

NEATH TCLR

PLANTING METHODOLOGY AND AFTERCARE LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

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1.0 INTRODUCTION

The development is a new leisure centre, health suite, gym and ancillary café, library and 6 commercial units. It lies within Neath town centre and extends from The application site lies with Neath town centre, and extends from Prince of Wales Drive to the east, and incorporates Water Street to the West. To the south it bounds the existing Phase 1 development incorporating the Wilko store and multi storey car park, crosses Fairfield Way and runs to Wind Street in the North. The site measures approximately 1.17 ha.

The development provide a continuation of the enhanced public realm works as undertaken as part of Phase 1 of a re-generation strategy, including ecological and landscape enhancements.

The site has been cleared of former buildings and is covered with recycled aggregate over low quality caly loam devoid of any organic material.

1.1 SCOPE OF WORKS

The scope of the soft landscape works consist of the

- General initial works
- Flowering Lawn Grass Areas
- Plug planting in Flowering Lawn Grass Areas
- Hornbeam Hedge
- Swale wildflower grass areas
- Swales area plug planting
- Rain garden planting some in public realm areas
- Tree planting
- Landscape Maintenance

1.2 SITE

DEVELOPMENT

- Leisure Centre incorporating
 - o Swimming pool
 - o Health suite
 - o Gym
 - o Ancillary cafe
- Service yard
- Public realm works

LANDSCAPE

- Hard landscape not included in the LEMP except 2 hard areas for picnic tables in Landscape Area 1
- Drawing Neath Leisure Centre Landscape Area 1 Rev B
- Engineering works to form the swales and pipe work and balancing pipes by others
 - o Flowering Lawn Mix EL1 at rate of 4gms per sqm
 - o Mix recommended in the base of the swales as per Ecology report
 - o Trees adjustment made to provide native species
 - 3No Betula pubescens EXH
 - 2No Acer campestre EXH
 - 1 No Sorbus aucuparia Joseph Rock EXH
 - 1 No Alnus glutinosa EXH
 - o Hedgerow 3 staggered row at 0.30m cts to give 0.50m width hedge and a managed height 500-600mm height
 - o 450No 1+1 60-90cm
 - o Swale plug planting S1 to S7
- Drawing Neath Leisure Centre RW1-3 Rev B
 - o 2No Public Realm Rain Gardens
 - o 2No Public Realm Rain Gardens
 - o Rain Gardens 2A-2D with planting S1-S13

Rain Gardens 300mm topsoil

- Drawing Neath Leisure Centre RG4 Rev B
 - o Rain Garden S2,S3,S5, S7, S11
 - Ecology
 - o Bird and Bat Roosting Boxes are to be incorporated into the new buildings
Swift nest boxes provided in groups of five which require a clear (ie no doors or windows) vertical drop of at least 4.5m below each group of boxes. Boxes should preferably be included within the fabric of the building so that only the entrance crevice is visible, alleviating unsightly boxes fixed to the outside of the building.
 - o Six integrated bat boxes.
 - o Green Wall for the service yard not practical where the service yard enclosure may in part be temporary.
 - Planting
 - o Use of native or wildlife friendly species to be used in any landscaping
 - Adjusted two proposed species to have natives in the proposed tree planting
 - Demonstrate native and wildlife friendly planting in swales and rain gardens
 - Proposed EM1 Emorsgate
 - Swale Wildflower mix recommended by the Ecologist
(Sow at 5 grms/m²) - For sowing in base of swales
- 20% Wild flowers
 0.5% Achillea ptarmica Sneezewort
 1.0% Alisma plantago-aquatica Water-Plantain
 2.0% Angelica sylvestris Wild Angelica
 1.0% Cardamine pratensis Cuckoo Flower
 1.0% Dipsacus Fullonum Teasel 1.0% Eupatorium cannabinum Hemp Agrimony
 2.5% Filipendula ulmaria Meadowsweet
 1.0% Mentha aquatica Water Mint
 1.0% Myosotis scorpiodes Water Forget-Me-Not
 2.5% Iris pseudacorus Yellow Iris
 1.5% Lotus pedunculatus Greater Birdsfoot Trefoil
 1.0% Lychnis Flos-cuculi Ragged Robin
 1.7% Lycopodium europaeus Gypsywort
 1.0% Lythrum salicaria Purple Loosestrife
 0.3% Pulicaria dysentrica Fleabane
 1.0% Succisa pratensis Devil's Bit Scabious
- 80% Grasses (w = wild)
 8.0% Agrostis stolonifera (w) Creeping Bent
 4.0% Alopecurus pratensis (w) Meadow Foxtail
 2.0% Anthoxanthum odoratum (w) Sweet Vernal Grass
 1.0% Briza media (w) Quaking Grass
 40.0% Cynosurus cristatus Crested Dogstail
 1.0% Deschampsia cespitosa (w) Tufted Hair-Grass
 24% Festuca rubra ssp juncea
- Landscape Maintenance
 - o The Public Realm Rain Gardens will be handed over to the Local Authority after Year 2,
 - o All other areas associated with the development will be part of the 5 Year Management Plan.
 - o Replacement of failed planting

Work by others is lighting, CCTV cameras, drainage and site levels

1.3 DESIGN STRATEGY

- Use hedging along the eastern boundary of the swale area.
- Plant trees to compensate for losses from initial tree removals.

- Plug planting in swales and general grass area.
- The landscape is designed to be easily understood and straightforward to maintain and the planting has repetitive use of a range of plants.
- The general grass areas are Flowering Lawn Mix EL1 at rate of 4gms per sqm
- The swale basins will use the grass mix recommended in the Ecological Assessment..
- Meet the recommendations of the Ecological Assessment Report of April 2020.

The development offers the opportunity to provide a functional landscape and provide a setting for Leisure Centre and associated buildings and enhance biodiversity..

1.4 HABITAT MANAGEMENT OBJECTIVES DURING CONSTRUCTION AND FUTURE MANAGEMENT

- Apply good horticultural and ecological practice to all operations.
- Promote healthy growth and establishment of all planting and landscaped areas.
- Promote wildlife value and species diversity where appropriate.
- Enhance biodiversity via appropriate management of new wildflower and grass areas and vegetated Sustainable Drainage System (SuDS) Detention Basins and Swales.

1.5 KEY PERSONNEL AND RESPONSIBILITIES

CLIENT

Neath Port Talbot County Borough Council
Civic Centre
Port Talbot
SA13 1PJ
01639 686868

PRINCIPAL CONTRACTOR

Kier Western
Conway House,
St Mellons Business Park,
Cardiff,
CF3 0EY
02920 361616

CONTRACT ADMINISTRATOR

Contract Administrator (CA) shall mean the agent appointed by the Client.

RESPONSIBILITIES, SUPERVISION AND MONITORING

The construction and the responsibility that this is undertaken correctly is for Kier Western as Principal Contractor. Under their direction Subcontractors will be used for the implementation of the landscape works. There will be a 5 Year Management Period which will initially be a contract maintenance defects period by Kier Western and subsequent management by the Local Authority Management Agency for the remainder of the 5 Year Period.

This Landscape and Ecological Management Plan requires inspection and monitoring during the construction works and ongoing management. In addition to general management operations there will be an annual review:

- New plantings will be inspected and any defective or dead plants replaced in the first 5 years.
- The progress of the landscape generally will be reviewed and any changes to operations to meet the management objectives will be undertaken.
- A site walkover visit will be undertaken 2 years post-construction by a suitably qualified ecologist to assess the effectiveness of the retained habitat management and new habitat creation for species of pollinators and birds foraging. In
- Any variations to the management activities detailed within this plan, and in particular any additional habitat removal that becomes necessary as a result of unforeseen circumstances will require approval in writing from Neath Port Talbot County Borough Council..

PLAN REVIEW

A full review will be undertaken after 5 years and the Landscape and Ecological Management Plan updated.

1.6 GENERAL CONDITIONS

EXISTING STRUCTURES ON OR ADJACENT TO SITE:

- Existing and new commercial and retail on an adjacent to site
- Roads and footpaths around the site
- Public Realm areas on and around the site
- Services above and underground
- Swales and Rain Gardens on site
- Rain Gardens in Public Realm

1.7 SERVICE DRAWINGS

Any service information on landscape drawings are notional only. The Contractor MUST obtain confirmation of all services from the Principal Contractor and relevant authorities. There are extensive services (including a major gas main). Services may require the adjustment of tree positions in certain areas and care with excavations and a requirement for root barriers where necessary.

NOTIFICATION

Notify all service authorities including the Employer/Principal Contractor of any proposed works which could affect services not less than one week before commencing site operations and observe service authorities' recommendations for work adjacent to existing services.

ACCESS TO THE SITE

The site access will be through a barrier. Permission must be gained from the Site Agent for access to visit the site. The Contractor's vehicles should not cause obstruction to the Highway and all necessary regulations relating to Highway working must be followed.

Other users who will require access through the landscape contract area are:

- Principal contractor and other sub contractors
- General public
- Statutory Authorities

WORKING AREA, WORKING HOURS, PARKING, ADVERTISING, HEALTH AND SAFETY

Refer to the Principal Contractor's site requirements and attend site inductions and carry out all health and safety instructions required by the Principal Contractor. Provide all Health and Safety information and Method Statements required by Principal Contractor.

1.8 RISKS TO HEALTH AND SAFETY

The nature and condition of the site cannot be fully and certainly ascertained before it is all opened up. However, the following risks are, or may be, present:

- Work close to service covers, streetlights, service boxes and markers hazardous materials gas and electricity.
- Work close to live services and working with live services.
- Site must be left safe at the completion of each day's work due to the use of the site by the public both day and night e.g. open trenches made safe.
- During the day all working areas kept safe from the public and all notices and safety procedures followed including temporary fencing where necessary.
- The safety of the public during construction and public.
- Maintenance during the maintenance period will need to take into account the security required.
- Work close to service covers, streetlights, service boxes and markers and overhead electricity posts, hazardous materials gas and electricity.
- Work close to live services.
- Other site users on site.
- Use of solvents, inflammable substances, and chemicals.
- Use of machinery with moving parts, cranes, drilling rigs, electrical equipment and general use of machines.
- Likelihood of chemical drift.

- Making noise or dust during Works.
- Excavations danger of underground services.
- Hazards due to cold/wet windy weather.
- Manual handling and lifting operations.
- Other contractors working on site.

1.9 PROPRIETARY NAMES

The phrase 'or equivalent approved' is to be deemed included whenever products are specified by proprietary name. Where the specification permits the substitution of a product of a different manufacture or type to that specified such a substitution requires approval from the CA and where necessary documentary verification that the alternative product is equivalent in respect of material, safety, reliability, function and where necessary of appearance to the specified product.

