Are trees able to live and develop within a rock based substrate?

"Trees Rock in Rock"

Webb Conference
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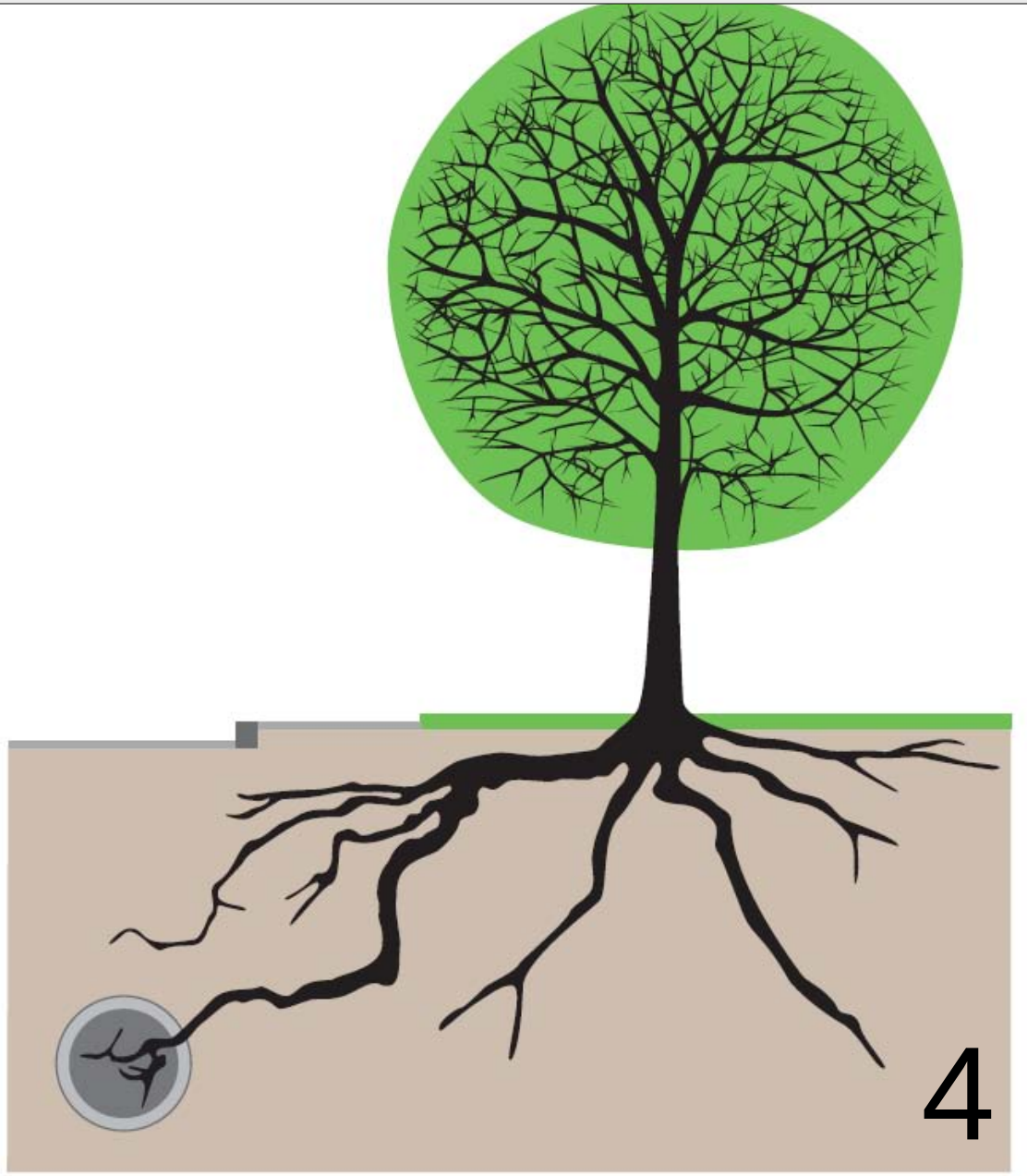
Problems for New Planted Urban Trees

Problems for Mature Urban Trees

Problems for Sewer Pipes!



