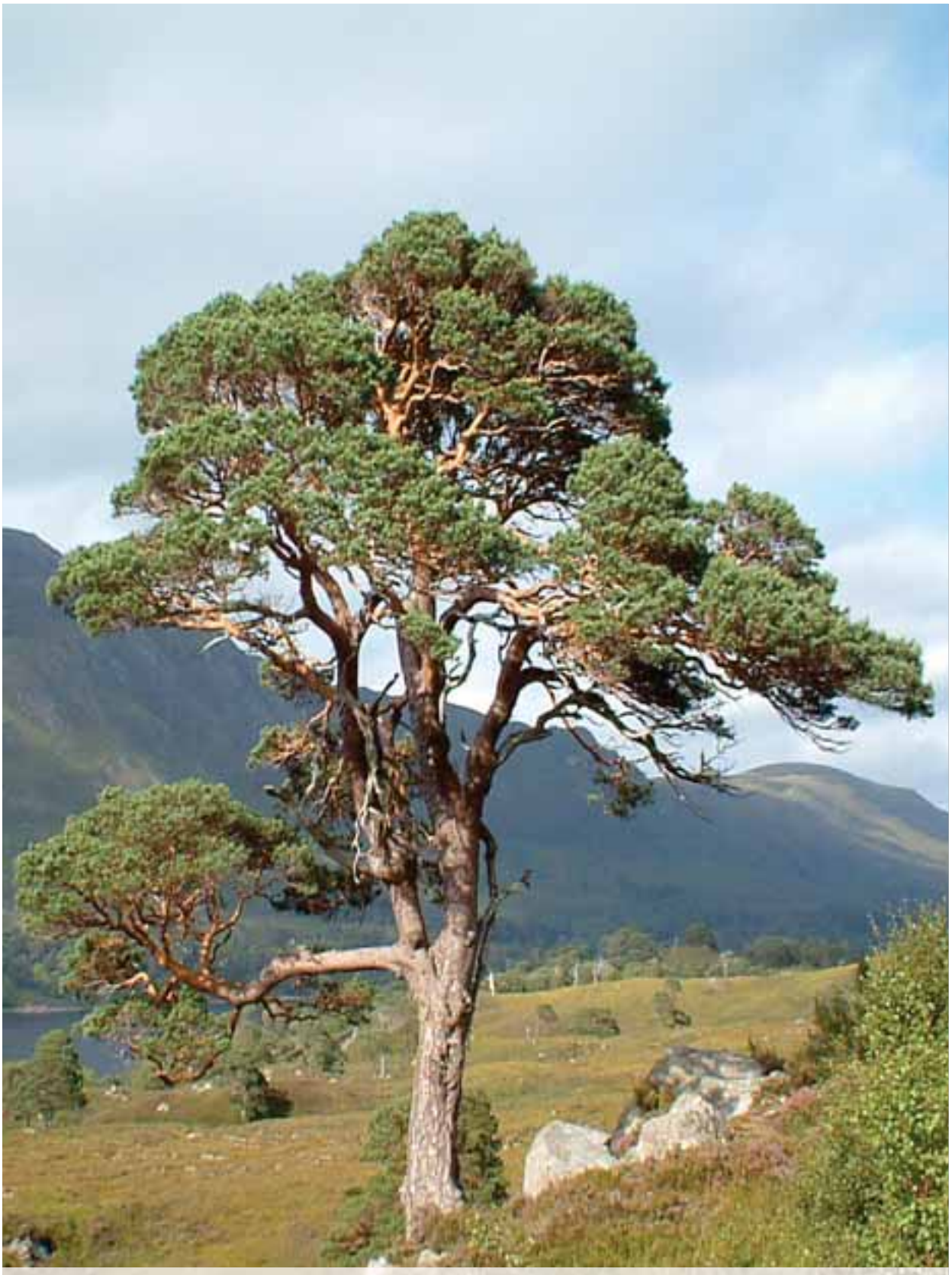

Highlands and Islands Enterprise

Inverness Campus
Landscape and Habitat Management Plan | 2017 April

HarrisonStevens
landscape architecture
urban design

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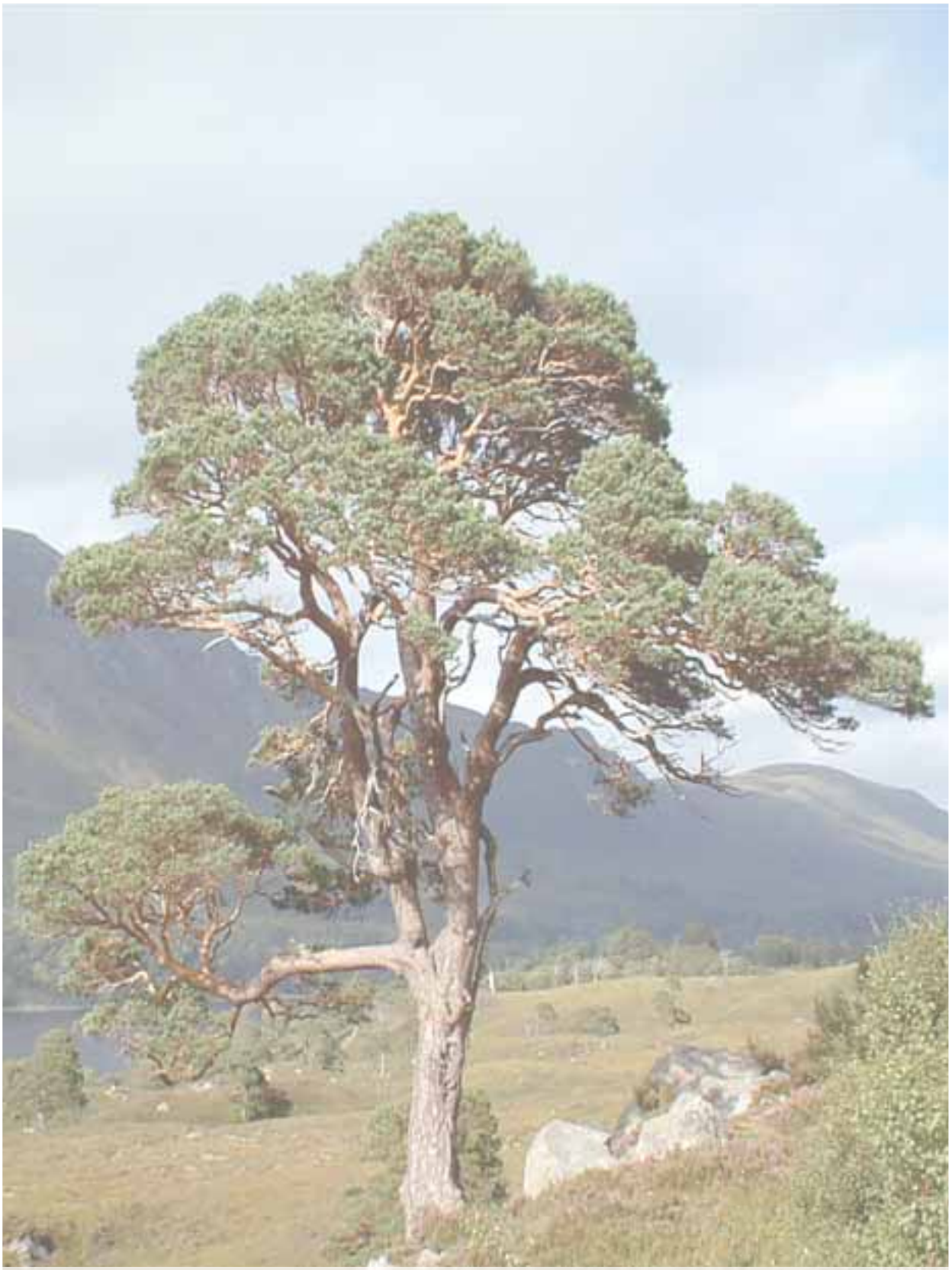


1 | Introduction

Introduction

HarrisonStevens (HS) and JDC Ecology (JDC) were commissioned in May 2011 by Highlands and Islands Enterprise (HIE) to complete a Landscape and Habitat Management Plan (LMHP) to guide and direct the management and maintenance of the 35Ha campus. The document sets out to identify the goals and long term objectives of landscape aesthetics, function and appropriate usage. Along side and often inter woven with those are to promote the site's ecological potential, and to enhance local biodiversity through habitat creation and management.

HarrisonStevens acted as project landscape architects on the Phase 1 infrastructure implementation contract and have been working in this capacity with; the client, Highlands and Islands Enterprise (HIE); the Project Managers, Turner & Townsend (TT) and; the Project Engineer, WA Fairhurst (WAF), since February 2010. In this role HarrisonStevens are responsible for the design development and delivery of the conceptual landscape proposals by Lisa MacKenzie Consultants (LMC), and the masterplan concepts by 7N Architects (7N), a review of these concepts follows in Chapter 2.

Inverness Landscape *Populus tremula*

HarrisonStevens have most recently been appointed as ICOA Estate Supervisor 2017-2020, to oversee the Post Construction Phase at the Campus Development and onward the stewardship at the campus 'Scheme Property' - the 'Scheme Property is all areas of the campus that are commonly owned and maintained by the occupiers of campus plots commonly known as the Inverness Campus Owners Association or 'ICOA'.

Wildflower meadow

Scope of the Report

This Report will provides sufficient detail to The Highland Council (THC) in order that planning condition 13 of the main Campus Application, Ref: 09/00887/PIPIN is discharged prior to commencing works on site. The survey work carried out, coordinated by BMT Cordah, is comprehensive. While it provided a competent base from which to develop this document, it is purely survey information and does not in itself provide analytical data or management proposals. This LHMP was commissioned in order to document how the new landscape proposals, the existing landscape features and the ecological aspirations of the site is realised with a cohesive approach.

Ranunculus ficaria (Lesser celandine)

The plan reviews the planning context and assignations of the site, concept design review, existing surveys review and will outline the landscape and ecological objectives for the site and the proposals to achieve these over a 5, 10 and 15 year timescale. Maintenance and Management Proposals will be measured against Key Performance Indicators (KPI) which will be set-out in more detail in Chapter 5 .

For the first 36 months after completion through to September 2017, operations will be carried out under the Maintenance / Rectification period of the T&T administered construction contract. The ongoing operational management is to be contracted and managed by ICOA.

As site ownership and or personnel change over time, this document must act to transcend individual knowledge and ensure consistency and continuity.

Existing aquaduct

Location and the Site

The site:

Grid Ref.	Centred at NGR NH 695 450
Access:	From the A9 slip road and Culloden Road. From the proposed A9 pedestrian and cycle bridge. From footpaths to the north, over the existing rail bridge. Public Transport, tbc.
Size:	120 Acres / 35 Ha.
Recent Use:	Arable and livestock Farming.

The site boundaries:

To the West:	Bounded by the A9, the Rigmore Hospital ajacent residential settlements.
To the South:	Farmland and Culloden Road.
To the East:	The rail line, farmland and the commercial/retail beyond.
To the North:	Ashton Farm.

Site context diagram

Review of Local Plans/Policy Context

The management rationale for the site has been developed through detailed survey and analysis of the existing landscape and habitats. Detailed descriptions of the ecology and landscape features are presented in the Environmental Statement by BMT Corah on subsequent biodiversity by JDC Ecology.

In this way, all available assessment and documentation has been brought together to provide a resource for project managers and contractors, detailing the actions and management measures required in any given area of the site.

The ongoing plot developments and operators will be bound to comply with the requirements of the Landscape and Habitat Management Plan and will commit to the detailed proposals prior to occupation. HarrisonStevens have been appointed by HIE to continue to manage the maintenance of the site, and ensure the implementation of the Plan. This will include further liaison with the consultees, and may require further revision to the Plan post completion.

Campus management is an ongoing, proactive and responsive process that will be monitored regularly. This document sets out the aims and objectives in chapter 3.

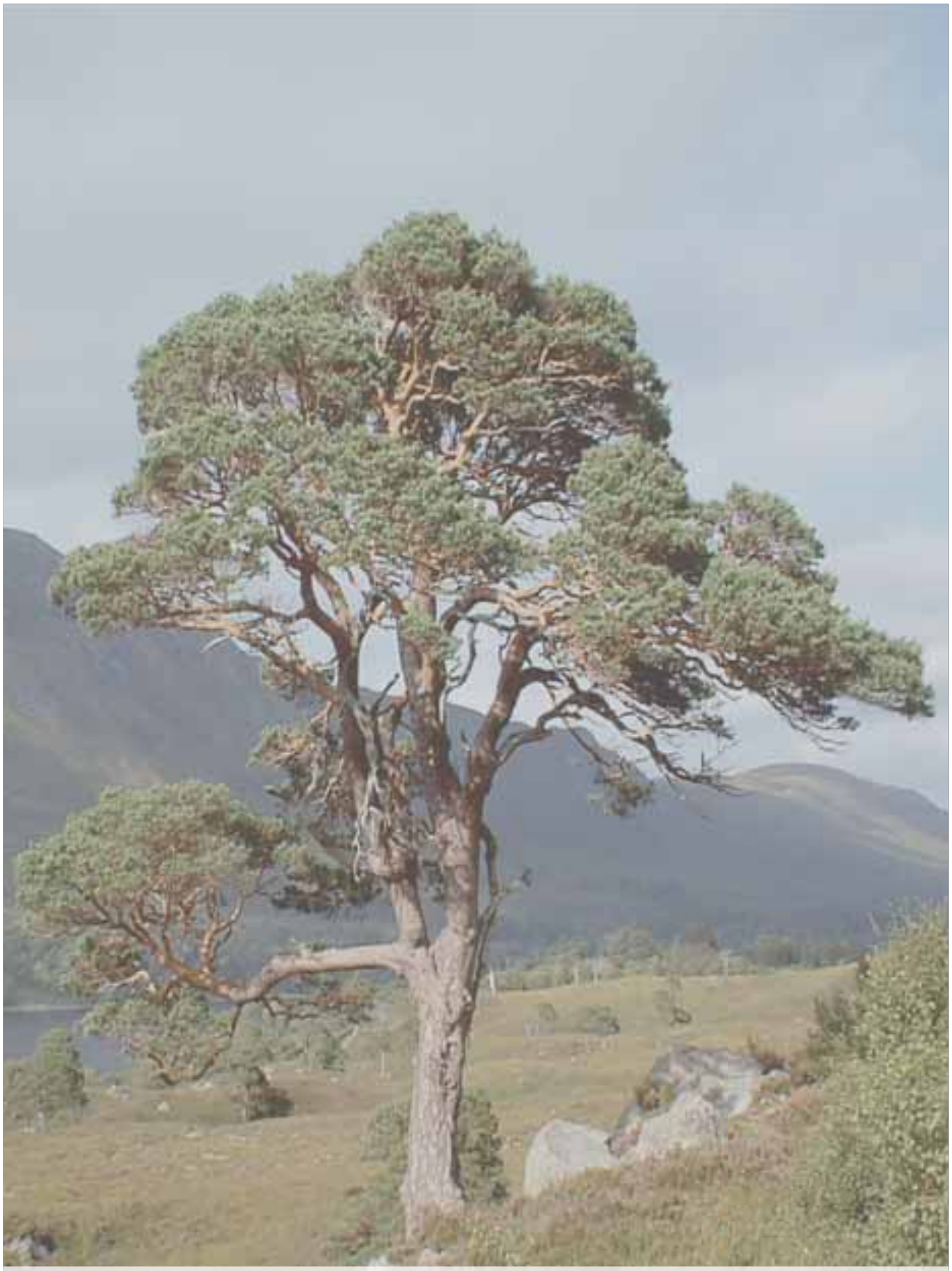
While there are no designations directly affecting the site, the Plan will be subject to ongoing consultation with Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and the The Highlands Council (THC).