BRITISH STANDARDS

All materials, workmanship and plant material must comply with the relevant British Standard unless otherwise indicated.

SIZES

Unless otherwise stated the size indicated is size required.

1.10 NOTIFICATION OF RECORDS

The Contractor shall notify the CA of the date of commencement and completion of the operations outlined below and provide CA with all necessary documentation required within 7 days to record and verify the Works as follows:

- a daily distribution return showing the number and description of men employed on the works including those employed by Contractors.
- a daily distribution return showing the number, type and capacity of all plant excluding hand tools currently employed on works.
- record of actions taken to protect biodiversity and monitor their effectiveness.
- record of weather conditions and other factors having material effect on progress of Works.
- record sheets of pesticide applications as required under Control of Pesticides Regulations 1986
- notification of dates of commencement and completion of operations, including all records of rates of application or use of materials, etc of application of fertilisers, pruning, mowing, litter picking and other maintenance visits etc.

Provide all necessary technical submissions, method statements and risk assessments at least one week in advance of relevant operation.

1.11 SUPERVISION/INSPECTION/DEFECTIVE WORK

In addition to the constant management and supervision of the Works provided by the Principal Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.

1.12 SAFETY/PROTECTION

Commonplace hazards which should be controlled by good management and site practice are not listed.

GENERAL CONDITIONS

- Site rules from Principal Contractor's Health and Safety Plan – use of PPE etc
- Continuing liaison:

OPERATIONS AND MATERIALS

- Hazard - Working on Highways
- Hazard - Use of Chemicals, paints, solvents, timber stain etc
- Hazard - machines or workers slipping down slopes
- Hazard - services
- Hazard - mechanical and manual handling

- Hazard - contaminated soil
- Hazard - Tree felling and tree works- working at height
- Hazard - protection of public and site users

MAINTENANCE

- Hazard - Working on Highways
- Hazard - Use of Chemicals
- Hazard - machines or workers slipping down slopes.
- Hazard - mechanical and manual handling
- Hazard - Treeworks – working at height
- Hazard - Protection of public

HSE APPROVED CODES OF PRACTICE

Comply with the following:

- Management of Health and Safety at Work
- Managing Construction for Health and Safety

1.13 POLLUTION

The contractor / landscape operatives must be conversant with the requirements of the Environmental Protection Act 1990, Pollution, Prevention and Control Regulations 2000, Hazardous Waste Regulations 2005 and the Control of Pollution (Amendment) Act 1989 for the Carriage of Controlled or Special Wastes.

Landscape contractors must be registered with a relevant Regulation Authority (Environment Agency) and be in possession of a valid Certificate of Registration or Certificate of Registration as a Broker of Controlled Waste under the Act.

1.14 USE OF CHEMICALS

The contractor/ landscape operatives must comply with 'The Control of Pesticides Regulations 1986', 'The Control of Substances Hazardous to Health Regulations 1988' and any other current legislation and subsequent revisions.

All chemicals must be products on the current list of Agricultural Chemicals Approval Scheme and used strictly in accordance with the conditions of approval. The landscape contractor must comply with all relevant Codes of Practice issued by MAFF.

All pesticides/herbicides transported or stored in the landscape contractor's vehicles or on site (regardless of quantity) shall be locked in a separate storage compartment or within lockable containers which is secured to the floor of the vehicle. All storage lockers must be sealed and clearly marked as containing pesticides and bear a standard black and yellow hazard sign.

Apply pesticides/herbicides strictly in accordance with the manufacturer's instructions in calm, dry weather conditions. Chemicals should not be applied in wet, frosty or windy conditions.

The contractor/ landscape operatives must hold a BASIS Certificate of Competence, or work DIRECTLY under the supervision of a certified holder.

Notify the site operator at least 24 hours in advance of the location, type of pesticide/herbicide, active ingredient and timing of application prior to commencing work. The contractor/ landscape operatives shall erect warning signs at all entrances to the areas to be treated. When restricted to planting beds, warning signs shall be placed within close proximity in clearly visible locations. Details of application and contact person to be shown.

In accordance with COSHH Regulations the contractor shall protect employees and other persons, including the general public and adjacent land owners who may be exposed to substances hazardous to health.

Dispose of waste chemicals and containers in accordance with the 'Control of Pesticides Regulations 1986', 'Control of Pollution Act 1974' and the 'Water Act 2014' and any subsequent revisions.

The contractor / landscape operatives shall be responsible for making good and or compensation for any

damage how so ever caused resulting from negligence in application, handling and/or storage of pesticides and herbicides. He shall also be responsible for keeping up to date with all legislation and regulations governing there use and inform the site operator of any changes that may affect the contract in any way.

The contractor / landscape operatives shall ensure that all property and utilities are protected against accidental or negligent damage that may occur. Any damage incurred by the contractor in carrying out their duties is to be made safe immediately and repaired to the satisfaction of the client or Utilities Company at the earliest convenient time, or as agreed, at the cost of the contractor.

It shall be the contractor / landscape operatives responsibility and liability for any damage to person or property, however caused. All operatives shall be trained according to the task to be undertaken.

1.15 EXISTING MAINS/SERVICES:

The Contractor shall:

- Ascertain the exact location of all existing services and the like in, under or over the site or adjacent thereto.
- The Contractor will be held responsible for any damage or disruption to such services crossing the site or those used during the performance of the Contract. Any such damage as may occur must be made good to the satisfaction of the CA, Employer, Service Authorities and adjoining owners or occupiers, at the Principal Contractor's own expense.
- Check the positions of all services before starting work.
- Adequately protect and prevent damage to all existing services. Do not interfere with their operation without the consent of the Service Authorities or private owners.
- If any damage to services result from the execution of the Works, notify the CA and the appropriate Service Authority without delay. Make arrangements for the work to be made good without delay to the satisfaction of the Service Authority or private owner as appropriate.
- Replace any marker tapes or protective covers disturbed during the site operations to the Service Authorities' recommendations.
- In the event of a service marker being disturbed for any reason it shall not be replaced other than in the exact position and to its former depth unless the repositioning is carried out at the direction and under the supervision of the Service Authority.
- Check all emergency and contact details for the varied service contacts and emergency numbers are up to date.

1.16 NOISE

Ensure that all measures to control noise produced by the Principal Contractor's operations required under or by virtue of the provisions of any enactment or regulations, or the working rules of any industry are strictly complied with.

- Fit all compressors, percussion tools and vehicles with effective silencers of a type recommended by the Manufacturer/s of the compressor, tools or vehicles.
- Do not use or permit the use of radios or other audio equipment which may cause nuisance.

1.17 NUISANCE

Take all necessary precautions to prevent nuisance from dust, rubbish and other causes. Remove daily, and if it should occur on the highway carriageway immediately to avoid any hazard to road users from site rubbish and debris generated from the Works for disposal. Comply with all instructions from the CA in this respect.

1.18 FIRE

Take all precautions necessary to prevent personal injury, death and damage to the Works or other property by fire. Comply with Joint Code of Practice 'Fire Prevention on Construction Sites' published by Building Employer's Confederation and the Loss Prevention Council and National Contractors Group. Advise the CA immediately if drought, arisings or other circumstances evident give rise to a fire risk.

1.19 BURNING

Burning is not permitted on site.

1.20 WATER

Prevent damage from storm and surface water. Keep site and excavations free of water.

1.21 WASTE/ARISINGS

- Remove debris, rubbish, surplus material and spoil regularly, daily where arisings are from a specific process or work item and keep the site and Works clean and tidy.
- Where appropriate waste to be recycled.
- Remove all rubbish, dirt and residues from excavations before infilling.
- Ensure that non-hazardous material is disposed off at a tip approved by a Waste Regulation Agency.
- Remove all surplus hazardous materials and their containers for disposal off site in a safe and competent manner as approved by a Waste Regulation Agency and in accordance with relevant regulations.
- Retain waste transfer documentation on site.

1.22 EXISTING FEATURES

Prevent damage to existing structures, fences, walls, roads and paved areas and other site features which are to remain in position during the execution of the Works. If damage occurs make good at the Contractor's own expense and to the satisfaction of the CA.

1.23 TIMING OF WORKS AND ECOLOGICAL CONSIDERATIONS

European Protected Species

No European Protected Species should be disturbed by the development.

Bats

No bat roosts have been identified on site post demolition of the existing buildings..

Nesting Birds

No bat roosts have been identified on site post demolition of the existing buildings.

Reptiles

None noted in the ecology report.

2.0 DOCUMENTS

The design information provided by the Landscape Architect has overlaps with architectural work, civil and structural engineering work and mechanical and electrical engineering. The subcontractor should be aware that information required to undertake the landscape works will require reference to the documents prepared by other consultants.

The Planting Methodology and Aftercare was produced using information from the following resources.

- Neath Leisure Centre PP- Rev B July 2020 Landscape Area 1
- Neath Leisure Centre PP- Rev B July 2020 RG4
- Neath Leisure Centre PP- Rev B July 2020 RW-1-3
- Ecology Assessment April 2020 Phase 3 Leisure and Retail
- Tree Report April 2020
- 21-9776-SS-Bourne Amenity – Rain Garden Soil – Jan 21
- Neath Port Talbot SuDS Soft Landscape
- NTCLRD-HMA-XX-RF-DR-A-90003 Proposed Site Plan Roof 30-07-21

3.0 INITIAL WORKS

INITIAL WORKS

Breaking up surface, forking and loosening general surfaces to a depth of 200mm prior to subsoiling and topsoiling.

3.1 TOPSOIL/SUBSOIL

Imported subsoil and topsoil will be required for all landscape areas.

IMPORTED TOPSOIL

- Quantity: All topsoil that is to be imported is to conform to this specification
- Standard: To BS3882 2015. Plus the following:
- Source: Submit proposals.
- Classification: Multipurpose.
- Texture to BS3882: Medium loam.
- Reaction, to BS1377-3: pH 6 - 7.5.
- Crumb structure: Made up of discernible crumbs.
- Stones:
- Size in any dimension (maximum): 20mm.
- Stone content by dry weight (maximum): 15%.

In addition to conforming to the above BS standard the soil should also conform to the following.

Visual Examination:-

Provide the CA a 5Kg sealed sample bag of representative soil, for approval of the physical structure of the soil, before chemical analysis is progressed. Obtain approval of a sample load on site of not less than 2m³. Retain for comparison with subsequent loads. Provide a full analysis from an approved testing station in accordance with 'Analysis for Topsoil'.

