1MC04 Main Works - Contract Lot S2

Management and Maintenance Plan - Ruislip Golf Course S2

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	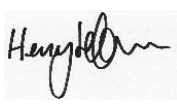					

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: None

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1 Introduction

1.1 Background to the proposed development

1.1.1 This Management and Maintenance Plan is prepared by Skanska Costain Strabag ('SCS JV') on behalf of High Speed Two Ltd. 'the applicant', to support the planning application for Ruislip Golf Course, London.

1.1.2 Ruislip Golf Course is a municipal golf course, owned and operated by the London Borough of Hillingdon ('LB Hillingdon'). It falls partially within the alignment of the HS2 development. The High Speed Rail (London-West Midlands) Act 2017 ('the HS2 Act'), which gained Royal Assent in February 2017, conferred the necessary powers required to construct Phase One of the railway from London Euston to Birmingham Curzon Street. The southern part of Ruislip Golf Course falls within this boundary.

1.1.3 Construction of HS2 will result in land take from Ruislip Golf Course. The applicant has committed to designing and delivering a reconfigured golf course as part of a number of Undertakings and Assurances (U&A) that were agreed with LB Hillingdon (and which eventually formed part of the Hillingdon Agreement) during the passage of the Hybrid Bill through parliament.

1.2 Site location

1.2.1 The application site is in west London within LB Hillingdon. The application site comprises the majority of the existing golf course, the area of which is 36 hectares. The remainder of the Golf Course that is excluded from this application will be acquired and used for permanent elements of the HS2 railway.

1.2.2 The site is located to the north of West Ruislip Station, and is bounded: to the north and north-east by the Glenhurst Avenue allotments and Hill Lane playground and the rear curtilages of residential properties on Field Way and Hill Rise; to the east and south-east by the rear curtilages of residential properties on Sharps Lane, Ickenham Road and Harwell Close; to the south-west and the far south-east by the boundary of the HS2 development; and to the west and north-west by the River Pinn.

1.3 Description of development

1.3.1 This application is for the redevelopment of the existing 18 hole Ruislip Golf Course (now closed) to provide a 9 hole golf course and 6 hole academy course, the creation of a new channel for the Ickenham Stream (canal feeder), the demolition and replacement of the driving range with a new 20 bay driving range and the construction of a replacement rifle range building.

1.3.2 The description of development is as follows:

Full application for remodelling of Ruislip Golf Course, incorporating: reconfiguration of 18 existing hole course into a nine hole course, short game practice area, putting green and

six hole academy course; construction of a single storey rifle range; demolition of existing covered driving bays and construction of replacement 20 bay driving range, including associated floodlights and safety netting; a new drainage system and associated ponds; ecological and landscaping works; realignment and enhancement of the Hillingdon Trail and creation of a new public footpath; excavation of a new channel for the Ickenham Stream (canal feeder); and other associated works.

1.4 Purpose of this document

1.4.1 This Plan has been prepared to guide the future management and maintenance of Ruislip Golf Course. When in operation, the remodelled Ruislip Golf Course will be managed and maintained by Golf Hillingdon, which is part of the London Borough of Hillingdon Green Spaces team. The Plan sets out the general principles and quality standards required for the installation of softworks (landscaping) and of the long-term landscape management operations.

1.4.2 It should be utilised by the maintenance team to produce a detailed programme of work. It should also form the basis for periodic (annual) reviews and evaluation of actual maintenance works.

1.4.3 The document should be read alongside the following drawings:

- General arrangement plan, drawing number: 1MC04-SCJ-EV-DGA-SS05_SL07-240400
- Tree planting plan, drawing number: 1MC04-SCJ-EV-DPL-SS05_SL07-241600
- Soft planting plan, drawing number: 1MC04-SCJ-EV-DPL-SS05_SL07-241610

1.4.4 This document is structured as follows:

- Chapter 2: sets out the design intentions and introduces specific planting components within the course;
- Chapter 3: sets out the landscape components with specific Management Objectives;
- Chapter 4: sets out the outline maintenance specification; and
- Chapter 5: sets out outline programming of maintenance and management operations.

2 Design Intention

2.1.1 The design intention for the landscape at Ruislip Golf Course is a high quality, biodiverse and natural environment that:

- reinforces and enhances the existing landscape qualities including the landform of the new golf features and the grassland landscape character;
- enhances the rural character of the development;
- enhances the range of character areas within the development, including, in particular, new wetland and water features;
- provides a clear landscape structure which will encourage and allow the golf club greenkeeping team to further develop the landscape as they manage the new golf course facilities;
- integrates the open space with the driving range development and enables it to nestle into the wider landscape setting;
- improves recreational potential;
- links the new golf course development with the Hillingdon Trail and Celandine Way Public Rights of Way (PRoW), and
- enhances the ecological diversity and potential for wildlife.

