



L I Z A R D

Landscape Design and Ecology

MJH EXECUTIVE HOMES LTD

LANGFORD

HORSEMER GREEN LANE, CLIMPING

Soft Landscape Specification

Prepared by	ML
Approved by	JJ
Document Ref.	LLD1762-LAN-SPE-001
Date	18 September 2020
Revision	01
Status	Planning Issue

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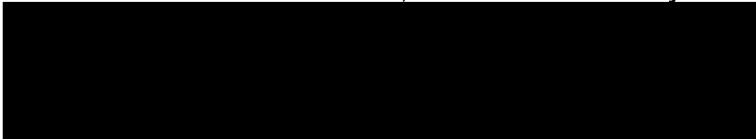
1.0 SECTION A – PRELIMINARIES

A10 Project Particulars

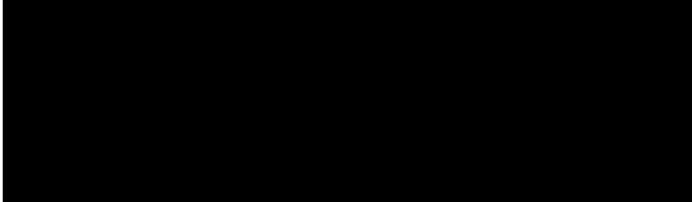
110 The Project

- Name: Langford
- Nature: Soft Landscape Works
- Location: Horsemere Green Lane, Climping
- Timescale for completion of the 'Construction Work': To be advised.

120 Client

- Name: MJH Executive Homes Ltd
 - Address: Cypress Place, Waterford House, Clapham, West Sussex BN13 3UT
 - Contact: Michael Hartnett, Mahmud Choudhury
- 

140 Landscape Architect

- Name: Lizard Landscape Design & Ecology Ltd.
 - Address: 34 South Street, Tarring, Worthing, West Sussex, BN14 7LH.
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A13 Description of the Work**120 The Work**

- The Work Consists of the following elements of works:
 - A10: Project Particulars
 - A13: Description of The Work.
 - A34: Security / Safety / Protection
 - A36: Facilities/ Temporary Work/ Services.
 - D20: Excavating and Filling.
 - Q28: Topsoil and Soil Ameliorants.
 - Q30: Seeding / Turfing
 - Q31: External Planting
 - Q35: Landscape Maintenance.

125 Drawings and Documents

The Soft Landscape Scheme Package includes the following drawings and documents:

- LLD1762 -LAN-DWG-100 – Hard and Soft Landscape General Arrangement
- LLD1762 -LAN-DWG-201 – Soft Landscape Layout
- LLD1762 -LAN-DWG-202 – Detailed Planting Plan - Infrastructure Planting
- LLD1762 -LAN-DWG-203 – Detailed Planting Plan - Infrastructure Planting
- LLD1762 -LAN-DWG-204 – Detailed Planting Plan – Ornamental Planting
- LLD1762 -LAN-DWG-205 – Detailed Planting Plan – Ornamental Planting
- LLD1762 -LAN-SCH-002 – Detailed Plant Schedule and Specification
- LLD1762-LAN-REP-001 – Landscape Management Plan

A33 Quality Standards / Control*Accuracy / Setting Out Generally:***320 Setting Out**

- General: Submit details of methods and equipment to be used in setting out the Works.
- Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.
- Inform: When complete and before commencing construction.

330 Appearance and Fit

- Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:
 - Submit proposals; or
 - Arrange for inspection of appearance of relevant aspects of partially finished work.
- General tolerances (maximum): To BS 5606:1990 'Guide to Accuracy in Building', tables 1 and 2.

360 Record Drawings

- Site setting out drawing: Record details of all grid lines, setting-out stations, benchmarks and profiles. Retain on site throughout the contract and hand over on completion.

*Services Generally:***410 Services Regulations**

- New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.

420 Water Regulations / Byelaws Notification

- Requirements: Notify Water Undertaker of any work carried out to or which affects new or existing services and submit any required plans, diagrams and details.
- Consent: Allow adequate time to receive Undertaker's consent before starting work. Inform immediately if consent is withheld or is granted subject to significant conditions.

430 Water Regulations / Byelaws Contractor's Certificate

- On completion of the work: Submit (copy where also required to the Water Undertaker) a certificate including:
 - The address of the premises.
 - A brief description of the new installation and/ or work carried out to an existing installation.
 - The contractor's name and address.
 - A statement that the installation complies with the relevant Water Regulations or Byelaws.
 - The name and signature of the individual responsible for checking compliance.
 - The date on which the installation was checked.

*Supervision / Inspection / Defective Work:***525 Access**

- Extent: Provide at all reasonable times access to the Works and to other places of the Contractor or subcontractors where work is being prepared for the Contract.
- Designate: Project Manager.

530 Overtime Working

- Notice: Prior to overtime being worked, submit details of times, types and locations of work to be done.
 - Minimum period of notice: Two days.
- Concealed work: If executed during overtime for which notice has not been given, it may be required to be opened up for inspection and reinstated at the Contractor's expense.

540 Defects in Existing Work

- Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
- Documented remedial work: Do not execute work which may:
 - Hinder access to defective products or work; or
 - Be rendered abortive by remedial work.

560 Tests and Inspections

- Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.
- Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.
- Records: Submit a copy of test certificates and retain copies on site.

610 Defective Products / Executions

- Proposals: Immediately any work or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.

*Work at or After Completion:***710 Work Before Completion**

- General: Make good all damage consequent upon the Works.
- Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
- Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
- Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.
- COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.
- Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
- Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

720 Security at Completion

- General: Leave the Works secure with, where appropriate, all accesses closed and locked.
- Keys: Account for and adequately label all keys and hand over to Employer with itemized schedule, retaining duplicate schedule signed by Employer as a receipt.

730 Making Good Defects

- Remedial work: Arrange access with Project Manager.
- Rectification: Give reasonable notice for access to the various parts of the Works.
- Completion: Notify when remedial works have been completed.

A34 Security / Safety / Protection**150 Security**

- Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.
- Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.

*Protect Against the Following:***330 Noise Control**

- Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.
- Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Restrictions: Do not use radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.

340 Pollution

- Prevention: Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution.
- Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.

345 Fuel, Lubricants and Hydraulic Fluids

Restrictions:

- Storing, handling and refueling: On hard standing or other approved areas. Keep away from watercourses, drains, soil, planting and grassed areas.
- Vehicles and equipment: Ensure there is no leakage or spillage. If spillage occurs, inform immediately and take appropriate emergency action.

