

2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - TREES SPECIES

MULTISTEM TREES

Tree number 1 and 6 *Amelanchier canadensis*, is a small growing tree or large shrub. It produces white pale flowers in early spring as amongst emerging bronze coloured foliage. In late summer, purple-black berries appear, enjoyed by birds, before foliage turns yellow orange and red in autumn. This tree was selected for it's size, seasonal interest and tolerance of shade as well as its origin and biodiversity values.

Tree 2 and 3 *Betula utilis* is a medium sized tree offers stunning white bark, and architectural shape with soft green foliage, effectively screening whilst producing dappled shade. The bark peels yearly, revealing the whiter layer of bark beneath. In autumn, the small dark green leaves turn golden yellow and the stunning white bark shines through the winter months providing interest throughout the year.

The locations of these trees are appropriate with respect to the character and environmental conditions.



Betula utilis (2.3)



Betula utilis (2.3)



Amelanchier canadensis (1,6)



Amelanchier canadensis (1,6)



Amelanchier canadensis (1,6)

2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - TREES SPECIES

SINGLE-STEM SPECIMEN TREES

Tree No 4 *Acer ginnala* is a small, slow growing tree that grows to 7-10m in maturity. It was selected for its size and seasonal interest. It flourishes in full sun or light shade, can withstand most soil types and has the added advantages of being wind and drought resistant.

Acer ginnala offers interest throughout the seasons, coming into leaf early with large three lobed glossy green leaves followed by yellow-white fragrant flowers in May. In Autumn the foliage turns orange and bright red.

A dry-riser is incorporated into this planter raising the planter profile, and also due to the proximity of the canopy, a smaller growing tree was selected for this position.

Tree number 5 *Liquidambar styraciflua* is a large tree with columnar shaped crown. This north American native has similar leaves to maples with 5-7 pointed, palmate lobes. Autumn colour is fiery red, orange and ranges towards purple hues, often appearing all at once making this tree an spectacular autumn performer.

Liquidambar styraciflua has been selected for the prominent position as a large mature sized specimen tree between the tower and Kingsway block. While acers have brittle branches, Liquidambar has strong wood that better resist windy positions and restricted growing conditions such as in planters. Also, due to the proximity of the bridge connection above, a less spreading crown was seen as preferable. This was discussed in the PAA meeting and a high level maintenance plan included in this report to address any concern about spreading crowns.



Acer ginnala (4) Summer



Acer ginnala (4) Autumn

2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - TREES SPECIES



Liquidambar styraciflua (5) Autumn



Liquidambar styraciflua (5) Early autumn



Liquidambar styraciflua (5) Summer



Acer ginnala (4) Leaf detail

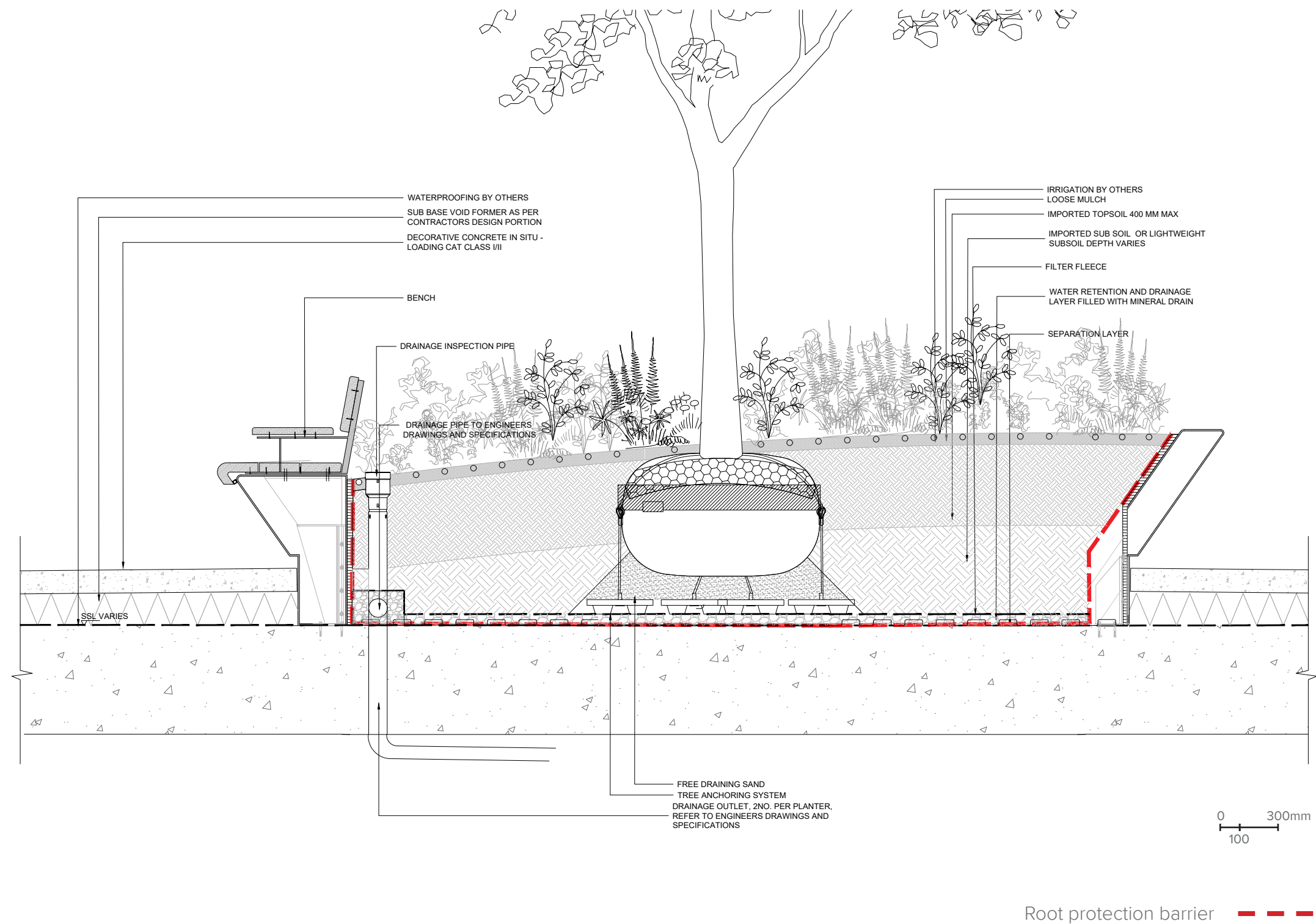


Liquidambar styraciflua (5) Leaf detail

2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - TYPICAL SOFT LANDSCAPE DETAILS

Gustafson
Porter +
Bowman



2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - LANDSCAPE MAINTENANCE

The future maintenance of the public space is important to meet the project aims and the client understands what will be required. A high level overview of the maintenance activities expected include

Trees
The species have been selected to provide a variety of character around the buildings. The multistems are slow growing and will retain their character with careful pruning to avoid overcrowding of the branches. The *Liquidambar styraciflua* is a large tree with columnar shaped crown. It has been selected to avoid overspreading beside the building but annual inspections will be undertaken and any pruning to mitigate this undertaken.

Hedges
The planting mixes include evergreen hedge varieties to provide habitats and year round structure and colour. These will be inspected and cut twice a year to retain shape and size.

Perennial Planting Mixes
The perennial planting mixes will be cut back annually according to the species. Overcrowding will be managed and an annual replacement strategy for dead stock maintained.

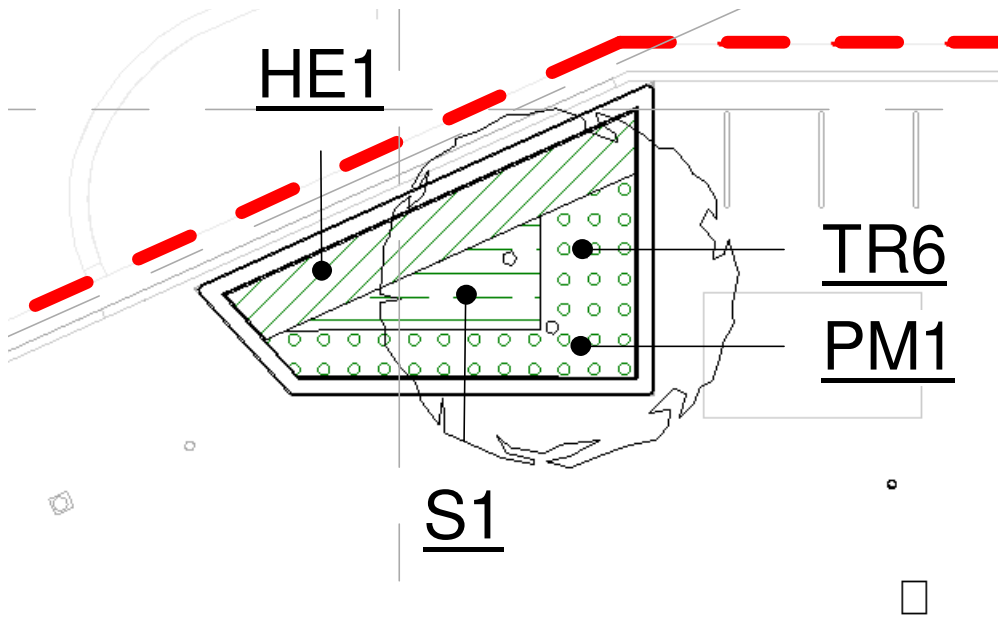
LANDSCAPE MANAGEMENT PLAN_SPACE HOUSE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GENERAL OPERATIONS												
Plant Replacement	*	*	*	*	*					*	*	*
Productive Plant Replacement	*	*	*	*	*					*	*	*
Water (by hosepipe/irrigation system)				*	*	*	*	*	*			
Refirming	*	*	*	*	*	*	*	*	*	*	*	*
Removal of Litter from planting areas only	*	*	*	*	*	*	*	*	*	*	*	*
Pest & Disease Control (when required)	*	*	*	*	*	*	*	*	*	*	*	*
Plant Support (check adjust and replace)	*	*	*	*	*	*	*	*	*	*	*	*
General Pruning (dependent on species)	*	*	*	*	*	*	*	*	*	*	*	*
OPERATION TO TREES												
Slow Release Fertiliser			*				*					
Weed Control	*	*	*	*	*	*	*	*	*	*	*	*
Tree Pruning and Shaping	*	*				*	*	*		*		
Core Testing		*	*	*	*	*	*	*	*	*	*	
Watering (by hosepipe/irrigation system)				*	*	*	*	*	*			
Pest and Disease Treatment			*	*	*	*	*	*	*	*		
OPERATIONS TO SHRUB/HERBACOUS AREAS												
Slow Release Fertiliser			*				*					
Weed Control - Cultivation	*	*	*	*	*	*	*	*	*	*	*	
Pruning (exact timing dependent on species)	*	*	*	*	*	*	*	*	*	*	*	
Removal of Fallen Leaves									*	*	*	
IRRIGATION SYSTEM												
Start-up irrigation system			*									
Check operation status of irrigation			*	*	*	*	*	*	*			
Interim health check by specialist contractor						*						
Winter Shutdown										*		

