

Landscape Works Specification

Moylish and Corbally Roundabouts Landscape Design and Maintenance Plans

2nd February 2021



This Landscape Specification has been produced to describe the materials, standards and workmanship expected during construction and implementation of soft and hard landscape works proposed as part of the Moylish and Corbally Roundabout Projects. This document is to be read in conjunction with the following drawings

Limerick City Roundabouts Drawing Schedule			
Drawing Number	Drawing Title	Scale	Print Size
T343-101	Moylish Hardworks Plan	1:100	A1
T343-102	Moylish Planting Plan	1:100	A1
T343-103	Corbally Hardworks Plan	1:100	A1
T343-104	Corbally Planting Plan	1:100	A1

All Works to be carried out in accordance with BS 4428 - Code of Practice for General Landscape Works.

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1. Introduction and General Requirements

1.1. SCOPE OUTLINE DESCRIPTION: Including but not necessarily limited to:

- Preparation, cultivation of landscape areas,
- Supply and spreading of topsoil and mulch,
- Supply and planting of trees, shrubs, perennials and groundcovers,
- Maintenance

1.2. STANDARDS REFERENCED DOCUMENTS: The following standards are referred to in this document and should be consulted to assist in the delivery of this project:

- BS 1377 2 and 4 - Methods of Testing Soils for Engineering Purposes
- BS 4428:1989 - General Landscape Operations
- BS 3882:2007 - Soils for Landscaping and Garden Use
- BS PAS 100 - Composts, Soil Conditioners and Mulches
- BS 8545:2014 - Trees from Nursery to Independence
- BS 3936-1 - National Plant Specification
- BS 5837:2005 - Pruning of amenity trees
- BS 3998 - British Standard for Tree Work
- BS 7370-4 - Grounds Maintenance

1.3. INSPECTION NOTICE: Give not less than 1 week's notice so that inspection may be made of the following, as applicable:

- Plant materials delivered to the site
- Setting out completed
- Clearing completed
- Sub-grades cultivated and/or prepared prior to placing topsoil.
- Plant material purchased
- Plant material set out before planting
- Practical completion
- Upon completion of Defects Liability work.

1.4. PERIODIC INSPECTIONS: There will be regular periodic inspections at the beginning of each month during the establishment period and the Defects Liability Period. Digital photo records will be kept throughout the roundabout development.

2. Excavating and Site Clearance

2.1. GENERALLY/THE SITE

2.1.1. EXISTING SERVICES/ FEATURES/ STRUCTURES

- Services: Contractor is responsible for identifying and locating all services and associated infrastructure on the site.

2.1.2. CLEARANCE/EXCAVATING

2.1.3. TREE ROOTS

- Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.
- Excavation in protected area:
 - Method: By hand.
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
- Cutting: - Make clean smooth cuts with no ragged edges. - Pare cut surfaces smooth with a sharp knife. - Treatment of cut roots: Not required.
- Backfill: As dug material, enriched with amelioration as section

2.1.4. SITE CLEARANCE

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

2.1.5. REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

- Standard: BS 3998
- 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 Guides.

2.1.6. TOPSOIL

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading as shown on drawings.
- Depth: - Remove to an average depth of 250 mm. as topsoil depth varies, remove such that there is no contamination of subsoil. . - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of tree crowns to be retained.
- Site storage: Keep separate from excavated sub-soil.

2.1.7. TREATING TOPSOIL

- Treatment: Apply Roundup or a similar and approved translocated non residual herbicide.
- Timing: Not less than two weeks before excavating topsoil.

2.1.8. HANDLING TOPSOIL

- 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. Refer to <https://invasivespeciesireland.com/invasive-plant-management/>.
- Earthmoving equipment: Select and use to minimize disturbance, trafficking and compaction.

- Contamination: Do not mix topsoil with: - Subsoil, stone, hardcore, rubbish or material from demolition work. - Oil, fuel, cement or other substances harmful to plant growth. - Other grades 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, Annex N2.

2.1.9. RECORDED FEATURES

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

2.1.10. 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.

2.1.11. UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

- Generally: Remove 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 m of tree planting: 1000 mm.