Reference Documents:

- JDC Biodiversity Audit, 2016
- BMT CordahPhase 1 Habitat Survey and Target Notes
- Mouchel Watercourse Study
- SAS Tree Survey
- BMT Cordah Environmental Statement
- LMC Landscape report/context study
- Inverness & Nairn Biodiversity Action Plan
- SNH Priority Species Plans
- Relevant Designations (i.e. SPA and SACs, SSSIs, Ramsar etc)
- Local and Structure Plans
- EU Habitats Directive
- The Conservation (Natural Habitats, &c.) Regulations 1994
- Wildlife & Countryside Act 1981 (Schedules 1, 5, 8, 9)
- Protection of Badgers Act 1992
- UK Biodiversity Action Plan
- Tree Preservation Order(s)
- Scottish Sustainable Community Initiative
- Inverness badger policy guidance note 2007
- Nature conservation (Scotland) Act 2004

Lichen on existing site field gate

Existing *Fagus sylvatica*



2 | Concept Studies Review

Masterplan

(the following text is paraphrased from the 7N/LMC masterplan document)

The approach to the masterplan for the Inverness Campus project has been driven by a desire to create a gathering place that is integrated with the social, physical and cultural fabric of Inverness, on a site which is presently isolated by surrounding road and rail infrastructure. A Campus which will be accessible to all, a local and regional centre for lifelong learning where people will come together and exchange ideas, knowledge and friendship.

For some people, such as students from outwith Inverness, the Campus will be their home, for others it will be a place they visit regularly to work, learn, keep fit or just relax. For some it will simply be an inspiring place that they pass through as they move around the city.

The Inverness Campus masterplan is structured around a central parkland landscape which defines the high quality of the Campus environment and provides a cohesive framework within which the diverse group of occupiers can establish their own identities.

This green spine is focused on the views to Ben Wyvis and the mountains to the north, drawing the distant Highland landscape deep into the site through a variety of special, interpretative spaces such as the Campus Green which will be the social heart of the first phase of the project. In future phases the axis will culminate in a prospect building and vantage point on the northern promontory acting as a highly visible gateway to the city and the Highlands and Islands. This will also be the landing point for a new pedestrian-cycle bridge which will open up connections between the Campus, the city to the west and the future expansion of Inverness to the east.

Landscape will unify and order the Campus masterplan whilst rooting it to the site through the retention and enhancement of existing tree lines, watercourses and habitats. The central parkland, which flows from the North Park to the wooded hillside to the south, is composed of a layered sequence of spaces characterised by interpretations of different Highland landscapes which will define the essence of the place.

Campus overview 7N / LMC

Landscape Framework

The landscape defines the essential structure and character of the Campus. The Highland landscape of the Inverness Campus site is distinct, diverse and unique in both character and identity. Landscape is integral to the cultural, social, economic and ecological processes of The Highlands and Islands; as such it was a key driving force in the design process which produced the masterplan and has a similar level of priority within the Design Guidelines. The site has a series of interrelated landscape characters which have informed the definition of the respective character areas. The new landscape will have a texture and grain which is embedded in the existing terrain and defines the Highland character of the Campus.

Wherever possible existing site vegetation and features are to be retained and enhanced to initiate a strong identity and new personality for the landscape of the site. A wide range of species benefit from having a variety of sites and habitats physically linked and expanded.

The landscape framework ensures that all new development avoids damage to the existing landscape resource of the site and enhance it where possible. Wildlife conservation principals have been integrated into the masterplan at all scales from a relationship to context through site planning design and management and the proposed materiality of both soft and hard detailing. The plans and sections within these guidelines define interrelationships and integrate the key repeated landscape elements, namely walls, trees, hedges, access surfaces, SUDS and planting that will create a cohesive identity for the site.

The landscape structure for the Campus has been defined by a principle of retaining existing features wherever possible, to build on the existing character of the land. The Design Guidelines require these features to be retained.

An existing watercourse runs through the site and careful consideration should be given to any construction close to this existing feature. The Northern perimeter of the site is delineated by an existing watercourse that crosses the eastern railway line by means of an aqueduct.

Masterplan, 7N / LMC

A number of tree belts run across the site and tend to follow existing streams, ditches or field boundaries. These existing structural landscape features have proven pivotal in shaping the spaces and places of the masterplan and have been retained wherever possible throughout the development area. The particular trees and areas are identified in the prospective occupier plot guidance along with appropriate construction buffers. Specific character areas are defined within the overall masterplan to regulate building types, materials, colours, planting and hardscape.

In the case of the Estate areas, a particular character with specific design aims and objectives is set out by area.

1. Approach Avenue West

This is the first area that the visitor experiences on entering the Campus. The design aim is to establish a strong character and identity immediately. One of the challenges of this area is that the access road will pass through undeveloped farmland and land reserved for the potential TLR. As such, the detailed design for this area must consider a balance between low-cost landscape treatments and high impact elements which provide a strong short-term entrance approach. A clear and safe pedestrian/cycle pathway runs on the west of the access road.

The key estate elements within this area are:

- fence to the north
- hedge to the south
- pedestrian/cycle path to the west

Approach avenue south

Approach avenue north

2. Approach Avenue East

This is the first formal Estate area with permanent elements and planting that the visitor experiences. A dramatic entrance artwork is likely to be located at the western end of the avenue and the coloured asphalt of the Campus loop road also begins at this point. Mature trees line both sides of the avenue and lead the visitor into the Campus Green.

The key estate elements within this area are:

- dry stone wall along west side of avenue
- mature tree planting on both sides
- pedestrian/cycle path to the west
- coloured asphalt road

3. Campus Green

The Campus Green is the heart of the development and the where the the highest quality of finishes and materials possible are concentrated. The area combines the main lawn and water features to form an appropriate landscape setting to the main campus buildings and satellites. The site axis on Ben Wyvis is readily apparent through the specific siting of axis structures and the general alignment of roads and paths. The existing watercourse defines the northern edge and the access loop road wraps the other sides. A timber boardwalk links west and east sides of the Campus across a weir structure between the two SUDs ponds.

The key estate elements within this area are:

- dry stone wall defines edges of Occupier plots
- two open water SUDs features separated by weir structure
- “Island Gallery” around specimen tree
- coloured asphalt road

Campus Green

Beechwood Park

4. Beechwood Park

Beechwood Park has a different character to Campus Green and will mature as later stage Occupiers fill the northern plots. The park has have strong links for pedestrians and cyclists between east and west and the site axis is readily apparent in the design and layout of the park. The SUDs feature is an attenuation ‘Dry pond’ with wet meadow grass mix and does not contain permanent standing water. It is integrated with tree planting based on a grid originating from the site axis.

The key estate elements within this area are:

- dry stone wall defines edges of Occupier plots
- attenuation SUDs ‘dry pond’
- coloured asphalt road
- birch/alder grove

5. North Park

North Park sets up a dramatic view north to Ben Wyvis and is the landing point for the new pedestrian and cycle bridge which crosses the A9 to the north of the Campus. The prospect to Ben Wyvis is the culmination of the site axis and is the focus of North Park. This Estate area will develop to become the most urban of the main public open spaces in recognition of the developing links to the city. Significant mature trees existing on the Campus edge are protected and enhanced. A small burn demarcates the northern site boundary.

The key estate elements within this area are:

- dry stone wall defines edges of Occupier plots
- axis pathway terminated with steps to
- north boundary
- hard landscape plaza
- reflecting pond and source rill
- pine grove
- stepped landform to A9 pedestrian bridge

North Park

6. A9 Bridge

The proposed pedestrian/cycle bridge over the A9 and presents a specific image and identity of the Campus. The bridge will be one of the most prominent and visually significant aspects of the construction and balances practical and economic realities with the quality design intent.

A9 Bridge

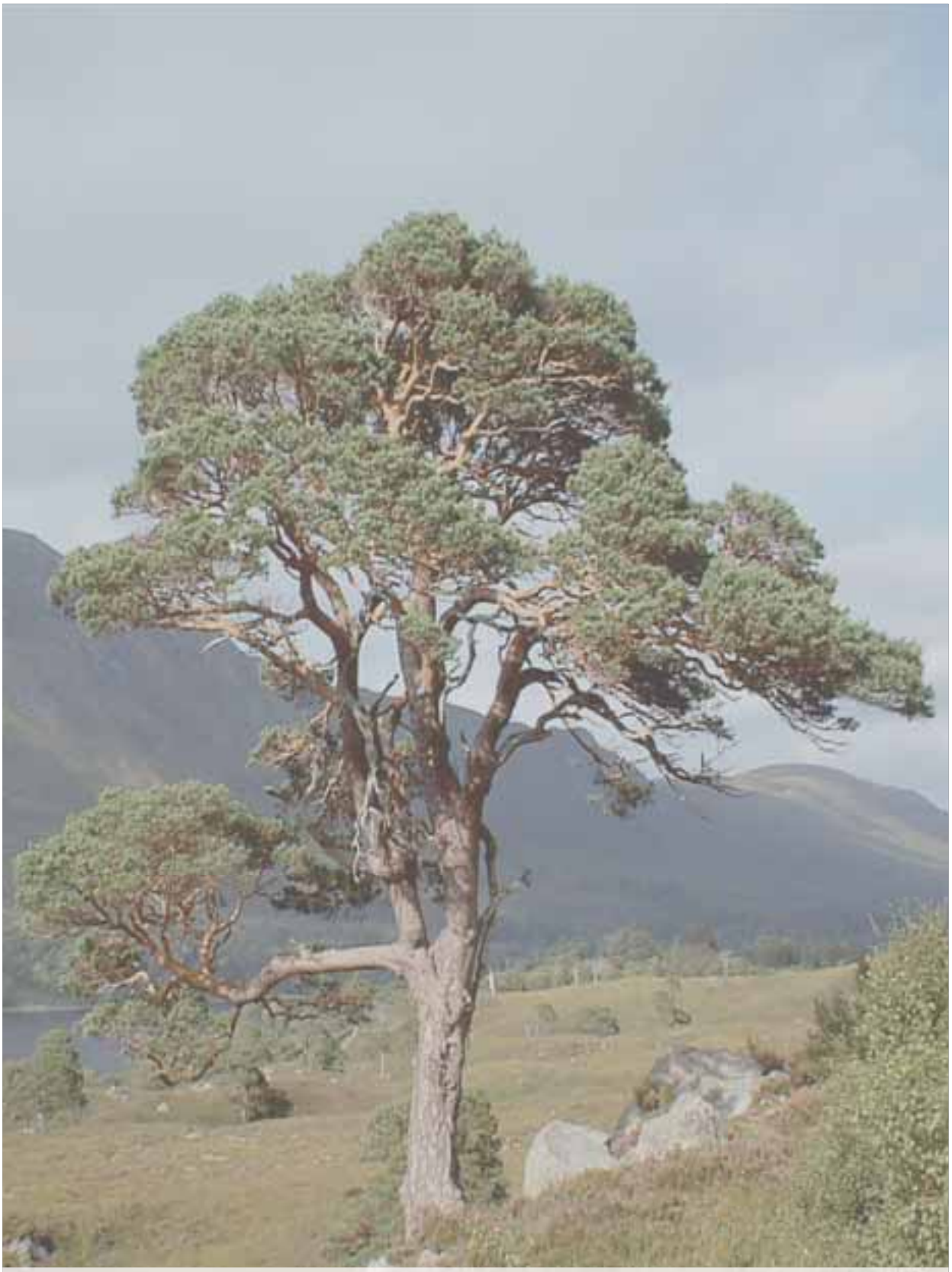
7. Temporary landscape & Ecology

There are significant areas of temporary landscape in the Phase 1 masterplan which is not overlooked. The area to the north of the main access road in particular will be a highly visible area of ground.

The masterplan has been designed to conserve and enhance the existing ecology of the area. Spaces that have the potential to function as working habitats have been initiated and will be rich in terms of biodiversity and link to a network of surrounding landscape spaces. There is a fine balance between human use and nature conservation and the landscape masterplan has been conceived in order to respond to both.

The masterplan has allowed for the retention of the majority of existing trees on site and existing water courses are proposed to be retained and enhanced in order that they may function and positively contribute to hydrological ecosystems in the surrounding area. It is important that ecological features are integrated to compliment building design and thus enhance the lives of all those that use the campus.

Extending and preserving wild life corridors and connecting habitats will be a feature of the new masterplans conservation policy. Edges and Thresholds will be considered as opportunities to merge the new development with the existing landscape but will also function as wildlife corridors. Trees planted to aid sound attenuation will also attract nesting warblers, finches and thrush species and provide cover and roosting habitat.