2.1.2 Tree and shrub planting on the periphery of the golf course are intended to create definition, provide screening and privacy, to frame views and provide year-round interest in the form of leaf colour, structure (height and scale) and attraction to wildlife, together with wetland areas with semi-aquatic planting.

2.1.3 The creation of wildflower meadow areas with tree and shrub planting in the open spaces and alongside public access routes to create focus, visual interest and definition. This includes the planting of trees (feathered and whip size) and larger (specimen) tree planting throughout the golf course, along its periphery and to frame footpaths.

2.1.4 In respect of the management and maintenance of the landscape, the following components are of relevance, and correspond to the detail included on the drawings contained within this application:

- Woodland and shrub planting, including; canopy mix within play areas, canopy mix in out of play areas, copse mix and individual trees, woodland understorey planting and driving range peripheral planting;
- Grassland, including; greens, tees, fairways, driving range outfield, rough and semi-rough seed mixes; and
- Water bodies including; pond margins, stream corridor planting and ecological ponds.

2.2 Landscape Management Aim and Objectives

2.2.1 This Plan aims to ensure that the vision for the landscape at Ruislip Golf Course can be achieved through a long-term, co-ordinated and informed approach to landscape management.

2.3 The establishment period

2.3.1 An 18 month aftercare maintenance period is required to cover intensive post-installation maintenance requirements for all of the landscape works. During this period the contractor will be responsible for all horticultural maintenance operations, including planting which has failed to flourish, or has died. At the end of the initial 18 month aftercare period, following an inspection by the Landscape/Golf Course Architect, any defects in soft landscape materials (trees and shrubs) due to materials or workmanship will be rectified/reinstated.

2.3.2 The Golf Course is intended to re-open in November 2024, however the exact opening date is dependent on the HS2 security fence being erected and secured. The duration of the establishment period could be extended to accommodate any delay to opening if necessary.

2.4 Access

2.4.1 During the construction and re-establishment period, access will be from the main Golf Club entrance. The access road falls outside the boundary of this application and within the limits of the HS2 Act. It will be used as the main construction access for the permanent HS2 West Ruislip Portal compound.

2.5 Facilities

2.5.1 The landscape maintenance contractor shall liaise with Golf Hillingdon directly regarding permissions for parking, storage, use of water and any other resources.

2.5.2 The general maintenance objectives for soft landscaping are as follows:

- apply good horticultural and ecological practice to all operations;
- promote healthy growth and establishment of all plants, trees, shrubs, grass, wildflower areas, etc.;
- ensure consistent control of invasive weeds;
- promote optimum display of trees and shrubs throughout the flowering periods;
- ensure development of optimum plant form, shape, and planting density to prevent damage to stock;

- provide protection against pests and diseases;
- promote wildlife value and species diversity where appropriate;
- ensure long term commitment to replacement of defective plant material; and
- review opportunities for introduction of new species or replacement of exhausted species where appropriate, in line with original design intensions.

3 Landscape Components with Specific Management Objectives

3.1.1 This section sets out the general requirements for the landscape management of the proposed development and all the new planting proposed within the context of the existing golf course. This relates to all types of planting, maintenance regimes for woodland and fringe areas and mowing requirements for the existing grassland and the establishment of new grassland areas. The water bodies created within the site area have proposed marginal planting areas and, likewise, these will require maintenance to ensure the wildlife population they support is protected.

3.2 Woodland and Shrub Planting

3.2.1 The maintenance requirements for the woodland and shrub planting are as follows:

- the woodland and shrub planting proposed is all indigenous species to provide a natural landscape and an improved habitat for wildlife;
- the layout of the planting is determined by the density of species relating to each of the landscape area;
- all woodland areas should be examined in early summer to assess the success of planting areas. Some clearance and thinning out of species will be required once planting has become established and planting that has failed to establish will require replanting the following season;
- proposed planting on existing woodland fringes will require planting away from the existing tree and shrub canopies to ensure establishment occurs. Some thinning out of the existing woodland areas will improve the growth of the older stock, and promote growth of the understorey by allowing light through and air circulation at ground level;
- the woodland should be kept free from damage from stock or wild mammals. There should be evidence of tree regeneration such as seedlings, saplings and young trees; and
- all new planting will require rabbit guards to improve the rate of establishment, and then to be removed within four years.

3.2.2 The general management objectives for standard trees (including copse mix) shall be to:

- ensure that good horticultural practice is employed to encourage long term health and vitality of all trees;
- ensure well-balanced crowns and natural shape.

