

BE.ev Reliance Street, five year maintenance and management plan

FFLO Landscape Architects

21 01 25 Revision D

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Please read in conjunction with the landscape drawings.

1, Purpose of the management plan

The purpose of this Landscape Management Plan (LMP) is:

To set clear standards for the performance of landscape maintenance work following handover from the landscape contractor.

To develop work programmes and schedules for landscape maintenance staff.

To help in the allocation of financial resources for landscape maintenance.

To help monitor success and progress against management targets.

2, Site/proposal Description

The planting is predominantly set in beds around the perimeter of the site, there are also a number of large, raised planters and a green roof.

The planting is made up of a number of large trees, multistems with a ground flora that is designed as a matrix to form a 'naturalistic' tapestry of plants reminiscent of a woodland planting typology. The mix is formed of grasses and perennials with bulbs planted through out for early spring interest.

The 50mm fine bark mulch layer will serve to hold moisture in the soil below and also to prevent weed ingress.

The landscaping will be irrigated using a below ground drip irrigation system.

The landscape incorporates biodiversity orientated features including dead wood and bird/bat boxes installed on some of the trees.

3, Management Aims

The main aims for site landscape management and maintenance are:

To present an attractive and safe environment for users and passers-by.

To ensure that soft landscape areas are fit for purpose and do not pose a health and safety hazard to the public.

To ensure that newly planted areas become established.

To prevent weed ingress.

To keep the site clear of litter and rubbish.

To carry out maintenance work according to best practice using sustainable techniques and materials.

To encourage biodiversity.

The document should be seen as an operational guide, subject to change and improvement as the different landscape features mature and develop.

4, Planting maintenance and proposed character

The general thrust of the proposed planting in terms of character form and maintenance is naturalistic. As such none of the maintenance usually required to look after 'formal' planting, replacement of annual and biannual flowers, and clipping of formed shrubs and trees will be required. Maintenance will take the form of regular inspections for damaged or broken/dead plant material and pruning of the same, and clearance of leaf litter.

5, Irrigation

All planting requires watering during establishment, especially in periods of drought. The aim here is to create a scheme that is stable in the long term and will only require watering in cases of drought or during heat waves. All the plants are such as can be found in the natural environment surviving in the long term without water. However, all of the planting will require watering during the first one to three years of establishment depending on weather conditions and may need watering thereafter on occasion as a result of climate change. By this we mean that in normal British weather the vast majority of planting would not require watering after the first year of establishment, but recently we have had very long dry spring periods and this type of weather, or indeed a long hot dry summer will extend the establishment watering period. Water will be delivered by way of an automated irrigation system with a below ground drip feed. This is to be used as a tool to deliver minimal quantities of water when the plants are observed to be wilting, not as a constant flow.

6, Plant replacement

By planning condition, and notwithstanding for the benefit of the scheme, any plant that dies, or is substantially damaged during the first five years after practical completion should be replaced within the next planting season, replanting like for like in term of species and size excepting only in cases where adverse soil contamination has taken place, for example honey fungus. Whilst the question of whether a plant is dead or not is relatively easy to agree, what constitutes damage is a more open question. We would describe a damaged plant in this case as a plant or tree that cannot be returned to a balanced natural form, and to good health, by way of formative pruning after damage. Inspection for damaged/dead plants and notification of the same, and replacement plan should be made at each maintenance visit.

If a particular species fails to establish successfully then an alternative, comparable species should be considered as replacement, in agreement with the landscape consultant.

7, Weeding

The intensity of weeding activity will tend to decrease as the scheme matures and the plants become dominant with extensive root spread and well-developed foliage/ground cover preventing weeds from finding a footing. During establishment the gravel mulch will assist in keeping weed growth down. All weed killing should be by hand pulling rather than application of glyphosate, and so the maintenance workers will need to have the necessary skills to identify weeds as distinct from the plants that are part of the scheme. It is important to understand that the requirement for weeding has less to do with the 'look' of the scheme than to do with its successful establishment. Therefore careful weeding during establishment will pay off by creating a healthy, well developed scheme that is dominant and thereafter successful in preventing weed growth/ingress. Overall good maintenance during establishment will pay off with very low maintenance thereafter.

8, Establishment & defects liability period

1, Defects Liability: Any plants found to be defective during the five-year Defect Liability period as a result of:

- Plant failure
- Poor or sub-standard materials
- Lack of vigour
- Supplied and installed as not being in accordance with the specification.

Materials supplied shall be replaced immediately by the contractor for the first 18-month period at his own cost.

2, Failures of plants (Pre-practical Completion): Any trees, shrubs and plants, other than those found to be missing or maliciously damaged, which are found to be defective at practical completion of the entire project shall be replaced by the Contractor entirely at their own cost.

