

Constraints of the urban building sites and treatment of the trenches



Constraints of the urban building sites and treatment of the trenches



Christine LEROY

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Urban pavements

1- The point of view of the building owner

2- The answer of enterprises :

- new and well-adapted materials
- new techniques to work
- research projects



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<http://www.piarccongress.com>

BUILDING OF A TRAMWAY SITE - PARIS



Les surprises d'un sous-sol urbain: place des Epars à Chartres

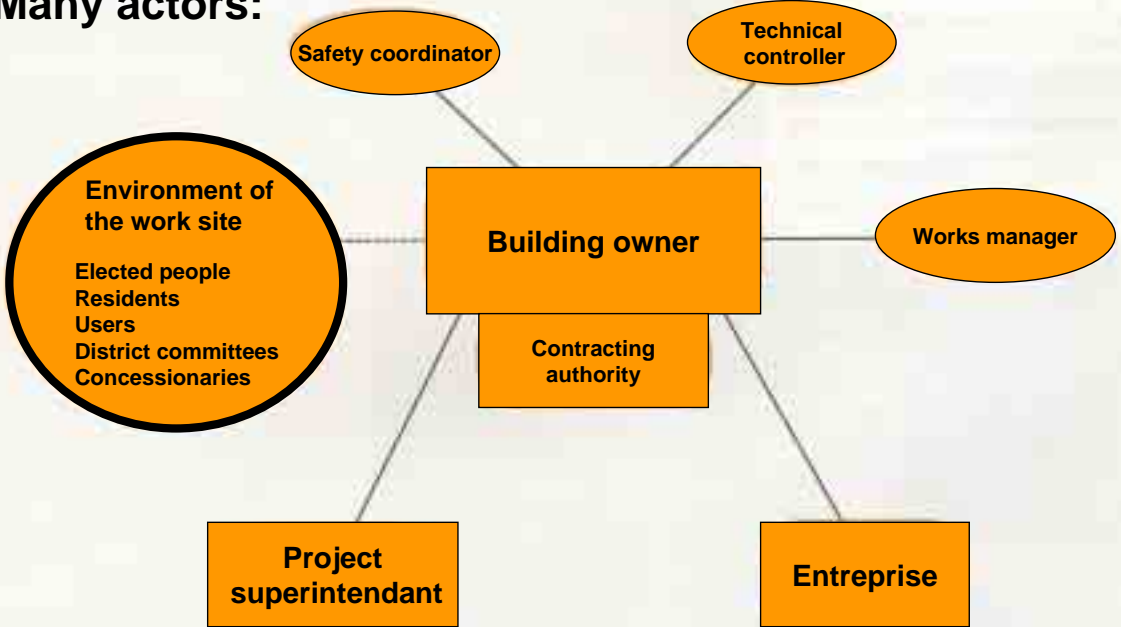


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Many actors:



The user and the resident more and more demanding actors of their public space (Law of democracy of proximity)

« My street is my garden »

- **Budgets of maintenance in reduction**
- **Fights against the harmful effects** (Laws on the air, water, noise...)
- **Increased and permanent accessibility** (Taken into account of all...)



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Comfort and safety for residents and users:

- **Access to the services** (electricity, gas, cable, heating, water, street lighting, drainage, air-conditioning...)
- **Access to the trade and the leisure**
- **Easy displacements and in safety**
- **Fight against the noise and other harmful effects**
- **Pleasant public spaces**



Installations related to the site



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COORDINATION IS NEEDED

Etape : DEMANDE D'ACCORD TECHNIQUE

Etape : AVIS D'OUVERTURE

Etape : AVIS DE FERMETURE

Etape : DEVIS

Etape : COMMAND

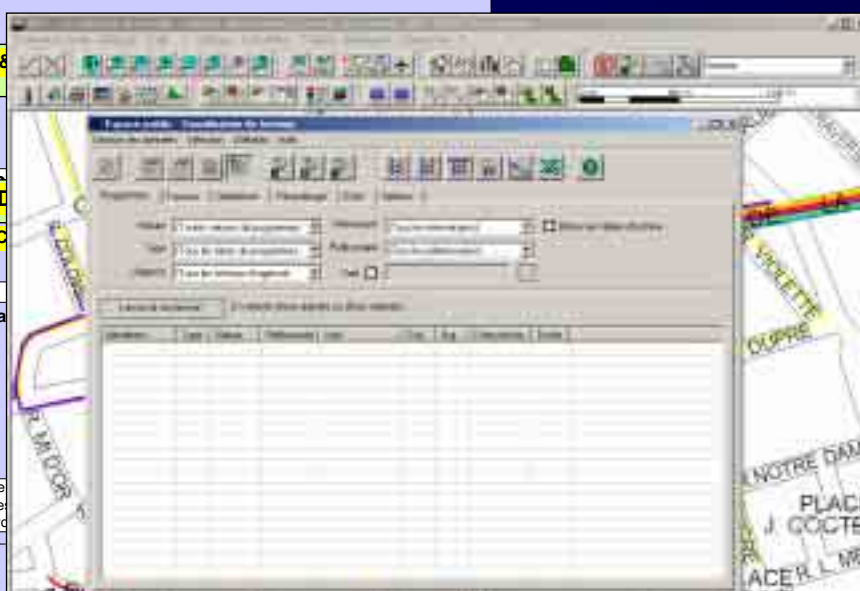
Etape : FAC

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Groupage minutes et envo



Exemple of a city :PARIS

- 1601 km length of ways
- 13 500 000 m² of roadways
- 10 000 000 m² of pavements
- 2 125 000 inhabitants
- 9 420 km of cables for electricity
- 2 040 km of conduits of gas
- 2 700 km of various drains: drainage,air-conditioning, district heating...
- 12 000 openings of excavations per annum



