



# Installation guidelines

Version R3

## TreeParker

Suspended pavement system





# Prohibition

Extremely important information  
Must be read carefully before start  
Keep this information as further reference

## Forbidden to drive over before final pavement has been installed

Do not drive vehicles or operate equipment over the TreeParker units until the final surface material has been installed. The TreeParker system does not achieve its full weight bearing capacity until the final surface pavement has been placed.



## Compact road foundation with plate compactor



**It's the contractor's responsibility to make sure that nobody is driving over the system before final pavement is installed.**

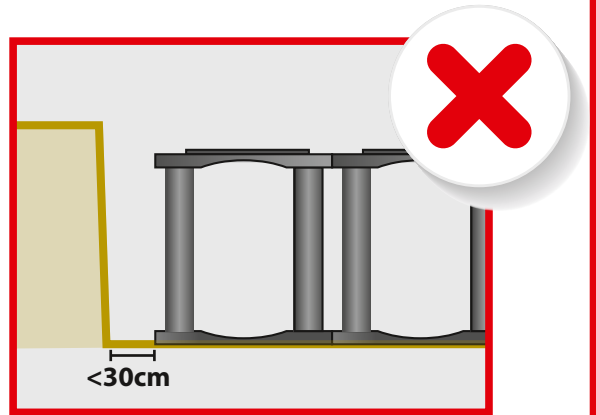
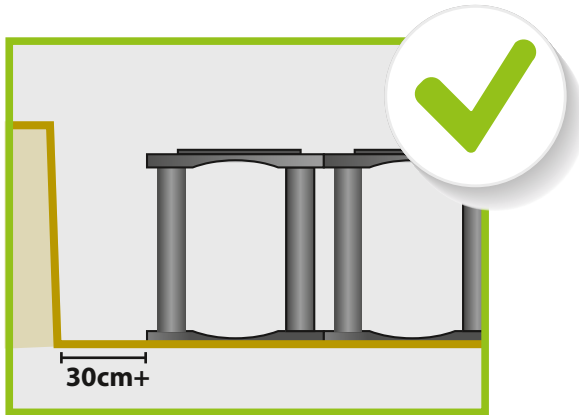
Installation of the TreeParker is only part of the whole process. It is therefore important that any subsequent (sub)contractor is aware of the TreeParker, which may or may not be visible. A poster to support the communication of this matter is available. It should be placed in a, for everyone, visible location. [See appendix 6](#)



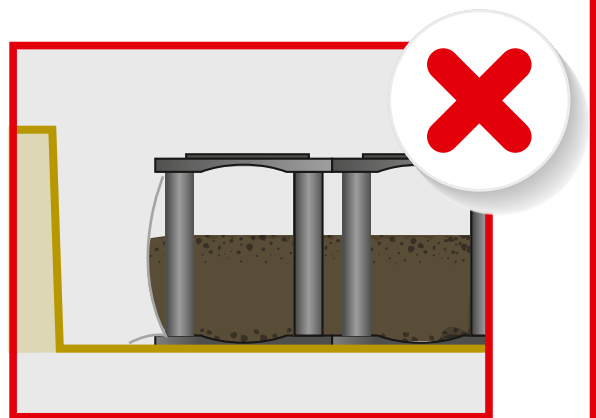
# Warning

Important information  
Must be read carefully before start  
Keep this information as further reference

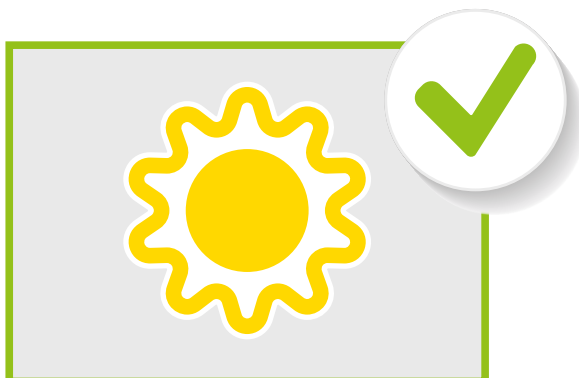
## Excavation dimensions



## Install backfill first



## Install under right weather conditions





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## Explanation of the icons



Reference to appendices



Pay attention



Important check: supervisor must assess before taking the next step

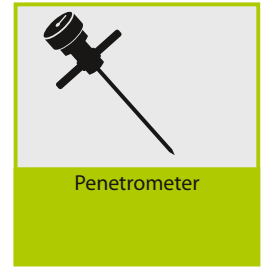
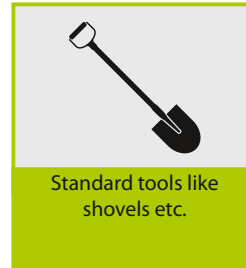
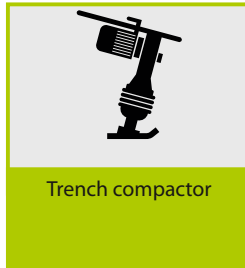


