The Catalan approach to managing excavated soil in urban areas
Introduction

<table>
<thead>
<tr>
<th>year</th>
<th>new sites</th>
<th>urban development sites</th>
<th>% of news</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>58</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>2015</td>
<td>92</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>2016</td>
<td>138</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>2017</td>
<td>143</td>
<td>44</td>
<td>31</td>
</tr>
<tr>
<td>2018 (sept)</td>
<td>104</td>
<td>47</td>
<td>45</td>
</tr>
<tr>
<td>TOTAL</td>
<td>535</td>
<td>141</td>
<td>26</td>
</tr>
</tbody>
</table>
ARC's role for management of excavated soil in urban areas

- Application for the building work license
- Soil investigation

- City council

- Licence with conditions

- EAC

- Report
Introduction to “Typical Site” with excavated soil in urban areas

- Urban surroundings whose use changes from industrial to residential
- It is necessary to excavate the soil for construction purposes
Introduction to “Typical Site” with excavated soil in urban areas

- Information of soil quality emerges as a result of building work permits.
- The polluter is unknown or missing
- Decontamination charges taken on by the real estate developer
- Housing development (private property) and urban garden (public space)
- A need to manage contaminated soil as well as clean excavated soil
- Soil contaminated by TPH and heavy metals
- Remaining pollution with acceptable risk after the decontamination process: “Polluted soil” included in the inventory
Building project

Residential building with 2 underground levels for parking (2,000 m²)

Urban garden (200 m²)
Site description
Remediation project

- Excavate the soil up to 9 m deep in the contamination source area
- Injection of oxidants in the source area and control of plume with P&T, in the SE boundary of the site.
Site management

- > 12,000 m³ of excavated soil

- Private residential building and a public urban garden both with remaining soil pollution
Excavated soil management

Exclusions from the scope of the waste directive 2008/98/EC of 19 November 2008 on waste:

• (c) uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state in the site from which it was excavated.
Excavated soil management


- 17 05 03 Soil and stones containing dangerous substances
- 17 05 04 Soil and stones other than those mentioned in 17 05 03

<table>
<thead>
<tr>
<th>Code</th>
<th>Classification</th>
<th>Priority</th>
<th>Disposal / Recovery</th>
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<tbody>
<tr>
<td>170503</td>
<td>hazardous</td>
<td>1</td>
<td>D9* Physico chemical treatment</td>
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<td></td>
<td></td>
<td>D0902</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>D0905</td>
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<td>D0906, D0999</td>
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<tr>
<td></td>
<td></td>
<td>2</td>
<td>D5 Engineered landfill</td>
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<td></td>
<td>D0503</td>
</tr>
<tr>
<td>170504</td>
<td>no hazardous</td>
<td>1</td>
<td>R5 Inorganic substance recycling/reclamation</td>
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<td>R0504, R0505</td>
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<tr>
<td></td>
<td></td>
<td>2</td>
<td>D5 Engineered landfill</td>
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<td>D0501, D0502</td>
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<td>3</td>
<td>D8* Biological treatment</td>
</tr>
<tr>
<td></td>
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<td>D0899</td>
</tr>
</tbody>
</table>

* The codes D8, and D9 refer to pre-treatment operations, which must be followed by one of the
## Excavated soil management

<table>
<thead>
<tr>
<th>Type of material to be excavated</th>
<th>Volume m$^3$</th>
<th>Waste classification</th>
<th>management</th>
</tr>
</thead>
<tbody>
<tr>
<td>soil with heavy metals, zone 1, between 0 and 1 m of depth</td>
<td>2.000</td>
<td>No hazardous</td>
<td>Landfill NHW</td>
</tr>
<tr>
<td>clean soil, subzone 1.3, between 1 and 6 m of depth</td>
<td>6.400</td>
<td>No hazardous</td>
<td>Landfill NHW Reused for the purposes of construction on the site</td>
</tr>
<tr>
<td>soil with TPH, subzone 1.2, between 1 and 6 m of depth</td>
<td>3.000</td>
<td>No hazardous</td>
<td>Landfill NHW</td>
</tr>
<tr>
<td>contaminated soil with TPH, subzone 1.1, between 1 and 9 m of depth</td>
<td>970</td>
<td>Hazardous</td>
<td>Landfill HW</td>
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</tbody>
</table>
Points for discussion

- Management of clean excavated soil
- Site investigation
- Role of stakeholders

Public information
Urban planning
THANK YOU FOR YOUR ATTENTION

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Points for discussion

- **Management of clean excavated soil:**
  - “clean soil” (uncontaminated soil and other naturally occurring material)
  - Disposal or recycling options for surpluses of excavated soil
  - The paradox of excavated soils management

- **Site investigation:**
  - Unknown sources of potential contamination
  - Companies qualified to investigate, draft remediation projects and execute projects
  - Construction timing/schedule

- **Role of stakeholders:**
  - Administrations involved / supervision
  - Real estate developers
  - Build contractors
  - Residents of future buildings