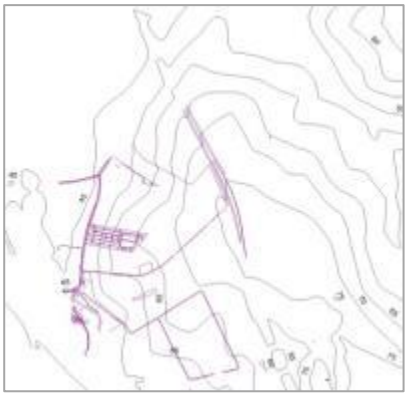
Cemetery Development Services

October 2017

Stotfold Memorial Garden Specification





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A90 GENERAL TECHNICAL REQUIREMENTS

1. GENERAL

PRECEDENCE

- Work sections of the Reference specification override A90.
- Conflict in the documents: Give notice.
- Definitions and interpretations – general
- Employer's Representative: The person nominated in the Contract as Employer's Representative, Site Manager Landscape Architect, Contract Administrator or Project Manager.
- Communication: When required to communicate – including advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements – do so in writing to the Employer's Representative.
- Dimensions: Do not rely on scaled dimensions.

2. COMPLIANCE

COMPLIANCE GENERALLY

- Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.

DESIGN AND PRODUCTION DOCUMENTATION

- Design compliance: Submit certification that design complies with documented requirements.
- Documentation:
  - Draft: Submit complete design and production documentation.
  - Final: Submit sufficient copies for distribution to affected parties. Keep at least one copy on site.
- Space requirements: Check space requirements of products or work indicated diagrammatically in the contract documents.
- Submit a report on consequent variations needed to the design.
- Drawings: Include dimensions.

AUTHORITIES AND STATUTORY UNDERTAKERS

- Approvals: Submit evidence of approvals of relevant authorities and statutory undertakers.

PRODUCT SAMPLES

- Complying samples: Retain in good, clean condition on site.

3. PRODUCTS AND EXECUTION

GENERAL QUALITY

- Products generally: New. Proposals for recycled products will be considered.
  - Supply of each product: From the same source or manufacturer.
  - Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.
  - Product tolerances: Where critical, measure a sufficient quantity to determine compliance.
- Execution generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.

- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.

SIZES

- General dimensions: Nominal.
- Cross section dimensions of timber: Finished dimensions.

SUBSTITUTION

- Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
- Work: If alternative work to that specified is proposed, obtain approval before execution.
- Reasons: Submit reasons for the proposed substitution.
- Documentation: Submit relevant information, including:
  - manufacturer and product reference;
  - cost;
  - availability;
  - relevant standards;
  - performance;
  - function;
  - compatibility of accessories;
  - proposed revisions to drawings and specification;
  - compatibility with adjacent work;
  - appearance; and
  - copy of warranty/guarantee.
- Alterations to adjacent work: If needed, advise scope, nature and cost.
- Manufacturers' guarantees: If substitution is accepted, submit.

INCOMPLETE DOCUMENTATION

- General: Where and to the extent that products or work are not fully documented, they are to be:
  - Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
  - Suitable for the purposes stated or reasonably to be inferred.

MANUFACTURERS' RECOMMENDATIONS

- General: Comply with manufacturer's current printed recommendations and instructions.
- Changes to recommendations or instructions since close of tender: Submit details.
- Manufacturers' current recommendations and instructions: Keep copies on site.
- Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
- Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

DEFECTS IN EXISTING WORK

- Reporting 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.

ACCURACY, 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.

C10 SITE WASTE MANAGEMENT PLAN

The contractor is required to employ a systematic approach to good practice in the recycling and re-use of locally available construction and excavation waste materials, preferably on-site, which should be explicitly outlined in the tender documents. Site storage is to be confirmed by Site Manager.

D20 EXCAVATING AND FILLING

1 PREPARATORY WORK

- Any vegetation on site should be cut down, with main roots grubbed up and voids filled. Do not compact soil.
- Protect roots of existing trees.

2 TREATING TOPSOIL

- Apply a suitable non-residual herbicide to perennial weeds not less than two weeks before excavating topsoil.

3 STRIPPING TOPSOIL

- Handling topsoil: Standard to BS3882.
- General: Excavate from areas where there will be regrading or construction work. Do not compact topsoil.
- Depth of removal: 300mm.

4 SURPLUS EXCAVATED MATERIAL

- Topsoil: Use on raised beds and planting area. Do not compact topsoil.
- Remaining material: Remove from site.

F10 BRICK AND BLOCK WALLING

1. GENERAL
   Cross-reference
   General: Reading with A90 General technical requirements
   Mortars: Read with Z21

2. PRODUCTS
   - New masonry units
     - 5 columbarium walls, 3 1.5m high and 2 1.8m high
     - Low walls 300mm high to columbarium walls containing planting and cremated remains tubes
     - Location: Interior to memorial garden
     - Dimensions: see Drawing CDS_STF_GOT_03 Rev 1 and Drawing CDS_STF_GOT_05
   - Walls constructed to accommodate ‘niches’ for cremated remains as shown in Drawing CDS_STF_GOT_03

- Granite plaques to front 'niches'
  - Fixing: Accurately and securely fastened to walling.
- Stone cladding to walls
  - Manufacturer: To be agreed with client/Landscape Architect
    Type: To be agreed with client/Landscape Architect
    Colour and finish: To be agreed with client/Landscape Architect
    Unit sizes: To be agreed with client/Landscape Architect
  - Fixing: Follow manufacturers instructions
    Seal with water-repellent sealers to improve resistance to contaminants and organic growth and elements.
- Coping to 1.8m and 1.5m walls
  - Manufacturers: To be agreed with client/Landscape Architect
  - Type: To be agreed with client/Landscape Architect
  - Colour and finish: To be agreed with client/Landscape Architect
  - Fixing: Follow manufacturers instructions

Aggregate concrete bricks and blocks: To BS EN 771-3.
Autoclaved aerated concrete (AAC) blocks: To BS EN 771-4
Calcium silicate bricks: To BS EN 771-2.

