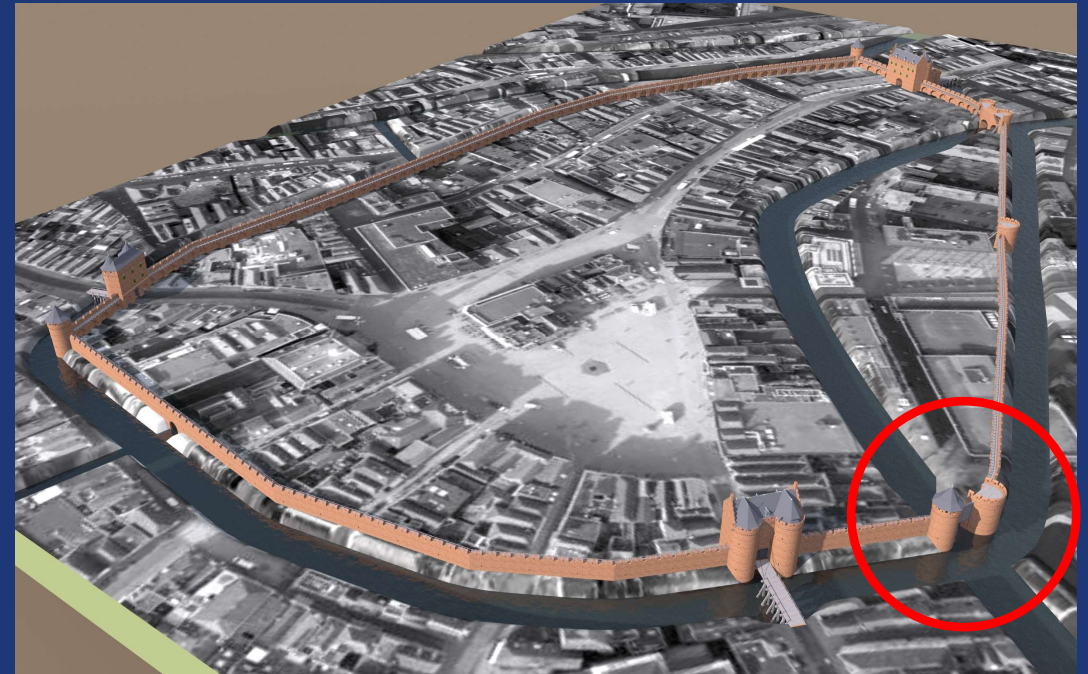


Watergate project

where fortress heritage inspires to mitigate climate change



EFFORTS congress, January 13, 2022
Huibert Crijns BA, MSc
Heritage Dept. Municipality of 's-Hertogenbosch, NL

Harbour



First town wall

building started early 13th century
3 towngates and 2 watergates protect the town



