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CONSULTING ENGINEERS

LINK 9, SKIMMINGDISH LANE, BICESTER

SCHEDULE OF MAINTENANCE WORKS REQUIRED FOR SITE DRAINAGE & SuDS FEATURES

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1.0 SUMMARY OF DRAINAGE DESIGN/FEATURES

1.1 Surface Water

A new gravity system will be constructed and outlet rates to Langard Brook will be restricted by use of large swales/pipes and porous pavings/tanks to Car Park Areas.

The system is designed to cater for 1 in 100 year + Climate Change Storm Conditions.

In order to ensure that no contamination enters the Water Courses Silt Traps and Petrol Interceptors are provided at appropriate positions.

In designing the System due reference has been given to the DEFRA CIRIA SuDS Manual.

1.2 Foul Drainage

A gravity system will be constructed to outfall to an outside Pumping Station with appropriate 'off-line' storage to cater for emergency breakdown of Pumps. The Foul Water is then pumped to the adopted Thames Water Sewer in Launton Road opposite Telford Road.

2.0 SCHEDULE OF ESSENTIAL MAINTENANCE

- 2.1 Gullies - Inspect and de-sludge at least once a year.
- 2.2 Line Drains – Inspect and de-sludge silt boxes as necessary but at least once a year.
- 2.3 Petrol Interceptors – Maintain strictly in accordance with the Manufacturers Instructions but at least once each year. Major refurbishment should be considered on a 15-year cycle.
- 2.4 Pipe Works – Inspect and jet clean as necessary but at least once each year.
- 2.5 Porous Paving – All surfaces should be brushed clear as necessary but at least once each year to ensure that hard surfaces do not hold water.
- 2.6 Head Walls/Outlets – These must be inspected and cleaned as necessary but at least twice each year. All gratings/screens and fixings should be checked and secured as necessary.
- 2.7 Landscaping to Swale/Diverted Gutter Area – The landscaping is to be managed/maintained as attached Re-Form Softworks Management Plan – May 2017, as agreed with Oxfordshire County Council and attached.

APPENDIX

Re-Form Landscape Architecture Softworks Management Plant RFM-14-228-R05 dated May 2017.

Bailey Johnson Hayes
Consulting Engineers

S1230 – 13th December 2017

APPENDIX

Re-Form Landscape Architecture Softworks Management Plant RFM-14-228-R05
May 2017

Link 9
Skimmingdish Lane
Bicester

RFM-14-228-R05
Landscape Management Plan

May 2017

re-form
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1. Introduction

- 1.1. This Landscape Management Plan sets out the management requirements for the Link 9 development at Skimmingdish Lane. The aim is to ensure the healthy establishment of all planting types and covers the first five years after planting.

2. Site description

- 2.1. The development site is located on the north-eastern edge of Bicester, Oxfordshire. The A4421/Skimmingdish Lane runs along the southern boundary of the site.
- 2.2. The site sits adjacent to the RAF Bicester Airfield. The Airfield is separated from the site by an area of trees and scrubland. Existing fields and hedgerows surround the site to the northern and eastern boundaries.
- 2.3. An existing watercourse runs approximately 100m to the south of the site.

3. Objectives

- 3.1. The aims of the management plan are:

- Provide a high quality setting for the proposed development and wider development area
- Conserve and enhance ecology and biodiversity
- Ensure healthy establishment of the proposed planting
- Establish important areas of green infrastructure within the new development

- 3.2 All maintenance operations are to be in accordance with BS7370-4: 1993 *Grounds Maintenance: recommendations for maintenance of soft landscape* other than amenity turf.

4. Soft Landscaping & planting

- 4.1. To be read in conjunction with the following;

RF14-228-L18 Landscape Planting Plan

RF14-228-L19 Landscape Planting Schedule

RF14-228-S01 Landscape Specification

All maintenance operations are to be in accordance with BS7370-4: 1993 *Grounds Maintenance: recommendations for maintenance of soft landscape* other than amenity turf.