Warning

This manual is an essential part of the warranty, wherein the Dutch manual is leading. No rights can be derived from spelling and writing errors. Written text takes precedence over drawings if contradictions occur. Unless explicitly stated otherwise, both in this manual and for other documents in mutual comparison. No rights can be derived from standard drawings.

# Before you start

## Tools provided by the contractor



## Materials provided by the contractor:

### Subbase material

The subbase/subsoil must meet local requirements, requirements in regards to the TreeParker system. Particle size: maximum 22 mm, waterpermeability; faster than the planting soil.

### Backfill material

The backfill material must meet local requirements, requirements in regards to the TreeParker system. Particle size: maximum 40 mm.

### Planting soil (sweet soil)

The availability and quality of planting soil can be different per region and/or country. But some requirements apply everywhere:

- Free of debris
- Infiltration rate; minimum 1m/day after soil structure is restored
- During processing soil moisture content at field capacity

### Road foundation

TreeParker has 400kN/m<sup>2</sup> - 520kN/m<sup>2</sup> load capacity, with evenly distributed weight. The load capacity is depending on the height of the TreeParker unit.

The maximum axel load is depending on the road foundation and type of pavement.

Axel load is depending on total weight of the truck and max. speed.

**Standard solutions:** Pavers and max. axel load of 12 tonnes

- 300 mm foundation material (minimum e- modulus 500MPa)
- Pavers (normally with ca 30 mm sand base underneath)

**Standard solutions:** Asphalt and max. axel load of 15 tonnes

- 300 mm foundation material (minimum e- modulus 500MPa)
- Asphalt layer

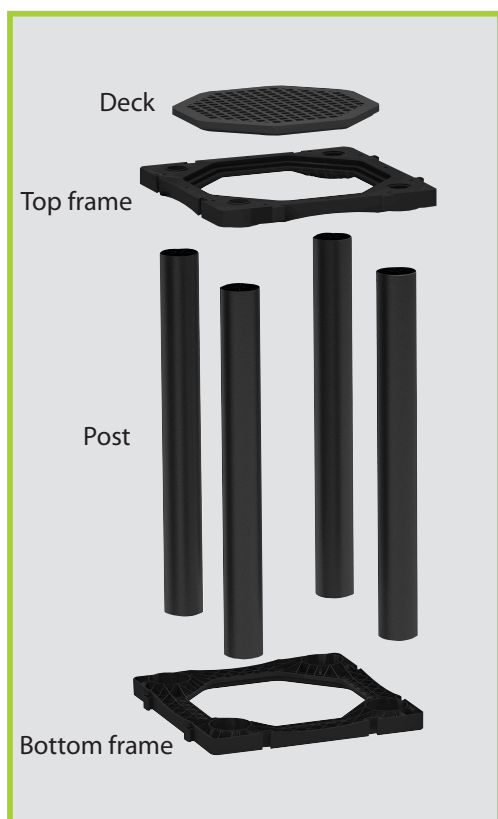
**Standard solutions:** Concrete pavement and max. axel load of 17 tonnes

- 50 mm foundation material (minimum e- modulus 150MPa)
- 100 mm concrete poured on location (minimum 20 GPa) 20,000MPa



**Reduced size equipment may be required when installing asphalt over TreeParker to prevent damage from occurring.**

## Products supplied by TreeBuilders



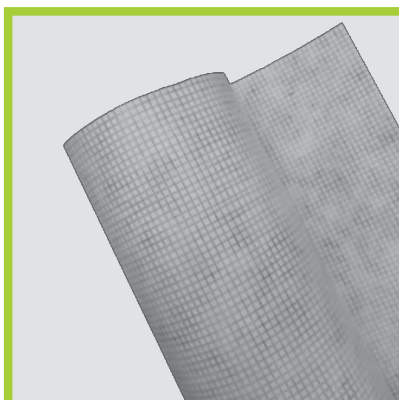
### TreeParker unit\*

consists of:

**TreeParker Deck**, 1 pcs per unit

**TreeParker Frame**, 2 pcs per unit

**Treeparker Post**, 4 pcs per unit



TP Combigrid\*



Geotextile\*



TP Caps\*\*



Root Directing Panels or  
Deep Rooting Panels\*  
(root guiding panels)



TP Spikes\*  
(only necessary  
when units are  
not linked)

- **Blue installation toolbox**
- **Project drawings: layout plan, top view and sectional views**

\* System warranty expires if 1 of these products is not applied

\*\* Products are part of the TreeParker system but not always necessary



# Preparation before TreeParker system installation

Excavation and preparing the tree pit is the responsibility of the contractor. Local construction regulations should be taken into account. If in doubt, contact local civil professional. Prior to installing TreeParker the stability of the subbase must be checked and communicated with the client. Step A-D not included in TreeBuilders' scope of work

## Specifications:

- Excavation dimensions: there should be enough space for people to work around the installed TreeParker system
- The subbase should be stable enough to carry the TreeParker system
- Subbase should be leveled in one plane



**A**

### Over-excavate 30 cm beyond perimeter of the system

Excavate the trench at the installation site according to the necessary dimensions to accommodate the TreeParker system. Over-excavate a minimum of 30 cm beyond the perimeter of the TreeParker to allow for working room and easy and fast installation. You also need this space for proper compaction (trench compactor) to prevent pavement settlement around the TreeParker system.



**B**

### Excavate to the right depth

Make sure excavation is deep enough to accommodate subbase aggregate, TreeParker system and road foundation (see project specific technical drawings). Do not dig deeper than necessary and always stay 10 centimetres above average highest groundwater level. If the subsoil is not stable due to groundwater, well point drainage must be carried out.



**C**

### Install draining subbase aggregate

Compact the subbase according to the project specifications or local regulations. The subbase should be compacted at least 95% of the standard proctor density.

The subbase should be levelled perfectly in 1 plane. Maximum inclination 7%.



### Quality control

It is the responsibility of the contractor through the Owner, Owner's Representative, Engineer, or Geotechnical Consultant to verify that the subbase is constructed to the specified requirements prior to placing any TreeParker, the results should be available on request.



If the minimum requirements mentioned above are not met, this will affect the further work to be carried out. There are several possibilities to continue the work, but these deviate from the standard mentioned in this manual. If the excavation dimensions do not comply with the above mentioned minimum requirements, the project manager should be contacted. In consultation, the situation will be assessed in order to determine the best follow-up method.

## What if...



Encountering wet soil conditions. If subsoil is too wet well point drainage must be carried out.



Encountering underground obstacles

**app** [see appendix 1](#)



Dimensions for excavation are not feasible (depth and/or surface dimensions) please contact client



# Warranty manual

## Specifications:

- Excavation dimensions: there should be enough space for people to work around the installed TreeParker system
- The subbase should be stable enough to carry the TreeParker system
- Subbase should be leveled in one plane
- Waterdrainage must be taken care of for the long term

1a

### Quality control

It is the responsibility of the contractor through the Owner, Owner's Representative, Engineer, or Geotechnical Consultant to verify that the subbase is constructed to the specified requirements prior to placing any TreeParker, the results should be available on request.

b

### Checking dimensions

Make sure to check if excavation dimensions are met, surface area but also depth? If there is an insufficient excavation, then first consult with the client or their responsible supervisor.



## First check | before proceeding installation

Page 23 & 24



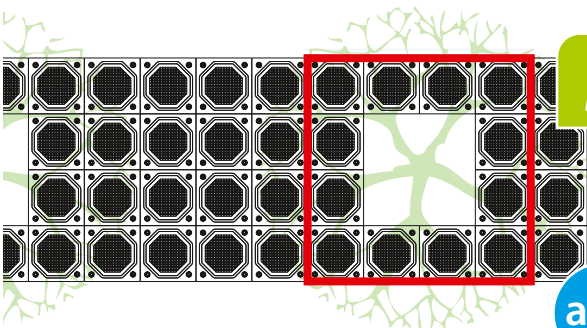
2

### Locate tree(s) and pit opening(s)

Establish the location of the tree pit openings as per projects specifications. Once trees are located, mark the inside dimensions of the tree opening on the prepared subbase. The open tree pit must be at least 20 cm wider than the rootball of the tree to be planted.

app

[See appendix 2 Rootball anchoring](#)



3

### Lay down bottom frames according to layout drawing

Place the first frames starting around the tree opening(s) and expand outward. Spacing with a maximum of 75 mm can be used. Connecting the frames makes further installation faster.