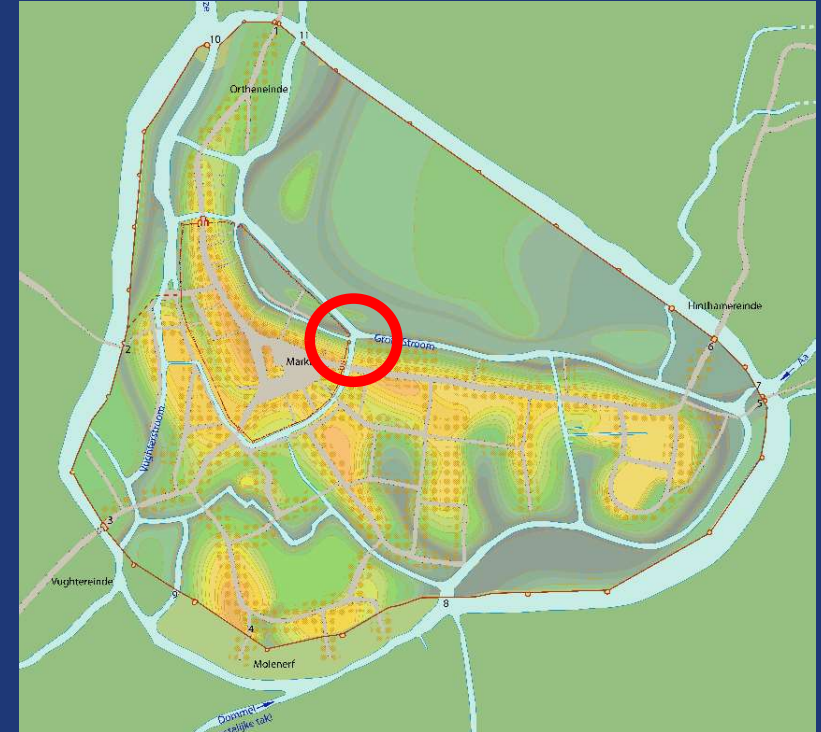


Second town wall

14th century first town walls and gates lost their function



Map: Braun and Hogenberg, 1588



Binnendieze river was closed up

Market stream becomes a street



before



after

Current situation

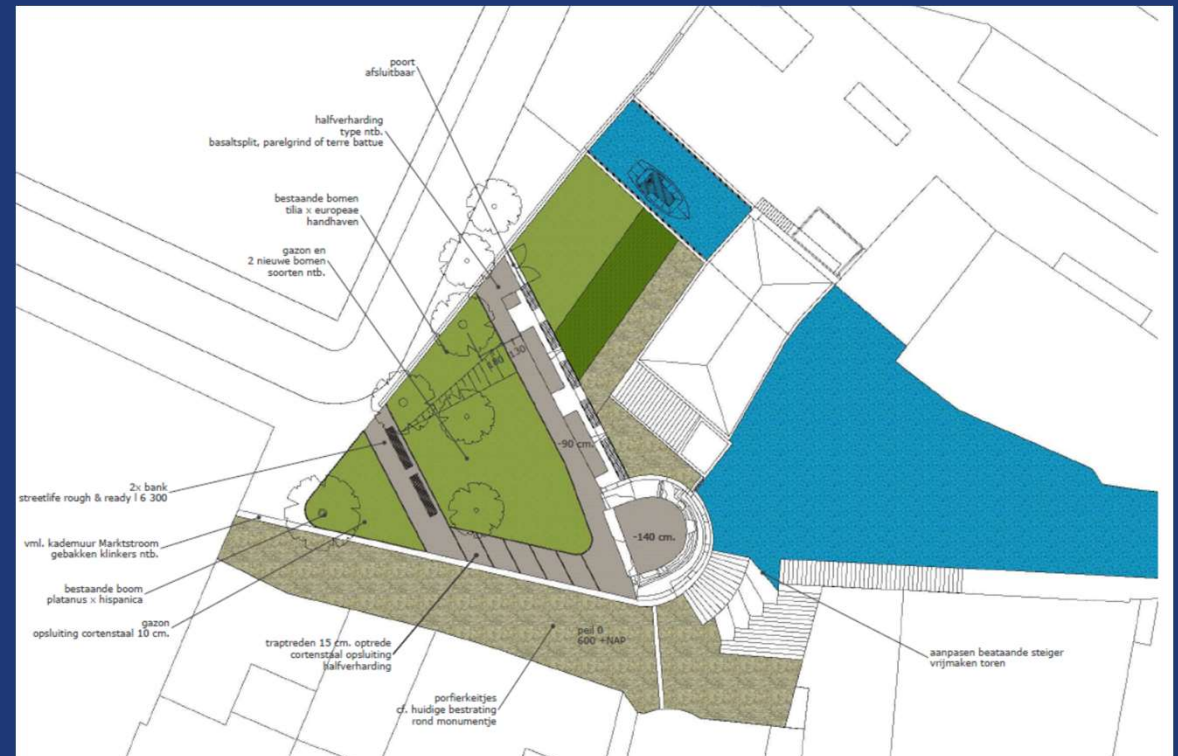


Watergate project

Visualize the watergate tower and to rebuild a small part of the first town wall

Creating a tiny park as stepping stone between shopping and new housing area

Question: could fortress heritage inspire to mitigate effects of climate change?