3. EXECUTION
   - Workmanship generally
     Standard: To BS 5628-3.
   - Conditioning clay and calcium silicate bricks
     - Bricks delivered warm from manufacturing process: Do not use until cold.
     - Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.
   - Conditioning concrete bricks/ blocks
     - Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
     - Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
     - Avoidance of suction in concrete bricks/ blocks: Do not wet.
     Use of water retaining mortar admixture: Submit details.
   - Laying generally
     - Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
     - Bond where not specified: Half lap stretcher.
     - Vertical joints in facework: Even widths. Plumb at every fifth cross joint along course.
   - Height of lifts
     - General: Rack back when raising quoins and other advance work.
     - Walling using cement gauged or hydraulic lime mortar:
     - Lift height: 1.2 m (maximum) above any other part of work at any time.
     - Daily lift height: 1.5 m (maximum) for any one leaf.
     - Walling using thin joint mortar glue:
     - Lift height: 1.3 m (maximum) above any other part of work at any time.
   - Levelling of separate leaves using cement gauged or hydraulic lime mortar
     Locations for equal levelling of cavity wall leaves: As follows:
     - Every course containing vertical twist type ties or other rigid ties.
     - Every third tie course for double triangle/ butterfly ties.
     - Courses in which lintels are to be bedded.
   - Coursing brickwork
     - Gauge for new work with bricks of 65 mm work height: Four brick courses including bed joints to 300 mm.
     - Tying in to existing brickwork: Line up with existing brick courses.

- Laying frogged bricks
  - Single frogged bricks: Frog uppermost.
  - Double frogged bricks: Larger frog uppermost.
  - Frog cavity: Fill with mortar.
- Jointing
  - Profile: Consistent in appearance.
  - Accessible joints not exposed to view: Struck flush as work proceeds.
- Pointing
  Joint preparation: Remove debris. Dampen surface.
- Fire stopping
  Avoidance of fire and smoke penetration: Tight fit between cavity barriers and masonry. Leave no gaps.
- Adverse weather
  General: Do not use frozen materials or lay on frozen surfaces.
  Air temperature requirements: Do not lay bricks/ blocks:
  - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
  - In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising.
  - In thin joint mortar glue when outside the limits set by the mortar manufacturer.

  Temperature of walling during curing: Above freezing until hardened.
  Newly erected walling: Protect at all times from:
  - Rain and snow.
  - Drying out too rapidly in hot conditions and in drying winds.
- Facework
  Colour consistency of masonry units:
  - Methods to ensure that delivered units are consistent and of an even colour range within deliveries: Submit proposals.
  - Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
  - Finished work: Free from patches, horizontal stripes and racking back marks.
- Appearance:
  - Brick/ block selection: Do not use units with damaged faces or arrises.
  - Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
  - Quality control: Lay masonry units to match relevant reference panels.
  - Setting out: To produce satisfactory junctions and joints with built-in elements and components.
  - Coursing: Evenly spaced using gauge rods.
  - Lifts: Complete in one operation.
  - Methods of protecting facework: Submit proposals.
  - Ground level: Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.
  - Putlog scaffolding: Not permitted in facework.
  - Toothed bond: New and existing facework in the same plane: Bond together at every course to achieve continuity of bond and coursing.
- Cleanliness:
  - Facework: Keep clean.
  - Mortar on facework: Allow to dry before removing.
  - Removal of marks and stains: Rubbing not permitted.

F30 ACCESSORIES AND SUNDRY ITEMS FOR BRICK BLOCK AND STONE

WALLING

1 GENERAL

Not all accessories and sundry items are applicable.

Cross-reference

General: Read with A90 General technical requirements.

2 PRODUCTS

- Concrete fill to base of cavity wall
  Standard: To BS EN 206-1 and BS 8500-2.
- Coping units
  Precast concrete, clayware, slate and natural stone: To BS 5642-2.
- Flexible damp proof courses and cavity trays
  Bitumen based: To BS 6398.
  Polyethylene: To BS 6515.
  Pitch polymer, bitumen polymer, polypropylene, and ethylene polypropylene based: Agrément certified.
- Wall ties
  Cavity ties: To BS 1243, DD 140-2 or BS EN 845-1.
  Slip ties and slot ties: To BS EN 845-1.

3 EXECUTION

- Cavities in masonry walling
  Concrete fill to base of cavity wall:
  - Extent: Maintain 75 mm between top of fill and external ground level and 225 mm (minimum) between top of fill and ground level dpc.
  - Placement: Compact to eliminate voids.

  Cleanliness: Cavity base and faces, ties, insulation and exposed dpcs free from mortar and debris.
- Dpcs - horizontal
  - Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
  - Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.
  - Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
  - Overall finished joint thickness: As close to normal as practicable.
- Ground level dpcs:
  - Joint with damp proof membrane: Continuous and effectively sealed.
- Stepped dpcs in external walls:
  - External walls on sloping ground: Install dpcs 150 mm (minimum) above adjoining finished ground level.

- Sill dpcs: In one piece and turned up at back when sill is in contact with inner leaf.
- Coping/ Capping dpcs:
  - Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
  - Dpcs crossing cavity: Provide rigid support to prevent sagging.
- Precast concrete, clayware, slate and natural stone coping units
  - Joints: Full and finished flush.
  - Placement: Lay on a full bed of mortar to line and level.
- Ties in masonry cavity walls
  - Embedment in mortar beds: 50 mm (minimum).
  - Placement: Sloping slightly downwards towards outer leaf, without bending. Drip: Centred in the cavity and pointing downwards.
  - Provision of additional ties in cavity walls with full fill cavity insulation: One row to support lowest row of insulation batts.
  - Additional ties at openings and movement joints: 300 mm (maximum) centres vertically within 225 mm of vertical movement joints and reveals of unbonded openings.

Q20 GRANULAR SUB-BASES TO ROADS/PAVINGS

1 THICKNESSES OF SUB-BASES

- Thicknesses: As specified in the relevant paving section.

2 HERBICIDES

- Application: to Subgrade of footpaths.

3 EXCAVATION AND COMPACTION OF SUBGRADES

Final excavation to formation level: Carry out immediately before compaction of subgrade. Do not excavate or compact when the subgrade may be damaged or destabilized eg wet weather, frozen ground.

Soft spots and voids: Give notice.

Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

4 SUB-BASES

Granular material: Of a known suitability for use in sub-bases, free from ice, harmful matter and excessive dust or clay, well graded, all pieces less than 75mm in any direction and selected from one of the following:

- Crushed rock (other than argillaceous rock) or quarry waste
- Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
- Gravel or hoggin with not more clay content than is required to find the material together, and with no large lumps of clay.
- Natural sand or gravel.

5 LAYING AND COMPACTING SUB-BASES

Subgrade: Not frozen and free from loose soil, rubbish and standing water.