Twenty years of experiences studying root intrusion problems in sewer pipes

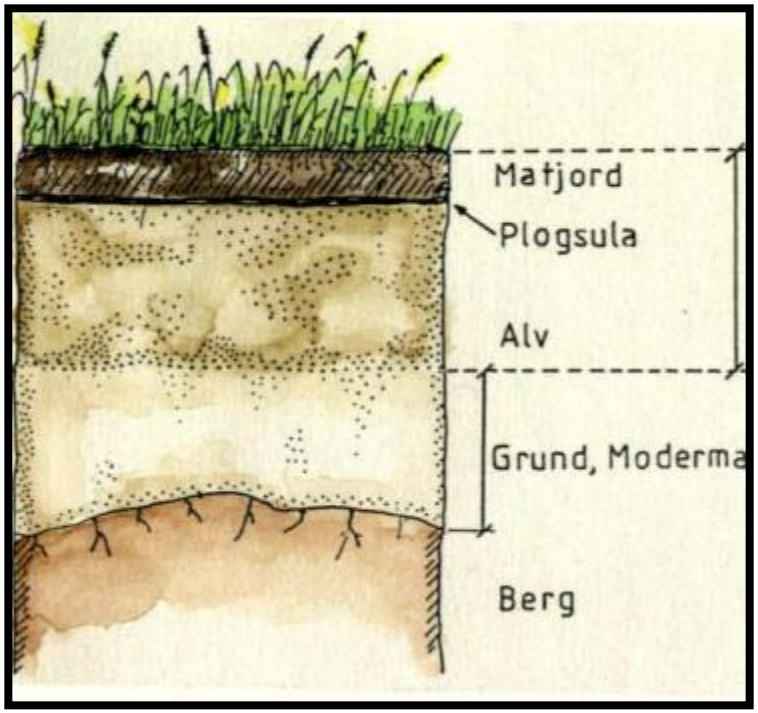
Massive root develop in the pipe and pipe trench at a depths of 9 feet

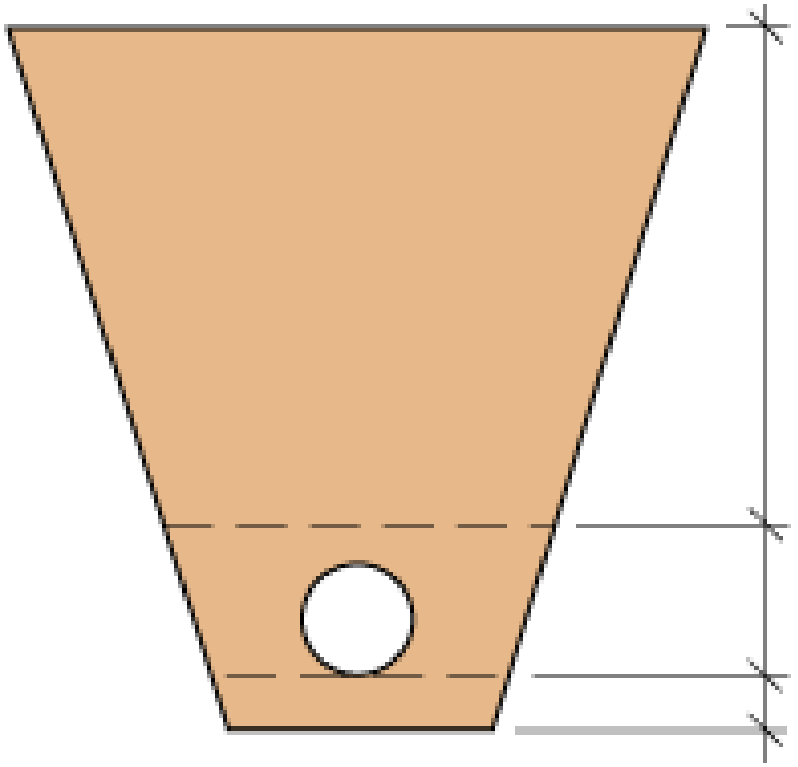
neutral
independent
non-profit institute

Dipl.- Ing. Christoph Bennerscheidt,
IKT – Institute for Underground Infrastructure GmbH