3 | Aims and Objectives

The Landscape and Habitat Management Plan details how the site will be managed for its use as a major mixed use campus, and monitor and maintain both the ecological and landscape features and functions in the long term. The Plan takes into account the operational requirements of the campus and aims to maximise the following high level aims:

- the site's contribution to the value of the local and national ecology;
- the existing and new landscape elements to provide a setting for the new campus / buildings;
- the site's ability to positively contribute river flow pattern and overall water quality in the Scretan Burn and onwards to the adjacent Morray Firth
- opportunities for passive recreation throughout the site by the students, staff, users and wider population;
- opportunities to enhance the users' appreciation of wildlife, landscape and the art installation(s).

Future campus management must create a balance between ecology, landscape and other aspects of the site. This includes consideration of Green Belt, historic context, design aesthetics and the requirements of the adjacent infrastructure uses, namely Transport Scotland (operator of the A9 Trunk Road) and Network Rail (the operator of the train tracks to the north / east).

Future management will take account of the ecology of the campus, and will create habitats that will be of benefit to known target species. These habitats will include for example, deadwood habitats for invertebrates such as hoverflies and wood wasps. Other habitats include woodland edge habitats that will benefit invertebrates such as the common blue butterfly, small mammals such as wood mouse and field vole, and birds such as willow warbler, chiff chaff and yellow hammer and enhanced woodland habitat that will benefit the range of fauna such as badger, woodpecker, beetles, bugs and spiders.

Joint landscape and ecology objectives

1. Integration of architecture, landscape and ecology.
2. Maximising sustainability of the landscape.
3. Informing the proposals – how the individual plots develop.
4. Landscape proposals – principle features, and proposed species.

Hyacinthoides non-scripta

Landscape objectives

5. Establish and strengthen connections to the city centre and beyond.
6. Create a strong identity for the campus through distinctive elements and character areas.
7. Protect and enhance existing landscape features & resources and structure.
8. Provide significant public open space that can become a resource for campus users and surrounding residents.
9. Provide a flexible access strategy that ensures campus access from the outset, but does not prevent the construction of the Inverness Trunk Link Road in the future.
10. Plan flexible plots which can accommodate expansion.
11. Design a high quality place for living, working and playing.
12. Provide high quality recreational facilities for the local area.
13. Allow for flexible economic and business growth
14. Communicate a strong identity and coherent framework through consistent estate elements and landscape treatments.
15. Provide a legible and safe pedestrian and cycle network.
16. Create a range of public open spaces for active engagement and contemplation for all campus users.

17. Encourage active and passive exercise with opportunities both within and connecting to wider communities.Ecology objectives

Ecology objectives

18. Identify ecological assets including habitats, wildlife corridors and protected and notable species, including those in existing national and local plans.
19. Identify from existing or local habitats and plans what plant species are local to the area as these can be used to enhance retained or new landscapes. (the railway for example may harbour remnant natural habitats and species).
20. Identify opportunities within the proposed buildings and landscape for ecological development.
21. Watercourses - Improve and enhance the watercourses that have been degraded due to nutrient inputs from agriculture.
22. Trees - Identify and protect notable trees that have an enhanced ecological value. Trees lost to the development should be retained as dead wood on site where possible.
23. Hedgerows - Should be retained where possible and replaced with mixed native replacements and designed to link on and off site habitats.
24. Scrub - Should be retained were possible and replaced to enhance the ecological value of on and off site habitats.
25. Grasslands - Diverse swards should be retained were possible and replaced with species rich grassland designed to be mown annually. Mown habitats should be minimised to reduced maintenance and carbon inputs.
26. Badgers - Their commuting corridors should be identified and enhanced. (Note: An SNH license is required to close and destroy badger setts.)
27. Otters - Otters use the sites watercourses to forage and commute so these features should be enhanced and the new water bodies designed to encourage amphibians to breed.
28. Birds - Habitats, including buildings, should be designed to encourage breeding birds including barn owl.
29. Bats - Habitats, including buildings, should be designed to encourage bats to roost and forage.

Meadow Brown *(Maniola jurtina)*

Proposed ecological measures and process

The site habitats and species as informed by:

- Biodiversity Action Plan
- Scottish Sustainable Community Initiative
- Wildlife and Countryside Act 1981
- Protection of Badgers Act 1992
- The Ecology chapter from the EIA
- Inverness badger policy guidance note 2007
- Nature Conservation (Scotland) Act 2004

Habitats

Biodiversity habitats on site are:

- Flood plain (L)
- Wetlands and ponds (L)
- Long established field boundaries (L)
- Unsprayed uncultivated field margins (L)

(L) = Local priority as opposed to national priority.

Watercourses and Water bodies

The flood plain of the watercourses on site as well as any proposed changes, interventions and new wetlands will be protected via the 'waterbody engineering plan' and this will be agreed by SEPA and SNH as appropriate. The plan will include ecological and landscape proposals described in this document and the wider contract documents. Once established as agreed this LHMP will take over the management of water on the site. The main existing water course is proposed to be enhanced from both an ecological and landscape amenity perspective. The existing course is devoid of habitat diversity and offers little opportunity for interaction with the site's users. The River Restoration Centre (RRC) has published a manual of techniques that deliver effective results in positive and restorative interventions. It proposed that techniques to remove excess sludge/sediment, along side those to install / construct cascades. bays, pools and riffles will all compliment each other to the betterment of the water course(s).

Field Boundaries

The long established field boundaries on the site are lines of mature trees and hedgerows. Some mature trees will be lost to the development and significant percentage of hedgerows will be removed. The hedgerows are of an intact and defunct nature. Intact means that there are no gaps and defunct means that there are gaps (defunct does not necessarily imply low ecological quality).

Quercus robur with mixed hedgerow

Hedgerows

Both hedgerow types contribute to the overall biodiversity of the site with whitethroat and yellowhammer (for example) benefiting from the scrub like conditions of the defunct hedgerow while dunnock, robin and wren are more likely to exploit those that are intact. As the site is not under cultivation it is likely that it is benefiting, with more invertebrates for the birds to feed their young. The defunct hedgerows are also performing the role of scrub habitat and this is enhanced along the railway and the A9 where uncultivated ground adds value for species including butterflies, bees, ruderal plants and small birds.

Mixed hedgerow

To mitigate for the loss of hedgerows and to provide habitat conditions for red listed birds such as linnet and yellow hammer new native species hedges are proposed along both lines of ash trees and along the railway where a substantial 5 metre deep hedge will be established.

Action: Plant native species hedgerows. Timescale – At commencement, hedgerows will continue to improve in structure and species richness over decades. Refer to Management Zone(s) 6 & 7 for direct application of this action.

Field boundary / Natural edge

Managed scrub 'wild hedgerow corners'

To assist red listed birds such as those mentioned above as well as others including tree sparrow and song thrush, areas of managed scrub will be planted at existing field corners. The managed scrub will consist of shrubs including hawthorn, blackthorn, dog rose, bramble, elder, holly and hawthorn with a range of plants extending out from the hedge-base including the following:

Woodland edge scrub

Meadowsweet, cornflower, vipers bugloss, yellow rattle, knapweed, ragged robin, field pansy, corn marigold, bird's-foot trefoil, kidney vetch, cuckoo flower, wood anemone, marsh violet, marsh marigold, lady fern, field poppy, common vetch, cow parsley, cowslip, field forget-me-not, hogweed, self heal, water mint, clovers, wild angelica, yarrow, foxglove, raspberry, teasel.

This habitat will cover LBAP habitats of gorse and scrub woodland, unsprayed and uncultivated field margins and long established field boundaries. The explicit intention is to manage this habitat to provide forage and breeding niches for a range of species including invertebrates, birds and mammals (mammals includes humans).

Habitat boxes for invertebrates and mammals such as hedgehog can be installed in these areas as they develop so they can breed and hibernate.

Action: Plant new native hedgerows and 'wild hedgerow corners' that will be maintained by the cutting of herb and some woody plants (such as bramble and raspberry) on an annual or bi annual regime after establishment. Timescale – as for hedgerows. Refer to Management Zone 6 for direct application of this action.

Rubus villosus

Mature Tree lines

The exisitng tree lines and historic field boundaries have been retained as they are great value to wildlife and the landscape. Mature trees grow much slower that the new ones and are very sensitive to their surrounding environment, especially during the construction works. The distrubance should be left to the minimum as any damage slows the growth and can lead to disease. Therefore the mature trees should be resored and conserved, inlcuding the regular maintenance. Therefore the trees should be restored and conserved, and regularly maintained.

Fagus sylvatica

Bats

The mature trees on site will require management and regular stability checks by an aborist. As the BMT bat report states; a good number of trees are suitable for exploitation by bats with cracks, rot holes etc. Should work be required on any of these trees a check for bats will be necessary and arborists trained to check for bats should be used.

The absence of evidence of bat roosts in trees does not mean they are not in use as such. This is because bats move roost sites throughout the year and may use a roost in a tree only occasionally. Bats also use bat boxes or designed and non designed cavities in buildings and consideration will be given to integrating bat roosting opportunities into buildings and erecting bat boxes on trees.

Pipistrelle bat

Birds

As for bats some birds also need to be able to access a tree cavity in order to build a nest and this include the tits, starling (red listed), jackdaw and tawny owl. All these birds take readily to species specific nest boxes and these will be erected on suitable trees under ecological guidance to act as both a potential nest site and also as an educational element to the campus occupants.

Laothoe populi (Poplar Hawk-moth)

Invertebrates

Invertebrates are a vital part of the sites ecology and almost all birds feed their young exclusively on insects. As far as the mature trees are concerned they are a critical for a great many invertebrates who find forage and shelter on and in them. Ideally, trees and wood should not be removed from site and if necessary dead wood should be kept on site in an appropriate area. Old trees are therefore a critical part of any sites ecological assets.

Action. Retain old trees, create monoliths as oppose to removal, retain dead wood on site in scrub habitat. Plant new native trees. Timescale – At establishment.

Species (Mammals)

Badger (LBAP species)

Badger setts have been recorded on site in 2008 but not in 2011. The site is very likely in the territorial area of the main badger sett on the opposite side of the railway at the north end of the site. As with all species, connectivity of habitats across the landscape is important. The railway represents a threat of mortality as badgers attempt to cross but the threat is many times less serious than that posed by the A9 and A96.

The new pedestrian bridge across the A9 could offer a safe crossing point and consideration has been given to provide appropriate fencing to funnel the badgers to the bridge. Once the badgers use and adopt this crossing point they will become habituated to using it and cross safely

It is also probable that badgers are using the existing out of use bridge over the railway where the Scretan burn passes underneath it. It is probable that they use this bridge because a dung pit has been recorded here and due to its age it is likely that badgers have habituated to using it.

There will be a loss of badger forage resources as a result of the development but this is unlikely to lead to a significant threat to the viability of the local social group as campus developments do retain significant green space. Similarly the metapopulation of badgers is unlikely to be significantly adversely impacted.

Monitoring of other species should take place pre development and should setts be threatened consideration should be given to the replacement of any loss of setts.

European Badger

Planting and vegetation management along the burns and around the sites perimeter will be designed to assist badgers to commute through and around the site.

Occasionally badgers can cause problems on site. This is generally either by digging for food in high quality lawns or damage to infrastructure caused when digging setts. They have been recorded damaging property by digging underneath them although this is relatively rare.

Action. It is incumbent upon the contractor is to carry out pre start checks for new setts.

Lutra lutra (Otter)

Otter (LBAP species)

Otters are ubiquitous in Scotland and it would be expected to find them on site, especially when so close to the coast. They do however have to negotiate the considerable barriers of the A9 and A96. While additional investigations are required it is likely that underpasses have not been provided to help cross beneath these roads.

Otters will be foraging for small fish in the burns, for amphibians in the longer grass as well as for small mammals and birds. Management to assist otters is the maintenance of riparian vegetation and an absence of interruptions to the burn corridors.

Any crossing of burns or ditches should be designed to allow otters and other species safe crossing.

Action. Ensure obstruction free passage along water courses as prescribed in Management Zone 5.

Brown hare (LBAP species)

Hares will lose a significant amount of forage and the increase in humans will not suit them. However they are likely to continue to forage along the railway and the provision of both unmanaged and managed grasslands will offer a forage resource albeit much reduced from previous levels.

Action. Provide and maintain grassland habitats as prescribed in Management Zones 2 & 3.

Lepus europaeus (Brown Hare)

Bats (LBAP species)

Bats are foraging and roosting on site and need roost locations of different types at different times of the year, they take readily to buildings and use cavities in trees; they also use bat boxes. A single bat was recorded roosting in the old barn with the barn owl box. The loss of buildings on site will result in the loss of actual and/or potential roost sites. There are also a significant number of mature trees that have good opportunities for bats to exploit as roosts.

As many species of bat take readily to buildings, provision of roosts within them should be given consideration. A well designed internal bat roost in a building would not cause unnecessary interference with its main function. Like many of the species on site bats need a landscape structure along which they can navigate and forage and as such roosts are best located close to bat fly ways of lines of trees and or hedgerows.

Bat boxes can also be positioned on suitable trees and like other artificial bird and mammal boxes will also add an educational element to the campus.

Action

1. Demolition and Bats - A demolition method statement will be in place and will include a pre start meeting.
2. Bat boxes should be erected on suitable trees.
3. Discussion with the future plot developers / architects should be held with regard to the provision of roost space in the buildings.
4. Bats will be provided with a navigable landscape and the use of native plants with a variety of nectar sources will benefit them.

Timescale – At the design stage for item 3 and at commencement in order to replace potential lost roosts from demolition.

Bat Boxes

Small mammals

Small mammals benefit from grassland that is cut once annually or not at all and from cover provided by tall plants, shrubs and trees. These habitats will be provided. Small mammals are preyed upon by barn owl, kestrel, fox, otter, badger, stoat amongst others so providing habitat conditions for them is important.

Action: Ensure adequate percentage of site area is cut once annually or on a less frequent basis. Refer to Management Zone 3 for direct application of this action.

Talpa europaea (Mole)

Species (Birds)

The number of birds recorded on site for the EIA was 49. Due to the proposed changes to the sites habitats some of these species will be lost to the development. Landscape design will take steps to limit these losses and new elements will be introduced to attract species not currently on site.