2.1.12. EXISTING PAVING TO BE RETAINED

- Generally: renovation, repair and maintenance of existing paving
- Location: Moylish Roundabout
Corbally Roundabout
- Cleaning: Powerwashing of existing paving surface
- Identification of defects: Inspection by contractor and identification of areas that require spot repair
- Treatment: Replace individual pavers (to match existing and as approved by architect) as required.
- Safety: Comply with HSA Code of Practice for Three or Less Working on roads

3. Topsoil, growing media and ameliorates

3.1. TOPSOIL SYSTEM FOR PLANTING AREAS

3.1.1. IF EXISTING TOPSOIL ON SITE IS DEFICIENT AND REQUIRES TOPPING UP

- Topsoil: Imported topsoil to BS 3882.

3.1.2. EXISTING SERVICE DUCTS

- Identification: Contractor to screen for and locate services before commencing work on site.
- Safety: Contractor to screen for and locate services before commencing work on site.

3.2 PRODUCTS

3.2.1. PREPARATION MATERIALS GENERALLY

3.2.2. PREPARATION OF UNDISTURBED TOPSOIL

- Standard: In accordance with BS 4428 - Code of practice for general landscape operations (excluding hard surfaces)
- Hard ground: Break up thoroughly.
- Clearing: Remove visible roots and large stones with a diameter greater than 50 mm.
- Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
- Fallow period (minimum): One month.
- Weed control: At appropriate times treat with a suitable translocated non-residual herbicide. Ensure that topsoil is entirely weed free, paying special attention to the removal of all perennial weeds, dock roots, scutch grass roots and Japanese knotweed, at point of planting and seeding. All existing vegetation and weeds to be removed from site.

3.2.3. TOPSOIL

- Purity: Free of all pests, disease, and fungus.
- 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.

3.2.4. IMPORTED TOPSOIL TO BS 3882

- Quantity: to a depth of 50mm as required, to make up any deficiency of topsoil existing on site and to complete the work.
- Location:
 - Moylish Roundabout
 - Corbally Roundabout
- Standard: To BS 3882.
- Classification: Multipurpose. - Grade: 0.6-2 mm.
- Source: Contractor's choice.
 - Product reference: Contractor's choice.

3.3. EXECUTION

TOPSOIL ANALYSIS

- Soil to be analysed: Imported topsoil.
- Soil analyst: Contractors choice.
- Samples: Collect in accordance with BS 3882.
- Submit:
 - Declaration of analysis:
 - Chemical analysis and contaminants;
 - Maximum stone content, stone size and pH value;
 - pH value and textural classification; and
 - Phytotoxic and CLEA elements.

Report detailing soil analyst's recommendations.

3.3.1. IMPORTING TOPSOIL

- Give notice: Before stripping topsoil for transfer to site.
 - Notice period: 5 days.

3.3.2. SAMPLE LOADS FOR IMPORTED TOPSOIL

- Deliver to site a sample load: of 5 kg.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads. Notice period: 5 days.

3.3.3. DOCUMENTATION FOR IMPORTED TOPSOIL FOR PLANTING BEDS

- 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: 2.

3.3.4. NOTICE

- Give notice before:
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer
 - Visiting site during maintenance period.
- Period of notice: One week.

3.3.5. MECHANICAL TOOLS

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

3.3.6. GRADING SUBSOIL

- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Areas of thicker topsoil: Excavate locally.

3.3.7. SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels as per Landscape Architect's Drawings and Details.
- 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 50 mm.
- Remove from site: Arisings, contaminants and debris and Builders rubble

3.3.8. INSPECTING FORMATIONS

- Give notice: Before spreading topsoil for meadow areas and planting beds.
- Notice period: 7 days.

3.3.9. SURPLUS TOPSOIL TO BE RETAINED

- Generally: Spread and level on site: - Locations: Any areas where topsoil is required for new planting.
- Protected areas: Do not raise soil level within root spread of trees that are to be retained.

3.3.10 SURPLUS MATERIALS TO BE REMOVED

- Topsoil: Remove from site topsoil remaining after completion of all landscaping work as agreed with Project Manager.
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

3.3.11. TOPSOIL STORAGE HEAPS

- Location: Throughout the order limits.
- Height (maximum): 1.0 m.
- Width (maximum): 2.0 m.
- 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.

3.3.12. CULTIVATION OF EXISTING TOPSOIL

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
 - Depth: 150 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: 25 mm above adjoining paving or kerbs and 50 mm above adjoining lawns.
- Undesirable material brought to the surface: Remove all visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of existing trees to be retained: Do not dig or cultivate in area below the canopy of the tree.