Physical Parameters:-

Clay (less than 0.05mm) 5-27%

Silt (0.002 – 0.05mm) 5-45%

Sand (0.05 – 2.00mm) 45-85%

(At least 50% of the total soil fraction should fall within the medium to coarse sand range)

Permeability 10⁻⁵ – 10⁻⁶ m/sec

Chemical Parameters:-

PH value (1:2.5 soil/water) 6-7.5 pH

Electrical Conductivity (1:2.5 soil/water) <1500 µS/cm

Electrical Conductivity (1:2.5 CaSO₄) <2800 µS/cm

Organic Matter (Walkley Black) 4.0 – 10.0%

Total Nitrogen (Dumas) >0.2%

Extractable Phosphorus (RB427) >26 mg/l

Extractable Potassium (RB427) >220 mg/l

Extractable Magnesium (RB427) >50 mg/l

- TOPSOIL ANALYSIS• All imported topsoil is to be analyzed
- Soil analyst: Submit proposals.
- Samples: Collect in accordance with BS3882.
- Submit:
- Declaration of analysis:
- Chemical analysis and contaminants;
- Maximum stone content, stone size and pH value;
- Nutrient content, pH value and textural classification;
- PH value and textural classification;
- Phytotoxic and CLEA elements; and
- Textural classification and maximum stone content.
- Report detailing soil analyst's recommendations.

The Landscape Contractor shall obtain a sample for analysis, to determine all of the requirements listed above.

The results and a brief analysis and interpretive report making comment on suitability of material in comparison to BS3882 and the specification included within this document, including recommendations for additives and/or amendments to bring sub-grade soil up to the required specification standard. Topsoil requirements and to support broadleaf native trees with particular reference to the requirement identified above and levels of metals and the likely effects of these on nutrient availability and protection of plant growth.

A certificate of Analysis should also be provided shall be submitted to the LA who may adjust the composition of any specified fertiliser of soil ameliorant and the rate of application, after examination of the Landscape Contractors cost. Where suitable amelioration is not possible the CA may reject the topsoil.

IMPORTED SUB-SOIL

- Quantity: All subsoil that is imported is to confirm to this specification.
- Standard BS 8601 – 2013 Subsoil.
- Source: Submit proposals.
- Crumb structure: Made up of discernible crumbs.

Visual examination:-

The subsoil shall have a defined granular, crumb or blocky structure and shall be reasonably free from non-soil material, brick and other building materials and wastes, hydrocarbons, plant matter, roots of perennial weeds and any other foreign matter or material or substance that would render the sand unsuitable for use. Provide the Landscape Architect (CA) a 1kg sealed sample bag of representative soil, for approval of the physical structure of the soil, before chemical analysis is progressed.

Physical Parameters:-

Clay (less than 0.05mm) 5-27%
 Silt (0.002 – 0.05mm) 5-50%
 Sand (0.05 –2.00mm) 40-85%
 Max. Stone Content (2 –50 mm) 50% by weight
 Max. Stone size in any dimension 75mm

Chemical Parameters:-

PH value (1:2.5 soil/water) 5.0-8.2
 Electrical Connectivity (1:2.5 soil/water) <2000 µS/cm
 Electrical Connectivity (1:2.5 CaSO₄) <2800 µS/cm
 Organic Matter (Walkley Black) % <2.0

Potential Contaminants:-

Refer and comply with Integral Geotechnique's Specific Target Level for the imported Capping Layer Soils List attached at the end of this specification.

Subsoil is to be naturally occurring material, excavated from a level immediately below the vegetable topsoil down to a maximum depth of 2.0m from the original ground level with no stone or rubble material larger specified. The material shall be a friable consistency, free draining, free from extraneous material and pernicious weeds. The subsoil must contain no chemical or domestic refuse or pollutants that would be harmful to short term or permanent plant or animal life. The material will not be extreme in either alkalinity or acidity. It is not acceptable to use topsoil within subsoil layers.

All sources of material shall be stated and a 2m³ minimum sample shall be provided for analysis, inspection and approval prior to deliveries to site. All supplies thereafter shall conform to approved samples. The CA may reject any subsoil with high stone or rubble content.

3.2 RAIN GARDEN SOIL

Refer to the Tim O'Hare Associates Report to Bourne Amenity Ltd for the samples supplied for use in the Rain Gardens.

The sample was described as a dark brown, slightly friable, moderately calcareous Loamy Sand with a weakly developed very fine to fine granular structure. The sample was slightly stony and contained a high proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed. The sample with additional tests was found to be suitable for use as a topsoil in the rain gardens

3.3 PROTECTIVE FENCING

There will be protective fencing required to protect retained hedgerow sections and tree groups and it should also be used to protect grass areas which can be retained. This protective fencing shall be 2.40m Heras fencing to BS, to be securely fixed to concrete blocks and each panel securely fixed to each other. This fencing shall be removed as landscape works commence in these areas.

4.0 LANDSCAPE WORKS

4.1 TOPSOIL/SUBSOIL REQUIREMENTS

Topsoil and subsoil depths required for the soft landscaping:

- 300mm topsoil 450mm subsoil in hedge trenches
- 300mm topsoil 650mm subsoil for tree pits- cross section 1.0m x1.0m
- Flowering Lawn Area 75mm selected topsoil and selected 375mm of subsoil
- Swale Basin Grass Areas 75mm selected topsoil 225mm selected Subsoil- soil depth to Engineer's requirements
- Rain Garden 300mm approved sandy loam topsoil in rain garden

4.2 AMELIORANTS

ROOTDIP

Root-balled trees are used a solution of one part Seanure Root Dip to ten parts water be applied around the roots as part of the puddling-in planting system.

ANTIDESSICANTS

All trees and evergreen plant material on arrival at site shall be sprayed with an appropriate antidessicant approved by the LA unless the temperature is below 10degC.

GREEN COMPOST

Green recycled compost shall be used which will have an organic and fibre content and some trace elements. It shall improve soil structure and help retain moisture. Green Compost to be made under strictly controlled conditions from green, organic recycled material. PAS 100 standard. Sample to be approved before full orders made. The supplier is to provide a sample and details of the compost components and approved by the Client before use on site.

Spread 50mm depth of compost on surface of all planting beds and hedge trenches work into full topsoil depth. Green Compost to be 10% tree pit and native pit backfill. Work into full topsoil depth.

MULCH

Melcourt Ornamental Bark Mulch to be used. The product shall consist of

- predominantly matured European Pine Bark with an even nominal particle size distribution of 5-35mm with minimal dust and fines and less than 5% wood content.
- The pH to be between 4.5 and 5.5.
- The product shall be pest, disease and weed free and not have been treated with Methyl Bromide or any additives.
- The product shall have been tested in accordance with the requirements of BS 4790:1987, for fire resistance.

Or other approved product with the same specification.

Melcourt Industries Limited,
Boldridge Brake, Long Newnton,
Tetbury, Gloucestershire.
GL8 8RT
Tel: +44(0)1666 502711
Fax: +44(0)1666 504398
Email: mail@melcourt.co.uk

4.3 ACCESSORIES

TREE TIES

Tree ties are to be Hessian webbing 50mm wide, wrapped around tree stem and nailed to the stakes with 40mm galvanized nails according to tree type.

TREE STAKES

Tree stakes shall be larch or sweet chestnut poles celcure treated, 75mm in diameter, straight with butt end.

Extra Heavy Standard Trees and Heavy Standard will have 3No stakes. The stakes are to be set 1200mm above ground.

RABBIT GUARDS FOR TREES: Provide black plastic spiral rabbit guards for trees of a suitable size for girth of tree to be guarded if required according to site conditions.

SPIRAL GUARDS (for hornbeam hedging)
Provide spiral guards to all hedging plants.

4.4 PLANT MATERIAL SUPPLY

PLANTS GENERALLY

Trees and plants are to conform to the relevant section of BS 3936 (publication series) and the National Plant Specification. No substitutes are to be accepted without the consent of the landscape architect and the local planning authority. All plants shall be true to size specified on the planting plan and schedule. All plants shall be healthy, bushy, pest and disease free and not pot-bound, dry, waterlogged, leggy or weak. A minimum of five breaks per shrub is required. Trees shall be vigorous, of good shape and with a well-branched head.

Plants that are container grown (CG):

- Supplied in a growing medium with adequate nutrients for the plant to thrive until permanently planted.
- Centred in the container, firmed and well-watered.
- With root growth substantially filling the container, but not root bound, and in a condition conducive to successful transplanting.
- Grown in the open for at least two months before being supplied.
- Grown in containers with holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

HANDLING AND DELIVERY

The Contractor shall comply with the recommendations of the booklet 'Plant Handling' published by the Committee for Plant Supply and Establishment in July 1985.

The Contractor shall include for packing, loading and transporting plant material, trees, etc from the source of supply to the site. All plant material shall be carefully packed and protected to survive transport to site without damage in lifting from the nursery, loading, transit or unloading. Any plant material which sustains major damage shall be rejected and replaced at the Contractor's expense, but slight mechanical damage may be corrected by careful pruning and wounds exceeding 25mm diameter shall be treated with fungicidal sealant.

If plants are not planted within 24 hours of delivery they shall be heeled in by placing the roots in a prepared trench covering them with fine soil and well firming and watering to prevent air pockets.

PLANT INSPECTION

The CA reserves the right to inspect all plant material prior, during and after planting and reject any plants that fail to meet a satisfactory standard.

4.5 TREES

They shall have either a well balanced head or well defined central leader with branches growing from the stem with reasonable symmetry and shall comply with the following definitions:

- **Extra Heavy Standard Trees** shall be rootballed. They shall be of a minimum height of 4.00-4.50mm with a sturdy taper and reasonably straight stem minimum 1.75- 2.00m in height from ground level to the lowest branch with a minimum girth of 14-16cms when measured 1.00m from ground level
- **Hedge plants:** These are to be strong well-rooted nursery stock evenly developed with a single well defined, straight and upright central leader. The main stem shall be furnished with lateral shoots. The plant shall be self supporting with a stem circumference at the root collar of 30-50mm. Overall heights as specified in the Plant Schedule. All whips are to be bareroot.

CONTAINER STOCK TREES

Container stock trees are **not** to be used. Tree planting to be undertaken in season.

POT GROWN SHRUBS

A shrub which is pot-grown or container-grown may, according to species, be cut back or trimmed to encourage bushiness. The size of pot shall be as stated in the Plant Schedule. The height of shrubs shall be measured from the ground level, excluding rootball or any container.

PLUGS

The Jumbo plugs 55cubic centimeters to be provided by supplier in trays and be planted within 24 hours of being delivered. Store out of the sun and water as necessary on delivery.

4.6 GRASS**SEED**

Grass seed shall be stored in sealed bags, on boards off the ground in a cool, clean, dry place, free from vermin.

FERTILISER

No fertiliser to be used in wildflower grass areas in swales and flowering lawn mix for grass areas.