app

[See appendix 3 TreeParker layout](#)



4

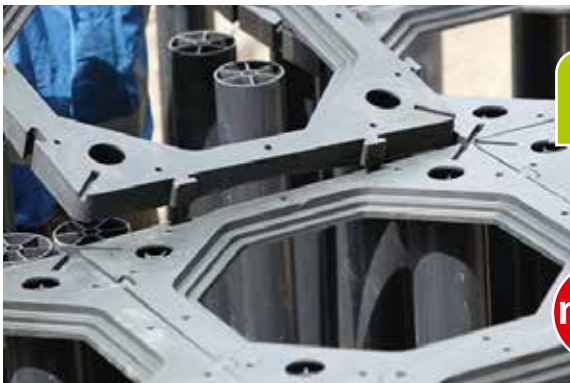
#### Manually push posts into bottom frames

Push the posts into the frame. Avoid damage, check for damage, do not install damaged items and do not throw with products.

Install aeration system according to the detailed drawing. This differs per project.

app

See appendix 4 Aeration system



5

#### Install top frames

Place the top frame over the posts in the same direction as the bottom frames and carefully tap the frames in place.

note

#### Spacers in your layout drawing?

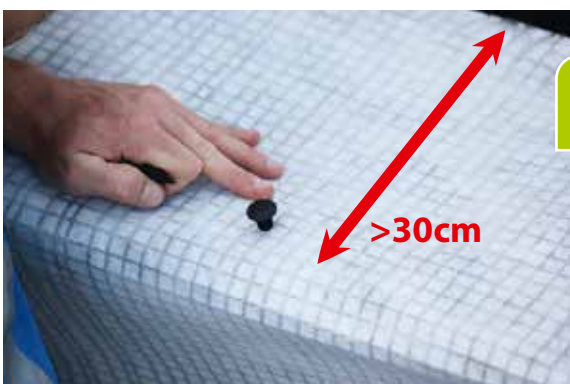
If yes: connect both bottom frames and top frames at the assigned places.



6

#### Install TP Combigrid

Cut the combigrid to ensure there is an extra 15 cm at the bottom of the frames and an extra 30 cm at the top layer frames.



7

#### Attach TP Caps

Attach the fabric every meter with TP Caps. Use a maximum of 1 cap per meter with the prefab holes in the frame. TP Caps have no constructive value, but help keep the canvas in place while replenishing soil.



8

### Combi-grid start end overlap

Wrap the combi-grid around the perimeter of the system. Allow an overlap of >60cm at the beginning and end.



## Second check | before proceeding installation

Page 23 & 24



9

### Install backfill first

Install the first lift of backfill material around the perimeter of the TreeParker system to anchor down the tip of the combi-grid prior to placing planting soil inside of the system. Do not backfill the system higher than the applicable slot replenishment guidelines

note

**Do not compact the backfill yet**



10

### Install the first lift of planting soil

Place specified planting soil into several areas of the system.

Install planting soil to approximate same height as the backfill material.

11



### Compact first lift of backfill

Compact the first lift of backfill material to the required compaction rate.

Compaction with the trench compactor.

note

**Prevent compaction equipment from coming in direct contact with the TreeParker unit to avoid possible damage.**





### Filling up the system

After backfill has been placed and compacted to the height of the soil inside the units, the process of adding backfill material around the perimeter and planting soil in the units repeats itself (step 9, 10 and 11).



### Compact soil

Level out and loosely compact soil by walking through the entire system (soil compaction between 1 and 1,5 MPa penetration resistance). Leave at least a 5 cm open air layer underneath top frame or more if specified.



### Aeration and irrigation

Install aeration/irrigation system as specified in project drawings.

app

[See appendix 4 Aeration system](#)



## Third check | before proceeding installation

Page 23 & 24



### Closing the system

Clean the frames and attach the decks.





16

### Cover system with geotextile

Cover the TreeParker with the specified geotextile fabric. Make sure to extend the geotextile out past the units. Preferable extend 45 cm past the edges of the excavated area.



17

### Install kerbing according to the drawings

No concrete inside the tree pit zone.  
The picture shows a sample with precast concrete kerbs.



18

### Install root directing panels

No concrete within tree pit.

app

[See appendix 5 Root Directing Panel](#)



19

### Install aggregate base course (road foundation)

Road foundation material according to the project specifications.  
Start at one end and work continuously toward the other end. This keeps the geotextile loose and allows it to be pulled down into the openings between the units.