- 4.2. The proposed soft landscape will augment and enhance existing green infrastructure to the site. The proposed soft landscape and planting consists of:

4.2.1. General tree planting:

Native tree species in a range of sizes: semi mature, extra heavy standard and standard trees. This will include deciduous and evergreen species. Tree species will be spread evenly throughout the woodland planting area to achieve desired coverage.

- 4.2.2. General native planting:
In conjunction with trees, an understory of native transplant and whip mix shall be provided at an average rate of 1 plant/1.5m². This will form bands of native vegetation comprising both tree and shrub species, including deciduous and evergreen species. Native transplant and whip species will be spread evenly throughout the woodland planting area to maximize cover for visual mitigation and amenity.
- 4.2.3. Native hedgerow planting:
Hedgerow planting shall consist of trees at 3m centres and native whips (tree & shrub species) at 0.5m centres throughout the planting zone.
- 4.2.4. Planting associated with swale feature:
Swales features to be planted to be base and slopes with a moisture-tolerant species-rich grass seed mix.
- 4.2.5. Grassland:
Seed mixes have been specify which offer low maintenance requirements, allowing attractive seed heads to form, benefiting local wildlife. Amenity grass mix will be used to form neat 1m wide margins to species rich grass areas. These margins shall be regularly mown to maintain a tidy appearance.
- 4.2.6. General amenity shrub planting:
This comprises a variety of robust & hardy groundcover and low level (below 1.2m mature height with some specimen/accent plants, all requiring minimal maintenance. There will be a predominance of amenity shrub planting with a high proportion of evergreen and flowering species to give year round structure and interest. These amenity shrub mixes are located within the development and alongside the proposed central access road.
- 4.2.7. Soils:
Suitable quality topsoil (as per Landscape specification clause Q28.315A) shall be provided to the following depths:
- Native Transplants & Whips Planted areas – 300mm
 - Amenity shrubs – 400mm
 - Amenity Grass – 150mm
 - Proposed Standard, Extra Heavy Standard and Semi mature trees- 600mm depth

5. Management Plan

5.1. General preamble

5.1.1. Duration of plan:

This management plan is associated with the establishment and maintenance of proposed and existing planting within the Link 9 planning application boundary and covers a period of 5 years.

5.1.2. Area:

The management plan applies to all external areas within the site boundary as shown on drawings RF14-228-L18.

5.1.3. Visits:

The contractor shall notify the Client 48 hours prior to any visits to confirm suitability of time and works to be undertaken to avoid disruption to the Client's activities.

5.1.4. Specification and planting stock:

Any replacement planting required during the period of the management plan should be undertaken in accordance with the Landscape Specification as part of the building works. All plant stock should comply as follows:

5.1.4.1. All plants are to be supplied in accordance with Horticultural Trade Association's National Plant Specification and from a HTA certified nursery. All plants and trees to be planted in accordance with BS3936. Delivery and backfilling of all plant material to be in accordance with BS4428:1989 'Code of practice for general landscape operations' and CPSE Code of Practice for 'Handling and Establishing Landscape Plants, Parts I, II and III'.

5.1.4.2. The supply and aftercare of trees will be in accordance with BS8545:2014

5.1.4.3. All excavated areas to be backfilled with either topsoil from site or imported to be BS3882 – General purpose grade. All topsoiled areas to be clear of rocks and rubble larger than 50mm diameter and any other debris that may interfere with the establishment of plants.

5.1.4.4. Existing trees and hedgerows to be retained shall be protected in accordance with BS5837, from commencement to completion of all works on site.

5.2. Machinery and Tools

Use only machines and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees, plants and in confined spaces where it is impracticable to use machinery. The use of strimmers is not permitted around tree stems below 8-10cm in girth.

5.3. Chemicals

5.3.1. Legislation

Pesticides include herbicides, insecticides, fungicides and plant growth regulators. The use of pesticides is governed by legislation. The Landscape Contractor must comply with the 'The Control of Pesticides Regulations 1986' made under the 'Food and the Environment Protection Act 1985', 'The Control of Substances Hazardous to Health Regulations 1988' made under the 'Health and Safety at Work Act 1974' and any other legislation enacted during the contract period.

