Appendix 12-1 Landscape Design Rationale

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

GLENAMUCK DISTRICT ROADS SCHEME (GDRS)

LANDSCAPE DESIGN RATIONALE

PROJECT NO. 17479

DECEMBER 2018

Rev C -01st March 2019
Rev B - 19th DECEMBER 2018
Rev A - 19th DECEMBER 2018

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Context

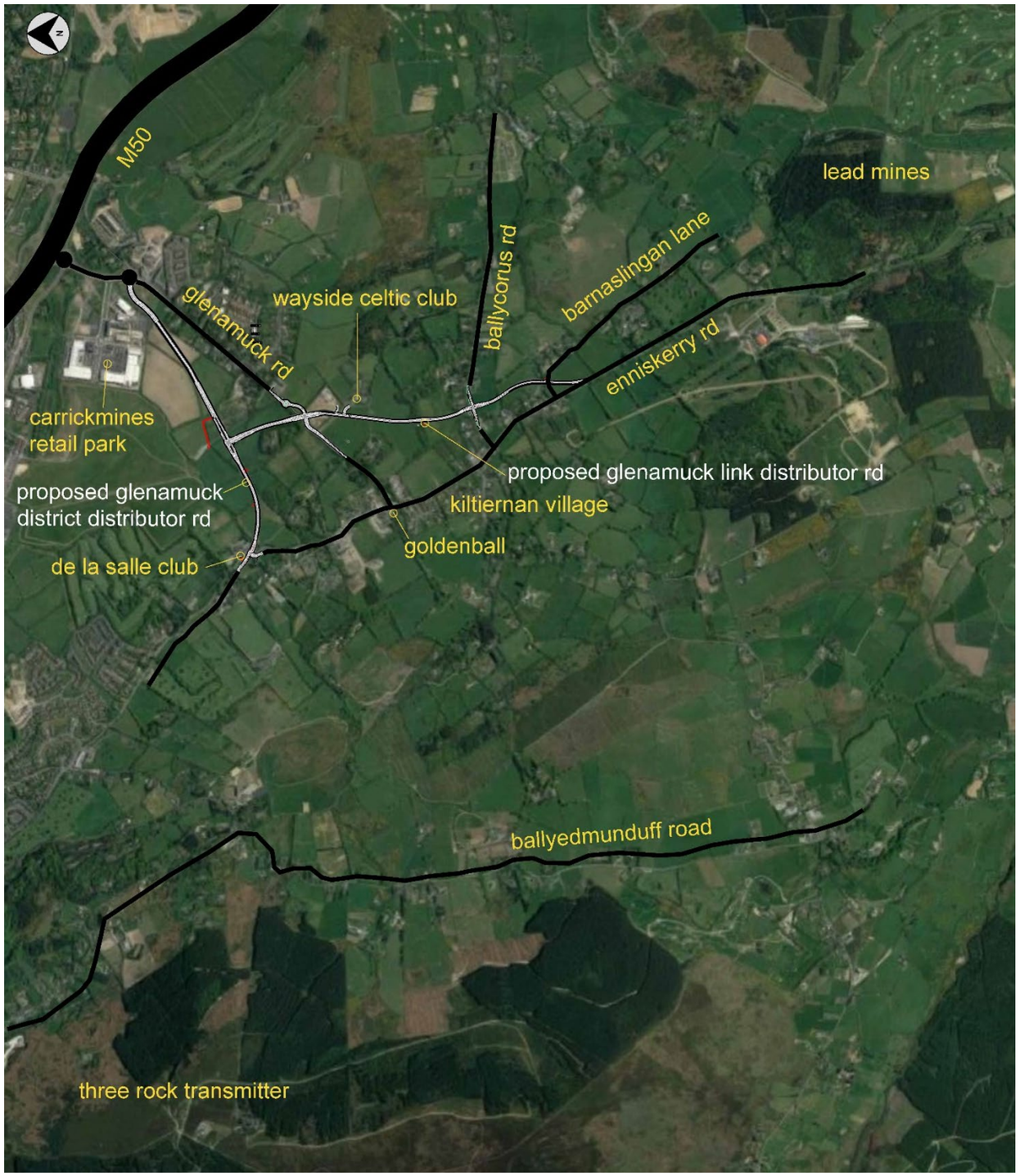
The site is situated to the south west of Dun Laoghaire and south of Sandyford village on the eastern slopes of the Dublin Mountains. The current main transport routes through the LAP area comprise Glenamuck Road, aligned through the central portion of the LAP area in a north-east to south-west direction to intersect with Enniskerry Road (R117), which is aligned through the western portion of the area in a north-west to south-east direction.

Proposed Scheme

The proposed Glenamuck Distributor Roads Scheme (GDDRS) consists of the Glenamuck District Distributor Road (GDDR) and the Glenamuck Link Distributor Road (GLDR), together with attenuation ponds and ancillary services. The proposed roads scheme is designed to relieve traffic pressure on the two adjacent settlements of Kiltiernan and Glenamuck, and is part of wider infrastructure improvements locally to facilitate expanding urban development.

