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# Boulevard Eugène Réguillon

Villeurbanne (Rhône)

Diversify uses of a boulevard with alternative techniques

## The project

### CONTEXT

Requalification of the entire thoroughfare, conversion from a two-lane, one-way system to two-way traffic.

### STAKEHOLDERS

Project manager: Métropole de Lyon  
Project contractor: Métropole de Lyon

### DATE

2018-2019

### COST

Information unavailable

- Public-Private project
- Urban zone
- Scale: Public space (roadway)



## AIMS

- Hydraulic management of rainwater
- Prevention of heat islands
- Public space

## SOLUTIONS ADOPTED

### Techniques for implementation

- Infiltration trenches
- Porous road surface

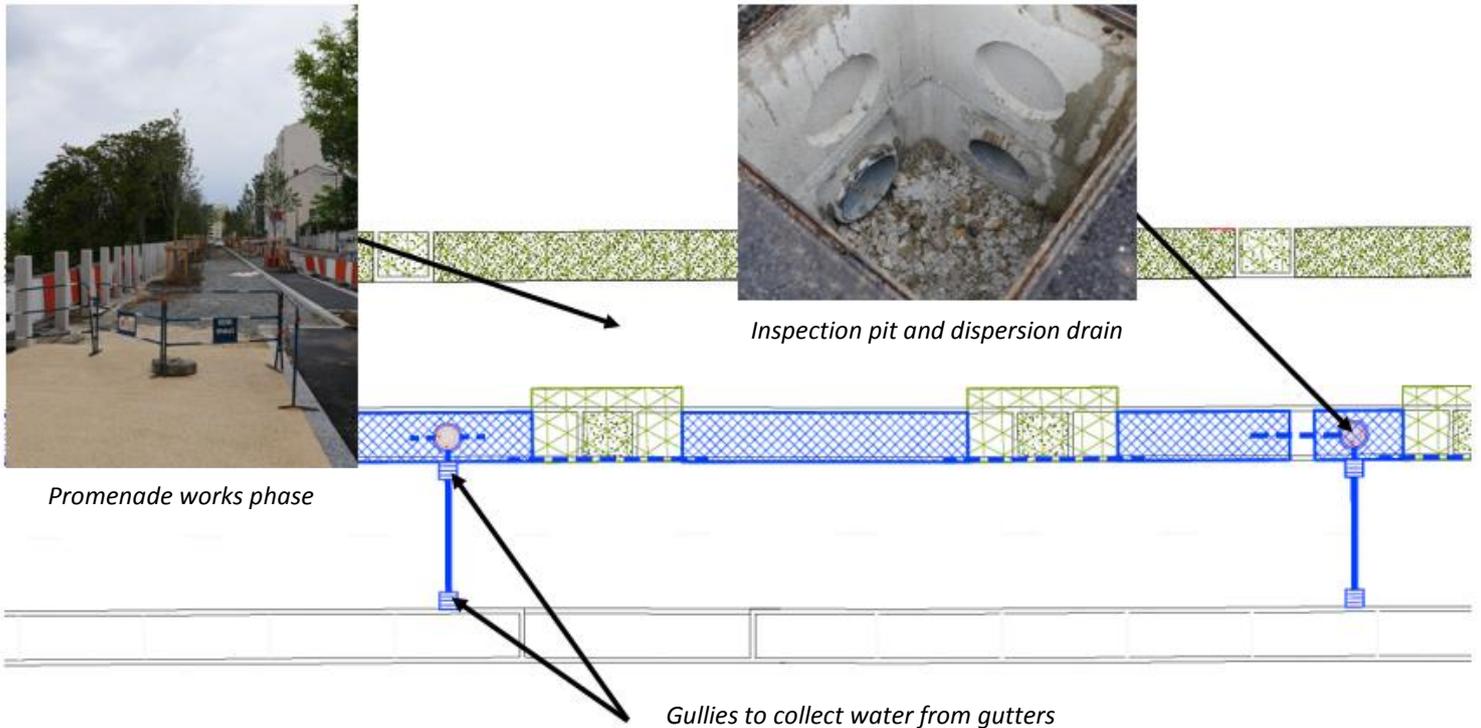
### Operating principle

- Infiltration

# The reasons behind alternative management of rainwater

The Métropole de Lyon is committed to an environmental policy of 'zero discharge in water networks'. It is thus engaged in designing new developments which integrate rainwater management in the immediate vicinity of its falling point.

In the framework of the requalification of Boulevard Eugène Régullon, the road was rehabilitated to convert from two-lane one-way traffic to a two-way traffic system. The scope of redevelopment works, with the creation of a promenade planted with trees and shrubs (up to 7.5m wide including 5m for soft mode traffic), enabled the integration of alternative techniques to manage rainwater.



Plan view of the general operation of the system



Inspection hatch on a parking space.