GRASS SEED

The grass seed shall consist of the mixture as specified on the Contract Drawings. Certified seed shall be used and shall meet specifications for germination and purity laid down in Section 5.3 of BS 4428: 1969 "Recommendations for General Landscape Operations". Ensure that wildflower seeds are of British origin.

SEED MIXES**GENERAL GRASS AREAS**

Emorsgate EL1 Flowering Lawn Mix sown at the rate of 4gms per sqm.
Refer to the planting schedule for details.

SWALE AREAS

Ecologist's recommended seed mix sown at the rate of 5gms per sqm.
Refer to the planting schedule for details.

SWALE PLUGS AND SMALL CONTAINER PLANTING IN SWALES AND GENERAL AREA

To be planted at the rates indicated in the planting schedule.

5.0 WORKMANSHIP - LANDSCAPE

5.1 SITE CONDITION

The Contractor shall be held responsible for the keeping of the Works in a neat, tidy and litter free condition through the duration of the Contract.

Litter means arisings or residues from the Works, cans, bottles, paper and other extraneous objects.

5.2 WATERING

Water is to be provided by the Principal Contractor and access without cost to the private water system. The Landscape Contractor is to supply hoses and sprinklers and ware as necessary up to Practical Completion and as necessary during the defects/maintenance period.

- Quantity: Wet full depth of topsoil.
- Application: Even and without displacing plants, mulch or soil.
- Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing and planting.

Watering for planting of trees, shrubs and whips after planting and if dry conditions occur

DROUGHT CONDITIONS

If water supply is or is likely to be restricted by emergency legislation:

- Inform the CA without delay of the additional cost of second class water supply from a sewerage works or other approved source.
- If planting has not been carried out, do not do so until instructed.
- If planting has been carried out, obtain instructions on supply of water.

PERMANENT DRAINAGE SYSTEM

The permanent drainage system is not to be used for disposal of water from excavations without approval.

5.3 FORMATION OF GENERAL GROUND LEVELS

The levels of the boundaries of the site remain as existing. The remainder of the site will be subject to cut and fill and planting and grass areas will either be in cut or fill.

New ground levels need to be as required by the Engineer for paving edges and other hard surface edges and left ready for soil profiling to the required depth for the finish of swales, general grass areas, hedge trench and tree pits so that the finished topsoil levels can be 50mm below finished hard edging footpaths and service yard area edging.

The areas shall be excavated or filled to the correct depth for the soil profile.

The sub base material ready for subsoiling/topsoiling are to be broken up to a depth of 200mm before the soil profiles are laid.

5.4 RAIN GARDENS

The Rain Gardens are to be constructed to the Engineer's detail and allows for a 300mm depth of approved sandy loam topsoil.

5.5 SOIL PROFILE FORMATION

LOOSE TIP FILLING FOR LANDSCAPE AREAS

SUBSOIL FILL

Do not firm, consolidate or compact when laying.

Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

PLACING FILL GENERALLY

- Ensure that areas to be filled are free from loose soil, rubbish and standing water.
- Do not use frozen material or materials containing ice. Do not place fill on frozen ground.
- Take all necessary precautions to secure the stability of adjacent structures.
- Place fill against structures, membranes or buried services in a sequence and manner that will ensure stability and avoid damage.
- Plant employed for transporting, laying and compacting must suit the type of material i.e. light earth moving plant to be used for all subsoil areas.
- Earthmoving equipment: Vary route to avoid rutting.
- Filling: Layers not more than 300 mm thick.
- Lightly compact each layer to produce a stable soil structure when grading them to an even level.

5.6 HANDLING TOPSOIL

Standard: To BS 3882: 2015.

- Ensure topsoil is free of aggressive weeds weed species: Included in the Weeds Act, section 2 or the Wildlife and Countryside Act Schedule 9, part II.
- Give notice: Obtain instructions before moving topsoil.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
- Areas to be topsoiled are to be laid over the finished subsoil levels.
- Topsoil areas to be graded to be 50mm below finished edging levels.
- Do not use topsoil contaminated with subsoil, rubbish, oil based products or other materials toxic to plant life. Dispose of contaminated topsoil to the Contractor's tip
- Apply herbicide to perennial weeds and allow period of time recommended by manufacturer to elapse before cultivating before moving topsoil from topsoil heaps.

SPREADING TOPSOIL

Spread to the depths specified. Once spread the topsoil shall be kept free of weeds by physical means or by spraying with an approved weedkiller until such a time as planting is carried out.

GREEN COMPOST: HEDGE TRENCH AND RAIN GARDENS

- Spread 50mm layer of Green Compost and cultivate into top 150mm of topsoil.
- Reduce top 100mm of all topsoil to a fine tilth suitable for final grading
- Remove all undesirable material brought to the surface, including stones larger than 50mm in any dimension, roots, turf or grass and foreign matter.
- Cultivation and planting shall not be carried out when the soil is very wet or waterlogged, or during periods of frost.
- At all times during ground preparation care shall be taken not to re-compact the soil.

6.0 PLANTING GENERAL

6.1 CLIMATIC CONDITIONS

Carry out the work while soil and weather conditions are suitable for the relevant operations. Do not plant during periods of frost or strong winds. Plant only during the following periods:

- Deciduous trees, whips and shrubs: Late October to late March
- Conifers and evergreens: September/October or April/May.
- Herbaceous plants (including wild flower plugs): September/October or March/April.
- Container grown plants: At any time if ground and weather conditions are favourable.
- Ensure that adequate watering and weed control is provided.

6.2 NOTICE

Give notice before:

- Setting out.
- Delivery of plants/ trees.
- Planting shrubs.
- Planting trees.

6.3 TREE, HEDGE AND SWALE PLANTING

Planting shall be carried out in accordance with the Plant Schedules and the Contract Drawings.

SETTING OUT

All areas shall be set out in accordance with the Contract Drawings.

PLANT SPACING

Plant spacing shall be carried out in accordance with the Contract Drawing. The CA reserves right to adjust the exact position of all plant material after it has been set out.

The aim will be to space the plants evenly so that when established they will completely fill the areas indicated as fully as possible.

NEW PLANTING AREA

Prior to the placing of topsoil ensure subsoil is thoroughly broken up to allow free drainage. Remove all rubble, concrete washings, and other builder's debris to provide sufficient depths for topsoil placement. Cut back excessive haunching where it restricts topsoil depths. Excavate tree pits into subgrade prior to top soiling to ensure sufficient depths of soil. Mark tree pit locations with timber stakes.

PLANTING AND CULTIVATION

All planting shall comply in all respects with BS 4428: 1968 General Landscape Operations and for Tree Planting BS 8545: 2014. All plants shall be planted in accordance with good horticultural practice, upright with the roots well spread out at same depth at which they had been previously grown in the nursery. Care being taken to avoid damage to root systems and stems. The plants shall be placed in position in accordance with the Contract Drawings showing their best side to the front. Suspended planting and cultivation when weather or soil conditions are unsuitable.

Cultivations are as previously specified. Soil to be free of weeds prior to commencing planting works, where necessary the topsoil will have weeds removed by physical means or will be treated with weedkiller where necessary to destroy weed growth prior to commencing planting.

Evergreens to be dipped in or thoroughly sprayed with antidesiccant after planting. Do not apply in rainy or frosty weather. Ensure full coverage of underside of foliage.

ROOT BARRIERS

Root barriers are to be used where trees are within 2.00m of service runs. The root barriers are to be either installed vertically or laid to line service trenches where appropriate. The root barrier is to be Terram Rootguard which is a permeable root barrier.

Terram
 Fiberweb Geosynthetics Ltd
 Blackwater Trading Estate
 The Causeway, Maldon
 Essex CM9 4GG
 Tel: +44 (0) 1621 874200
 email:info@terram.com
 www.terram.com

6.4 EXTRA HEAVY STANDARD TREES,

These are planted in Landscape Area 1. The general tree area soil profiles will have been formed prior to planting.

At planting the localized tree pit dug shall be not less than minimum dimensions or 1500 x1500mm x 900mm depth. Allow the tree at planting to have the root flare at finished topsoil level. (Note: this may be the soil mark on the nursery stock. Check this is the root flare point before planting. Correct planting depth is important.)

1. Water rootball of rootballed trees with seaweed extract root dip. All wires hessian and other rootball wrapping to be removed at planting. Remove any weeds growing at top of rootball. Trim any damaged branches on tree.
2. Trees need to be orientated for the best crown development. It might be found that due to the nature of growing trees on nursery lines crowns develop asymmetrically. The first stake should be orientated to southwest.
3. Tree pits are to backfilled with subsoil and topsoil. 10% Green Compost to be mixed in thoroughly in topsoil backfill. The returned soil shall be lightly consolidated by treading as filling proceeds layer by layer with subsoil replaced first and then topsoil in layers above the subsoil
4. The tree shall be set upright in the centre of the tree pit so that the soil level after settlement will be at the original soil mark on the tree stem. The three stakes shall be driven into the pit 300mm from edges around the tree and fixed before backfilling.
5. Supply and fix a Root Rain Civic 60 watering feeding tube around rootball.
6. The returned soil shall be finely broken down and placed around the roots gently shaking the tree to allow particles to work around the rootball and ensure close contact with all rootball and prevent air pockets. The returned soil shall be lightly consolidated by treading as filling proceeds layer by layer, care being taken to avoid damaging the rootball. Soil around the root flare of the tree shall be consolidated firmly with the heel.
7. Secure the tree to the three tree stakes with Hessian webbing 50mm wide wrapped around tree stem and
8. nail the webbing to the stakes with galvanized nails. The stakes are to be 75mm diameter, 1200mm above ground level.
9. Water tree thoroughly after planting.
10. Fix strimmer guards to the tree stems.
11. Leave a 1250mm radius circle around each tree in grass areas and supply and spread a 50mm layer of bark mulch around each tree within the circle tapering to 25mm thickness by the tree stem.

DAMAGE DURING PLANTING

On completion of planting any broken branches shall be pruned, damaged areas of bark shall be neatly pared to sound tissue.

SUPPORTING TREES

Newly planted trees shall be held firmly by staking to prevent a pocket forming around the stem and the newly formed fibrous roots being broken.

6.5 HEDGE PLANTING

Hedgerow planting is comprised of bare rooted stock and is to be planted in Landscape Area 1.

HORNBEAM HEDGEROWS

1. Cultivate hedge trenches 1.0m wide and work in Green Compost, 50mm layer spread over area to full topsoil depth. Remove any debris arising from cultivations.
2. Supply and plant the hedge plants as listed in the planting schedule. Root dip all the plants in seaweed extract. And plant into cultivated hedge trenches at 0.30m centres in a triple staggered row.

