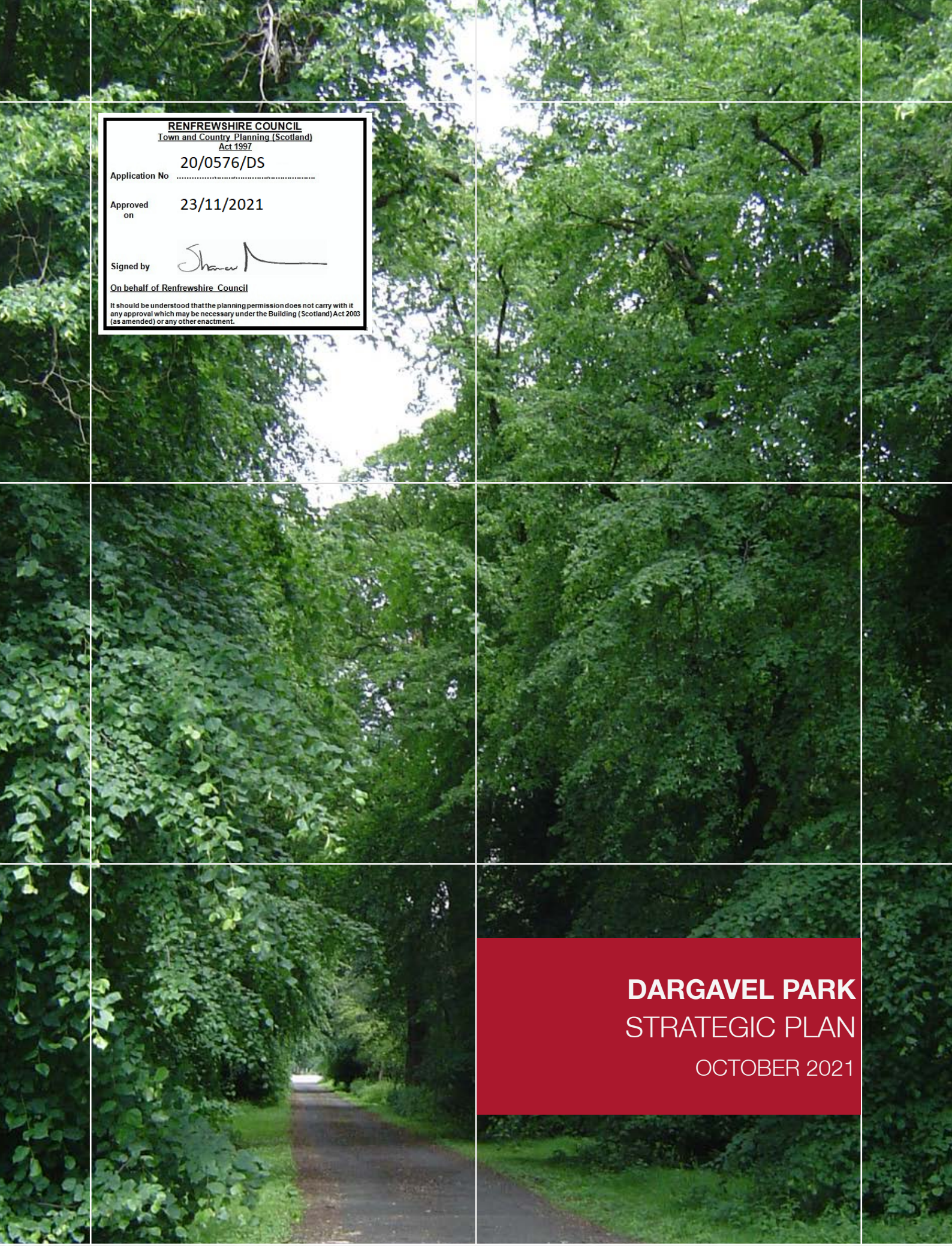

RENFREWSHIRE COUNCIL
Town and Country Planning (Scotland) Act 1997

Application No 20/0576/DS

Approved on 23/11/2021

Signed by

On behalf of Renfrewshire Council

It should be understood that the planning permission does not carry with it any approval which may be necessary under the Building (Scotland) Act 2003 (as amended) or any other enactment.