20

### Compact the aggregate base course

Compact the base course aggregate as specified with equipment weighing 500 kg or less.



21

### Fencing of work area

Close off the area so no one can enter the work site and damage the TreeParker system. Close off with safety flagging tape, fences or similar.

app

See appendix 6 Warning poster



## Fourth check | before proceeding installation

Page 23 & 24



Do not drive vehicles or operate equipment over the TreeParker units until the final surface material has been installed. The TreeParker system does not achieve its full weight bearing capacity until the final surface pavement has been placed.

Are there any ambiguities and/or discrepancies or do you need more information or help during installation?

Please contact:

TreeBuilders +31 (0)413 530 266 or a certified distributor

Thank you on behalf of the trees!



# Appendix 1 Utilities

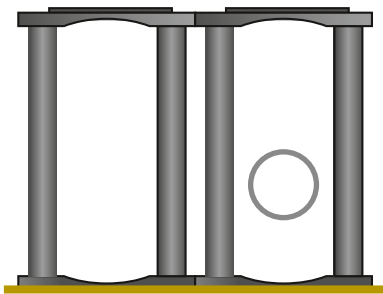
Integrating TreeParker and underground obstacles, such as utilities.

There are a number of different ways to integrate both new and/or existing utilities with the TreeParker system.

The layout of the TreeParker units can be adapted to the location of the utilities. See appendix 3. This way diagonal crossing utilities can be integrated too.

For more information regarding TreeParker and utilities contact TreeBuilders company.

## Option 1 Running utilities through unit

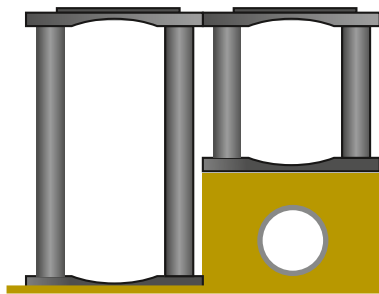


The most commonly used option is to run utilities through the TreeParker system. Due to the open design of the units, TreeParker can accommodate pipes, conduits, and other underground utilities up to 300 mm in diameter.



Make sure the utilities are not damaged. Damaged utilities must be repaired.

## Option 2 Bridging utilities

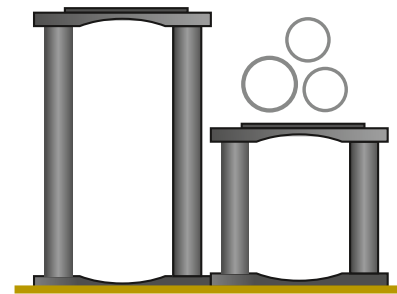


The most common used option for integrating underground obstacles. Due to the flexible height of the post, the TP unit can be adjusted in height on location.



Make sure the subsoil underneath all units is compacted according specifications.

## Option 3 Tunneling utilities



The most common used option if it is not permitted to integrate the utilities inside the TreeParker system. Due to the flexible height of the post, the TP unit can be adjusted in height on location.



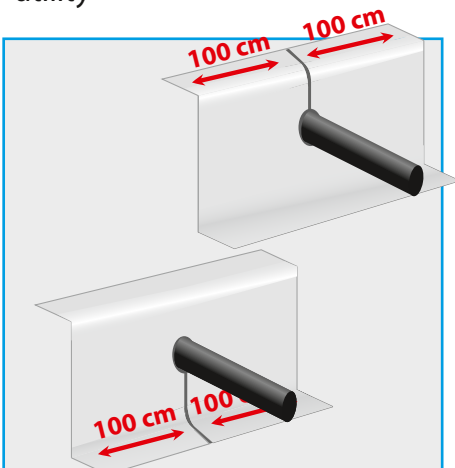
Preferable minimum 5 cm between top of the unit and utility.



Make a straight cut in the TP combi-grid around the TreeParker system up to the height of the utility.



Use another piece of TP combi-grid to make cover the cut. This cloth should overlap 1 m left and 1 m right of the utility



Use the TP combi-grid to bridge the height in subbase material.



If the height difference is less than 20 cm you can use the standard TP geotextile on top of the system.



Measure the needed height.



The TP posts can be cut with a hand tool or machine on top of the system.



The TP Post must be cut in a straight angle of 90 degrees. Height tolerance between the 4 TP posts per unit is 1 mm.