Species	Form
Quercus robur	Standard (Heavy)

Table 1: Individual trees

Species	% of mix	Form
Fagus sylvatica	33.33%	Standard (Heavy)
Quercus robur	33.33%	Standard (Heavy)
Ulmus procera	33.33%	Standard (Heavy)

Table 2: Copse mix

3.2.3 The general management objectives for feathered trees, whips, understorey and shrub mixes shall be to:

- ensure that good horticultural practice is employed to encourage long term health and vitality of all trees, shrubs, hedges and whip planted areas;
- planting to be thinned/re-spaced in order that they have sufficient room to develop;
- review opportunities for introducing native shrubs and those with particular wildlife value into planted areas;
- maintain a clean and safe environment; and
- ensure cultural techniques are employed which, where possible, use a variety of mulches and organic fertilisers and which minimise the use of chemicals and peat wherever possible.

Species	% of mix
Acer pseudoplatanus	6.70%
Aesculus hippocastanum	6.70%
Carpinus betulus	25%
Fagus sylvatica	15%
Quercus robur	25%
Tilia x europaea 'Pallida'	6.70%
Ulmus procera	15%

Table 3: Canopy mix planted as feathered trees and whips

Species	% of mix
Acer campestre	6.30%
Alliaria petiola	5%
Allium ursinum	3.80%
Cornus sanguinea	3.30%
Corylus avellana	6.30%
Digitalis purpurea	3.80%
Dryopteris dilatata	3.30%
Dryopteris filix-mas	3.30%
Euonymus europaeus	3.30%
Galium mollugo	3.80%
Geum urbanum	5%
Hyacinthoides non-scripta	5%
Ilex aquifolium	6.30%
Lonicera periclymenum 'Belgica'	5%
Primula vulgaris	3.30%
Prunus spinosa	3.30%
Salvia x sylvestris	5%
Silene dioica	5%
Sorbus aucuparia	5%
Stachys officinalis	3.80%
Taxus baccata	6.30%
Ulmus glabra	5%

Table 4: Understorey planting mix

Species	% of mix
Agrostis capillaris	7.30%
Betula pendula	2.50%
Calluna vulgaris	5%
Cerastium alpinum	7.30%
Cynosurus cristatus	7.30%
Cytisus scoparius	5%
Dactylis glomerata	7.30%
Deschampsia flexuosa	7.30%
Festuca ovina	7.30%
Galium saxatile	7.30%
Holcus mollis 'Variegatus'	7.30%
Nardus stricta	7.30%
Potentilla erecta	7.30%
Rumex acetosa	7.30%
Sorbus aucuparia	2.50%
Ulex europaeus	5%

Table 5: Linking habitat planting mix

Species	% of mix
Achillea millefolium	2.70%
Cynosurus cristatus	17.30%
Festuca ovina	17.30%
Festuca rubra 'Molate'	17.30%
Galium verum	5.70%
Leontodon hispidus	5.70%
Leucanthemum vulgare	5.70%
Lotus pedunculatus	5.70%
Origanum vulgare	2.70%
Primula veris	5.70%
Prunella vulgaris	5.70%
Ranunculus repens	5.70%
Sanguisorba minor	2.70%

Table 6: Driving range peripheral planting mix

3.2.4 The general management objectives for retained existing trees and hedgerows shall be to:

- ensure existing trees and shrubs to be healthy, free of disease, damaged or broken stems/branches, dead wood.

3.2.5 For existing woodland, an annual winter management programme will be put in place, generally maintaining wooded areas (including essential thinning of straggly specimens, clearance of storm damage and appropriate replacement). The objectives will be:

- to maintain its visual contribution to the landscape;
- to encourage growth of strong specimens;
- to maintain and improve its existing ecology;
- to reduce the density of the existing canopy;
- to maintain wildlife corridors;
- to minimise limb loss and related health & safety risk to greenkeepers, landscapers and golfers using the facilities; and
- to maintain natural regeneration areas and adapt and respond to any seed trials undertaken.

3.3 Grassland

3.3.1 Grassland within the site should be properly maintained to ensure the species-rich quality is protected and it continues to provide a suitable habitat for existing wildlife.

3.3.2 The aim of establishing species-rich grasslands is to create habitats that specifically compensate for those lost as a result of the development and provide new, accessible grasslands that serve as a local amenity and educational resource especially in urban and urban fringe areas.

3.3.3 The general management objectives for species-rich grassland shall be to:

- develop a grassland sward which has less than 5% cover of undesirable species;
- ensure that bare ground does not extend to more than 10% of the area (including localised areas, for example, rabbit warrens);
- develop and maintain structural diversity by encouraging a range of vegetation types and heights including very early successional stages, bare ground and short turf;
- provide areas of taller vegetation such as flower-rich areas which will provide pollen and nectar, while tussocky grasses and sedges support a large number of invertebrates; and
- ensure that the natural hydrology of the site is maintained.