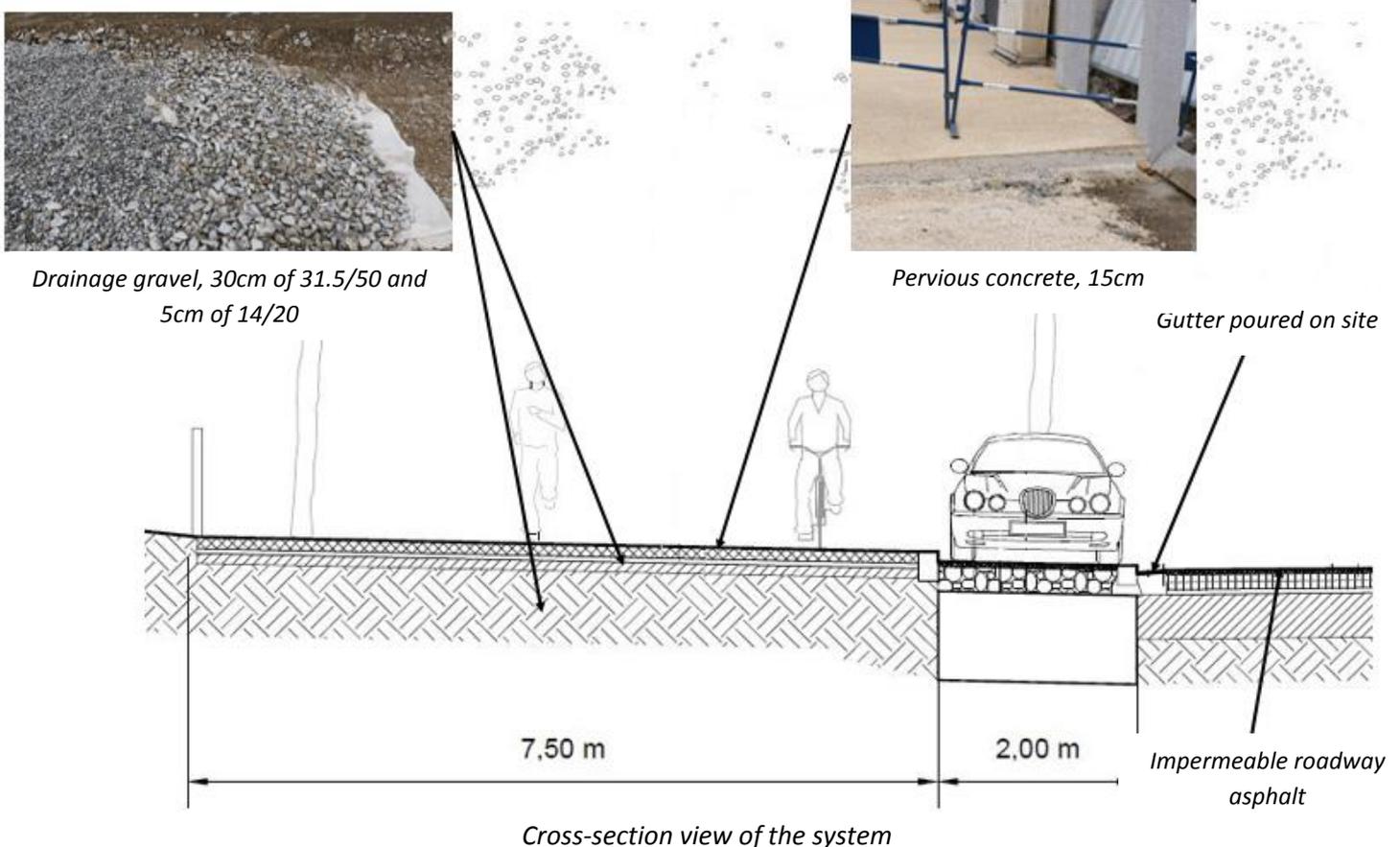
### Sizing hypotheses

- Active surface area: 4,300m<sup>2</sup>
- Return period: 30 years
- Usable storage volume: 108m<sup>3</sup>
- Volume of porous matter: 360m<sup>3</sup>
- Leakage rate: 0m<sup>3</sup>/sec.
- Topography: flat
- Ground permeability: 1.10<sup>-4</sup> m/sec

## How does it work?

Rainwater on the planted promenade and footpath is absorbed into pervious concrete (non-deactivated) laid over pebbles of various sizes (grain size increases with depth). These pebbles lie on a resistant geo-textile which is needle-punched (to avoid tearing from pebbles) and permeable to allow infiltration into the ground. In the event of heavy rain, the coating enables a slight runoff. The gentle gradient towards the trees allows the surplus to infiltrate the stone-soil mixture which forms a small trough in which the greenery is planted. This is made possible by the absence of a plant bed border and the installation of a surface coating around the tree.

Water from the roadway and footpath is stored and then drained in to the earth via infiltration trenches composed of pebbles (30% air space) and located under parking spaces next to the promenade. To achieve this, the levelling of the footpath and roadway enables water to run off into the grated gutters located on the promenade side. The water then flows into the inspection pits aligned on the infiltration trenches. These pits are fitted with drains to disperse the water throughout the trench and enable access to dredge the drains if necessary. The boulevard is equipped with 3 infiltration trenches: 90cm deep, 2m wide and 66m, 57m and 73m long respectively. It must be noted that the grated gutters and inspection pits have porous bases to avoid stagnant water and thus the proliferation of mosquitoes.



## Operation of the facility

**In charge of maintenance:** Ville de Villeurbanne for the green spaces (surface levels and grassed joints) and Métropole de Lyon for the hydraulic facilities, trees and mineral surfaces.

**Maintenance operations:** Dredging of pipelines and inspection pits (frequency to be defined according to needs, estimated at around every 5 years) and pruning.

## Feedback

As the project was still in progress during the drafting of this document, it is not yet possible to provide complete feedback on this operation.



### If we were to repeat the project?

- ➔ In order to facilitate emergency dredging operations, the inspection pits would not be laid under parking spaces. At present, a municipal order preventing access to parking spaces is required in order to carry out these maintenance operations.



### For more information

#### To visit the site:

**Location:** Boulevard Eugène Réguiillon,  
69100 Villeurbanne

**GPS:** 45°45'37.8"N ; 4°53'35.1"E

- ➔ **Open to the public**

#### For more information or to visit the operation, contact

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