350 Pesticides

- Use: Only where specified or approved, and then only suitable products listed on www.pesticides.gov.uk.
- Containers: Comply with manufacturer's disposal recommendations. Remove from site immediately empty or no longer required;
- Competence: Operatives must hold a BASIS Certificate of Competence, or work under supervision of a Certificate holder.

360 Nuisance

- Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes;
- Surface water: Prevent hazardous build up on site, in excavations and to surrounding areas and roads.

370 Asbestos Containing Materials

- Duty: Report immediately any suspected materials discovered during execution of the Works.
- Do not disturb.
- Agree methods for safe removal or encapsulation.

371 Dangerous or Hazardous Substances

- Duty: Report immediately suspected materials discovered during execution of the Works.
- Do not disturb.
- Agree methods for safe removal or encapsulation.

375 Antiquities

- Duty: Report immediately any fossils, antiquities and other objects of interest or value discovered during execution of the Works.
- Preservation: Keep objects in the exact position and condition in which they were found.

380 Fire Prevention

- Duty: Prevent personal injury, death, and damage to the works or other property from fire.
- Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by the Construction Confederation and The Fire Protection Association (The "Joint Fire Code").

390 Smoking on site

- Smoking on site: Not permitted.

400 Burning on site

- Burning on site: Not permitted.

415 Surface Water

- Duty: Prevent hazardous build up including temporary conveyance and disposal from existing structures and the site during the course of the Works.

410 Moisture

- Wetness or dampness: Prevent, where this may cause damage to the works.
- Drying out: Control humidity and the application of heat to prevent:
 - Blistering and failure of adhesion.
 - Damage due to trapped moisture.
 - Excessive movement.

430 Waste

- Includes: Rubbish, debris, spoil, containers and surplus material.
- General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.
- Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:
 - Non-hazardous material: In a manner approved by the Waste Regulation Authority.
 - Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.
- Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.
- Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.
- Waste transfer documentation: Retain on site.

450 Laser Equipment

- Construction laser equipment: Install, use and store in accordance with BS EN 60825-1 and the manufacturer's instructions.
- Class 1 or Class 2 laser equipment: Ensure laser beam is not set at eye level and is terminated at the end of its useful path.
- Class 3A and Class 3B laser equipment: Do not use without approval and subject to submission of a method statement on its safe use.

470 Invasive Species

- General: Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or Works economically, environmentally or ecologically.
- Duty: Report immediately any suspected invasive species discovered during execution of the Works.
 - Do not disturb.
 - Agree methods for safe eradication or removal.

Protect the Following:

510 Existing Services

- Confirmation: Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.
- Before starting work: Check and mark positions of mains / services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
- Work adjacent to services:
 - Comply with service authorities / statutory undertakers recommendations.
 - Adequately protect, and prevent damage to services: Do not interfere with their operation without consent of service authorities / statutory undertakers or other owners.
- Identifying services:
 - Below ground with signboards, giving type and depth, and overhead with headroom markers.
 - If disturbed during site operations replace marker tapes or protective covers to service authority's / statutory undertakers recommendations.
- Damage to services: If any results from execution of the Works:
 - Immediately give notice and notify appropriate service authority/ statutory undertaker.
 - Make arrangements for the work to be made good without delay to the satisfaction of service authority / statutory undertakers or other owner as appropriate.
 - Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.
 - Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.
 - Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertakers recommendations.

530 Existing Topsoil / Subsoil

- Duty: Prevent over compaction of existing topsoil and subsoil in those areas, which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the Works.
- Protection: Before starting work submit proposals for protective measures.

531 Protection and Retention of Existing Vegetation

- The Contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified Root Protection Areas designated for protection and avoid at all times damage to the roots, trunk and branches.
- All excavations, cultivation and grading beneath the canopy of existing mature trees; 1.0 m outside the canopy and within the Root Protection Areas (as calculated in accordance with *BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'*) of the trees and vegetation shall be carried out using hand tools, taking care not to damage or disturb any existing tree roots.
- All trees to be retained on site shall be protected with fencing erected around the area of mature vegetation in accordance with *BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. The fencing shall be installed, protected and maintained during the main works by the Contractor who shall be responsible for protecting any area beneath the canopy of the existing trees; and 1.0 metres outside the canopy and within Root Protection Areas.
- The fencing is to be erected prior to the commencement of all works on site and retained in place throughout construction. The fencing is to comprise of a minimum 2.0 m high scaffolding framework, with uprights at maximum 3.0m spacing's, braced to the ground with 45 degree supporting standard anti-climb 'Heras' welded mesh fence panels secured with anti-lift devices to concrete or plastic bases pinned to the ground by scaffold uprights sunk to a minimum depth of 600mm; individual panels fixed to each other with at least 2 clamps and to scaffolding with heavy-duty cable ties. 'Tree Protection Zone – Keep Out' or similar notices to be attached to every fifth panel.
- Fencing to be fixed to fences, walls, knee rails where possible to provide a complete protected area.
- Day-Glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the fencing to ensure that the fencing is clearly visible during the works. Fencing shall be used to enclose the full canopy spread of any tree; 1.0m outside the canopy of the trees with 1.5m on either side of any hedge, and to the edge of tree Root Protection Areas.
- All such fencing shall be maintained for the full contract period. All necessary excavations, earthworks and cultivation beneath the canopy spread of any existing tree; shrub or hedge shall be undertaken by hand. Repositioning of the protective fencing during the course of the contract as the contract works progress shall need to be agreed on site with the Landscape Architect.

- At the end of the contract period the Contractor shall remove protective fencing from site. All retained vegetation shall be healthy and thriving at the handover date;
- Within the protected area the following activities must not take place.
 - No vehicles are to be used in the fenced off areas.
 - No materials are to be stockpiled or stored.
 - No chemicals are to be stored.
 - No excavation or increase in the soil level shall occur.
 - No fires shall be lit on site.

555 Wildlife Species and Habitats

- Protected habitats and species: Upon discovery immediately advise. Do not proceed until instruction is received.
- Education: Ensure employees and visitors to the site receive suitable instruction and awareness training.

560 Existing Features

- Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.
- Protect: Existing trees, existing hedges, and existing fence lines.

570 Existing Work

- Protection: Prevent damage to existing work, structure or other property during the course of the work.
- Removal: Minimum amount necessary.
- Replacement Work: To match existing.

620 Adjoining Property

- Precautions: Prevent trespass of work people and take precautions to prevent damage to adjoining property.
- Precautions:
 - Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.
 - Pay all charges.
 - Remove and make good on completion or when directed.
- Damage: Bear cost of repairing damage arising from execution of the Works.