DARGAVEL PARK
STRATEGIC PLAN
OCTOBER 2021

Cass associates
architecture
masterplanning
planning
landscape
conservation

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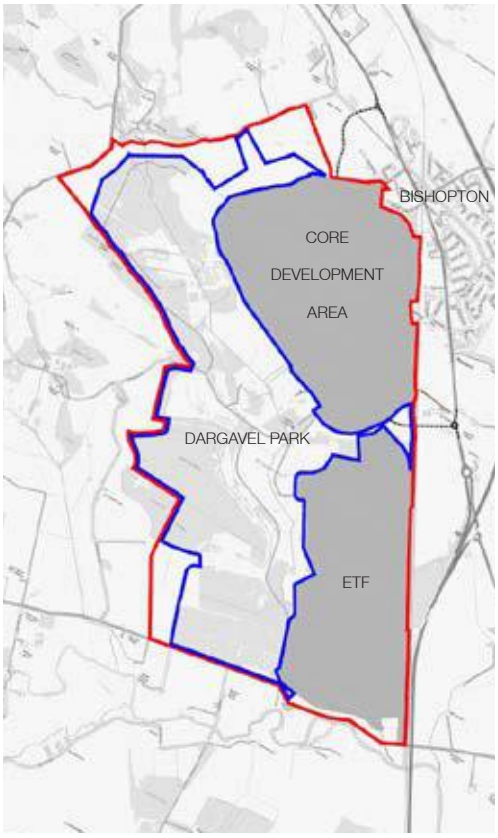
Executive Summary

Dargavel Village is a new community which is being formed through the managed expansion of Bishopton. It occupies the north eastern quadrant of the former Royal Ordnance Factory, at a location which is closest to Bishopton Rail Station. The south eastern part of the former Factory is an operational zone which is secure and managed by BAE Systems. The remainder of the Former Royal Ordnance Factory will become Dargavel Park. This will extend across an area of around 450 hectares (ha) of land.

This strategy plan sets out a clear vision for the creation and function of Dargavel Park. It shows how the western extents of the former Royal Ordnance Factory at Bishopton will be transformed into a resource for local people and the wider community to the west of Glasgow with a balance between public access, recreation and the enhancement of biodiversity. The overarching vision is:

"Dargavel Park will be an area of publicly accessible open space adjacent to Dargavel Village. It will be a recreational resource for Renfrewshire and the wider community to the west of Glasgow. The Park will provide opportunities for recreation and leisure. Existing ecological and landscape features which are of value will be protected and enhanced. New and diverse ecological habitats consistent with the local flora and fauna will be created."



Context overview

There are a number of key principles that will shape the Park. These principles are threads which run through the strategy plan. There will need to be a sensitive balance between them.

- Address the historic industrial legacy issues in an appropriate and cost effective manner to bring the land back into beneficial use for the next generation
- Safe access to the countryside for all visitors
- Opportunities for informal recreation and leisure
- A gateway to the wider countryside
- A place to learn about the environment and history
- Protection and enhancement of important habitats including those supporting legally protected species and other notable species
- To help with the promotion of healthier lifestyles

Executive Summary

The detailed development of the strategic plan for the Park will be informed by a set of aims and objectives which sit alongside the guiding principles. These are important as they will influence the decisions made about what is retained, what is improved and what facilities are needed to make the Park a successful and sustainable resource. These aims and objectives are:

1 To remediate the land to allow the discharge of the relevant land contamination planning conditions and enable the development of the Park.