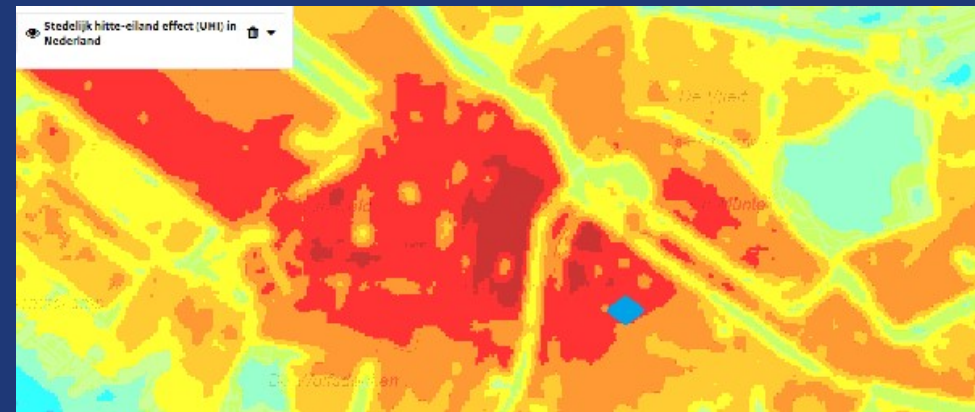
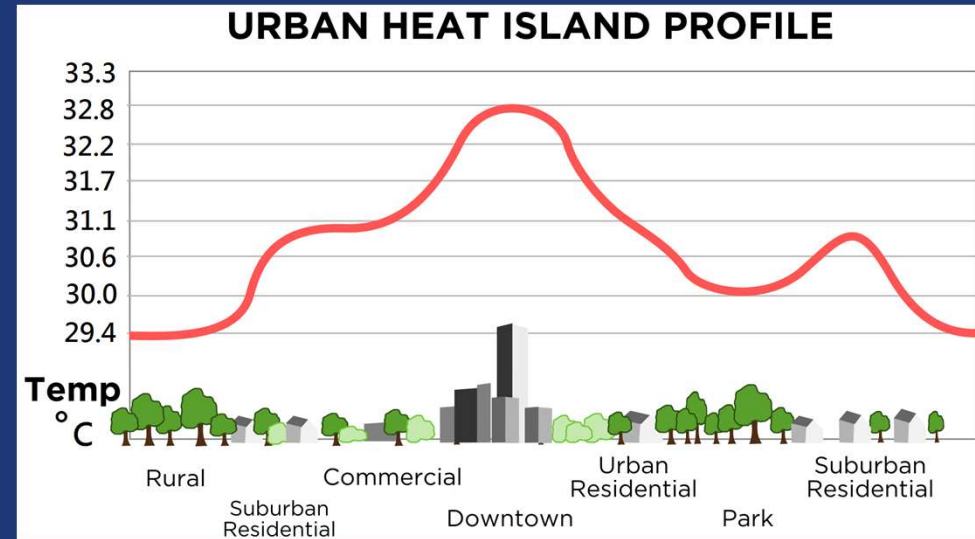
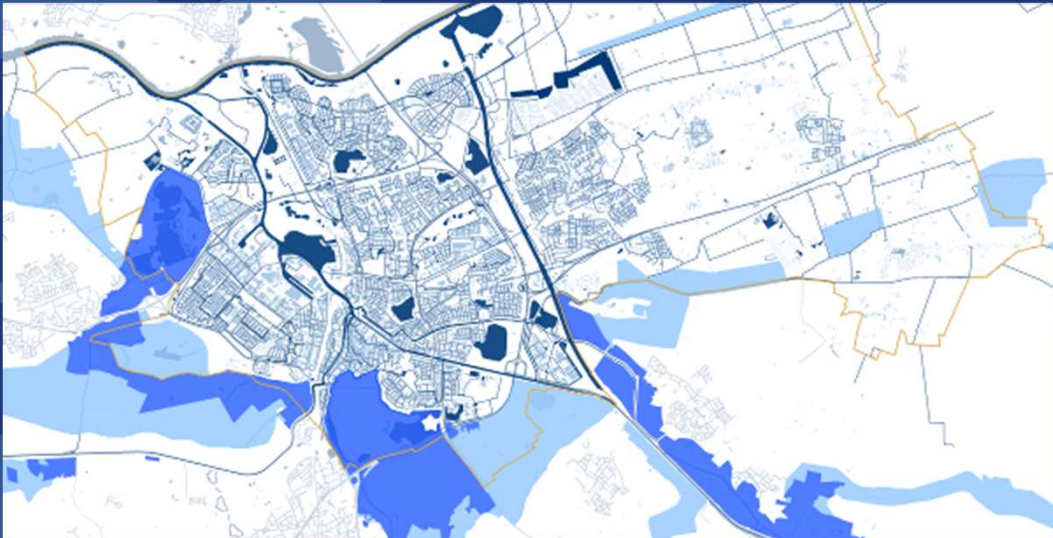