630 Existing Structures

- Duty: Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.
- Supports: During execution of the works:
 - Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, that may be endangered or affected by the works.
 - Do not remove until new work is strong enough to support existing structure.
 - Prevent overstressing of completed work when removing supports.
- Adjacent structures: Monitor and immediately report excessive movement.

A36 Facilities / Temporary Work / Services**110 Spoil Heaps, Temporary Works and Services**

- Location: Give notice of intended siting.
- Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

Temporary Works:**330 Temporary Protective Fencing to Existing Trees / Vegetation**

- Temporary Protective Fencing: Erect before starting work in accordance with BS 5837: 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*'.
 - Type of fencing: 'Heras' Welded Wire Mesh Panels.
 - Height of fencing: 2.0 metres minimum height.
- The fencing is to be erected prior to the commencement of all works on site and retained in place throughout construction. The fencing is to comprise of a 2.0m high (minimum) scaffolding framework, with uprights at maximum 3.0m spacings, braced to the ground with 45 degree struts; supporting standard anti-climb 'Heras' welded mesh fence panels secured with anti-lift devices to concrete or plastic bases pinned to the ground by scaffold uprights sunk to a minimum depth of 600mm; individual panels fixed to each other with at least 2 clamps and to scaffolding with heavy-duty cable ties. 'TREE PROTECTION ZONE – KEEP OUT' or similar notices to be attached to every fifth panel.
- All trees to be retained on site shall be protected with fencing erected around the area of mature vegetation in accordance with BS 5837: 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*'.
- The fencing is to be positioned to the outside edge of the Tree Root Protection Areas specified. All tree protection to be in accordance with BS 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*'.
- All such fencing shall be maintained for the full contract period. Repositioning of the protective fencing during the course of the contract as the contract works progress shall need to be agreed with the Landscape Architect.
- Protected area: Locate fencing in accordance with the specified Root Protection Areas.
- Integrity of fencing: Maintain for the duration of the works.
- On the completion of the works: remove fencing and make good disturbed area.

2.0 SECTION D GROUNDWORK

D20 Excavating and Filling

To be read with Preliminaries / General Conditions.

Clearance / Excavating

164 Tree Roots

- Protected area: Do not cut roots within the calculated tree Root Protection Area (RPA) in accordance with *BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'*.
- Outside protected area: Give notice of roots exceeding 25mm and do not cut without approval.
- Excavation in protected area:
 - Method: By hand.
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Cutting:
 - Make clean smooth cuts with no ragged edges.
 - Pare cut surfaces smooth with a sharp knife.
- Backfill: Imported topsoil to BS 3882:2015 '*Specification for Topsoil and Requirements for Use*'; Multi-purpose Topsoil.

168 Site Clearance

- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
- Treatment: Apply a suitable non-residual herbicide to areas to receive planting.

170 Removing Small Trees, Shrubs, Hedges and Roots

- Identification: Clearly mark trees to be removed;
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

180 Chipping and Shredding

- General: Permitted, remove arisings from site.

225 Handling Topsoil

- Standard: To BS 3882:2015 'Specification for Topsoil and Requirements of Use'.
- Aggressive weeds:
 - 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.
- Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other soil or material containing aggressive weeds, sharps, plastics and non-soil forming materials and notifiable animal or plant diseases.
 - Oil, fuel, cement or other substances harmful to plant growth.
 - Other classifications of topsoil.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit as defined by BS 3882:2015 'Specification for Topsoil and Requirements of Use'.

240 Adjacent Excavations

- Requirement: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
- Angle of line below horizontal: 45°
- Backfill material: Compacted general filling as clause 626.

250 Permissible Deviations from Formation Levels

- Beneath mass concrete foundations: ± 25 mm.
- Beneath ground bearing slabs and r.c. foundations: ± 15 mm.
- Embankments and cuttings: ± 50 mm.
- Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 Accuracy - Linear Dimensions

- Permissible deviations from linear dimensions generally: ± 5 mm.

260 Inspecting Formations

- Give notice: Make advance arrangements for inspection of formations for foundations and road / pavings.
 - Notice (minimum): 3 days.
- Preparation: Just before inspection remove the last 150 mm of excavation.
- Trim to required profiles and levels, and remove loose material.
- Seal: Within 4 hours of inspection, seal formations with Concrete / Type 1 Granular Fill.

310 Unstable Ground

- Generally: Ensure that the excavation remains stable at all times.
- Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
- Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 Recorded Features

- Recorded foundations, beds, drains, manholes, etc: Break out and seal drain ends.
- Contaminated earth: Remove and disinfect as required by Local Authority.

330 Unrecorded Features

- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

360 Unrecorded Features

- Excavation taken wider than required: Backfill with hardcore as Clause 710.
- Excavation taken deeper than required: Backfill: Underground bearing slabs as Clause 710.

370 Underground Structures in Landscape Areas

- Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.
- Minimum depth below finished levels:
 - Grass, ground cover and perennial planting: 500 mm.
 - Shrub planting: 750 mm.
 - Within 2.0 m of tree planting: 1000 mm.

*Disposal of Materials***441 Surplus Subsoil**

- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site.
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
- Remaining material: Remove from site.

450 Water

- Generally: Keep all excavations free from water until:
 - Formations are covered.
 - Below ground constructions are completed.
 - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary.

454 Ground Water Level, Spring or Running Water

- Give notice: If it is considered that the excavations are below the water table.
- Springs/ Running water: Give notice immediately if encountered.

457 Pumping

- General: Do not disturb excavated faces or stability of adjacent ground or structures.
- Pumped water: Discharge without flooding the site or adjoining property.
- Sumps: Construct clear of excavations. Fill on completion.
 - Locations: Contractor's choice.

*Filling***500 Proposed Fill Materials**

- Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - Type and source of imported fill.
 - Proposals for processing and reuse of material excavated on site.
 - Test reports as required elsewhere.
- Timing: At least 21 days before starting filling.

510 Hazardous, Aggressive or Unstable Materials

- General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
 - Frozen or containing ice.
 - Organic.
 - Contaminated or noxious.
 - Susceptible to spontaneous combustion.
 - Likely to erode or decay and cause voids.
 - With excessive moisture content, slurry, mud or from marshes or bogs.
 - Clay of liquid limit exceeding 80 and / or plasticity index exceeding 55.
 - Unacceptable, class U2 as defined in the Highways Agency 'Specification for Highway Works', Clause 601.