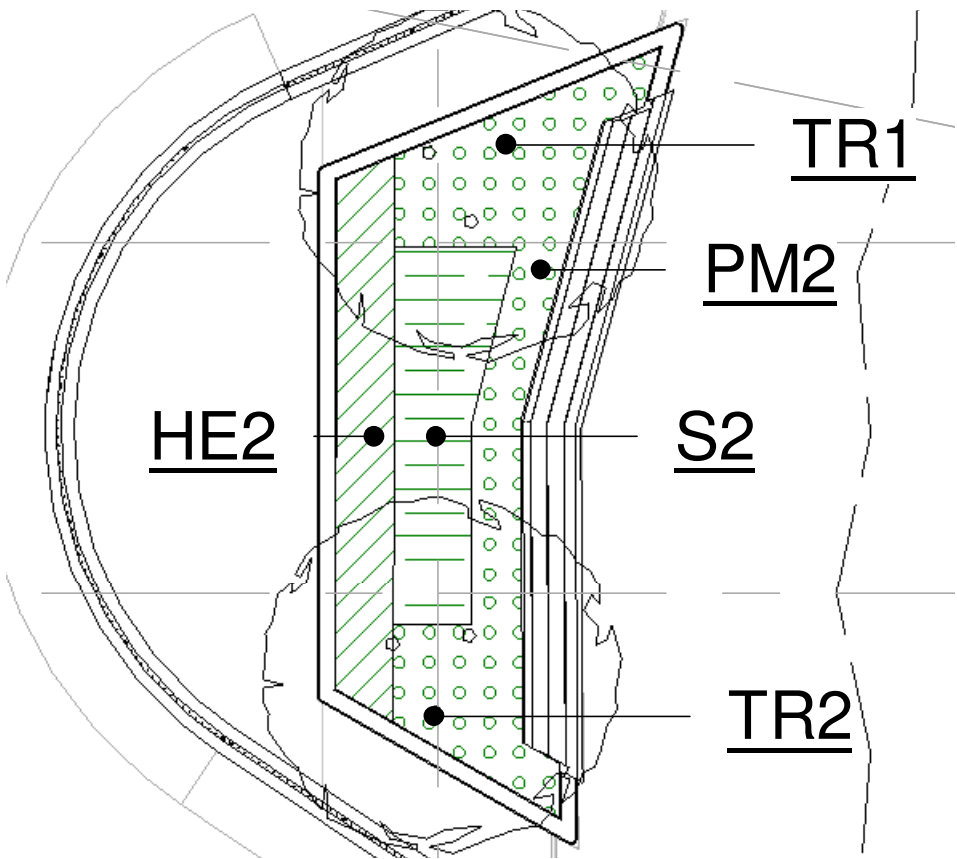
2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - PLANTING/TREE PLAN