Future Development

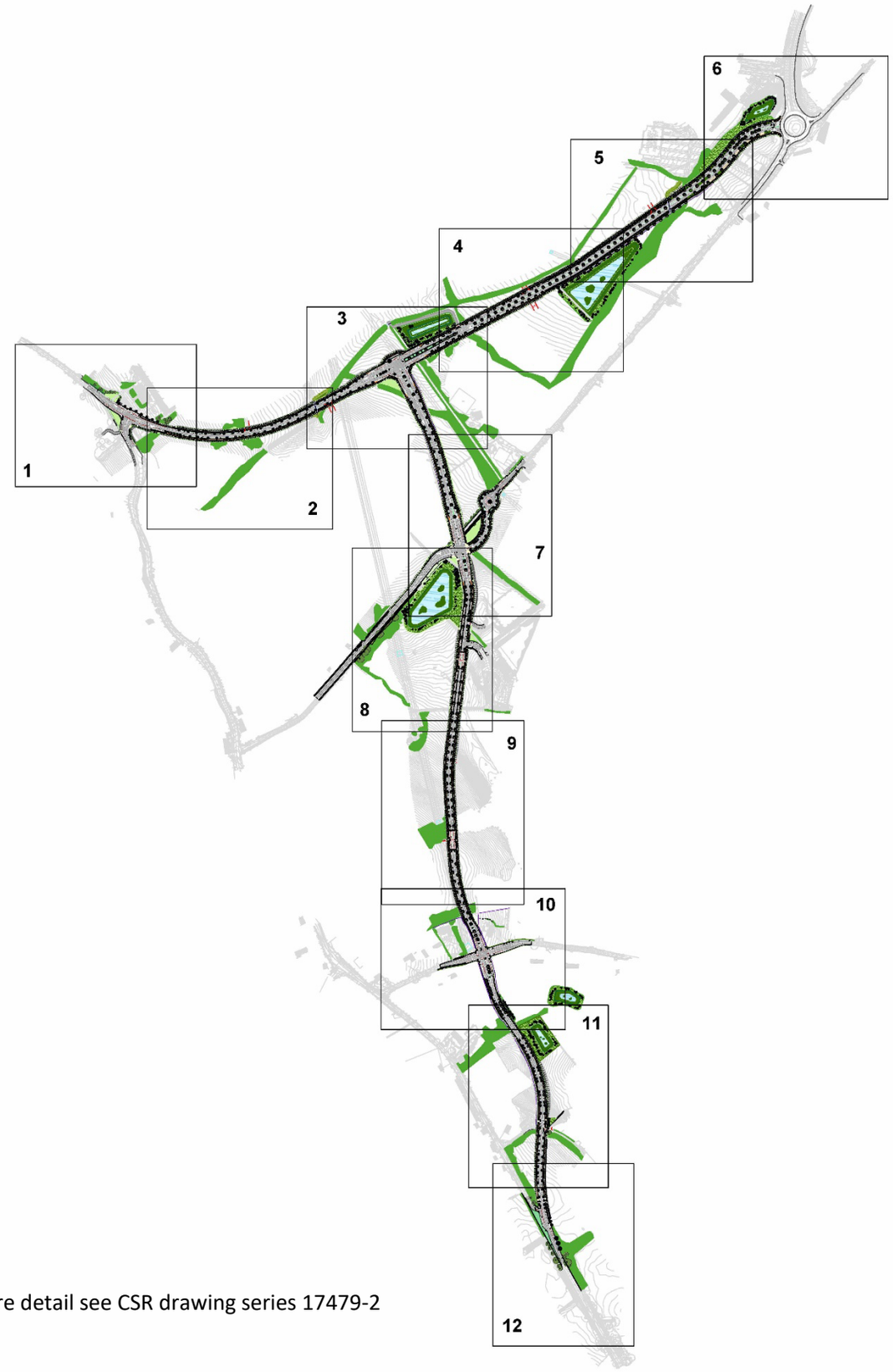
This planned growth envisages extensive landscape change as new more intensive residential and employment development, with accompanying services and public open spaces transforms the local landscape character from rural to urban. The proposed new road is part of this change but in itself would not significantly change the area character, however the associated urbanisation of the surrounding rural environment will see significant cumulative change. This is local policy and the approved LAP sets out to guide that development to integrate key aspects of the rural character and landscape features in the new urban area whilst integrating the new urban area into the wider landscape. Urban design principles and design guidelines are set out in the LAP for this landscape change, together with *The Glenamuck District Roads Scheme - Urban Design Report* prepared by Brady Shipman Martin.



Design Intent

- To provide a soft landscape structure with the flexibility to absorb and accommodate the formation of new neighbourhoods & attractive streetscapes as set out in the BSM *Urban Design Report*, while not impeding the original intent as a relief road for improved circulation for pedestrian, cyclists and vehicles through the wider area.
- To provide paths to accommodate pedestrian/cycle to ensure circulation in a safe and efficient manner and minimise conflict with vehicular traffic.
- To replace the quality rural landscape by a quality urban landscape that reflects the materials, character and natural and cultural heritage of the area and where feasible, trees and hedgerows of merit and built cultural features are retained.
- To provide integration with the established settlements and historic context as an important consideration.
- To provide a variety of character areas through tree selection and distribution along the proposed road scheme.
- To manage views, and visual impacts to ensure the development integrates into the receiving environment, existing landscape and historic context, whilst maximising the opportunities these present.