All pesticides must be products on the current list of Agricultural Chemicals Approval Scheme. All pesticide users shall comply with the conditions of approval relating to use clearly stated on the product label.

The Contractor must comply with all relevant Codes of Practice issued by DeFRA. In particular, where work is near water, comply with the 'Code of Practice for the Use of Herbicides on Weeds in Watercourses and Lakes'. Written approval from the Environment Agency should be obtained prior to the use of pesticides within these areas.

Wherever practical, other non-chemical means of plant removal should be used in consultation with the Environment Agency.

5.3.2. Use of pesticides

The Contractor shall keep a written logbook detailing all uses and pesticide applications carried out.

The Contractor is required to notify the public of any pesticide application. A warning sign shall be posted on the railing to the public footpath. Where contained solely within planting beds the sign shall be placed adjacent to edges in noticeable positions. Details of the application and a contact person shall be indicated on the sign.

The Contractor shall in accordance with COSHH Regulations protect employees and other persons, including the public, who may be exposed to substances hazardous to health.

5.4. General planting maintenance (1 to 25 years)

5.4.1. Failures of planting: general

Any trees/shrubs/plants that have died or failed to thrive (not developing full foliage throughout all branches) within the period of this maintenance plan should be replaced.

Years 1 – 3:

Replacements must match the size of adjacent or nearby plants of the same species or should match the original specification, whichever is the greater.

Years 4 – 25:

Replacements to be as original specification. Replacements of tree species left to grow to maturity, after thinning at years 7 – 10 must be to original specification.

5.4.2. Watering: general

The contractor shall make due allowance in his rates for carrying out these tasks outside normal working hours when necessary to avoid premature evaporation or leaf damage caused through watering in bright sunlight.

The contractor is to allow for the provision of water, water carts or hoses with a fine hose attachment or sprinklers at normal mains pressure. The contractor is to include and state in his tender the cost of compliance with this clause so that the cost of visits can be deducted in whole or in part if not required to be used.

Drought Conditions:

Should emergency legislation restricting the use of water during drought conditions be imposed, the contractor will be required to ascertain — before operations — the availability and cost of, and arrange to collect and apply second class water by bowser or other means from an approved sewage works, deliver to site and apply as specified. When required by the Architect, the contractor shall arrange for tests of this water to be carried out in accordance with BS 6068:2000 Water Quality.

5.4.3. Pests and Diseases: general

Maintenance shall include the control of insects, fungus and disease by spraying with an approved insecticide or fungicide.

5.4.4. Litter Collection: general

The contractor shall at all times keep the site clean, tidy and free from litter and carry out a litter collection at each maintenance visit.

‘Litter’ is anything whatsoever that is thrown down, dropped or otherwise deposited in onto or from any place in the open air to which the public are permitted to have access without payment.

‘Fly tipping’: large items such as discarded furniture that require two or more people to lift or are in excess of 0.5m³ will be treated as fly tipping and not litter. The contractor should provide a cost for removal and depositing for fly tipping on each and every occasion.

The contractor shall take care to avoid any spillage of fuel, oil, chemicals or other materials toxic to plant life. Plants or soil contaminated by such material must be removed off site and replaced.

5.4.5. Cleanliness: general

At completion and at each visit, remove soil and other debris from all hard surfaces and grassed areas and leave the works in a clean and tidy condition.

5.4.6. Leaf Clearance: general

The contractor is responsible for the clearance of leaves, twigs, etc from all areas of the grounds including planting beds, lawns, paths, channels, drains, car park steps and other areas specified by the Client, from leaf fall (normally October until end December). The Client will instruct the contractor when to begin.

The clearance shall be carried out with hand raking or sweeping, or using machinery appropriate and approved by the Client.

All collected leaves to be removed from site and should not be left in piles awaiting removal but cleared immediately.

Leaves should not be left on ground for more than a week. The contractor shall schedule operations to achieve this standard.

5.4.7. Management of proposed tree planting

General Health of Trees, Years 1, 3 and 5:

Check general health of all trees by qualified arboriculturalist. Recommendations will be made for replacements and remedial works as required.