3. Backfill to finished level.
4. Water the hedge plants thoroughly after planting.
5. Supply and spread a layer of bark mulch 50mm thick across the top of the hedge trench.
6. Spiral guards shall be fixed to all hedge plants.

6.6 SWALE PLANTING AND GENERAL AREA PLANTING PLUGS AND SMALL CONTAINERS

Supply and plant plugs and small containers at spacing indicated on the Contract Drawings and of species **and** sizes indicated on the Plant Schedule.

These plants are to be pit planted into the soil material in the Landscape Area 1.

1. The pot grown plants shall be well-soaked in water with alginure root dip in the water prior to planting.
2. Excavate a pit 50mm larger than plug/ pot size in all directions using a trowel.
3. Sufficient soil shall be removed from the pit to enable the root mass to be contained without distortion.
4. The root mass shall be removed intact from the container/plug tray and gently loosened. The plant shall be set upright in the centre of the pit. The returned soil shall be finely broken and firmed in around the root mass so that no residual voids remain. Surplus soil shall be distributed around the plant station and the empty containers removed from site.
5. Supply and spread a layer of bark mulch 25mm thick around each plant station for a 250mm radius.

FAILURES OF PLUGS AND SMALL CONTAINERS

Post Practical Completion maintenance of the plugs is to be carried out by the Contractor as specified. Any plugs which are dead, dying or otherwise defective at the end of each growing season within the Defects Liability Period will be regarded as defects due to materials or workmanship not in accordance with the Contract. They must be replaced by approved equivalent plugs at the next suitable planting season unless otherwise instructed.

6.7 RAIN GARDENS

There are two types of Rain Gardens some in the Public Realm they are mainly narrow rectangular shapes. Supply and plant plants at spacing indicated on the Contract Drawings and of species **and** sizes indicated on the Plant Schedule.

1. The Rain Gardens are formed to the Engineer's detail and 300mm depth of sandy loam approved soil for Rain Garden use by Bourne Amenity Ltd is to be spread in the rain garden beds.
2. Cultivate and work in Green Compost, 50mm layer spread over area to full topsoil depth. Remove any debris arising from cultivations.
3. The pot grown plants shall be well-soaked in water with alginure root dip in the water prior to planting.
4. For container stock plants, excavate a pit 75mm larger than pot size in all directions.
5. Sufficient soil shall be removed from the pit to enable the root mass to be contained without distortion. The base of the pit shall be forked over to break up the ground to an additional depth of 100mm.
6. The root mass shall be removed intact from the container and gently loosened. The plant shall be set upright in the centre of the pit. The returned soil shall be finely broken and firmed in around the root mass so that no residual voids remain. Surplus soil shall be distributed around the plant station and the empty container removed from site.
7. Water the all plants thoroughly after planting.

6.8 WATERING

Contractor shall water trees, hedges, native blocks and planting beds as necessary up to Practical Completion to ensure healthy growth during periods of drought.

PRUNING

Immediately after planting hedge plants and shrubs carefully cut back any damaged or diseased branches; remove any weak, thin or malformed growth and treat with fungicidal sealant; hawthorn is to be cut back hard to encourage bushy growth from base.

6.9 PROTECTIVE FENCING

If necessary protective fencing will be erected to protect completed works where necessary where other adjacent works are in progress and there is a risk of damage by others of completed landscape works.

6.10 DEFECTS LIABILITY

All tree, hedge and swale and rain garden planting are to be maintained for 5 Years after Practical Completion. The Contractor will undertake Years 1 and 2 and the Client's agent will undertake Years 3-5.

All planting completed prior to Practical Completion of the whole soft Landscape works is to be maintained as per maintenance requirements until Practical Completion.

After planting remove all soil from hard surfaces and grass areas and leave all areas in a clean and tidy condition at Practical Completion.

FAILURES OF PLANTING

Post Practical Completion maintenance of the planting is to be carried out by the Contractor as specified. Any tree/shrubs/plants which are dead, dying or otherwise defective at the end of each growing season within the Defects Liability Period will be regarded as defects due to materials or workmanship not in accordance with the Contract. They must be replaced by approved equivalent tree/hedge/shrub/plant material at the next suitable planting season unless otherwise instructed.

This will not apply if defects are caused by malicious damage after Practical Completion.

7.0 GRASSING

7.1 CLEARANCE OF NEW GRASS AREAS.

All new grass areas are to be cleared of existing grass and vegetation by the use of a herbicide (glyphosate) and dead vegetation removed to provide a clean seed bed for grass seeding.

The "**stale seedbed technique**" works well for annual weeds whose seeds will remain in the soil after clearance. Prepare seedbed then delaying sowing to allow a flush of weed seedgermination from the surface layers. This flush of weeds is then killed, by spraying or shallow cultivation, before sowing your seed mixture onto the cleaned "stale" seedbed - the surface of which now has a reduced weed seed burden.

The Contractor shall apply additional cultivations or applications of weedkiller required to destroy all weed growth, if owing to the time of year or other causes, there is a period of waiting between the completion of cultivation and final grading and seeding operations. As far as is practicable, cultivation and seeding shall proceed in close succession with a minimum elapse of time between each operation.

The soil should then be cultivated to a suitable depth to bury debris and alleviate compaction ensuring that the root protection areas of any established trees or hedges on site are not disturbed, and then raked or harrowed to produce a fairly fine firm surface. The finished seedbed should be firm enough to walk on without leaving impressions. As the area will be mown at a later stage the finished surface should be free of obstructions such as large stones or bricks, and free of deep ruts or ridges.

It is essential that the seed mix is given time (12 weeks) to establish before water is allowed to pass through the swale and sowing is best undertaken in late spring early summer

MANUFACTURERS' RECOMMENDATIONS

The manufacturer's recommendations for storage, handling and application of herbicides are to be strictly followed.

7.2 GRASS SEEDING: NEW GRASS AREAS

Areas for grass establishment are as indicated on the Contract Drawings. The following grass types are used:

- Grass to General Areas: Emorsgate EL1 Flowering Lawn Mix.
- Swale Basins: Ecologist recommended seed mix.

All works specified shall be carried out in accordance with BS4428 "Recommendations for General Landscape Operations Section 5".

SEEDED AREA REQUIREMENT

- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds (undesirable species) and disease.
- Appearance continuous ground cover of even density, with flower shoots and establishing grass..

CLIMATIC CONDITIONS

- General: Carry out the work while soil and weather conditions are suitable.

NOTICE

Give notice before:

- Setting out.
- Applying herbicide.
- Preparing seed bed.
- Seeding

SETTING OUT

- Boundaries: Mark clearly.
- Delineation: In straight lines or smoothly flowing curves as shown on drawings.

7.3 GRASS OPERATIONS

TOPSOIL/SUBSOIL CULTIVATION

Spreading as previously specified.

GRADING

- Topsoil condition: Reasonably dry and workable for wild flower grass areas.
- Contours: Smooth and flowing, with falls for adequate drainage.
- Hollows and ridges: Not permitted.
- Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
- Grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than 150mm.

HARROWING AND FERTILISER APPLICATION

The topsoil or substrate is to be free of weeds prior to commencing seeding works.

Before seeding the areas shall be cross harrowed and raked to provide a suitable tilth, all stones larger than 50mm shall be removed from the surface and removed from site to the Contractor's tip. Light harrowing only for substrate surfaces.

SOWING

The Contractor shall obtain approval of the prepared soil before seeding. Supply and cross sow with the seed mixes specified. After sowing once seeds have germinated - the seeded areas are to be lightly cross raked and rolled.

INITIAL GRASS CUTTING: WILDFLOWER GRASS AREAS

- After the seed has germinated a first cut is to be made when the grass has reached 75mm in height and cut to 50mm height.
- Thereafter cuts as follows;
 - March cut to 40-70mm and remove arisings
 - More frequent cuts may be required to control weed growth
 - September/October cut to 40mm and remove arisings. The aim is to maintain low nutrient levels in the soil and to suppress coarse grasses which would otherwise out-compete the wildflowers. The clippings are to be left insitu for a few days and ideally turned before removal to allow the hay to dry and the seeds to drop out.

7.4 DEFECTS LIABILITY

FAILURE OF SEEDING (BEFORE PRACTICAL COMPLETION)

Wildflower Grass Areas – an open sward is expected. Bare areas or dead grass exceeding 15% and inspected and assessed by CA which are apparent after Practical Completion and assessed as defects by CA must be made good by recultivation and seeding at times agreed with CA.

FAILURE OF SEEDING (AFTER PRACTICAL COMPLETION)

Wildflower Grass Areas – an open sward is expected. Bare areas or dead grass exceeding 15% and inspected and assessed by CA which are apparent after Practical Completion and assessed as defects by CA must be made good by recultivation and seeding at times agreed with CA.

7.5 PRACTICAL COMPLETION FOR WILDFLOWER GRASS SEEDED AREAS

Wildflower grass areas will only be accepted for Practical Completion when germination is seen to be even and of correct density and all weeds removed and the first cut has been satisfactorily undertaken.

No individual areas of grass area will be accepted for Practical Completion until the entire landscape works are completed to the satisfaction of the CA.

Should Practical Completion be delayed all grass areas shall be maintained in accordance with the specification for maintenance.

GRASS AREA WATERING.

The Contractor shall water the sown grass areas as necessary and agreed with the CA as failure due to drought will be the sole responsibility of the Contractor.

8.0 LANDSCAPE MAINTENANCE: GENERAL

MAINTENANCE PERIOD 5 YEARS: CONSTRUCTION MAINTENANCE PERIOD IS YEARS 1-2.
DEFECTS REPLACEMENTS area to be undertaken in years 1-5 and major reviews undertaken in Year 5.
The Client Agent is to manage the soft landscaping for Years 3-5.

The Public Realm Rain Gardens will be handed over to the Local Authority after Year 2,

8.1 DEFINITIONS

Contract Administrator (CA) shall mean the agent appointed by the Client.

8.2 PROGRAMMING AND SITE ATTENDANCE

PROGRAMME OF WORKS

The Contractor shall provide a programme of maintenance works at the commencement of the Contract. The Contractor shall maintain an operation plan that demonstrates the fortnightly progress and the fortnight in advance. The operational plan is to include management objectives to achieve this plan.

SITE ATTENDANCE

The aim of this item is to ensure that small matters are corrected.

The Contractor shall attend to incidental matters which are defined as follows:

- inspect the site and undertake as necessary litter picking, sweeping, leaf clearance and other maintenance Items which require attention in key areas such as at the site entrance, car parking areas and entrances to buildings 'making-safe repairs' to such items as staked trees or fencing.
- 'making safe' any hazardous items on site e.g. damaged service covers (full repair to be undertaken by Employer's CA.
- reporting to CA any matters requiring more than one hours attendance or requiring specialist work.
- Advise if outfalls blocked or silt build up.