The following pages set out details of the design intent for the Glenamuck Roads Scheme.
Note: All landscape proposals shown are preliminary and will be further developed at detail design stage. The exact location of additional shrubs and ground cover planting to medians and margins will be dictated by future pedestrian permeability requirements.
All boundary treatments are to be agreed with affected landowners.



Key Plan
Note: For more detail see CSR drawing series 17479-2

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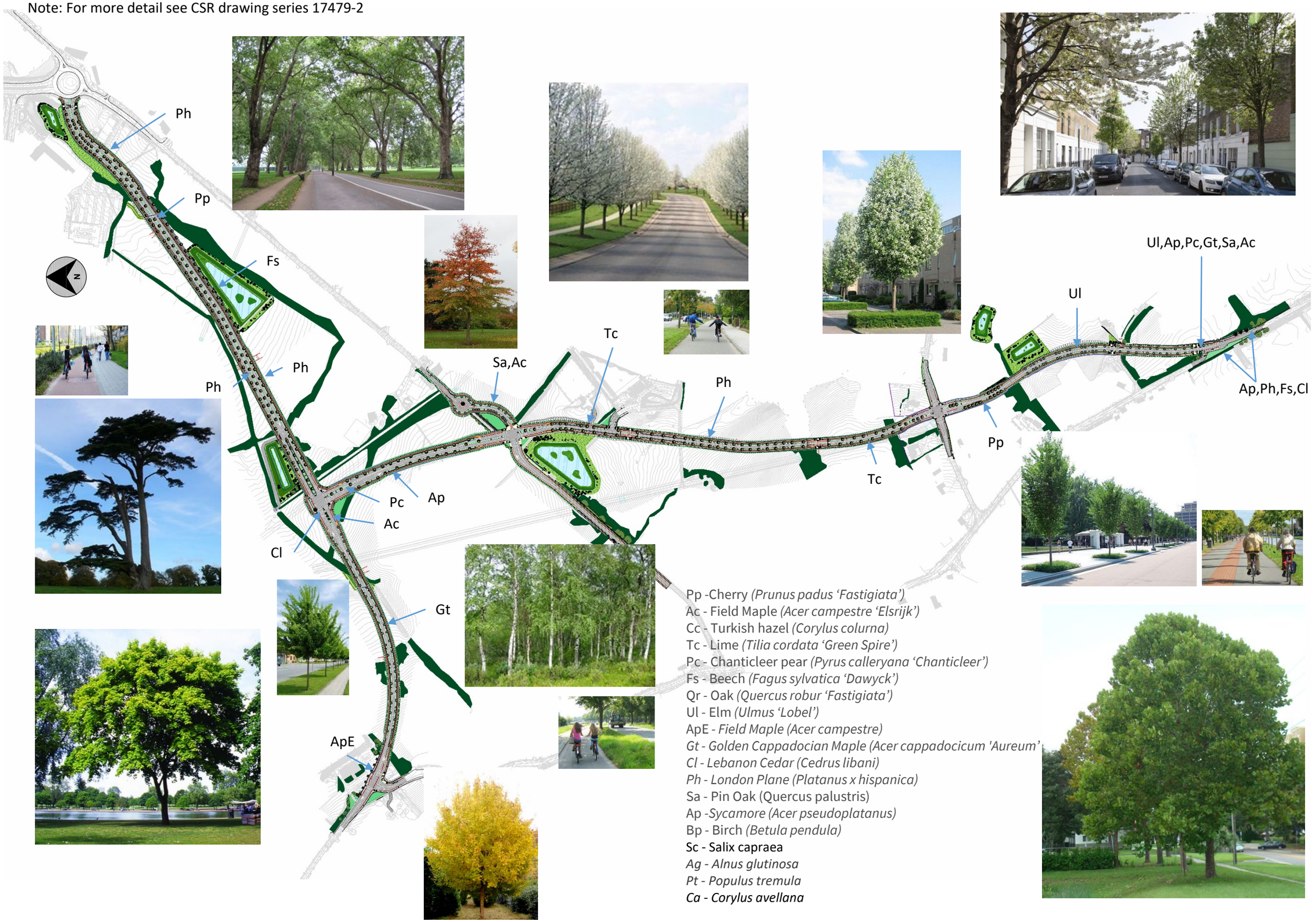


Pp -Cherry *(Prunus padus 'Fastigiata')*
Ac - Field Maple *(Acer campestre 'Elsrijk')*
Cc - Turkish hazel *(Corylus colurna)*
Tc - Lime *(Tilia cordata 'Green Spire')*
Pc - Chanticleer pear *(Pyrus calleryana 'Chanticleer')*
Fs - Beech *(Fagus sylvatica 'Dawyck')*
Qr - Oak *(Quercus robur 'Fastigiata')*
Ul - Elm *(Ulmus 'Lobel')*
ApE - *Field Maple (Acer campestre)*
Gt - Golden Cappadocian Maple (Acer cappadocicum 'Aureum'
Cl - Lebanon Cedar (Cedrus libani)
Ph - London Plane (Platanus x hispanica)
Sa - Pin Oak (Quercus palustris)
Ap -*Sycamore (Acer pseudoplatanus)*
Bp - Birch *(Betula pendula)*
Sc - Salix capraea
Ag - Alnus glutinosa
Pt - Populus tremula
Ca - Corylus avellana