Barn Owls (LBAP species)

As barn owls take well to boxes these should be provided for them to nest and roost in. In order for them to find sufficient forage resources they need grassland that is unmanaged and allowed to form a thick thatch. In the absence of this, herb rich grassland cut annually and hedgerows and scrub are a good source of small mammals.

Action: Ensure areas of the site is cut once annually (herb rich grasslands and hedge bottoms for e.g.). Provide 3 barn owl boxes on trees, quite buildings or internally in quite east site edge buildings.: locations to be agreed on site, but most likely near habitat provided for in Management Zone 3.

Tyto alba (Barn Owl)

Swift (LBAP species)

Swifts need a nest site (see www.swift-conservation.org) and these can easily be provided either internally or as an external box. Providing nest sites and attracting swifts will help to offset the loss of other species (such as lapwing) due to habitat change.

Action: Install swift boxes in or on buildings, play tapes so birds find boxes. Application to be confirmed in plot development guidance.

Apus Apus (Swift)

Lapwing (red listed)

Recorded as a wintering bird, this bird is likely to be lost to development.

Vanellus vanellus (Lapwing)

Tree sparrow (red listed)

This birds needs native hedgerows and woodland edges. They will benefit from the ecological structure planting proposed in this document.

Passer montanus (Tree sparrow)

House sparrow (red listed)

This bird will decline significantly due to the demolition of the buildings where they currently nest. Modern buildings are unlikely to offer future nesting opportunities but they take well to nest boxes and these should be provided.

Action: Provide species specific boxes on trees / buildings in the first 3 years: locations to be agreed on site, most likely in Management Zone 7.

Passer domesticus (House sparrow)

Skylark (red listed)
This bird needs grassland habitats that are not disturbed during the spring and summer months, they will therefore be lost to the development.


Alauda arvensis (Skylark)

Bullfinch (amber)
This bird needs woodland edge type habitat and may persist with the combination of mature trees and native hedgerow planting.


Pyrrhula pyrrhula (Bullfinch)


Emberiza citrinella (Yellowhammer)

Goldfinch (Rural Stewardship Scheme)
Feeds on seeds of teasel and knapweed so needs un managed ground.

Action: As for Linnet.


Carduelis carduelis (Goldfinch)

Linnet and Yellowhammer (red listed)
This bird needs mature native hedgerows and rough ground, the ecological landscape planting around the sites perimeter and have area with minimum intervention management will assist this bird. The production of plant seeds from herb rich grasslands and unmanaged ground is a winter forage resource for these birds.

Action: The planting of hedgerows and wild hedgerow corners will assist these birds as prescribed in management Zones 6 & 7..

Song Thrush (red listed)
This bird needs scrub/or woodland to nest and lawns and rough grassland to forage, it will be an early indicator of the sites biological condition post development.

Starling (red listed)
This birds takes readily to nest boxes and these can be provided on trees.

Action: Install species specific starling boxes on trees or buildings in the first 3 years: locations to be agreed on site, but most likely in Management Zone 7.

Wintering thrushes
These birds require berries for forage in the winter and rely on species such as rowan and hawthorn in particular.

Action: Hedgerows and berry bearing shrubs to be cut after berries have been taken by birds and mammals as prescribed in management Zones 6 & 7.

Willow warbler
Action: Will benefit from hedgerow and wild hedgerow planting. as prescribed in management Zones 6 & 7.


Turdus philomelos (Song thrush)


Phylloscopus trochilus (Willow warb)

Problems with birds

Some birds can cause significant problems on site when they take advantage of inadvertent human designs. Feral pigeons for example exploit buildings that they see as cliffs, their droppings can cause a visual nuisance and contain human pathogens. Oystercatchers nest on flat roofs and can cause a nuisance via birdlime and constantly running up and down along side reflective glass calling constantly. Various gulls nest on flat roofs and cause a nuisance defecating on buildings and cars and dive-bombing humans. Future architects should liaise with an ecologist and pest control specialists to design out bird attractive features.

Demolition and Birds

It is best to demolish buildings between October and February inclusive otherwise birds may be using them for nesting. Additionally, birds such as Barn owl and kestrel and many others will use the buildings through the winter to roost. For the Barn owl, boxes should be erected well before demolition is due. Between March and September the buildings should be checked for breeding birds and a demolition method statement should be used when ever the buildings are demolished.

Feral pigeon can also nest all year round and may cause a problem when demolishing the buildings.

Plants

Invasive plants

Japanese knotweed

Has been recorded growing along the A9 and on site in the ditch by Beechwood Farm. One area has been sprayed. Priority should be given to eradicating this plant. Spraying the plant until it appears aerially dead may not be sufficient, even with a guarantee from the contractor. Consideration should be given to excavation and landfill, or on site deep disposal or on site storage and treatment in an amenity area where it can be monitored. SEPA should be consulted on disposal.

Action: Should be eradicated prior to commencement from the site and A9 corridor..

Fallopia japonica (Knotweed)

Himalayan balsam

Can be controlled by pulling. The maintenance team should target this plant for pulling with a view to eradication.

Action: Eradication via pulling. Timescale – within 3 years.

Rosebay willowherb

This plant should be monitored to ensure it does not dominate sward/herb diversity, especially in management Zone 8

Action: Monitor and control via mowing or as appropriate.

Impatiens glandulifera

Epilobium angustifolium

Monkey flower

This plant should be monitored to ensure it does not dominate sward/herb diversity.

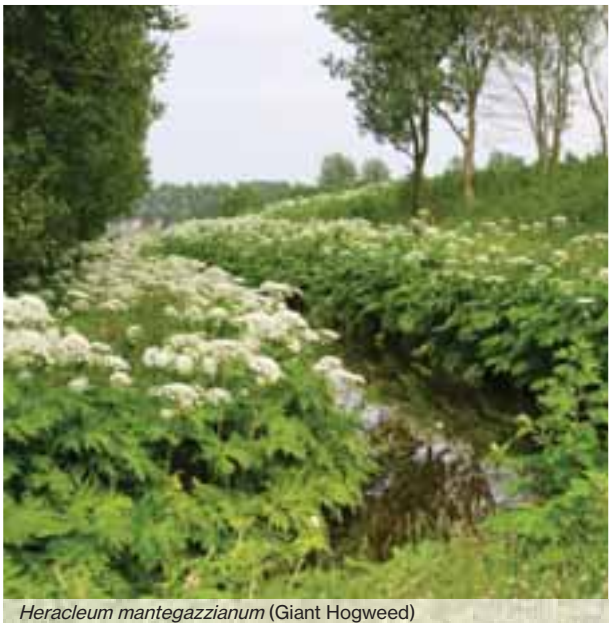
Action: Monitor as for Rosebay Willowherb.

Mimulus guttatus

Giant Hogweed

This plant is potentially invasive and can cause severe skin burns. Giant Hogweed can be widely distributed in the wild and poses a serious risk for people who are unwaware of its harm.

Action: any infestations should be reported to the local authorities to require for removal.



Heracleum mantegazzianum (Giant Hogweed)

Butterflies

Butterflies need a range of plants and sources of nectar to complete their lifecycles and some butterflies require specific plants such as cuckoo flower and birds foot trefoil. Some common butterflies lay their eggs on nettle and areas of this plant should left on site.

Orange-tip	Cuckooflower, Garlic mustard
Small tortoiseshell	Common nettle
Red admiral	Common nettle
Small copper	Common sorrel
Small heath	Fine grasses:- Fescues, Meadow grasses
Meadow brown	Fine and coarse grasses
Green-veined white	Garlic mustard, Water-cress

Action: food plants should be sewn and maintained as prescibed in Management Zones 3, 5 and 6. Timescale – commencement and ongoing.

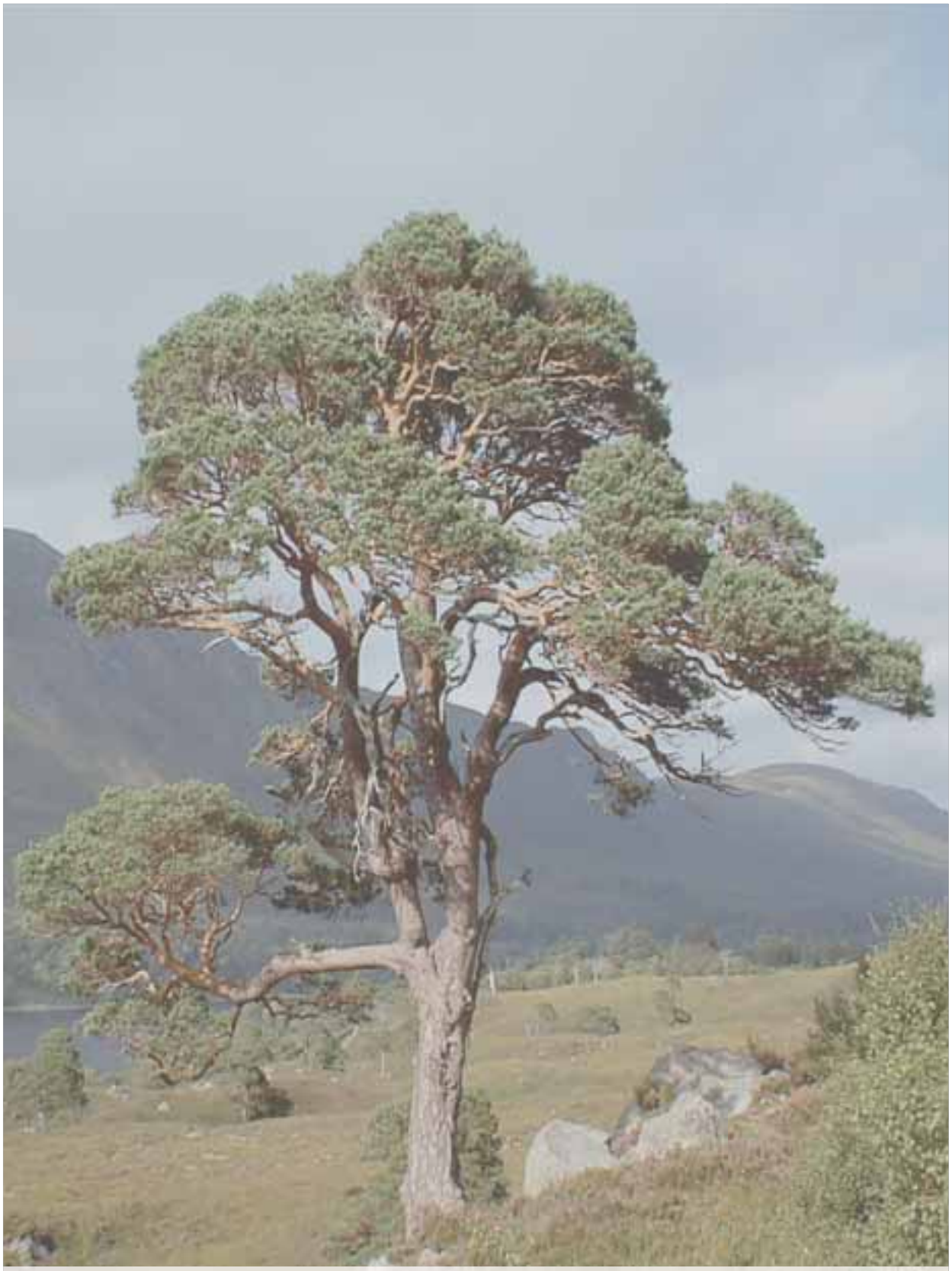
Amphibians

The site currently provides habitat conditions exploitable by species including frogs toads and newts but breeding is unlikely and these species are probably foraging only. The new water bodies could provide a breeding resource for amphibians and a wide range of new species connected with the water bodies.

Action: Watercourse and water body design has be carried out in liaison with an JDC ecology so that the management Zones 1, 3 and 5 all contribute towards a healthy and vibrant amphibious population.

*Orange Tip (*Anthocharis cardamines)

Common Frog (Rana temporari)



4 | Specific Zones for Management

Chapter 4: Specific Zones for Management

In order to facilitate management the site has been divided into management zones. These zones coincide with grouped areas of similar habitat, maintenance operation or use.

All the diagrams and sections that follow in the body of this chapter can be found to a larger scale in either Appendix A for the plans or Appendix B for the sections.

Description of the Zones

Zone 1

The water's edge is a fundamental ecology zone. The opportunities presented by the gently sloping sides of these 2 ponds are both rich and varied. The constantly maintained water level in pond 4 is achieved by a weir and this consistency will offer a fixed maintenance routine. The water quality will vary as it is affected by its primary function as a SUDS, however the volume will be such that the overall impact on ecology will be minimal. The level of pond 3 will rise and fall with the volume of precipitation. A minimum level will be maintained as a lower threshold however.

The resulting margin or tidal range will offer a different habitat opportunity and a more varied planting equilibrium will be expected to follow. The landscape aesthetics of this pond will be more intensive to manage as high water will push litter and natural debris further up the beach areas. In both situations it is envisaged that people will be able to access the water's edge, and this will bring its own maintenance issues, dislodged boulders, litter and potentially trampled plants.

The aquatic plants and reed margins in pond 3 and 4 are designed to be contained to the locations indicated. Maintenance should be mindful that future underwater pruning of rhizome growth may be necessary.

The weir will be a potential source of unsightly rubbish / debris collection and should be checked regularly to clear the same.

Zone 2

The Amenity Grassland areas are designed primarily as a landscape feature. They will be mown regularly with arisings being removed off site. It will be kept to a level suitable for incidental and programmed use by the students, users and wider community, both passive (laying-out / reading a book) or active (throwing a frisbee or having a kick-about).

