



**CLAIRO CONFERENCE: LIVABLE AND CLIMATE RESILIENT EUROPEAN CITIES**

# **Bluegreengrey systems for livable and resilient 'scapes**

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**22 March 2022**



# STREETSCAPE



# MULTIFUNCTIONALITY



CO<sub>2</sub>



# HOW DID ONE THINK HERE?





# UNDER THE SURFACE



Foto: Björn Embrén

# WHY ARE CONDITIONS FOR VEGETATION BAD?



Foto: Magnus Nykvist Växjö kommun



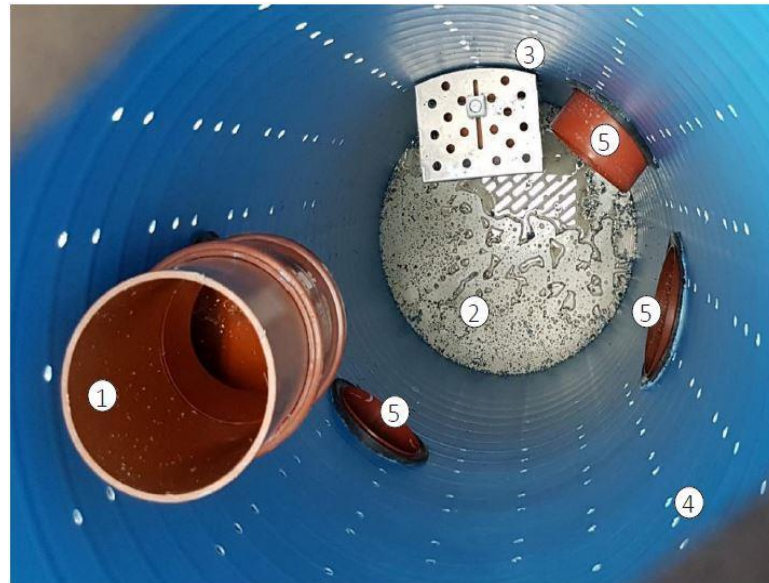
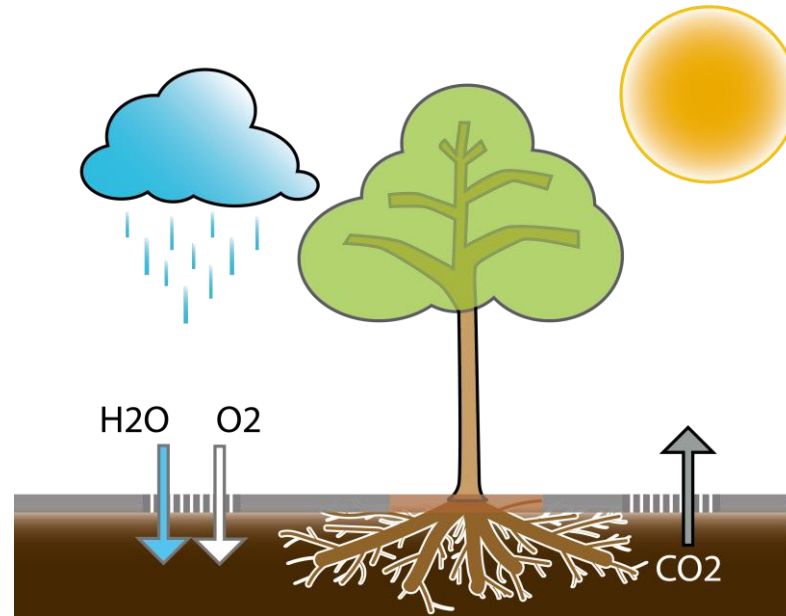
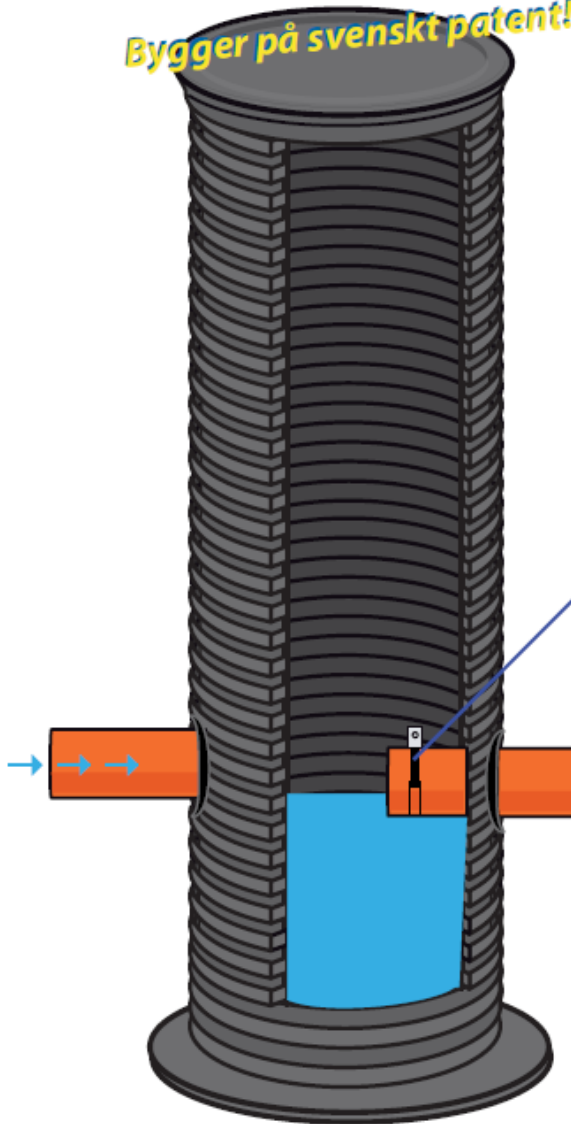
# INEFFICIENT GAS EXCHANGE