MAINTENANCE RETURNS

The Contractor shall submit a fortnightly maintenance return and issue this to the CA.

8.3 REMOVAL OF ARISING

The Contractor shall remove all leaves, litter, rubbish, dirt and other arisings shall be swept up, collected and disposed of on the same day as the various items of work are undertaken. These arisings shall be collected and unsuitable material disposed off at the Contractor's tip. The Contractor shall take sole responsibility for providing a tip and for all charges, fees, transport and any other expenses in connection with tipping unless otherwise specified in writing by the LA.

Where indicated arisings are to be dispersed.

Planting beds, hedges and trees within planting beds, all arisings are to be removed from site.

Note all green waste arisings is to be recycled via local recycling facilities as the site has not suitable locations for composting material or operations for reusing composted material.

8.4 INSPECTIONS

During maintenance operations the Contractor shall note and report without delay to the LA any of the following:

- Activities by others which prevent the normal maintenance operations proceeding in the site areas e.g. Statutory Authorities work, new constructions, storage of materials and parking on landscape areas.
- Damage caused to the site areas by the activity of others on site.
- Missing gully covers or damaged service covers noted during the course of the works.
- Damage to boundary fences, other fences, railings and other features for which the Employer is responsible in landscape areas.
- Persistent litter problems.
- Theft or malicious damage, or clearly unauthorized use of the site areas.
- Damage to building structures within site area.

Inspect trees after high winds. Refix newly planted trees upright as necessary.

9.0 MAINTENANCE: TREES

The Contractor is to take care not to damage tree stems, any damage or tree death resulting from damage shall be made good at the Contractor's expense.

9.1 STAKED TREES

9.2 YEARS 1-5

INSPECTING TREES

Inspection of newly trees should be monthly in the first year and two month intervals thereafter and after high winds to assess remedial work needed due to storm damage, clearing of dead trees, prevention of trees overhanging roads and footpaths.

PEST AND DISEASE CONTROL

The Contractor shall report to the CA any indications that pest or disease control treatment is required. Allow for one application of a treatment to be non-chemical where possible and approved by the CA. Report any squirrel damage noted to CA.

TREE REMOVAL

Remove dead or dying or trees which are poorly located after obtaining approval from the CA. Where the tree is removed from a grass area reinstate soil levels to marry with adjacent levels and seed with an approved mix.

REFIRMING

Ensure that all trees remain firmly bedded in the ground after strong winds, frost and other disturbances. Refirm by treading around the base. Any 'collars' forming at the base of the trees shall be broken up and then backfilled with topsoil.

STAKED TREES

- Check and refix and replace as necessary rabbit guards on trees if these are present.
- Check tree stakes for firmness and signs of rot or damage.
- Refirm or replace as required. Tree stakes to be supplied by the Contractor at his sole cost to be suitable for the size of tree to be staked, fully tanalised, round, peeled and pointed at one end.
- Tree stakes should be removed after three growing seasons. If the tree has failed to anchor at this time the tree is to be replaced.
- Check all tree ties. Remove, adjust, refix or replace if broken. Ties to be supplied by the Contractor at his/her own expense. The make of replacement ties must be approved by the CA before use on site. Ties to be nailed securely to the stakes. Remove ties when stakes are removed.
- Provide aeration where compaction is considered to be one cause for poor tree condition.
- Trees are within planting beds or grass – maintain areas around trees weed free for three years.
- Top up mulch in planting beds in July to 50mm depth for first two years.
- Water as necessary during dry periods for the first two years.
- Any trees which die or are otherwise defective during the 5 year Defects/Maintenance Period shall be replaced at the Contractor's cost in the next November and March planting season.

These works to staked trees are to be carried out **between September and February each year unless specified otherwise and when necessary during the remaining part of the year – work should be undertaken when trees are dormant.**

PRUNING TREES

- Remove dead or damaged branches and cut back any ragged edges of wounded bark back to healthy tissue.
- Remove side growths beneath the crowns and any suckering growth from tree base. All cuts to be pared back flush to the stem, trunk or scar tissue.
- Where tree in very poor condition tree removal may be required.
- Pruning shall be undertaken once per year during between October and February. The use of chainsaws and the like will not be permitted, unless instructed by the CA for mature tree pruning works.

10.0 MAINTENANCE: SWALE PLANTING AND RAIN GARDENS

YEARS 1-5

These planting areas are within grass areas and the plantings must not be damaged when undertaking grass management.

PEST AND DISEASE CONTROL

The Contractor shall report to the CA any indications that pest or disease control treatment is required. Allow for one application of a treatment approved by the CA. Pest and disease control includes for the control of slugs, snails or any other pest (not vermin) which adversely affects plant material. Repeat treatments are to be made as necessary. Report any rabbit damage noted to CA.

REFIRMING

Ensure that all plants remain firmly bedded in the ground after strong winds, frost and other disturbances. Refirm by treading around the base. Any 'collars' formed at the base of the shrubs shall be broken up and then backfilled with topsoil.

AERATION

Where the ground is compacted or water logging aerate the soil avoiding damage to any underground plant rhizomes etc and avoid damage to underground services where these occur.

10.1 WEEDING

All planting beds are to be kept weed free at all times. Beds indicated for handweeding are either overgrown and require handweeding to clear them before routine maintenance can proceed, or are established beds with near complete plant cover. The Contractor is to provide a list of suitable herbicides for use in planting beds and obtain the written approval of the CA.

As indicated in the Contract Drawings weed areas using the appropriate method as follows:

- W1. HANDWEEDING - Handweeding means removing all weeds, including roots, by hand hoeing, digging or forking, taking care not to remove more than a minimum quantity of soil, causing minimum disturbance to mulched surfaces and bulbs and leaving the area in a neat, raked, clean condition. Areas to be handweeded are well established areas of ground cover, evergreen plant material or mulched beds.

10.2 CONTROL OF UNSUITABLE VEGETATION

During routine visits inspect plantings for sucker growth, and unsuitable/atypical growths and feathers on stems and remove at the point of origin.

10.3 PRUNING

All pruning is to be carried out in accordance with the correct horticultural practice for the type of plant as necessary. Vary the amount and nature of the pruning, trimming and shaping according to the species, stage of growth, season and required visual effect.

- Winter flowering shrubs: spring.
- Shrubs flowering between March and July: immediately after the flowering period.
- Shrubs flowering between July and October: back to old wood in winter.
- Evergreen perennials: tidy during spring and summer by removing dead foliage.

GENERAL

The Contractor shall allow for pruning once a year, and trimming of vigorous species as necessary through the year.

- **In all cases dead, diseased and damaged material shall be removed.**
- Where necessary remove growth encroaching onto footpaths, roads, hard areas, grassed areas, signs, lights, sightlines and other features and if directed by the CA.
- Trim as necessary the species to prevent straggly growth or growth beyond the bed limits, reduce the height of shrubs to free tree stems as directed, trim to maintain tall shrubs at a defined height and round off the planting as directed to provide a neat appearance.
- Any plants which die or are otherwise defective during the 5 year Defects/Maintenance Period shall be replaced at the Contractor's cost in the next October and March planting season.
- **All arisings from pruning shall be shredded and removed from site as green waste.**

11.0 MAINTENANCE: HEDGEROWS

11.1 NEW HEDGEROWS

YEARS 1-5

Maintain new hedges at 0.5m height. Trim carefully and neatly to regular line and shape, with the width at the top less than that at the base, using suitable mechanical cutters unless otherwise directed by the CA. Both sides and tops of hedges shall be cut back to previous year's growth. The Contractor is to finish all work to give a neat and tidy appearance over the whole hedge and remove arisings. All cuts shall be cleanly made, without tearing. Remove all grass and weed growth from the base of the hedge together with any litter.

- Check and refix, replace (and remove if instructed) as necessary, net guards on hedge plants, if these are present. During the establishment period, cut back the netguard to allow balanced growth if necessary.
- Remove spiral guards when hedge plants are established in 2nd or 3rd year.
- Ensure that all hedge plants remain firmly bedded in the ground after strong winds, frost and other disturbances.
- Refirm by tread around the base. Any 'collars' forming at the base of the trees shall be broken up and then backfilled with topsoil.
- Provide aeration where compaction is considered to be one cause for poor hedge condition.
- Water as necessary during dry periods for the first two years.
- Top up mulch in the hedge trenches in July to 50mm depth for Year 1 and Year 2.
- Maintain weed free base around the hedge base. Once the hedge is established cease weeding.
- Any hedge plants which die or are otherwise defective during the 5 year Defects/Maintenance Period shall be replaced at the Contractor's cost in the next October and March planting season.

12.0 MAINTENANCE: GRASS

YEARS 1-5

INSPECTION OF GRASS AREAS AND LITTER PICKING

The Contractor shall inspect grass areas on each occasion before commencing grass cutting operations and shall remove and dispose of all litter, stones and other debris which may cause personal injury, or damage to buildings, machinery or equipment and installations.

COMMENCEMENT OF OPERATIONS

Once grass cutting has commenced on an area, the whole area shall be cut and completed.

GRASS CUTTING MACHINES

Grass cutting machines shall be appropriate for the size of area being maintained and the standards of finish specified. Inaccessible margins, isolated rough areas of any size, corners, bases of fence lines, bases of hedges, bases of buildings and including weed killed areas and the like shall be cut by suitable machines or by hand at the same time as the main area of grass. Cutters of all mowers shall be sharp, properly set and shall cut the sward evenly and cleanly.

REMOVAL OF ARISINGS

All arisings from grass cutting scattered over roads, paths and planting beds should be swept up, collected and removed from on the same day mowing is undertaken.

OBSTRUCTIONS

All growth around obstructions in grassed areas, water outfall and infalls, swale plantings, bases of trees, light surrounds and fence lines and the like shall be cut on each occasion that the grass is cut.

GRASS EDGES

Where grass abuts horizontal hard surfaces cut it back to the edge of the hard surface without forming a channel wherever the overgrowth of grass exceeds 100mm, using an appropriate grass edge cutter, cutting to smooth curves and straight lines as appropriate.

REFORMING GRASS EDGES

Additionally for all amenity and intermediate grass areas as shown on the Contract Drawings re-form the edges by half mooning abutting paths, around tree bases, manhole covers, along fence lines and adjacent planting beds with a suitable edging tool to straight lines or smooth curves as appropriate. This type of edging to be carried out once a year and completed by **28 February** unless specified otherwise by the CA.