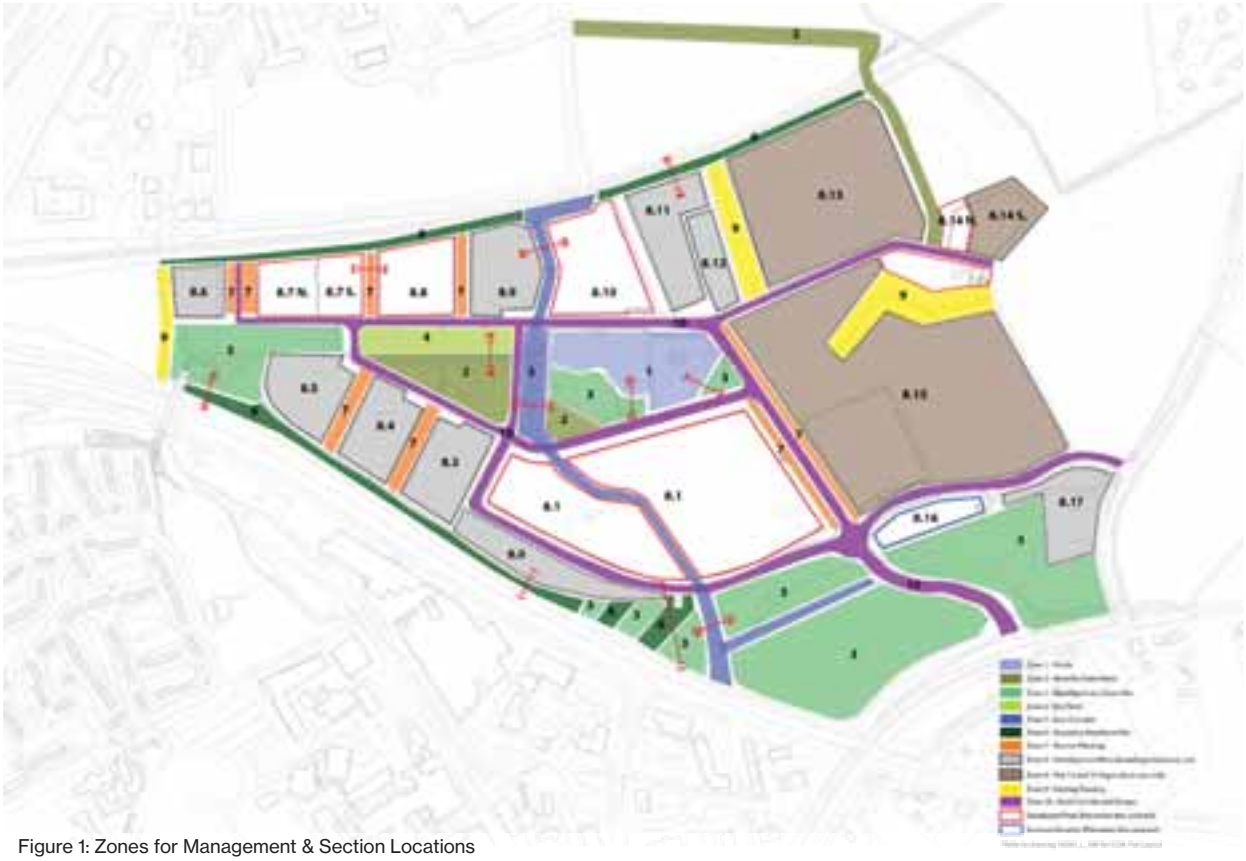


Figure 1: Zones for Management & Section Locations

Figure 2: Site wide planting typologies

Zone 3.

The Meadow Grass areas are designed as both aesthetic and ecological assets. They will be mown once a year in late September / October and the arisings collected. The long flowing grasses will act as a contrast to the close cropped amenity grass and define the areas of intended human thoroughfare. It is not intended that these areas should be no-go areas of human users, but the access would be a 'cross-country' experience. The benefits of this grassland habitat are numerous. They provide shelter and food source for the native small mammals on site and a connecting route from geographically distinct but similar habitats, such as the burn and the SUDS features, and the various habitats bounded by the Zone 6 corridors.

Zone 4

Designed as a dry pond it has capacity to contain high flow precipitation and storm events. For it's most part however it will be devoid of water. The tree species planted adjacent to it are water tolerant and will not be affected by standing in / adjacent to water for short periods of time. The maintenance will be largely driven by the season's storm events but without untimely inundation, the meadow will be managed as per zone 3, with an annual cut.

The Mixed Woodland grid planting of Alder, Birch and Oak will be complete with mulch rings and maintained with at the wildflower meadow or mown amenity grass below. The regular mowing should effectively control and self seeding / natural regeneration to maintain the strong grid formation of the space.

Zone 5

The Burn Corridor will have a number of habitats along its course through the campus site. These are described in detail in the illustrated sections BB, CC & DD, but the common theme through these is to improve the water quality and diversity of aquatic environments. Working with the management techniques of the River Restoration Centre, and in association with SEPA, the implementation phase will make selective clearances and 'blockage' interventions. The purpose of these, in selective locations, is to open the course up and allow pools to form. This varied habitat potential will allow a wide variety of fish and amphibians to inhabit and traverse the water course more effectively. The excessive nutrient run off of farming activities have lead to the burn being choked with vegetation. The areas that are cleared will also be planted with additional riparian tree species such that they can effectively 'shade-out' any regrowth of the thick vegetative swards.

Zone 6

Boundary woodland mix. There are 2 main areas of boundary mix, the A9 bund and the boundary to the railway. Both are fringed with a ground cover and edge treatment of Zone 3 grassland to give a visually coherent transition and to maximise their connectivity for a wide range of habitats.

They are designed to a similar specification, although the species selection adjacent to the railway is limited by the network rail guidelines. The 2 locations of this management zone are both duel function. Both act to guide the perimeter paths around the site, and while the A9 boundary acts as a sound attenuation facility, the rail boundary offers primarily a visual screen. In addition to these landscape functions, both act as major wildlife corridors bounding the site. The woodland will need to be selectively thinned as it matures, but with an established undergrowth allowed to coexist.

At the plot boundary divisions, the bounding beech hedge transforms into a mixed hedge. As a visual marker to the plot division the mixed hedge punctuates the wider boundary woodland. These areas (approximately 8x20m) will be maintained as per the hedgerows themselves. This same spec of hedge then turns up the plot boundary under the oak avenue (zone 7).

The overall effect is to act both as a landscape aesthetic marker and to draw the hedgerow habitat and associated species up into the heart of the site.

Zone 7

Avenue planting occurs in several locations across the site. The trees will act not only directional and visual guide to the people of site, but also various mammals (esp Bats) birds and invertebrates. The beech avenue approach in to the site will be be highly visual feature to the site entrance and be dressed with meadow grass to the base (as with Zone 3). The Oak avenues acting as plot boundaries will have the mixed native hedge running up the centre and be equally focussed on their function as wildlife corridors as well as visual and physical boundaries to future development.

Figure 3: Site wide tree structure

Zone 8

This zone consists of three types of development plots: plots already in use, plots with a temporary treatment, and plots that are in agricultural use. The maintenance of already developed plots and the ones designated for agriculture do not fall under this contract.

Plot No.	Use/Status
8.0	Potentially New Plot
8.1	Inverness Univeristy Campus
8.2	Temporary Use
8.3	Temporary Use
8.4	Temporary Use
8.5	Temporary Use
8.6	Temporary Use
8.7	Student Residences
8.8	Aurora House
8.9	Temporary Use
8.10	HIE/SRUC
8.11	Temporary Use
8.12	Temporary Use
8.13	Agriculture Use
8.14	Scottish Vet Referrals
8.15	Agriculture Use
8.16	Visitor Facilities/Security
8.17	Temporary Use

The temporary treatment to the plots themselves will provide a unmade opportunity for ruderal grasslands to establish. These large swaths of land will develop as habitat with little human intervention. The operators will be obliged to control invasive / noxious weeds as covered by the The Weeds Act, 1959, The Wildlife and Countryside Act 1981, and The Town and Country Planning Act (Scotland) 1972.

The most likely colonizing weeds that should be controlled are:

- Himalayan balsam
- Rosebay willowherb
- Monkey flower
- Broadleaved Dock
- Japanese Knotweed
- Giant Hogweed

Zone 9

The existing mature tree lines and historic field boundaries that are being retained have their own zone for management. It will include many of the elements from Zone 3, 5 and 6. The existing trees are huge resource and these 'Grandfather' specimens can act as the catalyst for the recolonization of the site. The existing trees will always be connected to the wider landscape areas by physical or close proximity to one of the afore mentioned zones.

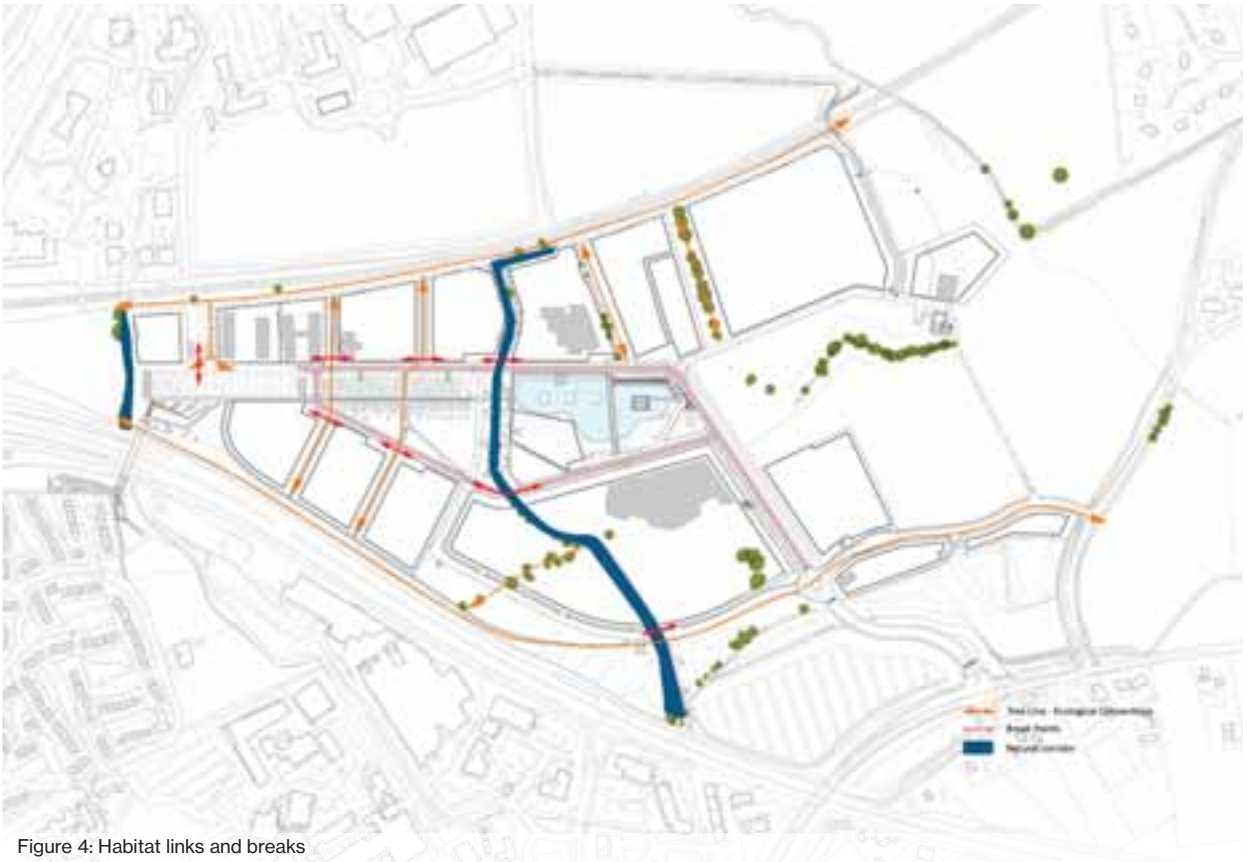


Figure 4: Habitat links and breaks

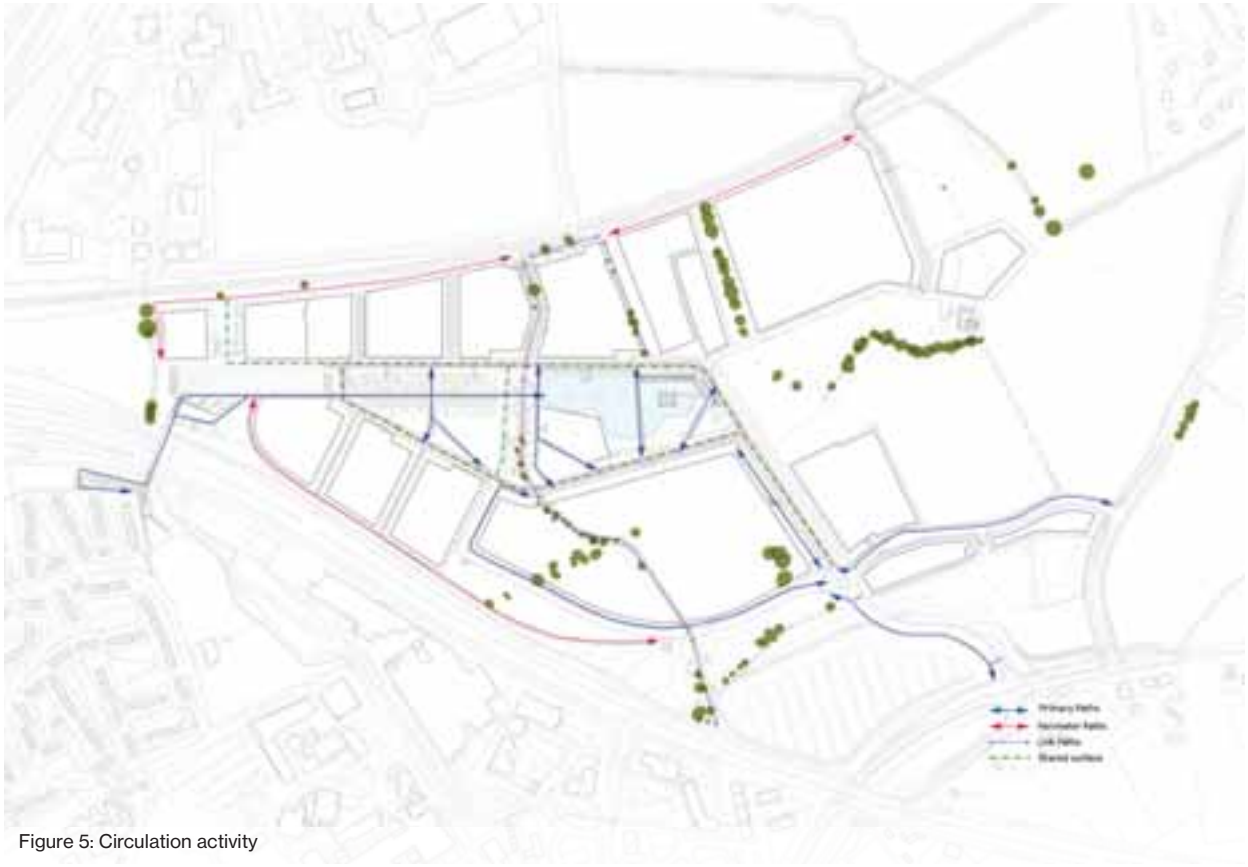


Figure 5: Circulation activity

This zone will be the focus of bird and bat boxes to be located on site (with JDC ecology). This is to bolster bird & bat habitability of the existing areas to allow the new zones time to establish / mature and become the appropriate stature to become habitable. To ensure their effectiveness hey will be the subject of detailed clean-out programme as described in the contract specification. Understory planting, scrub / hedges and the like to be largely retained and kept where possible as a constant haven during the construction phase.