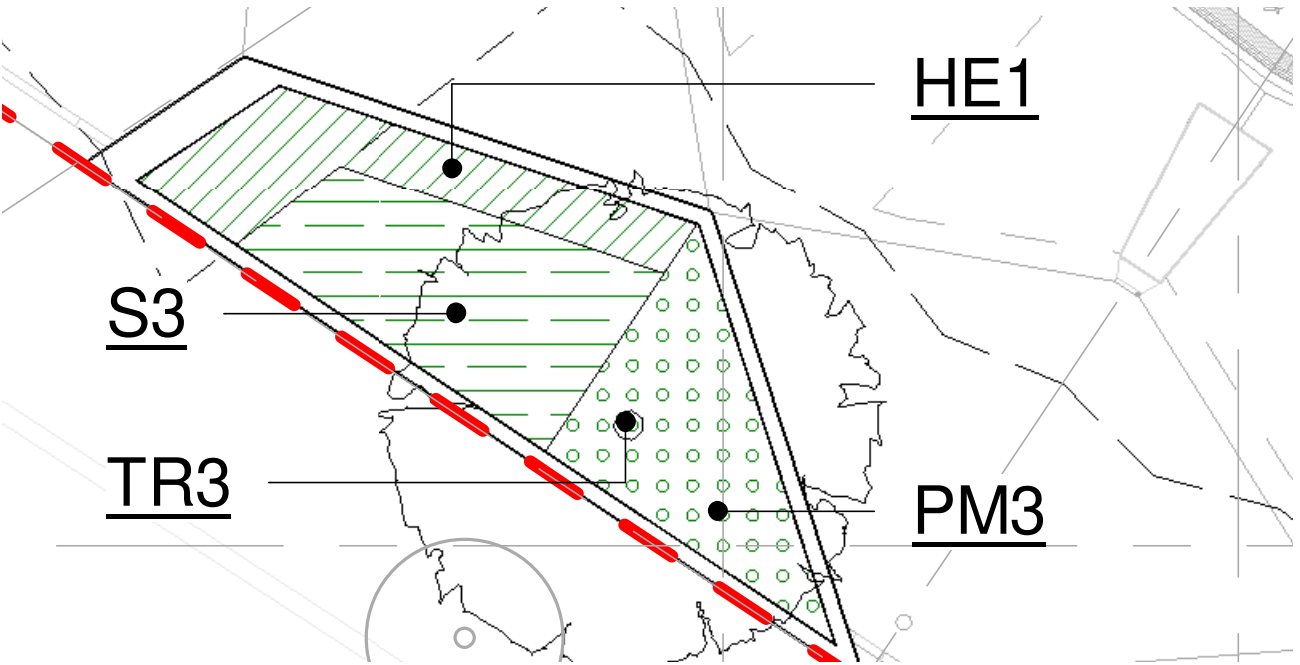
PLANTER 1



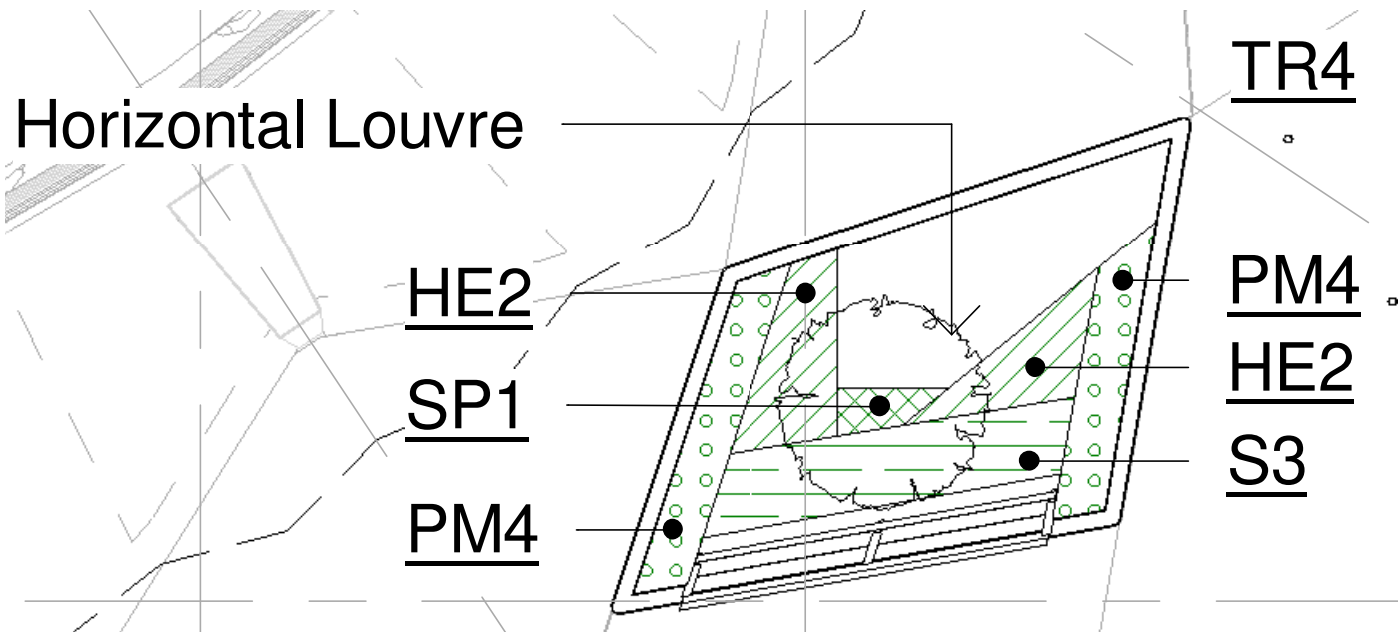
PLANTER 2



PLANTER 3



PLANTER 4

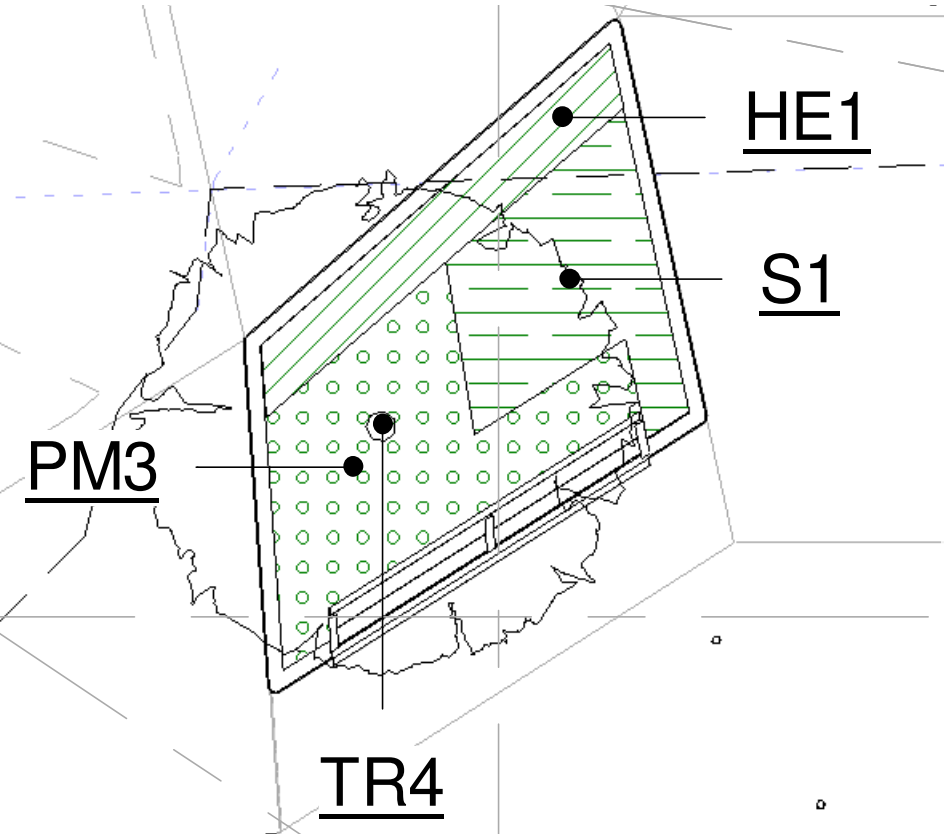


Key on the next page >

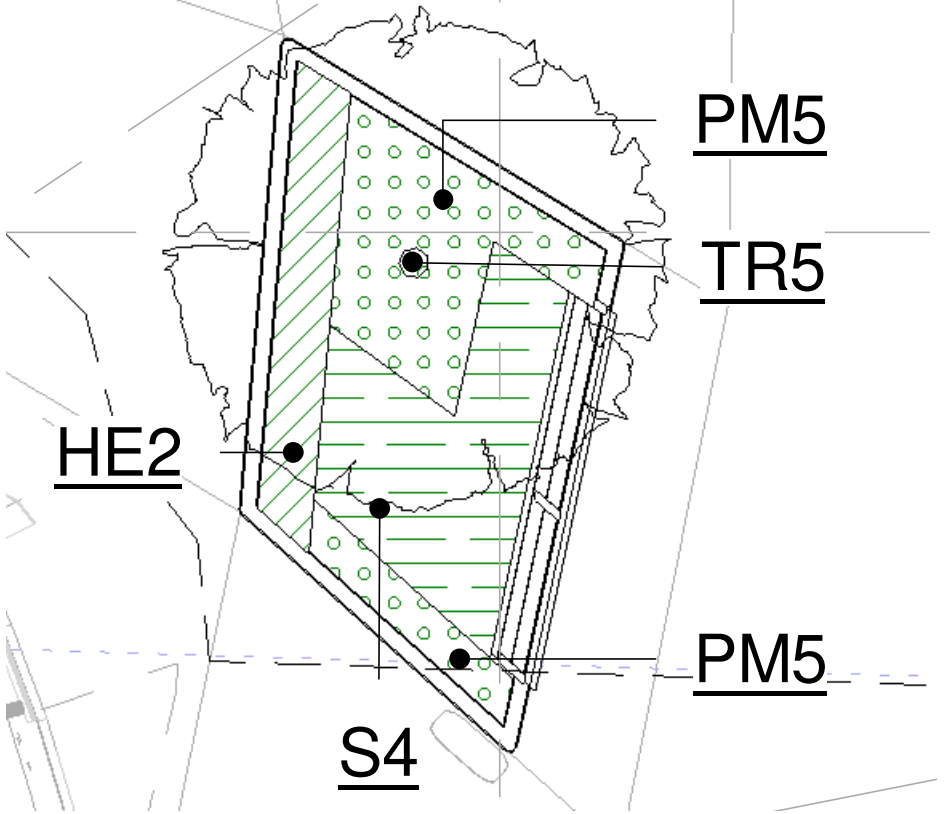
2.4 LANDSCAPE PROPOSALS - SOFT LANDSCAPE

PROPOSAL - PLANTING PLAN

PLANTER 5



PLANTER 6

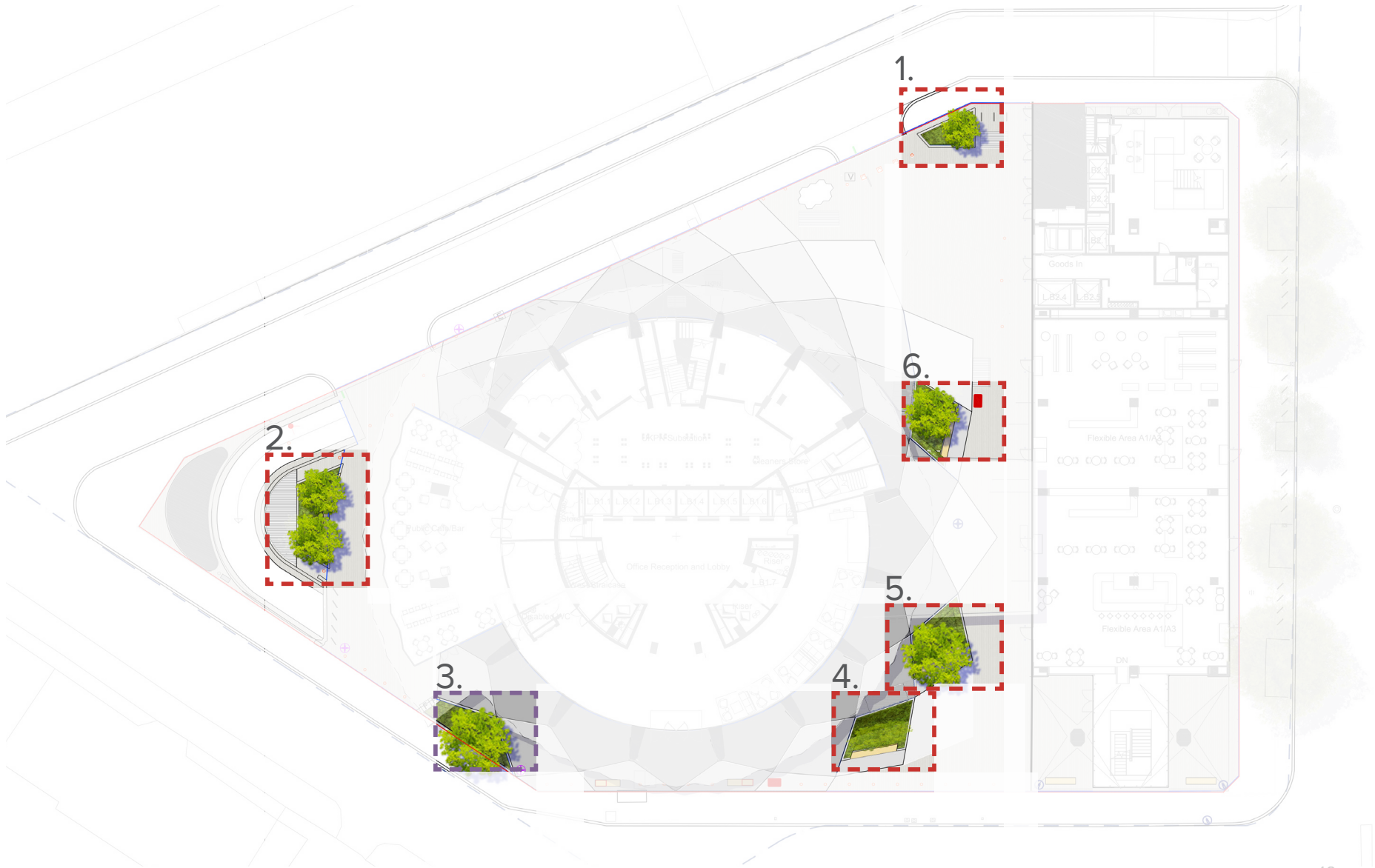


KEY

- Site Boundary
- HE1/HE2/HE3/HE4 - Evergreen Hedge
- PM1/PM2/PM3/PM4/PM5 - Perennial/bulb Mix
- S1/S2/S3 - Shurbs
- SP1 - Specimen Shrub

Trees

- TR2 - Multistem as per Tree Schedule
- TR3 - Multistem as per Tree Schedule
- TR4 - Single stem as per Tree Schedule
- TR5 - Single stem as per Tree Schedule
- TR6 - Multistem as per Tree Schedule
- Existing tree



3.0 SUMMARY

The landscape design has established parameters and strategies to service the building through the public realm, and integrate all necessary infrastructure while still achieving the striking paving design. Through the design development the detail of each of these strategies has been developed further to ensure full coordination across the landscape proposals.

