Rochford District Council

Council Offices, South Street
Rochford Essex SS4 1BW
http://www.rochford.gov.uk
planning.applications@rochford.gov.uk / 01702 318191

Application for approval of details reserved by condition.
Town and Country Planning Act 1990
Planning (Listed Buildings and Conservation Areas) Act 1990

Publication of applications on planning authority websites.
Please note that the information provided on this application form and in supporting documents may be published on the Authority's website.
If you require any further clarification, please contact the Authority's planning department.

1. Applicant Name, Address and Contact Details

Title: Mr | First name: L | Surname: Trevellyan

Company name: Trevellyan Developments Limited

Street address: Estate Management Office, Greenhills Estate, Tilford Road
Town/City: Tilford
County: Surrey
Country: United Kingdom
Postcode: GU10 2DZ

	Country Code	National Number	Extension Number
Telephone number:			
Mobile number:			
Fax number:			

Email address:

Are you an agent acting on behalf of the applicant? (•) Yes ( ) No

2. Agent Name, Address and Contact Details

Title: Mr | First Name: Vernon | Surname: Hunt

Company name: Bayliss Design

Street address: Suite 3, Georgian Mews, 24A Bird Street
Town/City: Lichfield
County: Staffordshire
Country: United Kingdom
Postcode: WS13 6PR

	Country Code	National Number	Extension Number
Telephone number:		01543 261930	
Mobile number:			
Fax number:			

Email address: vernon@bayliss-design.co.uk

RECEIVED
27 06 2014
Support Services

3. Site Address Details

Full postal address of the site (including full postcode where available)

House: | Suffix:

House name: Grange Filling Station

Street address: London Road

Town/City: Rayleigh

County: Essex

Postcode: SS6 9DW

Description of location or a grid reference
(must be completed if postcode is not known):

Easting: 579203

Northing: 191773

Description:

4. Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application? ○ Yes ◉ No

5. Description of Proposal

Please provide a description of the approved development as shown on the decision letter:

Redevelopment of existing fuel filling station (sui generis) including demolition of existing forecourt, canopy, sales building, associated facilities, decommissioning and removal of existing UST's and fuel system, demolition of 'Grange Villa' dormer bungalow residence; Construction of new 2 storey PFS sales building with first floor residential apartment, automatic car wash, forecourt canopy, installation of 2no 80000 litre double skinned UST's and new fuel dispensers, plus associated works and facilities

Application reference number: 14/00181/FUL

Date of decision: 09/05/2014

Please state the condition number(s) to which this application relates:

Condition number(s):

2,3,6

Has the development already started? ○ Yes ◉ No

6. Discharge of Condition(s)

Please provide a full description and/or list of the materials/details that are being submitted for approval:

Refer to drawing 6617-DISC 2 for external materials for condition 2. Arboricultural report and drawing for condition 3, and drawing 6617-DISC 6 specifies the sites drainage details for condition 6.

7. Part Discharge of Condition(s)

Are you seeking to discharge only part of a condition? ○ Yes ◉ No

8. Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land? ◉ Yes ○ No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact? (Please select only one)

◉ The agent ○ The applicant ○ Other person

9. Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information. I/we confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine opinions of the person(s) giving them.

☒ Date 26/06/2014

Site Specific (Arboricultural) Method Statements

Grange Service Station, London Road, Rayleigh, Essex, SS6 9DW

Trevellyan Developments Ltd

Planning Application No. 14/00181/FUL

Marishal Thompson Group
Arboricultural & Ecological Consultants

Address	Grange Service Station, London Road, Rayleigh, Essex, SS6 9DW		
Client	Trevellyan Developments Ltd	**Application Ref:**	14/00181/FUL
MT Ref	D2705141506v2	**Consultant**	Paul Allen MICFor Dip Arb(RFS)
Report Date	19th June 2014	**Quality Checked**	Gina Anderson BA (Hons)
Technical Content Approved **Andrew Cayley Bsc (Hons) Arb, M.Arbor.A**			

Contents

Contacts

Name	Company	Position	Telephone Number
Paul Allen Paul.allen@marishalthompson.co.uk	Marishal Thompson Group	Consultant Arboriculturist	08702 416180 07894 481143
Vernon Hunt vernon@bayliss-design.co.uk	Bayliss Design	Client Architect	01543 261930

1.0 Introduction

1.1 Marishal Thompson Group have been appointed by Trevellyan Developments Ltd to provide further advice on the arboricultural issues relating to the approved development at the above site.

1.2 We undertook a Pre-Development Tree Condition Survey (see Appendix 1), on the 5th March 2014 in order to produce an Arboricultural Impact Assessment to support the now approved planning application. This survey assessed the condition of the tree resource, categorised the primary constraint tree and provided the Root Protection Area (RPA) information according to the B5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'. The survey informed the production of this detailed arboricultural method statement report which is to be submitted in order to discharge tree related protection conditions of planning approval ref. no. 14/00181/FUL

1.3 Following planning approval we have received details of the construction drawings in relation to services location, foundation design, hard surfacing, soft landscaping, demolition and construction site set up from the development contractor construction method statement (CMS).

2.0 Scope of Report

CLIENT BRIEF:	To discharge the primary tree protection conditions 3, 4 & 5 of planning consent; application reference number 14/00181/FUL. Details are listed below with the full version provided at Appendix 2 (granted on 9th May 2014). The report will provide detailed tree protection methods for the most effective retention and protection of all the approved trees to be retained.
SITE:	Grange Service Station, London Road, Rayleigh, Essex, SS6 9DW
MT Ref:	D2705141506
INSTRUCTION DATE:	27th May 2014
APPLICATION NO:	14/00181/FUL (Approved with conditions)
APPROVAL PROPOSAL:	Demolish Filling Station and Dwelling and Construct Filling Station With Canopy and Two Storey Building With Shop to Ground Floor and Car Wash and 4 Bedroomed Flat Above

DETAILS OF APPROVED TREE RELATED CONDITIONS:

Condition 3	Tree Protection Plan and methods
Condition 4	Pre-Construction site meeting
Condition 5	Tree Protection fencing installation, site supervision and 'no-dig' supervision to be undertaken in accordance with the Arboricultural Impact Assessment tree report produced by Marishal Thompson, dated 10th March 2014.

3.0 Executive Summary

3.1 The site is currently split into two sections, with a working fuel filling station and convenience store on the southern half and a detached residential property and ample sized garden within the northern half. It has offsite trees around three of the four site boundaries and excludes the southern boundary adjacent to London Road. The trees are early mature to mature and of low to modest amenity value; younger trees and shrubs were also growing within the site but have now been removed, all of low quality and landscape value.

3.2 The site received Full planning approval on 09th May 2014, Planning Application ref. 14/00181/FUL

3.3 The Tree Protection conditions include provision of details for the following:

- To undertake a Pre-commencement meeting with the tree officer / tool box talk with the site contractor / ground workers / site manager
- To 'Sign-Off' the installed tree protection fencing / temporary ground protection /and tree trunk boxing required
- To supervise the installation of any new services excavations within or close to the Root Protection Area (RPA) of the retained London Plane tree
- To supervise the installation of new hard landscaping / parking within the RPA of the retained tree

3.4 This SSMS is for the benefit of the building contractor on site and the Local Planning Authority. On-site Specific Risk Assessments are the responsibility of the building contractor and should be undertaken on the day works are to be undertaken. Hazards include:

1. *Close proximity to adjacent existing residential properties, public footpaths & highways*
2. *Partial demolition and re-development of the existing structures and hard surfaces*
3. *Likely excavations for foundations & services requiring assessment under CDM regulations*

3.5 A summary of the affected trees is detailed in the table below:

Impact	Reason	A	B	C	U
Trees to be removed	To facilitate the development or due to their condition (U cat)	N/A	N/A	T6, Elder	N/A
Trees with RPA encroachment	To facilitate construction	N/A	T4 & T5, Grey Poplar		
Retained Trees to be pruned	To address identified defects/ facilitate construction	N/A	N/A	N/A	N/A

4.0 Statutory Protection

4.1 Our detailed check with the Local Planning Authority has confirmed that the trees on and adjacent to the site are not subject to statutory protection under a Tree Preservation Order neither is the site within a Conservation Area.

5.0 The Arboricultural Protection Methods and Specifications

5.1 Tree protection: Details of fencing location and specification	
SCOPE OF WORKS	**SEQUENCING OF WORKS**
Tree Protection Plan	1. Includes details and location of the tree protection fencing of the Root Protection Areas (RPA) to define the Construction Exclusion Zones (CEZ). 2. To indicate areas of 'no/hand-dig' close to or within the RPA for service trench excavations / hard surfacing / refuse bins / cycle stores etc. 3. To show the location of temporary ground protection where required 4. Installed protective fencing can be re-enforced by temporary site buildings for offices and welfare units where practicable. 5. All tree protection must be in place prior to any site activities. It is recommended that this fencing is installed at the same time that site hoarding is erected. 6. To be effective Tree Protection must remain in place for the duration of the development. 7. Where ground protection is proposed (temporary surfaces etc.) and to avoid inadvertent vehicle tracking over the identified areas this should be installed prior to any site activities. 8. A copy of the tree protection specifications are indicated on the Tree Protection Plan. 9. The warning signs (as detailed within this report) should be fixed at 6m intervals to raise awareness of the fencing and its desired function.