In order to ensure that trees do not become hazardous, the condition of all trees at the site should be checked annually. Trees should also be checked following storms, where there may be damage from wind throw.

Deciduous trees are often vulnerable to diseases caused by pathogens, fungi, bacteria and viruses. Trees should be monitored for signs of diseases, which may include visible mushrooms and patchy and discoloured leaves. Where it is suspected that a tree may be suffering from a disease advice should be sought from an Arboriculturalist.

Hazardous branches or mature trees that are to be removed must be surveyed for potential birds' nests or bat roosts prior to felling. Trees and hazardous branches should only be removed outside the bird-breeding season, between March and August for most species, unless a suitably qualified ecologist undertakes a survey of the affected area.

All tree surgery works should be undertaken by a professional tree surgeon who should work in accordance with BS 3998:1989 'Recommendations for Tree Work'.

Inspection of trees:

Arboricultural inspections and works are to continue up to the 25 years and beyond. They will address wind damage, disease, dead wooding and tackling windblown trees.

5.4.8. Newly Planted Trees

Watering: Year 1 and 2 – Establishment

Between May and September all newly planted trees shall be watered at a rate of 50 litres per visit.

Mulching and weeding: Years 1-3

Maintain a mulched, weed-free area 800mm radius around each tree. Mulch should be maintained at a depth of 75mm deep. Weeding within this zone should be hand-weeding which should be done as often as required or through the use of biodegradable mulch.

Inspection of stakes, ties etc. Years 1-3

Once a year check condition of stakes, ties, guys and guards.

Redundant ties:

Check for excessive movement at ground level by pulling on tree at shoulder height. If most of movement is in the bending of the stem then it is likely that the root system is providing adequate support and stakes and ties can be removed.

Adjustment and/or replacement of ties:

Trees should be able to move approximately 50mm (2") in all directions when staked properly. Too little movement may result in poor root structure and inability to withstand wind loading. Too much movement may cause rocking and damage of new root growth. Ties should not rub bark. Ties should be loosened, tightened or replaced as required.

Stakes to be removed after the third winter from time of planting, unless further tree stabilisation is required.

Re-firming Trees and Specimen Shrubs:

Re-firming Trees and Shrubs – shall be carried out after strong winds, frost heave and other disturbances. To re-firm the Contractor should tread around the base until firmly bedded. Any collars in the soil at the base of tree stems, created by tree movement should be broken up by fork, avoiding damage to roots. The voids should be backfilled with topsoil and re-firmed.

5.4.9. Pruning newly planted trees: Years 1 onwards

Prune at appropriate times, to remove dead, dying, damaged and diseased wood along with crossing branches (where branches are rubbing together) in accordance with BS 3998: 1989, to promote healthy growth and natural shape. Trees should be allowed to grow to their natural mature height. Pruning shall only be carried out to remove dead, diseased or dying branches.

All trees shall be cut using sharp shears, reciprocating hand held cutters or secateurs.

All cuts shall be clean and any ragged edges shall be removed using a sharp knife or secateurs. Keep wounds 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.

All arisings shall be collected immediately following cutting or at the end of each work period and taken to the designated location for disposal.

The Contractor shall ensure that trees do not present a hazard or obstruction to pedestrians, pavements, roads or signs at any time.

Once commenced, the cutting operation shall continue and be completed without delay.

The Contractor shall avoid cutting/pruning in March to June to cause minimum disturbance to nesting birds and wildlife, in compliance with the Wildlife and Countryside Act.

5.4.10. Disease of fungus

Give notice if detected. Do not apply fungicide or sealant unless instructed.

5.4.11. Watering

Water throughout the growing season in line with the maintenance schedules.

5.4.12. Thinning Out

The object of the woodland planting is to encourage full woodland growth to encourage the screening of large units. Trees shall be checked from 3 years to ensure healthy growth. Vigorous deciduous trees in the native woodland mix shall be thinned out after 7 to 10 years to allow slower growing species to reach their full height.