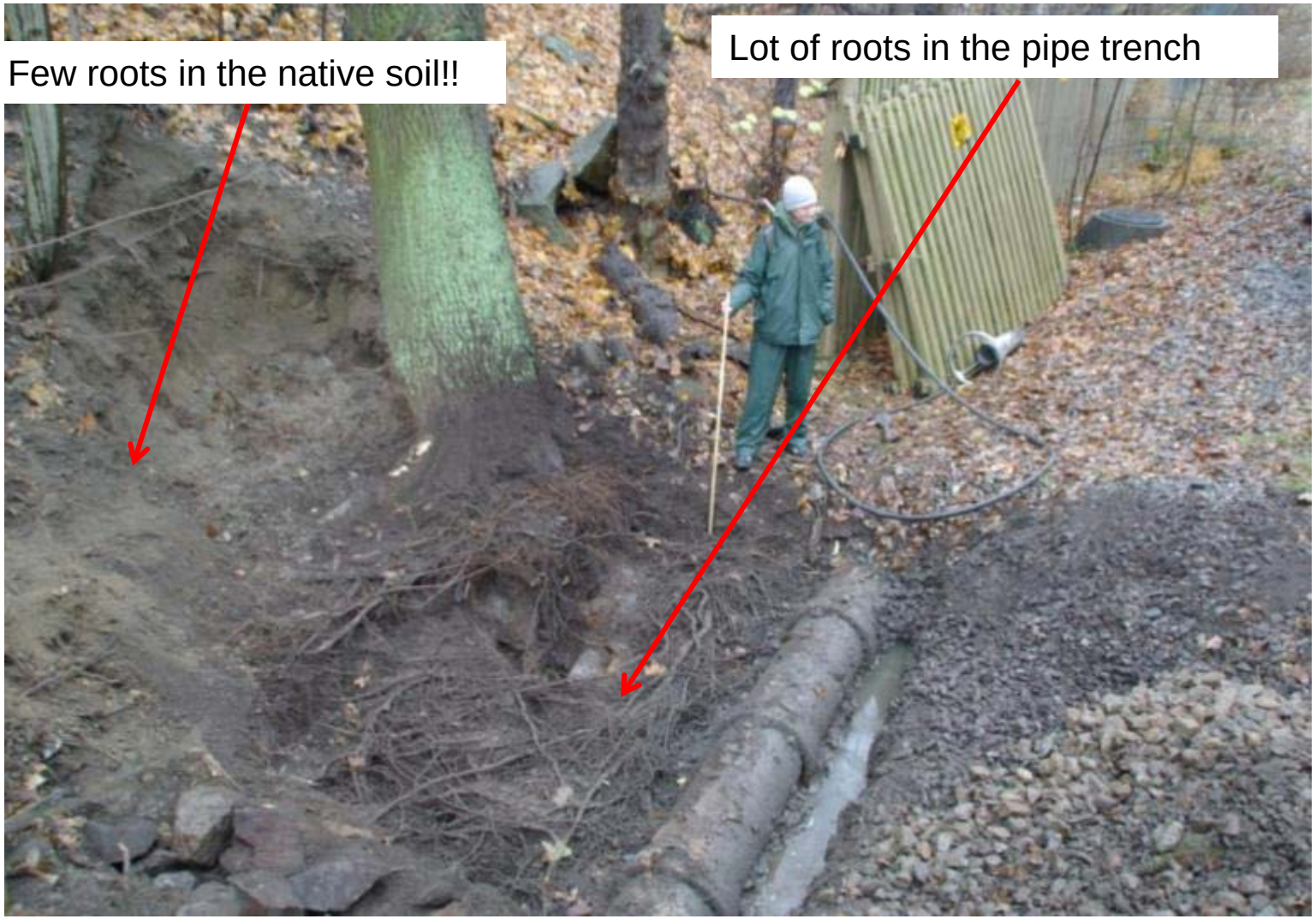
Are those soils we are using for trees in urban environments the optimal substrate ?

When it seems that roots prefer the condition in the pipe trench and inside the pipe!