5.2 Tree protection (continued): tree protective fencing specification

on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

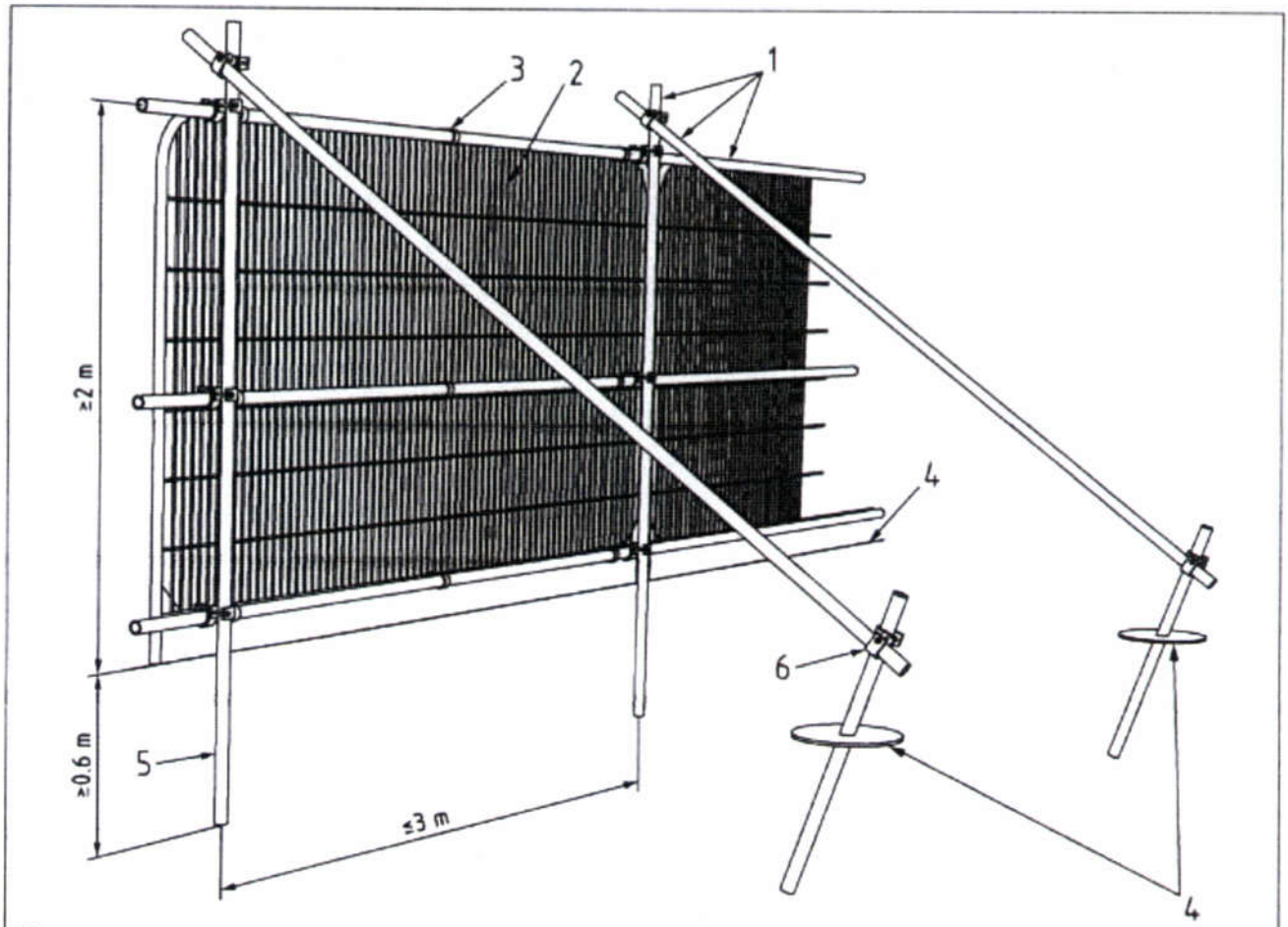
NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as:

"CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

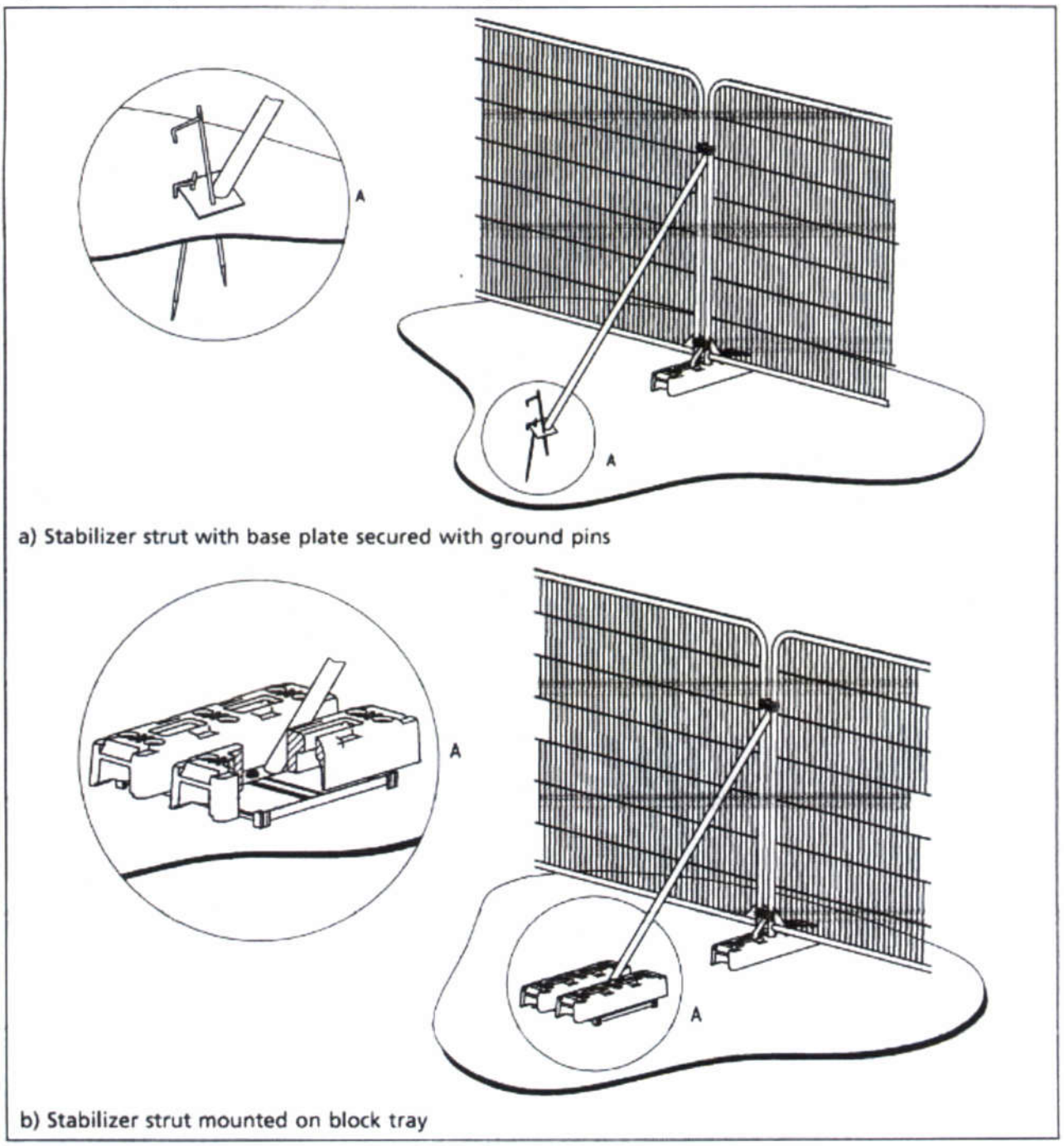
Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded 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 0.6 m)
6 Standard scaffold clamps

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

5.3 Tree protection (continued): retained tree warning sign

TREE PROTECTION AREA
KEEP OUT

(TOWN & COUNTRY PLANNING ACT 1990)

THE VEGETATION PROTECTED BY THIS FENCE IS PROTECTED BY PLANNING CONDITIONS AND/OR IS THE SUBJECT OF A TREE PRESERVATION ORDER.

IF YOU REQUIRE ACCESS INTO THIS AREA PLEASE CONTACT

planning@marishalthompson.co.uk

T: 08702 416180

5.4 Site inspection, monitoring and supervision	
SCOPE OF WORKS	**SEQUENCING OF WORKS**
Site Inspections and Supervision	1 Arrange details of communication between the inspecting arboriculturist, and client / client appointed groundworker, demolition contractor etc. 2 Details, instructions and authority for inspections should be provided and retained on site at all times 3 Relevant parties will be advised of any changes in personnel or contractor during the development process. 4 To ensure that the construction process is undertaken with minimal disturbance to the retained tree stock, we recommend that the experienced Arboricultural consultant from Marishal Thompson is appointed to undertake regular inspections of the site according to a site inspection / supervision schedule below. 5 A mix of scheduled and unannounced site visits are appropriate and will serve to identify any damage to the Tree Protection Fencing, poor working practices, potential problems and points of conflict between the construction process and the health of the trees. These reports will include recommendations for remedial action. 6 During the site visits any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. After each of these visits a copy of the report should be sent to the Site Manager, Local Authority Tree Officer and Client. The remedial action undertaken will be recorded on the next visit. 7 It is essential, to the successful implementation of the principals set out in the approved documentation, that effective inspection and supervision are implemented from the outset as detailed in all the previously submitted and approved tree reports and plans. 8 Any damage or incidents regarding the retained trees should be reported to the consultant arboriculturist at Marishal Thompson Group on 08702 416180. Any incidents requiring a planning variation will only be completed after prior approval and consultation with the LPA.

5.5 Updated site inspection / supervision schedule

Constraints Item	Site Supervision required	Number of Visits Expected	Timing of Site Visits	Actual Visit Date
Tree works operations	Optional	Visit 1	Prior to construction	
Pre-commencement meeting between relevant parties informing Council of development start date	Yes	Visit 2	Prior to site clearance	
Establishment & protection of Root Protection Areas (RPA) for retained trees	Yes	Visit 2	Prior to site clearance	
Changes in soil levels in close proximity to retained offsite trees; T4, T5, TG1-TG2 for the new proposed car parking spaces and the installation of 'no / reduced-dig' sub-base systems for the new car park surfacing.	Yes	Visit 3	During site clearance phase	
Location of temporary access route through / adjacent to the retained trees	Yes	Visit 3	During construction phase	
Protection and prevention of damage to retained tree canopies during construction	Yes	Visit 3	During construction phase	
Site access for construction vehicles and avoidance of compaction to the RPA of retained trees	Yes	Visit 3	During construction phase	
Excavation of services trenches in close proximity to retained trees	Possible	Visit 3	During construction phase	
Generic construction site constraints: **1 Site office / Welfare unit location** **2 Temporary toilets** **3 Siting of bonfires** **4 Location of contaminant storage and washout areas** **5 Location of stripped topsoil**	Yes	Visit 3	During construction phase	
Post construction site assessment for any required remedial treeworks operations recommendations.	Yes	Visit 4	Post construction	

5.6 Temporary Ground Protection Method and Specification

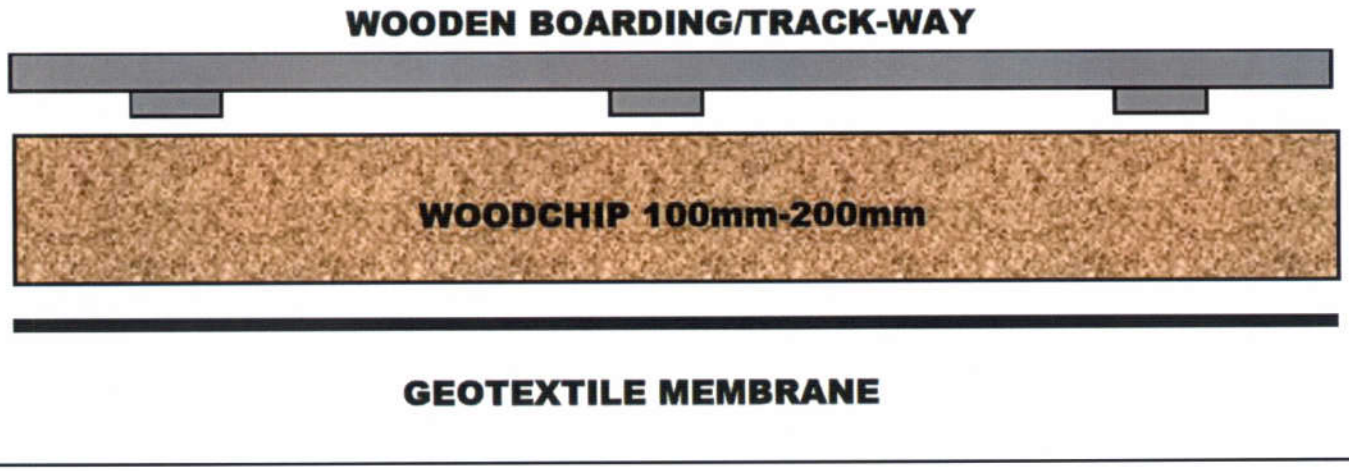
BS5837 recognizes that incursions into the construction exclusion zones will be required at times during some developments.