# Appendix 2 Rootball anchoring

There are a number of different ways for anchoring the tree. In this appendix the 2 ways how to anchor the rootball. Also called underground anchoring. The methods described are the only ways to ensure the tree stability. By securing the rootball underground, these systems allow quick root development resulting in very low mortality rates for newly planted trees.

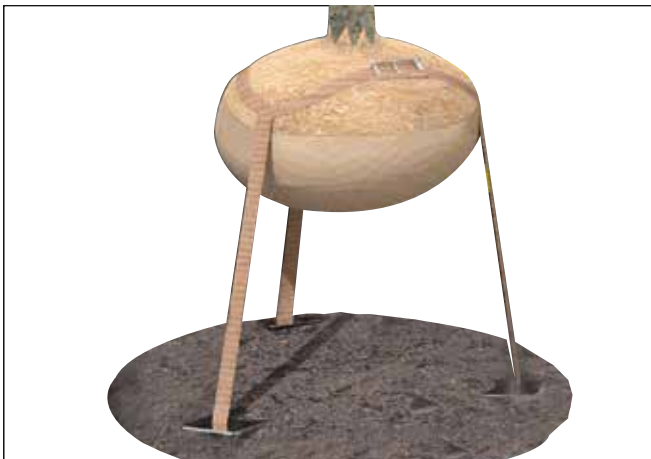
## Notification:

Make sure you know the diameter of the rootball before you start installing the anchoring system. Always follow manufacturers guidelines for installing the system. Straps should be installed straight down or somewhat outward.



**Never attach anchoring system directly to TreeParker system**

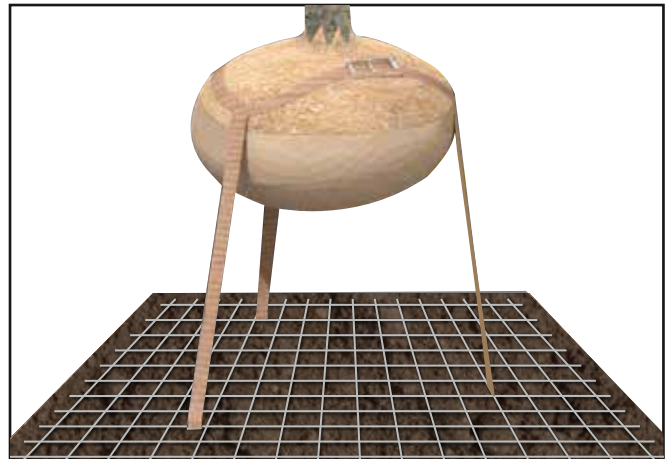
### Option 1 Deadman anchoring system



Rule of thumb: The vertical distance between the Deadman anchors and the bottom of the rootball should be over 30cm.



### Option 2 On-structure anchoring system



Make sure that the steel mesh does not affect the flatness of the subbase in order to install the TreeParker units correctly.