2 To balance recreational activities with the protection of valuable aspects of the landscape and important habitats.

3 To recognise the significance of the woodland for its inherent character, ecological value and seasonal variation.

4 To include zones of amenity grassland and species rich meadow for wildlife value.

5 To provide opportunities for wood pasture (occasional livestock grazing) grazing farmland, and coppiced woodland.

6 To ensure that new woodland and pasture delivers gains for biodiversity.

7 To connect valuable habitats across the area.

8 To upgrade the network of routes providing connections with nearby neighbourhoods and the adjoining countryside.

9 To enhance access through well-defined site entrances, car parking, signage and secure boundaries where necessary.

10 To incorporate opportunities for education based around the history and ecology of the area.

11 To incorporate measures to reduce pressure on ecologically sensitive areas through appropriate planting and discrete fencing.

12 To put in place sustainable measures for the management and maintenance of the Park.

13 To continue to involve the local community in development and management decisions. Community engagement has been facilitated through regular Community Liaison Group Meetings. These will continue and will act as an appropriate channel for the consideration of detailed designs and interventions at Dargavel Park.

Executive Summary

In order to realise these objectives there are five topics or key considerations to be taken into account.

(i) Management of Woodland

The strategic plan encourages the development and implementation of solutions to enhance woodland management, with a focus on priority woodland habitats and native trees. The strategy encourages increased woodland diversity in species and age structure to deliver more resilient woodlands. The overall aim is to generate biodiversity, landscape and socio-economic benefits.

(ii) Enhancement of Habitats

Habitat networks will be created. These should be connected in a way that dependent species can disperse between areas to create linked populations. A healthy and sustainable habitat network enables species to be more resilient to environmental changes, particularly the impacts of climate change.

(iii) Landscape, Open Water and Watercourses

The strategic plan provides direction on how to protect the qualities of the landscape which are of particular value and it encourages the sensitive development of new landscape components that achieve a balance between existing and new woodland, open grassland and riparian corridors. There is an opportunity to create landscape value from the new drainage retention ponds in the Park and to strengthen the character of the Dargavel Burn corridor and the Craigton Burn corridor.

(iv) Access, Community and Recreation

The Park is an important host for outdoor recreation activities. The strategy promotes public access and responsible behaviour and encourages the public use of the Park for recreation and outdoor education.

(v) Heritage

The legacy of the former Royal Ordnance Factory will be recognised through the retention of buildings or structures which give a glimpse of the past industrial use of the land. This will be supported by interpretation which will explain the retained industrial archaeology and include narrative on the social history of the place.

Executive Summary

Existing Conditions, Baseline Improvements & Added Value Opportunities

The existing landscape exhibits the legacies of the former Royal Ordnance Factory. There are buildings and magazines throughout together with surviving sections of the road and narrow-gauge rail network that served the Factory. This industrial infrastructure is set in a matrix of broadleaved and plantation woodland interspersed with open grassland. There is a considerable area that was outside the factory fence where the risk of contamination is low and remediation will not be intrusive. This is Barochan Moss, an area of peat based woodland which has particular value as wildlife habitat. Existing conditions are shown on Figure 1.

The comprehensive transformation of the former Royal Ordnance Factory site will include remediation activities across the majority of the land which is to become Dargavel Park. These activities will be sensitive to the particular qualities of the landscape and habitats that exist and will be planned to preserve those attributes of the greatest value. This will leave a framework of woodland, grassland and tracks that are the starting point for a series of improvements to be funded by the ongoing programme of works led by BAE Systems. This is referred to as the baseline improvements in this strategic plan. They are shown in Figure 2 and include the creation of new meadows, the upgrading of a core collection of access routes, improvements to bridges over watercourses, the replacement of security fencing with hedges and unobtrusive boundaries and the creation of car parks at the thresholds to the Park. The paths to be created as part of the baseline improvements will form part of a wider network of pubic access routes as shown in Figure 2A. Within Dargavel Park there will be opportunities to form circular or looping routes of varying lengths and character. These are illustrated in Figure 2B.

Beyond the baseline improvements are opportunities to add even greater value through interventions which could be sponsored by other streams of funding. This could include, for instance, the re-naturalisation of the Dargavel Burn corridor, the expansion of areas of native broadleaved woodland and the incorporation of facilities that broaden the experience of those seeking organised recreational opportunities. These could be clustered at a designated open area and include attractions such as an adventure park with climbing walls, high ropes and BMX cycle tracks and the like.

