



**Brownfield redevelopment in the EU**

**Session on best practices and succes stories**

# **Regional perspective from Flanders**

Johan Ceenaeme - OVAM

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# Table of contents

## ❖ Instruments in the Flemish legislation

- ✓ Soil Decree
- ✓ Brownfield covenant decree

## ❖ The case 'Tondelier' in Ghent

- ✓ The key challenges of Tondelier-site
  - Technical challenges
  - Timeline challenges
  - Organisation of multiple stakeholders
  - Financial challenges
- ✓ From risks to opportunities
  - Realization to date
  - Common goal of all stakeholders

# Instruments legislation

## ❖ Soil decree

- ✓ Remediate historical soil contamination
  - Contamination has taken place before 1995
  - Remediate over a period of 40 years, starting in 1996
  - Remediate in case of risk
  
- ✓ Remediation is linked to the transfer of a site
  - Optimal protection of the new owner
  - Soil certificate is always needed
  - Preliminary soil investigation is needed for land with risk activities (=riskland)
  - Approved soil remediation project, commitment and financial guarantee is needed before transfer can take place in case a remediation is necessary





# Instruments legislation

## ❖ Brownfield covenant decree

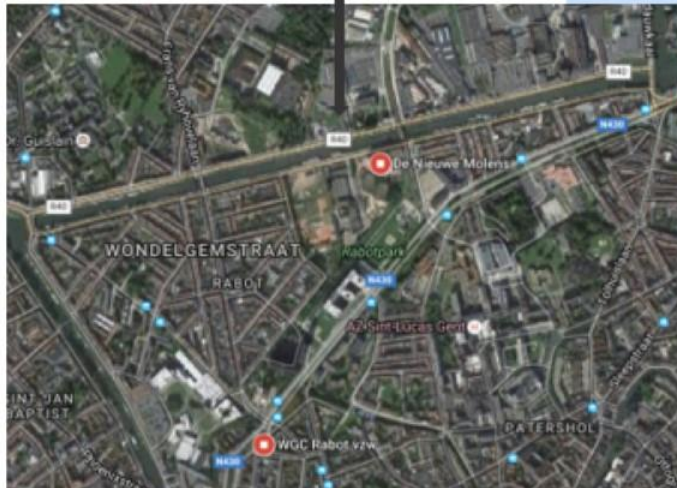
- ✓ Definition brownfield
  - former abandoned or under-used industrial site
  - (perceived) soil contamination
  - redevelopment is a complex process
  - Active potential for reuse
- ✓ Advantages
  - single contact point (Agency for Innovation and Entrepreneurship)
  - negotiator appointed by the Government
  - guided participation process
  - integrating multiple governmental permits
  - follow up and monitoring by steering committee
  - tax reduction (10%) at land acquisition
  - no financial guarantee on soil remediation
  - covenant = signed agreement
- ✓ Results
  - nearly 100 signed covenants