The objective is to minimize soil compaction

Example 1 - *for pedestrian movements only, a single thickness of scaffold boards places either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g.) 100mm depth of woodchip), laid on to a geotextile membrane.*

Example 2 - *For pedestrian-operated plant up to a gross weight of 2t, proprietary inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane;*

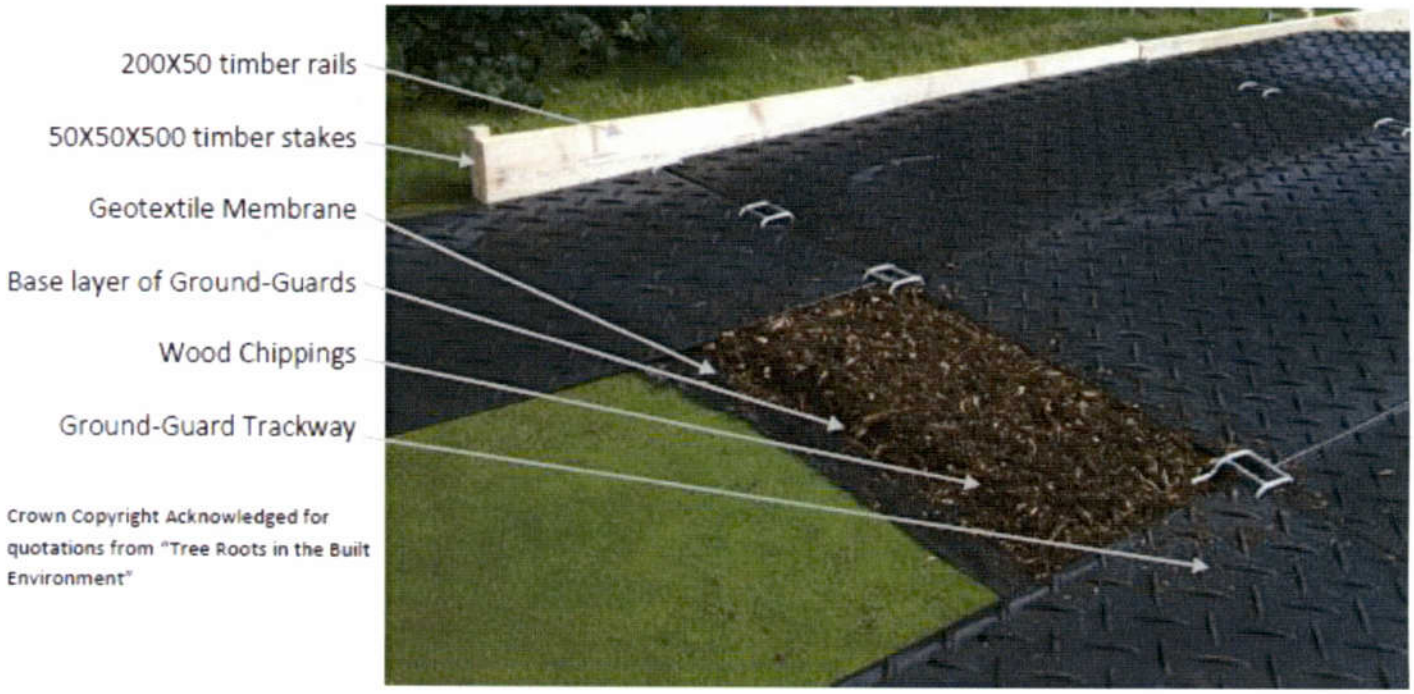
Example 3 - *For wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*



5.7 Temporary Ground Protection: Using 'Ground Guards'

The Ground Guards temporary road system can be used on construction sites to protect virgin ground from erosion and damage by construction vehicles. Ground-Guards are usually installed as a construction 'haul' roadway consisting of a parallel track of 2.4m x 1.2m panels with a 1.2m space in between. Where a temporary 'haul' roadway must pass near to trees, the following extra precautions must be taken in order to spread the loading applied to the track way.

1. Edge rails of 200 x 50mm sawn timber or un-treated sleepers should be installed where the track way will pass over exposed retained tree RPA's. These should be installed on either side of the track way using either 50x50x500mm timber stakes of 500mm steel pins at 1.5m spacing's.
2. A layer of geotextile membrane should then be laid over the area of ground to have the track way installed upon it.
3. A base layer of Ground Guards should be laid over the top of the geotextile membrane at least three boards wide between the installed timber edging.
4. A minimum layer of at least 150mm deep coarse, preferably green wood chippings should be laid as a compressible layer over the top of the Ground Guards.
5. The twin surface Ground Guard track way can then be laid over the top of the wood chippings



5.8 Demolition of existing buildings within or close to the RPA of the retained tree

SCOPE OF WORKS	SEQUENCING OF WORKS
Demolition of the existing buildings (See McGee Demolition Management Plan)	Demolition will be required to dismantle the existing buildings. Some of these works could be within or close to the RPA of the retained tree. **POTENTIAL CONFLICT** • The mode of demolition (whether, using machinery or undertaken by hand) can compact the soil leading to the root asphyxiation and subsequent decline in health of the trees. • Machinery and building parts causing direct damage to tree crowns. • Excessive dust coating tree leaves, impeding photosynthesis. **SEQUENCE OF WORKS** 1. That a pre-commencement meeting is held with the building contractor and the Marishal Thompson arboricultural consultant to discuss the tree related constraints and protection methods as described in this SSMS. 2. To Implement the tree surgery schedule. 3. To ensure that the tree protection fencing is completed and installed in accordance with this SSMS specification and as located on the tree protection plan. 4. To ensure temporary ground protection is installed on that part of the RPA exposed outside of the protective fencing to the suggested specification as detailed in this report. 5. To start demolishing the building by working 'top down, pulling back' into the site away from the retained tree, as defined in the McGee demolition Management Plan. 6. This process will generate dust. If no rain is forecast for 72 hours and the trees are in leaf, hose down the lower canopies of trees with water where practicable. If despite the best endeavours the retained tree crown is damaged by machinery contact the Arboricultural Consultant, from Marishal Thompson, on 08702 416180, for remedial treeworks recommendations.

5.9 Removal / Re-conditioning of existing hard surfacing within or close to the RPA of the retained trees

SCOPE OF WORKS	SEQUENCING OF WORKS
Removal and re-conditioning of the existing hard surfaces within the RPA of the retained trees.	**Introduction:** The area concerned is that of the exposed theoretical root protection outside of the designated tree protection, Construction Exclusion Zone (CEZ), to the west of T4 and T5, offsite Grey Poplars, owned by a 3rd Party. The existing surfacing is likely to be required to be lifted and will be finished with the same or alternative finishing surface, e.g. pavers. This will require that it will need to be lifted by hand / hand held machinery and a 'no / reduced-dig' sub-base laid for alternative block paver finishing surfaces (unless excavation of the existing surfaces and sub-base can be utilised in the construction of the new Car Parking arrangement surfacing). Ideally this process should be undertaken, to the sub-base layer, with a temporary top surface, if required, as the existing surface serves as useful ground protection during the construction of the development of the building. **The process should be:** 1. Remove the hard surfacing with a mechanical hand held tool, working in small sections making the shallowest possible excavations. 2. Remove arising's away from the tree area immediately. 3. There may be shallow adventitious / feeding roots immediately below the surface of the tarmac / hard surfacing; therefore great care should be taken. 4. Cover the area with a shallow layer of sharp sand / damp hessian sacking immediately to prevent desiccation of surface roots. 5. If any roots over 25mm Ø are accidently scuffed by machinery, the advice of the Marishal Thompson arboricultural consultant, should be sought. It is likely such small roots can be cleanly cut with a sharp hand saw or secateurs. 6. The depth of the sub base below the existing surfacing is unlikely to be known at this stage. It may be that once the top surfaced is removed the depth of existing sub-base will be sufficient for the loading to be applied to it with the new surface finish i.e. new tarmac or block paver. (The structural engineer will need to make this assessment) In this instance the 'no / reduced' dig sub-base will not need to be laid. 7. New kerbing may also need to be laid with care, if within retained tree RPA, with excavations undertaken by hand, any roots cleanly cut, as before and thick grade plastic sheeting laid underneath the kerbing / concrete to ensure no exposed roots are scorched by contact with concrete or cement.

5.10 Installation of 'No/Reduced-dig' special surfacing within or close to the RPA of retained trees

5.10.1 Introduction to 'Infraweb'

The InfraWeb Tree Root Protection System is a combination of a 3 dimensional cellular confinement system, separation and filter geotextiles and a specific grade of granular material. This document should be read in conjunction with the appropriate section drawing for the specified system, to ensure the correct installation is achieved. InfraWeb conforms to the original specification for 3 dimensional cellular confinement systems as detailed by the US Corps of Engineers.

The system is available in 5 depths for varying traffic loadings but each site should have a specific design detailed to ensure the correct depth of product is used.

However, unless the existing ground conditions are very soft and have a low CBR then the following can apply:

- 50mm deep InfraWeb for Pedestrians and Cycleways, non vehicular traffic.
- 75mm deep InfraWeb for Pedestrians, Cycleways and vehicles up to 1.5 tons
- 100mm deep InfraWeb for Cars, 4 Wheel Drives, Vans etc up to 6 tons
- 150mm deep InfraWeb for Fire Tenders, Removal Vehicles and Dust Carts up to 20 to 20 tons
- 200mm deep InfraWeb for construction vehicles, cranes etc 40 tons and above

'No Dig' System.

The InfraWeb is a no dig Tree Root Protection System, however, some preparation of the existing formation may be required prior to installation.

System Components

- InfraWeb 3 Dimensional Cellular Confinement System
- Permatex 300 Separation Geotextile
- Permatex 200 Separation Geotextile (depending on surface finish)
- InfraWeb Staking Pins
- InfraWeb Stapler and Staples
- 4/20mm or 40/20mm Clean angular stone to Bs EN 13242 and 12620.
- Surfacing Materials.

Ground Preparation.

- Remove surface vegetation by hand or with suitable herbicide.
- Fill any hollows in the exposed ground with sharp sand or 4/20mm or 40/20mm clean angular stone.
- Place Permatex 300 Geotextile over the area to be protected ensuring laps are a minimum of 300mm

- Place the collapsed panel on the geotextile and pin through 3 cells across the 2.42m orientation using InfraWeb staking pins. (See diagram in appendix 1)
- Expand the panel to its full length of 8.7m and pin across the opposite panel end using InfraWeb staking pins.
- Pin along the length of the panel with 2 pins on each side using InfraWeb staking pins.
- If full panels are not being used then ensure the cells have been expanded to their full dimension.
- Staple any adjacent panels together using the Infraweb stapler and staples. (stapling detail enclosed in appendix 1)
- The InfraWeb panels can be cut to shape if required with a heavy duty Stanley Knife

Filling the InfraWeb.