512 Limitation of Sulfate Content in Fill Materials

- Test specification to BS 1377-3:1990 'Methods of test for soils for civil engineering purposes. Chemical and electro-chemical tests'.
- Refer to BS EN 13285:2010 'Unbound Mixtures – Specifications'. Volume 1 Specification for Highway Works. '801 General Requirements for Unbound Mixtures', clauses 1, 2 and 3.
- Sulfate content: Expressed as SO₄
 - Water soluble sulfate (maximum): 1500mg/L in 2:1 water/ soil extract.
- Certificates of test result: Submit.

520 Frost Susceptibility

- General: Except as allowed below, fill must be non-frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.8.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non-frost- susceptible:
 - Fine grained soil with a plasticity index less than 20%.
 - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
 - Crushed chalk.
 - Crushed limestone fill with average saturation moisture content in excess of 3%.
 - Burnt colliery shale.
- Frost-susceptible fill: May only be used: Where frost heave will not affect structural elements.
 - At depths below the finished ground surface greater than 300 mm.
 - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
 - Where frost heave will not affect structural elements.

525 Testing of Suitability of Fill Materials before Start of Filling

- Laboratory: UKAS/ NAMAS accredited laboratory.
- Submit report to: Civil Engineer (two copies).
 - Timing: 21 days before starting filling.
- Samples: Deliver to laboratory as required.
 - Additional requirements: Also deliver 25 kg samples to offices of structural engineer. On request, collect and dispose.
- Tests: As directed.
- Frequency: Submit with tender proposed rate and frequency of testing to demonstrate continuing compliance of imported or reprocessed fill with specified properties.

530 Placing Fill

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and re-compact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
 - Do not overload, destabilize or damage.
 - Submit proposals for temporary support necessary to ensure stability during filling.
 - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

535 Compaction Generally

- General: Compact fill not specified to be left loose as soon as possible after placing.
- After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
- Defective areas: Remove and recompose to full thickness of layer using new material.

540 Benching in Fill

- Adjacent areas: If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
- New filling: Spread and compact to ensure maximum continuity with previous filling.

550 Geo-textile Sheet

- Manufacturer: Geo-textile to be 'Terram 1000' or equal and approved; Fiberweb Geosynthetics Ltd, Blackwater Trading Estate, The Causeway, Maldon, Essex, CM9 4GG; Tel: 01621 874200; Fax: 01621 874299.
- Product reference: 'Standard Filter/Separator: T1000' or equal and approved.
- Jointing: overlapping joints 300mm ensuring that sufficient geo-textile protrudes beyond the anticipated pit excavation to allow for final trimming.
- Protect from:
 - Exposure to light, except for five hours (maximum) during laying.
 - Contaminants.
 - Materials listed as potentially deleterious by geo-textile manufacturer.
 - Protect from damage until fully covered by fill.
 - Wind uplift, by laying not more than 15.0 m before covering with fill.
- Preparation: take care not to puncture the underlying geo-textile membrane whilst installing the sub-base design.
- Preparation of subgrade: Before laying sheet, remove humps and sharp projections. Fill hollows.

626 Compacted General Fill

- Suitable Material: Make up shortfall in excavated material with imported material of a similar type.
- Excavated material: Select suitable material and keep separate.
- Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
- Proposals: Well in advance of starting work submit details of proposed:
 - Materials to be used, including quantities of each type.
 - Type of plant.
 - Maximum depth of each compacted layer.
 - Minimum number of passes per layer.

3.0 SECTION Q PAVING / PLANTING / FENCING / SITE FURNITURE

Q22 Asphalt Roads / Pavings

To be read with Preliminaries / General Conditions.

175 Proposed - Gravel Surface Treatment

- Specification of the gravel to be 40mm depth of *Dove Grey*
- *Derbyshire Peakstone 20mm* supplied by Gravelmaster; or equal and approved
- Colour / Finish: Grey / Angular aggregates;
- Sub-base min. 150mm to engineer specification.

Q28 Topsoil and Soil Ameliorants

System Outline:

135 Planting Bed Soil System: For Feature Planting

- Composition:
 - Soil: Imported topsoil to BS 3882:2015; multi-purpose topsoil.
 - Ameliorants: None.
 - Accessories: None.

135 Planting Bed Soil System: Native Planting

- Composition:
 - Soil: Site sourced topsoil and imported topsoil to BS 3882:2015; multi-purpose topsoil.
 - Ameliorants: None.
 - Accessories: None.

145 Plant Pit Backfilling Soil System: For Tree Pits

- Composition:
 - Soil: Imported topsoil to BS 3882:2015; multi-purpose topsoil.
 - Ameliorants: Organic materials or Mycorrhizal fungi.
 - Accessories: None.

155 Mulching and Top-Dressing System: For Hedges and Feature Planting Areas

- Composition:
 - Material: 75mm depth Ornamental Bark Mulch; 5 - 35mm nominal particle size; BS4970:1987.

156 Mulching and Top-Dressing System: For Tree and Shrub Planting

- Composition:
 - Material: 75mm depth Ornamental Bark Mulch; 5 - 35mm nominal particle size; BS4970:1987.

*Products:***300 Preparation Materials Generally**

- Purity: Free of pests and disease.
- Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
- Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
- Objectionable Odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

305 Permitted Materials

- Materials: Composted green waste, wood waste.
- Give notice: before ordering or using.
- Declaration of compliance in accordance with BS EN 13650: Required.

310 Materials Not Permitted

- Materials: Products containing peat.

315 Imported Topsoil to BS 3882:2015 – For Feature Planting Beds

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard to BS 3882:2015 'Specification for topsoil and requirements for use'.
- Classification: Multi-purpose.
 - Grade: Within the parameters of 'sandy loam' textural class.
 - Maximum size of stones in any dimension: 20 mm;
 - Sand Content between 65 and 70 % of volume.
- Source: Source: Bourne Amenity Ltd (or equal and approved); The Wharf, Newenden, Kent, TN18 5QG; [REDACTED]

315 Imported Topsoil to BS 3882:2015 – For Tree Pits.

- Standard to BS 3882:2015 'Specification for topsoil and requirements for use'.
- Classification: Multi-purpose.
 - Grade: Within the parameters of 'sandy loam' textural class.
 - Maximum size of stones in any dimension: 20 mm;
 - Sand Content between 65 and 70 % of volume.
- Source: Source: Bourne Amenity Ltd (or equal and approved); The Wharf, Newenden, Kent, TN18 5QG; [REDACTED]
- Product reference: TS6 – Multi-Purpose Top Soil.