Executive Summary

Figure 3 shows how added value interventions can be managed in a spatial way by dividing the Park into three zones:

- Zone 1

Informal recreation routes and a higher intensity of use nearest to Dargavel Village (136 ha).

- Zone 2

The western fringe of the Park where the focus is on ecological enhancement but with public access (walking, cycling, running) along clear routes (277 ha).

- Zone 3

A commercial opportunity zone with a vehicular access from Houston Road (40 ha). This is at a location where it can be easily accessed from the main visitor car park along the southern margin of the Park.

Delivery

Delivery of the Park will take place towards the end of the overall transformation programme at the former Royal Ordnance Factory. The starting point will be the investigation and remediation activities needed to make the area safe for its future use. These activities will be proportionate and sensitive, dealing with contamination hotspots but not generally requiring the widespread removal of woodland or other vegetation. Former factory buildings will be decontaminated and demolished to slab level. The slabs will be punctured and left in place so as to avoid extensive disturbance of soils. There is an opportunity to retain a selection of buildings and structures as a reminder of how the land has been used over the last century. This opportunity is explored in chapter 4 of the Dargavel Park strategic plan.

Land remediation will be followed by some reforming of the landscape across discrete parts of the Park. This involves the creation of drumlin like features using soils. The majority of new woodland and grassland planting will be concentrated at and around these new components of the landscape.

The essential infrastructure for the Park will then be formed by upgrading tracks, replacing security fencing with more appropriate boundary treatment, strengthening bridge crossings over the burns and creating car parks at the key thresholds to the Park.

It is anticipated that the remediation, earthworks, landscape and infrastructure works will be complete by 2035. However, in order to provide a resource much sooner than this, it is planned to deliver elements of the Park in phases. The first phase has already been put in place on land at the northern margin of Dargavel Village to give public access to the countryside and a link to the neighbouring Formakin Estate. Subsequent phases will give public access to parts of the Park along the western edge of Dargavel Village.

Executive Summary

In the delivery of the Park there will always be a need to carefully balance ecological, recreational and commercial interests. For this reason any commercial uses are to be clustered in a well defined zone that can be accessed from Houston Road. At this stage it is not possible to be definitive about the commercial uses that might be incorporated but they must be aligned with the theme of recreation in a natural setting.

For the foreseeable future the management of the land will rest with BAE Systems. However, over the next 15 years it is likely that a partnership can be formed with other organisations that will take an interest in the management of all or parts of the Park. These organisations might have an interest in woodland management, the management of habitats, the management of open land or have an interest in commercial opportunities. The management structure will evolve as the time approaches when the Park becomes fully accessible and available for public use.