The correct specification of the granular infill is vital to the long term performance of the system. Use only 4/20mm or 40/20mm clean angular stone to Bs EN 13242 and 12620 (depending on cell depth being used)

- Fill the pockets of the InfraWeb with a 4/20mm or 40/20mm clean angular stone.
- Allow for any settlement of the stone in the cells and top up if necessary.
- Slightly surcharge the Infraweb with 4/20mm or 40/20mm clean angular stone if the area is to be trafficked immediately.

Surfacing Details.

The Infraweb TRP system can be surfaced with the materials listed below. Porous systems will be of greater benefit for the trees, however it is understood that this is not always possible.

Block Paving

- Place Permatex 200 separation fabric over the filled InfraWeb.
- Lay sand / gravel bedding material as per manufacturer's recommendations.
- Place porous / standard blocks as per manufacturer's instructions.

Porous and Standard Ashalt.

- Slightly surcharge the InfraWeb with 25mm of 4/20mm or 40/20mm clean angular stone.
- Place hot Asphalt as per manufacturer's instructions.

Resin Bound Gravels

- Place Permatex 200 separation fabric over the filled InfraWeb.
- Lay Asphalt carpet and resin bound gravel to the required thickness and as per manufacturer's instructions.

Loose Gravels

- Option 1 is to slightly overfill the InfraWeb with the clean angular stone.
- Option 2 is to place a 25mm thick decorative stone above the filled InfraWeb.

Slimblock Gravel Retention System

- Place Permatex 200 separation geotextile over the filled InfraWeb.
- Place 20mm bedding layer of 5mm single sized stone and lightly tamp.
- Lay Slimblock units and fill with a 10 to 14mm decorative gravel.

Slimblock Grass Protection System.

- Place Permatex 200 separation geotextile over the filled InfraWeb.
- Place 50mm of Rootzone (60% sand/40% soil) bedding layer and lightly tamp.
- Lay Slimblock units and fill with Rootzone mix and seed accordingly. (Please allow for 4 to 6 weeks for seed germination).

Tree Mulch

- Place Permatex 200 separation geotextile over the filled InfraWeb.
- Lay mulch to desired depth.

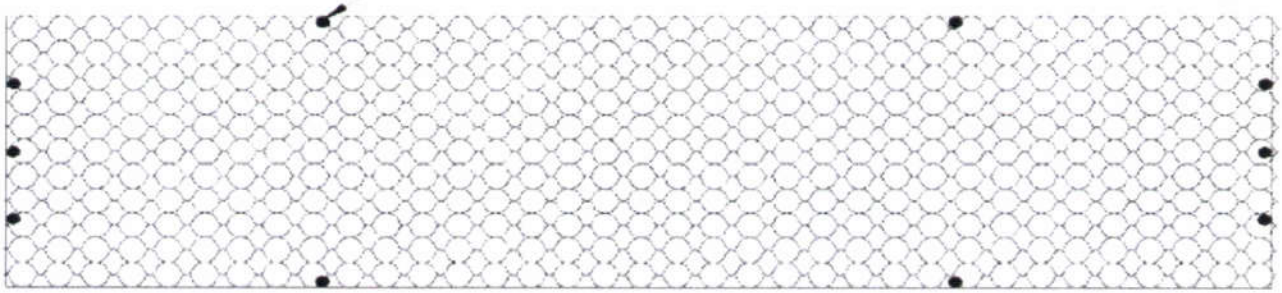
Concrete

- Place Permatex 200 separation geotextile over the filled InfraWeb.
- Cast the concrete slab over the geotextile.

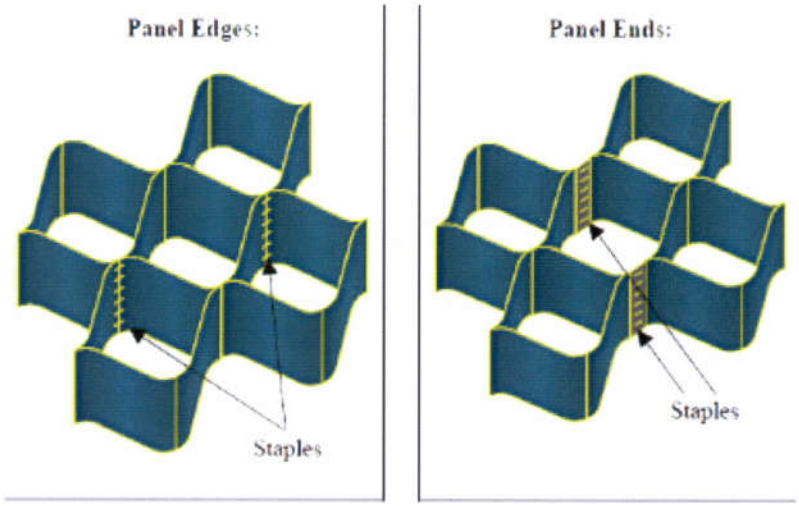
If the system requires trafficking immediately after installation for construction purposes then a 50mm sacrificial surcharge of the 4/20mm or 40/20mm granular material shall be placed on top of the InfraWeb.

For further information or to arrange a site visit for design consultation or installation supervision, please contact Roy Partington on 07730148581 or e-mail roy@infragreen-solutions.com or contact our sales office on 01925 630976.

Staking Pin Detail



Stapling Details



Cells During filling

5.10.2 The InfraGreen 'Arbor Raft' 150 System

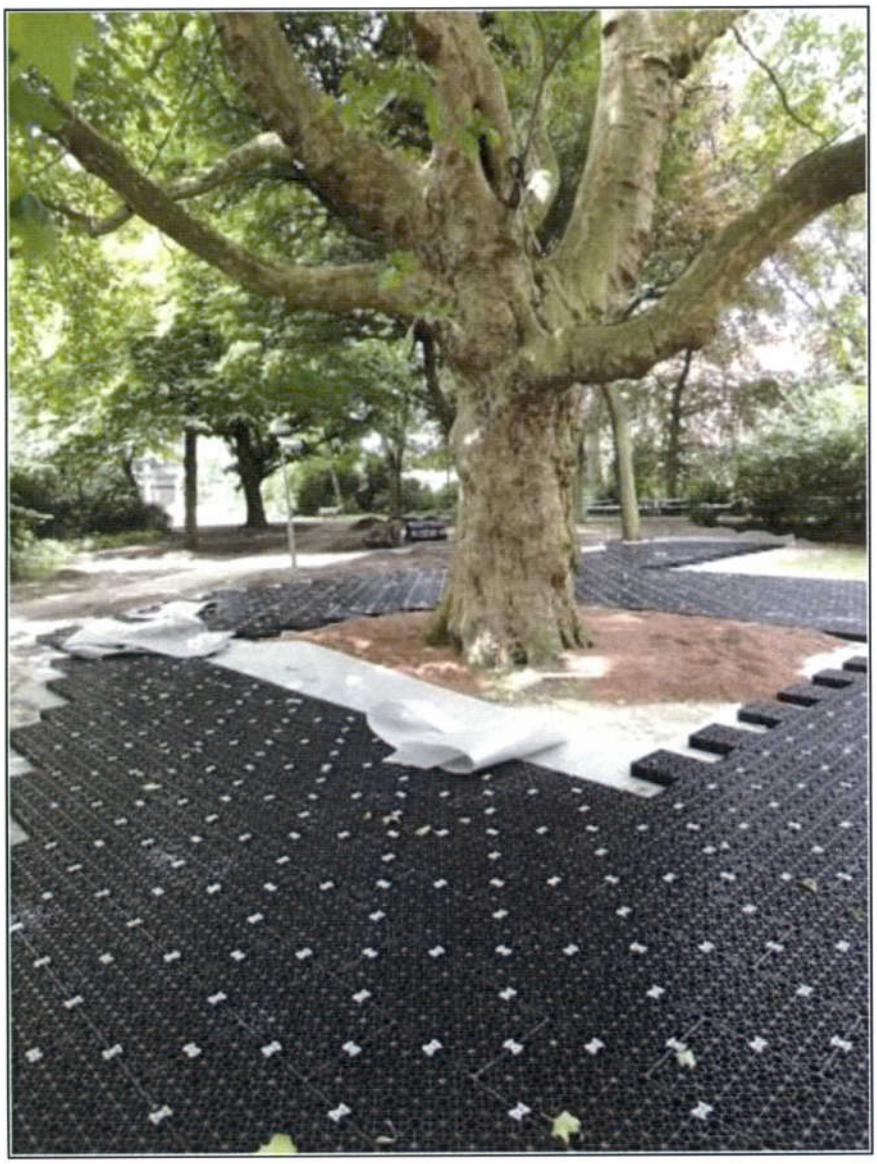


Figure 1. Example of the installation of 'Arboraft' around an exisitng tree to be retained.

The Arbor Raft TRP system consists of a Permavoid high strength structural void former and reinforced geotextiles. The system is ideal for building access roads, car parks and other types of vehicular access paths over the RPA of existing tree roots. Arbor Raft may be filled with nutrient enriched soil which provides long term nutrients to the soil below the structural raft. Arbor Raft is lightweight and high strength with a load capacity of 71 tons uncovered. The system mechanically interlocks and is simple to install. If access below the Arbor Raft is required at a later date the units

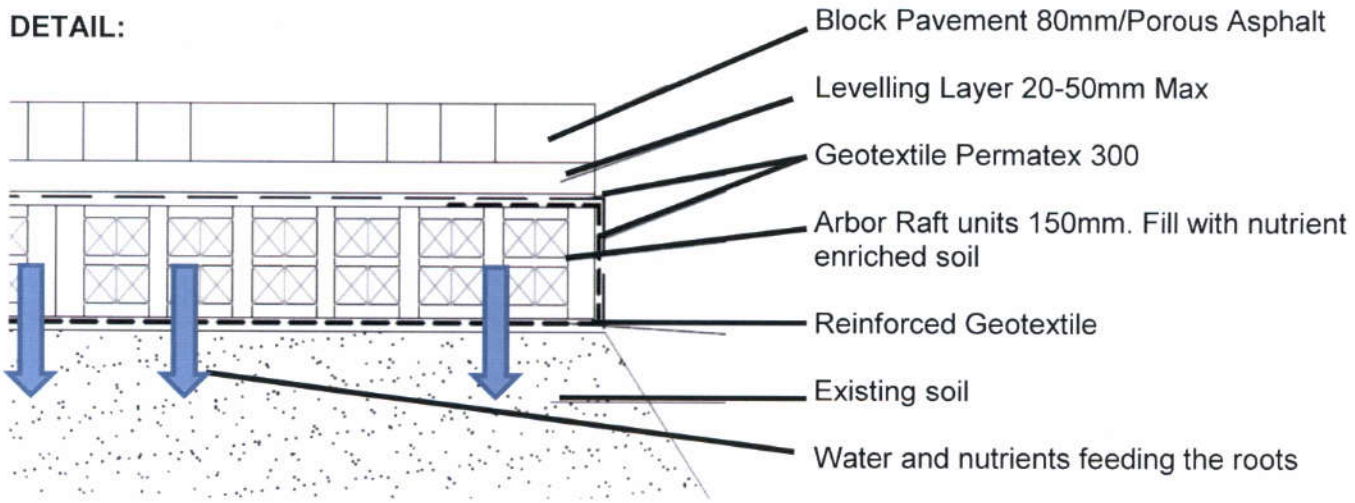
Benefits Of Using Arbor Raft:

- No granular material required
- Light weight units.
- No compaction of sub soil.
- Units can be filled with nutrient enriched soil to improve existing soil conditions.
- Units can be used as part of an overall Suds design.
- All types of vehicles can traffic over Arbor Raft area.