GRASS ON BANKS, SLOPES AND SIMILAR AREAS

Grass shall be maintained to the same standard of finish as that specified on immediately adjacent grass areas. Provide suitable mowing machines or cut by hand to give the same standard of finish

PLANT PLUGS AND SMALL CONTAINERS

Positions of plugs/containers in swales basins is as indicated on the Contract Drawings. Where plugs occur do not commence maintenance cutting of these areas until six weeks after they have flowered and died back or until instructed by the CA. Where directed by the CA, adjust mowing regimes to encourage the growth of wildflowers.

GRASS AREAS AROUND TREES

An area of a minimum of 1250mm radius around all trees is to be kept free of weeds and grass in grass areas for first 3 years.

AREAS OF GRASS TO BE STRIMMED

The areas to be strimmed are steep banks or around obstructions or in areas too small for the mowers to be used. The grass areas shall be strimmed to maintain to the height specified for adjacent grass areas and arisings removed or dispersed according to the grass type.

GENERAL GRASS REINSTATEMENT

In all areas subject to mowing procedures reinstate any areas within the grass which are not of an acceptable standard in comparison to the general condition of the adjacent grass areas. Reinstatement shall ensure that the grass area is brought to the standard specified. Necessary treatment for general reinstatement shall include importing suitable soil to fill low areas, levelling raised or other uneven areas, stone picking and the removal of

other debris which would impede the mowing procedure and thereafter seeding or overseeding with a seed mix to be approved by the CA. Allow for adjusting soil levels around manholes and other fixed apparatus, repair of rabbit damage and vehicle ruts or similar damage. Also allow for bringing grass down to the height to which it is thereafter to be maintained.

Any defective or grass failing to thrive in the first two years of maintenance period is to be reinstated to be undertaken using the same seed mix used for initial seeding.

WILDFLOWER GRASS AREAS – GENERAL AND SWALES

The Swales and S1 Planting Area have plug and small container planting in wildflower grass areas. These grass areas are to be managed to suit wildflowers and avoid damage to the plug /small container planting.

In Year 1 the first growing season, the new wildflower and grass areas should be cut regularly (one cut per Month from March-October inclusive) to approximately 50mm to control annual weeds. Once the sward is established for the following years cut to a height of 50mm in April and September. Leave arisings in situ for two days then remove from site.

Use hand-held mechanical tools carefully in operations close to stems, within areas that are difficult to access and within attenuation areas to avoid risk of any damp conditions within the basin causing mechanical problems.

No fertiliser application.

Broadleaf weeds to be treated by spotweeding or weed wiping as the only acceptable chemical method to be undertaken during mid/late spring each year. Retreatment as necessary in season.

12.1 WILDFLOWER GRASS AREAS

The wildflower and grass areas on site will be managed to provide a species-rich and long sward, with a minimal maintenance regime to enable enhanced biodiversity value and foraging opportunities for species of bat.

In Year 1 during the first growing season, the new wildflower and grass areas should be cut regularly (one cut per month from March-October inclusive) to approximately 50mm to control annual weeds and help maintain balance between faster growing grasses and slower developing wildflowers.

Once the sward is established for the following years cut the areas of wildflower and grass to approximately 50mm twice a year in April and September. Leave arisings in situ for two days, to allow invertebrate species to return to the grassland, then remove from site.

Maintain wildflower and grass areas as a healthy, vigorous sward, free from disease, fungal growth, scorch or wilt. Prevent waterlogging, compaction, trampling, abrasion or scalping.

Top dress and make good any damaged areas of gully erosion, slip and depressions and re-seed to original specification. Re-seeding should match the existing adjacent plants in quality and appearance.

Monitor wildflower grass areas for watering requirements during the first two growing seasons, with special attention during drought periods.

13.0 INVASIVE NON-NATIVE SPECIES

In the event that invasive plant species become established on site they will be controlled at the nearest opportunity using approved methodology and guidance (<http://www.nonnativespecies.org>) to avoid the risk of further contamination and spread. Common examples include:

- Cut Himalayan balsam (*Impatiens glandulifera*), by hand or machine below the lowest node to prevent the formation of flowers and seeds.
- Spray giant hogweed (*Heracleum mantegazzianum*) with herbicide as a spot treatment when the plants are growing actively but still less than 1m high. Control on a catchment basis, working downstream to prevent seed recolonisation.
- Spray Japanese knotweed (*Fallopia japonica*) with glyphosate during the flowering period. Monitor treated sites and apply spot herbicide treatments to any surviving plants.

14.0 REFERENCES AND BIBLIOGRAPHY

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14.2 WEBSITES

- http://www.bats.org.uk/pages/bat_boxes.html
- http://bumblebeeconservation.org/images/uploads/Resources/TNCT_Land_Factsheet_2_Managing_wildflower_meadows.pdf
- <https://www.geminal.com>
- <http://www.magic.gov.uk>
- <http://www.nonnativespecies.org>

15.0 5 -YEAR MANAGEMENT SCHEDULE

16.0 DOCUMENTS

YEARS 1-5

[illegible]

NEATH LEISURE CENTRE : PLANTING SCHEDULE

05-Apr-22

		Native	Pollinator	
TREES				
Betula pubescens	14-16cm girth Extra Hvy Std	N		3 No
Acer campestre	14-16cm girth Extra Hvy Std	N	P	2 No
Sorbus aucuparia Joseph Rock	14-16cm girth Extra Hvy Std	N	P	1 No
Alnus glutinosa	14-16cm girth Extra Hvy Std	N		1 No
TOTAL				7 No
HEDGES	Triple row at 0.30m cts Spiral guards			
Carpinus betulus	1+1 60-90cm Bare root			450 No
TOTAL				450 No
SWALES				
S1 Cornus sanguinea	11 cm pots	N	P	15 No
S2 Carex flacca P	pots as available	N		8 per sqm
S3 Iris pseudoacorus	jumbo plugs	N	P	8 per sqm
S4 Juncus effusus	jumbo plugs	N		4per sqm
S5 Eriophorum angustifolium	9cm pots	N		8 per sqm
S6 Juncus inflexus	jumbo plugs	N		4per sqm
S7 Geum rivale	jumbo plugs	N	P	8 per sqm
TOTAL				as calculated
RAIN GARDENS				
S1 Bergenia cordifolia	2Lpot		P	6 per sqm
S2 Ajuga reptans	1Lpot	N	P	6 per sqm
S3 Veronicastrum virginicum	1Lpot		P	6 per sqm
S4 Festuca glauca Elijah Blue	2Lpot			6 per sqm
S5 Achemilla vulgaris	1Lpot			6 per sqm
S6 Aster pendunculatus	0.5Lpot			6 per sqm
S7 Vinca minor	2Lpot			6 per sqm
S8 Agapanthus Northern Star	2Lpot			6 per sqm
S9 Geranium pratense	2Lpot	N	P	6 per sqm
S10 Eupatorium cannabinum	0.5Lpot	N	P	6 per sqm
S11 Calamagrostis x acutifolia KF	0.5Lpot			6 per sqm
S12 Stachys byzantina	2Lpot		P	6 per sqm
S13 Helenium Moerheim Beauty	2Lpot		P	6 per sqm
S14 Bergenia cordifolia	2Lpot		P	6 per sqm
S15 Rudbeckia fulgida	2Lpot		P	6 per sqm
S16 Hemerocallis Burning Daylight	2Lpot			6 per sqm
S17 Persicaria Firetail	0.5Lpot			6 per sqm
S18 Geum Mrs Bradshaw	1Lpot		P	6 per sqm
TOTAL				as calculated
PUBLIC REALM RAIN GARDENS				
S1 Bergenia cordifolia	2Lpot		P	6 per sqm
S9 Geranium pratense	2Lpot	N	P	6 per sqm
S10 Eupatorium cannabinum	0.5Lpot	N	P	6 per sqm
S11 Calamagrostis x acutifolia KF	0.5Lpot			6 per sqm
S12 Stachys byzantina	2Lpot			6 per sqm
S13 Helenium Moerheim Beauty	rhs poli		P	6 per sqm
S14 Bergenia cordifolia	2Lpot		P	6 per sqm
S15 Rudbeckia fulgida	2Lpot		P	6 per sqm

S16 Hemerocallis Burning Daylight	2Lpot			6 per sqm
S17 Persicaria Firetail	0.5Lpot			6 per sqm
S18 Geum Mrs Bradshaw	1Lpot		P	6 per sqm
TOTAL				as calculated

GENERAL AREA GRASS MIX

Emorsgate EL1 FLOWERING LAWN MIX

Wild Flowers				6.5 %
Betonica officinalis Betony	N	P		0.2 %
Centaurea nigra Common Knapweed	N	P		1.2 %
Galium verum Lady's Bedstraw	N	P		0.7 %
Leontodon hispidus Rough Hawkbit	N	P		0.4 %
Lotus corniculatus Birds foot Trefoil	N	P		1.2 %
Plantago lanceolata Ribwort Plantain	N	P		1.4 %
Primula veris Cowslip	N	P		0.4 %
Ranunculus acris Meadow Buttercup	N	P		0.6 %
Silene acaulis Pepper Saxifrage	N	P		0.2 %
Vicia cracca Tufted Vetch	N	P		0.2 %
GRASSES	N			80 %
Agrostis capillaris Common Bent	N			8 %
Carex flacca Glaucous Sedge	N			1 %
Cynosurus cristatus Crested Dogstail	N			39 %
Festuca rubra Red Fescue	N			28 %
Phleum bertolonii Smaller Cat's Tail	N			4 %

SWALE BASE MIX - Ecologist recommendation

WILD FLOWERS				20 %
Achillea ptarmica Sneezewort	N	P		0.5 %
Alisma plantago-aquatica Water-Plantain	N	P		1 %
Angelica sylvestris Wild Angelica	N	P		2 %
Cardamine pratensis Cuckoo Flower	N	P		1 %
Dipsacus Fullonum Teasel	N	P		1 %
Eupatorium cannabinum Hemp Agrimony	N	P		1 %
Filipendula ulmaria Meadowsweet	N	P		2.5 %
Mentha aquatica Water Mint	N	P		1 %
Myosotis scorpioides Water Forget-Me-Not	N	P		1 %
Iris pseudacorus Yellow Iris	N	P		2.5 %
Lotus pedunculatus Greater Birdsfoot Trefoil	N	P		1.5 %
Lychnis Flos-cuculi Ragged Robin	N	P		1 %
Lycopus europaeus Gypsywort	N	P		1.7 %
Lythrum salicaria Purple Loosestrife	N	P		1 %
Pulicaria dysenterica Fleabane	N	P		0.3 %
Succisa pratensis Devil's Bit Scabious	N	P		1 %
GRASSES				80 %
Agrostis stolonifera (w) Creeping Bent	N			8 %
Alopecurus pratensis (w) Meadow Foxtail	N			4 %
Anthoxanthum odoratum (w) Sweet Vernal Grass	N			2 %
Briza media (w) Quaking Grass	N			1 %
Cynosurus cristatus Crested Dogstail				40 %
Deschampsia cespitosa (w) Tufted Hair-Grass				1 %
Festuca rubra ssp juncea				24 %