3.3.4 The following guidelines refer to the management of the grassland and the establishment of new grassland areas:

- to ensure the grassland remains species-rich, cutting and collection of all arisings should occur at the end of April and again in September/October. If any areas are collecting water, grass clippings should be cut and cleared at the end of the year, to prevent damage;
- new grassland areas should be the same species mix as existing grassland and this could be created by collecting native seeds, or alternatively from a seed merchants specific seed mix type to match the golf course grassland type; and
- allow seed-heads to remain, by leaving specific areas to grow taller, therefore providing an attractive feature within the golf course fringes and also protecting important existing transient wildlife.

3.3.5 The overall target for sown grasslands is the establishment of grassland that shall conform to the targeted priority habitat type listed on Section 41 of the NERC Act 2006.

3.3.6 The detailed targets shall be determined by the nature of grassland lost, the soil type into which new grassland is to be planted and the Natural England Character Area. Interim targets shall also be defined, based around the timing of management operations.

3.3.7 The general management objectives for grassed areas shall be to:

- ensure sward is maintained to create an optimum functional playing surface;

- establish an annual programme of aeration and feeding, refer to Appendix 1, Maintenance Specification;
- review requirements for whole or part sward refurbishment; and
- employ cultural techniques which use organic fertilizers (if available) and minimise the use of chemicals wherever possible.

3.3.8 The general management objectives for species-rich grassland shall be to:

- sow seed into species-poor, low-nutrient soils;
- aid seedling development and maintain a balanced composition from one year to the next;
- create a structured grassland with grass tussocks creating a series of microclimates across the habitat, thus encouraging a diversity of floral and faunal species; and
- allow the grass sward to meet and link up the scrub, grassland and tree planting and enhance the connectivity and wildlife corridor function.

3.3.9 Once established the greens should be mown daily throughout the growing season to a height of 3mm in summer and to 5mm in winter. Regular mowing suppresses weeds and consequently there is no need for herbicides. Dressings of low nitrogen fertilizers should be applied on a 4-6 week pattern through the summer to replace nutrients removed in cutting.

3.3.10 Green surrounds and tees should be cut at 18mm height every 4 days in summer and less frequently during winter. An annual fertilizer dressing is usually applied in spring. Herbicides may be applied once in a year when weeds first appear in spring (as weather conditions allow).

Species	% of mix
Musica Chewings Fescue	20
Beudin Slender creeping Red Fescue	20
Arrowtown Browntop Bent	30
Manor Browntop Bent	30

Table 7: Green seed mix planted at a sowing rate of 15-20g per m2

3.3.11 Fairways should be maintained at a height of 18mm to 25mm through weekly or bi-weekly cutting. Fertilizers are seldom applied. Herbicides may be applied in selected areas once in a year when weeds first appear in spring (as weather conditions allow).

Species	% of mix
Musica Chewings Fescue	10
Blenheim Chewings Fescue	15
Beudin Slender creeping Red Fescue	20
Sombrero Smooth Stalked Meadow Grass	15
Rossinante Strong Creeping Red Fescue	20

Manetto Hard Fescue	20

Table 8: Tees, fairway and semi-rough seed mix planted at a sowing rate of 25-35g per m²

3.3.12 The driving range outfield should be maintained at a height of 18mm to 25mm through weekly or bi-weekly cutting. Fertilizers are seldom applied. Herbicides may be applied in selected areas once in a year when weeds first appear in spring (as weather conditions allow).

Species	% of mix
Musica Chewings Fescue	30
Sombrero Smooth Stalked Meadow Grass	20
Rossinante Strong Creeping Red Fescue	20
Clementine Perennial Ryegrass	30

Table 9: Driving range outfield seed mix planted at a sowing rate of 25-35g per m2

3.3.13 Roughs should be topped to 75mm to 150mm, as necessary, and when weather conditions are right. Chemicals are not applied in these areas.

Species	percentage
Agrostis capillaris	13.30%
Anthoxanthum odoratum	7%
Brachypodium sylvaticum	7%
Briza media	7%
Cynosurus cristatus	13.30%
Deschampsia cespitosa	4.20%
Festuca rubra	13.30%
Galium verum	4.20%
Lotus corniculatus	4.20%
Phleum bertolonii	7%
Poa nemoralis	7%
Prunella vulgaris	4.20%
Ranunculus acris	4.20%
Trifolium pratense	4.20%

Table 10: Roughs seed mix planted at sowing rate of 25-35g per m2

3.4 Marginal and Aquatic Planting

3.4.1 The proposed ponds and wetlands require protection when the course construction is completed. The planting within the pond areas will be carefully maintained to prevent any deterioration of the rich flora and fauna population. Both submerged aquatic species and emergent species should be planted between April and June.