# The key elements of Tondelier

Technical challenges

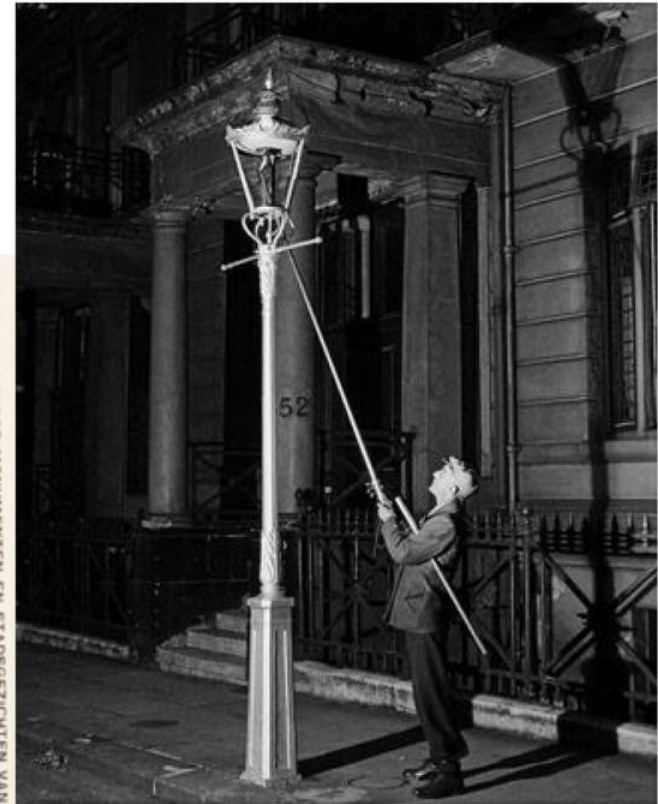
Localization



# The key elements of Tondelier

Technical challenges

History - Manufactured gas plant



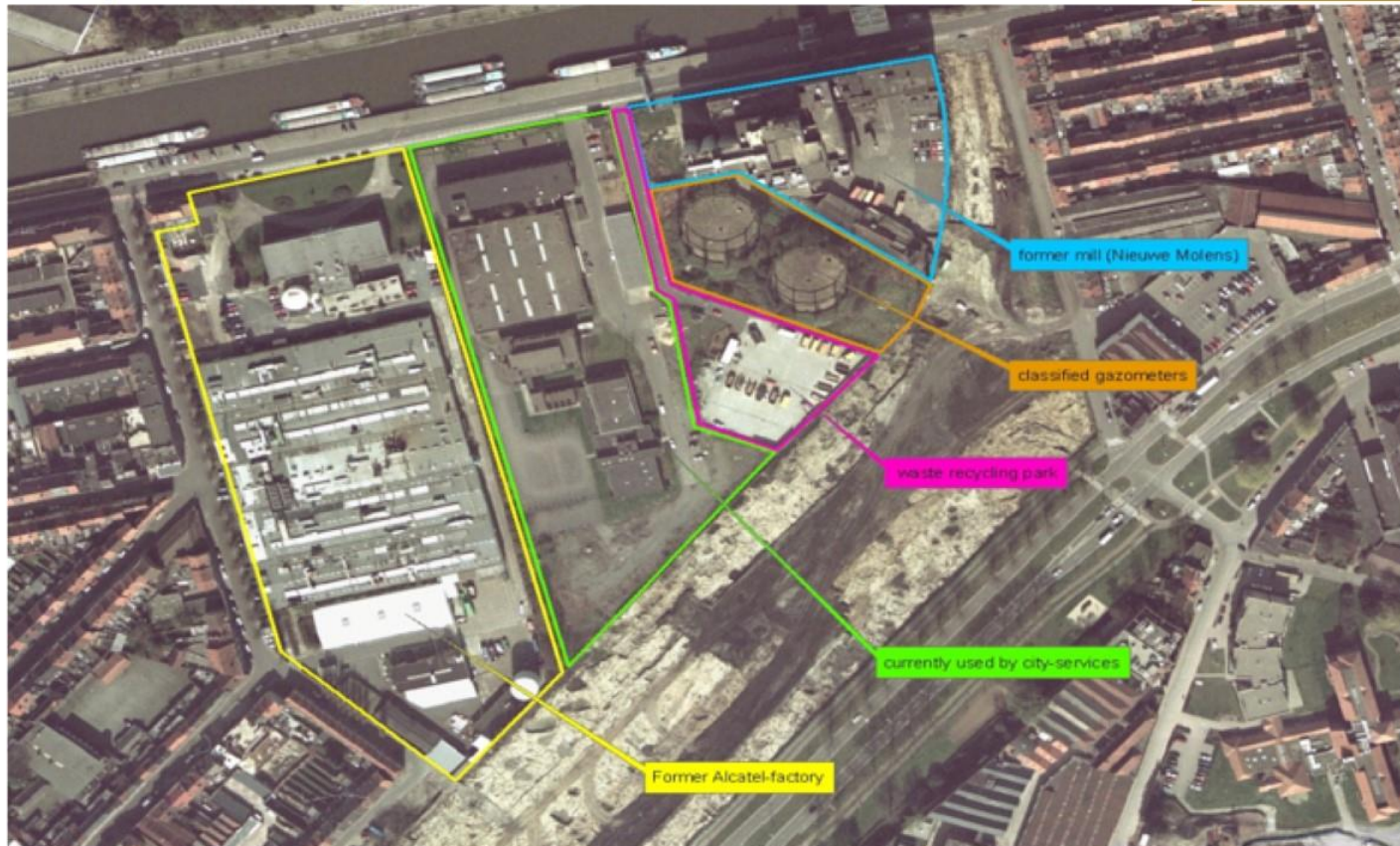