Foto: Björn Embrén

# INEFFICIENT REGULATION OF WATER

*Bygger på svenskt patent!*





# CLIMATE RESILIENT SYSTEM SOLUTIONS FOR URBAN AREAS



Hem

Om projektet ▾

Dagvattenkonstruktioner ▾

Referensanläggningar

Verktyg ▾

Frågor och svar ▾

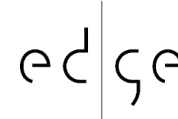
Tekniska rapporter

Kontakt



Klimatsäkrade Systemlösningar för Urbana Ytor  
- Ett VINNOVA-projekt

<http://klimatsakradstad.se>



VINNOVA

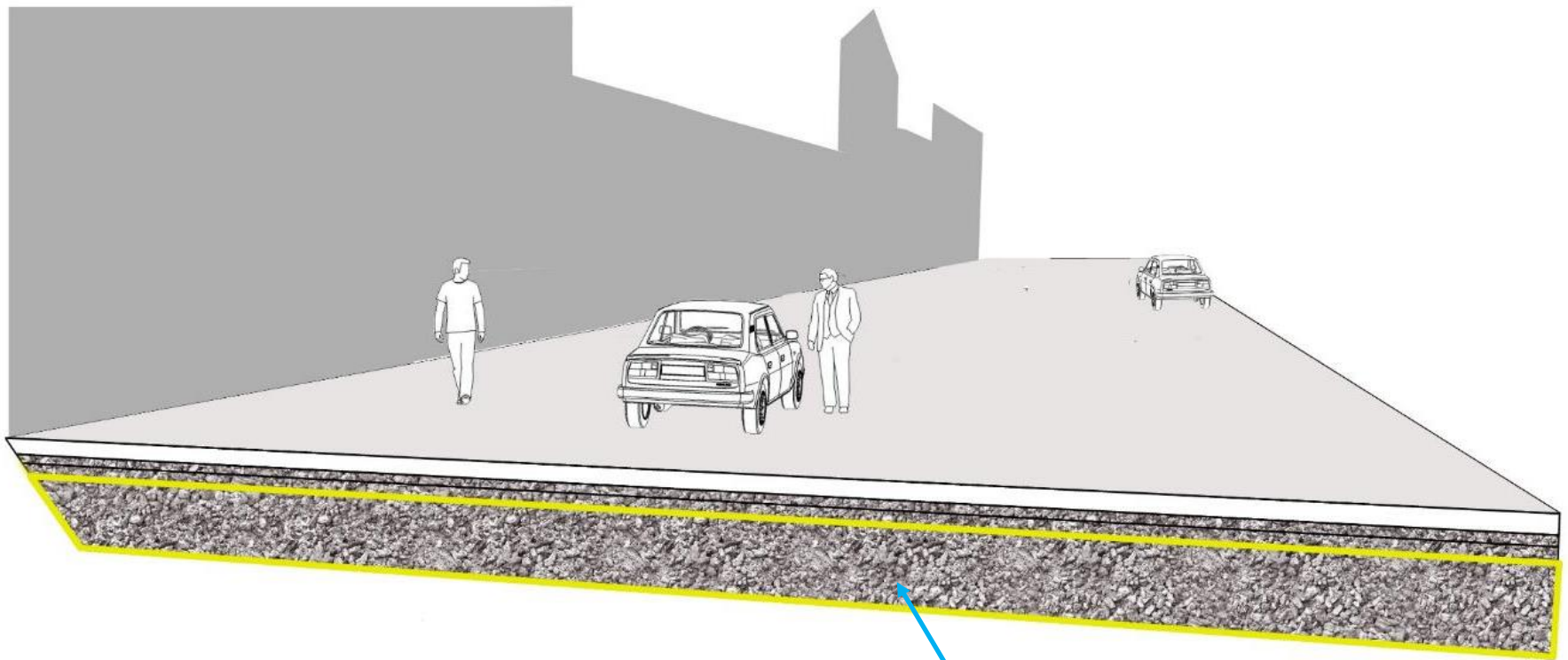


# STREETSCAPE





# SUBBASE LAYER



Crushed stone in fraction: 0/90

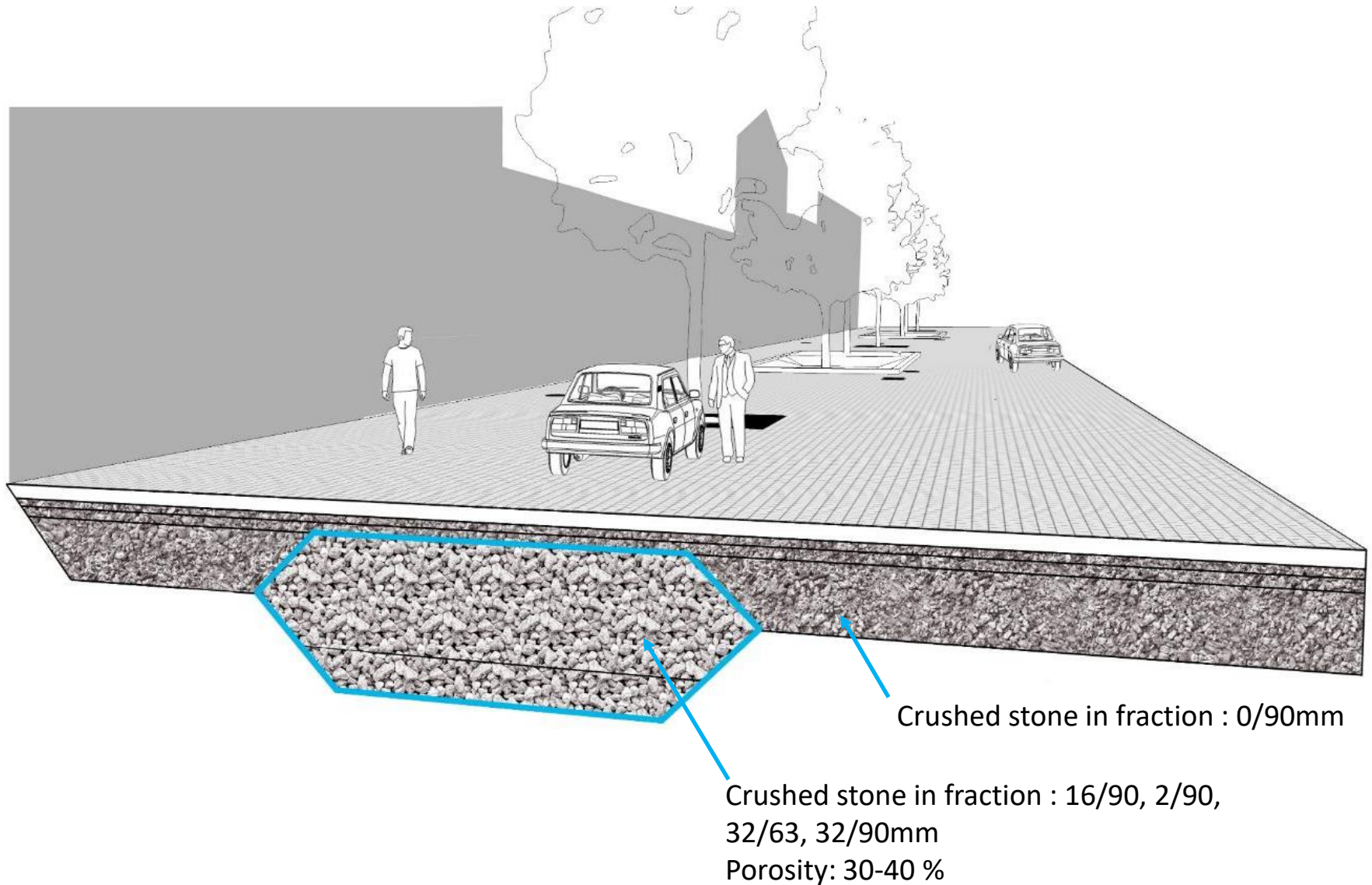
# WHY DOES IT GROW SO WELL HERE?