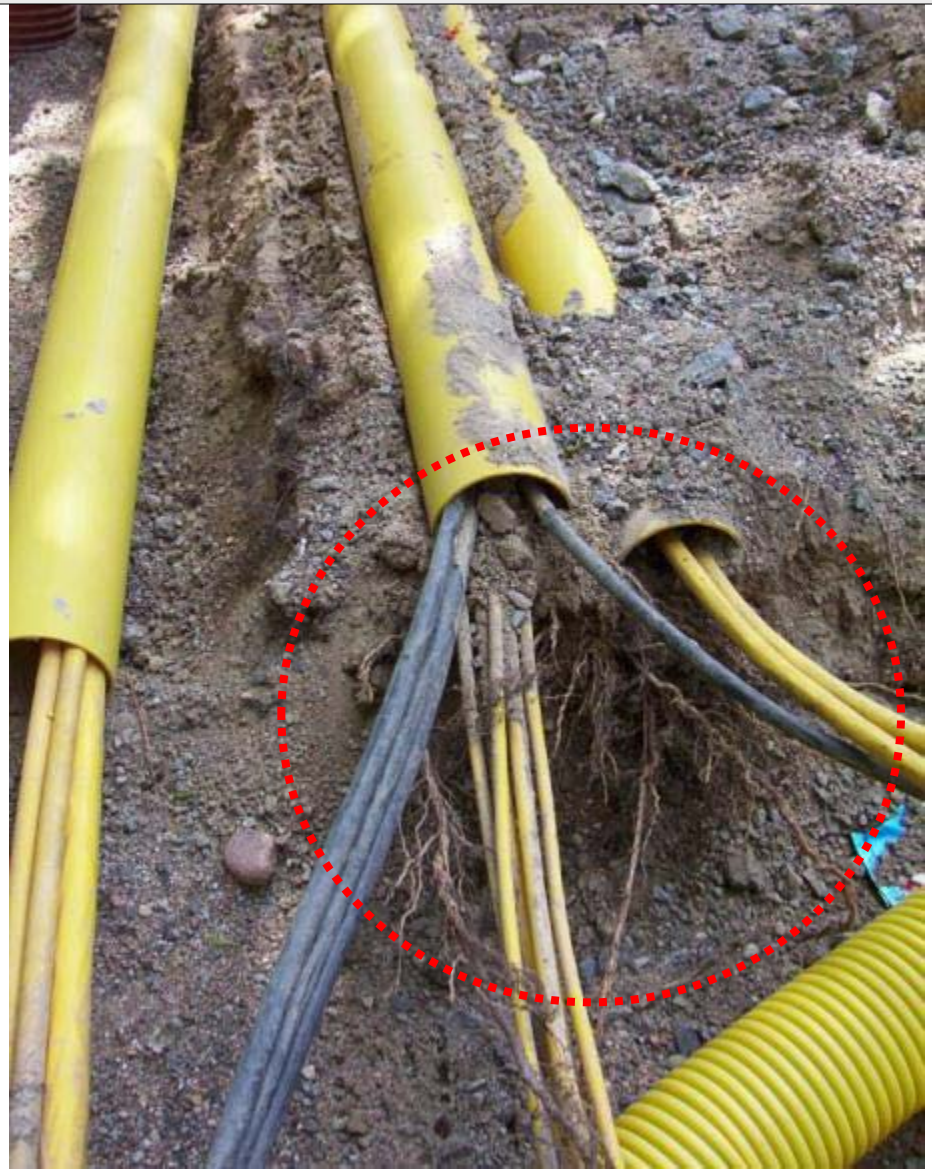


The environment for root growth seems very favorable in the filling material in pipe trenches and in railway embankments



Massive amount of roots in a railway embankment, Stockholm Sweden.

Massive amount of roots in cable covers for electrical wires, Stockholm Sweden.