# The key elements of Tondelier

Technical challenges

Complexity of potential areas of concern

Area: 7 ha



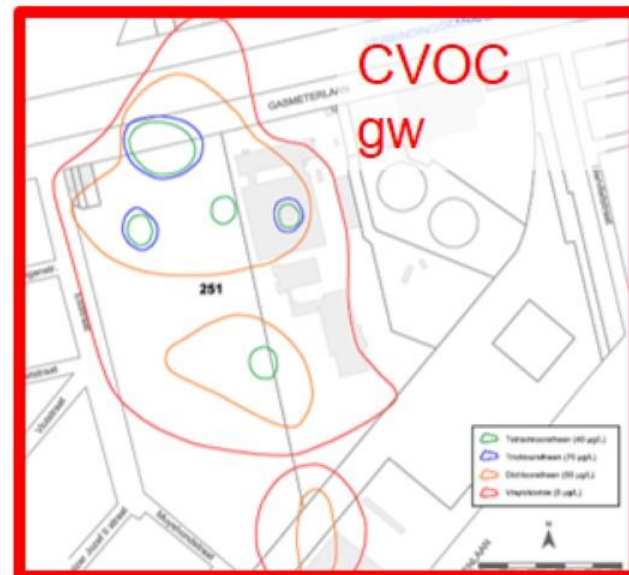
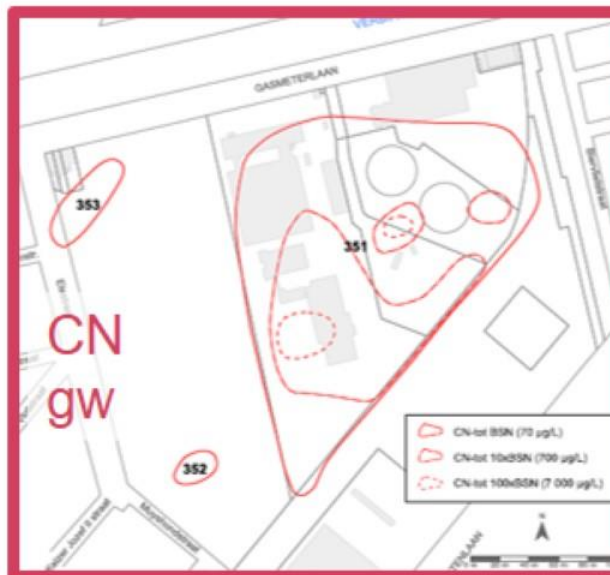