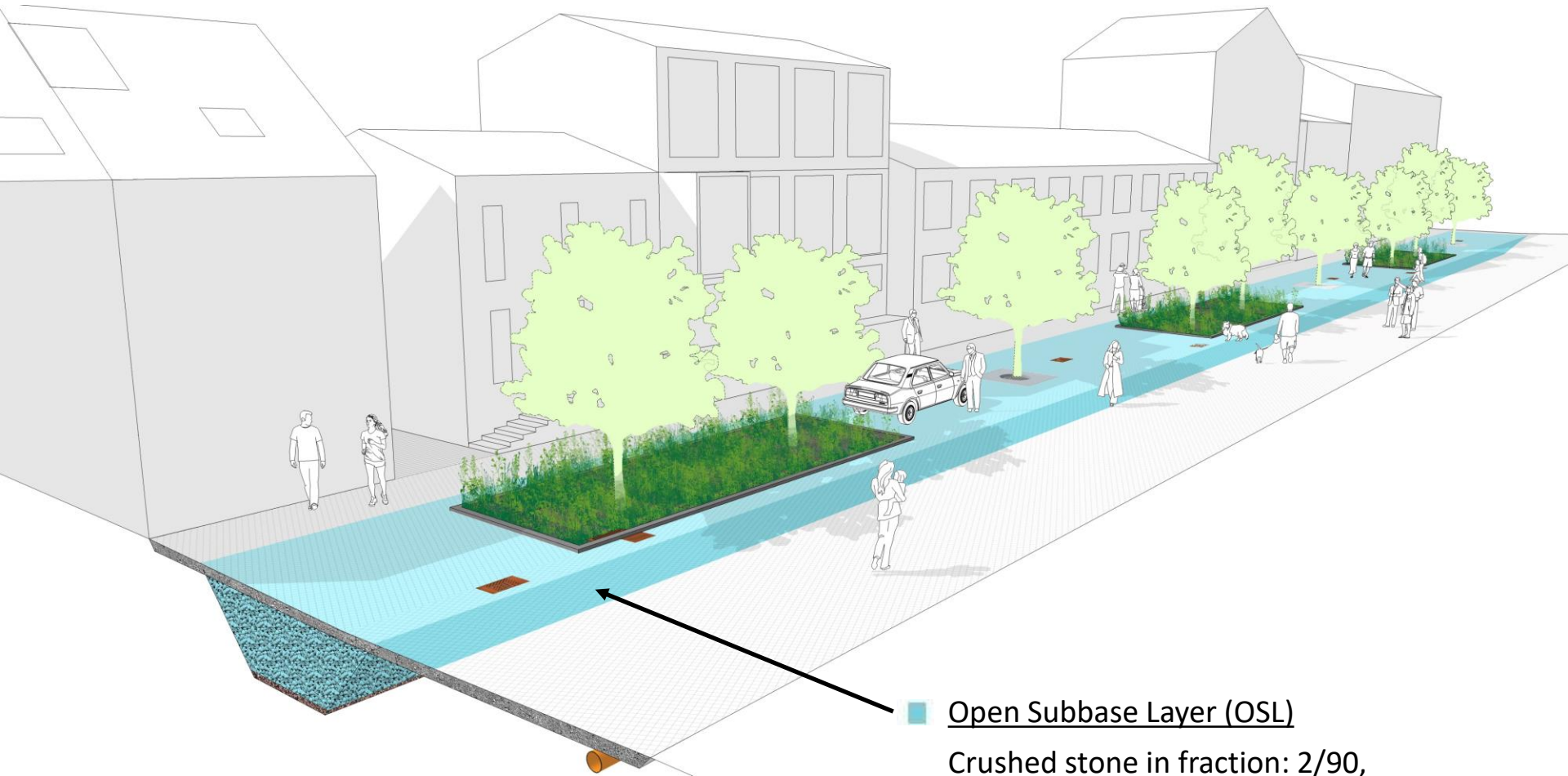
Foto: Björn Embrén



# OPEN SUBBASE LAYER



# OPEN SUBBASE LAYER AS BASIS FOR BGG SYSTEM



■ Open Subbase Layer (OSL)