Species	% of mix
Achillea ptarmica 'Boule de Neige'	7%
Angelica sylvestris	10%
Caltha palustris	2.80%

Eupatorium cannabinum	2.80%
Filipendula ulmaria	10%
Geum rivale	7%
Hypericum anagalloides	2.80%
Iris pseudacorus	10%
Lotus pedunculatus	7%
Lychnis flos-cuculi	7%
Lycopus europaeus	2.80%
Lythrum salicaria	2.80%
Mentha aquatica	2.80%
Pulicaria dysenterica	2.80%
Ranunculus repens	10%
Scrophularia auriculata	2.80%
Succisa pratensis	7%
Vicia cracca	2.80%

Table 11: Pond margin planting mix

Species	% of mix
Alisma plantago-aquatica	8%
Alnus glutinosa	4%
Callitriche stagnalis	6%
Carex lacustris	4%
Centaurea nigra	8%
Crataegus monogyna	4%
Deschampsia cespitosa	10%
Filipendula ulmaria	8%
Glyceria fluitans	8%
Iris pseudacorus	8%
Phalaris arundinacea	8%
Pulicaria dysenterica	4%
Sparganium emersum	8%
Succisa pratensis	8%
Vicia cracca	4%

Table 12: Stream corridor planting mix

4 Maintenance Specification

4.1.1 The following specification items are to be addressed within a long-term landscape maintenance contract. Included are performance specifications, quality standards and some detailed operational descriptions. The landscape maintenance contractor will be required to apply his expertise in relating these to the Management Objectives above in producing annual programmes of work. Maintenance should accord with the requirements of BS 7370:1991.

4.2 Woodland and Shrub Areas

4.2.1 Watering:

- all planting to be watered for at least the first two growing seasons;
- ensure sufficient water is applied to maintain healthy growth; taking into account published meteorological data on rainfall for any given period, in particular in periods of Spring drought (April, May & June).

4.2.2 Quantity:

- trees: Heavy and extra-heavy standard trees – 10 gallons (45.4 litres) per tree per application;
- feathered trees and whips: wet soil to full rooting depth;
- shrubs: wet soil to full rooting depth.

4.2.3 Weed control:

- all planting areas shall be kept clear of weed growth for the first three growing seasons; after three years, a herb layer can be allowed to return. Achieve this by a combination of herbicide applications and hand-weeding/hoeing. Ensure that the methods used will cause a minimum of damage to adjacent planted areas;
- tree and plant stems: Do not allow nylon filament rotary cutters or other mechanical tools closer than 200mm to the stem of any tree or plant. Include for trim guards around the base of each tree, height 225mm or maintain a grass and weed-free area around the base of each tree, min. diameter 1000mm. Carry out operations close to stems using hand tools only;
- herbicide application: A foliar acting translocated or contact herbicide shall be applied to emergent weeds;
- hand weeding: Hoe and loosen the soil throughout the planting areas, taking care to avoid disturbance of roots of planted material. Remove weeds entirely, including roots. Remove the minimum of soil and minimise disturbance to plants, and mulched surfaces. On completion, rake areas to a neat condition.

4.2.4 Fertiliser:

- an approved slow release fertiliser to be applied over planted areas in accordance with manufacturer's instructions. Carry out a single application between March and May for the first three years after planting;
- ensure there is a substantial buffer zone between fertilised areas and areas set aside for nature conservation to reduce the growth of unsuitable species and the nutrient enrichment of the wetland areas, ditches and swales.

4.2.5 Re-firming, check/tidy:

- general: trees and shrubs shall be maintained in a firm position in the ground and all stakes and ties shall be checked regularly;
- particular timing of inspections: after strong winds, frost heave and other disturbances;
- replace missing rabbit guards;
- report any significant failures.

4.2.6 Tree stakes and ties:

- inspect all trees twice a year. Adjust fixing to suit stem growth and provide correct and uniform tension. If growth is sufficient for tree to be self-supporting, remove fixing and fill holes with lightly compacted soil;
- check stakes for looseness, breaks and decay and replace as necessary. Remove stakes and ties after three years establishment.

4.2.7 Pruning generally:

- pruning to be carried out in accordance with good horticultural and arboricultural practice;
- comply with British Standard: BS 7370-4 Grounds maintenance (clauses 3.6.3 to 3.6.5);
- agreement: before starting work, liaise with Golf Course/Landscape Architect to agree which trees, whips, shrub and hedges are to be pruned or removed;
- appearance: trim individual plant appropriate to species, location and season to leave a well-balanced natural shape;
- cutting: use only appropriate clean, sharp tools. Clean cuts back to sound wood;
- disease of fungus; give notice if detected;
- do not use growth retardants, fungicides or sealant, unless instructed;

- disposal of arisings: compost on site within specified areas.