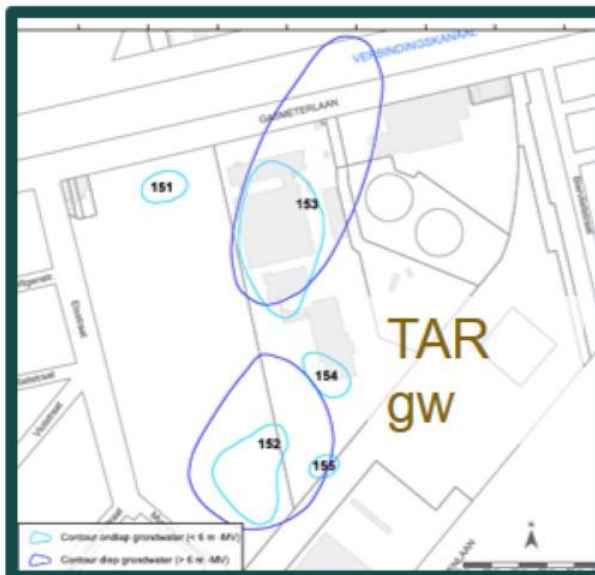
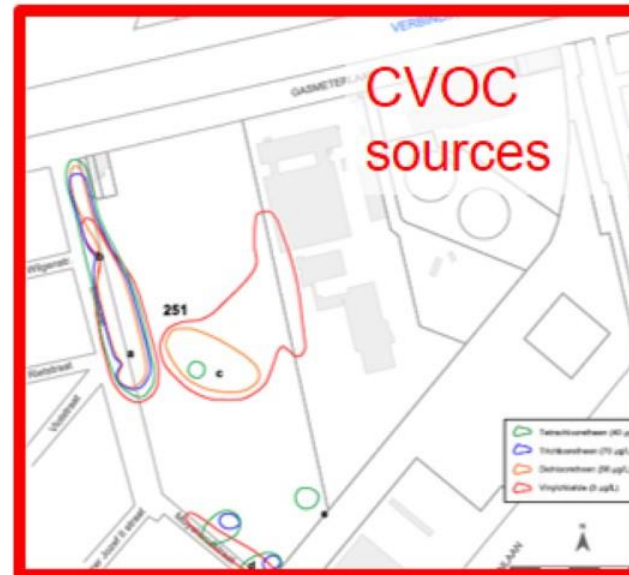
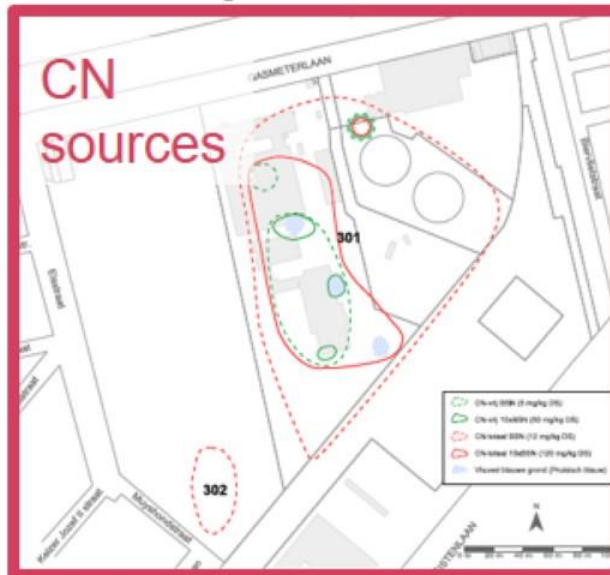
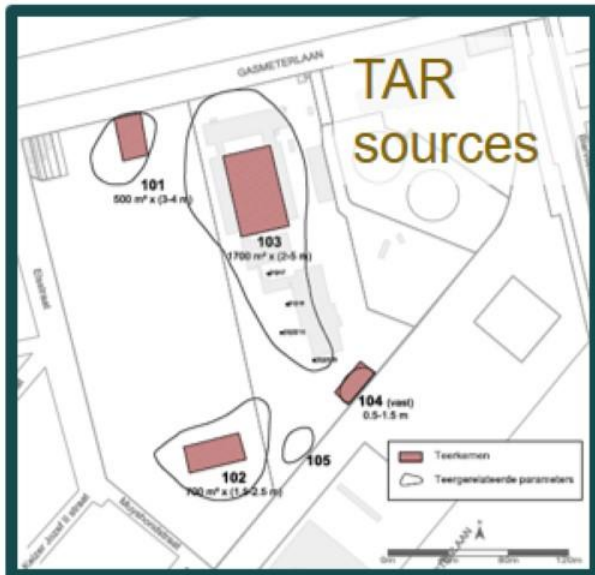
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# The key elements of Tondelier