Executive Summary

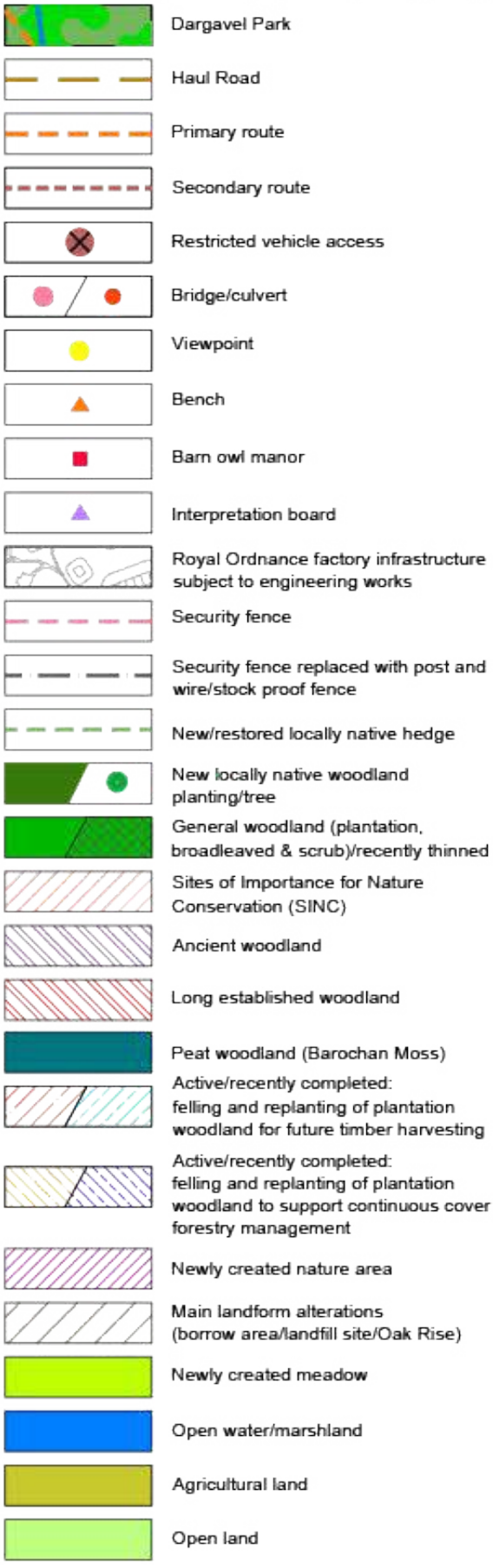


Figure 1: Existing Conditions - Key

Executive Summary

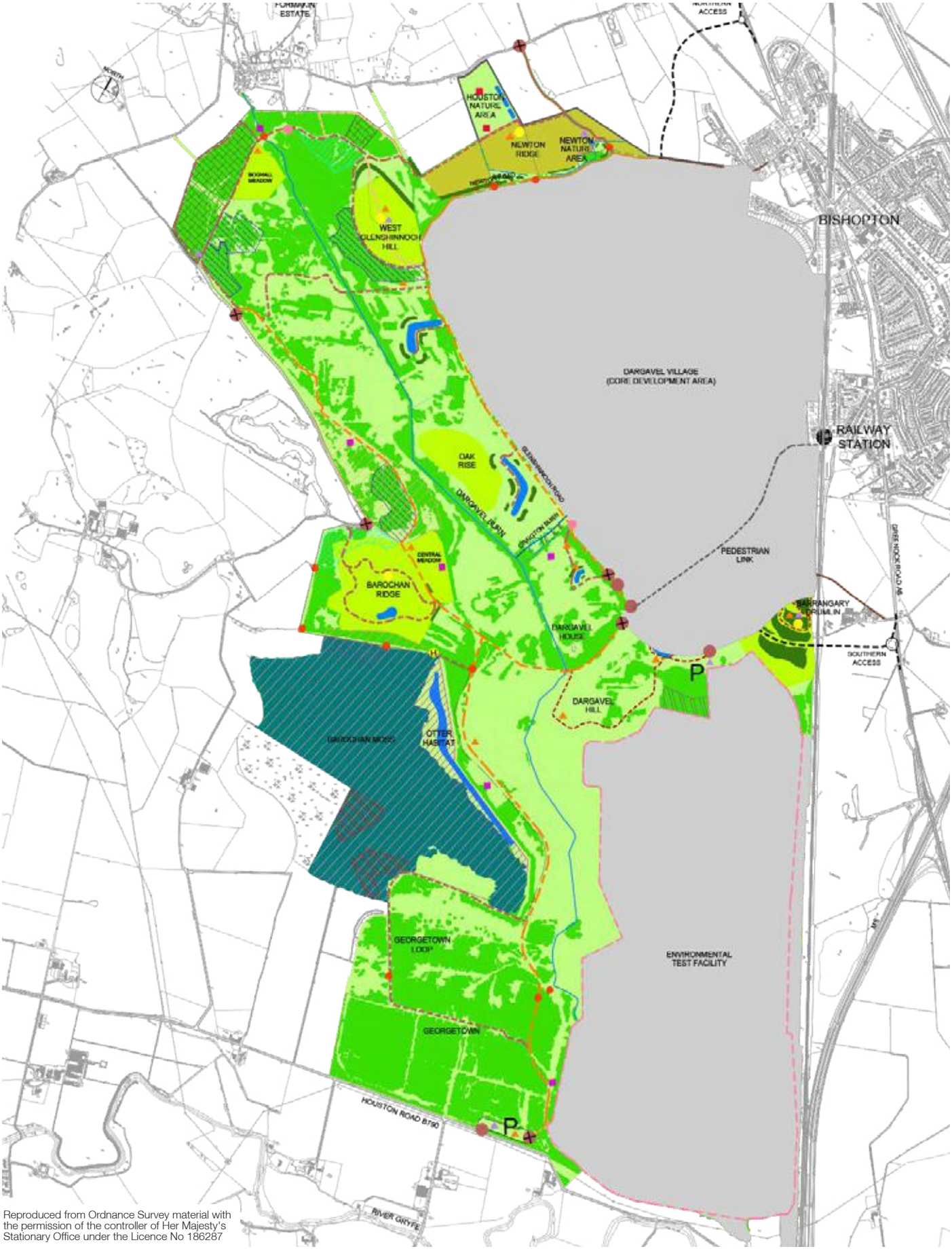


