration of function and practice. Therefore, I applied the 24h bench story analysis to explore the behavioural patterns and corresponding needs of different users in interacting with the benches, and to summarise the role of bench in the benchscape from the perspective of functional practice, such as as a landmark to guide the view, or as a group to build a social place, etc.

O2 DESIGN CONTENT

TRANSLATION FROM ANALYSIS TO DESIGN

The process of translation between research and design is also a difficult point in this project, as the bench as a solid object imposes certain limitations on the thinking of landscape design, as if it were to be transformed from a figurative object into a set of abstract modules, and then ultimately into a characteristic design of place. Therefore, I have tried to define this spatial system by borrowing the concept of "Third Emotional Space" proposed by Avril Maddrell, where the benchscape and/or existing monuments will be used as informal memorials to frame these spaces, to trigger its potential for placing personal

memories in public space. This in turn made me realise that the relationship between memorials and urban public space is not singularly oriented (i.e. conventionally, the construction of space before the placement of objects), but that memorials themselves may already have the capacity to frame space - not limited to the benchscape as a living memorial.

Furthermore, the benchscape design is highly relevant to research outcomes. Benchscape as a whole system is composed of two basic layers - benches with or without memorials and trees with supporting plants and designed based on the four-relation model and three-frame concept to construct and read both conceived benchscape and perceived benchscape.

SCALE CONTINUUM

Through three scales of design elaboration, the benchscape design shows the benchscape as a whole system, benches as key players in the benchscape, and the bench as a living memorial in the benchscape, in which the universal design approaches of the four-relation model and three-frame concept are used. However, when zooming into each design scale, the balance between stopping, staying, and moving is emphasized in site design, while time and shape are as special strategies in the design of memorials.

03

SOCIAL & MORAL RELEVANCE

PRACTICAL ASPECT

The site-specific bench catalogue of Den Helder as one important research outcome could be used to guide the author and Den Helder municipality to better understand the present ordinary benches in the city by reviewing their configurational, spatial, functional, and experiential qualities. In addition, the bench design toolbox of special spatial typology and six types of benches could be a potential bench design guidance or principle in further city development. However, to some extent, the study lacks the consideration of practical issues. For example, bench design should always be combined with the design of rubbish bins and street lamps, otherwise, the use of a bench might be environmentally and psychologically unfriendly. And due to a superficial analysis of the environmental behaviour and psychology, the comfort level and orientation of the benches in relation to the sunlight are not considered in depth (Many studies show that most people prefer to rest on a bench facing the sun.) Besides, the study mainly focused on discussing the difference between conceived benchscape and perceived benchscape and also benchscape affordance rather than the

realistic and practical personal meaning in a perceived benchscape, which may differ from people's knowledge, insight, and culture and even be imperceivable for some individuals.

MORAL ASPECT

The design of memorial benchscapes, like any design process, can raise ethical considerations and concerns. One of the ethical issues is that some of the special benches like benchtowers and stepped benches are inaccessible to individuals with disabilities, such as wheelchair users. And second crucial concern is the environmental impact, which means more sustainable materials and incorporating eco-friendly practices should be introduced, and long-term maintenance with the upkeep of the benches to minimize waste and ensure their longevity. What's more, the design may conflict with the wishes and needs of the community, so the process of community consultation and engagement is essential. More realistically, especially in the small city of Den Helder, which is in a phase of reconstruction, stakeholders tend to prioritize projects of high commercial or economic value over more humanistic, like human well-being and health-conscious, public-spirited projects such as memorial benchscape design.

GENERAL LESSON FROM MEMORIAL BENCHSCAPE 5.2.2

INCONSPICUOUS ELEMENT LIKE A BENCH

The study started with my fascination for inconspicuous elements in cities, especially functional furniture like benches, street lamps, and even trash bins, which are usually placed without other design purposes. However, these common objects are closely related to our daily life. For each individual, memory is often hidden in the detailed perception. It may be the reed by the lake, the tide by the sea, the sound of railway tracks, and the shadow of people sitting on a bench. While we get used to the memories' physicalities, they already run through our future memories.

NEW PERSPECTIVES OF LANDSCAPE

The term "Benchscape" is to review and interpret the landscape from the perspective of the bench, which encourages landscape researchers to read the landscape from one specific topic and create new interpretation frameworks. For example, due to the special nature of a bench as a seat and a stopping or staying point, the study focused on the visual aspect and balance between moving and staying. But for some topics like soundscape, windscape, or waterscape, it would emphasize the auditory or tactile aspects. Even though, because of the basic

layers of the landscape, nearly all the studies from the perspectives of different objects would have something in common, like the functional and aesthetic values or spatial and experiential qualities.

SCALE CONTINUUM OF BENCHSCAPE

After my first finding of three-frame as the definition of the benchscape, I realized the limitation of interpreting the benchscape as three images. From the scale of people's daily experience, the benchscape framed by one bench is indeed more perceivable for people, but in the larger context, from the perspective of urban benchscape, there is also an interpretation of the benchscape as a complete system. The meaning behind this comes from the continuation of the concept of a benchscape because a particular bench can become a living memorial, but only a more complete benchscape family can build memorial networks, encourage people to move, stop and stay in exploration, and create personal significance in reading the memory of the city.

WIDER INTERPRETATION OF MEMORIALS

As a project titled "memorial benchscape", it is not meant to design all the benches as formal monuments, instead, it is related

to a wider definition of memorial, which means the ability to frame the "Third Emotional Space" and be meaningful for both city and individuals. Therefore, this kind of memorialscape can be recognized as a partly defined memorial place which can allow the free production and release of more personal significance based on the city memory's physicality.

This also applies to the thinking of the present memorial landscape. We often need to find the balance between the monument that cannot be perceived and the museum with too much information, because they both limit the transmission or production of city identity or personal meaning. In other words, we should always keep in mind and constantly explore the difference between the user's perception of the memorial and the designer's design concept.

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APPENDIX

Historical Shelter



The overview of the hand-made model (1:100) of the historical shelter in the dune area of Den Helder.



FRAMED

The benchscape
framed by people's
eyes or cameras.

Why are you here?
Why do you pass through here?
Why do you stop here?
Why do you stay here?

What do you see?
What do you hear?
What do you see inside?
What do you see outside?
What do you find?

How do you feel?
Do you see a bench?
What do you mean by a bench?
How do you know a bench?
Do you sit on the bench?

What is the landscape?
What is the benchscape?
What are the landscape and benchscape?

Do you know who I am?
Do you know who you are?

...



FRAME

The benches frame outward benchscapes.

Do you like the bench?
Do you like the benchscape?
Do you like the landscape?
Do you like the world?

Is today a windy day?
Is today a rainy day?
Is today a sunny day?
Is today a good day?

Why do you sit here?
When do you sit here?
Do you sit here alone?
Do you have a drink here?
Do you leave quickly?

Do you see the bench?
Do you see the two benches?
Do you see the color of the bench?
Do you know the material of the bench?
Do you see the special form of the bench?
Do you enjoy being with the bench?

Will you appreciate the bench, the
benchscape, the day, the people and
every special you?

...





IAL
APE

MEMOR
BENCHSC