Structures, membranes and buried services: Ensure stability and avoid damage.

General: Spread and level in layers.

Compaction:

- Timing: As soon as possible after laying.
- Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.
- Accuracy: Permissible deviation from required levels, falls and cambers (max):
  - Subgrade: ± 20mm
  - Sub-base: ±12mm
- Protection:
  - Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere
  - Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Q23 GRAVEL/HOGGIN/WOODCHIP ROADS/PAVINGS

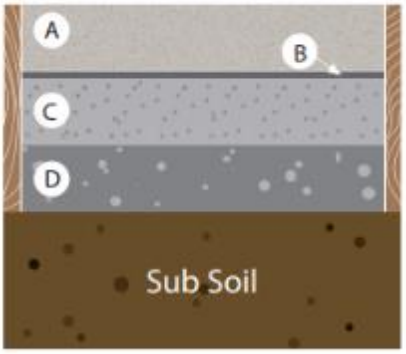
SELF BINDING GRAVEL TO PEDESTRIAN PATHS

1. PRODUCT
   Manufacturer: Breedon
   Colours: Amber
   Laying: to manufacturer's recommendation

2. EXECUTION
   - Blinding to sub-bases
     - Laying: Compact. Seal Interstices. Provide free drainage.
   - Herbicide to paving
     - Type: Suitable for the application, location and conditions of use.
     - Weeds and moss: Grub up
   - Laying generally
     - Channels, gullies, etc: Keep clear.
     - Completion: Compact to produce a firm, regular surface, stable in use.
     - Laying: Spread and level in 50mm maximum layers. Thoroughly compact each layer.
     - Dry weather: Lightly water layers during compaction.
     - Finished surfaces: -
       Lines and levels: To prevent ponding.
       Overall texture: Even.
       State at completion: Clean.
   - Cold weather working
     - Frozen materials: Do not use
   - Drainage Falls
     - Unsealed surfaces: 1:30 (minimum)
   - Excavation
     - Dig out unsuitable material to approximately 150mm .
   - Timber edging
     - Laid to receive self binding gravel.
   - Hardcore sub-base
     - Prepare surface with a hardcore sub-base.
   - Type-1 Sub base material: - Overlay with 50mm nominal thickness regulating course of granular sub-base material type 1, laid and compacted with a minimum 6 tonne roller. The regulating course should be laid to incorporate falls and profiles.
   - Blinding material

- Should contain sufficient dust to seal all interstices. It is essential that this base allows free drainage.

- A weed killer should then be applied to the regulating course following the manufacturers instructions.
- Wearing course
  - The self binding gravel wearing course should be rolled to a consolidated thickness of 50mm, using a minimum 1 tonne roller. The wearing course should be sprayed with clean water to achieve binding in periods of dry weather.



A: Self Binding Gravel
B: Blinding Material
C: Type-1 Sub base Material
D: Hardcore Sub-base

Q25 SLAB/BRICK/SETT/COBBLE PAVINGS

1 GENERAL

- Cross-reference
  - General: Read with A90 General technical requirements.

2. PRODUCTS
   - Manufacturer: Marshalls
   - Product: Arche Flamed Granite, 200 x 100mm X 50mm or similar concrete based product to differentiate different areas within memorial garden.
   - Freeze/ thaw resistance: Class 1 (F1).

3. EXECUTION
   - Material samples
     - Samples representative of colour and appearance of any designated materials specified for the project: Submit before placing orders.
   - Adverse weather
     General:
     - Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
     - Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.

     Paving with mortar joints and/ or bedding: Protect from frost damage, rapid drying out and saturation until mortar has hardened.
   - Laying pavings – general
     - Appearance: Smooth and even with regular joints and accurate to line, level and profile.

  - Falls: To prevent ponding.
  - Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
  - Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
  - Slopes: Lay paving units upwards from the bottom of slopes.
  - Paving units: Free of mortar and sand stains.
  - Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.
- Levels of paving
  - Permissible deviation from specified levels (generally): ± 6 mm.
  - Height of finished paving above features:
    At gullies: +6 to +10 mm.
    At drainage channels and kerbs: +3 to +6 mm.
- Regularity
  - Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 10 mm.
  - Sudden irregularities: Not permitted.
  - Difference in level between adjacent blocks/ pavers/ setts (maximum): 2 mm.
- Colour banding
  - General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.
- Protection
  - Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
  - Materials storage: Do not overload pavings with stacks of materials.
  - Handling: Do not damage paving unit corners, arrises, or previously laid paving.
  - Mortar bedded pavings (ordinary site mixed mortar without additives): Keep free from traffic after laying:
    Pedestrian traffic (minimum): 4 days.
  - Access: Restrict access to paved areas to prevent damage.
- Condition of sub-bases/ bases before spreading bedding (laying course)
  - Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
  - Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
  - Levels and falls: Accurate and within the specified tolerances.
  - Drainage outlets: Within +0–10 mm of the required finished level.
  - Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
  - Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.
- Laying
  - Location: The area where the setts are to be laid should be marked out using string lines, allowing an area of ‘spread’ to facilitate easy working. 100mm is usually adequate.
  - Edge Restraints

Sufficiently robust to resist the lateral displacement from imposed loadings placed upon the paving. The restraint must provide a consistent vertical face to a level below the layout course material.
  - Excavate to formation level, removing all organic matter.
  - Level: 175mm (minimum)
  - If when the ground is excavated, the sub-grade is found to be soft, loose or in anyway unsuitable, then the excavation should continue until a firm sub-grade is established.
- Sub-base: Granular Type 1 (40mm to dust)
  - Placed in layers not exceeding 75mm in thickness. Each layer should be fully compacted before the next layer is placed. Sub-base tolerance to be +5 -10mm from specified levels.
  - A minimum longitudinal fall of 1.25% (1 in 80) and crossfall of 2.5% (1 in 40) should be incorporated in the sub-layer construction to provide adequate surface water run-off from the wearing course.
- Laying course
  - All joints should be fully filled with a 'wet' mortar mix (1:4 cement/sand). The minimum width of the mortar joint should be 6mm and maximum 15mm. This should be a full depth mortar joint, and to achieve a professional finish sides of the units should be buttered with mortar prior to placement of the adjacent unit.
  - Under no circumstances should dry-or semi-dry sand/cement mixes be brushed into the joints. This practice leads to staining of the paving and does not constitute a true rigid joint.
  - Any mortar dropping on the face of the setts should be cleaned off quickly as work proceeds with a damp cloth.
- Cutting
  - Cutting may be carried out using a diamond tipped power saw, a block-splitting guillotine, or hammer and bolster. It must however be noted that the aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill.
  - Specific equipment or blade types should be used when cutting natural stone units as those designed for cutting concrete pavers may blunt easily.
  - Cut blocks should be inserted prior to completion of the working period or before the onset of inclement weather. Blocks should be cut such that the resultant joint width remains within the 8 - 15mm tolerance.