## Technical challenges – complex contamination





# The key elements of Tondelier

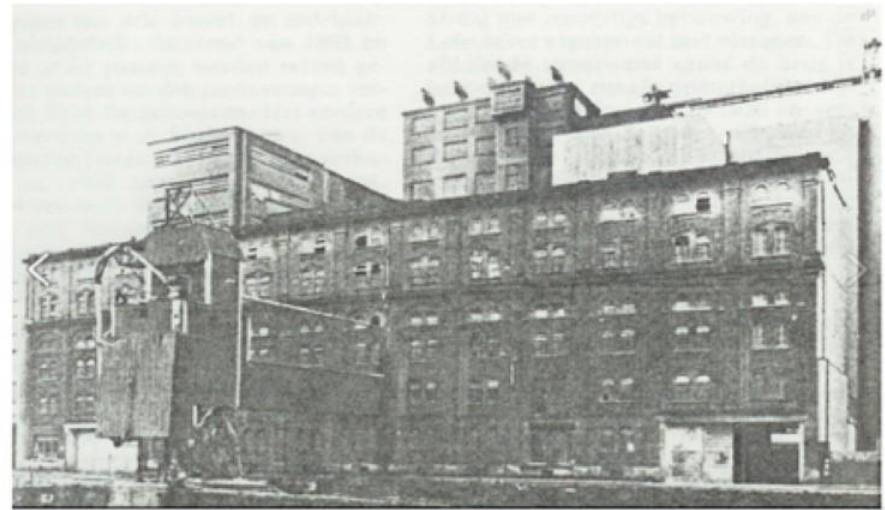
Vision of stakeholders – start 2001

Complex project, multiple stakeholders and concerns



# Conditions of redevelopment: preserve heritage

- ▶ **Gasholder: protected as monument**
- ▶ **Historic buildings**



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# Timeline

- 
- ▶ **2001 - 2008:**
    - feasibility studies
    - 2005 and 2007: descriptive soil survey
  - ▶ **2006: Transfer of the land to the city of Gent**
  - ▶ **2007:**
    - start PPP selection procedure
  - ▶ **2008: BATNEEC study**
  - ▶ **2011: PPP**
  - ▶ **2012: transfer of land (building lease) to Tondelier Development nv**
  - ▶ **2014: remediation plan, planning permission, ...**
  - ▶ **2016: start of remediation**
  - ▶ **2018: first apartments sold**



# Temporary use of the site





# Final redevelopment plan



# Final redevelopment plan



**530 apartments,  
underground  
parking, park,  
sports hall,...**



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# Principles of remediation

Tar	Chlorinated solvents	CN	GW
<p><u>Unsaturated soil:</u></p> <ul style="list-style-type: none"> <li>Excavation</li> <li>Goal: Risk limit values</li> </ul> <p><u>Saturated soil:</u></p> <ul style="list-style-type: none"> <li>Excavation</li> <li>Goal: Remove all visible tar</li> </ul>	<p>Extra soil survey:</p> <ul style="list-style-type: none"> <li>Excavation</li> </ul> <p>Goal</p> <ul style="list-style-type: none"> <li>Risk limit values</li> </ul>	<p>Excavation</p> <p>Applying a toplayer with clean soil</p> <p>Goals</p> <ul style="list-style-type: none"> <li>Risk limit values</li> <li>Remove of all blue soil</li> </ul>	<p>After drainage for construction</p> <p>treatment train principle:</p> <ul style="list-style-type: none"> <li>Pump and treat for high concentrations</li> <li>Stimulated natural attenuation for lower concentrations</li> <li>Monitored natural attenuation for low concentrations</li> </ul> <p>goals:</p> <ul style="list-style-type: none"> <li>Risk limit values</li> <li>Stable pollution plume</li> </ul>

# Realization

## ► Redevelopment and remediation: together





# Realization

## Technical challenges

- ▶ **Contaminated tar zones – larger than initially investigated**



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# Realization





# Realization



gashouder

# Realization

## Technical challenges

- ▶ **Contaminated CN zones**
  - Difficult to map during investigation – discrete layers
  - During excavation:  
Excavated soil visually characterised as non-CN contaminated soil coloured blue after 1-2 weeks
    - difficult to take immediate decisions on site