Figure 1: Existing Conditions

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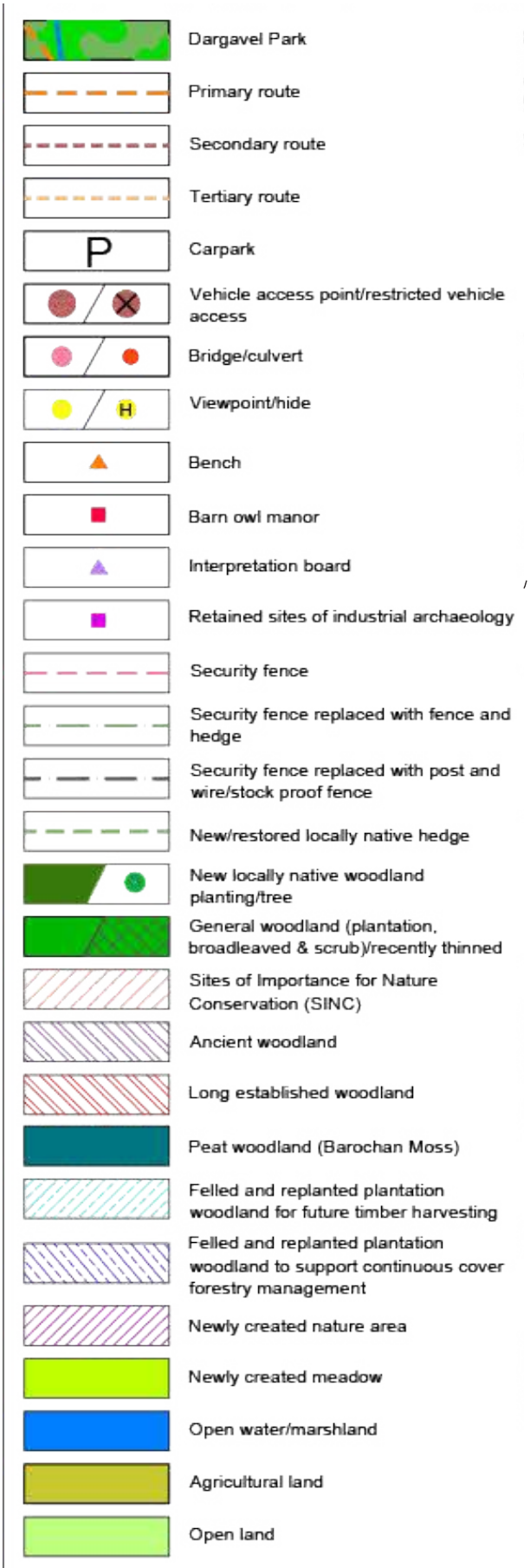