climate change threats

urban pluvial flooding

draught

urban heat island effect



Watergate project

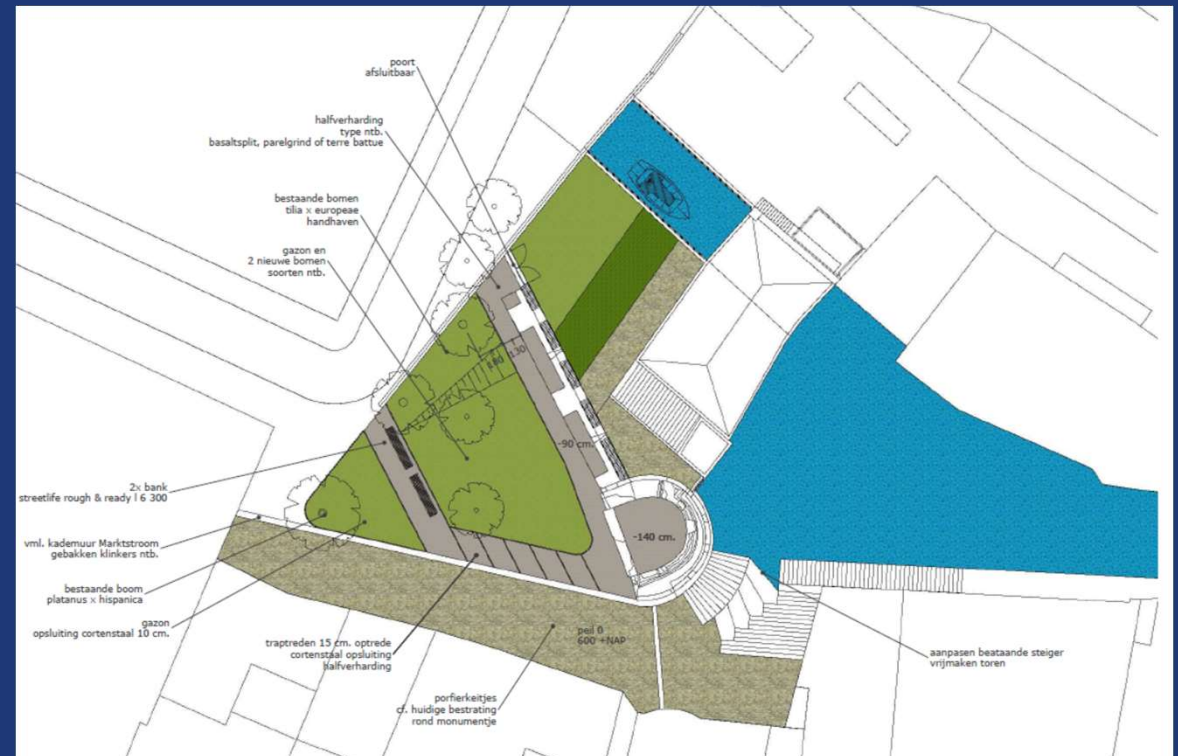
Opening up the river Binnendieze with the aim of bringing back open water and optimizing the water supply

Solving the problem with floating debris;

Removal of pavement with the aim to realize infiltration area;