Arbor Raft 150 Specification:

Product Name	Arbor Raft 150 TRP
Material	Polypropylene
Size	708 x 354 x 150mm
Weight	3kg
Open Area	92%
Surface Open Area	> 59%
Load Capacity	715 kN/m2
Interconnection	Using Tapered Pins

DETAIL:



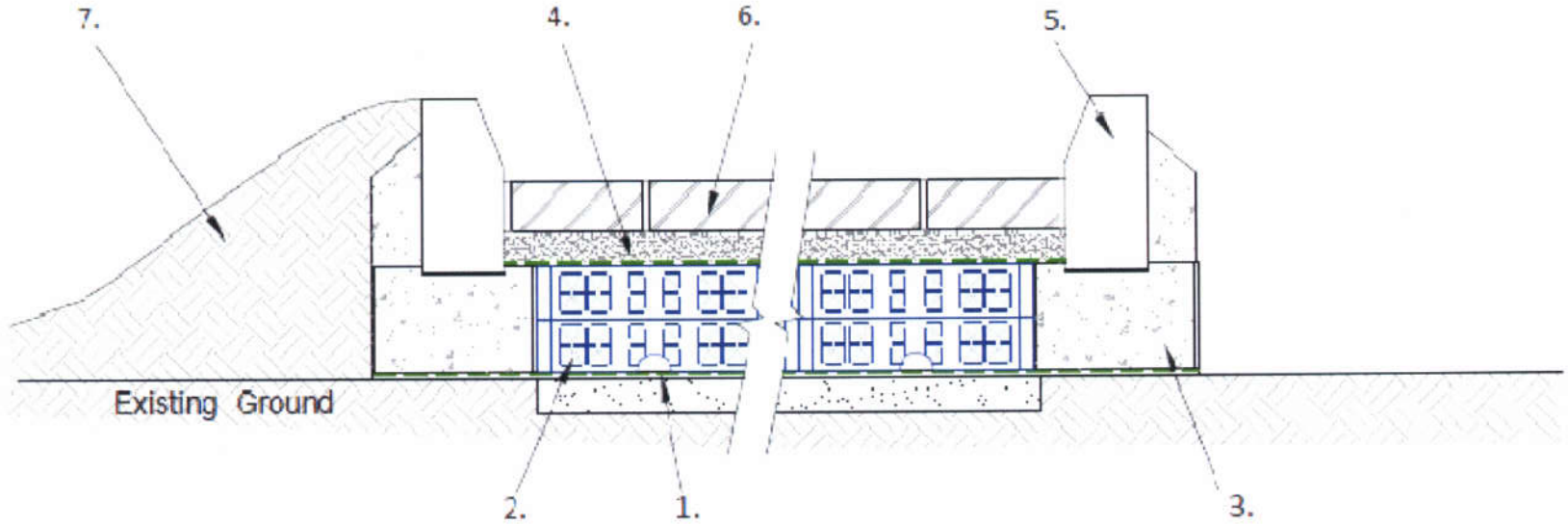
InfraGreen Arbor Raft 150 - Installation Method Statement

1. Prep existing ground with sharp sand to form a level base.
2. Place reinforced geotextile on the base with 300mm laps.
3. Lay Arbor Raft units and connect with locking pins.
4. Fill units with nutrient enriched soil.
5. Fold the geotextile over the units.
6. Place bedding layer for surfacing. (Max 50mm)
7. Place Surfacing.

Infragreens experienced technical team provides site visits/design services and installation supervision .

KEY

1. Permatex 300 geotextile
2. 150mm deep ArborRaft tree root protection system on 30-50mm blinding layer
3. Concrete bed anc backing
4. Permatex 200 separation geotextile
5. Half Battered kerb cast into enc cell (webs cut to suit)
6. Block Paving with Sand bed
7. Soil graded to kerb edge (f required)



InfraGreen
Warrington Business Park
Longfield Road
WA2 8TX
T: 01925 630676
E: info@infragreen-solutions.com

TITLE: ArborRaft Section - Tree Root Protection c/w Block Paving Surface & H.B. Kerbing

DRAWN BY	SCALE	DATE	CHECKED BY
PP	1:10	01/14	RP
DRAWING NO		REVISION	APPROVED
IG-SD-AR-BPK-150			

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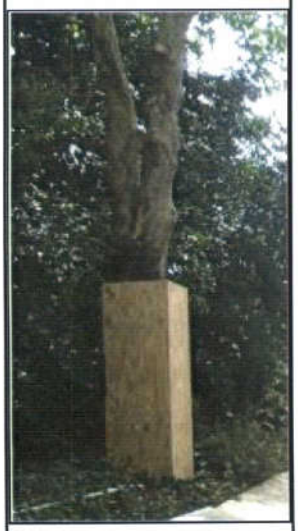
5.11 Excavations for strip / mass concrete foundations within / close to retained tree RPA

SCOPE OF WORKS	SEQUENCING OF WORKS
Excavation of strip foundations within or close to retained tree RPAs for concrete slab for Bin store / Sub-station at RPA of T4	1. All Health & Safety checks and Site Specific Risk Assessments will be undertaken and will be the responsibility of the site foremen. 2. Kill ground vegetation (grass) using a trans-located herbicide (*Glyphosate*), ensuring that the selected herbicide doesn't damage the roots of the tree(s) below the surface of the foundation area. Always adhere to guidance on relevant safety data sheet and COSHH assessments. 3. The ground works contractor should mark out on the ground where the locations for the foundations are to be located according to the approved foundation plan. 4. Temporary ground protection should be installed according to the specification in this report, between excavations and the retained trees. 5. The contractor will then excavate by 'airspade' */ hand spade combination to the depth of the last root, approx. 300-500mm deep. 6. Any tree root found < 25mm Ø can be cleanly cut with a sharp handsaw or secateurs under the supervision of the Marishal Thompson consultant arboriculturist. 7. Once the strip foundations have been fully excavated any minor roots found should be cleanly cut as suggested above in 6. 8. Remove the dead or organic material from the site and ensure that large stones are removed from within the covered RPA. 9. There should be a thick gauge plastic separation root barrier installed to prevent sideways contamination of the root zone by cement / concrete on the tree side of the foundation line to at least 2m. 10. Onsite pouring of concrete into the foundation trench should be undertaken carefully to avoid splashing the area outside of the temporary ground protection. Wash out areas for any on site mixed concrete / mortar should also be outside of the onsite RPA of the retained trees. ***Air Spading definition** *'Air is supplied by a compressor and emerges from a specially engineered nozzle. The air jet enters soil pores, where it rapidly expands and slows, blowing the pores apart (Harris et al. 1999). The system allows very rapid exaction. It is increasing used for exaction around tree roots when trenching for utility installations and also for investigations of root systems for tree management.'* 'Tree Roots in the Built Environment' TSO June 2006.

5.12 Excavations for service trenches within / close to retained tree RPAs at T4 & T5

SCOPE OF WORKS	SEQUENCING OF WORKS
Excavation of service trenches within the retained tree RPA's at T4 and T5 Tree Trunk Protective Box 	1. The line of the service trench should be marked out by the contractor as per the service location plan*. This should have been drawn up with due consultation with the project arboriculturist as to proximity to subject trees, likelihood of encountering roots etc. (It is suggested that if service routes are proposed close to trees, the precise location of roots should be identified by either the use of 'Tree Radar' and / or trial excavations by 'Airspade' ** by complete trench excavation or using trial pits). 2. The line of the service trench should be marked out with a line or temporary road spray paint. 3. Single trenches should be used where possible to include multiple services at varying depths according to standard industry regulations and in accordance with NJUG 4. This will negate the need for multiple trenches in the same location. 4. Tree Protective fencing will need to be moved temporarily with any exposed tree trunks boxed as per this specification: ¾ inch Ply board within internal 2 x 1 support struts cut diagonally across the corners for re-enforcement. 5. Temporary ground protection will need to be laid either side of the trench, within the RPA, of either thick ply board, scaffold boards or ground guards. This should be laid on a 50mm bed of sharp sand laid on top of geotextile material. (See specification on the plan) 6. Using a low tonnage mechanical excavator scrape off the top hard surface and remove scrapings to the build side, away from the tree. This will help raise the level on the build side to create a level surface for the digger tracks. 7. Carefully excavate the trench to the engineer standard industry specifications: Keeping the dimensions as small as practicable, on the tree side line of the service trench line to a depth which reveals roots greater than 25mm diameter. The final excavations around exposed roots can then be carried out with hand held trowels or preferably an 'air spade', or ideally a combination of the two.

SCOPE OF WORKS	SEQUENCING OF WORKS
Excavation of service trenches within the retained tree RPA's (Continued)	The combination of the two methods would be best suited on this site as the air spade is a faster, less invasive method. However, due to the likely compacted soil conditions, the air spade may not be effective after 300mm in depth: 8. If no protected tree roots with a diameter greater than 25mm are found along this strip, normal techniques can be used. 9. If roots with a diameter between 25 – 50mm diameter are found, then they are to be pruned to a side root, or suitable point, with secateurs. 10 If a major root (50mm plus) is found, it is to be wrapped in hessian and hand dug around the roots and tunnel underneath using machinery. (This may cause a confined space for which a Risk Assessment will need to be undertaken) 11. The remainder of the trench is to be dug with an excavator suitable for the task and the pipes laid, underneath any major roots that may be found. 12. The soil will be back filled to original level. 13. The boarding to be removed. 14. The tree protection fencing should be returned to its original location and secured as before. 15. The site supervision report is to be written and sent to the Council, via the client. * **Excavations for services and drainage should be able to be undertaken outside of retained tree RPA's.** ** **See the Air Spading definition** **NOTE:** The client has altered the electrical chamber location outside of the RPA zone, however the 50mm ducts will still need to cross the RPAs and so will be laid in sand blinding and raised locally. These works within retained tree RPAs will be fully supervised by the Marishal Thompson consultant arboriculturist.

6.0 Tree Works Schedule

NOTE: All tree works to be undertaken in accordance with BS 3998:2010 'Tree work - Recommendations'.