*Execution***605 Site Investigation**

- Report: See section D20.

625 Sample Load: For Imported Topsoil

- Deliver to site a sample load: of not less than 1 m³.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 - Notice period: 2 days.

630 Documentation for Imported Topsoil

- Timing: Submit at handover.
- Contents:
 - Full description of all soil components.
 - Record of source for all soil components.
 - Record drawings showing the location and depth of all soils by type and grade.
 - Declaration of analysis: in accordance with BS 3882, Annex E.
- Number of copies: 1.

630 Documentation for Preparation Materials: For Organic Materials

- Timing: Submit at handover.
- Contents:
 - Full description of all components.
 - Record of source for all components.
 - Analyst's report for each test carried out.
 - Supplier's declaration of compliance with BSI PD CR 13456.
- Number of copies: 1.

650 Notice

- Giving notice before:
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
- Period of notice: Two working days.

655 Mechanical Tools

- Restrictions: Do not use within 500 mm of tree and plant stems.

660 Grading Subsoil

- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Areas of thicker topsoil: Excavate locally.
- Avoid over compaction.

665 Subsoil Surface Preparation

- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 75 mm.
- Remove from site: Arisings, contaminants and debris.

670 Inspecting Formations

- Give notice: Before spreading topsoil for all planting beds.
- Notice period: 2 days.

690 Topsoil Storage Heaps

- Location: Temporary topsoil location to be agreed on site with the Landscape Architect;
- Height (maximum): 1.0 m;
- Width (maximum): To be agreed on site with the Landscape Architect.
 - Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
- Protection:
 - Do not place any other material on top of storage heaps;
 - Do not allow construction plant to pass over storage heaps;
 - Prevent compaction and contamination, by fencing and covering as appropriate.

700 Grading of Topsoil

- Topsoil condition: Reasonably dry and workable.
- 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.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 Handling Topsoil

- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2:1990.

710 Spreading Topsoil

- Temporary roads / surfacing: Remove before spreading topsoil.
- Layers:
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum): Planting Areas: 300 mm depth.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 Loose Tipping of Topsoil

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 Final Cultivation: For Planting Areas

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 300 mm.
- Particle size (maximum): 2 – 8 mm.
- Timing: Within a few days before planting.
- Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: Do not alter ground levels within RPAs of existing trees.
- Undesirable material brought to the surface:
 - Remove visible weeds.
 - Remove roots and large stones with any dimension exceeding 50 mm.

718 Final Cultivation: For Tree Planting

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 300 mm.
- Particle size (maximum): 2 – 8 mm.
- Timing: Within a few days before planting.
- Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Undesirable material brought to the surface:
 - Remove visible weeds.
 - Remove roots and large stones with any dimension exceeding 50 mm.

720 Finished Levels of Topsoil after Settlement

- Above adjoining paving or kerbs: N/A.
- Below dpc of adjoining buildings: Not less than 150 mm.
- Shrub areas: 75 mm below adjacent paved areas.
- Seeded areas: 25 mm below adjacent paved areas.
- Within root spread of existing trees: and shrubs to be retained: Do not dig or cultivate.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

845 Applying Loose Mulch

- Timing: Immediately after planting.
- Preparation: Ensure that soil is thoroughly moistened, applying water where necessary.
- Coverage of mulch (minimum):
 - Planting beds (depth): 75 mm depth.
 - Trees: In a circular area of 500 mm radius measured from the tree stem.
 - Container planting: 75 mm.
- Finished level of mulch: 25 mm below adjacent hard landscape surfaces.

Q30 Seeding / Turfing

To Be Read with Preliminaries / General Conditions.

*General Information / Requirements***115 Seeded and Turfed Areas**

- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
- Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 Climatic Conditions

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

145 Watering

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

150 Water Restrictions

- Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding / turfing until instructed. If seeding / turfing has been carried out, obtain instructions on watering.

160 Notice

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Preparing seed bed.
 - Seeding or turfing.
 - Visiting site during maintenance period.
- Period of notice: 2 days.

170 Setting Out

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

*Preparation***210 Herbicide: for Wildflower Meadows & Native Tree, Shrub and Hedge Planting**

- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
 - Duration: As manufacturer's recommendation.

212 Seed Bed Cleaning Before Sowing: Wild Flower Grassland

- Operations: As seed supplier's recommendations.

250 Soil Requirements:

- Type:
 - Seeded areas: Existing topsoil.
 - Turfed areas: Existing topsoil.

*Seeding:***312 Seed Mixture: Wildflower Meadow Areas**

- Supplier: Emorsgate Seeds (or equal and approved)
 - Contact: Limes Farm, Tilney All Saints, King's Lynn, Norfolk, PE34 4RT; [REDACTED]

Mixture Reference (to attenuation pond and ditch): 'EM8 - Meadow Mixture for Wetlands'

Mixture Reference (to attenuation surrounds and below existing trees): 'EH1 – Hedgerow Mixture'

- Origin (as defined in the National Plant Specification): Native UK.
 - Application rate: 4g / m²
 - Other requirements:
 - Wildflower grass seeded areas shall not be subject to any soil additives, ameliorants or conditioners.
 - Ground should not be highly fertile for this wildflower seed mix.
- For designated wildflower grassland seeded areas refer to Detailed Planting Plan drawings LLD1762 -LAN-DWG-203.

319 Quality of Seed: For Wildflower Grassland Seeded Areas

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

330 Sowing

- General: Establish good seed contact with the root zone.
- Method: To suit soil type, proposed usage, location and weather conditions during and after sowing.
 - Distribution: Surface sown by machine or broadcast by hand with 2 equal sowings at right angles to each other in overlapping sections.
 - Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.
- Preparation: Aim to control weeds and produce a good seed bed before sowing using repeated cultivation or a herbicide; keeping disturbance to the minimum required to expose fresh soil.

336 Wildflower Sowing Season

- Wildflower seed generally: March to May or August to October.
- Note: can be sown at other times of the year if there is sufficient warmth and moisture.
- Note: Bulk up the seed with inert carrier e.g. sand to make distribution easier.

340 Pre-Emergent Herbicide: For Wildflower Meadows

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
- Timing: Immediately after sowing.

*Protecting / Cutting:***590 Cleanliness**

- Soil and arisings: Remove from hard surfaces;
- General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

*Maintenance:***610 Failures of Seeding / Turfing**

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- Defective materials or workmanship: Areas that have failed to thrive.
 - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeding/ returfing.
- Timing of making good: The next suitable planting season.