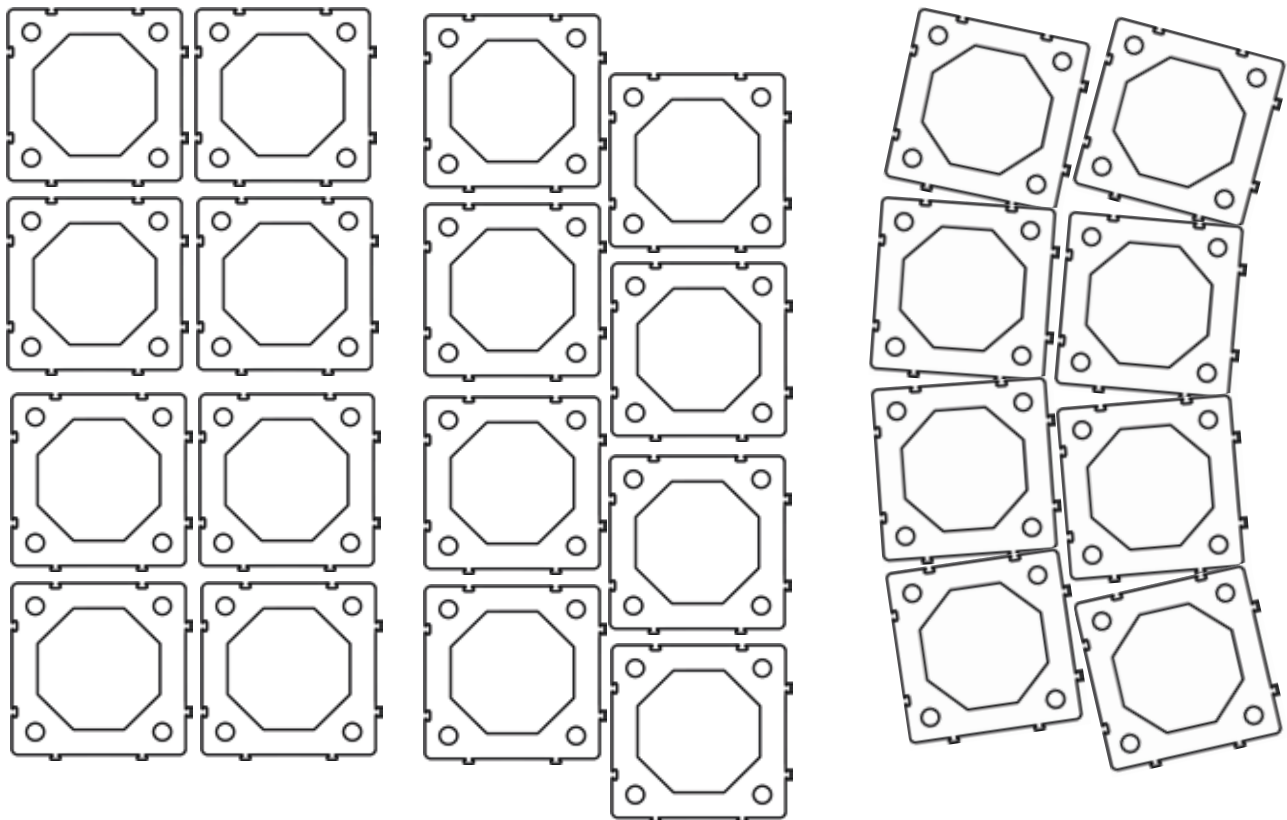


# Appendix 3 TreeParker layout

## Standalone system

TreeParker system is designed and tested as a standalone system. There are many layout possibilities, and all can be combined to make the best possible fit in your project.

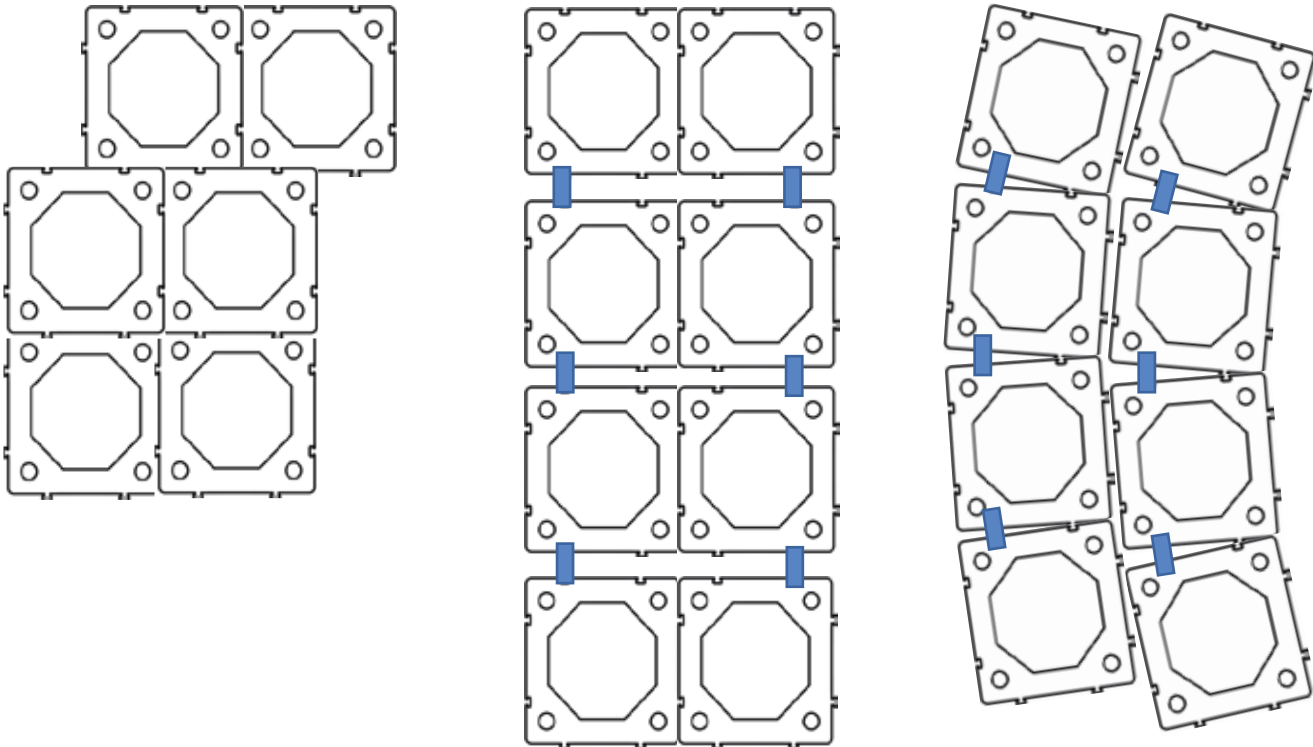
Standard spacing between the individual units is up to 75 mm. More is possible depending on the design. TreeParker systems parallel to curved roads are possible up to a diameter of 5 mtr.