Tree Works Schedule

Tree No.	Species	Proposed Tree Works	Reason	BS Cat
TG1	Leyland Cypress* x 29	Annual trimming maintenance branches over site.	Average form, shape and condition linear, un-managed tree / boundary screening group. 3rd party offsite trees, unable to fully inspect. Offsite boundary trees with overhanging branches. Lower branch die-back due to shade.	C2
TG2	Leyland Cypress*, Blackthorn*, Hawthorn*	Annual trimming maintenance of branches overhanging boundary fence line.	Average form, shape and condition linear boundary tree group. 3rd party offsite trees with overhanging branches, unable to fully inspect. Ivy clad crowns and stems. Leyland Cypress with understory of Hawthorn / Blackthorn scrub.	C2
T4	Grey Poplar	Remove/ ring Ivy. Re-inspect root crown.	Average form, shape and condition. Dense crown, low crown deadwood. 3rd party offsite tree with overhanging branches, unable to fully inspect. Ivy clad crown and stem. Basal scrub / ivy hindering root crown inspection.	B1
T5	Grey Poplar	Remove/ ring Ivy. Re-inspect root crown.	Average form, shape and condition. Dense crown, low crown deadwood. 3rd party offsite tree with overhanging branches, unable to fully inspect. Ivy clad crown and stem. Basal scrub / ivy hindering root crown inspection.	B1

To Be Removed

Tree No.	Species	Proposed Tree Works	Observations	BS Cat
T1	Oak*	Recommend to 3rd party tree owner to Fell to ground level and remove stump completely.	Poor form, shape and condition. 3rd Party offsite highway verge tree. Showing signs of upper crown stress with high amount of upper crown deadwood 'Stag-heading'. Basal / trunk epicormic growth. Ivy clad crown and stem. H	C1
T2	Leyland Cypress	Recommend to tree owner to fell to ground level for Health & Safety reasons.	Poor form, shape and condition. Dying / Dead Hazard tree. 3rd party offsite tree, unable to fully inspect.	U
T3	Leyland Cypress	Recommend to tree owner to fell tree to ground level for Health & Safety reasons.	Poor form, shape and condition. Dying / Dead Hazard tree. 3rd party offsite tree, unable to fully inspect.	U
T6	Elder*	Remove & Replace with suitable species of tree within final landscape scheme	Average form, shape and condition. Self-set, pioneer 3rd party offsite tree. Dense crown, low crown deadwood. Low branches.	C1
T7	Grey Poplar*	Recommend to Council to Fell to ground level and treat stump.	Average form, shape and condition. Asymmetric canopy Located immediately adjacent to Power line pole with main trunk rubbing power line. Dense crown, moderate crown deadwood. 3rd party offsite tree, likely Council owned. Ivy clad crown and stem	C1
T8	Grey Poplar	Recommend to Council to Fell and treat stump on Health & Safety grounds.	Poor asymmetric form, shape and condition. Co-dominant tree with likely included unions Dense crown, moderate/major crown deadwood. Both stems submerged in water in ditch. One stem used as 'Ground Anchor' to Power line pole. Hazard tree.	U

7.0 Appendices

Appendix 1 BS5837:2012 Tree Survey Data

Appendix 2 Tree Protection Conditions of Planning Approval Ref: 14/00181/FUL

Appendix 3 Tree Protection Plan

Appendix 4 Photographs

Appendix 5 Report Caveats

Key

BS 5837 Cat	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed regardless of development

Note: Sub categories are denoted in the tree survey data (A1, B1, C2 etc.). You are referred to the BS for further detail if required.

Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common Name
Ht (m)	Measured height in metres
DBH (m)	Diameter at 1.5m above ground level
Branch Spread	In m to cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from the ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early-Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius(m)	Radius of the trees Root Protection Area measured from the trunk to the edge of the RPA circle in metres
RPA (m2)	Overall Root Protection Area in m2

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	N	E	S	W	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)
TG1	Leyland Cypress* x 29	0.25	M/s	13	3	3	3	3	C2	Mature	10_19	3	Average form, shape and condition linear, un-managed tree / boundary screening group. 3rd party offsite trees, unable to fully inspect. Offsite boundary trees with overhanging branches. Lower branch die-back due to shade.	Annual trimming maintenance branches over site.	20
TG2	Leyland Cypress*, Blackthorn*, Hawthorn*	0.25	M/s	13	3	3	3	3	C2	Mature	10_19	2	Average form, shape and condition linear boundary tree group. 3rd party offsite trees with overhanging branches, unable to fully inspect. Ivy clad crowns and stems. Leyland Cypress with understory of Hawthorn / Blackthorn scrub.	Annual trimming maintenance of branches overhanging boundary fence line.	20
T1	Oak*	0.8	1	8	7	6	5	6	C1	Mature	10_19	1	Poor form, shape and condition. 3rd Party offsite highway verge tree. Showing signs of upper crown stress with high amount of upper crown deadwood 'Stag-heading'. Basal / trunk epicormic growth. Ivy clad crown and stem. h	Remove & Replace with suitable species of tree within final landscape scheme	290
T2	Leyland Cypress	0.25	M/s	11	2	2	2	2	U	Mature	<10	2	Poor form, shape and condition. Dying / Dead Hazard tree. 3rd party offsite tree, unable to fully inspect.	Recommend to tree owner to fell to ground level for Health & Safety reasons.	20
T3	Leyland Cypress	0.2	M/s	10	2	2	2	2	U	Mature	<10	2	Poor form, shape and condition. Dying / Dead Hazard tree. 3rd party offsite tree, unable to fully inspect.	Recommend to tree owner to fell tree to ground level.	13
T4	Grey Poplar	0.764	1	17	7.5	8.5	7.8	6.1	B1	Mature	20_39	3	Average form, shape and condition. Dense crown, low crown deadwood. 3rd party offsite tree with overhanging branches, unable to fully inspect. Ivy clad crown and stem. Basal scrub / ivy hindering root crown inspection.	Remove/ ring Ivy. Re-inspect root crown.	264
T5	Grey Poplar	0.732	1	18	8	11.3	9.7	6.5	B1	Mature	20_39	3	Average form, shape and condition. Dense crown, low crown deadwood. 3rd party offsite tree with overhanging branches, unable to fully inspect. Ivy clad crown and stem. Basal scrub / ivy hindering root crown inspection.	Remove/ ring Ivy. Re-inspect root crown.	242

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	N	E	S	W	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)
T6	Elder*	0.2	M/s	4	2	2	2	2	C1	Mature	10_19	0.5	Average form, shape and condition. Self-set, pioneer 3rd party offsite tree. Dense crown, low crown deadwood. Low branches.	Remove & Replace with suitable species of tree within final landscape scheme	13
T7	Grey Poplar*	0.5	1	17	8.2	9.5	5	5	C1	Mature	10_19	2	Average form, shape and condition. Asymmetric canopy Located immediately adjacent to Power line pole with main trunk rubbing power line. Dense crown, moderate crown deadwood. 3rd party offsite tree, likely Council owned. Ivy clad crown and stem	Recommend to Council to Fell to ground level and treat stump.	113
T8	Grey Poplar	0.55	2	16	6.3	3.8	5	7.3	U	Mature	<10	3	Poor asymmetric form, shape and condition. Co-dominant tree with likely included unions Dense crown, moderate/major crown deadwood. Both stems submerged in water in ditch. One stem used as 'Ground Anchor' to Power line pole. Hazard tree.	Recommend to Council to Fell and treat stump on Health & Safety grounds.	95
SG1	Hawthorn*, Blackthorn*, Elder*	0.15	M/s	3	1	1	1	1	C2	Early-Mature	10_19	0	Average form, shape and condition offsite shrub group. 3rd party offsite scrub unable to fully inspect. Self-set, pioneer trees and scrub.	No Works	7

Appendix 2 Tree Protection Conditions of Planning Approval Ref: 14/00181/FUL

3 No work shall take place on the application site (including any demolition) until a Finalised Tree Protection Plan to BS5837:2012 methodology has been submitted and agreed in writing by the LPA that clearly identifies:

- the location and specification of protective tree fencing, appropriate ground protection supervised excavations and 'no dig' constructions;
- the specification of landscaping prescriptions (including fencing and changes in soil level) within the Root Protection Areas of retained trees,
- any other infringements of the Root Protection Area and/or entering of the protective tree fencing during the demolition or construction phase;
- A list of key times during the demolition and construction phase where arboricultural site supervision will be required.
- The scheme shall be implemented strictly in accordance with the agreed Tree Protection Plan.

REASON: To enable the Local Planning Authority to assess the full effect of the development on the existing trees, shrubs and hedgerows on and immediately off site and to secure the protection and retention of those species to be incorporated in the development hereby permitted in the interests of amenity.

4 A pre-construction site meeting between the site agent, the developers chosen arboriculturist and the LPA's Arboricultural Officer will be undertaken. Thereafter, the developers chosen arboriculturist will conduct site supervision at the key times submitted with the finalised Tree Protection Plan and once a month at other times for the duration of the project to ensure that all protection measures (including tree fencing, ground protection and landscaping) are being implemented and maintained as per the agreed Finalised Tree Protection Plan. A log of visits shall be kept in the site office for inspection by the LPA if required.

REASON: To ensure the protection of existing trees to enable the LPA to retain adequate control over the development and the impact on the existing trees, shrubs and hedgerows.

5 The tree protection fencing, supervised excavations and 'no dig' constructions and ground protection shall be undertaken to the specifications outlined within the Arboricultural Impact Assessment produced by Marishal Thompson Group (dated 10 March 2014). The locations of these requirements will be as shown on the agreed Finalised Tree Protection Plan. Signs will be placed and retained on the tree protective fencing outlining its importance and emphasising that it is not to be moved, nor the area entered into until the end of development. Any changes to the above must be requested in writing and granted by the LPA prior to them being undertaken.

REASON 5. To protect the health and welfare of trees with amenity interest

Appendix 3 Tree Protection Plan – V2

Appendix 4 Photographs

TG1, Leyland Cypress Group

Offsite Tree Group TG2

T4 and T5, Offsite Grey Poplar

T7, Grey Poplar rubbing power line

T7 and T8, Offsite Hazard Grey Poplar To Fell

Submerged stems of T8 and Ground Anchor

Development Area

Mace Garage Site from London Road

Appendix 5 Report Caveats

Full Legal Disclaimer

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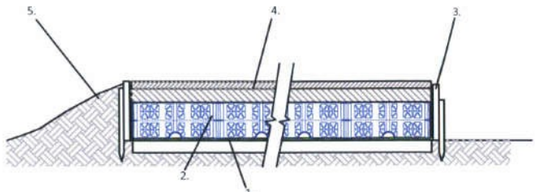
Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur, but is not limited to biological and non-biological factors as well as mechanical/ physical changes to conditions in the proximity of the tree. Trees should be inspected at intervals relative to identified site risks and in accordance with relevant HSE and Central Government guidance. Marishal Thompson can provide further information on this matter if required.