Q28 TOPSOIL AND GROWING MEDIA

1 TOPSOIL STORAGE HEAPS
Location: To be agreed with Site Manager.
Height: 1m maximum
Width: 2m maximum
Protection: Do not place any other material on top of storage heaps. Do not allow construction plant to track over storage heaps. Prevent compaction and contamination by covering/fencing if necessary.

2 PREPARATION OF UNDISTURBED TOPSOIL
General: Prepare as necessary for subsequent cultivation operations.
Hard ground: Break up thoroughly.
Ground covered with turf or a thick sward: Plough or dig over to full depth of topsoil.

3 IMPORTED TOPSOIL
Quantity: For planting beds and tree pits.

Classification: Multipurpose to BS 3882
Grade: 0.6-2mm

4 MATERIALS NOT PERMITTED
Materials: Peat and Products containing peat.

5 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): 150 mm for grass areas, 450mm for ornamental planting areas and 800mm for trees.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

6 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT
- Above adjoining paving or kerbs: 25 mm.
- Below dpc of adjoining structures: Not less than 150 mm.
- Shrub areas: Higher than adjoining grass areas by 50 mm.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

7 COMPOST FOR PLANTING BEDS
- Standard: In accordance with PAS 100.
- Type: Sanitized and stabilised compost.
- Horticultural parameters:
  - pH (1:5 water extract): 7.0-8.7.
  - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
  - Moisture content (m/m of fresh weight): 35-55%.
  - Organic matter (minimum): 25%. - Grading (air dried samples): 99% passing 25 mm screen, and 90% a 10 mm screen mesh aperture.
  - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Timing: Apply prior to cultivation
- Application rate: 25mm thick layer. Spread evenly.

Q30 SEEDING/TURFING

1 SEEDING AND TURFED AREAS
- $21m^2$ Wildflower turf in garden area.
- Seeding area outside of garden to make good after tree and bulb planting. Total area: approximately $400m^2$.

2 PREPARATION
HERBICIDE FOR ALL GRASSED AREAS
- Type: Suitable for suppressing perennial weeds
- Timing: Allow fallow period before cultivation.

- Duration: As manufacturer's recommendations.

3 SEED BED CLEANING BEFORE SOWING ALL GRASSED AREAS

- Operations: As seed supplier's recommendations

4 CULTIVATION (WILDFLOWER GRASS TURF AREA) – (interior of garden)

- Wildflower Turf can be laid any any time of the year. Thorough preparation is very important. Don't arrange delivery of the turf before the bed has been fully prepared.
- The preparation of the site is similar to the preparation for normal turf, but there are two very important differences that need to be considered. First, ensure that the bed is as free from perennial weeds as possible. The most common perennial weeds include nettle, dock, thistle and couch grass. Where this is known to be an issue, a combination of herbicides and fallowing should be employed. Second, wildflowers will give better results in poor soils than fertile soils, so no application of a pre-turfing fertiliser is required. If the soil is too rich grasses will tend to dominate the mixture. Generally speaking, the poorer the soil the better will be the display of wildflowers.
- When the existing sward is dead it should be removed using a turf stripper. Cultivate the ground removing any weeds and stones. Rake to a rough level. At this point, the area to be turfed should be consolidated gently by foot and ensure that there are no soft spots to avoid uneven settling of the soil later on. This ensures good contact between the soil and the turf.
- Turf must be laid immediately in the summer to avoid deterioration of the turf. As a general rule, lay the turf as soon as possible after delivery.

5 GRADING

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage. There should not be any hollows or ridges.
- Finished levels after settlement: 25mm above adjoining paving, kerbs, manholes etc.

6 FINAL CULTIVATION

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure:
  - Depth: 25mm
  - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
  - Remove surface stones/earth clods exceeding:
    General areas: 50mm
    Fine lawn areas: 10mm
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure fully marrying in of levels.

7 QUALITY OF SEED

- Seed mix: Emorsgate - EM6 Meadow mix for chalk and limestone soils or similar approved. Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties
  - Standard: EC purity and germination regulations and Department for Environment, Food and Rural Affairs High Voluntary Standard
  - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

8 SOWING (WILDFLOWER GRASS MIX AREAS)

Sowing: The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow 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.

9 PRE-EMERGENT HERBICIDE FOR ALL GRASSED AREAS

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

10 GRASS SOWING SEASON

Grass seed generally: April to June or August to October

11 TURFING

WILDFLOWER GRASS TURF AREAS
Supplier: Lindum, West Grange, Thorganby, York, YO19 6DJ. Tel: 01904 448675
http://turf.co.uk/wildflower-turf/what-is-wildflower-turf/wildflower-herb-mat/

12 DELIVERY AND STORAGE

- Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
- Frosty weather or waterlogged ground: Do not lift turf.
- Delivery: Arrange to avoid need for excessive stacking.
- Stacking height (maximum): 1 m.
- Dried out or deteriorated turf: Do not use.

13 LAYING WILDFLOWER GRASS TURF

- Start laying the turf along a straight side, butting the ends closely together. On subsequent rows, stagger the joints like brickwork, making sure that there are no gaps. To adjust the position of the turf after unrolling, always push it rather than pulling it to avoid stretching.
- Work from planks laid on the soil to avoid making footprints. Make sure that there is complete contact between the underside of the turf and the topsoil. Avoid leaving any gaps between the turves because this is where weeds will try to come in. Cutting of the turf to shape should be carried out using a sharp knife.
- Watering: Start watering the turf immediately upon completion. Never let the turf dry out in the first 2-3 weeks, or until the roots have gone well down into the soil. Make sure that the underside of the turf and the first 50mm of topsoil are damp. To check this, lift the corner of several turfs to see if the soil is damp underneath. Try to water little and often, rather than flooding the turf. Even after the critical first few weeks are over, continue to check that the soil has not become too dry.

14 ESTABLISHMENT OF WILDFLOWER GRASS SEEDED AREAS

Establishment phase: Most of the sown meadow species are perennial and will be slow to germinate and grow 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. This weed growth is easily controlled by topping or mowing.