# Realization



# Realization





# Realization

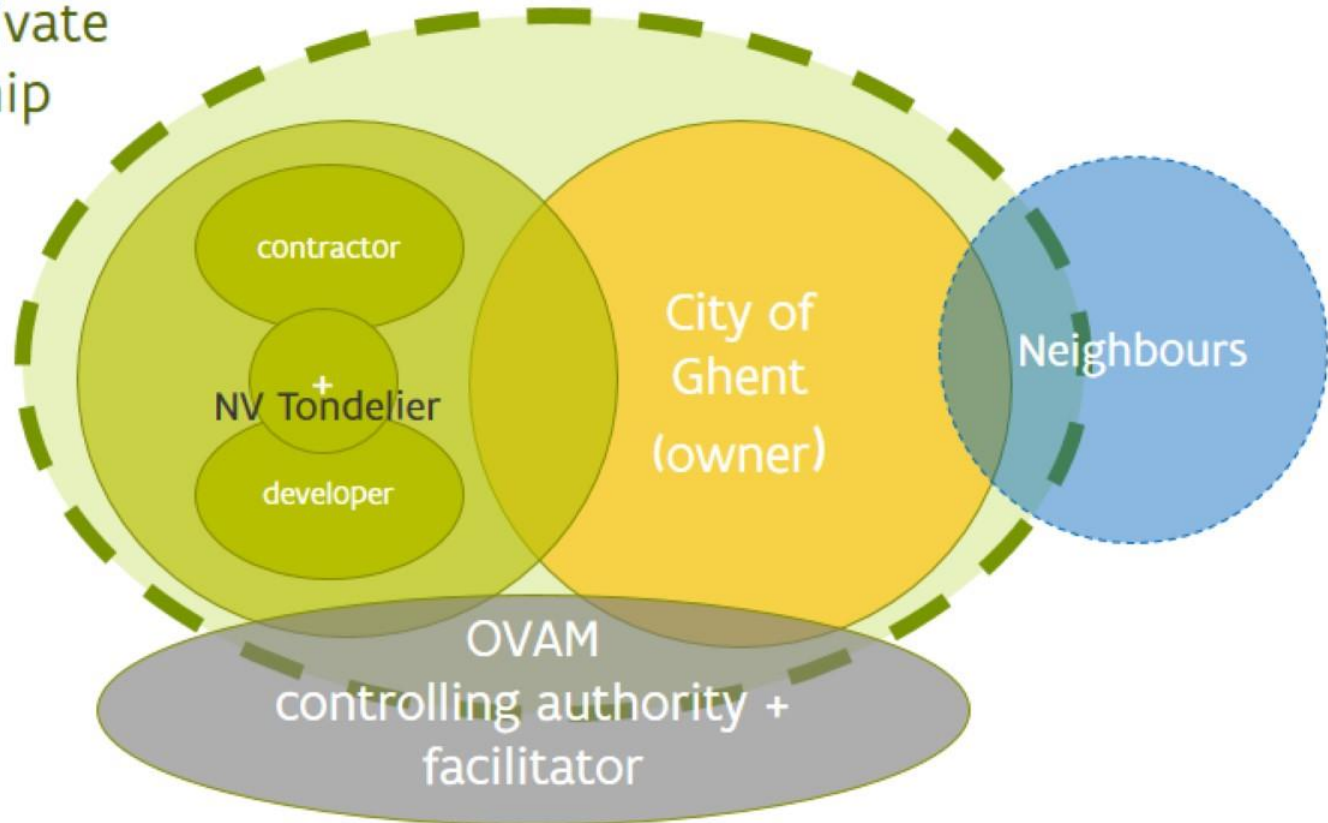
## Technical challenges

- ▶ **Stepwise remediation (due to stepwise redevelopment)**
  - Technical complex for remediation contractor
- ▶ **Contaminated zones or compounds unidentified during investigation phase**
  - PCB containing soil and debris
  - Extra unexpected costs + who will pay for it?
- ▶ **Lessons learned:**
  - Never underestimate the complexity of mgp site
  - A good investigation/feasibility study and historical review is crucial

# Organisation

## Organisational challenges – multiple stakeholders

Public Private  
Partnership



CLOSE COLLABORATION COMMON GOALS



# Organisation

## Organisational challenges – multiple stakeholders

### ► **Public Private Partnership**

→ Public Partner = city of Ghent

- × Owner of the land until remediated and redeveloped (phased approach)
- × Trusty partner for potential buyers of the land
- × Connected with neighbours by development of alternative/temporary land use of undeveloped land
- × Important involvement for sustainability criteria