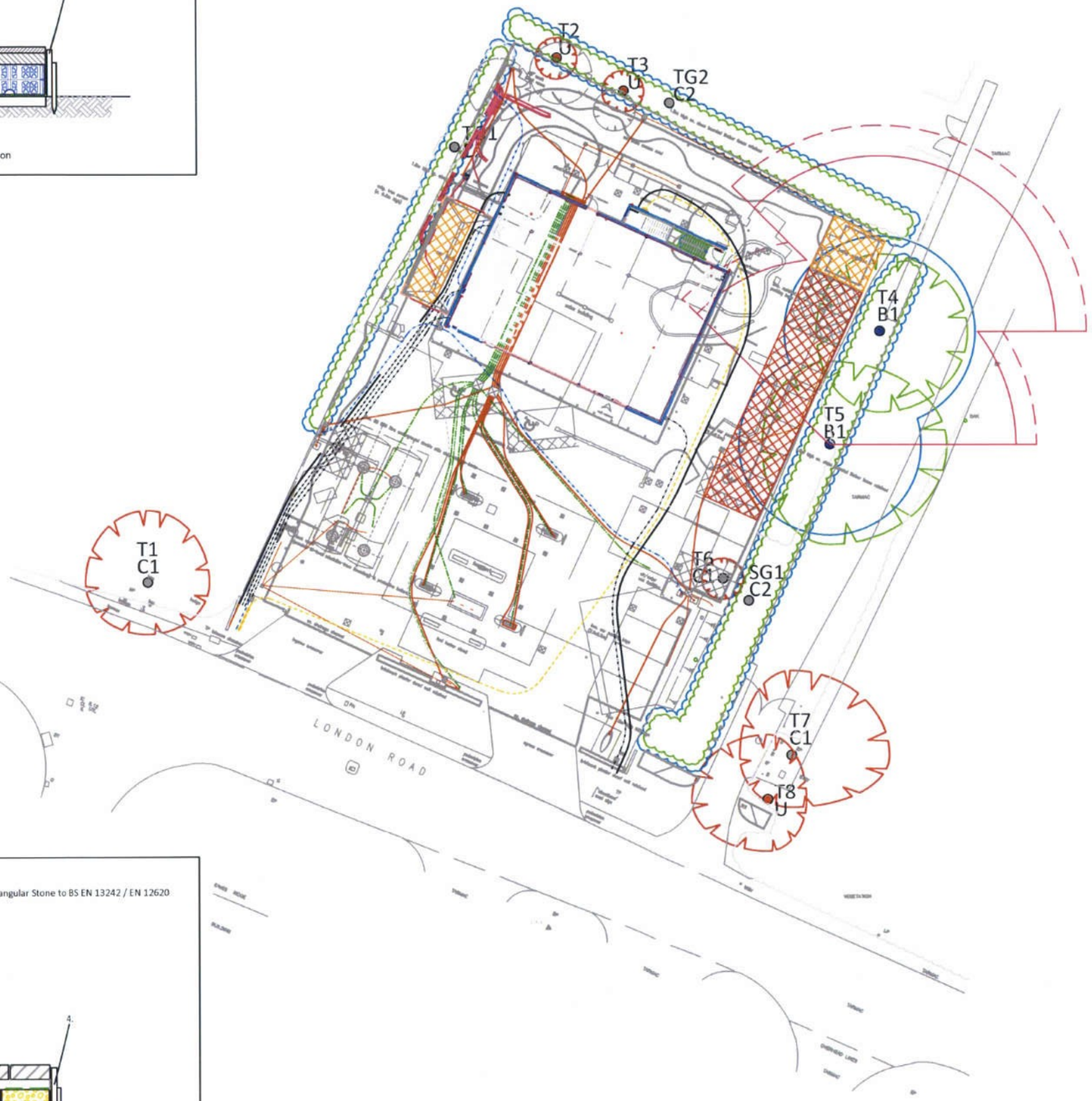
Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works are based on the assumption that planning is approved, no tree works should be undertaken prior to determination of this application without up to date confirmation of the Tree Preservation Order / Conservation Area Status of the vegetation. All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work.

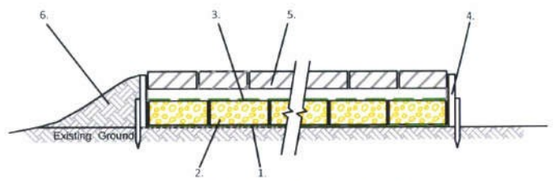
KEY
1. Permatex 300 geotextile
2. 150mm deep ArborRaft tree root protection system on 30-50mm blinding layer
3. Treated timber edging (Or other Edging detail acceptable)
4. Asphalt surface to engineers details
5. Soil graded to edging (if required)



ArborRaft Section - Tree Root Protection
c/w Asphalt Surface



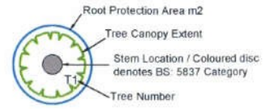
KEY
1. Permatex 300 geotextile
2. 100mm deep InfraWeb tree root protection System infilled with 4/20 Clean angular Stone to BS EN 13242 / EN 12620
3. Permatex 200 separation geotextile
4. Treated Timber Edging (Or other Edging Detail Acceptable)
5. Block Paving with sand bed to Engineers Specification
6. Soil graded to edging (if required)



InfraWeb Section - Tree Root Protection
c/w Block Paving Surface

scale bar 1:500 — 5m 0 10m 50m

Tree Survey Drawing Key



See Marishal Thompson Tree Survey for Individual Tree Details

KEY

- Tree to be retained
- Tree to be removed
- Shading Arc
- Tree protective fencing
- No Dig Surface
- Surpervised Excavations

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REV.	AMENDMENTS	DRAWN	DATE	AUTH'D
A	Underground services added	SPB	17/06/14	P Allen

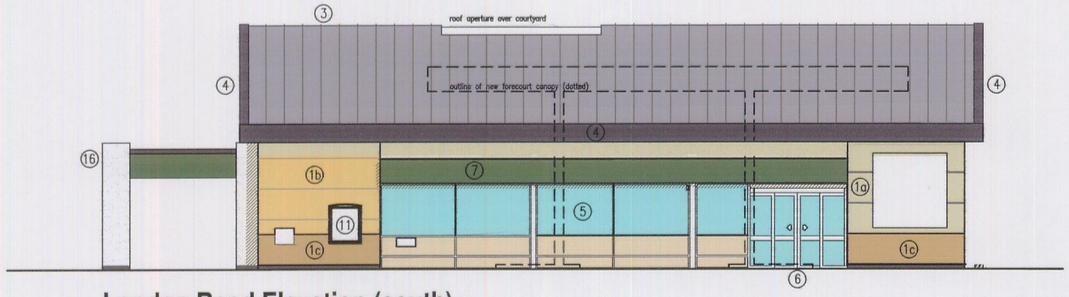
PROJECT
Grange Filling Station
London Road
Rayleigh SS6 9DW

CLIENT
Trevellyan Developments Limited

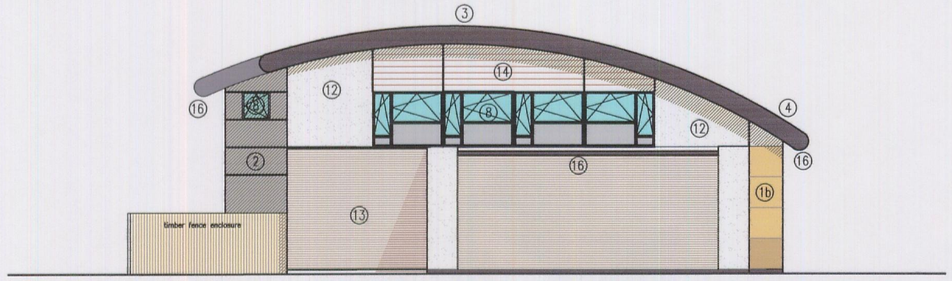
TITLE
Tree Protection Plan (TPP)

Job	Scale	DRG NO	Revision
D2602141221	1:500 @ A3	10203	A
Date: 10/03/2014	Type: MT.TPP.10203.v2		

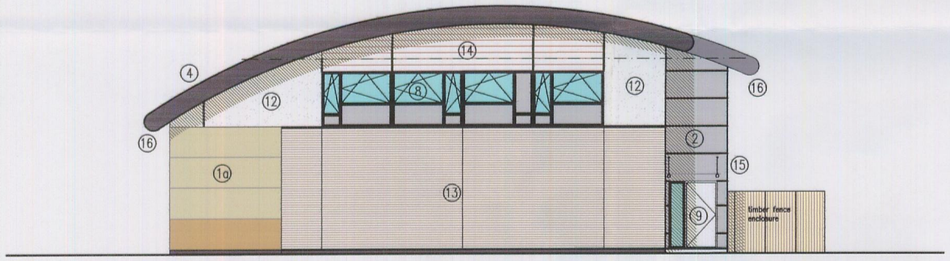
MT Group



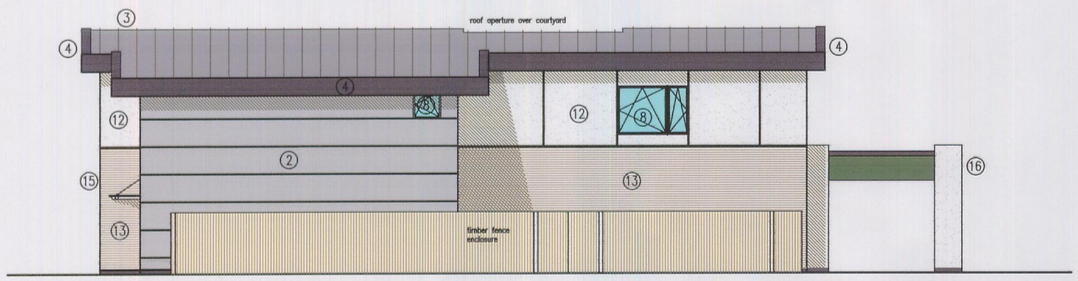
London Road Elevation (south)



Side Elevation (west)



Side Elevation (east)



Rear Elevation (north)

10 5 0 –1 meters

KEY:

1. 'Isoclad' composite insulated metal wall panels, laid horizontally, to BP standard colour (1a Pearl RAL:1013 1b Warm Beige RAL: 075 80 40 1c Dark Tan RAL: 060 60 30)
2. 'Kingspan' Microrib composite insulated metal wall panels, laid horizontally, colour Goosewing Grey
3. Profiled metal standing seam roof construction, colour: Milled Aluminium
4. PPC aluminium fascia (curved bullnosed to eaves/flat along gable) & soffit, all secret fixed colour Dusty Grey RAL 7037
5. 2.8m min. high HWA aluminium shopfront finish SAA with encasement to columns, with built in pay unit glazed with 11mm laminated safety glass with glass to glass joints between glazed sections, insulated infill mid rail and panel SAA finish below glazed sections (all to BP standards) all glazing to be to BS 6262 with class C of BS 6206 and marked as compliant as required.
6. HWA glazed SSA aluminium automatic sliding doors to entrance with Geze automatic door gear to BP standards
7. Illuminated Shop fascia, nom. 800mm deep colour BP Green Pantone 348C
8. PPC aluminium, tilt & turn operation, framed windows, colour RAL Granite Grey 7026 with laminated anti-sun DGU glass with insulated aluminium faced panels (shown shaded)

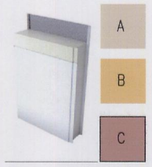
   windows denoted thus to be openable with restricting latch and ability to open completely for means of escape transom to be max. 1100mm above f.f.l.
9. PPC aluminium combination glazed door/frame RAL Granite Grey 7026 with laminated anti-sun DGU glass
10. Steel faced insulated security exit doorset Colour RAL 1013
11. ATM Cash Machine
12. proprietary smooth thin coat reinforced render on render board system, "Weber" Render Colour Chalk
13. Eurobrick facing brickwork slip cladding system "Rustic Buff Multi 688"
14. Timber Effect Weatherboard Vulcan Cladding Systems "Rangewood" Colour Granite subject to LPA approval
15. stainless steel/aluminium glass storm porch over entrance door
16. PPC metal rainwater system, integral insulated eaves gutters & PPC aluminium downpipes Rainwater system (gutters, downpipes etc., above ground) to SBS design

Profiled metal standing seam roof construction
colour: Milled Finish

"Weber" thin coat reinforced render system
colour: Chalk

Stair 'Pod' cladding
"Kingspan" Microrib
colour: Goosewing Grey

Vulcan Cladding Systems
"Rangewood"
colour: Granite



PFS cladding
"Isoclad" PIR
colour: as denoted

'A' RAL 1013
'B' RAL 075 80 40
'C' RAL 060 60 30

PCC aluminium framed DGU windows
colour: Granite Grey RAL 7026

'Eurobrick' facing brickwork slips system
"Rustic Buff Multi 688"

NOTE:
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drawing to be read in conjunction with relevant Bayliss Design, Structural Engineers, M&E Consultant and Specialist Sub-Contractors drawings, specifications, details etc.