The Eastern Gateway – Existing Character

Photograph : Glenamuck Road

Photograph : Glenamuck Road

The Eastern Gateway – Proposed Character
(see BSM *Urban Design Report* for more detail)

KEY

- Existing Trees Managed and Retained
- Proposed Large Feature Trees clear stem
- Proposed Large Avenue Trees clear stem
- Proposed Medium Street Trees clear stem
- Proposed Medium Upright Trees
- Amenity Grass
- Wildflower Meadow
- Verge/median -tree lines to accommodate the inclusion of future development parking, shrub & ground covers
- Proposed mixed native Woodland planting
- Attenuation Pond
- Cycle Lane
- Concrete Footpath
- Low Stone Wall
- Post & Rail Fence
- Street Light Column
- Noise Barrier

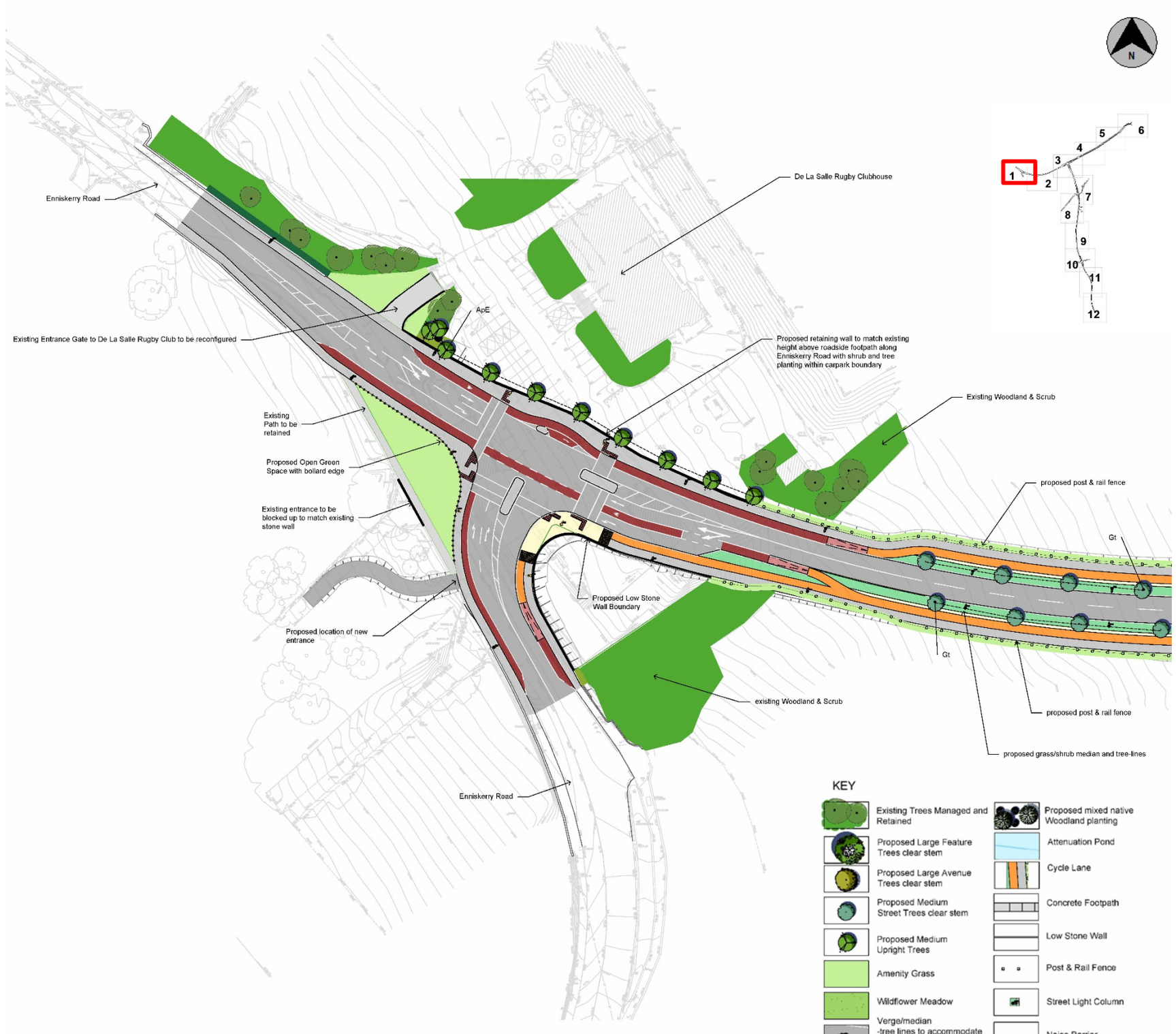
Note: For more detail see CSR drawing series 17479-2