**Connected system**

The individual units can be connected directly to one and another. But the most common used system is a connected system with spacers. Spacers are available in 50 and 75 mm, making almost every dimension possible with a connected system.

Although the spacers are not necessary for the strength of the system, contractors use it because it is decreasing the installation time.



To prevent shifting of the units during backfilling, connect all units in the perimeter of the system with spacers.





## Appendix 4 Aeration system

There are various ways in which aeration drainage and irrigation are carried out in combination with the TreeParker system. Follow the site specific drawings. In order to ensure that all soil-biology and therefore the tree roots grow optimally, a good gas exchange between systems air layer and open air is necessary.



Tailoring the perforated tube. Measure the right length. Stick tape on this spot, tight around the tube. Depending on the tape, wrap the tube 2 or more times.



Cut the tube in half with a sharp knife, you do this in the middle of the tape, to ensure that the nylon stocking doesn't come off on both sides.



# Appendix 5 Root Directing Panel

This panel serves multiple functions within the entire system, and is an essential part of the installation and warranty.

## The following functions:

- Prevent roots from growing in the road foundation.  
The panels ensure that roots cannot escape in the road foundation, it is also prevented that the roots escape through the geotextile lying on the system.
- Guide the roots into the TreeParker system  
The ridges ensure that the roots are guided into the system. Roots escape through the geotextile lying on top of the TreeParker system.
- Prevent pavement heave underneath the kerbing  
Roots are at least 10 cm below the bottom of the top frame
- Prevent piping of soil in the air layer in the TP system  
During rainfall wet soil (mud) cannot escape from the top into the systems air layer



# Appendix 6 Warning poster

## ATTENTION: tree bunkers

Plastic tree bunkers are located in this area.  
Strictly forbidden to pass if not covered with  
pavement/asphalt



This suspended pavement system only then bears its complete load capacity when the final paving has been applied.

**To prevent dangerous situations, do not enter this area without paving or asphalt.**

### Get to work? Follow these two options:

- 1 Secure with fence or barrier tape**  
This is the best solution; this way no one is able to enter or drive over the installed system.

- 2 Placing steel road plates:**  
Is there an explicit need to pass over? Then use steel road plates as a temporary solution until the final pavement has been installed.



Any questions? Or do you need advice?  
Please give us a call, we are happy to help you out!  
TreeBuilders +31 (0) 413 530 266 | [www.treebuilders.eu](http://www.treebuilders.eu)



Urban tree solutions

Approved	Date	Signature	Name

**Third check** After backfilling and filling the system with soil, before attaching the decks.

**Backfill material**

Confirm backfill material is according to the

specification

Confirm compaction rate of the backfill material

Value \_\_\_\_\_

Uom \_\_\_\_\_

Test method \_\_\_\_\_

**Planting soil**

Confirm planting soil is according to the specification

Confirm compaction rate of the planting soil

In the system:

Value \_\_\_\_\_

Uom \_\_\_\_\_

Test method \_\_\_\_\_

Underneath the tree :

Value \_\_\_\_\_

Uom \_\_\_\_\_

Test method \_\_\_\_\_

**Fourth check** After installing the road foundation layers before finishing final pavement.

Confirm the perimeter of the TreeParker system is fenced of

Road foundation

Used materials including layer thickness from top to bottom

Layer thickness \_\_\_\_\_

Layer thickness \_\_\_\_\_

Layer thickness \_\_\_\_\_

Layer thickness \_\_\_\_\_

Layer thickness \_\_\_\_\_

Comments \_\_\_\_\_

What measures have been taken to make clear that root cell systems are present?

Y	N
---	---

Y	N
---	---

Y	N
---	---

Y	N
---	---

Y	N
---	---