Massive amount of roots in WW 2 bunker

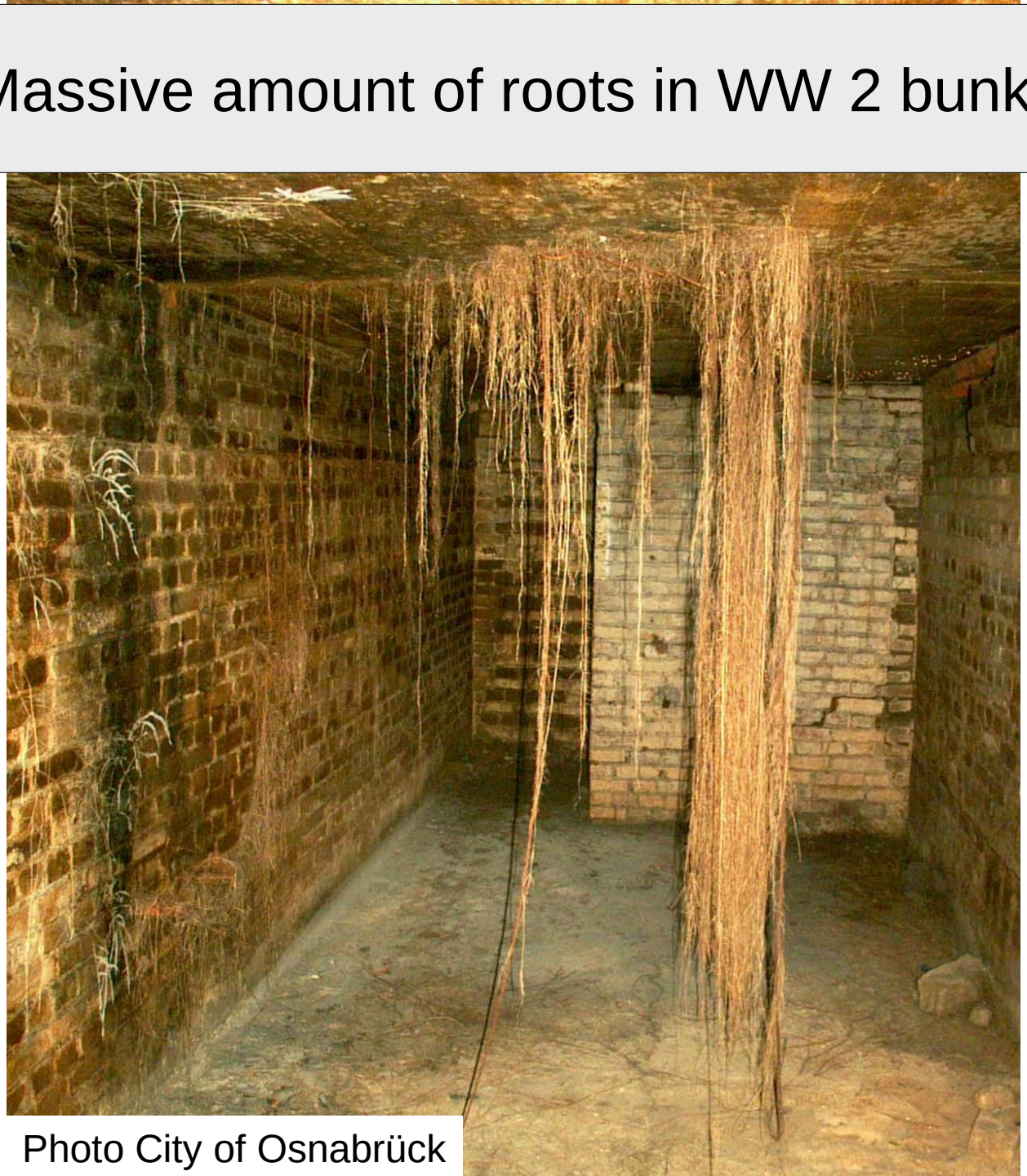


Photo City of Osnabrück

Rock base for the structural soil


CAT

On newly planted trees, 10 years of experience

The extension of roots in the airy layer of rocks are approx. one yard per year in the pure rock layer!

Replacement of a tree avenue with a pedestrian path.

Soil only where the root ball will be placed. The rest of the ground filling is rocks in different fractions.