The Western Gateway – Existing Character

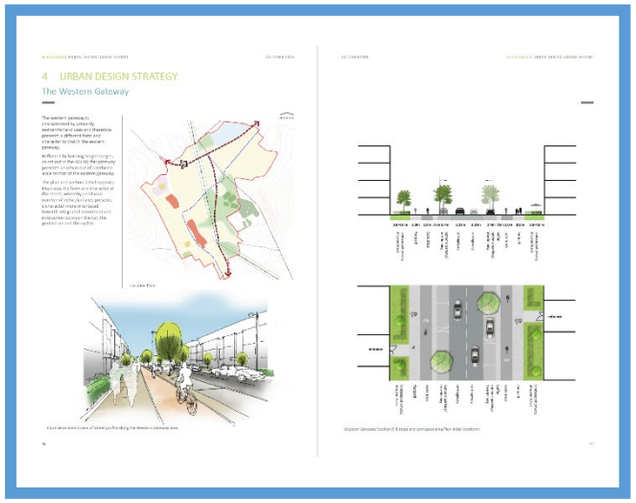
Photograph : Enniskerry Road

Photograph : Enniskerry Road

Note: For more detail see CSR drawing series 17479-2



The Western Gateway – Proposed Character
(see BSM *Urban Design Report* for more detail)



The Central Gateway – Existing Character

Photograph : Glenamuck Road

Photograph : Glenamuck Road

The Central Gateway – Proposed Character
(see BSM *Urban Design Report* for more detail)

Note: For more detail see CSR drawing series 17479-2

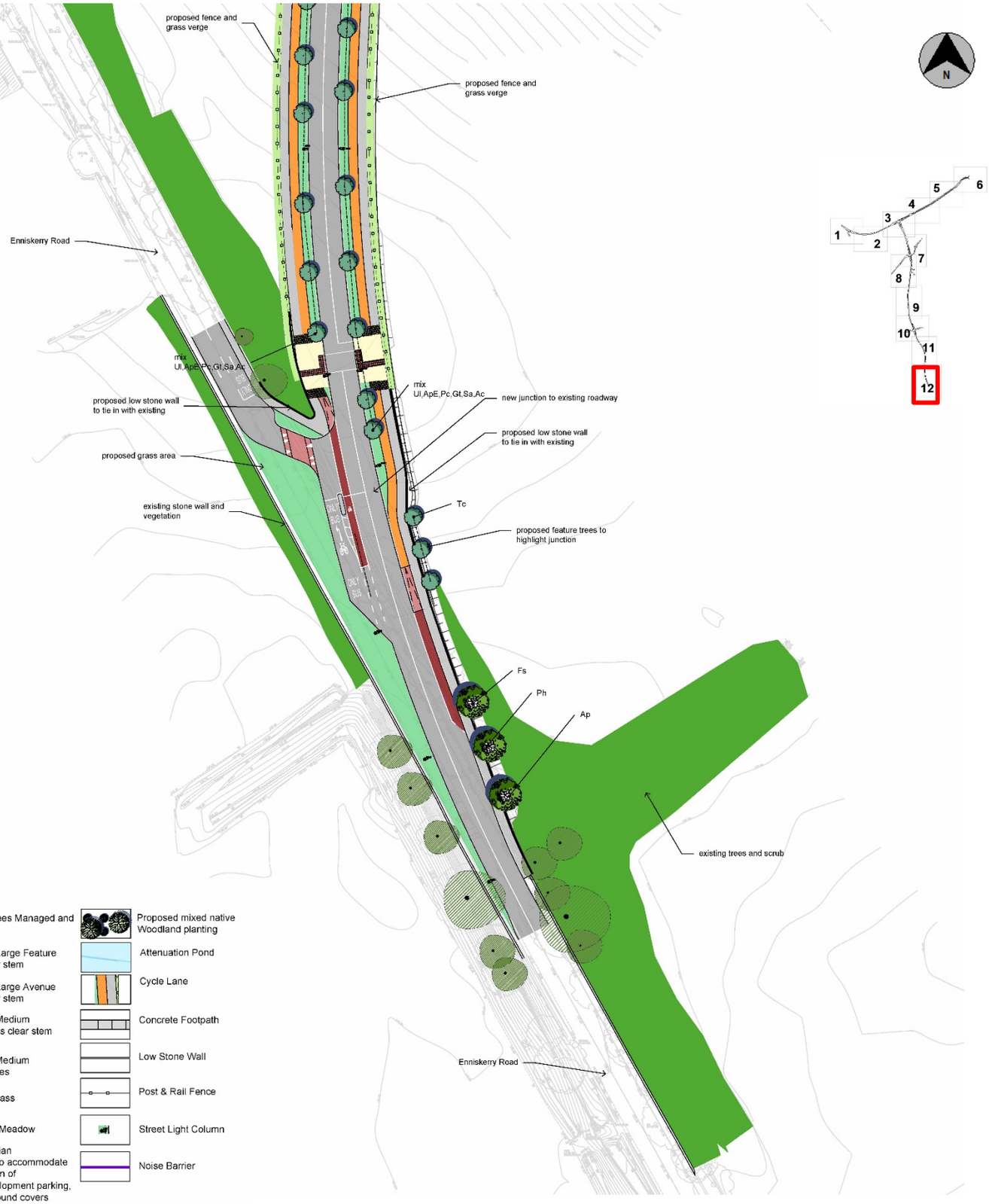
The Southern Gateways – Existing Character