Crushed stone in fraction: 2/90,  
16/90, 32/63, 32/90  
Porosity: 30-40%



# OPEN SUBBASE LAYER AS BASIS FOR BGG SYSTEM



# BLUEGREENGREY CONSTRUCTIONS

ed|ge





# STORMWATER REGULATION AND GAS EXCHANGE



# FULLSCALE TESTS WITH HEAVY VEHICLE SIMULATOR





# LARGE SCALE IMPLEMENTATION OF BGG SYSTEMS



# BUILDING PROCESS OF BGG SYSTEMS





# PLACEMENT OF PITS





# SPACE UNDERGROUND FOR RETENTION OF WATER, 300 – 400 L / M<sup>3</sup>





# OPEN SUBBASE LAYER WITH BIOCHAR





# BUILDING CONSTRUCTIONS ON THE TOP OF OPEN SUBBASE LAYER





# PLANTING SUBSTRATE FOR VEGETATION





# PUMICE, COMPOST AND BIOCHAR





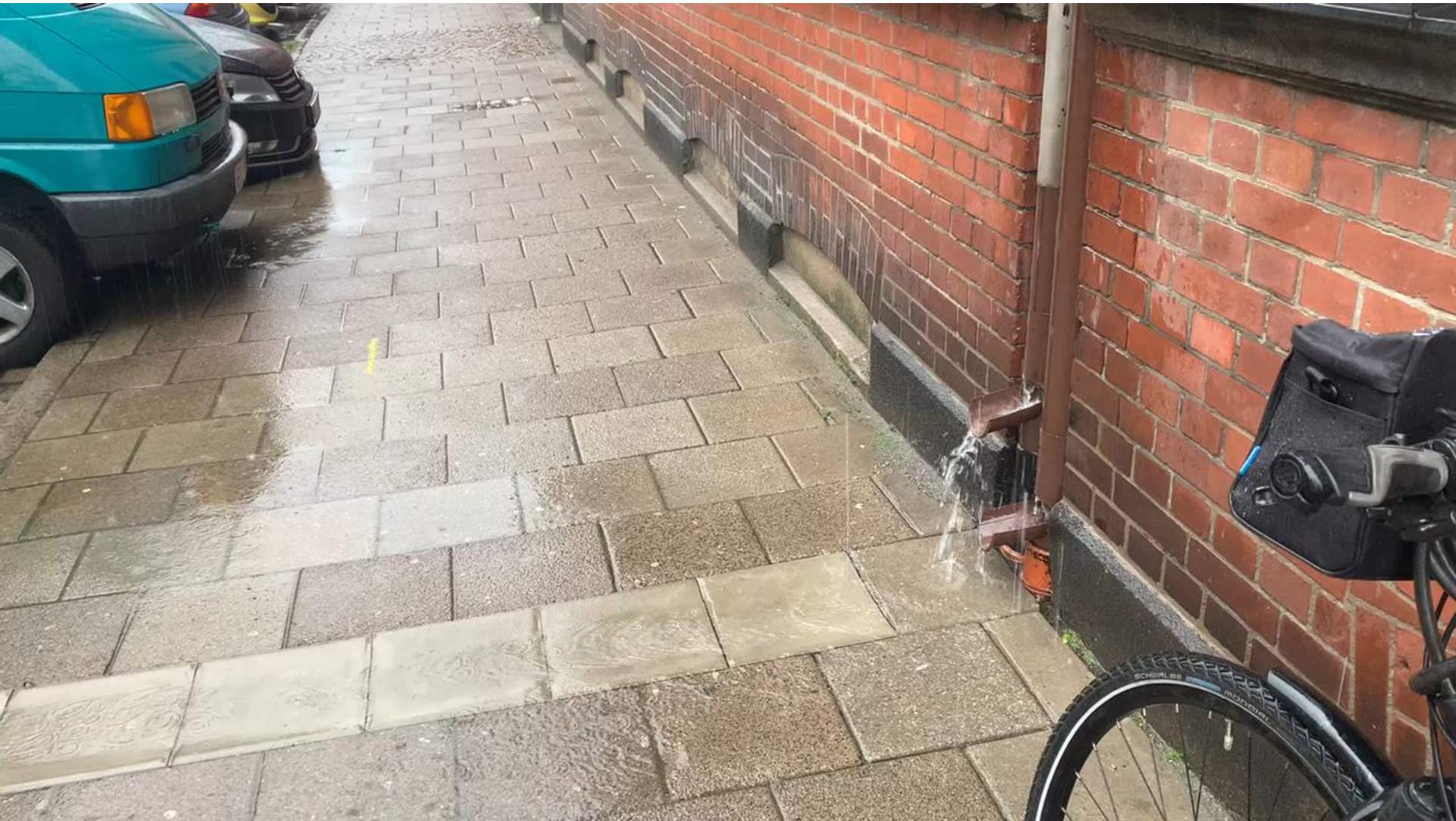
# HALF YEAR AFTER BGG SYSTEMS HAVE BEEN BUILD; edge REGULAR MAINTANANCE REMAINS (CA 2-2,5 YEARS)