The material palette proposed has been reviewed and detailed with respect to the loading requirements of the external realm. This performance requirement in turn has informed a language of modular paving sizes that transition from smaller scale to the north where most vehicle movements are expected, to large paving within the predominantly pedestrian zones in the sunnier southern edge.

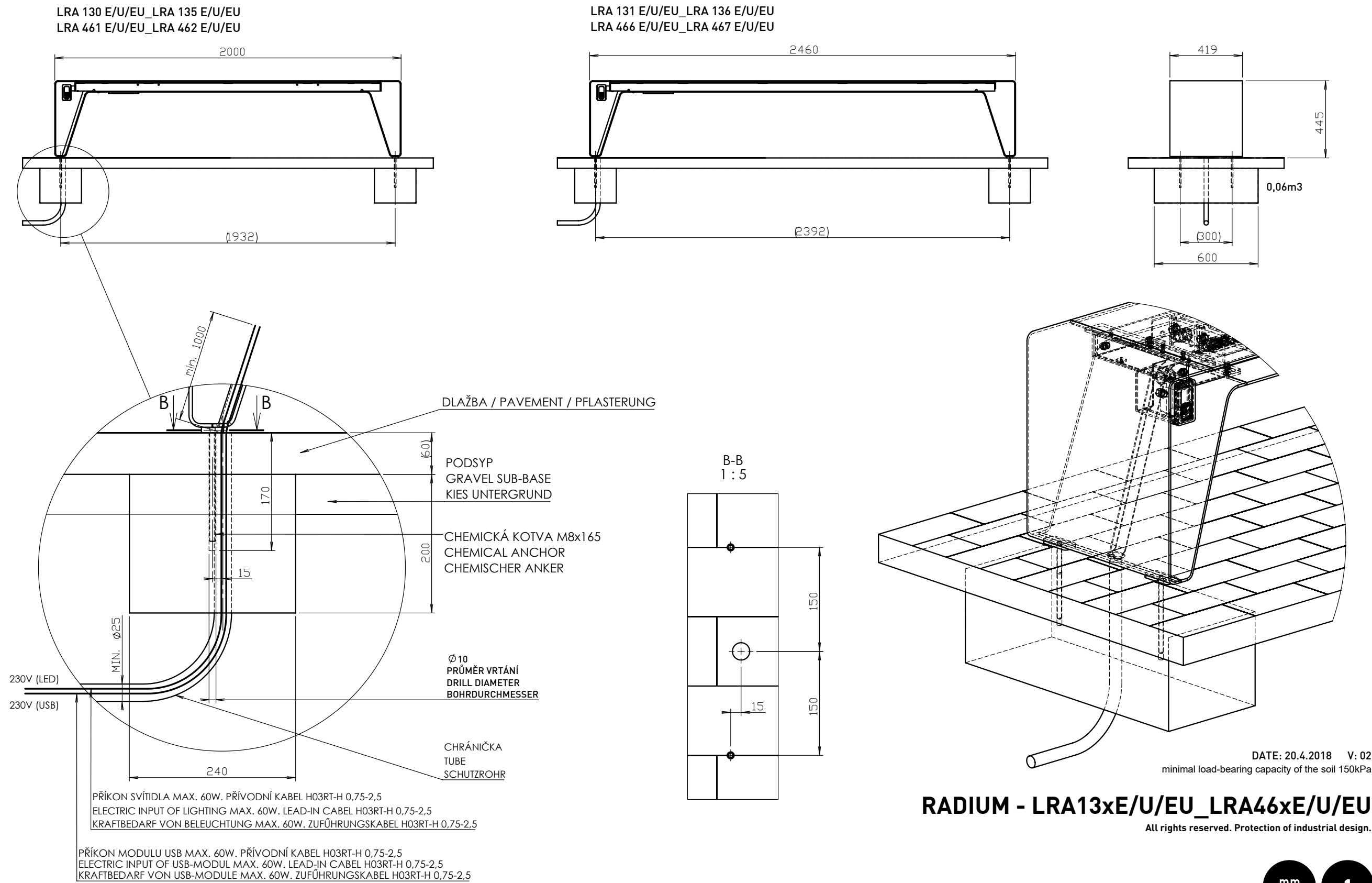
The landscape design manages and mediates the high pressure demands of a small site above basement. Ventilation, security, vehicle movements and structural constraints have all been developed and coordinated to the highest standards of public realm design.

APPENDIX

4 APPENDIX

RADIUM BENCH - DATA SHEET - Available at <https://www.mmcite.com/en/radium#lra115-130-131>

