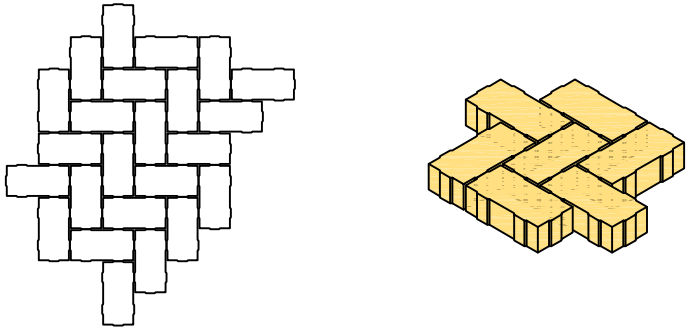
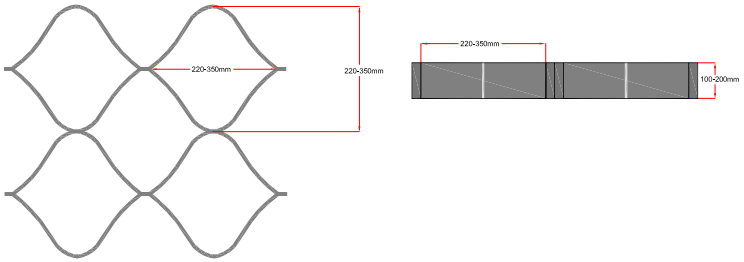
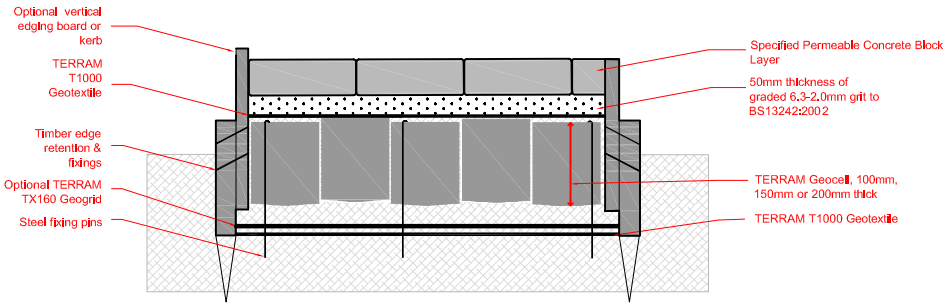


1 **Plan and Isometric View of Porous Surface - Permeable Concrete Blocks**
Scale : N.T.S.



2 **Geocell Detail: TRP Sub-Base Layer**
Scale : N.T.S.



3 **Tree Root Protection (TRP): Typical Construction Profile With Permeable Concrete Blocks**
Scale : N.T.S.

This field guide is provided as an aid to assessing the mechanical stabilisation requirements in commonly encountered site conditions.Fiberweb Geosynthetics ltd accepts no responsibility for any loss or damage resulting from the use of this guide.

Please note that the information above is given as a guide only. All sizes and weights are nominal figures and may vary to what is published. Fiberweb Geosynthetics ltd cannot be liable for damage caused by incorrect installation of this product. Final determination of the suitability of any information or material for the use contemplated and the manner of its use is the sole responsibility of the user and the user must assume all risk and responsibility in connection therewith.

DESIGN NOTES:

Note 1: BS5837 advises that any new permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the TRP area.
Note 2: Geocells must be filled with clean, open graded angular aggregate, normally in the particle size range of 5mm - 45mm. Clean 4/20 or 4/40 stone or a reduced-fines DoT Type 1X or Type 3 may be acceptable. Single sized, rounded aggregate or DoT Type 1 should not be used.
Note 3: TERRAM Geocell layer thickness and inclusion of a geogrid will depend upon subgrade soil strength and proposed traffic loadings.
Note 4: Specific advice on CBR% strengths, ground conditions and construction over the weak ground with a CBR less than 1% is available from TERRAM. CBR% = California Bearing Ratio, a measurement of subgrade soil strength.
Note 5: Soil compaction will severely affect the trees ability to take up water and oxygen; similarly, raising soil levels around trees will deprive roots of oxygen and cause stress and dieback.
Note 6: In most cases 80% - 90% of a trees root system are in the upper 1m of soil and the small fibrous tree roots are the most important to a tree's health. The fine roots enable transport of oxyen, water and nutrient to the tree via the larger roots which also anchor the tree and provide stability. Severing only a small proportion of the fine surface root structure can severely affect the tree, causing stress, die back and loss of stability.

Table 1 : Geocell TRP thickness

APPLICATION/LOAD	CBR (%) STRENGTH OF SUBGRADE SOIL (see Chart 1)	GEOCELL/sub-base thickness (mm)	TERRAM GEOGRID reinforcement layer
Pedestrian/Cycles	3 < 1 < 3	100mm 100mm	TX160 TX160
Cars/Light vehicle	3 < 2 < 3 1 < 2	150mm 150mm 200mm	TX160
HGV's	3 < 2 < 3 1 < 2	200mm 200mm 300mm	TX160 TX160

Table 2 : Geocell Specifications

GEOCELL GRADE	CELL DIAMETER AND DEPTH	WALL PERMEABILITY (Ll/m2-s)	JOINT BOND
25/10	250mm x 100mm	20	Chemical
25/15	250mm x 150mm	20	Chemical
22/20	220mm x 200mm	20	Chemical

Chart 1: Field guidance for estimating sub-grade strengths

Consistency	Indicator			Strength	
	Tactile (feel)	Visual (observation)	Mechanical (test)	CBR	CU
			SPT	%	kN/sqm
Very Soft	Hand sample squeezes through fingers	Man standing will sink > 75mm	<2	<1	<25
Soft	Easily moulded by finger pressure	Man walking sinks 50 - 70mm	2-4	Around 1	Around 25
Medium	Moulded by moderate finger pressure	Man walking sinks 25mm	4-8	1-2	40-75
Firm	Moulded by strong finger pressure	Utility truck ruts 10 - 25mm	8-15	2-4	40-75
Stiff	Cannot be moulded but can be indented by thumb	Loaded construction vehicle ruts by 25mm	15-30	4-6	75-150

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NOT FOR CONSTRUCTION

Geocell Tree Root Protection -
Permeable block paving surface
Specification Design and Installation Guidance