3, Malicious damage or theft prior to Practical Completion: All loss or damage arising from theft or malicious damage prior to practical completion of the entire project shall be made good by the Contractor at his own expense.

4, Post Practical Completion: The maintenance of the planted areas after the date of practical completion will be carried out by the Contractor for the first 18-month period.

5, Any plants found to be defective Post Practical Completion as a result of:

- Plant failure
- Poor materials
- Lack of vigour
- Being not in accordance with the specification. Shall be replaced immediately by the contractor at their own cost.

6, Replacement of plants shall take place as many times as is necessary, throughout the Defects Liability Period, in order to maintain a complete cover of plants and to maintain the

scheme as designed by the Landscape Architect in the As Built Drawings and be within the correct season for the type of plants specified.

9, General Maintenance

1, No trees, shrubs or other plants shall be removed or cut without specific instructions from the Contract Administrator and written agreement of the Local Planning Authority Tree Officer.

2, All debris including pruning and litter shall be removed from site to a previously approved recycling centre.

3, The Contractor shall attend annual site inspections with the Project Landscape Architect. Management prescriptions shall be adapted as required following findings from inspections.

4, The Landscape Contractor shall hold a BASIS amenity horticultural products certificate in order to be able to provide appropriate advice on the selection and application of herbicides (if required), and shall be competent in identifying plant species, including those proposed as part of seed and planting mixes and all undesirable species.

5, Any diseases or pests present should be reported to the Council in the first instance and a programme of removal and replacement should be provided by the Contractor.

6, Weed control shall be in accordance with Section 8 and 9 of this document.

7, Maintenance shall be carried out as per maintenance schedules in Section 11 of this document.

8, The Contractor shall liaise with adjacent landowners regarding the access arrangements and working hours to carry out hedge maintenance.

9, Litter shall be removed on a monthly basis or as necessary on the whole site where heavy littering has occurred. A co-ordinated approach to tackling litter problems should be sought with other management agencies and landowners in order to achieve a litter free zone.

10, Adjacent landowners should be encouraged to report illegal fly tipping activity. Provision should be made to remove any such illegal material as soon as possible to discourage any future fly tipping activity.

11, Prior to the end of the maintenance contract period a final inspection must be carried out and the site must be left in a good level of maintenance. Where there are dead/damaged plants, replacements must be provided by the contractor prior to completion of the maintenance contract period.

10, Shrub, hedge, and tree planting areas

2, Shrubs shall be maintained as set out in the table below. Any growth which will obscure signs, visibility splays or sight-lines shall be removed. Once established, any supporting canes shall be removed from the shrubs.

3, As the planting matures it may be necessary to selectively thin the planted areas at 5 and 10 years to achieve an appropriate canopy and understorey. This cannot be definitive as the importance of biodiversity should be considered when removing species.

4, If thinning work is required it should take place during the dormant months, typically November to January, and out of the wildlife nesting and breeding seasons.

5, Tree stakes should be checked and adjusted, repaired or replaced as necessary. Stakes should be removed by Year 5, or as instructed by the project Landscape Architect.

6, Provide artificial irrigation through the use of a Bowser to maintain healthy growth during the establishment period growing season (April – September, inclusive).

7, Minor pruning of dead or damaged wood shall be carried out as necessary. Wounds exceeding 25mm diameter must not be treated with a sealant. On substantial trees, the council Tree Officer must be consulted for any necessary approvals.

8, Newly planted specimen trees shall be checked at 6 monthly intervals for signs of damage, disease or pests present and all tree ties shall be adjusted accordingly at six monthly intervals or as required during monthly maintenance visits. Care should be taken when carrying out maintenance operations so as not to damage the base of trees with grass cutting machinery.

9, Once the trees have reached establishment and no longer require support, guards, ties and stakes may be removed and disposed of at the nearest recycling centre or kept in storage for reuse in the future.

10, Twice yearly tree inspections are required to assess any surgery and/or maintenance requirements.

11, Native species hedge planting is proposed along the Oldham Road boundary.

12, No hedge maintenance shall take place during bird nesting season.

13, Hedges to achieve established height of 1.2m

14, Growth on established hedges shall be reduced slightly above the point of the previous cut (to a maximum height of 1.2m and a maximum width of 0.9m) and on completion, the top shall be level and a slight angle to the base with the base being wider than the top of the hedge (within a tolerance of 50mm).

15, All hedge clippings shall be removed from site to a previously approved recycling centre.

11, Herbaceous and ornamental grass planting areas

The maintenance of herbaceous and ornamental grass planting will ensure that the variety and diversity of species on the original plant list is maintained. Beyond the typical maintenance activities a review of the planting will be required annually to determine if certain species are dominating or declining and a plan to rectify the balance should be completed. Rectification should then be carried out at suitable times prior to the next growing season.