650 Maintaining: Grassed Areas with Perennial Wildflowers

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
 - Time of first cut: March/April
 - Height of first cut: 40 mm.
 - Height of growth permitted (maximum): 150 mm.
- Height and Frequency of Cut in Second Growing Season:
 - Time of cut: One or two cuts to the end of summer on shallow soils. On areas of deeper soil a single cut in October.
 - Height of first cut: 75 mm.
- The sown mixture will be slow to germinate and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season, which can be controlled by topping or mowing.
- In the first year of growth avoid cutting in the spring and early summer. Cut back before the annuals die back, set seed and collapse.
- Management once established: In the second and subsequent years the wildflower grassland can be managed in a number of ways depending on the soil fertility.
 - Poor Shallow Soils: On poor shallow soils the wildflower grassland can be managed through one or two cuts towards the end of summer to help maintain diversity and interest.
 - Deeper Soils: Wildflower grassland seeded on deeper soils should be managed through a main summer hay cut in combination with autumn and spring mowing. The wildflower grassland seeded areas are not to be cut from spring through to late July/ August to allow the sown species to flower. After July/August a 'hay cut' with a petrol strimmer to 50 mm height should be undertaken with the hay left to dry and shed seed for 1 – 7 days before being removed from site. Regrowth should be mowed through to late autumn / winter to 50 mm height and again in spring if required.
- Trimming: All edges.
 - Arisings: Remove.
- Watering: When instructed.
- Defects: All Wildflower Grassland areas which failed within the first two years of establishment should be re-cultivated and re-seeded with wildflower seed mix
- Other Requirements: No soil ameliorant / conditioner or fertilizer to be applied to the wildflower grassland.

Q31 External Planting

To be read with Preliminaries / General Conditions.

General Information / Requirements

112 Site Clearance

- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 50 mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Vegetation: Clear surface vegetation in areas shown on drawings using suitable non-residual herbicide.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

118 Soil Conditions

- Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
- Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 Climatic Conditions

- General: Carry out the work while soil and weather conditions are suitable.
 - Strong winds: Do not plant.

125 Times of Year for Planting

- Rootballed Deciduous Trees and Shrubs: Late October to Late March;
- Bare-rooted Trees and Shrubs / Whips and Transplants: Late October to Late March.
- Conifers and evergreens: September / October or April / May.
- Herbaceous plants (*including aquatic and marginal*): September / October or March / April.
- Container grown plants: At any time if ground and weather conditions are favorable.
 - Watering and weed control: Provide as necessary.

130 Mechanical Tools

- Restrictions: Do not use within 100 mm of tree and plant stems.

145 Watering

- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: As necessary to ensure establishment and continued thriving of planting.

150 Water Restrictions

- General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

160 Notice

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Delivery of plants / trees.
 - Planting shrubs.
 - Planting trees into previously dug pits.
 - Watering.
 - Visiting site during maintenance period.
- Period of notice: 2 days.

170 Soil Requirements

- Type:
 - Tree pits and other backfilling: imported multi-purpose topsoil to BS 3882:2015.
 - Planting areas: imported multi-purpose topsoil to BS 3882:2015.
 - Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 Plants / Trees - General

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
 - Standard: The National Plant Specification.
- Species: True to name.
- Origin/ Provenance: Grown in the United Kingdom for at least one growing season, unless otherwise approved.
- Definition: Origin and Provenance have the meaning given in the *National Plant Specification*.

215 Plants / Trees - Specification Criteria

- Name, Forms, Dimensions, Provenance and Other Criteria: As scheduled and defined in the *National Plant Specification*.

235 Container Grown Plants / Trees

- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: Centred in containers, firmed and well-watered.
- Root growth: Substantially filling containers, but not root bound, and in a condition, conducive to successful transplanting.
- Hardiness: Grown in the open for at least two months before being supplied.
- Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

245 Labelling and Information

- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labeling for delivery to site, showing:
 - Full botanical name.
 - Total number.
 - Number of bundles.
 - Part bundles.
 - Supplier's name.
 - Employer's name and project reference.
 - Plant specification, in accordance with scheduled National Plant Specification categories.
- Additional information: Submit on request: Type of container.

255 Plants / Trees Reserved at Supplier's Premises

- Types/ Species: As plant schedule.
- Predelivery Inspection: Give notice.
- Labeling: Identify inspected plants/ trees as reserved for use on this project.

256 Native and Ornamental Tree Planting

- Types/ Species: As LLD1762-LAN-SCH-002 – Detailed Plant Schedule and Specification.
- Stock: Extra Heavy Standard (Selected).
- Supplier:
 - Barcham; or equal and approved.
 - Contact: Barcham Trees PLC, Eye Hill Drove, Ely, Cambridgeshire, CB7 5XF.

260 Plant / Tree Substitution

- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
 - Price.
 - Difference from specified plants / trees.
- Further alternatives: Proposed substitutions may not be acceptable and submission of further alternatives may be required.
- Approval: Obtain before making any substitution.

265 Plant Handling, Storage Transport and Planting

- Standard: To HTA 'Handling and establishing landscape plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Black polyethylene bags.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

280 Treatment of Tree Wounds

- Cutting: Keep wounds as small as possible.
 - Cut cleanly back to sound wood using sharp, clean tools.
 - Leave branch collars. Do not cut flush with stem or trunk.
 - Set cuts so that water will not collect on cut area.
- Fungicide / Sealant: Do not apply unless instructed.

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290 Surplus Material

- Subsoil, stones, debris, wrapping material, canes, ties, temporary labeling, rubbish, prunings and other arisings: Remove.

Preparation of Planting Beds / Planting Materials:

305 Weed Control: For Invasive Non-Native Weeds

- Location: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.

Planting Shrubs / Hedges / Herbaceous Plants / Bulbs

401 Regular Plant Layout: To All Planting Areas

- Spacing: As drawings LLD1762-LAN-DWG-201 – Planting Plan Layout, LLD1762-LAN-DWG-202-203 – Detailed Planting Plan – Infrastructure Planting, LLD1762-LAN-DWG-204-205 – Detailed Planting Plan – Ornamental Planting.
- Density: As LLD1762-LAN-SCH-002 – Detailed Plant Schedule and Specification.

405 Shrub / Hedge Planting Pits (Ornamental and Defensive Planting)

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: two times as large as the diameter of the root ball/ container and no deeper than roots.
- Pit bottom improvement: Break up to a depth of 150 mm.
Backfilling material: Reuse excavated material if not highly compacted and mix with imported topsoil.