3.3.13. 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.
- Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than 100 mm.
- Give notice: If required levels cannot be achieved by movement of existing soil.

3.3.14. 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.

3.3.15. 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, 300mm for shrub, 600mm for hedge planting areas and 800mm for trees.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

3.3.16. FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving or kerbs: 25 mm.
- Shrub and Perennial planting 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.

4. External planting

4.1. GENERAL INFORMATION/ REQUIREMENTS

4.1.1. 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.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

4.1.2. SOIL CONDITIONS

- Soil for cultivating and planting: Moist, friable and 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.

4.1.3. CLIMATIC CONDITIONS

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

4.1.4. 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 to 1st week in April.
- Container grown plants: At any time if ground and weather conditions are favourable.
 - Watering and weed control: Provide as necessary.
- Dried bulbs, corms and tubers: Autumn and Spring (Crocsmia and Liatris only available in Spring).
- Crocus: September/October.
- Green bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid-November or March/ April.

4.1.5. MECHANICAL TOOLS

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

4.1.6. 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.

4.1.7. 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.

4.1.8. NOTICE

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Purchase of plants
 - Planting plants.
 - Watering.
 - Visiting site during maintenance period.

- Period of notice: One week.

4.2. PREPARATION, PLANTING AND MULCHING MATERIALS

The selection of plant material is based on objectives of all Ireland Pollinator Plan 2015-2020 to provide resources for pollinators in sustainable planting schemes.

- 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: Submit proposals. Give notice before ordering or using.

4.2.1. PLANTS- 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: National Plant Specification BS 3936-1
- Species: True to name.
- Origin/ Provenance: Irish grown with Provenance Declaration Form
- Predelivery Inspection: Give Notice

4.2.2. PLANTS- SPECIFICATION CRITERIA

- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification and BS 3936-1.

4.2.3. CONTAINER GROWN PLANTS

- Growing medium: With adequate nutrients for plants to thrive until permanently planted. In compost for 9 months with slow release fertilizer.
- Plants: Well established, centred in containers, firmed and well watered.
- Health: Free from all pests, diseases and fungus.
- Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
- Hardiness: Hardened off before supply. 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.

4.2.4. BULBS/ CORMS/ TUBERS

- Condition: Firm, entire, not dried out or shrivelled.
- Health: Free from pests, diseases and fungus.
- Handling: Remove from packaging immediately.
- Storage: Permitted only when necessary. - Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - Duration: Minimum period.
 - Temperature: 18-21°C.

4.2.5. LABELLING AND INFORMATION

- General: Provide each plant or group of plants 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 and BS 3936-1.
- Additional information: Submit on request:
 - Country of origin;
 - Potting dates;
 - Propagation method and dates;
 - Pruning dates; and
 - Type of container.

4.2.6. PLANTS RESERVED AT SUPPLIER'S PREMISES

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

4.2.7. PLANT SUBSTITUTION

- Plants unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating: - Price. - Difference from specified plants.
- Approval: Obtain before making any substitution.

4.2.8. 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.
 - All bare roots plants to be supplied in bags containing and enclosing the whole root system. Transplants should be supplied with shoots and roots fully enclosed in the bag, whereas larger shrubs and trees should have only the root system enclosed. The bag should be coextruded polythene bags with black interior and white exterior with larger trees packaged as follows: * 6-8cm and 8-10cm girth trees = 3Nr trees per bag
 - All plants shall be adequately packaged and protected during transportation from source to planting on site. To minimise storage of plant stock, operations are to be arranged so that trees and shrubs are planted immediately after each planting pit is prepared.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Storage - Plants and trees to be stored in a secure and protected from site operations and over exposure to adverse weather conditions.
- Planting: Upright or well balanced with best side to front.

4.2.9. 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.

4.2.10. SURPLUS MATERIAL

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

4.3. PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

4.3.1. HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Roundup or similar and approved and suitable for suppressing perennial weeds.

- Timing: Allow fallow period before cultivation.
 - Duration: As manufacturer's recommendation.

4.3.2. 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 <https://invasivespeciesireland.com/invasive-plant-management/>.