Disconnect and store rainwater for the purpose of water conservation

Planting trees with the aim of lowering the ambient temperature by 7 degrees Celsius



Watergate project

Study carried out by Wageningen University, project RealCool (research through design)

Results:

Open water enhances the heat effect due to accumulating effect

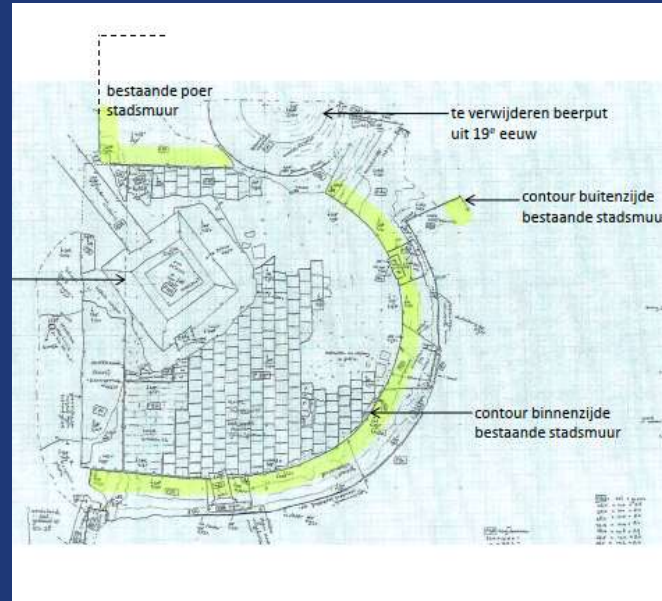
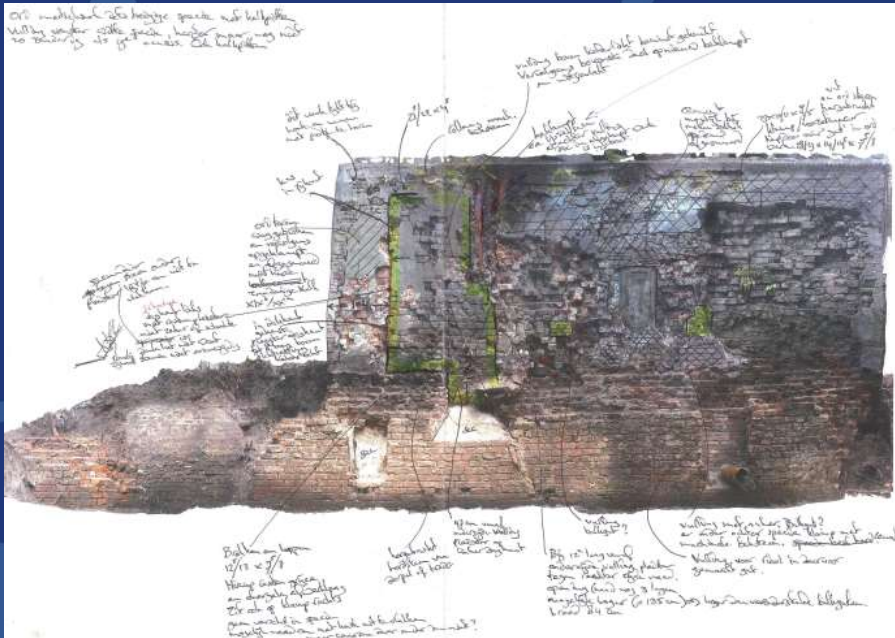
The mitigating effect of evaporation through greenery on or along open water is great

If placed in a smart configuration, taking into account the prevailing wind direction, the effect of shading by trees is great



Archaeologic research

measurement of the tower and its fundaments



Watergate project in 2023



	Watergate
Project size	512 m ²
Number of participants	7
Pavement removed	160 m ²
Water infiltration realized	368 m ²
Surface water returned	90 m ²
Waterconservation	180 m ³
Rainwater disconnected from sewer	165 m ²
High water / flooding storage	10 m ³
Shadow created by new planted trees	485 m ²

Watergate project in 2023





Watergate park

where fortress heritage inspires
to mitigate climate change



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