- 1, Herbaceous and mixed beds will be attended monthly to remove weeds and control any invasive or fast-spreading plants as appropriate. The soil surface will be cultivated to prevent soil capping.
- 2, Soil structure and soil fertility improvement will be undertaken as necessary to maintain plant health.
- 3, Plant division, pruning, staking, irrigation and dead-heading will be carried out as necessary to maintain plant vigour and in accordance with good horticultural practice.
- 4, No chemical methods will be used to control pests and diseases except in extreme circumstances (and will be subject to management approval), otherwise serious infestations will be dealt with by removing diseased plants and replanting at an appropriate time.
- 5, Beds will be mulched at least every two years during the winter with appropriate organic material. Mulch will be applied to a depth of no less than 50mm by 31 March each year.
- 6, All vegetative waste will be removed for composting.
- 7, Dead wood (excepting any deadwood that has been placed for habitat creation) which is found within the planting areas is to be removed from site.

12, Green roof

- 1, Management of the green roof is based on a minimal intervention approach to allow a relatively undisturbed habitat, which develops naturally. Tasks, such as weeding, litter removal, cutting back spent stems and irrigation checks will be required biannually as outlined in the schedule on the proceeding pages.
- 2, Maintenance shall be executed in accordance with the manufacturers recommendations and the approved details.
- 3, Although the meadow mat will have low irrigation requirements a drip irrigation system will be installed to be used during the establishment period and for intermittent use during drought periods.
- 4, The maintenance contractor must carry out a health and safety risk assessment for working at height prior to agreeing the contract and work must be carried out in accordance with that. Please refer to the architects' details regarding access on to the roof.
- 5, Green roofs can, over time become a monoculture of one or two species. Maintenance should include annual monitoring and replacement as outlined in the schedule below to maintain a diversity of plant species.

13, Weed control

1, A weed management plan should be submitted for each successive year of maintenance and should include the control of the following species:

- Spear Thistle
- Creeping Thistle
- Broad Leaved Dock
- Common Ragwort

2, The following methods of treatment may be used:

- Hand removal
- Cutting on grass and wildflower meadow areas.

3, Advice on the methods of weed control is available from several sources, including DEFRA publications, notably 'The Weeds Act – guidance note on the methods that can be used to control harmful weeds (PB7 190).

4, Weed control to areas of hard standing shall be carried out twice per year or as required to maintain the area in a weed free condition.

5, Unsightly dead weeds should be removed from areas of hard standing at the request of the Overseeing Organisation.

6, In areas of woodland planting, application of mulch to suppress weeds may be used. Apply in spring before weed growth.

14, Provisos

1, We set out below the maintenance requirements by planting type and area, timings thereof and the like, but of course any of these types of maintenance may be required when damage and or extreme weather conditions of one type or another occur.

2, Maintenance operations are to be carried out with regard to BS4428: Code of Practice for General Landscape Operations. Maintenance of soft landscaping (other than amenity turf) to have regard to BS7370- 4: Grounds Maintenance. Recommendations for Maintenance of Soft Landscape.

15, Maintenance Schedule

Management Aim To successfully establish the planting scheme.

PLANTING MAINTENANCE				
Ref	Management Objective	Monitoring task/type	Maintenance method	Timing
15.01	Removal of invasive species as listed under schedule 9 section 14 of the wildlife and countryside act 1982.	Visual inspection for registered invasive species	If found Eradicate appropriately using a contractor who is accredited by the INNSA and is following their standards and code of conduct.	Monthly inspection, removal as recommended by specialist contractors.
15.02	Removal of weeds not listed under schedule 9 section 14 of the wildlife and countryside act.	Visual inspection for weeds. In this sense a weed will be any plant that is not included in the planting plan/schedule unless it be a native British wild flower.	Any weeds that are found should be removed by pulling, loosening the soil and removing the plant and all of its root system. Use of Glyphosate or other herbicides is not be permitted. Uprooted weeds should be removed to a composting facility.	Monthly throughout the year. More time will be needed to complete this task during the active growing season, March through to October.
15.03	Cutting back of damaged growth generally (excepting dead winter structure post November)	Visual inspection for bent or broken stems	Prune back with a clean cut at nearest undamaged branching point	Monthly throughout the year. More time will be needed to complete this task during the active growing season, March through to October.