Zone 10

This zone represents the road corridors and verges within the campus. It mainly concludes areas of amenity and meadow grasses, avenue of Oak trees, and Beech hedge planting.

Circulation and path networks

To facilitate the fully accessible interaction of users with the campus, an extensive and varied path net work has been provided. These circulatory routes offer direct and efficient delivery of pedestrian and bike users to all parts of the campus, but also allow for more ad-hoc perambulation into the more remote parts of the site.

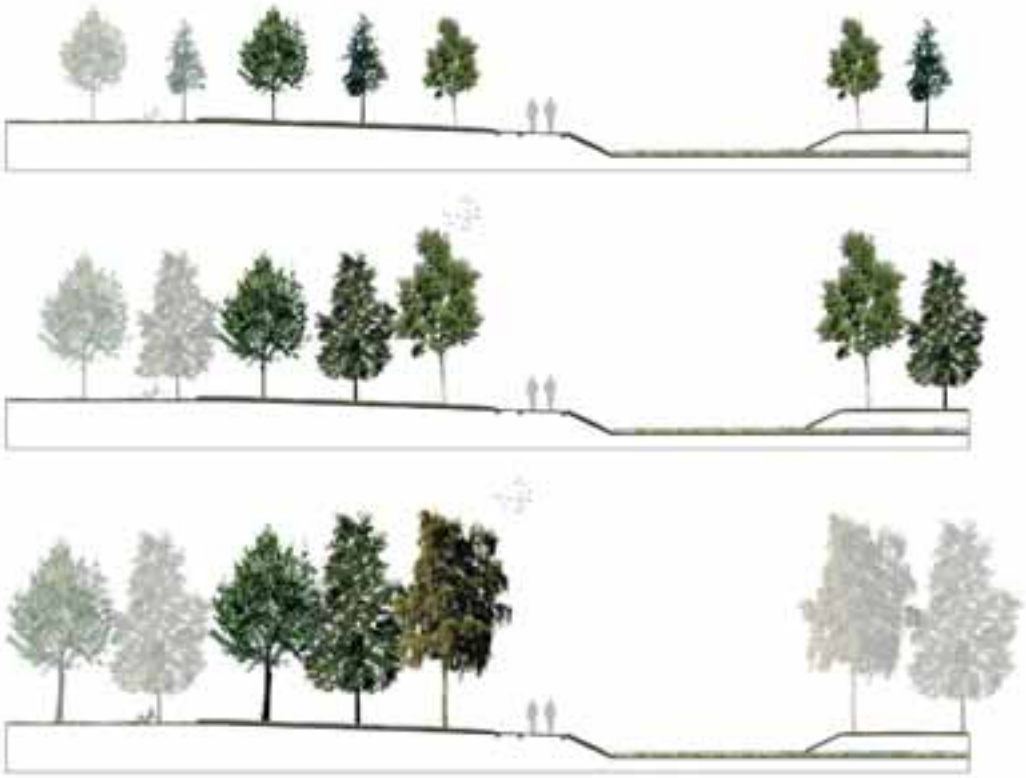
To encourage active participation, and in answer to objectives 5, 15 and 17, within the path network there have been running routes identified. There are 1, 2, 3 and 4 km routes set out and they offer a varied and challenging experienced for the established and novice runner alike.

Ecological Linkages

The Zones for Management are a necessary if largely superficial subdivision of a 35Ha site that is intertwined both with itself and with a wider distribution of habitat types.

In reality the zones are somewhat plastic in nature and blend at the edges. There has been designed adjacency and inter-connectivity (where-ever possible) so any single species does not have to cross hostile ground to traverse one zone to another.

The main wildlife corridors will be the A9 and the railway line habitats and the various water courses on the site.



Section AA - Management Zone 4

Section AA

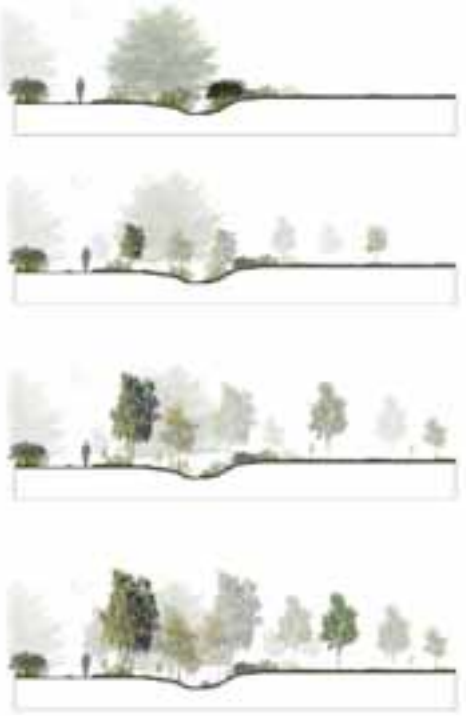
spans Zone 4 & 2 in the Beechwood Park area of the campus. This area is primarily a landscape resource that offers flood attenuation of high rainfall in the 'dry-pond'. The main objectives here are of amenity and human usage with the lawns of Zone 4 being closely mown and kept free from saplings that self seed from the groves of trees planted.

The wetland meadow will be cut once a year and the arisings taken off site, as with other cutting operations. The tree seed and roosting opportunities will benefit many of the priority species previously listed, while the wet meadow will afford shelter and food for small mammals which will in turn fuel the higher food chain of Barn Owls and other birds of pray.

Potential Objectives Achieved : 1, 2, 6, 8, 11, 12, 14, 16, 17, 25, 28 & 29.

Sections BB, CC & DD

all relate the major existing water course traversing the site. While acting as a constant wildlife corridor and habitat connector, it does have variety along it's course and the management will reflect this. Certain practices, such as no heavy plant to be used, no herbicide spraying etc will transcend the sections, specific practices however are identified as follows:Section BB. This section is currently choked with vegetation responding to the nutrient rich agricultural run off. The nutrient levels will be reduced, and in areas the vegetation will be cleared back to afford sections of open water. They will be enhanced further by the modest intervention of the mean flow by placement of boulders to create pools and riffles. The introduction of new tree planting will assist in shading out the prolific regrown of vegative material. This are will be traversed by a board walk and act to connect the western perimeter track.

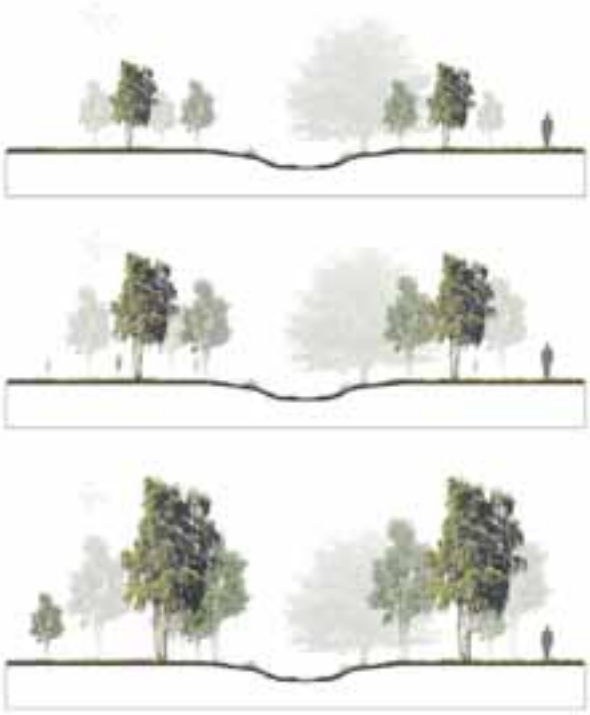


Section CC - Management Zone 5

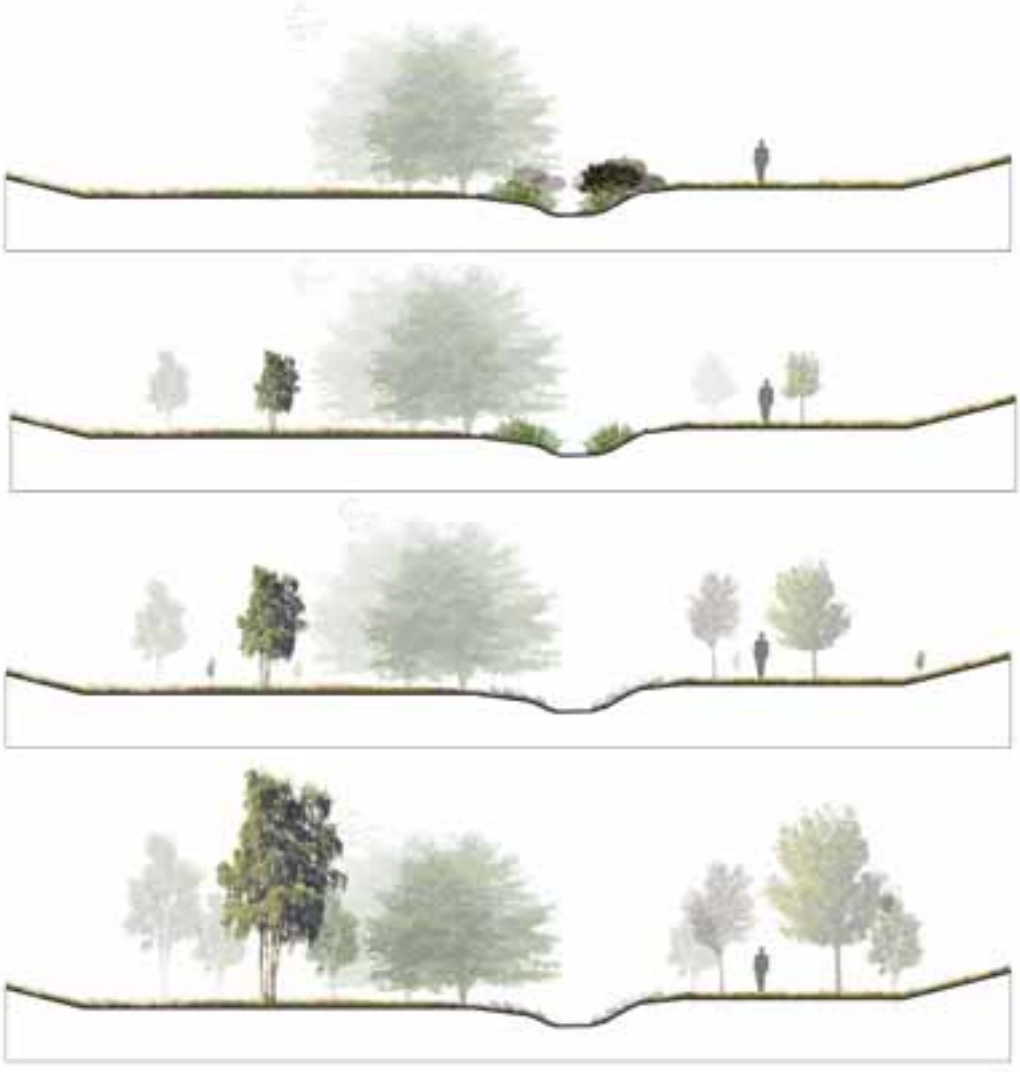
Section CC. This will be the most heavily planted section of the burn corridor. The over shading of the water will allow a natural low density riparian regeneration of the water course. Here again modest interventions are proposed to promote habitat diversity and increase the aesthetic value of the water course. These will all be done in conjunction with SEPA and the River Restoration Centre, and will not affect critical flow rates.. A burn-side path is proposed to be developed from the existing farm track and thus allow access down to the enhanced feature.

Section DD represents a heavily silted up section of the burn. De-silting of the bun and new tree planting will give this section an opportunity to naturally regenerate

Potential Objectives Achieved : 1, 2, 6, 7, 11, 12, 15, 16, 17, 18, 19, 21, 22, 24, 25, 27, 28 & 29.



Section DD - Management Zone 5

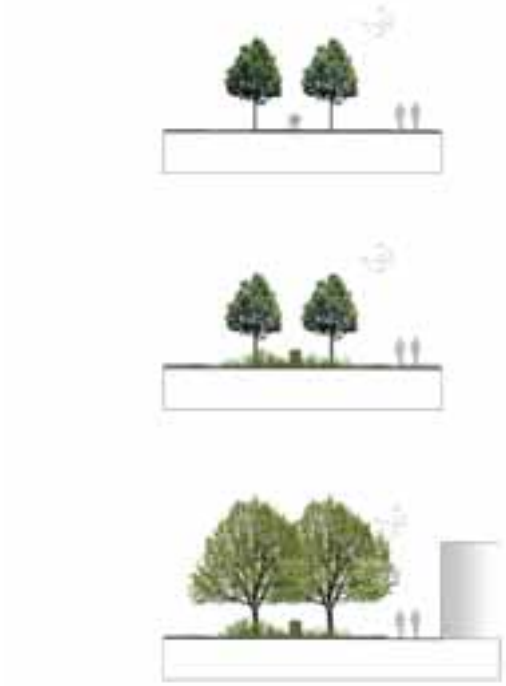


Section BB - Management Zone 5

Section EE

transects the proposed inter-plot boundary, Zone 7. These semi mature Ash trees will mature in to a significant avenue and with that maturity offer strong visual markers within the campus landscape. The primary function, being development plot boundaries is augmented by a ecological objective. These will be the major draw of birds, mammals and invertebrates up into the main heat of the site. The flanking corridors of Zone 6, the mixed hedges and herb rich grass meadows will mirror the avenue's path. The hedge is to be cut twice a year, once for shape prior to the nesting season and the second after the fruiting species have been fully cropped by the bird population.