4.2.8 Pruning of trees:

- tree work standards: to BS 3998 and Forestry and Arboriculture Training and Safety Council Safety Guidance;
- during pruning protect adjacent structures, plants or trees;
- appearance: Trees to maintain a well-balanced natural appearance; remove any suckers or basal growth. Cut back level with source stem or root;
- chain saw work: operatives must hold a Certificate of Competence;
- timing: Prune between leaf fall and mid-winter;
- pruning: All prunings to be utilised in the creation and maintenance of habitat piles in un-obtrusive areas.

4.2.9 Thinning and pruning of young trees and whips up to 3m high:

- after three years full growing seasons, selectively thin, re-space and crown raise feathered trees and whips;
- prune between leaf fall and mid-winter.

4.2.10 Pruning of hedges:

- timing: cut back hard twice a year, mid-July and late autumn/ winter to a height of 1.5m, width 1m at base;
- form: allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit;
- after three years establishment of new hedge planting, lay hedges in accordance with specification below;
- allow for 10% replacement and restocking of hedge plants.

4.2.11 Pruning of shrubs:

- at the end of the growing season, check all shrubs and remove all dead foliage, dead wood and broken/damaged branches and stems;
- prunings to be retained on site and either composted or woodier prunings to be utilised in the creation of habitat piles in un- obtrusive areas;
- timing: unless otherwise specified or instructed, prune: a) shrubs flowering between March and July immediately after the flowering period; and b) shrubs flowering between July and October back to old wood in winter.

4.2.12 Reinstatement:

- remove dead plants as soon as possible and replace in the next scheduled round of replacement planting.

4.2.13 Trimming:

- cut away enough to open up stems for convenient pleaching. Leave tops bushy to form effective barrier when laid.

4.2.14 Stakes:

- to be hazel, ash or sweet chestnut; to be 1.6 – 1.7m in length, straight and clean, pointed at one end. Trim off stake tops at 45 degrees after binding to 100mm above top of binding.

4.2.15 Binding:

- binders to be hazel, ash or sweet chestnut, 25mm dia. max and at least 2.4m long.

4.2.16 Final trimming:

- produce a well finished appearance;
- trim stems near a joint or knot;
- trim off thin ends of binders;
- check pleacher stumps; ensure stubs or 'ears' have been trimmed off clean.

4.3 Grassland

4.3.1 Amenity grassed areas (not included within the golf course's playable area):

- cutting: grass will be cut annually a minimum of 12 times, with two cuts in May to September;
- maintenance of grass in a manner appropriate to the intended use;
- maintenance of grass height between 50-75mm;
- ensure that grass does not become compacted or waterlogged;
- maintenance of grass in a healthy vigorous condition, free from disease, fungal growth, discolouration or wilt;
- repair of grassed areas damaged by trampling, abrasion or scalping during mowing;
- regular removal of litter and fallen leaves to maintain a neat appearance.

4.3.2 Remedial works:

- top dress and make good any areas of soil erosion, slip and depressions;
- re-seeding of the above areas.

4.3.3 Grass cutting:

- remove litter, rubbish and debris from grass before mowing;
- cut to a neat even finish without rutting or compaction, particularly when ground conditions are soft;
- trim grass edges around the base of columns, lamp-posts, fence posts, stanchions and furniture;
- sweep (use of blower) adjacent hard surfaces clear of cuttings and arisings.

4.3.4 Selective herbicide

- spray with a suitable selective herbicide;
- apply spot treatment to individual weeds as necessary.

4.3.5 Scarifying

- scarify with tractor drawn or self-propelled equipment to a depth of 10mm to relieve thatch conditions and remove dead grass.

4.3.6 Fertiliser:

- apply spring and autumn fertiliser in accordance with manufacturer's instructions

4.3.7 Wildflower meadow Grass - maintenance cuts:g

- 1st cut to 4-7cm. March/April;
- 2nd/final cut to 4-7cm end Sept/October;
- leave arisings for 2 days (to allow invertebrate species to return to the grassland) and then remove all cuttings;
- extra cuts will depend on soil fertility;
- grass margins, 1.5m wide next to footpaths and amenity grass, do not allow the grass length to exceed 15cm in height; to be cut to 7cm.

4.3.8 Control scrub and invasive grass species to maintain the diversity of the wildflower meadow grassland. In addition to the mowing regime, spot treat with selective herbicide for two years to deal with pernicious perennial weeds such as Dock (*Rumex obtusifolius*), Rosebay

Willowherb (*Chamaenerion angustifolium*), Thistle (*Cirsium vulgare*) and Horsetail (*Equisetum arvense*).

