HET PLOFBOS

RESEARCH
The unintentional beauty of dealing with explosives

MASTERPLAN + DESIGN PROPOSAL
A new life for the Plofbos

24th of June, 2019

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Final (P5) presentation of TU Delft graduation project Heritage & Architecture Studio by Marijn G. Luijmes
“The unintentional beauty of dealing with explosives.”
Proposal: “A new life for Plofbos”
Presentation overview

- Introduction
- Key points of analysis
- Position towards heritage
- Masterplan
- Proposal
Presentation overview

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Hembrug Terrein
Location

Fig.

Location of the Hembrug area

Zaandam

Hembrug

Amsterdam

2.5km

6km

‘Stelling van Amsterdam’

Location of the Hembrug area
1.1 Timeline Hembrug

Period I - Origin to 1900

- 1865 - 1872: Diving of the Nieuwe Haven canal
- 1874: Construction of the first Hembrug, connecting de Hem with the Nieuwe Zeehaven, linking the railroad between Amsterdam and Zaandam.
- 1875: Reorganisation of the 'Waffentrienden' in Delft, renaming the company 'Artillerie Inrichtingen'.
- 1887: Moving the military heart from Delft to Hembrug.
- 1887 - 1924: Construction of the Hemtunnel.
- 1890 - 1900: Construction of the second canal.
- 1895 - 1900: Electrification access.

Period II - The World Wars

- 1896: Electricity access.
- 1906: Widening of the North Sea canal.
- 1895 - 1900: Completion of the new fortifications of De Stelling van Amsterdam.
- 1914 - 1918: First railroad access.
- 1917: 8500 employees worked at Hembrug at its peak. Employees worked in bad conditions, making 60-hour work weeks.
- 1920: After WWI the number of employees dropped to less than 2000 in 1921 and even closure was considered.
- 1930: Big economic recession. Dutch military financing was really low, reducing the army to its minimum.
- 1940: Occupation of the Hembrug by the Nazis.
- 1940-1943: Occupation of the Hembrug by the Nazis. Activity drops and employees drop from 7000 to 1700 employees in 1943.
- 1940-1943: Two attempts to bomb the Hembrug by the Germans failed due to Dutch partisans.
- 1945: Two attempts to bomb the Hembrug by the Germans failed due to Dutch partisans.
- 1973: Eurometaal manufactured precision lathes that were sold under the name Mikroturn.
- 2003: Hembrug terrain was sold for 41 million euros to ABC Placentevestiging BV. Eurometaal was eventually taken over by the German company Rheinmetall, and production ceased. In 2005 Hembrug became on the list of Heritage.

History

- Former ammunition factory for the Royal Dutch Army
- Dates from the 1890’s
- Particularly known for the production of the ‘Hembrug Karabijn’.
- Strategically situated within the ‘Stelling from Amsterdam’
Strategic position

Fig.: Location of the Hembrug area

Hembrug

Zaandam

Amsterdam

‘Stelling van Amsterdam’
Zones

1. Forest Zone
- Grown environment
- Contrast/transition
- Small scale

2. Production Zone
- High diversity
- Clustering of buildings
- Presence of the main structures/sight lines

3. Waterfront
- Monumental/Iconic
- Greenery along quay
- Parallel to the Noordzee Kanaal

Hembrug
- Unique area and military heritage
- Made public in 2003
- Situated between Zaandam and Amsterdam

Fig.: Hembrug terrain

Three zones

Nine ensembles

Fig.: Zones of Hembrug in 2018, based on Steenhuis Meurs, 2010, Cultuurhistorische Analyse Hembrug terrein, p. 5 - 7, 36 & 37

Fig.: Production zone

Fig.: Waterfront

Fig.: Hembrug terrain

Fig.: Plofbos

Fig.: Production zone

Fig.: Waterfront

Fig.: Hembrug terrain

Fig.: Plofbos

Fig.: Production zone

Fig.: Waterfront
Morphological development

1901
Dense and compact industrial layout, all optimized for production of the “Hembrugkarabijn” (M95-rifle), patrons, munition and storage.

1924
Expansion of the industrial zone. Addition of the Sectorpark and mobilisation complex in the far north, intensive use of the forest as test site.

1941
Occupation of Hembrug area by the German army. Addition of bunkers in the Cape South and the forest, small changes in industrial layout.

1996
Production shifted towards industrial machinery after WWII, resulting in a small dilution of the industrial built environment.
Structure and orientation
‘Military Pragmatism’
Plofbos
Plofbos

Producing, storing and testing explosives.
Safety measures

Fig. Canal system as fire compartments

Fig. Earth walls to sustain blast impact

Fig. Pipelines providing steam to heat the buildings, instead of flammable gas

Fig. Directing potential explosions

Fig. Treelanes for camouflage

Fig. Blast radius
1919 vs 2019

Fig.: Hembrug situation 1924
Explosive storage
Ammunition production
Military test site

Fig.: Present day Hembrug situation
Explosive storage
Ammunition production

1901 1905 1924 1940 1952 1991 2018
Time progresses

Nature flourishes
What does Plofbos look like today?
Safety measures

- Fig. Canal system as fire compartments
- Fig. Blast radius
- Fig. Earth walls to sustain blast impact
- Fig. Directing potential explosions
- Fig. Treelanes for camouflage
- Fig. Pipelines providing steam to heat the buildings, instead of flammable gas
QUALITIES