Potential Objectives Achieved: 1, 2, 3, 5, 6, 7, 9, 10, 11, 14, 15, 16, 19, 20, 22, 23, 24, 25, 28 & 29.

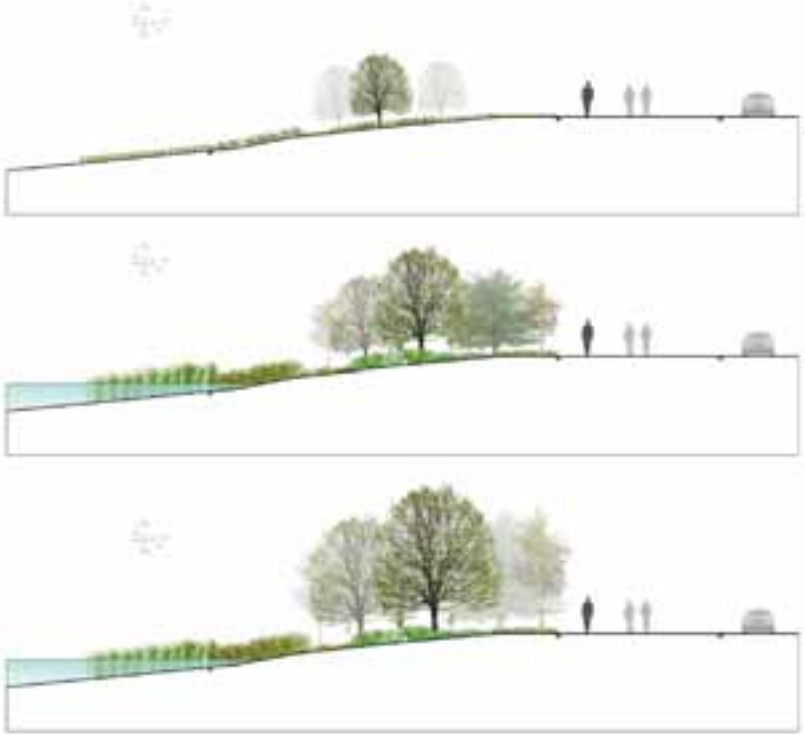


Section EE - Management Zone 7

Section FF & GG

descend into the 2 main proposed water features on site. While there are similarities to them the habitats maintained in FF will be based on the constant datum of water. The management zones 1 & 3 are both represented in these sections and will dictate the management operations through establishment. While the beech is designed as a aesthetic boundary between water and land, it's loose pebbles and boulder will not prohibit human use, but neither will it specifically encourage it. Some natural regeneration of the water's edge species will be tolerated, but it is not the long term management goal to develop a full coverage of 'wet woodland'. The marginal and aquatic planting will all merge at their margins by year 5 it is envisaged the defined lines of the installation will have totally blurred.

The differential water level represented in section GG may give rise to heavy growth one year and comparable die back the next, depending on precipitation levels. Management operations must be



Section FF - Management Zone 1

prepared to clear our excessive dead vegetation to prevent heavy thatch developing and water margins becoming anaerobic, and ultimately loss of capacity of the SUDS feature.

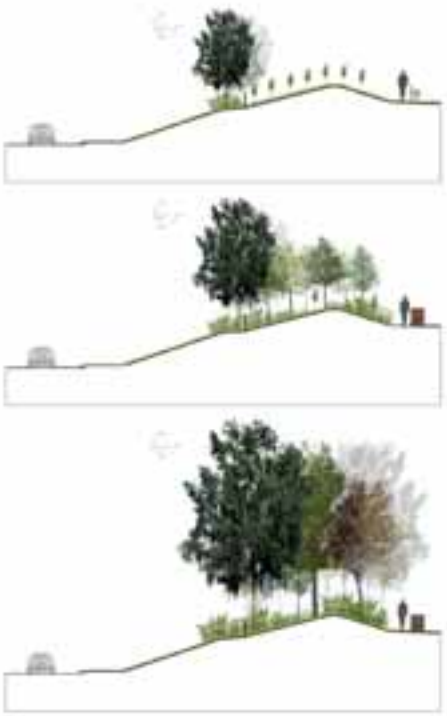
Cutting of the reeds should be carried out on a 2 year cycle operating an area rotation so that not less than 30% of the previous years growth is left at any time. These stands of the previous year's growth ensures continued habitat for dependant species while maintaining the capacity of the SUDS. The timing should be scheduled in the spring, before the amphibian breading season commences to reduce the impact to breading populations.

Care should be given to the adjacency of the burn corridor as the linkage of the 2 habitat zones will be critical, especially in year 1-5 for the coalescing of species re population.

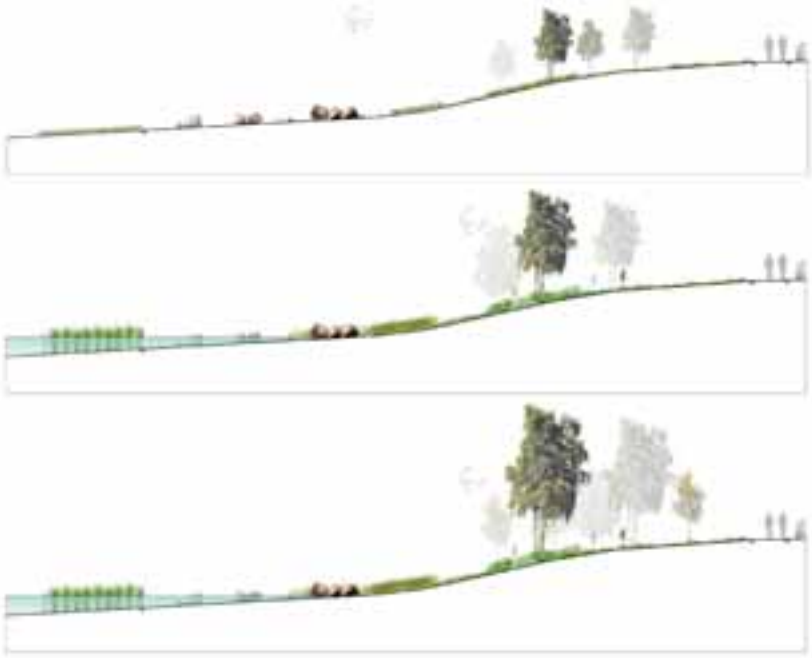
*Potential Objectives Achieved: 1, 2, 6, 7, 8, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 27, 28 & 29.*Section HH represents the section of the A9 Boundary that is most populous (circa 60% of the overall boundary length). The mounding and planting has a primary function of sound attenuation and the management of the area will be driven to achieve this objective. The density of the woodland planting will require selective thinning approximately 15 % in year 1-5 and a further 15% in years 5-15. Natural selection will guide the thinning, but also an aesthetic consideration for the parameter path and it's users.

The length of the boundary will be flanked by a beech hedge and plot boundaries marked and enhanced by the change to a mixed-species block planting. This visual marker will extend down the embankment in a mass clipped block of 'hedge'. The timing of the clipping should be scheduled twice a year to avoid the bird nesting season and the fruiting resource.

The path / running track will drift up into the resulting woodland when an opportunity is created. This will develop a more rich and varied experience for the user., without compromising the acoustic objectives.



Section HH - Management Zone 6 & 3

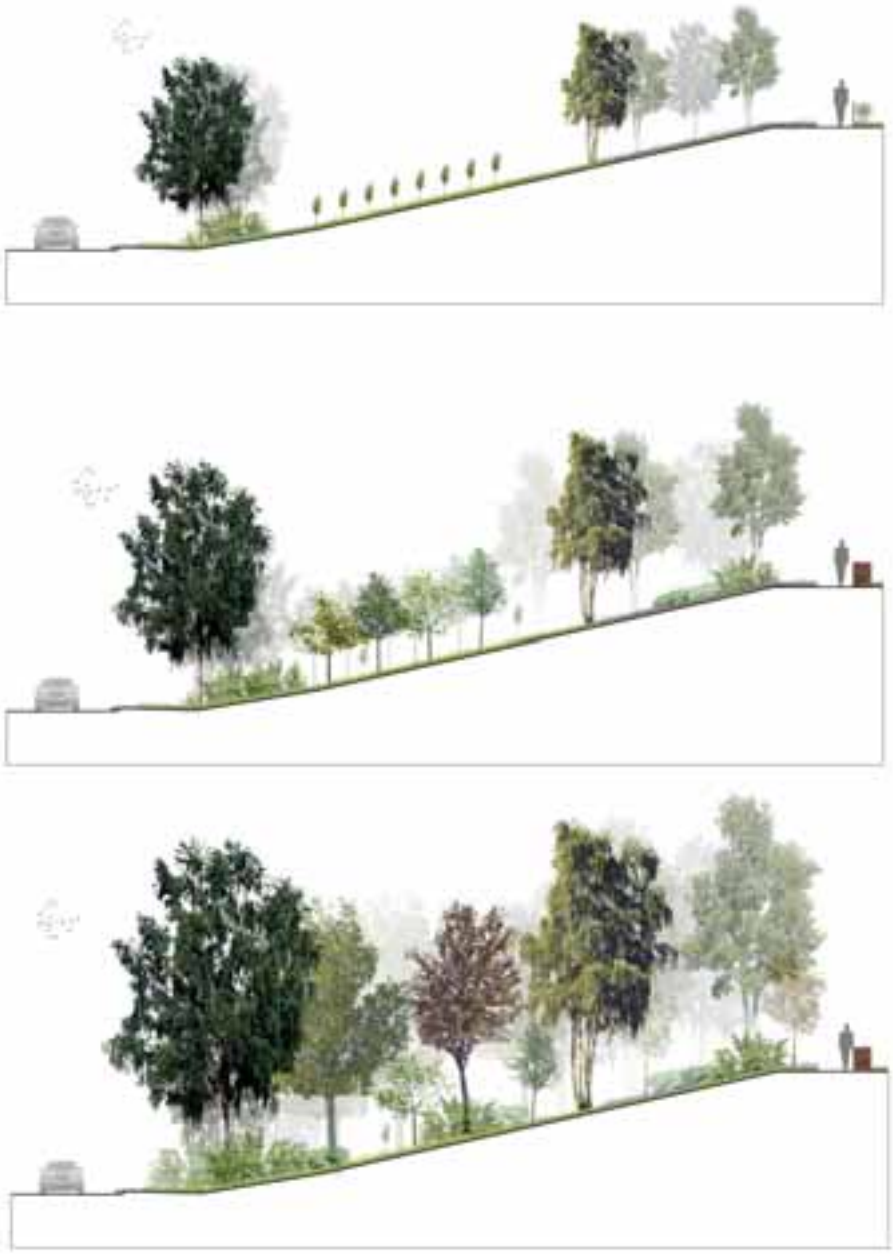


Section GG - Management Zone 1

The natural regeneration of the woodland understory will be allowed to develop post establishment of the woodland, year 5-15. Where natural regeneration falls within the wider zone it can be allowed to develop and expand the woodland resource. This would not be the case however where the regeneration starts to disperse into the vacant plots, where it will be controlled.

Section II
is a more broadly spreading version of HH. This section leads up to the A9 bridge ramp, and while the opportunity to allow a more varied woodland exists, the primary function of sound attenuation is still prevalent. The thinning should promote climax species and also take advantage of the more generous depth of space to allow woodland glades to form and thus generate a more varied floor covering to establish.

Section JJ
develops the boundary planting typology described in management zone 6. At this point however it has started to get folded into a wider goal of a striking landscape aesthetic to enhance the entrance experience.



Section II - Management Zone 6 & 3

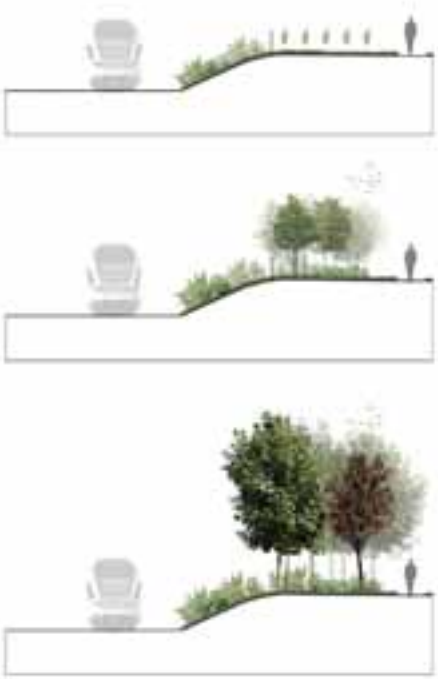
The planted woodland is contained within landforms that in years 0-5 will shelter the crop and thus potentially lead to quicker establishment than the location at H & I. There is also an opportunity in this location to have the natural regeneration to drift up the slopes of the bounding landform, although it is not envisaged to extend beyond the crest of the landforms.