**WHEN 20-30 MM HAS FALLEN IN MALMÖ DURING  
ONE AFTERNOON...**

ed|ge









# 4 YEARS AFTER PLANTATION – ROOTS 3.5 M FAR FROM THE TREE, ERIK DAHLBERGSALLÉN, STOCKHOLM

ed|ge



Photo: Björn Embrén



# MORE BGG PROJECTS... PRACTICE SINCE 2011





# THE PRINCIPLE OF USING OPEN SUBBASE WAS APPLIED EARLIER...



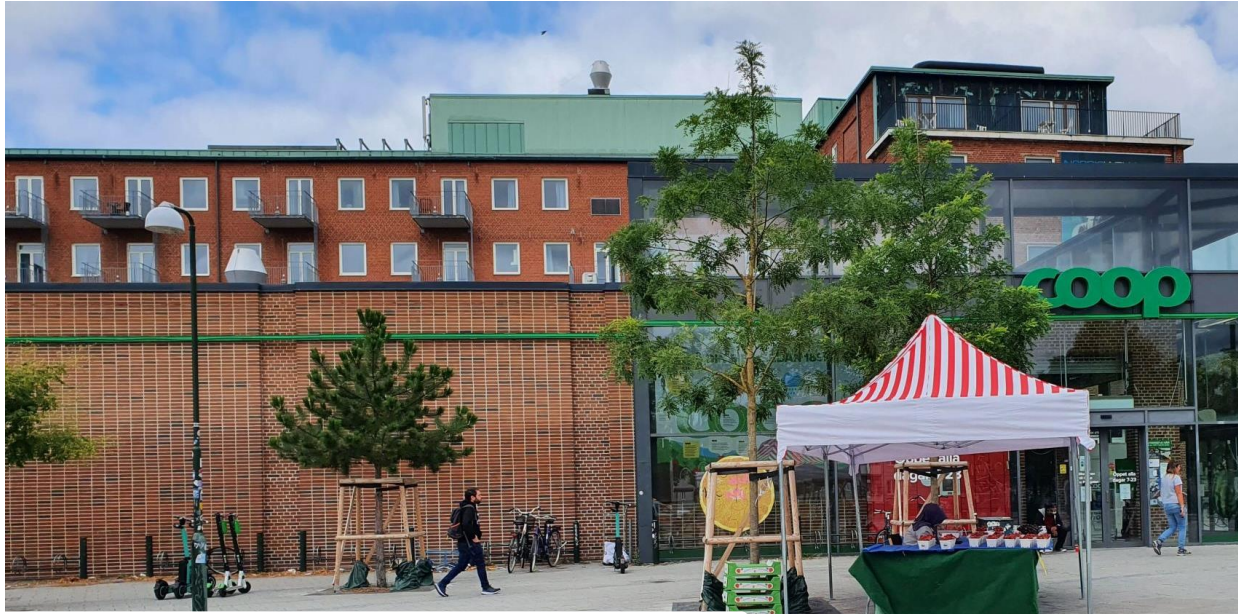
PLANTED  
CA 1935,  
CA 80  
YEARS  
OLD TREES

Swedenborgsgatan

PLANTED  
2003, 10  
YEARS  
OLD TREES



# VALUE OF TREES IN CITIES



„There is a magic machine that sucks carbon out of the air, costs very little and builds itself. Its called tree.” – George Monbiot

As soon as these trees will establish and will grown to its adult size, they will cool down the place and will keep cleaning the air many many years further. Trees are making cities beautiful. Take care of them.



**#treesinmalmo**



# THANK YOU FOR LISTENING