# Organisation

## Organisational challenges – multiple stakeholders

### ► Public Private Partnership

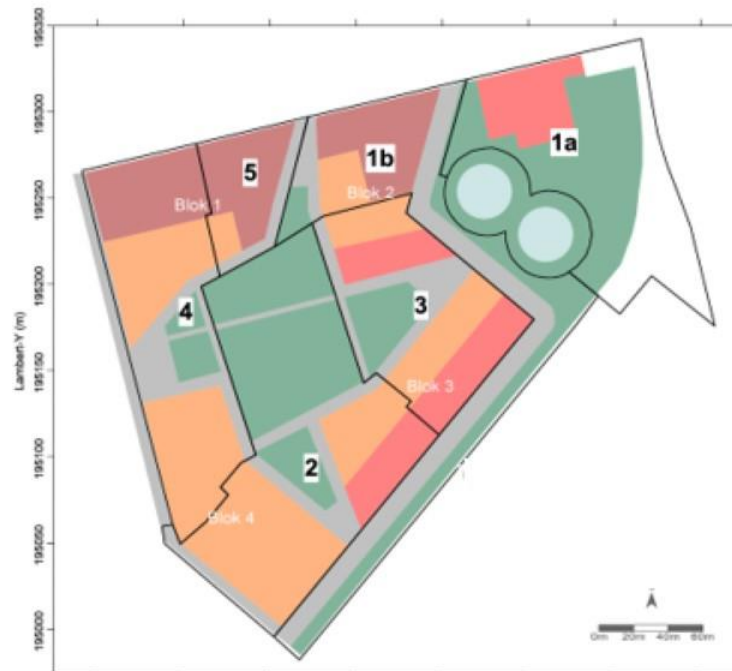
→ Private Partner = combination remediation contractor and developer

× Integrated approach from start/tendering phase is crucial for succes

× Private partner takes risks

→ Lump sum remediation cost

→ Sale of houses



Remediation in  
function of  
future use

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# Some numbers

## Remediation costs

	Grondbewerking	Bemaling	Begeleiding	Bijkomend onderzoek	In-situ	Totaal
Saneringsonderdeel	1	2	3	4	5	6
2 Fase 1a	€ 65 820.00	€ 132 003.60	€ 17 367.50	€ 0.00	€ 0.00	€ 215 191.10
3 Fase 1b	€ 1 487 725.00	€ 253 719.60	€ 89 948.18	€ 8 050.00	€ 76 000.00	€ 1 915 442.78
4 Fase 2	€ 1 712 243.40	€ 24 614.00	€ 146 234.20	€ 8 050.00	€ 0.00	€ 1 891 141.60
5 Fase 3	€ 2 562 631.06	€ 20 532.00	€ 140 325.00	€ 8 050.00	€ 0.00	€ 2 731 538.06
6 Fase 4-5	€ 607 046.00	€ 267 900.40	€ 62 880.00	€ 8 050.00	€ 0.00	€ 945 876.40
Integrale grondwatersanering	€ 10 000.00	€ 0.00	€ 372 645.00	€ 0.00	€ 598 020.00	€ 980 665.00
	€ 6 445 465.46	€ 698 769.60	€ 829 399.89	€ 32 200.00	€ 674 020.00	
	74%	8%	10%	0%	8%	

**TOTAAL € 8 679 854.94**

**Totaal + 10% onvoorzien € 9 548 000.00**

# Some numbers

## ► **Development:**

- 530 dwelling units
- 2,7 ha park
- additional public functions and commercial activities

## ► **Some costs Gent:**

- 8,5 M public functions (sporthal, childcare, ...)
- 1 M extra cost for zero energy buildings
- 3 M restauration gasholders

## ► **Costs private partner:**

- 135 M €



# Successful project: key elements

- ▶ Technical
  - Don't underestimate the complexity of mgp site
  - Phased approach technically complex to remediate
- ▶ Organisation
  - Public private partnership to optimise risks
  - Private partner = combination of remediation contractor and developer
- ▶ Financial
  - Multiple scenarios to decide on remediation-redevelopment
  - Phased approach to balance cost-benefits in time
- ▶ Timing
  - Time needed for alignments of ideas, concerns, vision of all stakeholders





**I'm glad to  
answer your  
questions**