The following species are to be allowed to grow onto maturity:

Acer campestre

Pinus sylvestris

Prunus avium

Quercus robur

These species are to be spread evenly throughout the woodland to achieve desired coverage. Trees that are over shadowing these species shall be selected and removed to the base. Any encroaching vegetation adjacent to public rights of way will be thinned out in order to maintain width and sightlines.

5.4.13. Mulching

To be installed and replaced in line with Landscape specification clause Q28.155A

5.4.14. Protection

All planting shall be suitably supported during the establishment period and protected from damage caused by animals e.g. rabbits. All protection of planting is to the contractors specification

5.5. Management of hedgerow planting

5.5.1. Watering

Water as necessary through the growing season in line with the maintenance schedules.

5.5.2. Cutting back/foilage removal

Hedgerow should be cut twice a year in the spring and summer to promote healthy growth and maintain a neat, dense form, and to maintain clear access and sightlines to adjacent public rights of way.

5.6. Management of species-rich grassland in and around swale

5.6.1. Mowing

Grass to be cut back once a year in late August and early September, left for a minimum of 3 days and then arisings removed, thus allowing the majority of the grassland plants to bloom and set seed. Mowing at the time will also avoid damage to skylark nests.

5.6.2. Weeding

Weeds, over 100mm in height in late May, that do not form part of the seed mix should be removed from site.

5.6.3. Re-seeding

Bare patches to be re-seeded annually in September as per the original specification. If bare patches appear, do not top dress with topsoil and do not apply fertiliser. Add grass seed as per original specification.

5.7. Amenity planting: shrub planting

5.7.1. Watering: Year 1 – Establishment

Between May and September of the first year shrub beds will be watered on each visit if there has been no rainfall for a period of seven days. Shrub areas should be watered at a rate of 15 litres per square metre. During subsequent years watering should be undertaken as necessary.

5.7.2. Weeding and mulching: Years 1-25

Shrub beds should be weeded monthly during the growing season, March to October inclusive, utilizing the following methods:

Ornamental shrub & perennial areas - Hand pulling only

General amenity shrub areas - Hand pulling or herbicide spot treatment

Use only an approved herbicide in accordance with manufacturer's instructions. Care should be taken not to spray the green parts of shrubs or low ground cover planting. All weeds are to be removed from site once they have died down.

Remulch as necessary the whole surface of shrub beds to ensure a depth of 75mm. Ensure that the soil is thoroughly moistened prior to remulching, applying water where necessary.

5.7.3. Fertiliser: Years 1-3

Annual application of a slow release organic fertilizer in accordance with manufacturer's instructions.

5.7.4. Protective fencing: Year 1

Where newly planted areas are protected with Chestnut Paling fencing. Maintain fencing until end of Defects period then remove and reinstate ground. Make good any damage to planting until area is accepted. The fencing will remain the property of the Contractor.

5.7.5. Pruning: Years 1-25

Shrub plants should be pruned at appropriate times, to remove dead or dying and diseased shoots or branches, to promote healthy growth and natural shape. Prune overgrowing specimens to avoid suppression of adjacent species, overgrowth onto grass or paving etc. Ensure that shrubs are maintained at a maximum of waist height (1m above ground).

All shrubs shall be cut using sharp shears, reciprocating hand held cutters or secateurs. Large leafed species such as Prunus should only be pruned using secateurs or similar approved equipment. All cuts shall be clean and any ragged edges shall be removed using a sharp knife or secateurs.

All arisings shall be collected immediately following cutting or at the end of each work period and taken to the designated location for disposal off site by the contractor.

This includes trimmings hung up in shrubs and the sweeping of adjacent hard surfaces.

Once commenced, the cutting operation shall continue and be completed without delay.

5.7.6. Maintenance of amenity shrub planting areas

5.7.7. Watering

Water as necessary through the growing season in line with the maintenance schedules.

5.7.8. Cutting back/foilage removal

Shrub planting to be cut once per year if necessary to maintain a maximum planting height of 1m above ground level..

5.7.9. Litter

The Contractor shall be required to leave shrub beds clean, tidy and weed free on every occasion that maintenance operations are carried out, and this shall include the removal of all litter, leaves, debris and other such deleterious matter.