4.3.3. CULTIVATION

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
 - Depth: 350 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;
 - 50 mm above adjoining lawns; and
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 30 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

4.3.4. PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

4.3.5. PLANT LAYOUT TO SHRUB/PERENNIAL/HERBACEOUS PLANTING

- Spacing: As Landscape Architect drawing.
- Density: As Landscape Architect drawing.

4.3.6. SHRUB PLANTING PITS

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: Wide enough to accommodate roots when fully spread and 75 mm deeper than root system.
- Pit bottom improvement Break up to a depth of 150 mm, incorporating soil ameliorate/ conditioner at 50 g/m².
- Backfilling material: Finely broken previously prepared weed free topsoil. Lightly firm to existing ground level.

4.3.7. ANTIDESICCANT FOR CONIFERS/ EVERGREENS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Application: Dip in or thoroughly spray before delivering to site. Spray again soon after planting.
 - Do not apply in wet or frosty weather. Ensure full coverage of underside of foliage.

4.3.8. PLANTING BULBS/ CORMS/ TUBERS

- Timing: To be planted September/October before final seeding of surface with Clover or Wildflower seeds April to September.
- Depth: Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
- Backfilling: Finely broken soil. Lightly firm to existing ground level.
- Naturalized planting:
 - Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
 - Planting: Neatly remove a plug of turf and replace after planting.

4.3.9. HERBACEOUS AND BULB BACKFILLING MATERIAL

- Composition: Previously prepared sterile, weed free mixture of topsoil excavated from pit and additional topsoil as required.

4.3.10. 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.

4.4. PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

4.4.1. 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: In accordance with the agreed maintenance schedule.

4.4.2. 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.

4.4.3. 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.

4.4.4. 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.
- 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 use of mowers, nylon filament rotary cutters and similar powered tools.
- Firming up: Gently firm loosened soil around shrubs. Straighten leaning shrubs.
- Trees: Spray crown when in leaf during warm weather.
 - Timing: After dusk.
- Watering: Contractor's choice to maintain and establish.

4.4.5. PLANTING MAINTENANCE - FERTILIZER

- Time of year: March or April.
- Fertilizer: Slow release and organic.
 - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.

4.4.6. PLANTING MAINTENANCE - PRUNING

- General: Prune to promote healthy growth and natural shape.
 - Dead, dying, diseased wood and suckers: Remove.
 - Timing: In accordance with the agreed maintenance schedule.
 - Trees: Favour a single central leading shoot.
- Arisings: Remove.

4.4.7. HERBACEOUS/PERENNIAL MATERIAL

- Herbicide: No herbicide treatment permitted on herbaceous planting areas post planting.
- Timing: After first winter cut back herbaceous/perennial planting.
- Arisings: Remove from site.
- Mulch: No mulching of herbaceous/perennial planting

4.4.8. 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.

4.4.9. FINAL MULCHING

- Standard: BS PAS 100
- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Shrub and Hedge Planting: Remulch. Depth (minimum): 50 mm.
- Trees: Remulch.
- Material: Mulch
 - fine grade
 - Soil enricher, Soil Enricher Mulch by www.mulch.ie or similar and approved
 - 50mm depth
 - Purity: Free of pests, disease, fungus and weeds.
 - Recycled content: None permitted.

Moylish and Corbally Roundabouts Planting Palates See following Drawings:			
Drawing Number	Drawing Title	Scale	Print Size
T343-102	Moylish Planting Plan	1:100	A1
T343-104	Corbally Planting Plan	1:100	A1

5. Landscape Maintenance

5.1. GENERALLY MAINTENANCE OBJECTIVES

- Location: All landscape areas.
 - Duration: 1 Year
- Aims:
 - Enhanced landscape quality;
 - Improved landscape visual amenity;
 - Provide wildlife habitat and increase biodiversity
- Restrictions: Not applicable.
- Results: As scheduled.

5.1.2. NOTICE

- Give notice before:
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
- Period of notice: 7 days.

5.1.3. REINSTATEMENT

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

5.1.4. CONTROL OF MAMMALIAN PESTS

- Specialist firms: Submit proposals.
 - Method: Submit proposals.

5.1.5. CONTROL OF INVASIVE ANIMAL SPECIES

- Specialist firms: Submit proposals.
 - Method: Submit proposals.