480 After Planting

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.

Planting Trees

505 Tree Pits

- Size:
 - Pit width: two times as large as the diameter of the tree rootball.
 - Depth: No deeper than the depth of the tree rootball.
 - Refer to: BS8545:2014 – ‘Trees: From Nursery to Independence in the Landscape – Recommendations’.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 150 mm.
- Treatment: Soil ameliorant worked into pit bottoms.
- Pit sides: Scarify.
- Backfilling material: Plant pit backfilling soil system, as section Q28.

512 Tree Pit Irrigation and Ventilation Accessories:

Locations: To all proposed trees. Refer to drawing *LLD1762-LAN-DWG-202*.

- Manufacturer: GreenBlueUrban Ltd (or equal and approved), Northpoint, Compass Park, Junction Road, Bodiam TN32 5BS,

Type: perforated plastic pipe with heavy-duty steel inlet.

Pipe diameter: 60 mm.

Ring diameter: 3.2 m; min. 12 m length.

Inlet: Stainless Steel; 100x100 mm.

Installation:

- Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
- Top cap of inlet: Protruding slightly above finished surround level.
- Backfill material: Carefully compact in layers.

526A Underground Guying to Multi-Stem Trees.

- Manufacturer: Platipus Anchors Limited (or equal and approved) Kingsfield Business Centre, Philanthropic Road, Redhill, Surrey, RH1 4DP, England
- Product reference: Plati-Mat RF3RDMP.
- Anchoring system: 3 no kerbstones or sleepers as anchor points.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

550 Long Double Staking.

- Staking: Drive stakes vertically at least 300 mm into bottom of pit on either side of tree position before planting.
 - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut off just below lowest branch of tree.
- Cross bar: Wood, as stake.
 - Firmly fix on windward side of tree and as close as possible to stem.
- Ties: Adjustable ties.
- Tying: Secure tree firmly but not rigidly to cross bar.

*Protecting / Maintaining / Making Good Defects***710 Maintenance**

- Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
- Frequency of maintenance visits: Monthly during growing season.

720 Failures of Planting

- Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs/ hedges that have failed to thrive.
 - Exclusions: Theft or malicious damage after completion.
 - Rectification: Replace with equivalent plants/ trees/ shrubs/ hedges.
- Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.

Timing of making good: During the next suitable planting season.

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730 Protective Fencing

- Fencing type: Chestnut Pale Fencing to *BS 1722-4:1986*.
- Height: min. 700 mm.
- Erection: On completion of planting to perimeter of entire habitat enhancement area.
- Removal: Fencing will remain the property of the Contractor. Remove and refill post holes following acceptance of rectified defects.

740 Cleanliness

- Soil and Arisings: Remove from hard surfaces and grassed areas.
- General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

750 Planting Maintenance Generally

- Weed control: Maintain weed free area around each tree and shrub.
 - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
 - Keep planting beds clear of weeds: By use of approved non-residual herbicides and by maintaining full thickness of mulch cover.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by powered tools.
- Staking: Check condition of stakes, ties, guys and guards.
 - Broken or missing items: Replace.
 - Rubbing: Prevent.
 - Ties: Adjust to accommodate growth.
 - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
 - Frequency of checks: Every year.
- Firming up: Gently firm loosened soil around trees / shrubs. Straighten leaning trees / shrubs.
- Trees: Spray crown when in leaf during warm weather.
- Timing: Carry out in the evening.
- Watering: When required.

760 Planting Maintenance - Pruning

- General: Prune to promote healthy growth and natural shape.
 - Dead, dying, diseased wood and suckers: Remove.
 - Timing: As appropriate to the species.
 - Trees: Favour a single central leading shoot.
- Arisings: Remove.

780 Maintenance Instructions

- General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide details of any special procedures to be carried out.

790 Final Mulching

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Planting beds: Remulch.
 - Depth (minimum): 50 mm.
- Trees: Remulch.
 - Depth (minimum): 50 mm.

Q35 Landscape Maintenance

To be read with Preliminaries / General Conditions.

Generally

110 Notice

- Give notice before:
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
- Period of notice: 2 days.

130 Reinstatement

- Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstatement to original condition.

155 Watering

- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to root zone.
- Frequency: As necessary for the continued thriving of all planting.

160 Water Restrictions

- General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 Disposal of Arisings

- General: Unless specified otherwise, dispose of arisings as follows:
 - Biodegradable arisings: Remove to recycling facility.
 - Grass cuttings: Remove to recycling facility.
 - Tree roots and stumps: Remove to recycling facility.
 - Shrub and tree prunings: Remove to recycling facility.
 - Litter and non-biodegradable arisings: Remove from site.

190 Litter

- Extraneous rubbish not arising from the Contract Work: Collect and remove from site.

197 Cleanliness

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

*Shrubs / Trees / Hedges***500 Establishment of New Planting**

- Duration: to be agreed before entering contract.
- Weed control:
 - Method: Keep planting beds clear of weeds by use of suitable herbicides; maintaining full thickness of mulch and hand weeding.
 - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Watering: When instructed.

510 Tree Stakes and Ties

- Inspection / maintenance times: ties should be checked monthly as part of the routine maintenance inspections and immediately after strong winds. Biannual checks shall be made to tree stakes, checking whether the tree can stand unsupported without bending or shifting in the ground. If the tree no longer requires the stake for support, then the stake may be removed (usually after eighteen months to three years of establishment).
- Stakes:
 - Replace loose, broken or decayed stakes to original specification.
 - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
- Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - Where chafing has occurred, reposition or replace ties to prevent further chafing.
- Removal of stakes and ties: Stakes shall remain in place until the tree can stand unsupported without bending or shifting in the ground - this may take between three months and three years.
- Fill stake holes with lightly compacted soil.

520 Refirming of Trees and Shrubs

- Timing: After strong winds, frost heave and other disturbances.
- Re-firming: Tread around the base until firmly bedded.
- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and re-firm.

540 Pruning Generally

- Pruning: In accordance with good horticultural and arboricultural practice.
 - Removing branches: Do not damage or tear the stem or bark.
 - Wounds: Keep as small as possible and cut cleanly back to sound wood.
 - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 - Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well-balanced natural appearance.
- Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
- Disease or fungus: Give notice if detected.
- Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

545 Pruning of Excessive Overhang

- Timing: annually or as instructed by the Landscape Architect.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.

550 Pruning of Excessive Height

- Timing: annually or as instructed by the Landscape Architect.
- Operations: Remove excessive height as instructed.