0.5m Hawthorn hedgerow

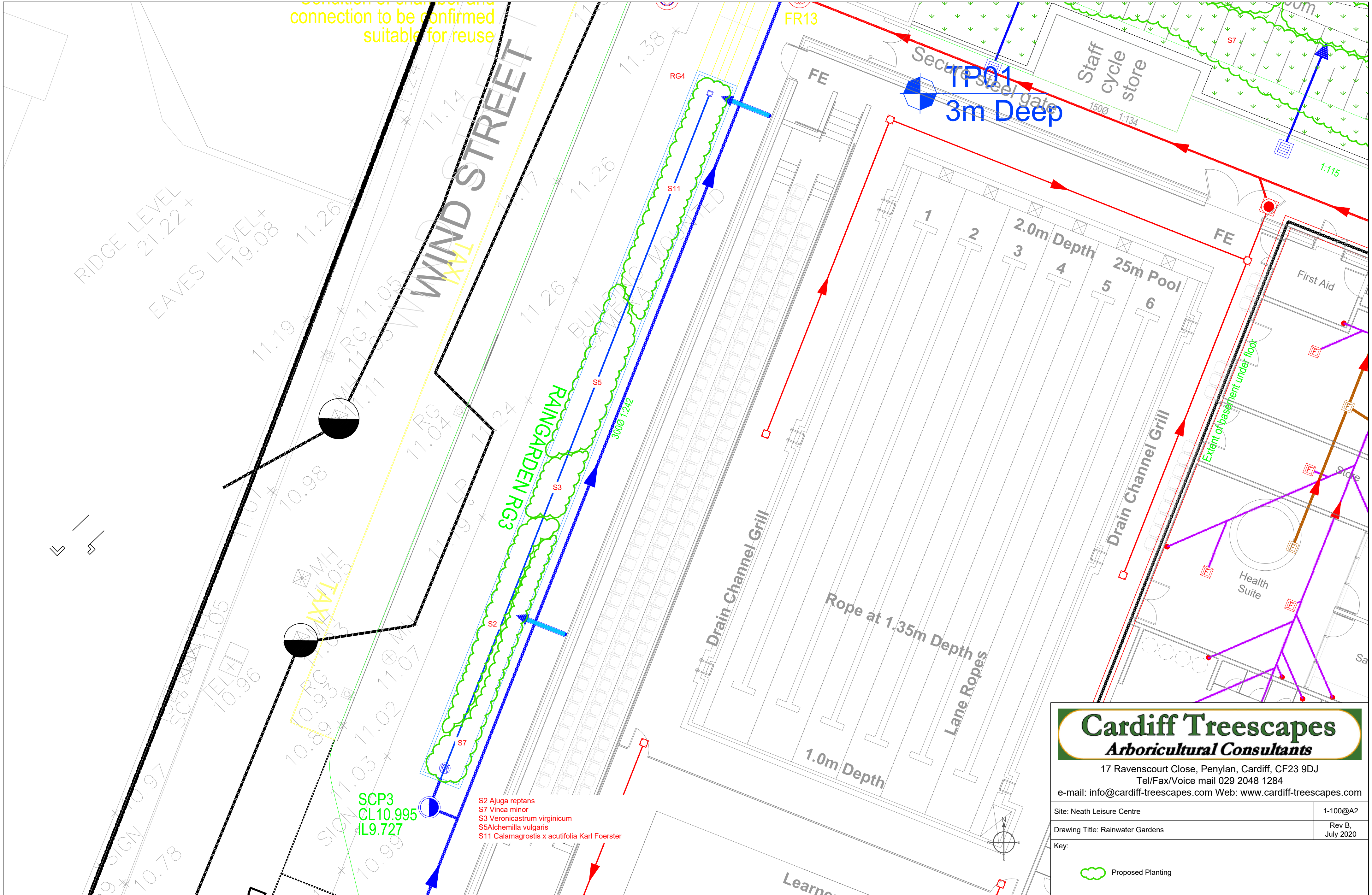
0.5m Hawthorn hedgerow

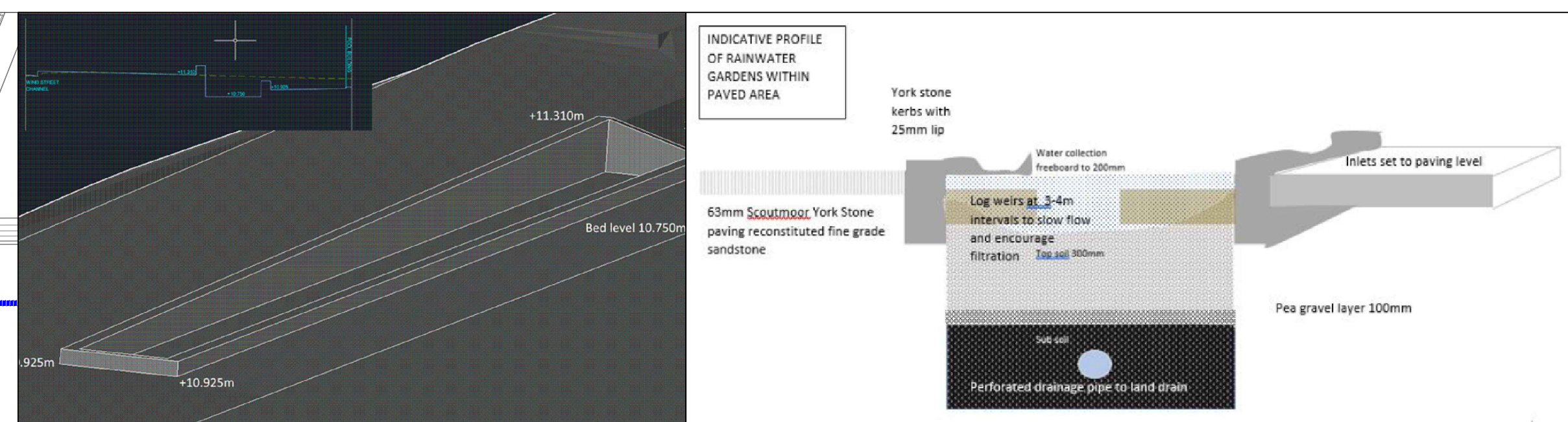
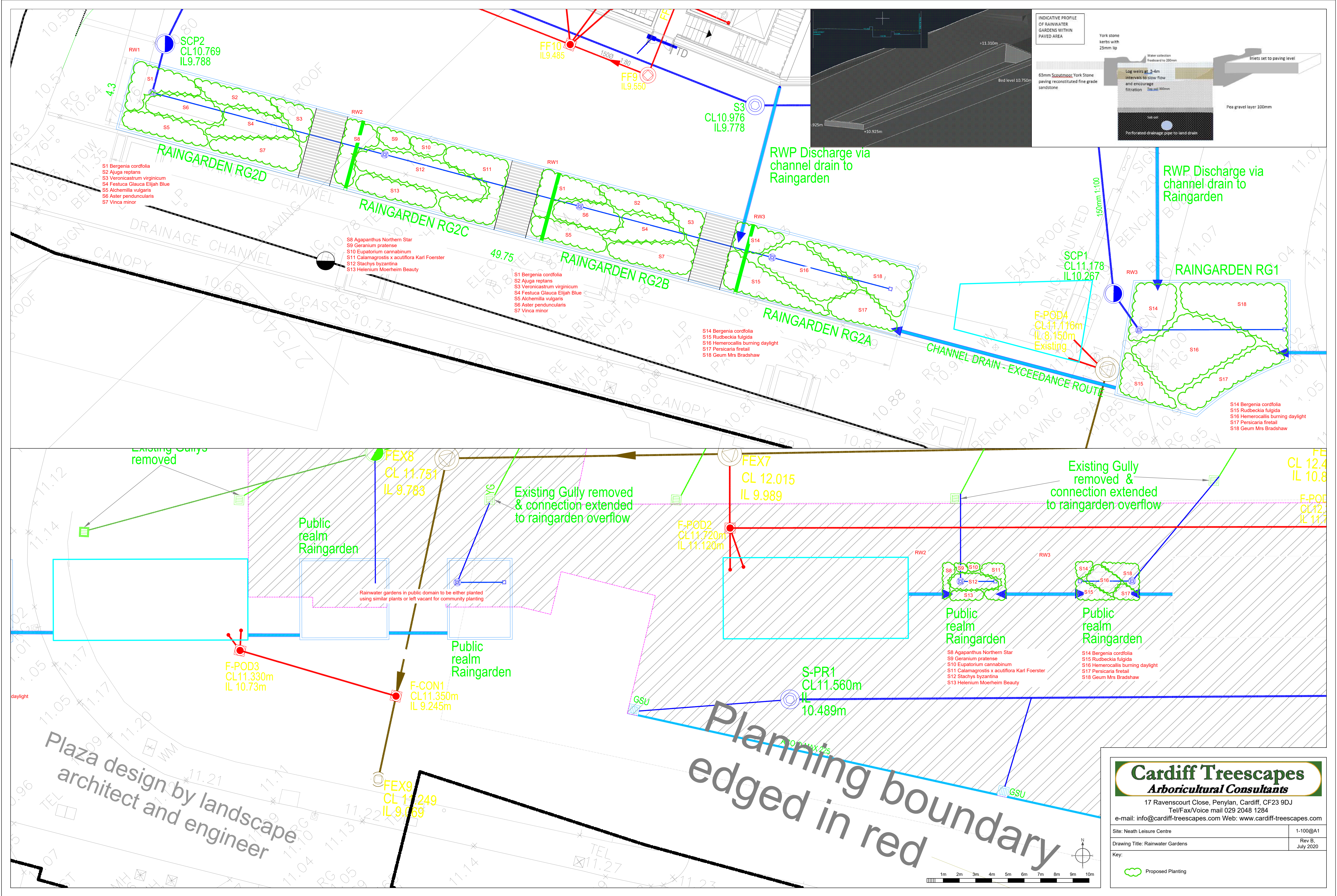
Staff
cycle
tore


 Proposed Planting


 Meadow Mix EM8







Cardiff Treescapes
Arboricultural Consultants

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Site: Neath Leisure Centre	1-100@A1
Drawing Title: Rainwater Gardens	Rev B. July 2020

Key: Proposed Planting