Avoid cutting in the spring and early summer if the mixture is autumn sown and contains Yellow Rattle.

15 ESTABLISHMENT OF WILDFLOWER GRASS TURF AREAS

Mowing: The meadow turf areas should only require cutting 2-3 times a year. Usually, this is at the end of June and then during the winter. Many of the wildflowers species in the turf are herbaceous, which means that they flower during the spring, summer and autumn before dying back to ground level in the winter.

In the spring, they emerge again to repeat the life cycle. The mixture in the wildflower turf have been designed to provide flowers from April through to October. The June mowing is to tidy up the early flowering species and to provide space for the later flowering species to come through.

Mixtures containing grasses should be mown hard in November, and then again at the end of February. This is important because it stops the grass becoming too dominant in the mixture. Mowing can be done with a strimmer initially to remove the taller growth, followed by a rotary mower with the height adjusted to mow at a height of about 60- 80mm in June.

In winter the mower should be set to mow low enough to maintain a tidy appearance but without damaging the sward.

16 CLEANLINESS

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

17 MAINTENANCE

- Duration: Carry out the following operations from completion of seeding/ turfing until the end of the defects liability period.

18 FAILURES OF SEEDING/TURFING

- 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.

19 MAINTAINING WILDFLOWER GRASS SEEDING AREAS

In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

Meadow grassland is not cut or grazed from spring through to late July/August to give the sown species an opportunity to flower.

After flowering in July or August take a 'hay cut': cut back with a scythe, petrol strimmer or tractor mower to c 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.

Mow the re-growth through to late autumn/winter to c 50mm and again in spring if needed.

20 MAINTAINING WILDFLOWER GRASS TURF AREAS
- As for ESTABLISHMENT OF WILDFLOWER GRASS TURF AREAS

Q31 EXTERNAL PLANTING

1 SITE CLEARANCE GENERALLY
- 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 scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: Remove remnants of old fence posts and mesh.

2 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (except 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.

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

4 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
- Conifers and evergreens: September/ October or April/ May.
- Herbaceous plants: September/ October or March/ April.
- Container grown plants: At any time if ground and weather conditions are favourable.
- Watering and weed control: Provide as necessary.

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

6 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.

7 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.

8 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 working days.

9 PREPARATION, PLANTING AND MULCHING MATERIALS

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Certification of source, analysis, suitability for purpose and absence of harmful substances:
  Submit.
  - Certified materials: Sanitized and stabilized compost.
  - Give notice before ordering or using.

10 PLANTS/ TREES - GENERAL

- Quality: It is essential that the plants on site are of the highest quality specimens.
- 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 relevant parts of BS 3936.
- Species: True to name.
- Origin/ Provenance: Contractor to demonstrate local provenance where possible and appropriate. Definition: Origin and Provenance have the meaning given in the National Plant Specification.
- Inspection: Plants to be collected together in the nursery for inspection if requested by the landscape architect prior to delivery to site.

11 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.

12 ROOTBALLED TREES

The trees shall have a good well-formed root ball with dimensions according to the species and size of the tree. The diameter of the root ball is usually at least three times the size of the girth, measured at 1 metre above ground level. Rootballed trees shall be adequately supported by wire mesh and hessian, or other suitable material to prevent collapse of the rootball. The rootball shall be of sufficient size to contain the fibrous roots. Trees, which have a collapsed rootball or expose major parts of the root system will be rejected.

13 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.

14 LABELLING AND INFORMATION

- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling 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: Date supplied and consignment details or reference.

15 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.
- Approval: Obtain before making any substitution.

16 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: Coextruded polyethylene bags with black interior and white exterior.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

17 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.

18 PROTECTION OF EXISTING GRASS

- General: Protect areas affected by planting operations using boards/ tarpaulins.
  - Excavated or imported material: Do not place directly on grass. Duration: Minimum period.

19 SURPLUS MATERIAL

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

20 PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

- HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
- Duration (minimum): As manufacturer's recommendation.

21 WEED CONTROL FOR INVASIVE NON-NATIVE WEEDS

- Locations: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, in accordance with the Environment Agency 'Code of Practice for the management, destruction and disposal of Japanese knotweed'.

22 PEAT

- Peat or products containing peat: Do not use.

Peat or products containing peat. Do not use.

23 CULTIVATION

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
  - Depth: 150 mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 75 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

24 PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

PLANT LAYOUT TO ALL BEDS

- Layout: Random / naturalized avoiding straight lines.
- Spacing: As stated on the planting plans.
- Density: As plant schedule.

25 SHRUB PLANTING PITS

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: 200 mm wider than roots when fully spread and 200 mm deep.
- Pit bottom improvement Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.
- Backfilling material: Shrub planting backfilling material.

26 MYCORRHIZAL INOCULANT

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Application: Apply to roots of bare root plants before planting and backfilling.

27 CLIMBING PLANTS

- Planting: 150 mm clear of supporting structure (e.g. wall/ fence) with roots spread outward.
  - Branches: Lightly secured to supports trained to wall / structure.
- Climber supports: Green plastic coated steel wire.
  - Base height: 600 mm above ground.

- Extent: Refer to soft landscape drawings.
- Centres: 300 mm
- Distance from wall: 50 mm.

- Fixings: Contractor's choice.
  - Centres: 1.0m.

28 FORMAL HEDGES

- Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
- Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

29 SHRUB, HERBACEOUS AND BULB BACKFILLING MATERIAL

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required:
- Ameliorant/ Conditioner: Sanitised and stabilised compost.
  - Application rate: To manufacturer's/ supplier's recommendations.
- Fertilizer: Slow release.
  - Application rate: To manufacturer's/ supplier's recommendations.

30 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.
- Top dressing: Not required.

31 MULCHING PLANTING BEDS

- Material: Medium grade bark mulch.
- Purity: Free of pests, disease, fungus and weeds.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: 75 mm depth.
- Finished level of mulch: 30 mm below adjacent grassed or paved areas.

32 PLANTING TREES

GENERALLY

The trees for this project are manageable by 2 people. However, if larger trees are selected, the contractor shall make full allowance for provision of all cranes, lifting tackle, tree collars etc. required for lifting trees into position having confirmed the weight and dimensions of all the trees reserved with the nursery supplier(s). Any use of cranes shall be coordinated with the site manager, agree haul routes, types of tracks on vehicles etc. prior to commencing tree deliveries. Make good, at no extra cost to the contract, any damage incurred to finished kerbs, hardstanding etc. during planting.