15.04	Cutting back of dead growth and seed heads in winter	Dead growth/seed head structure should be maintained as deep into the winter as possible. Visual inspection should be made for signs of collapse in planting structure especially after wind or snow or heavy rain. Once signs of collapse or rot are found cut back.	Shake out any seed heads to ensure that the seed bank is maintained, then cut back growth to 3cm above ground level and clear the dead materials from site disposing to an appropriate composting facility.	Monthly inspection from October onwards. Where seedheads and dried stems have been retained for winter structure and interest, cut back as new spring growth starts to appear.
15.05	diseased plants	Check for signs of : spots on leaves, areas of decay, growths, withering or leaf curl, stunted growth	Remove and destroy any growth effected by fungus. Treat with fungicide if appropriate.	Monthly throughout the year. More time will be needed to complete this task during the active growing season, March through to October.
15.06	Infestation	Check for signs of insect infestation, excessive insect life particularly green fly and black fly. Also Lily Beetle.	Treat with nematodes as appropriate, or hand pick, or otherwise by organic controls such as horticultural oil, insecticidal soap, or neem oil. Use of pesticides, not permitted.	Monthly throughout the year. More time will be needed to complete this task during the active growing season, March through to October.
15.07	Pruning Rosa canina		Leave pruning as late as possible to ensure wildlife can use the hips. Prune before new growth starts in early spring. Aim to remove any dead, diseased wood as well as crossing or weak branches. If the centre of the shrub is congested, remove a couple of older stems as well.	Annual

15.08	Pruning Ilex aquifolium		Prune annually into a soft, domed shape	Annual, in late spring when the plant is not susceptible to damage by cool temperatures.
15.09	Replacement planting	Monitor for plants requiring replacement due to infection as 10.15 or otherwise damaged beyond compare by extreme weather or infestation or failure of water supply	Where plants have died replace like for like in the same location and at the same size in the next planting season. In the meantime remove from site and compost as appropriate. In cases of significant failure of a particular species contact the landscape architect (fflo) to discuss replacement with an alternative species. In such cases an alternative may be used but planted at the same size and in the same locations as the dead plant.	Monthly throughout the year. More time will be needed to complete this task at the beginning of the growing season, in spring where it is more likely to notice failure of plants to comeback after winter.
15.1	Irrigation pipes	Check for exposed pipes	Clip back in place and cover with soil and refresh the mulch layer above	Monthly, between November and February. Fortnightly from March to October. A more frequent check is required during warmer weather when damage and plant losses will be high risk if the irrigation is damaged.

15.11	Irrigation leaks	Check for standing water, saturated soil, or running water in the beds	Investigate and fix pipe work as appropriate	Monthly, between November and February. Fortnightly from March to October. A more frequent check is required during warmer weather when damage and plant losses will be high risk if the irrigation is damaged.
15.12	Irrigation generally	Check for standing water, saturated soil, and extremely lush green areas of planting. Monitor the supply such that the planting only receives the minimum water required for establishment and survival. Seek to reduce the annual supply as the planting scheme establishes and matures.	Control of the irrigation system via the zoned computer supply system and moisture sensors.	Monthly, between November and February. Fortnightly from March to October. A more frequent check is required during warmer weather when damage and plant losses will be high risk if the irrigation is damaged. Annual review together with the landscape architect FFLO.
15.13	General mulch maintenance	Check for mulch being kicked/blown onto hard surfaces.	Clear mulch from all hard surfaces, do not brush it back into the planting beds as it may be contaminated by cars rolling over it. If significant quantities of mulch have been lost top up with fresh mulch to maintain the desired mulch depth.	At each maintenance visit.

15.14	Mulch depth	Check depth of mulch at 3m intervals throughout the beds.	Top up using the specified mulch to a 50mm depth and to achieve a clean even surface free from detritus or soil.	Annually in the winter after cutting back dead growth.
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GREEN ROOF MAINTENANCE				
Ref	Management Objective	Monitoring task/type	Maintenance method	Timing
15.15	EPDM membrane to biodiverse features	Check for leaks, and loose edges.	Any loose edges should be buried using the surrounding rock and gravel mix if found. Leaks should be repaired if found.	Biannual visits in autumn and spring.
15.16	Meadow mat planting	A comprehensive review of the roof is required to determine any remedial works.	Removal of Unwanted Items - Over time a green roof can become congested with leaves, debris and other unwanted vegetation.	Biannual visits in autumn and spring.
15.17	Meadow mat planting	Inspection	Inspect roof outlets and remove any encroaching vegetation to enable water to flow freely through rainwater pipes. Remove any weeds and invasive species.	Biannual visits in autumn and spring.
15.18	Meadow mat planting	Application of fertiliser	Use an organic slow release granular fertiliser.	Biannual visits in autumn and spring.
15.19	Meadow mat planting	Testing	After all remedial work has been performed the irrigation system should be examined and tested, ensuring it is working as expected.	Biannual visits in autumn and spring.
15.2	Meadow mat planting	Inspection	Inspect perimeter gravel fire break and remove any encroaching vegetation, top up gravel if required.	Biannual visits in autumn and spring.
15.21	Meadow mat planting	Inspection	Inspect health and diversity of plants and assess roof for patches where plants have died or monocultures have developed. Replace plants where necessary to ensure a good coverage and diversity of the original plant species from the Bauder meadow mat list of plants.	Biannual visits, replace plants at appropriate times of year, during the dormant period of autumn or early spring.