Photograph : Enniskerry Road

Photograph : Enniskerry Road

The Southern Gateway – Proposed Character
(see BSM *Urban Design Report* for more detail)

Note: For more detail see CSR drawing series 17479-2



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Specimen Trees– typically 18-20cm girth 6-8m ht:

Cedrus libani

Fagus sylvatica

Acer pseudoplatanus

Platanus x hispanica

Street Trees – typically 16-18cm girth 4-6m ht:

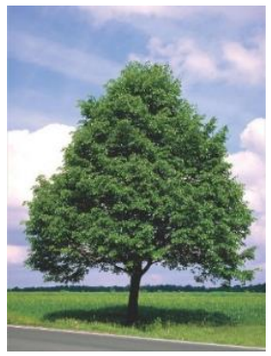
Acer campestre

Acer cappadocicum 'Aureum'

Prunus padus

Ulmus 'Lobel'

Acer campestre 'Elsrijk'



Tilia cordata

Pyrus calleryana 'Chanticleer

Quercus palustris



Aquatic & marginal plants to include:
Species tolerant of fluctuating water levels and duration
Phragmites australis (common reed)
Phalaris arundinacea (reed canary grass)
Persicaria amphibian (amphibious bistort)



Species requiring shallow standing water at all times
Sparganium erectum (branched bur-reed)
Glyceria fluitans (flote-grass)
Typha latifolia (reed mace)



Species requiring moderate to deep standing water at all times
Schoenoplectus lacustris (common club-rush)
Myriophyllum spicatum (spiked water-milfoil)
Potamogeton species (pond weeds)


Salix capraea

Alnus glutinosa

Betula pubescens / Betula pendula

Populus tremula

Corylus avellana

INTRODUCTION

This document sets out the proposed maintenance and management plans for the establishment and ongoing maintenance of the landscape element of the proposed development. There will be a minimum 18 months defects period on all soft landscape works implemented.

1.0 SOFT LANDSCAPE WORKS SPECIFICATIONS

1.1 Site Clearance Generally

- General: Remove rubbish, brash, timbers and potential hazardous surface materials, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life. In accordance with current Health and safety legislation.
- Vegetation: existing vegetation to managed strimmed or locally sprayed to facilitate planting and future management.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

1.2 Weed Control

Remove all noxious and undesirable weeds from the site. Weeds shall include: Ragwort, Himalayan Balsam, Giant hogweed & Japanese knotweed, Thistle, Dock, Common Barberry, Male Wild Hop and Spring Wild Oat, or any other noxious species identified by the Department of Environment. For the removal of certain species such as Japanese Knotweed a method statement is to be prepared and submitted to the Department of Environment.

1.3 Standards

In preparing the landscaping, supplying plants and maintaining the landscaping the following standards are to be adhere to:

- BS 3882 Specification for topsoil and requirements for use
- BS 3936-1 to 10 Specification for the supply of nursery stock
- NPS National Plant Specification
- BS 3998 Tree Works: Recommendations
- BS 4428 Code of Practice for general Landscape Operations
- BS 5837 Tree in relation to Construction
- BS 7370-1 to 5 Grounds Maintenance
- BS 8545 Trees: from nursery to independence in the landscape- recommendations
- BS 8601 Specification for subsoil and required use
- BS EN 1722-9 round or Fences Specification for mild steel - low carbon steel - fences with square verticals and flat horizontals
- RoSPA Standards for safety for play and exercise equipment.

The latest publications for each document are to be used.

1.4 Soil Conditions

- Soil for cultivating and planting: Moist, friable and do not plant if 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.

1.5 Climatic Conditions

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

1.6 Times of year for planting

- Deciduous trees and shrubs: Late October to early March.
- Evergreens/Conifers: October/November or Feb/ March.
- Container Grown plants: Any time of years.

1.7 Mechanical Tools

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

1.8 Watering

- Quantity: If necessary, 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.

1.9 Preparation, Planting and Mulching Materials

General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

1.10 Plants/ Trees - General

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
- Species: True to name. and for native species of local provenance.

1.11 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.

1.12 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 and BS 3936.

1.13 Plant/ Tree Substitution

Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering. Submit alternatives, stating the price and difference from specified plants/ trees. Obtain approval before making any substitution.

1.14 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.
- Planting: Upright or well balanced with best side to front.

1.15 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.

1.16 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.

1.17 Surplus Material

Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, pruning's and other arising's: Remove.

1.18 General Planting/Seeding

- Planting shall be carried out within the contract period but not during periods of frost, drought, cold drying winds or when the soil is waterlogged, or when the moisture of the soil exceeds field capacity.
- All containers and protective coverings including biodegradable coverings to root systems shall be removed prior to planting. Roots, except for emergent vegetation, shall be teased out from the root-ball, spread evenly and not twisted.
- All plant material shall be planted upright or placed so as to be well-balanced. Extreme care is to be taken to avoid damage to the root system, stem and branches when planting. The plant shall be positioned such that after planting the original soil mark on the stem is at finished ground level.
- Following completion of planting, and seeding and turf laying, the soil over the whole of the planted, area shall be sufficiently watered to achieve its field capacity.
- On completion of planting, watering and mulching, all areas shall be left tidy and weed-free and shall be maintained in a tidy and weed-free state until completion of the works.
- For shrub and transplant pit planting, notch planting and ordinary planting, the plant positions shall be set at equal centres in order to obtain a natural dense cover when mature. For notch and pit planting plants shall be planted in parallel lines. Planting positions in each row shall be staggered with the previous row.
- Finely-broken backfill material shall be carefully spread around roots and root trainers of all plants and the plants given slight shake to ensure that all interstices/ gaps are filled with soil, which shall then be consolidated by heeling. Careful filling and heeling shall continue as necessary at 150mm layers.