5.1.6. WATERING

- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil. Trees to receive minimum of 40 litres at each scheduled watering.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: Twice monthly from April to October.

5.1.7. 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.

5.1.8. DISPOSAL OF ARISING

- General: Unless specified otherwise, dispose of arising from all operations and remove from site to a suitably licensed tip.

5.1.9. CHIPPING OR SHREDDING

- General: Not permitted on site.

5.1.10. MECHANICAL EQUIPMENT

- General: Minimize.
- Prohibited equipment: Chippers.
- Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only.

5.1.11. LITTER

- Timing: Monthly
- Extraneous rubbish not arising from the contract work: Collect and remove from site.

5.1.12. CLEANLINESS

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

5.1.13. TREE STEMS

- Precautions: Do not allow nylon filament rotary cutters and other mechanical tools closer than 100 mm to the stem of any tree. Operations close to stems: Complete using hand tools.

5.1.14. BULBS AND CORMS

- Before flowering: Do not cut.

5.1.15. LEAF REMOVAL

- Timing: Twice yearly, October and December.
- Operations: Collect fallen leaves.
- Special requirements: Remove by hand raking.
- Disposal: Remove from site for recycling.

5.1.16. FERTILIZER - SPRING APPLICATION

- Time of year: March or April
- Fertilizer: Slow release and organic.
 - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved by the Client.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.

5.1.17. FERTILIZER - AUTUMN APPLICATION

- Time of year: September or October
- Fertilizer: Slow release and organic.
 - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved by the Client.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.

5.2. SHRUBS

5.2.1. ESTABLISHMENT OF NEW PLANTING

- Duration: 1 year.
- Weed control:
 - Method: Keep planting beds clear of weeds by maintaining full thickness of mulch.
 - 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: Water Twice Monthly from April to October.

5.2.2. ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April
- Fertilizer: Slow release and organic.
 - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved
- Application: Evenly spread, carefully incorporating below mulch materials.

- Application rate: To manufacturer's recommendations.
- Fertilizer not to be applied to herbaceous planting.

5.2.3. 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. Back-fill with topsoil and refirm.

5.2.4. PRUNING GENERALLY

- Standard: To BS 7370-4, BS 5837 2005
- 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.

5.2.5. PRUNING OF EXCESSIVE OVERHANG

- Timing: Annually.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
- Special requirements: None.

5.2.6. PRUNING OF EXCESSIVE HEIGHT

- Timing: Annually.
- Operations: Remove excessive height As instructed.

5.2.7. 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.

5.2.8. DEAD AND DISEASED PLANTS

- Removal: As soon as possible.
- Replacement: In the next suitable planting season.

5.2.9. REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

- Timing: Check beds twice a year March and September.
- Dead and damaged plants: Remove.
- Mulch: - 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. - Additional requirements: Submit proposals.

5.2.10. WEED CONTROL GENERALLY

- Timing: Twice Monthly March to October.

- Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high.
- Adjacent plants, trees and grass: Do not damage.
- Herbicide: not desirable after planting within defects liability period.

5.2.11. HAND WEEDING

- General: Remove weeds entirely, including roots.
- Disturbance: Remove the minimum quantity of soil, and disturb plants and mulched surfaces as little as possible.
- Completion: Rake area to a neat, clean condition.
- Mulch: Reinstate to original depth around trees.

5.2.12. MAINTENANCE OF LOOSE BARK MULCH

- Thickness (minimum): Bark Mulch 50 mm.
 - Top up: Twice per year.
- 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.

5.2.13. PRUNING ORNAMENTAL SHRUBS

- Timing: When required.
- 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.

5.3. TREE WORK

5.3.1. TREE WORK GENERALLY

- Standard: BS 5837:2005, BS 8545: 2014
- 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 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.

5.3.2. ADDITIONAL WORK

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

5.3.3. PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8.

5.3.4. PREVENTION OF DISEASE TRANSMISSION

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

5.3.5. 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.
 - Other unwanted objects, e.g. tree houses, swings.
 - Climbing plants as schedule.

5.3.6. 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 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.

5.3.7. REMOVING TREES AND SHRUBS

- Standards: To BS 3998, 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.

5.3.8. 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.

5.3.9. CAVITIES IN TREES

- Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
- Water filled cavities: Do not drain.
- Sound wood inside cavities: Do not remove.
- Cavity openings: Do not cover.