Trees shall be planted at the same depth at which they were previously growing. Great care shall be taken to avoid damage to the root systems, stems and crowns when planting and when removing crates and containers. Any damaged trees shall be taken off site and replaced at no additional cost.

Planting is to be carried out in suitable weather. Stock shall not be planted in conditions of frost, frozen ground, strong wind or heavy rainfall that renders the soil waterlogged or in sticky condition. Wherever possible, planting should take place when the weather is dull and the ground is moist and workable.

33 STANDARD TREES

- Sizes: A minimum size of 1500 x 1500mm x 800mm depth where space permits, or 500mm greater than the rootball dimensions, whichever is greater, with base broken up to minimum 300mm depth below rootball.
- Depth of topsoil can be c.350-400mm with the remainder using approved free-draining subsoil (non-clay) free of contaminants.
- Topsoil backfill to be a mixture of compost and approved topsoil (1:4 / compost:soil mix) and slow release fertiliser.
- Excavated and prepared pits are to be suitably protected from all construction works in readiness for planting the following winter.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: Break up to a depth of 300 mm.
- Drainage: On poorly drained sites, tree pit drainage is to be linked to a soakaway or land drain connected to car park surface water drainage to Engineer's specification.
- Pit sides: Scarify.
- Backfilling material: Tree backfilling material.
- Accessories:
  - Tree irrigation system
  - Tree staking

34 TREE PIT IRRIGATION

- Locations: Refer to Drawings 685-PP-01-03.
- Manufacturer: Greenleaf or similar.
  - Product reference 1: RootRain Civic (Semi-mature / Extra Heavy Standard / Pleached trees).

35 STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end. - Preservative treatment: To provide a 20 year service life.
- Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Stake size (minimum): 75 mm diameter.

36 TREE BACKFILLING MATERIAL

- Composition: Previously prepared mixture of approved imported topsoil and planting compost.
  - Ameliorant/ Conditioner: Sanitized and stabilized compost.
- Application rate: To manufacturer's/ supplier's recommendations.
- Fertilizer: Slow release.
  - Application rate: To manufacturer's/ supplier's recommendations.

37 MULCH FOR TREES IN GRASS

- Material: Medium grade bark mulch. - Purity: Free of pests, disease, fungus and weeds.
  - Preparation: Clear all weeds. Water soil thoroughly.
- Depth: 75mm.
- Coverage: In a circular area of 500mm radius measured from the tree stem of trees. Keep mulch c.50-75mm away from base of trunk
- Finished level of mulch: 25 mm above adjacent grassed or paved areas.

38 PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS
MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until the end of the defects liability period.
- Frequency of maintenance visits: In accordance with the agreed maintenance schedule.

39 FAILURES OF PLANTING

- Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
  - Exclusions: Theft or malicious damage after completion.
  - Rectification: Replace with equivalent plants/ trees/ shrubs.
- 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.

40 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.

41 PLANTING MAINTENANCE GENERALLY

- Weed control: Maintain weed free areas around each tree and shrub.
- Planted areas: Where appropriate 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 use of mowers, nylon filament rotary cutters and similar 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: At each scheduled maintenance visit.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
  - Timing: After dusk.
- Watering: Contractor's choice.

42 PLANTING MAINTENANCE - FERTILISER

- Time of year: March or April.
- Fertilizer: Slow release.
  - Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.

43 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.

44 SHRUB & GROUNDCOVER AREAS

- General: Maintenance is to be undertaken in such a way as to allow healthy plants to develop, unhindered by unwanted weed growth, overwhelming competition from neighbouring plants or other inhibiting factors.
- Biodegradable matting: Inspect and secure as necessary in accordance with manufacturer's recommendations.
- Watering: Only as necessary to prevent plants wilting.
- Loose plants: Refirm surrounding soil, without compacting.
- Weed control: Cut down and remove any weeds prior to setting seed.
- Mechanical, chemical or mulching methods of vegetation control: Submit proposals.
- Ditches and drains: Keep clear.
- Watering: Contractor's choice.

45 FINAL MULCHING

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to re-mulching, applying water where necessary.
- Planting beds: Re-mulch to achieve min. depth: 75 mm.
- Trees: Re-mulch: Re-mulch to achieve min. depth: 75 mm.

46 PLANT PROTECTION

- All tree and shrub planting shall be protected from rabbit damage with appropriate stock and rabbit proof tree and shrub guards.
    - Manufacturer: Tubex Shelterguard Tree and Shrub Shelters or similar approved.

Q35 LANDSCAPE MAINTENANCE

GENERALLY

1 MAINTENANCE OBJECTIVES

- The general intent of landscape maintenance for the site is to ensure that over a period of time the planting develops to maturity, to the concept that has been approved by the local authority. It is recognised that the landscape is part of an evolving environmental system, and to bring that system to maturity requires a well-defined and appropriate maintenance programme. The maintenance programme is designed to promote the effective maintenance of the landscape areas for both amenity and ecological benefit as an integral part of the new development.
- Occasional pruning / trimming of certain species will be required to remove dead branches and maintain good form. However, the different species used have been designed to complement each other creating a varied height structure and habit. Therefore, mixed planting beds are not to be strimmed to a uniform height. Certain structural shrub species may need trimming to promote good shape or prevent encroachment on adjoining beds.
- Location: All soft landscape areas. - Duration: 2 years for all semi-mature trees and 1 year for all other works.
- Aims: Maintain as a high quality amenity landscape environment.
- Results: Full establishment at the end of the contract period.

2 REINSTATEMENT

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

3 WATERING
- Supply: Potable mains water.
- Quantity: Wet to field capacity.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

NB: Due to sandy, free-draining nature of soils on site allowance should be made for additional visits during periods of hot and dry weather.

4 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.

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

6 CHIPPING OR SHREDDING
- General: Not permitted on site unless otherwise agreed.

7 LITTER
- Extraneous rubbish not arising from the contract work: Collect and remove from site.

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

9 GRASS AREAS

GRASS CUTTING GENERALLY:
- Before mowing: Remove litter, rubbish and debris.
- Finish: Neat and even, without surface rutting, compaction or damage to grass.
- Edges: Leave neat and well defined. Neatly trim around obstructions.
- Adjoining hard areas: Sweep clear and remove arisings.
- Drought or wet conditions: Obtain instructions.