Gustafson
Porter +
Bowman



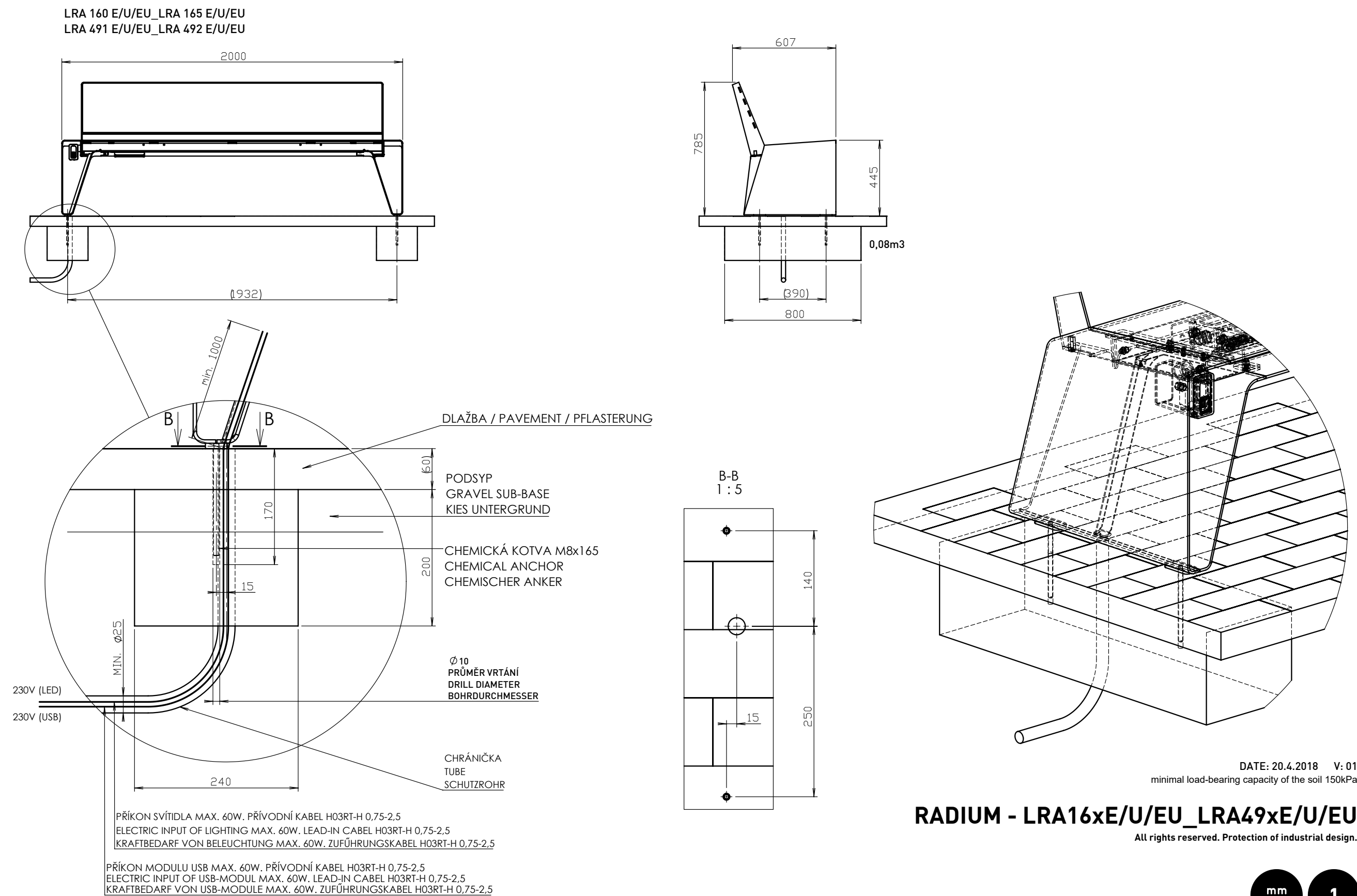
RADIUM - LRA13xE/U/EU_LRA46xE/U/EU

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Rozměry výrobků mají informativní charakter. Výrobce si vyhrazuje právo na změnu technické specifikace bez předchozího upozornění. Rozměry spodní stavby a způsob osazení výrobku jsou závazné. Minimální únosnost základové půdy 150kPa. Rozteče kotev rozměřovat dle rozměrů dodaného výrobku.
All product sizes have an informative character. The producer reserves the right to amend the technical specification at any time without previous warning. The size of foundation baseplate and the method of mounting of the product are imperative. Minimal load-bearing capacity of the soil 150kPa. Anchor spacing measure out by measurements of supplied product.
Die Abmessungen der Produkte sind informativ. Der Hersteller behält sich das Recht an Änderungen der technischen Spezifikationen vor, ohne vorher darauf hinzuweisen. Abmessungen der Fundamentierung – Unterbau und Art des Produkteinbaus sind verbindlich. Minimum tragfähigkeit des Bauuntergrundes 150 kPa. Ankerabstand gemäß der gelieferten Produktabmessungen dimensionieren.
Dimensions des produits sont à titre informatif seulement. Le fabricant se réserve le droit de modifier les spécifications techniques sans préavis. Dimensions des fondations et manière de l'implantation du produit sont obligatoire. La capacité portante du sol 150 kPa (minimale). Ancre écartement dimensions à partir des dimensions du produit livré.
Las dimensiones de los productos tienen carácter informativo. El fabricante se reserva el derecho de cambio de la especificación técnica sin aviso previo. Tanto las dimensiones de las bases de cimentación como el sistema de fijación son inalterables. Capacidad portante mínima del suelo 150kPa. Hay que medir el espaciamiento de anclajes según las dimensiones del producto suministrado.

4 APPENDIX

RADIUM BENCH - DATA SHEET - Available at <https://www.mmcite.com/en/radium#lra160>

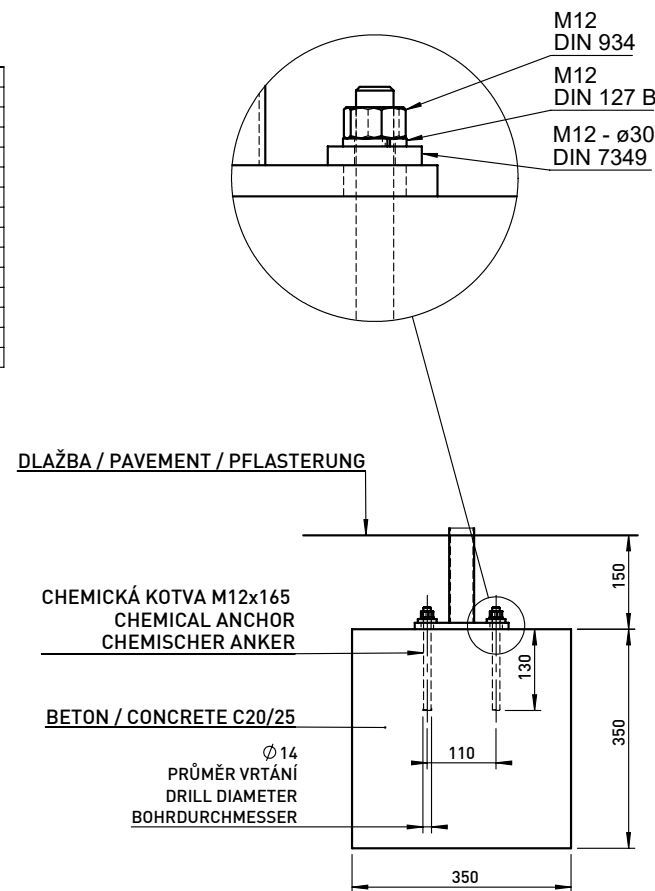
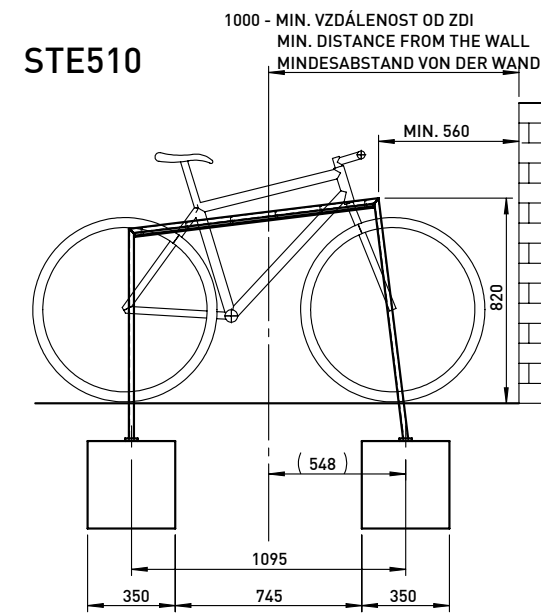
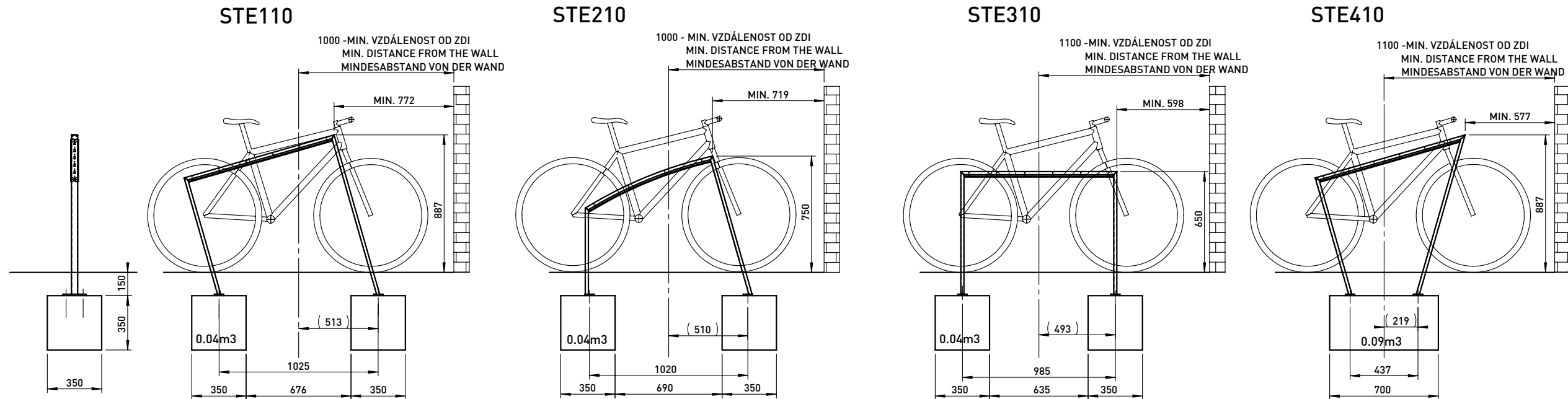


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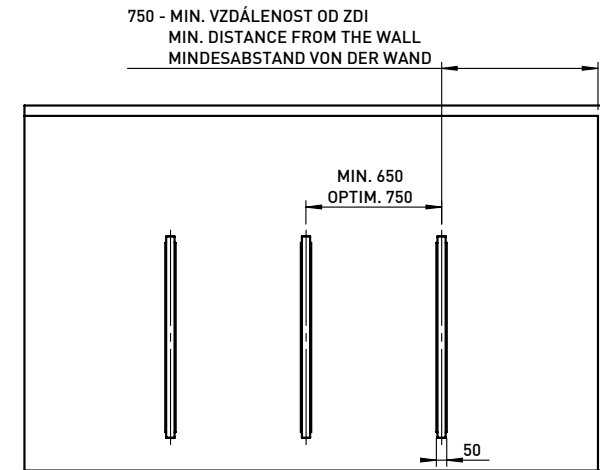
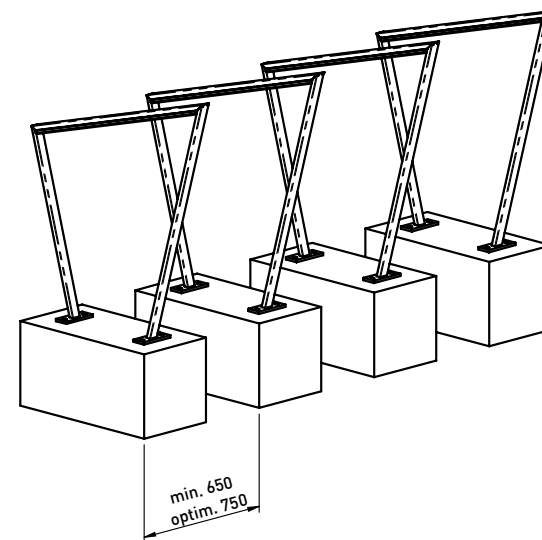
4 APPENDIX