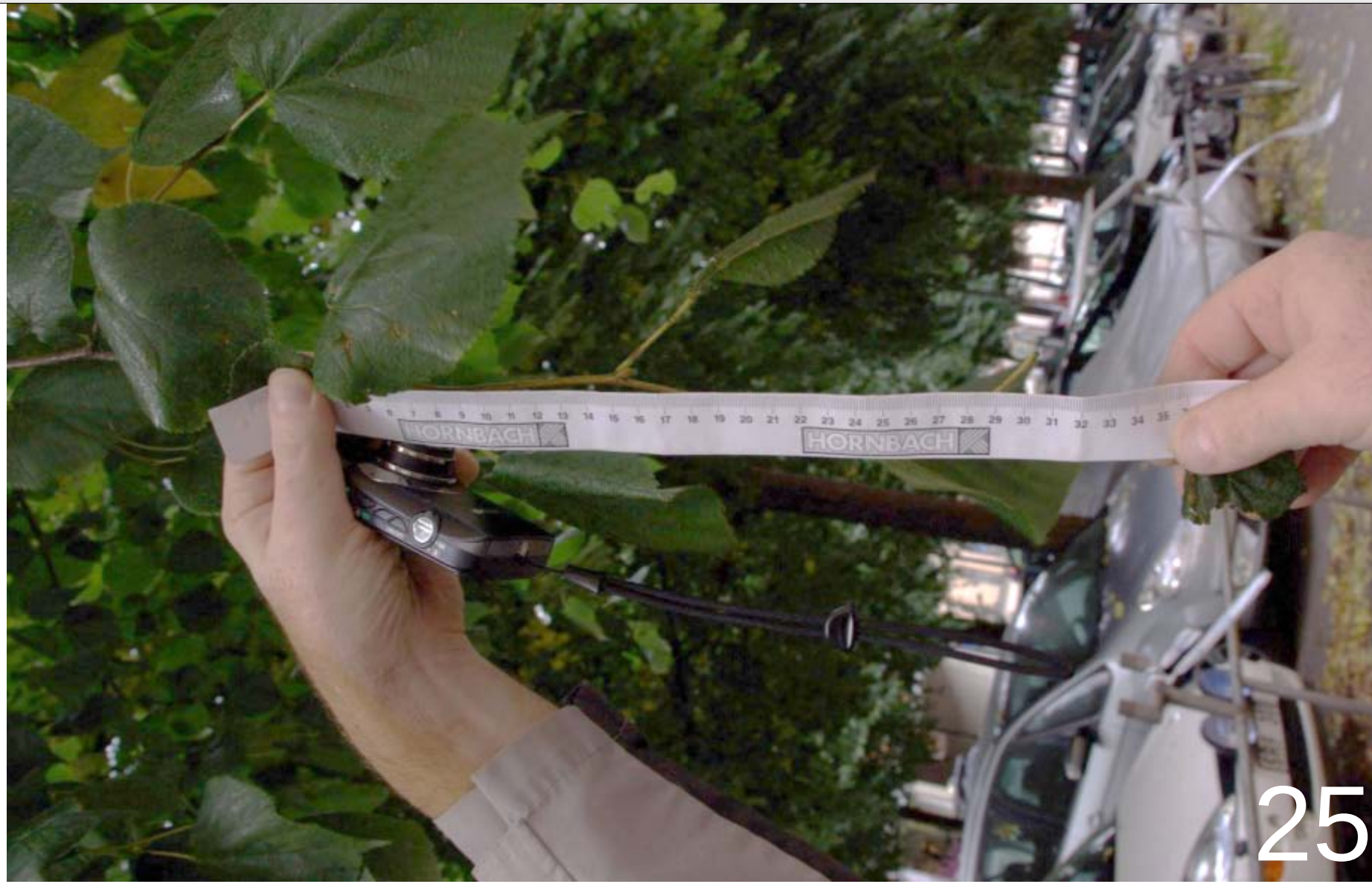
Infiltration capacity 1,969 inches /hour!!