Safety measures

Fig.: Canal system as fire compartments
Fig.: Earth walls to sustain blast impact
Fig.: Pipelines providing steam to heat the buildings, instead of flammable gas
Fig.: Treelanes for camouflage
Fig.: Directing potential explosions
Fig.: Blast radius

20m
Qualities of the forest and the buildings

Always changing
Show layers of time
Experience of seasons
Harbors secrets
Invites to explore and discover
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<td>prevent fire from lightning strikes</td>
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individually represent **cultural-historical** value
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*individually represent cultural-historical value*

*together represent experience value*
‘Decomposition’ of military structure

Nature takes over

‘New life’ emerges.

Creative pioneers:
Artists, craftsmen, photographers...
- Introduction
- Key points of analysis
- Position towards heritage
- Masterplan
- Proposal
What is the role of the buildings?
What is the role of the buildings?

buildings always change...
What is the role of the buildings?

“A process of decomposition”
What is the role of the buildings?

- ‘Tactile volumes’ that are part of the forest

- ‘Historical layers’

- Evidence of former function

- Only ‘1900’ generation hold municipal monument status

- Utilitarian

- Not unique
What is the ‘touchability’ of the buildings?

- Maintain open space, volumetric presence, rhythm and sense of materiality
- May be altered, partially demolished, changed in form and material
- Preserve “lost’ techniques: ornamental brick craftsmanship
- Introduction
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A process of decomposition

1900: Military structure. Intended efficiency
1950: Diversions and untidiness. Unintended qualities

How can the masterplan encourage this process?
Creating space

Leaving space

How can the masterplan encourage this process?
‘Pavilions in the woods’, a.k.a. Plofbos
Speculative planning: densifying

- Market
- Artist studios
- Residential
Speculative planning: densifying

‘The Ladder’
- Pool + Sports facilities
- Leasure
- Residential

‘Cape South’
- Market
- Artist studio’s
- Residential
Speculative planning: densifying

‘Waterfront’
- Hotel
- Leisure / events
- Offices

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Speculative planning: densifying

‘Campus South’
- Small workspaces
- Exhibition / public / commerce
- Mixed residential

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Speculative planning: densifying

'Campus South'
- Small workspaces
- Exhibition / public / commerce
- Mixed residential

'Entrance zone'
- Primary parking
- Mixed residential
- Exhibition space
- Practicality stores / supermarket

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‘Cape South’
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Main event space: Taets Building
Density zones

High (x4)

Medium (x3)

Low (x2)

Medium (x3)
Reclaiming & clarifying forest borders
Target groups

Pioneering creative sector

- Small creative industries
- Artists
- Musicians
- Craftsmen
- Workshops
- Wider public
Plofbos
Leave space
Cultural centre - Local Arts Museum

- Permanent exhibition spaces
- Temporary exhibition spaces
- Event office
- Cafe
Music Centre
- Repetition + recording studios
- Music Lessons
- Gigs
- Cafe

Cultural Centre
- Permanent exhibition spaces
- Temporary exhibition spaces
- Event office
- Cafe
Multi-purpose: Auditorium + exhibition space

Music Centre
- Repetition + recording studios
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Cultural Centre
- Permanent exhibition spaces
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Multifunctional
- Acoustics for gigs
- Lighting for exhibitions
- Events
- Lectures
- Introduction
- Key points of analysis
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Multi-purpose: Auditorium + exhibition space

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Music Centre
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Cultural Centre

Multifunctional
Starting points for design

Nature

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<th>Earth walls</th>
<th>Canals</th>
<th>Trees</th>
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Spatial plan

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<tr>
<th>Open space</th>
<th>Rhythm</th>
<th>Scale</th>
<th>Transition</th>
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Buildings

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<tr>
<th>Ornamented facades</th>
<th>Shell roofs</th>
<th>Elements</th>
<th>Generations</th>
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- dense enclosing border
- hidden evidence
- evidence idyllic
- patterns diversity monumental

- diversity relation
- repetition open space
- module unity small
- contrast hidden

- exterior details rooftop
- structure light + space rooftop
- military history evidence
- continuity typology architecture
- Permanent exhibition spaces
- Temporary exhibition spaces
- Event office
- Cafe
CATALYST:
ARTS & CULTURE CENTRE
How to make a building that:

- SURPRISES: gravitates people towards it and appeals to *discover and explore*
  
  - INSPIRES: stimulates creative industry
  
  - EXPRESSES: decomposition and growth
  
  - Acknowledges and amplifies historical value
  
  - Improves technical performance
“De Boerderijen”

Isometric view

Plan view
Remove roof and parts of interior structure

Isometric view

Plan view
New volumes within the empty shell...
...placed on, **over** and **through** the existing...
...reinterpreting inside-outside boundaries...
...creating diverse and inspiring spaces.
Local Arts Museum - First Floor
scale 1:200

Isometric view

Plan view
Isometric view

Plan view
Multi-purpose: Auditorium + exhibition space

- Acoustics for gigs
- Lighting for exhibitions
- Events
- Lectures
Events / gigs
Materialization and detailing
Thank you