STE 110 BYCICLE STAND - DATA SHEET

Gustafson
Porter +
Bowman



DOPORUČENÉ VZDÁLENOSTI RECOMMENDED DISTANCE EMPFOHLENE ABSTAND



DATE: 15.5.2019 V: 05
dimmmensions in mm

STE110, 210, 310, 410, 510 - EDGETYRE

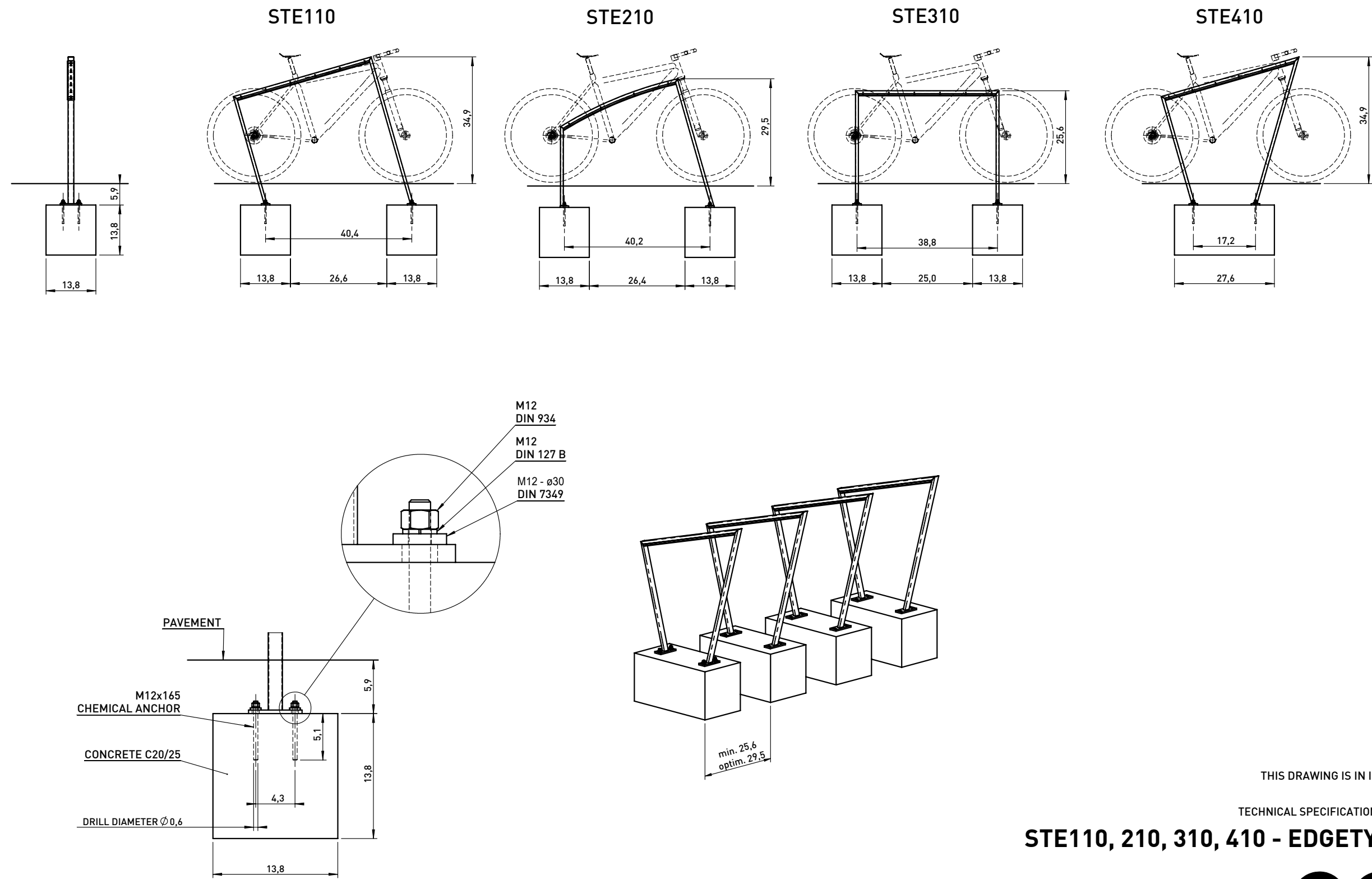
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4 APPENDIX

STE 110 BYCICLE STAND - DATA SHEET



THIS DRAWING IS IN INCHES

TECHNICAL SPECIFICATIONS 3/5

STE110, 210, 310, 410 - EDGETYRE



mmcite.com

All product sizes have an informative character. The Producer reserves the right to amend the technical specification at any time without previous warning. The size of foundation baseplate and the method of mounting of the product are imperative. Anchor spacing measure out by measurements of supplied product.

4 APPENDIX

MARSHALLS CONSERVATION CONCRETE PAVER - DATA SHEET



Marshall's
Creating Better Spaces

Landscape House, Premier Way,
Lowfields Business Park,
Elland HX5 9HT
Tel: 03704 11 22 33

T: 01422 312000
F: 01422 312943
E: grouptechnicalservices@marshalls.co.uk
W: www.marshalls.co.uk/commercial



Marshall's
Creating Better Spaces

Landscape House, Premier Way,
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Tel: 03704 11 22 33

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E: grouptechnicalservices@marshalls.co.uk
W: www.marshalls.co.uk/commercial

Conservation X Textured 600 x 200 x 50

Date Created: 13/04/21



*Natural products are manufactured from aggregates sourced locally to the works and contain no pigmentation, therefore colour variation between products from different works is possible.

Conservation X is a versatile paving collection that provides a wider choice of colours, sizes and textures to bring a modern and contemporary feel to spaces requiring greater design flexibility.

This range is known for its unique blend and mix of natural crystalline aggregates that are uniquely exposed to achieve a granite-look finish. Having a much lower carbon footprint than granite paving, Conservation X is manufactured in the UK to the best quality standard and contains up to 48% recycled material, making it both durable and sustainable.

Conservation X now comes in new sizes, including the popular linear format from our previous Celestia range, and an improved colour palette of Silver Grey and Charcoal and the new Blue Grey and Cream. Achieve your full-scheme design using a combination of both paving and block options and coordinating ancillary products, see the full Conservation X range here.

DESCRIPTION	
Appearance	Solid unit with textured surface
Manufacturing Process	Hydraulically pressed concrete
Base Raw Material	Pigmented & unpigmented concrete utilising specially selected aggregates
Governing Manufacturing Standards	All data where relevant to be established in accordance with BS EN 1339 : 2003
Type	Solid unit with textured surface
CE Marking/DOP	https://www.marshalls.co.uk/dop
NBS Specification	Q25 315,Q25 315

Conservation X Textured 600 x 200 x 50

Date Created: 13/04/21

PHYSICAL PROPERTIES	
Work Dimensions (mm)	598 x 198
Nominal Dimensions (mm)	600 x 200 x 50
Tolerances on Work Dimensions (mm)	Length ±2mm, width ±2mm, thickness ±3mm
Abrasion Resistance (mm)	≤ 23mm (Wide Wheel Abrasion Test)
Durability (Freeze-thaw)	≤ 1.0 kg/m² as a mean with no individual value > 1.5 kg/m²
Material Density	2300 kg/m³ (typically)
Slip/Skid Resistance (polished)	Mean polished skid resistance value (PSRV) : > 45
Slip/Skid Resistance (unpolished)	Mean unpolished skid resistance value (USRV) : > 45.
Thermal Conductivity (K value)	Design data as defined to BS EN 13369 : 2013
Transverse/FlexuralSplit/Breaking	Characteristic bending strength of 4.0 MPa with no individual result less than 3.2 MPa

SPECIFICATION	
Approx unit weight (kg)	14
Emission of Asbestos	No content
External Fire Performance	Deemed to satisfy when used for roofing
Reaction to fire	Class A1 when used for internal flooring
Materials Control	CE Marked to BS EN 1339 : 2003 Concrete Flags

SUSTAINABILITY	
Breeam	These units can achieve an "A" rated system when used in conjunction with the correct sub-base components
Carbon Footprint	20 kg CO2 m²

APPLICATION	
Suitability	Laid in accordance with BS7533-4 : 2006

SITE WORKS	
Coverage (m2)	2.4

SUPPLY	
Units Per Pack	20
Av. pack weight (kg)	275
Packaging	All packs are suitable for crane off-load

FURTHER INFORMATION	
Cleaning & Maintenance	Available on request
Efflorescence	Any product containing cement during its early life may exhibit a temporary white discolouration known as efflorescence. This is not a product fault and will gradually disappear with exposure to natural weathering and trafficking
Weathering	It should be appreciated that with all products weathering and site conditions can cause shade variation to appear across the surface of individual units. This does not in any way affect the performance of the units and any such variation will diminish over a period of time as the product matures.
Product Evolution	The evolution of new product design is continuous and information is subject to change without notice. Customers should check with the supplier to ensure that they have the latest details. Marshalls reserve the right to amend the technical information as deemed necessary and in accordance with the relevant national and international standards without notice

Contact Us	For technical information on the design, specification and construction when utilising the product, contact Group Technical Services on 0370 411 2233
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4 APPENDIX

KENT FLAT TOP BOLLARD - DATA SHEET

KENT FLAT TOP
BOLLARD KFTB101/3

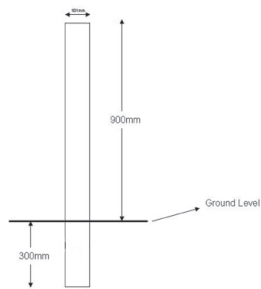
Specify:

Kent Flat Top Bollard KFTB101/3; 1200mm Overall Height; 3mm thick wall; Grade 316L Stainless Steel; Bright Satin Finish; Cast in 300mm Below Ground.