1.18.1 Mulching

Newly planted shrub areas shall be mulched immediately after planting to a depth of 50mm or in accordance with the details indicated on the drawing. Mulch shall be coarse chipped tree bark, composted for 2-4 months. Particle size 25-75mm diameter. No Fines. For widely spaced plants a 1m diameter area shall be mulched. Alternatively mulch mats shall be used.

1.18.2 After Planting & Mulching

- 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.
- All areas shall be left tidy and weed-free and shall be maintained in a tidy and weed-free state until completion of the works.

1.19 Tree Planting

See typical tree planting details for this site.

1.19.1 Tree Pits

- Sizes: at least 300mm greater than rootball in all directions. **DLRCC require minimum pit sizes of 1200x1200x1000mm depth.**
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 100mm.
- Pit sides: Scarify.

1.19.2 Semi-Mature Trees

- Standard: Prepare roots and transplant to BS 8545.
- Planting shall be carried out by positioning the tree in the centre of the pit closely against the tree stake and spreading the tree roots to their fullest extent.
- Backfilling material: Previously prepared mixture of topsoil excavated from pit and additional compost as required.
- Immediately following planting, trees with stakes shall be secured with tree ties. Tree ties shall be fixed so that movement of the tree shall not cause damage or abrasion to the bark, top tie to be 50mm below top stake.

1.19.3 Staking Generally
Softwood, peeled chestnut, larch or pine, straight, free from projections and large or edge knots and with pointed lower end. Adjustable rubber ties to be fixed to all trees and at the correct size for the tree.

1.19.4 Mulch Circles/Squares
All existing trees/newly planted trees within open grass areas or grass verges shall have 50mm depth mulch circle/square of a maximum 1m diameter or as allowed by verge width.

1.20 Shrub Planting
- All shrubs are to be pit planted. General pit dimensions are to be wide enough to accommodate roots when fully spread and 75mm deeper than root system.
- Break up base of pit to a depth of 150 mm, incorporating soil ameliorant/ conditioner at 50 g/m².
- Pits to be backfilled with previously excavated material. Backfilling to be done in layers of 150mm depth; at each stage the filling to be firmly consolidated.
- Soil ameliorants can be premixed with the soil applied or mixed in during planting.
- Soil ameliorants to consist of an approved compost at 10L per m2; and 150g/m2 of 10:10:10 NPK slow release fertilizer, or as approved.
- All shrub areas to be finished, with 75mm of medium grade bark mulch.

1.21 Hedgerow Planting
- Preparation: Dig trench to 500mm width for single staggered row, ensuing pit base is broken up 100mm deeper than plant rootball.
- Ameliorants: Compost at 10lt/m2 and 10:10:10 NPK slow release fertiliser at 150g/m2.
- Planting: Mix in soil ameliorants with excavated topsoil, or if there is poor topsoil then mix in with imported new topsoil. Firm down topsoil lightly in layers of 150mm by treading.
- Additional Requirements: If there is no existing fencing or barrier, install a protective fence to stop people walking through it until hedge is established. If there is livestock adjoining hedge install a stockproof fence or electrical fence 1m from hedge line until hedge is established.
- Prior to new growth cut the hedge back by 300mm to encourage new growth from base.

1.23 Removing Trees and Shrubs
- Identification: Clearly mark trees and hedges to be removed.
- Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.

1.24 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.

2.0 MAINTENANCE

The maintenance programme will be organised on the basis of specific **performance standards** which must be met by the contractor at all times and will be the basis on which this contract will be assessed. Along with these performance standards a monthly report sheet shall be filled out and returned each month. Details of the performance standards are outlined below.

Remove all noxious and undesirable weeds from the sit. Weeds shall include: Ragwort, Himalayan Balsam, Giant hogweed & Japanese knotweed, Thistle, Dock, Common Barberry, Male Wild Hop and Spring Wild Oat, or any other noxious species identified by the Department of Environment. For the removal of certain species such as Japanese Knotweed a method statement is to be prepared and submitted to the Department of Environment.

Performance Standards and Maintenance Operations

2.2 Planting Generally

Planted areas shall be kept litter and weed free, particularly of perennial weeds. Healthy growth shall be maintained to cover as much as possible of the planting area and allowing the individual plants to achieve as near as possible their natural form. With the exception of hedges, boxing or pruning to shapes is prohibited. Plants shall be contained with designed planting areas and pruned to avoid obstructing pathways or sightlines.