10 TREE STEMS:
- Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

11 LEAF REMOVAL:
- Operations: Collect fallen leaves.
- Special requirements: [Remove by hand raking].
- Disposal: [Remove from site for recycling].

12 RE-FORMING GRASS EDGES:

- Location: [Where damage occurs].
- Edges: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.

13 SELECTIVE HERBICIDE:

- Location: [All new grass areas as required].
- Herbicide: [Suitable for suppressing perennial weeds].
- Areas not to be sprayed: [Bulb and corm planted areas when in leaf].

14 REINSTATEMENT OF WORN OR DAMAGED LAWNS:

- Worn or damaged areas: Make good by returfing:
- Returfing standard: To BS 7370-3, Clause 12.2.
- Turf to match existing in appearance and quality.
- Protection and watering: Provide as necessary to promote successful establishment.

15 HERBACEOUS PLANTING

BEDS OF PERENNIALS:

- Gaps in planting: Refill by replanting.
- Watering:
  - New plants: Before and after planting out.
  - Ongoing: As necessary for the continued thriving of all planting.
- Operations at end of growing season:
  - Trim: Older flowering stems of herbaceous perennials.
  - Remove: Redundant plant supports, litter, debris and arisings.
  - Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
  - Top dress: Apply [sanitized and stabilized compost top dressing].

16 FLOWER BEDS GENERALLY:

- Operations:
  - Remove: Dead flower heads, fallen leaves, litter and debris.
  - Weeds: Thoroughly hand weed.
  - Cultivate: Lightly hoe.
  - Trim: Clip grass edges.
- Fungicide if required: [Contractor's choice].
- Insecticide if required: [Contractor's choice].

17 SHRUBS/TREES/HEDGES

ESTABLISHMENT OF NEW PLANTING: GENERAL

- Duration: One year.
- Weed control:
  - Keep planting beds clear of weeds by hoeing and screefing and use of a nonresidual herbicide where appropriate.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Trees: When in leaf, spray crowns during warm weather.
  - Timing: After dusk.
- Watering: As per agreed maintenance schedule.
- Litter: Remove.

18 ESTABLISHMENT OF NEW PLANTING AREAS

- Weed control: Maintenance is to be undertaken in such a way as to allow healthy plants to develop, unhindered by unwanted weed growth, overwhelming competition from neighbouring plants or other inhibiting factors. Areas to be kept weed-free for at least the first 3 years or until the canopy closes. Selective weed control to be undertaken beyond this period as required.
- Watering: As necessary to prevent plants wilting.
- Loose plants: Refirm surrounding soil, without compacting.
- Weed control: Cut down and remove any weeds prior to setting seed.
- Mechanical, chemical or mulching methods of vegetation control: Submit proposals.
- Litter: Remove.
- Thinning Works (to BS 3998 – 2010): Thinning, trimming and shaping should be done according to species, variety, season, state of growth and visual effect.

19 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April.
- Type: Slow release.
- Spreading: Spread evenly. Carefully lift and replace any mulch materials.
- Application rate: As manufacturer's recommendations.

20 TREE STAKES AND TIES:

- Inspection/ Maintenance times: [As per agreed maintenance schedule and immediately after strong winds].
- 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: [During spring when no longer required to support the tree].
- Fill stake holes with lightly compacted soil.

21 REFIRMING OF TREES AND SHRUBS

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: 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 refirm.

22 PRUNING GENERALLY

- General: An annual assessment of the need for pruning should be made at the end of each growing season with work carried out in the following winter or spring depending on species. Remove any suckering or self-seeded plants.
- 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 infection: Give notice if detected.
- Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

23 PRUNING OF EXCESSIVE OVERHANG

- Timing: As per agreed maintenance schedule.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
- Special requirements: Allow ground cover plants to partially overlap paths and lawns.

24 PRUNING OF EXCESSIVE HEIGHT

- Timing: As per agreed maintenance schedule.
- Operations: Remove excessive height as instructed.

25 PRUNING TREES AND SHRUBS

- Standard: To BS 7370-4.
- Special requirements: None.

26 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.
- Operatives: Approved specialist contractor.

26 PRUNING ORNAMENTAL SHRUBS

- 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.

27 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES

- Time of year:
    - 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.

28 TRIMMING RAPIDLY ESTABLISHING HEDGES

- General: Allow to reach planned height as rapidly as possible.
- Form: Trim back lateral branches moderately.

29 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.

30 DEAD AND DISEASED PLANTS

- Removal: As soon as possible.

- Replacement: In the next suitable planting season.

31 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

- Dead and damaged plants: Remove.
- Mulch/ matting materials:
  - Carefully move to one side and dig over the soil, leaving it fit for replanting.
  - Do not disturb roots of adjacent plants.
- 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.
- Dressing: Slow release fertilizer:
  - Type: Contractor's choice.
  - Application rate: As manufacturer's recommendations.

32 WEED CONTROL GENERALLY

- Weed tolerance: Weed to clear ground every two weeks.
- Adjacent plants, trees and grass: Do not damage.

33 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.

34 HERBICIDE TO KILL REGROWTH

- Type: Suitable foliar acting herbicide to kill regrowth.

35 WEED CONTROL WITH SUMMER HERBICIDE

- Type: Suitable foliar acting herbicide.

36 DIGGING OVER

- General: Dig over beds. Do not damage existing plants, bulbs and roots. Depth of dig (minimum): 75 mm.

37 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.

38 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.

39 MAINTENANCE OF LOOSE MULCH

- Thickness (minimum): 75 mm.
  - Top up: Annually.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.

- Weeding: Remove weeds growing on or in mulch by hand weeding or nonresidual herbicide as appropriate.

40 TREE WORK

TREE WORK GENERALLY

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: In accordance with current best practice.
- Standards: To BS 3998 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.

41 ADDITIONAL WORK

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

42 PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8. 825 PREVENTION OF DISEASE TRANSMISSION
- Standard: To BS 3998, clause 9

43 CLEANING OUT AND DEADWOODING

- Remove:
  - Dead, dying, or diseased wood, broken branches and stubs.
  - 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.

44 CUTTING AND PRUNING GENERALLY

- Tools: Appropriate, well maintained and sharp.
- Final pruning cuts:
  - Chainsaws: Do not use on branches of less than 50 mm diameter.
  - Hand saws: 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 if unavoidable.
  - 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.