555 Pruning Trees and Shrubs

- Standard: To *BS 7370-4*.
- Special requirements: shrub planting to be pruned to height specified.

570 Formative Pruning of Young Trees

- Standard: Type and timing of pruning operations to suit the plant species.
- Time of year: Do not prune during the late winter/ early spring sap flow period.
- Young trees up to 4 m high:
 - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well-balanced head and ensure the development of a single strong leader.
 - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- Trees with a narrow crown and columnar / compact form: lateral growth pruned out annually in the autumn, for the first two or three years of establishment, to keep the upright appearance. Once established, only prune if necessary.
- Whips or feathered trees: Do not prune.
- Operatives: Extensive pruning of young trees and any surgery to larger trees must be carried out by an approved member of the Arboricultural Association or other approved specialist.

- 575 Pruning Ornamental Shrubs (Feature and Defensive Planting)**
- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
 - Suckers: Remove by cutting back level with the source stem or root.
- 620 Removal of Dead Plant Material**
- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.
- 630 Dead and Diseased Plants**
- Removal: As soon as possible.
 - Replacement: In the next suitable planting season.
- 635 Reinstatement of Shrub / Herbaceous Areas**
- Dead and damaged plants: Remove.
 - Replacement plants:
 - Use pits and plants to original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: Submit details and cost of plants before ordering.
- 640 Thinning by Removal of Surplus Plants**
- Plants to be thinned: as instructed by the Landscape Architect;
 - Standard: BS 7370-4:1991.
 - Timing: as instructed by the Landscape Architect;
 - Roots:
 - Disturbance to adjacent plants: Minimise.
 - Soil: Refill holes with topsoil to leave an even graded surface.
 - Adjacent plants: Make good any minor damage immediately.
 - Plants for retention: Select plants with a strong healthy habit.
 - Mature planting density: As schedule.
- 645 Weed Control Generally**
- Weed tolerance: Weed to clear ground every two weeks.
 - Adjacent plants, trees and grass: Do not damage.
- 650 Hand Weeding**
- General: Remove weeds entirely, including roots.
 - Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
 - Completion: Rake area to a neat, clean condition.
 - Mulch: reinstate to original depth.
- 657 Herbicide to Kill Regrowth**
- Type: Suitable foliar acting herbicide to kill regrowth.
 - Timing: Allow recommended period for herbicide to take effect before clearing deraed weeds.

665 Weed Control with Winter Herbicide

- Type: Suitable residual soil acting herbicide.
- Time of year: Unless otherwise agreed, complete before end of March.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

670 Weed Control with Summer Herbicide

- Type: Suitable foliar acting herbicide.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

680 Soil Aeration

- Compacted soil surfaces:
 - Prick up: To aerate the soil of root areas and break surface crust.
 - Size of lumps: Reduce to crumb and level off.
 - Damage: Do not damage plants and their roots.

685 Soil Level Adjustment

- Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
 - Arisings (if any): Spread evenly over the bed.

690 Maintenance of Loose Mulch

- Thickness (minimum): 75 mm consistent depth.
 - Top up: Every year.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by non-residual herbicide treatment and / or hand weeding.

705 Winter Leaf Removal

- Operations: Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
- Arisings: remove to a Local Authority Green Waste Recycling Facility.

*Tree Work***810 Tree Work Generally**

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Standards: To BS 3998:2010 'Tree Work. Recommendations' and Health & Safety Executive (HSE) 'Forestry and Arboriculture Safety Leaflets'.
- Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well-balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

815 Additional Work

- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 Prevention of Wound Bleeding

- Standard: To BS 3998:2010, Clause 8.

825 Prevention of Disease Transmission

- Standard: To BS 3998:2010, Clause 9 and Appendix B.

830 Cleaning Out and Deadwooding

- Remove:
 - Diseased wood.
 - Fungal growths and fruiting bodies.
 - Rubbish, wind blown or accumulated in branch forks.
 - Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - Other unwanted objects.
 - Climbing plants retain within existing trees.

835 Cutting and Pruning Generally

- Tools: Appropriate, well maintained and sharp.
- Final pruning cuts:
 - Do not use chainsaws on branches of less than 50 mm diameter.
 - When using handsaws, cut in one continuous operation to form a smooth cut surface;
 - Anvil type secateurs: Do not use.
- Removing branches: Do not damage or tear the stem.
- Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
- Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
- Large branches: Remove only with prior approval.
 - Remove in small sections and lower to ground with ropes and slings.
- Dead branches and stubs: When removing, do not cut into live wood.
- Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
- Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown Reduction / Shaping

- General: Cut back selectively to lateral or sub-lateral buds or branches to retain flowing branch lines without leaving stumps.
- Operations: as instructed by the Landscape Architect.

845 Crown Lifting

- Clearances: Remove branch systems to give clearance.
 - Height: As recommended by *BS 7370-4, clause 3.7.2.3*.
- Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sub-lateral buds or branches. Do not leave stumps.

850 Crown Thinning

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown, as instructed by the Landscape Architect.
- Cutting:
 - Branches: Cut back to lateral or sub lateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 Cutting Tree Roots

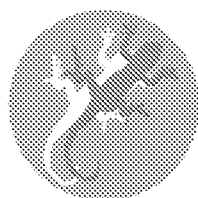
- Excavating: Use hand tools only.
 - Protected area: Do not cut roots within the calculated tree Root Protection Area (RPA) in accordance with BS 5837:2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'.
- Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
- Cutting:
 - Cutting: Make clean smooth cuts with a hand saw.
 - Wounds: Minimize. Avoid ragged edges.
 - Finishing: Pare cut surfaces smooth with a sharp knife.
- Backfilling:
 - Protection: Cover cut roots with clean sharp sand.
 - Material: Backfill with original topsoil.

860 Removing Trees and Shrubs

- Standards: To BS 3998:2010, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and 'Forestry Advisory Group Safety Leaflets'.
- Existing Services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and Smaller Trees: Cut down and grub up roots.
- Tree stumps:
 - Removal: Remove mechanically to a minimum depth of 300 mm below ground level.
 - Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Work near Retained Trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Filling holes:
 - Material: Use as-dug material and/ or imported soil as required.
 - Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark Damage

- Wounds:
 - Do not attempt to stop sap bleeding.
 - Bark: Remove ragged edges using a sharp knife
 - Wood: Remove splintered wood from deep wounds.
 - Size: Keep wounds as small as possible.
- Liquid or flux oozing from apparently healthy bark: Give notice.



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Landscape Design and Ecology

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