4.3.9 Annually, clear any woody species that start to encroach including Ivy (*Hedera*), Ash (*Fraxinus*) and Sycamore (*Acer pseudoplatanus*). If permitted, treat stumps with herbicide to prevent regrowth.

4.3.10 If any Japanese Knotweed (*Fallopia japonica*) or Himalayan Balsam (*Impatiens glandulifera)* is found to be establishing on site these species must firstly be reported to the Environment Agency and then a procedure set in place to eradicate them professionally.

4.4 Eco-Ponds

4.4.1 Eco-ponds:

- maintain fit for purpose, in a fully functioning condition;
- provide a thriving natural plant community;
- maintain clean water, free from algae, litter, debris, etc.;
- ensure public safety is maintained.

4.4.2 Litter:

- remove litter regularly - as soon as practical; always within two days of discovery/report.

4.4.3 Water testing:

- test irrigation water annually for pH Toxicity, etc.

4.4.4 Plant material:

- annual cutting of reeds in wetland areas;
- carry out ecological operations, as necessary, including plant divisions to ensure development of vegetation.

4.4.5 Japanese Knotweed:

- identify and treat appropriately. Apply systemic intensive treatment to eradicate and to prevent further spreading.

4.5 Drainage and Irrigation system

4.5.1 The operator of the site will be responsible for management and maintenance of the drainage and irrigation system which should be undertaken in accordance with the supplier's recommendations.

4.6 General maintenance

4.6.1 Litter/dog waste, especially on public footpaths:

- collect litter as necessary to maintain a clean, litter-free environment;
- include clear signage against dog fouling and litter at entrances;
- signage to ensure dogs are kept on leads at all times.

4.6.2 Hard surfaces and pathways:

- undertake regular conditions surveys;
- reinstate or replace exhausted, worn-out or damaged features and materials;
- undertake a regular and time-tabled topping-up regime of surfacing materials, as necessary;
- apply a suitable herbicide to prevent weed-growth within pathways;
- carry out any repairs to timber edgings and track surfaces to ensure a smooth, safe surface is maintained, free of ruts, potholes, etc.

4.6.3 Fences, gates, barriers

- undertake regular conditions surveys. Report any problems;
- problems creating health and safety concerns to be resolved immediately and reported.

5 Programming of Maintenance and Management Operations

5.1.1 To maintain the quality of soft landscape works, the long-term maintenance contractor must provide a high standard of maintenance; the long-term success of the scheme is dependent on its maintenance regime.

5.1.2 This management strategy is intended to provide a basic performance specification to enable the maintenance contractor to submit for agreement a detailed three-year programme of work which shall include scheduled dates for planting refurbishment and review.

5.1.3 The following is an indicative annual schedule of maintenance visits applicable for the first ten years of establishment. This provides a reasonable frequency of the more common operations, and a good indication of the required level of intensity of management required but is not intended to be fully comprehensive or restrictive. The maintenance contractor is required to develop a schedule in consultation with Golf Hillingdon, the landscape/golf course architect, specifying operations and frequency using his/her own experience and horticultural knowledge.

5.1.4 The ongoing programme of maintenance work will also include proposed frequency of visits and operations detailed in the specification, i.e. pruning.

5.1.5 It shall also include scheduled dates for:

- infrequent operations such as re-spacing of plants, pruning, topping up of mulch, replacement of plants/restocking of beds, etc.; and
- planting review and refurbishment.

5.1.6 The effectiveness of the management operations is to be closely and continually monitored and reviewed annually against this Management and Maintenance Plan, with any resulting changes incorporated into the subsequent years' programme.

5.2 Indicative schedules of annual maintenance operations

Month	Fertiliser	Mowing (close-mown grass)
Jan		
Feb		
Mar	1 visit	2 visits
Apr		2 visits
May		4 visits
June		4 visits

July		4 visits
Aug		4 visits
Sept		4 visits
Oct	1 visit	2 visits
Nov		1 visit
Dec		

Table 13: Amenity Grassed Areas

Month	Mowing (Meadow areas)	Mowing (close-mown margins)	Spot treatment of herbicide	Annual clearance of woody species
Jan				
Feb				
Mar	1 visit	2 visits		
Apr	1 visit	2 visits		
May		2 visits		
June		2 visits	1 visit*	1 visit
July		2 visits		
Aug		2 visits		
Sept	1 visit	2 visits		
Oct		2 visits		
Nov		1 visit		
Dec				

Table 14: Wildflower meadow grassed areas
* herbicide spot treatment every 2 years in growing season

Month	Watering	Fertiliser	Re-firming, stakes and ties
Jan			
Feb			
Mar		1 visit*	1 visit
Apr	2 visits		
May	2 visits		
June	2 visits		
July	2 visits		
Aug	2 visits		
Sept	2 visits		
Oct			1 visit
Nov			