Linden trees Planted
March 2008

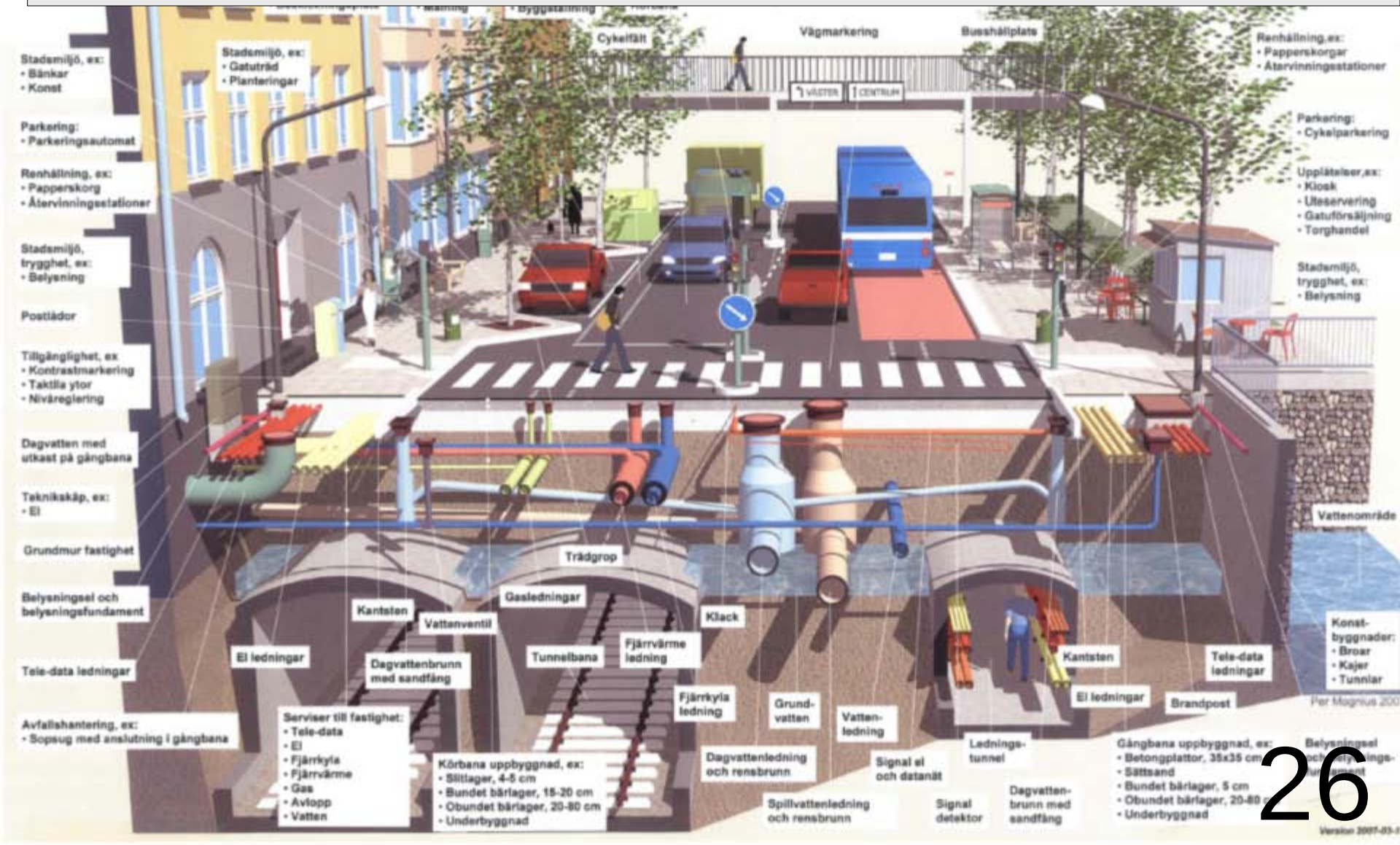

June 2008


September 2010
24

The growth of branch shoots are approx. 16 – 20 inches per year



Problem in space underground to replace historical tree avenues !!!



Habitat improved on mature trees with 13 years of experience

And experience on approx. 500 trees

Autumn 2002, linden trees Stockholm City Centre


äller ej
el o. moped

Autumn 2005, Stockholm City Centre

July 2008, Stockholm City Centre

July 2010, Stockholm City Centre

Results after four years after vitalization on mature trees, left trees untreated right trees treated

Before

After


2007
www.t-house.se
Coca-Cola
36

2010


2007


2010

Combined habitat improvment and stormwater management

Vacuum exuviations within the root zone


42

Trees on the right side of the street are treated

Tree at the left are the original tree approx. 100 years old.
Tree at the right planted in size of 13 – 15 inches, six year after planting, growing mostly in rocks!!