The Kent Flat Top Bollard is manufactured from Grade 316L Stainless Steel, 101mm diameter with a 3mm thick wall. It has a Bright Satin Finish as standard but can have 4 other finishes. The standard length is 1200mm, with 300mm being cast below ground, giving 900mm above ground. It has laser-cut pull out sprags, along with a perforation to receive the lock from a removable socket. This means this one bollard can be used as a fixed bollard or it can be easily made removable with a NAL/IPL socket.

Features

- Bright Satin Finish
- Laser cut pull out sprags
- 3mm thick flat top
- 3.05mm wall thickness
- Grade 316L Stainless Steel

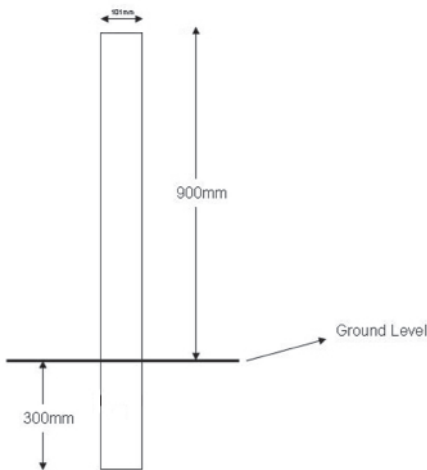


KENT FLAT TOP
BOLLARD KFTB101/3



Product Dimensions:

Reference	Height	Diameter	Wall thickness
Kent Flat Top Bollard KFTB101/3	1200mm	101mm	3.05
Kent Flat Top Bollard KFTB114/3	1200mm	114mm	3.05
Kent Flat Top Bollard KFTB141/3	1200mm	141mm	3.40
Kent Flat Top Bollard KFTB168/3	1200mm	168mm	3.40
Kent Flat Top Bollard KFTB219/3	1200mm	219mm	3.76



4 APPENDIX

KENT FLAT TOP BOLLARD - DATA SHEET

KENT FLAT TOP BOLLARD KFTB101/3

Bollard Installation

Visible Flange:

- Ensure that the surface to which the bollard is mounted is sufficiently strong.
- Position the bollard in the correct location. Mark the holes and drill into the surface.
- Place the bollard directly over the holes and then fix the bollard to the surface using M12 bolts.
- Note that fixings need to be fully embedded in concrete not just the paver blocks
- Always consult with engineers specifications – we recommend a minimum of 2 times the root length and

Buried Flange:

- Cast foundations - Always consult with engineers specifications – we recommend a minimum of 2 times the buried root length (300mm x 2 = 600mm) and 3 times the bollard diameter (eg 3 x 101mm = 303mm)
- Once concrete is set follow steps 1-3 as per flange detail above.
- Replace slabs to finish of bollard

Cast In:

- Cast foundations - Always consult with engineers specifications – we recommend a minimum of 2 times the buried root length (300mm x 2 = 600mm) and 3 times the bollard diameter (eg 3 x 101mm = 303mm)
- Position your bollard in the correct position ensuring correct height and then prop the stand securely.
- Fill the hole with concrete up to the level of the underside of the pavement ensuring a good smooth surface finish.
- Remove props, replace the paving slabs, and ensure that they are well bedded in.

For Ram Raid Bollards again use consulting engineer's specification. Kent recommends minimum of 4 times the buried root length (300mm x 4 = 1200mm) and 6 times the bollard diameter (eg 6 x 101mm = 606mm)

For Removable Bollards and Fold Down Coffin Bollards see their respective data pages



KENT FLAT TOP BOLLARD KFTB101/3

Overview

The Kent Flat Top Bollard KFTB101/3 is manufactured from 101mm diameter stainless steel with a 3mm thick wall. Grade 316L Stainless Steel as standard and Bright Satin Finish, giving an Ra value of less than 0.5. Standard length is 1200mm, with 300mm being cast below ground, giving 900mm above ground. Laser-cut pull out sprags, along with a perforation to receive the lock from a removable socket, means this one bollard can be used as a fixed bollard or can be easily made removable with a NAL/IPL socket.

Maintenance

Stainless Steel:

Clean the stainless steel components using warm water with a mild detergent with a non-abrasive cloth or sponge. Heavier stains may require the use of a nylon-scouring pad or a stainless steel cleaner. To remove paint or graffiti use a cloth and Alkaline or solvent paint strippers according to type of paint. In the case of a bead blasted finish, where abrasive cleaning is required, always use a random circular rubbing action with a cloth. In the case of brushed finishes the surface consists of uniform fine 'scratches' running in one direction so where abrasive cleaning is required always use a straight back and forward rubbing action in the direction of the grain using soap and warm water. Rust spots or 'tea stains' can occur on the surface of the material, these are normally caused by contamination from ordinary mild steel, particularly in areas where construction work has been undertaken. Such stains can be removed using Rust Remover 410. In cases where the surface is severely stained because of severe environmental conditions or scratched due to misuse, it may still be possible to restore the original finish using chemicals such as Oxalic Acid solution. There are many stainless steel polishes available to enhance the surface finish. We recommend Mister Stainless Ltd. as a provider for stainless steel cleaning products.

4 APPENDIX

KENT COFFIN BOLLARD - DATA SHEET

1 KENT STAINLESS: STREET FURNITURE

KENT COFFIN BOLLARD - KCB101/3/FT



Specify:

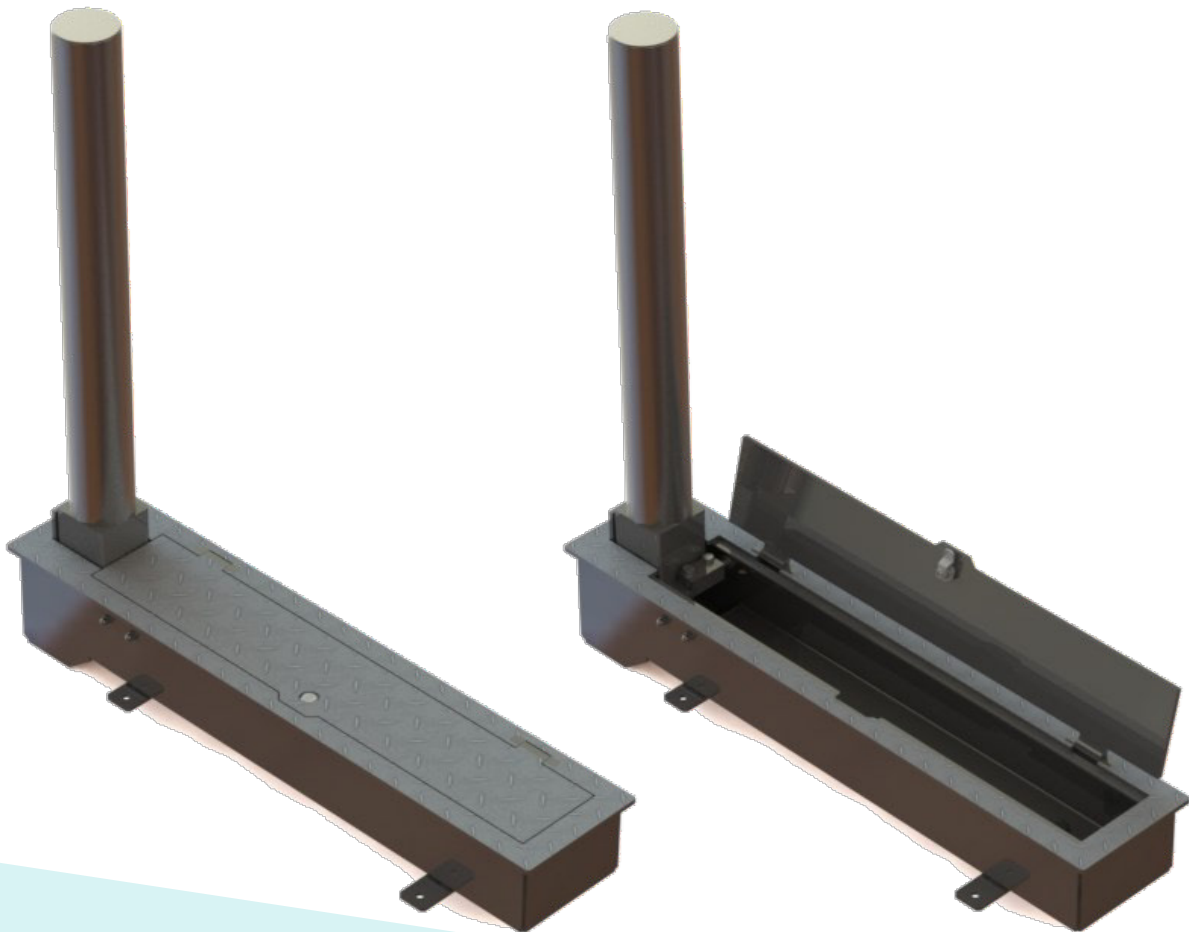
Kent Coffin Bollard KCB101/3/FT; Kent Coffin Bollard KCB-KFTB-101/3; 900mm Overall Height above GL; 3mm thick wall; Grade 316L Stainless Steel; Bright Satin finish; 174mm deep storage chamber; B125 Chequer loading lid.