2.3 Pruning

In general pruning shall be done only to enhance natural growth. Dead, damaged and diseased portions of the plant will be removed. All cuts shall be flush and clean, leaving no stubs or tearing of bark. All major pruning shall be done following flowering or during plant's dormant season. Emergency or minor pruning shall be done when needed.

Pruning shall be carried out to maintain proper size in relationship to adjacent plantings and intended function. Remedial attention and repair to shrubs shall be provided as appropriate by season or in response to incidental damage.

2.4 Weed Control

Planting beds shall be maintained relatively weed free (no more than 10% of weed cover at maximum). Saplings shall be removed from all planting areas on emergence or immediately after to prevent establishment.

Specific weed control operations shall be carried out a min of 9no. times per year, however it will be the contractor's duty to control weeds if weed cover exceeds 10% of the planting area.

2.5 Mulching

Shrub beds shall contain a min. depth of 50mm bark mulch throughout the year. Contractor to top-up as 2 times per year or as appropriate to maintain depth. Mulch is not required in areas where plant foliage completely covers the soil surface, such that the soil is not visible through the foliage. The contractor shall spot treat to remove emergent weeds as specified above but do not cultivate or incorporate the mulch into the soil. Any mulch outside of designated planting areas shall be returned to the planter on a weekly basis.

Mulch shall be uniform in colour and appearance, and free of leaves, sticks, or trash. Mulch may be chipped or shredded wood, bark. When replacing existing mulch, use a mulch product that is similar in appearance to that already at the site.

2.6 Tree Planting Care

Trees shall be maintained in a healthy, vigorous growing condition with a well-shaped framework for future growth.

2.7 New Tree Planting

Spring and autumn of each year during the maintenance period the trees, double-stakes, rabbit guards and ties, tree tubes and protective fencing shall be checked and adjusted, the soil firmed, any dead wood removed back to healthy tissue and mulch adjusted to original levels. Any broken stakes or ties evident throughout the maintenance period shall be replaced.

A 1m-diameter mulch circle/square shall be maintained at the base of each tree located in open grass areas or grass verges. Top up bark mulch to 75mm where required and make good any mulch mats.

During the first growing season all standard trees / semi-mature trees shall be watered at least five times during the growing season - in April, May, June, July and August unless otherwise directed by the Landscape Architect. During the second growing season trees will be kept well watered, particularly during June, July and August.

The edge of the mulch circle shall be maintained in a neat and tidy condition as above.

The surface of all planting pits is to be kept free of weeds during the maintenance period by hand weeding of annual weeds, and spot application of translocated herbicide, (as per manufacturer's instructions), for perennial weeds to be carried out on three visits during the growing season.

2.9. Tree Stakes and Ties

Check tree stakes and ties on each maintenance visit. Repair, strengthen and adjust (loosen / tighten) to ensure optimum functioning and trees not being damaged by poor fixings. If trees no longer require stake / tie remove. Prior to handover, check all tree stakes and ties and remove those no longer required.

2.8 Woodland/Scrub Area Management

Woodland areas specified shall be maintained in a healthy, vigorous condition and free from litter and noxious weeds throughout the year.

Certain areas of woodland may require thinning. These areas shall be thinned by no more than 10%, removing only the weaker tree specimens. Thinning shall be carried out as directed onsite by administrative authority.

Areas of natural scrub as indicated on the maintenance plans shall be contained by pruning back on a rotational basis.

All clearance operations within woodland and scrub areas shall be carried out outside of the bird-nesting season to preserve the bird life in the area. This season extends from the 1st March to 31st August.

2.10 Litter Clearance/Pick-up

The contractor shall maintain all areas free from litter. This shall mean the removal of all extraneous litter, rubbish and any other debris from all areas, which will include grass areas, planted areas, carparks, footpaths as well as woodlands and tree canopies.

Notwithstanding the above it is expected that the contractor and his staff shall take sufficient pride in the appearance of the site and that they would pick up all visible litter during every site visit.

In addition to removal of litter from footpaths, planted areas, etc., the contractor shall make provision for the immediate (within 1 days of notification) arrangement for collection and removal of all extraneous matter which has been deliberately been deposited on site by persons known or unknown (fly-tipping).

2.11 Replacements

Any tree, hedge or shrub that is removed, uprooted, destroyed or becomes seriously damaged, defective, diseased, or dead shall be replaced in the same location with another plant of the same species and size as that originally planted. All such replacements shall be carried out in the first available planting season after the requirement to do so is recognised.

3.0 Maintenance Programme

This programme is a guideline only and times of operations may vary on approval by landscape architect/ landscape manager.

ONGOING REQUIREMENTS:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Rough Grass							*					
Hedge pruning/cutting					*			*			*	
Shrubs pruning and feeding				*		*			*			
Weed control of hedge and shrub planting areas		*	*	*	*	*	*	*	*	*	*	
Tree pruning											*	*
Removal of tree stakes (3-5yr)				*								
Mulch top-up to tree circles/ squares						*				*		
Weed control to tree mulch circles				*			*			*		
Weed control to shrubs & hedgerow				*			*			*		
Watering of new trees (or after 3 weeks of no rain)				*	*	*	*	*				
Trimming of scrub areas												*
Litter Clearance/pick up	***	***	***	***	***	***	***	***	***	***	***	***