Section KK

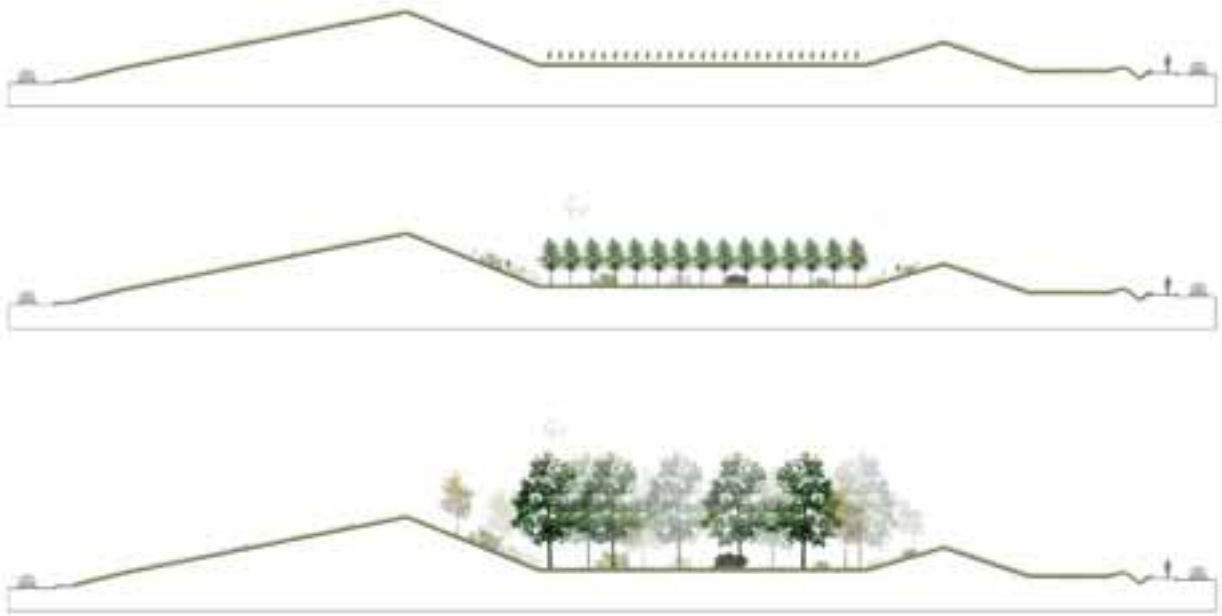
is a development of a similar theme as the A9 boundary. The species mix is controlled by the Network Rail guidelines and ongoing maintenance will need to be in conjunction with them. Any natural regeneration must be contained within the property boundary and thinning out should be sparingly applied to ensure slope stabilisation is not affected nor visual containment breached.

As with the A9, the perimeter path / running track will run along the boundary planting and while space is limited there should be opportunities to integrate the path within the shelter provided by the Zone 7 junction planting.

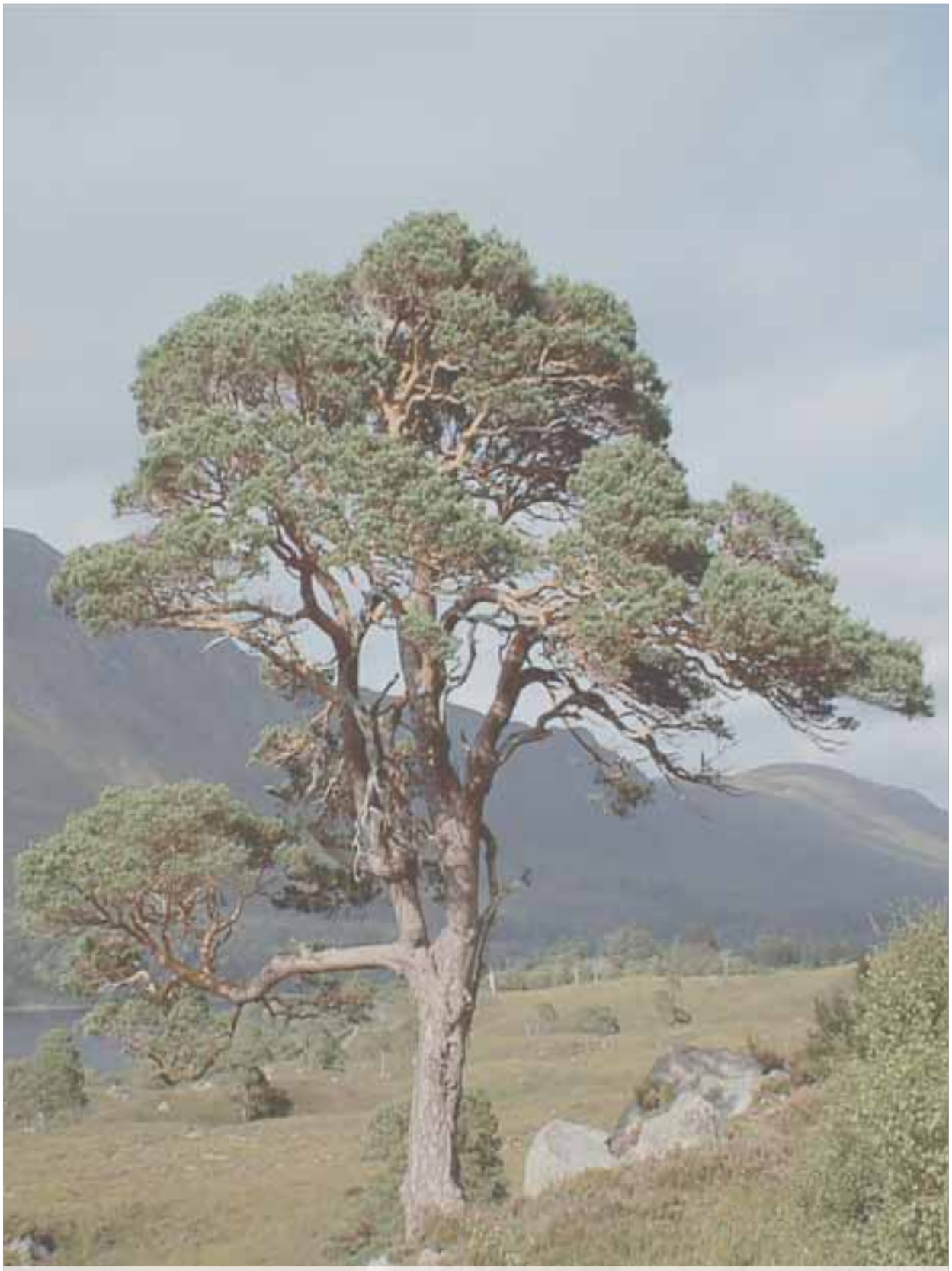
Potential Objectives Achieved: 2, 3, 6, 7, 12, 14, 15, 17, 18, 19, 20, 22, 23, 24, 25, 26, 28 & 29.



Section KK - Management Zone 6



Section JJ - Management Zone 6 & 3



5| Implementation

Maintenance Operations

This section of the Plan provides detail of the management infrastructure that will ensure optimum performance and best outcomes.

Site operations will be carried out by the relevant contractor, and where appropriate, the contractor will provide a full method statement before they start on site.

All maintenance operations will be carried out in accordance with the Landscape maintenance specification 10018_SP_601 (Q35), which is within this document as Appendix C.

Method statements will be delivered to HIE & HarrisonStevens for approval. As may be deemed necessary JDC Ecology will be consulted for potential impact on habitat.

Any works to the 'Scheme Property' will be controlled by ICOA Activity Identification Form (AIF); this will include details of:

- plan of the operation including programme;
- contractors qualifications;
- risk assessment;
- machinery to be used;
- numbers of personnel involved;
- numbers and type of vehicles and equipment involved;
- statement of compliance with all relevant statutory instruments; and
- details of how the contractor will report on project completion.

Each submission of the ICOA AIF will be recorded and kept as reference with this Plan and will be referred to during review and on-going management, and will form an integral part of the full Plan.

Trifolium repens (White Clover)

Monitoring

Key Performance Indicators (KPI)

Monthly reviews and KPI meetings will be held on the campus. At this meeting the contract is to report on all elements of their maintenance operations as assessed against their maintenance programme of works (as required in the specification 10018_SP_601 Clause 107)

Reporting at the meetings will be broken down into the following sections:

- Contractors over-view summary
- KPI's
- Health and Safety
- Repair / Projects
- Bird - sighting / nest box activity
- Mammals - damage / control reports

Wildflower Meadow

Review

Review is an integral part of the Landscape and Habitat Management Plan. It will be undertaken on a continual basis.

The Landscape and Habitat Management Plan will run on a 5-yearly basis with annual reviews of habitat progress, and a five-yearly comprehensive review of the Plan itself.

This revision of the LHMP represents the first of the 5 yearly renew/rewrites.

Annual Review

This is the point at which the year's KPI meetings are assessed and reviewed to ensure planned works have been carried out and to allow for monitoring of habitat and landscape progress and condition. This review should update the plan with lessons learned and recorded / documented site experiences and these amendments picked up in the method statements Appendix of the Plan. The review should make it's report based against the landscape and ecological objectives set out in Chapter 3 of the Plan.

Five-year review

This is the standard term after which the Plan is subject to formal review of the complete content. This is necessary to ensure that changes to the site are recorded and taken into consideration when planning the next 5-year document. It is also the opportunity to update the contracted specification to bring it into line with updated legislation best practice and site development

Review is undertaken using project method statements, photographic records, reports from contractors, notes / minutes from progress meetings, and the following checklist of review parameters:

- conforming to best industry practice;
- site protection conforms to original plan or subsequent amendments;
- watercourse protection as per SEPA guidelines and the forthcoming Water Framework Directive;
- status of habitats and species noted on the Inverness and Nairn Local Biodiversity Action Plan;
- Protection of Badgers Act 1992 followed;
- Wildlife and Countryside Act 1981 (particularly birds, otters and bats) followed; and
- other relevant statutory/non-statutory instruments and guidelines followed.

The review will focus on how the site's landscapes are being protected and managed throughout the 15 year period of the LHMP. The ecological condition of the site will be monitored throughout. Review assesses the progress towards short and long-term objectives.

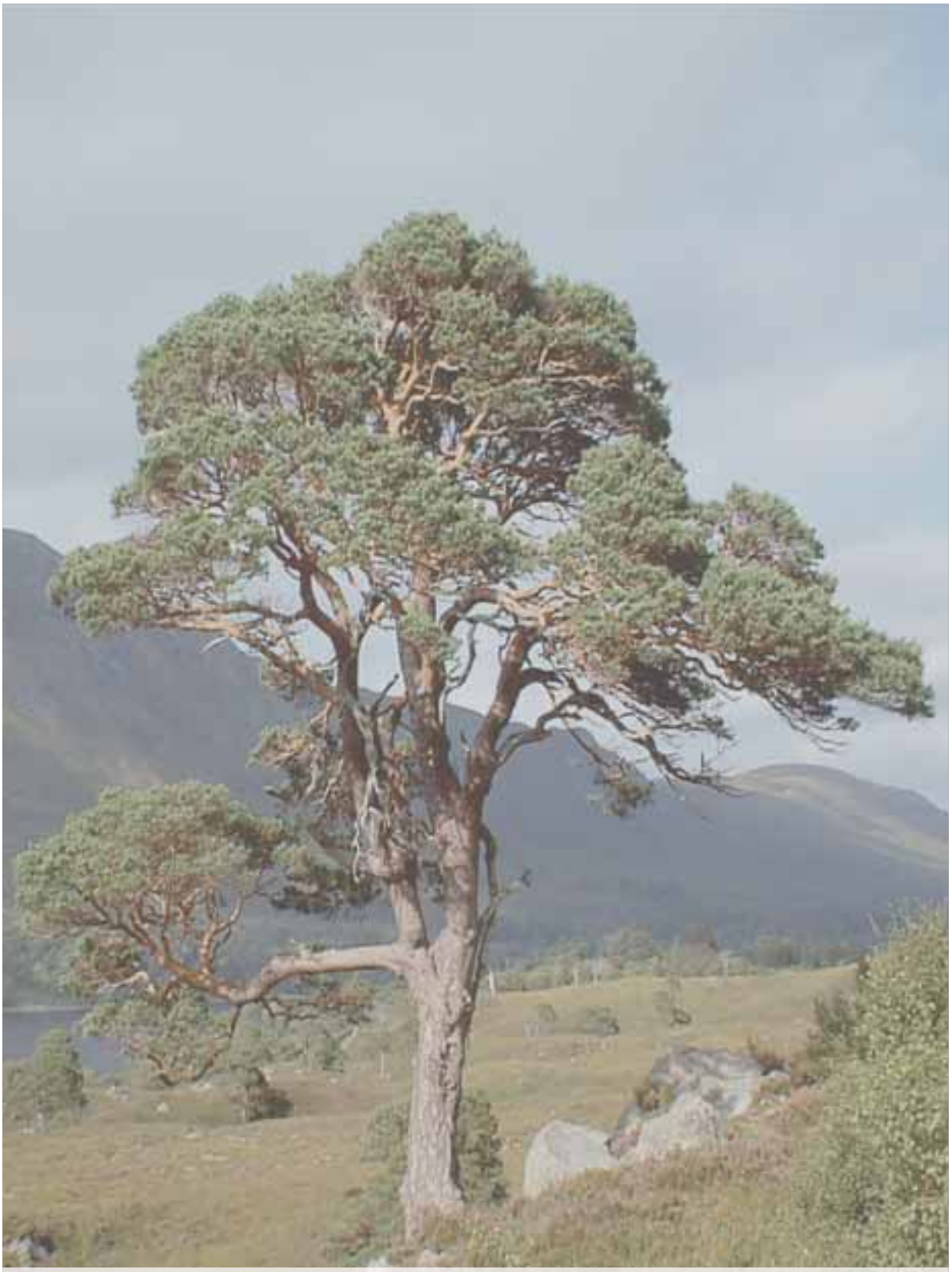
Teasel *(Dipsacus fullonum)*

The review will co-ordinated by HarrisonStevens and necessary updates to the Plan will be available to all affected parties.

Year 15 and beyond

Following the 15 year period the Plan will be rewritten to set new goals and objectives of a mature and established campus, and the undoubted changes that the operation requirements of the time will place upon it.

Common Spotted-Orchid *(Dactylorhiza fuchsii)*



6 | Appendices

Appendix A - ICOA Plot Layout: 16069_L_100

Contractors are not to scale dimensions from this drawing

Plot 6
Plot 7 N.
Plot 7 S.
Plot 8
Plot 9
Plot 10
Plot 11
Plot 12
Plot 13
Plot 14 N.
Plot 14 S.
North Park
Pond 2
Beechwood Park
Plot 5
Plot 4
Plot 3
Plot 2
Pond 3
Pond 4
Plot 1
Plot 15
Plot 16
Plot 17
Scottan Burn

Scheme Property
Plots Boundary
Developed Plots
Temporary Agricultural Let

*Plot allocations based on DWG 003/A551/F

HarrisonStevens

HarrisonStevens.co.uk

Client:

Inverness Campus Owners Association (ICOA)

Project:

Inverness Campus Estate Maintenance

Drawing Title

ICOA Plot Layout

Issue	Revision	By	Date
D00	First issue for team comment	dm	04.05.17

Scale Bar 50 0 50 100 200

North

Date 11.05.17 Status TENDER

Drawn dm Checked ms Scale NTS

Dwg. Nr. 16069_L_100

Rev. H01