SPECIFICITIES AND CONSTRAINTS OF THE URBAN ENVIRONMENT

- Restricted influences
- Respect and safety for the residents and the users
- Safety for the staff of execution
- Respect of the environment
- Mobility of the material
- Difficulty of circulation (evacuation of materials)
- Quartering and dissociated site of storage of the



A protocol for all the contractors

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1- Limiting the risks of encroachment out of the working area

Materials with radius of reduced gyration

The lifting function



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RESPECT AND SAFETY FOR RESIDENTS AND USERS

2- Limiting the sound harmful effects :

Sound-proof material

Adapted warning signals of retreat

3- Reducing the fume and dust

Humidification

Suction sweepers

Vertical exhausts

Covering of the trucks



3- Avoid disturbing the traffic

Sufficient speed of displacement to avoid disturbing the traffic
Handiness - Use of articulated materials or 4 wheels direct



Constraints of the

ches

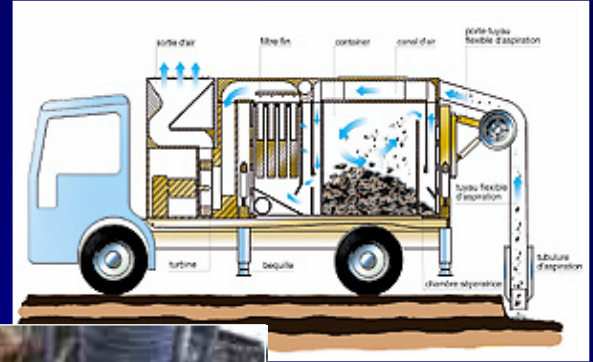
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NEW TECHNIQUES TO WORK

- Limiting transport of materials
- Networks :
 - Trenches of width minimum
 - Cups of reduced width (use of slicers)
- Partial re-employment of materials if quality allows it
- Recycling the materials in-situ or in the vicinity - treatment by addition of cement or lime

SPECIFIC MATERIALS realization of trenches by aspiration



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Transport by multi-bucket systems



RECYCLING IN SITU



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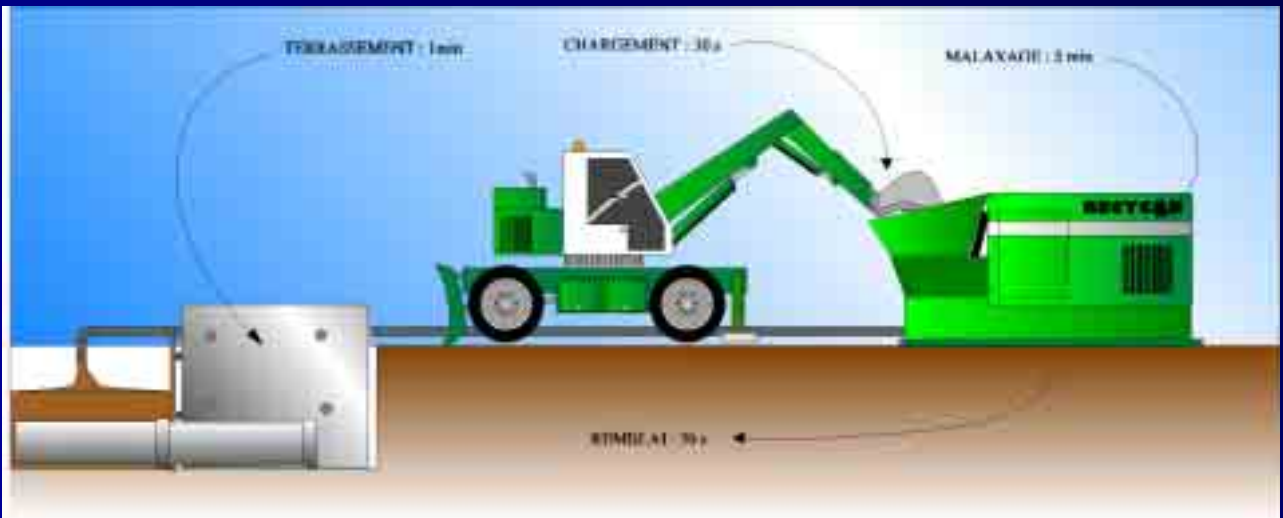
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<http://www.pavementrecycling.com>

RECYCLING IN SITU : filling with cement mixture





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<http://www.piarc.org/commitee/c13>

RECYCLING
power station of treatment « ECOLINER SAE »



**RESEARCH PROJECTS:
reduced trenches**



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**RESEARCH PROJECTS:
reduced trenches**



RESEARCH PROJECTS:

new materials to fill trenches (here: fly-ash + cement blending)



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And to finish : REBUILDIND OF THE ROAD



Thank you for your attention



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