Attenuation Tank A
Top of tank - 10.55m
Invert level of tank - 9.65m
Size of tank - 10m x 10m
Area drained into tank - 2,044m²
Discharge rate - 5l/s

Attenuation Road 2
Lowest road level - 10.50m
Top of sub base - 10.30m
Maximum formation level - 9.40m
Area of porous paving - 362m²
Drained area - 2,568m²
Discharge rate - 5 l/s

Attenuation Tank B
Top of tank - 9.55m
Invert level of tank - 8.65m
Size of tank - 6m x 20m
Area drained into tank - 2350m²
Discharge rate - 5l/s

Attenuation Road 1A
Lowest road level - 9.95m
Top of sub base - 9.75m
Maximum formation level - 8.30m
Area of porous paving - 610m²
Drained area - 2313m²
Discharge rate - 9.3 l/s

HW1
Outfall invert level - 8.031
Discharge rate - 9.3 l/s

HW2
Outfall invert level - 7.922
Discharge rate - 3.3 l/s

Overflow Pond
Bed Level - 9.00m
Top of Bank - 10.00-10.45m
Max water level - 9.75m

Existing Pond
Drainage regime for pond to remain as exisitng with no additional flows from proposed developement discharging into pond

Attenuation Tank C
Top of tank - 9.60m
Invert level of tank - 8.70m
Size of tank - 3m x 26m
Area drained into tank - 1486m²
Discharge rate - 5l/s

Exisitng 600dia Highway Drain
Highway Drain discharges to exisitng pond on site and connection to remain unaltered

Exisitng 300dia Outlet Pipe
Relaid to suit proposed wetland area levels.

Attenuation Road 1C
Top of sub base - 9.36m
Maximum formation level - 8.16m
Area of porous paving - 748m²
Drained area - 1840m²
Discharge rate - 3.3 l/s

Existing watercourse to be filled in between points A & B

WHY TREE PROTECTION IS NEEDED

1) **Soil compaction kills roots-** caused by plant movement and storage of materials within protected areas.
2) **Trenching severs roots-** many small roots grow within the top 600mm of soil. Even the removal of the top 200mm can cause damage.
3) **Soil pollution kills roots-** Dripping fuel storage or cement washings can contaminate the soil resulting in root death.
4) **Raising & lowering levels kills roots-** the soil used to increase levels can compact the underlying soil (see point 1). Lowering levels will remove roots causing damage to the tree.
5) **Bark and branch damage-** bark removal and branch damage can allow disease and fungi into the tree.

The impact of any of the above can take years to show- trees can have huge reserves of food and water.

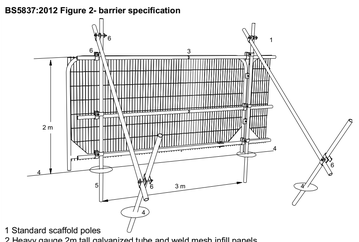
CONSTRUCTION EXCLUSION ZONE

Root protection areas (RPA) of retained trees within which all construction activity is restricted.

All trees that are being retained on site must be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers must be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection can be installed.

DEFAULT POSITION FOR THE TREE PROTECTION BARRIERS.

BS5837:2012 Figure 2- barrier specification

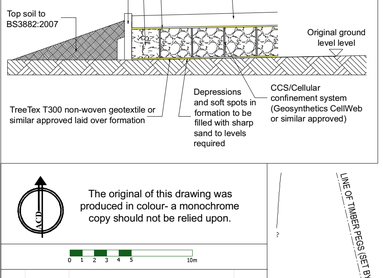


1 Standard scaffold poles
2 Heavy gauge 2m tall galvanized tube and weld mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6m)
6 Standard scaffold clamps

Examples of alternative barrier designs can be found in the method statement. Should an alternative design be more viable and appropriate, it must be agreed with the project arboriculturist before its implementation.

TEMPORARY FENCING
The fencing is used to protect areas of special detail. It is to be installed with the main tree protection fence and is only to be removed when the detail is installed as per the method statement & under the supervision of the project arboriculturist. It shall be weld-mesh panels on boots, secured to the ground with road pins (or similar).

NO-DIG SURFACE
Cellular confinement system (CCS) to be used to create this area of hard surface, above the existing ground level. Topsoil to be retained. Depth of CCS to be 50-75mm for pedestrian surfaces and 100-200 for vehicular surfaces. Surface to be porous to approved details and specifications. To be installed under arboricultural supervision. **All specifications subject to engineering design**.



The original of this drawing was produced in colour- a monochrome copy should not be relied upon.

0 1 2 3 4 5 10m

Rev	Date	Details	Drawn
A	06.04.2017	Layout revision	MW

ACD ENVIRONMENTAL

HEAD OFFICE
Rodbourne Rail Business Centre, Grange Lane,
Malmesbury, SN16 0ES
Tel: 01666 825646

Courtyard House, Mill Lane, Godalming, GU7 1EY
Tel: 01483 425714

Suite 6, Crescent House, Yonge Close, Eastleigh, SO50 9SX
Tel: 02382 026300

9 Brownlow Road, Cambridge, CB4 3NG
Tel: 07825 868054

Copyright of ACD. All rights described in Chapter IV of the Copyright, Designs and Patents Act 1988 have been generally asserted: 2015. Copyright of this plan remains with ACD until all fees have been paid in full.

Bellway

scheme: Horndean Road
Emsworth
client: Bellway
drawing: Tree Protection Plan
date: March 2017
scale: 1:250@A0
dwg no: BELL21129-03A Sheet 1 of 2
drawn: MW checked: AJB