Description:

The Kent Coffin Bollard is manufactured from Grade 316L Stainless Steel, 101mm diameter with a 3mm thick wall. It has a Bright Satin Finish as standard. The standard Height above GL is 900mm with a 174mm deep Coffin. The Coffin itself is . The lid of the chamber is manufactured for B125 loading. The cover is Chequer Plate for slip resistance and the chamber contains a drainage outlet connection. The Dome Top Bollard (KDTB-101/3) can be changed to suit to other Bollard options.

Features:

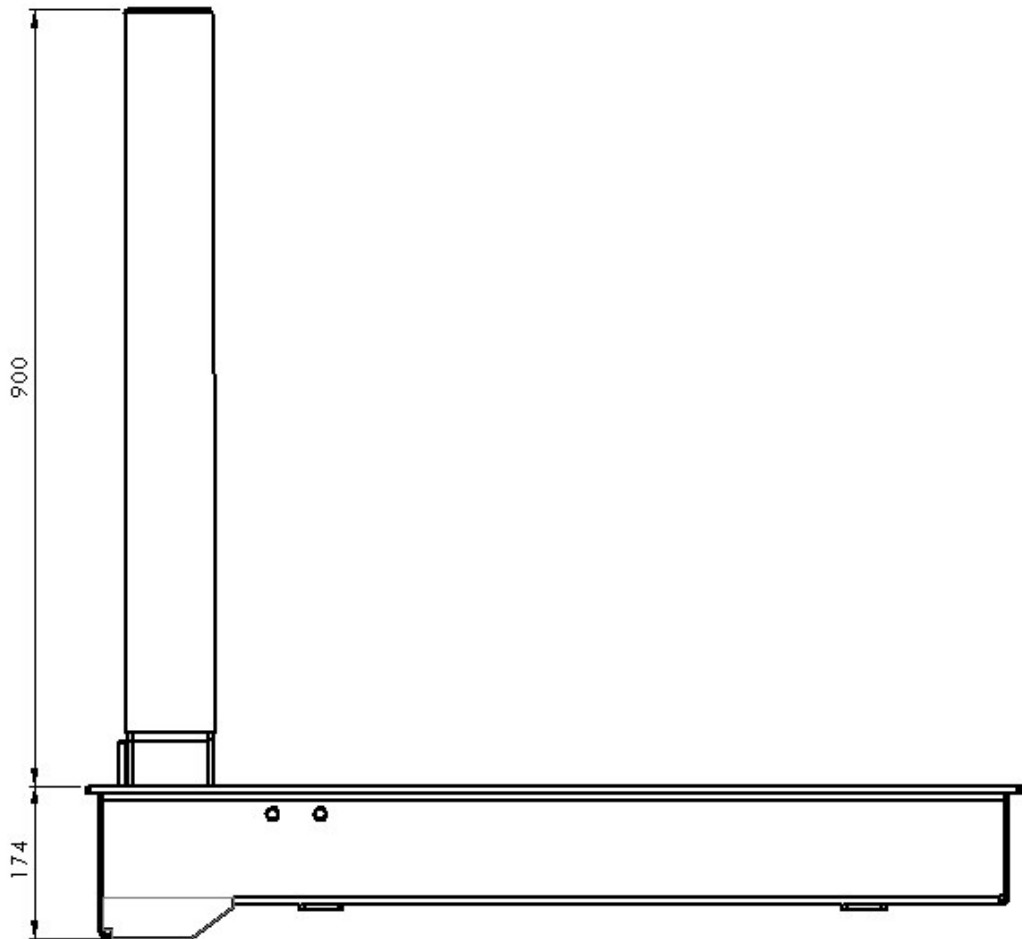
- Grade 316 Stainless steel
- Fits 101mm dia Bollard
- Easily detached from Coffin if damaged
- Satin Finish 320 Grit Polish
- Chequer plate top on Coffin
- Multiple Bollard caps available



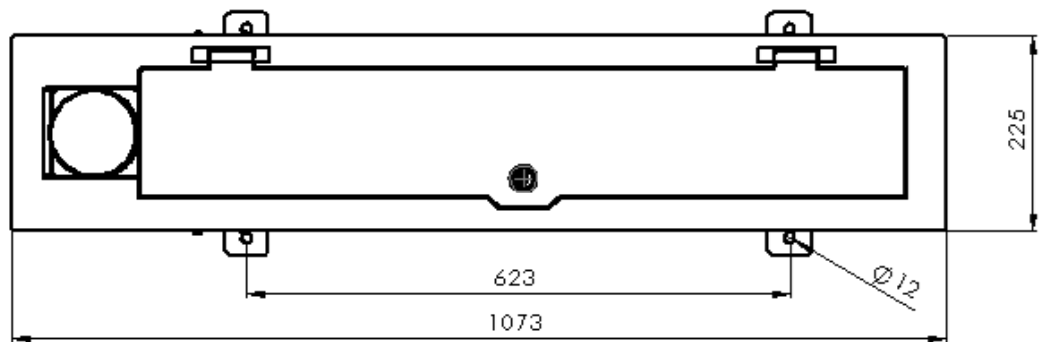
KENT STAINLESS: STREET FURNITURE

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KENT COFFIN BOLLARD - KCB101/3/FT



Product Code	Height Above GL	Depth	Width	Length	Bollard Dia
Kent Coffin Bollard - KCB101/3/FT	900mm	174mm	225mm	1073mm	101mm



4 APPENDIX

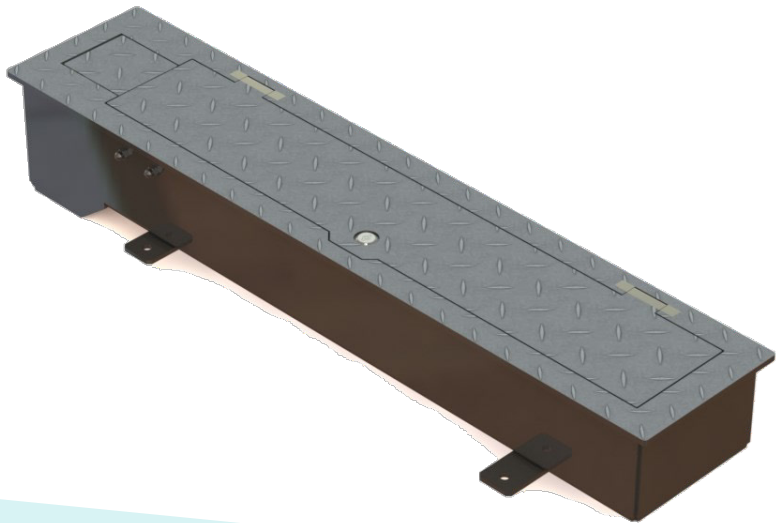
KENT COFFIN BOLLARD - DATA SHEET

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KENT COFFIN BOLLARD - KCB101/3/FT		

Specify:

Coffin Specification:
Kent Coffin Bollard - KCB 101/3/FT; 225mm Width, 1074mm Height, 1073mm Length;

Bollard Specification:
Bollard 101/3/FT, 101mm Dia, FT(Flat Top), Two x 15mm Recessed Reflective Strips, Satin Finish, Grade 316 Stainless Steel



25mm Recessed Reflective Strip, Half Red and White Diamond Grade Tape

Kent	KENT STAINLESS: STREET FURNITURE	4
KENT COFFIN BOLLARD - KCB101/3/FT		

Maintenance of Stainless Steel

Clean the stainless steel components using warm water with a mild detergent with a non-abrasive cloth or sponge. Heavier stains may require the use of a nylon-scouring pad or a stainless steel cleaner.

To remove paint or graffiti use a cloth and Alkaline or solvent paint strippers according to type of paint. In the case of a bead blasted finish, where abrasive cleaning is required, always use a random circular rubbing action with a cloth.

In the case of brushed finishes the surface consists of uniform fine ‘scratches’ running in one direction so where abrasive cleaning is required always use a straight back and forward rubbing action in the direction of the grain using soap and warm water.

Rust spots or ‘tea stains’ can occur on the surface of the material, these are normally caused by contamination from ordinary mild steel, particularly in areas where construction work has been undertaken. Such stains can be removed using Rust Remover 410.

In cases where the surface is severely stained because of severe environmental conditions or scratched due to misuse, it may still be possible to restore the original finish using chemicals such as Oxalic Acid solution. There are many stainless steel polishes available to enhance the surface finish.

We recommend Mister Stainless Ltd. as a provider for stainless steel cleaning products.



4 APPENDIX

KENT COFFIN BOLLARD - DATA SHEET

5	KENT STAINLESS: STREET FURNITURE	 Kent STAINLESS
KENT COFFIN BOLLARD - KCB101/3/FT		

Installation of Coffin

Coffin Bollard

- 1. Remove Pavement and excavate a hole to minimum dimensions of L1073 x W225mm x D143mm.
- 2. The Coffin Bollard should be bolted with 4no. M10 bolts into a existing Concrete block under ground .(Size Specified by engineer)
- 3. The drainage point should not be set into concrete. This should be connected to a drain-age system or have efficient space to disperse water.
- 4. Re-instate the concrete around the base of the Coffin.
- 5. Apply the paving and make sure it is well bedded in.