REV.	DATE	BY	REMARKS	CHK.

BAYLISS DESIGN

E.M.BAYLISS AND PARTNERS LIMITED
ARCHITECTURAL CONSULTANTS
SUITE 3 GEORGIAN MEWS
24A BIRD STREET, LICHFIELD
STAFFORDSHIRE. WS13 6PR
Tel:01543 261930
Est. as E.M.Bayliss and Partners 1956

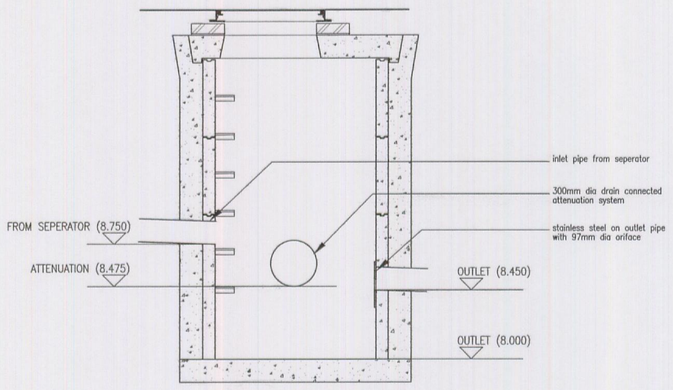
CONTRACT
Grange Filling Station
London Road
Rayleigh, Essex

CLIENT
Trevellyan Developments Limited

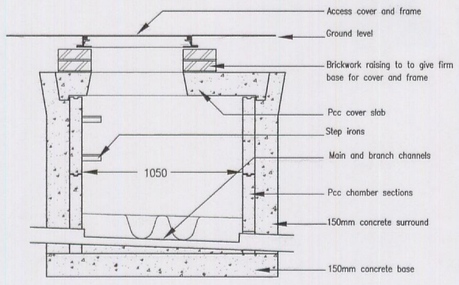
TITLE
Building Elevations
DISC Application – External Building Finishes

SCALE	DATE	CONTRACT NUMBER
1-100@A1	JUNE 2014	6617
DRAWN VH	CHK	DRAWING NO DISC-2 / REV.

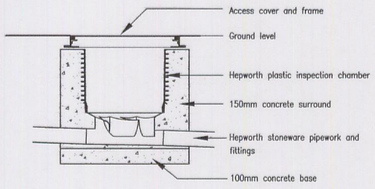
FIGURED DIMENSIONS ARE TO BE USED IN PREFERENCE TO SCALED DIMENSIONS



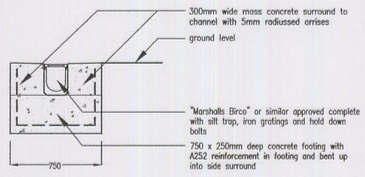
SW Manhole SW1 Chamber Section 1:20



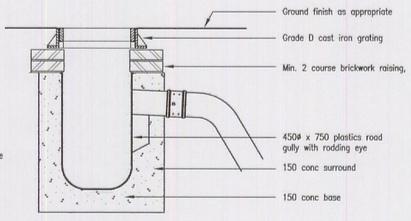
Manhole Chamber Section 1:20
1000mm to 2700mm



Inspection Chamber Section 1:20
0.000mm to 1000mm



Drainage Channel Section 1:20



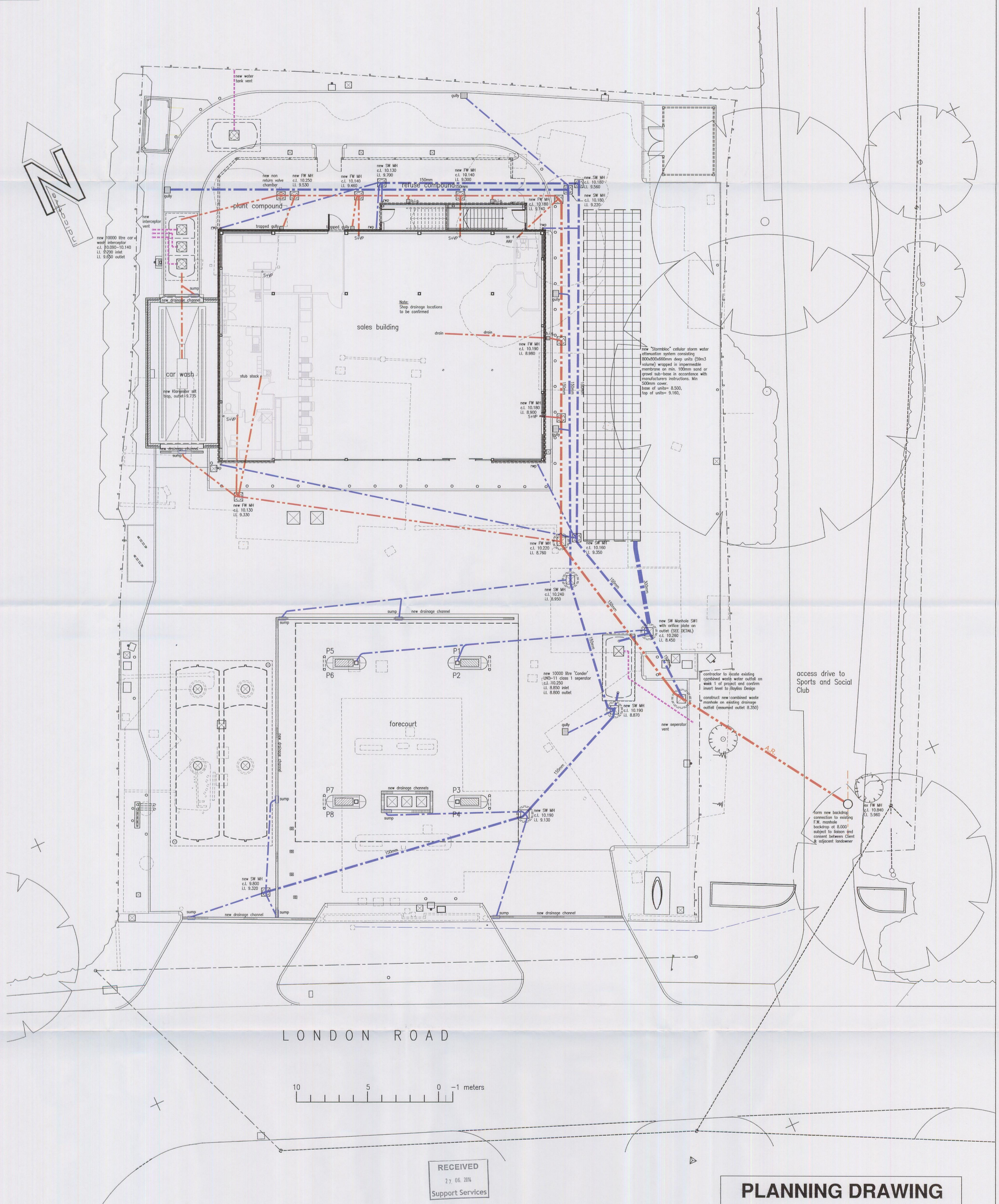
Road Gully Section 1:20

KEY–DRAINAGE INSTALLATION

- EXISTING FOUL WATER DRAIN
- EXISTING STORM/SURFACE WATER DRAIN
- NEW FOUL WATER DRAIN
- NEW STORM/SURFACE WATER DRAIN
- NEW SEPARATOR VENT
- "OSMA" OR SIMILAR PLASTIC INSPECTION CHAMBER BED AND SURROUND WITH 150MM CONCRETE (MANHOLES UP TO 1000MM DEEP)
- 1050MM DIA SPUN CONCRETE MANHOLE RINGS AND COVER SLAB BED AND SURROUND WITH 150MM CONCRETE (MANHOLES OVER 1000MM BUT LESS THAN 2700MM DEEP)
- TRAPPED ROAD/YARD GULLY
- TRAPPED GULLY

NOTES

All drains to be 100mm dia unless noted otherwise
All drains to be stoneware pipes with polypropylene joint couplings
Drains to be bed and surround with 150mm concrete with Flexell board placed around pipes at joint positions
Separators to be installed strictly in accordance with manufacturers instructions
750x750mm flat "Fibresec" cover and frame to Forecourt Separator and Washdown Silt Separator
600x600mm steel solid top single sealed covers and frames to all manholes, heavy duty in vehicular areas and medium duty elsewhere
Manholes exceeding 1000mm deep to have cast iron step irons built into manhole walls at 300mm staggered centres
All drains to be tested during installation to the Building Inspectors satisfaction and again on completion of the Contract
All drainage channels to be "Marshall's Birco" 100 complete with silt traps and buckets, cast iron Intercept gratings and holding down bolts
'Conder' LNO–11 Class 1 separator installed in accordance with BP standard drawing FOR–004–004



PLANNING DRAWING

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drawing to be read in conjunction with relevant Bayliss Design, Structural Engineers, M&E Consultant and Specialist Sub–Contractors drawings, specifications, details etc.

to be read in conjunction with relevant BP Standard drawings

REV.	DATE	BY	REMARKS	CHK.

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Tel:01543 261930
Est. as E.M.Bayliss and Partners 1956

CONTRACT
Grange Filling Station
London Road
Rayleigh, Essex

CLIENT
Trevellyan Developments Limited

TITLE
Site Layout Plan– Drainage

SCALE 1–1000@A0	DATE APR. 2014	CONTRACT NUMBER 6617
DRAWN Ezard/SSM	CHK	DRAWING NO DISC–6 / REV.

FIGURED DIMENSIONS ARE TO BE USED IN PREFERENCE TO SCALED DIMENSIONS