45 HARD LANDSCAPE AREAS

HARD SURFACES AND GRAVEL AREAS

- General: Keep paths free of weeds and maintain original construction profiles. Any planting encroaching on path edges shall be trimmed back within pruning operations during routine maintenance visits. Planting adjacent to car parking areas to be pruned back as necessary to maintain clear kerb lines.
- Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
- Hard surfaces: Remove litter, leaves and other debris.
- Surface gutters and channels: Remove mud, silt and debris.
- Drainage gullies: Empty traps and flush clean.
- Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.

Q50 SITE AND STREET FURNITURE AND EQUIPMENT

1 GENERAL
Cross-reference
General: Read with A90 General technical requirements.

2 PRODUCTS

- Archways at two entrances to memorial garden
  - Gothic Arch, Code: OL2969, Primrose, https://www.primrose.co.uk
  - Manufactured from 25mm x 8mm solid steel bar coated in antique black polyester powder. Inside opening 48" (1219mm) Overall width 56" (1422mm) Overall height 88" (2235mm) Depth 21" (533mm).
  - Follow manufacturer's installation instructions.
- Seating built into three of the walls. Five of the seats are 1500mm long and one is 1100mm long, height 500mm, depth: .500mm
- Concrete foundations generally
  Standard: To BS 8500-2.
  - Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
  - Admixtures: Do not use.

3 EXECUTION

- Setting components in concrete
  - Foundation holes: Neat vertical sides.
  - Components: Accurately positioned and securely supported.
  - Depth of foundations, bedding and haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
  - Concrete fill: Fully compacted as filling proceeds.
  - Temporary component support: Maintain undisturbed for minimum 48 hours.
  - Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to
  - shed water and trowelled smooth.
- Setting in earth
  - Holes: As small as practicable.
  - Components being fixed: Accurately positioned and securely supported.
  - Earth refill: Well rammed as filling proceeds.
- Preservative treated timber

  - Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
  - Heavily worked sections: Re-treat.
- Building in to masonry walls
  - Components being built in: Accurately positioned and securely supported. Set in mortar and pointed neatly to match adjacent walling.
  - Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.
- Erection of timber and prefabricated structures
  - Checking: 5 days (minimum) before proposed erection date, check foundations, holding down bolts, etc.
  - Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

CORTEN STEEL EDGING FOR PLANTING BEDS

- PRODUCT
  - EverEdge Classic landscape edging
  - Manufacturer: EverEdge, P O Box 9, Stroud, Gloucesteshire, GL6 8HA, tel 01453 731717
  - Material: Corten Steel
  - Dimensions: 1000 x 125mm; 1.5mm thickness, supplied in packs of 5x1m strips

- GENERAL
  - Avoid cutting. Overlap or bend surplus length to finish installation.
  - Follow manufacturer's instructions for installation.
  - Use pin and sleeve fixing system for extra anchorage. Fixing pins are 10mm diameter and can be cut to any length.

- EXECUTION
  - Prepare a line for the edging to following and remove any obstructions. If ground is stony, loosen with pickaxe. Drive one end of EverEdge to correct depth, leaving other end sufficiently clear to enable link to next section.
  - Link the EverEdge and use a screwdriver to push the tongue on the front panel through the hole in the rear panel no more than 45^{o}.
  - To bend the EverEdge strip to the required angle a work bench, the edge of a table or a timber is advised.

Z21 MORTARS

1. GENERAL

Cross-reference

General: read with A90 General technical requirements.

2. PRODUCTS

- Admixtures for site made cement gauged and hydraulic lime:sand masonry mortars
  - Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
  - Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.
- Cements for mortar

Cement: To BS EN 197-1 and CE marked.
- Type: Portland cement, CEM I. Portland limestone cement, CEM II/A-L or CEM II/A-LL. Portland slag cement, CEM II/B-S, Portland fly ash cement, CEM II/B.
- Strength class: 32.5, 42.5 or 52.5.

White cement: To BS EN 197-1 and CE marked.
- Type: Portland cement, CEM I.
- Strength class: 52.5.

Sulfate resisting Portland cement.
- Type:To BS 4027 and Kitemarked. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
- Strength class: 32.5, 42.5 or 52.5.

Masonry cement: To BS EN 413-1 and CE marked, class MC 12.5.

- Lime:sand for cement gauged masonry mortars

  Ready mixed:
  - Standard: To BS EN 998-2.
  - Lime: Nonhydraulic to BS EN 459-1, type CL 90S.
  - Pigments for coloured mortar: To BS EN 12878.

  Site made:
  - Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
  - Lime: Nonhydraulic to BS EN 459-1, type: CL 90S.
  - Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least
  - 16 hours before using.
- Retarded ready to use cement gauged masonry mortars

  Standard: To BS EN 998-2.

  Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
  - Type: CL 90S.

  Pigments for coloured mortars: To BS EN 12878.

  Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
  - Retempering: Restore workability with water only within prescribed time limits.
- Sand for lime:sand masonry mortars

  Type: Sharp, well graded.
  - Quality, sampling and testing: To BS EN 13139.
- Sand for site made cement gauged masonry mortars

  Standard: To BS EN 13139.
  - Grading: 0/2 (FP or MP). Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5 – 6):

  Lower proportion of sand, use category 3 fines. Higher proportion of sand, use category 2 fines.

  Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

3. EXECUTION
   - Making cement gauged mortars

     Batching: By volume. Use clean and accurate gauge boxes or buckets.
     - Mix proportions: Based on dry sand. Allow for bulking of damp sand.

     Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
     - Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.

     Working time (maximum): Two hours at normal temperatures.

     Contamination: Prevent intermixing with other materials.

- Ready prepared lime putty
  Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
  - Maturation: In pits/ containers that allow excess water to drain away.
  - Density of matured lime putty: 1.3–1.4 kg/L.

  Maturation period before use (minimum): 30 days after slaking.
- Making lime:sand mortars
  Batching: By volume. Use clean and accurate gauge boxes or buckets.
  Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
  - Site prepared nonhydraulic lime:sand mortars: Use roller pan mixer. Mix materials thoroughly by compressing, beating and chopping. Do not add water. Maturation period before use (maximum) 7 days.
  - Site prepared hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix. Water quantity, only sufficient to produce a workable mix. Working time, within limits recommended by the hydraulic lime manufacturer.

  Contamination: Prevent intermixing with other materials, including cement.
- Ready to use nonhydraulic lime:sand mortars
  Type: Select from:
  - Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.
  - Quicklime to BS EN 459-1 slaked directly with sand.

  Maturation period before use (maximum): 7 days.