Dec			

Table 15: Trees planted as standards
*fertiliser for the first three years after planting - stakes and ties to be removed three years after planting watering as necessary during periods of drought

Month	Watering	Weeding	Fertiliser	Re-firming, stakes and ties
Jan				
Feb				
Mar		1 visit	1 visit*	1 visit
Apr	2 visits			
May	2 visits	1 visit		
June	2 visits			
July	2 visits	1 visit		
Aug	2 visits			
Sept	2 visits	1 visit		
Oct			1 visit	1 visit
Nov				
Dec				

Table 16: Feathered trees, whips, understorey and shrub mixes
*fertiliser for the first three years after planting - stakes and ties to be removed three years after planting watering as necessary during periods of drought

Month	Check of health and form
Jan	
Feb	1 visit
Mar	
Apr	
May	
June	
July	
Aug	
Sept	
Oct	
Nov	
Dec	

Table 17: Retained trees

6 Appendices

Appendix 1: Maintenance Specification

Appendix A: Maintenance Specification

Week number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
GREENS																																																							
Cylinder mowing cutting height between 3.5-8 mm		1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	4	4	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	4	4	4	3	3	3	2	2	1		1		1	215	grass has established a dense uniform turf.
Verti cutting															1				1			1				1			1			1			1			1					1											9	All grass clipping and arisings to be removed from the greens and recycled on to selected areas around the course
Over seed																						1																																1	
Verti-draining														1																													1											2	
Slit tining		1		1		1		1		1																																			1		1		1		1			9	
Apply fertiliser															1			1					1					1					1					1																6	Nutrient inputs will be between 70-150 kg of nitrogen per hectare per annum once the turf has been established
Top dressing															1							1								1									1					1										5	
Weed Control																			1																1																			2	
Fungicide						1								1																														1				1						4	Insecticides and fungicides will only be used when necessary.
Irrigate	AS NECESSARY APRIL- SEPTEMBER																											1		1		1		1		1		1		1		1		1										9	
Wetting agent	AS NECESSARY																					1													1																			6	
Move holes		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	104	
General tidiness	ON GOING													1					1					1						1					1						1						1							7	
FAIRWAYS																																																							
Cylinder mowing						1				1		1	1	1	2	2	2	2	2	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	2	1	1	1		1			1			79	Cutting heights to be maintained between 12-18 mm once the grass has established a dense uniform turf.
Verti cutting																		1	1									1																										3	All grass clipping and arisings to be returned to the surface of the fairways
Aeration/Slit tining				1			1						1			1																												1			1			1				7	
Apply fertiliser																				1																																		1	
Selective herbicide																				1																			1															2	
Divotting												1					1																						1		1													4	Nutrient inputs will be between 20-80 kg of nitrogen per hectare per annum once the turf has been established
General tidiness	ON GOING										1						1																													1		1			1			5	
TEES AND APRONS																																																							
Cylinder mowing					1				1		1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	1	1		1		1			95	Cutting heights to be maintained between 8-12 mm once the grass has established a dense uniform turf.
Verti cutting																				1							1									1						1												4	All grass clipping and arisings to be removed and recycled onto selected areas of the course
Hollow tine and remove cores						1							1																																									2	
Apply fertiliser														1											1										1																			3	
Top dressing																				1						1						1																						3	
Over seed																				1																																		1	Nutrient inputs will be between 40-100 kg of nitrogen per hectare per annum once the turf has been established
Selective herbicide																	1																						1															2	
Irrigate	AS NECESSARY APRIL- SEPTEMBER															1						1										1							1															4	
Move tees		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	364	Insecticides and fungicides will only be used when necessary.
Divotting	MAY- OCTOBER									1			1				1					1					1							1						1						1					1			9	
General tidiness	ON GOING												1						1						1						1							1					1											6	
SEMI-ROUGH & ROUGH																																																							
Mowing									1			1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1		1		1			63	Cutting heights to be maintained between 30-50 mm on the semi-rough and 75-200 mm on rough areas, Heather areas will be cut once a year following flowering.
Apply fertiliser																																																						0	All grass clipping and arisings to be returned to the surface of the turf.
Selective herbicide																	1																																					1	Nutrient inputs will be between 20-35 kg
General tidiness	ON GOING							1									1								1								1								1									1				6	Heather areas will not be fertilised however chemicals may be used periodically to remove weed gresses.
BUNKERS																																																							
Raking		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	125	All arisings will be removed and recycled onto selected areas of the course.
Edge																1	1	1																					1	1	1													6	New sand will be added periodically
Weed																1	1	1																					1	1	1													6	
Amend depth of sand																1	1	1																					1	1	1													6	
Flymo/trim																1		1		1		1		1		1		1		1		1		1		1		1		1		1												14	