Figure 2: Baseline Improvements - Key

Executive Summary

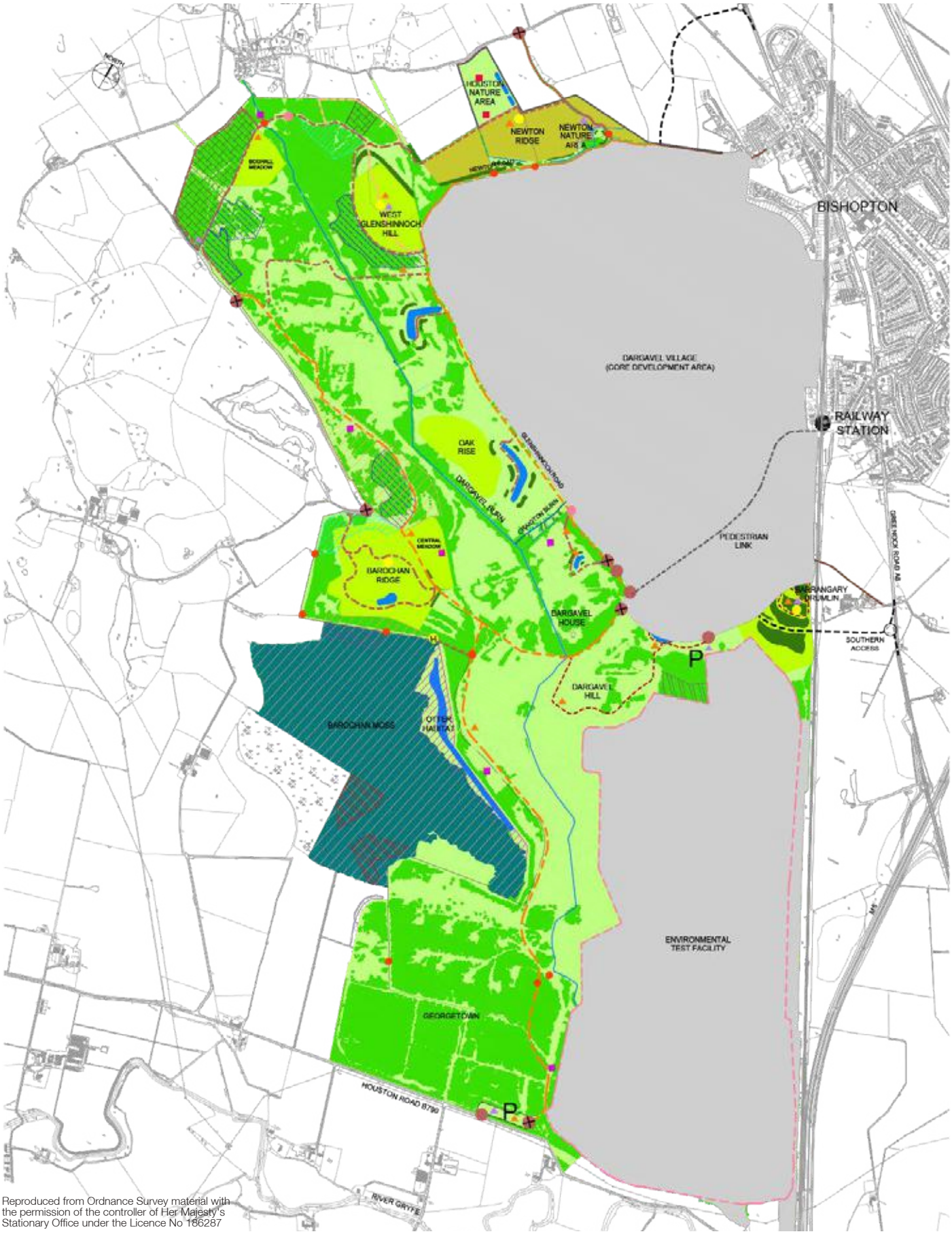

Figure 2: Baseline Improvements

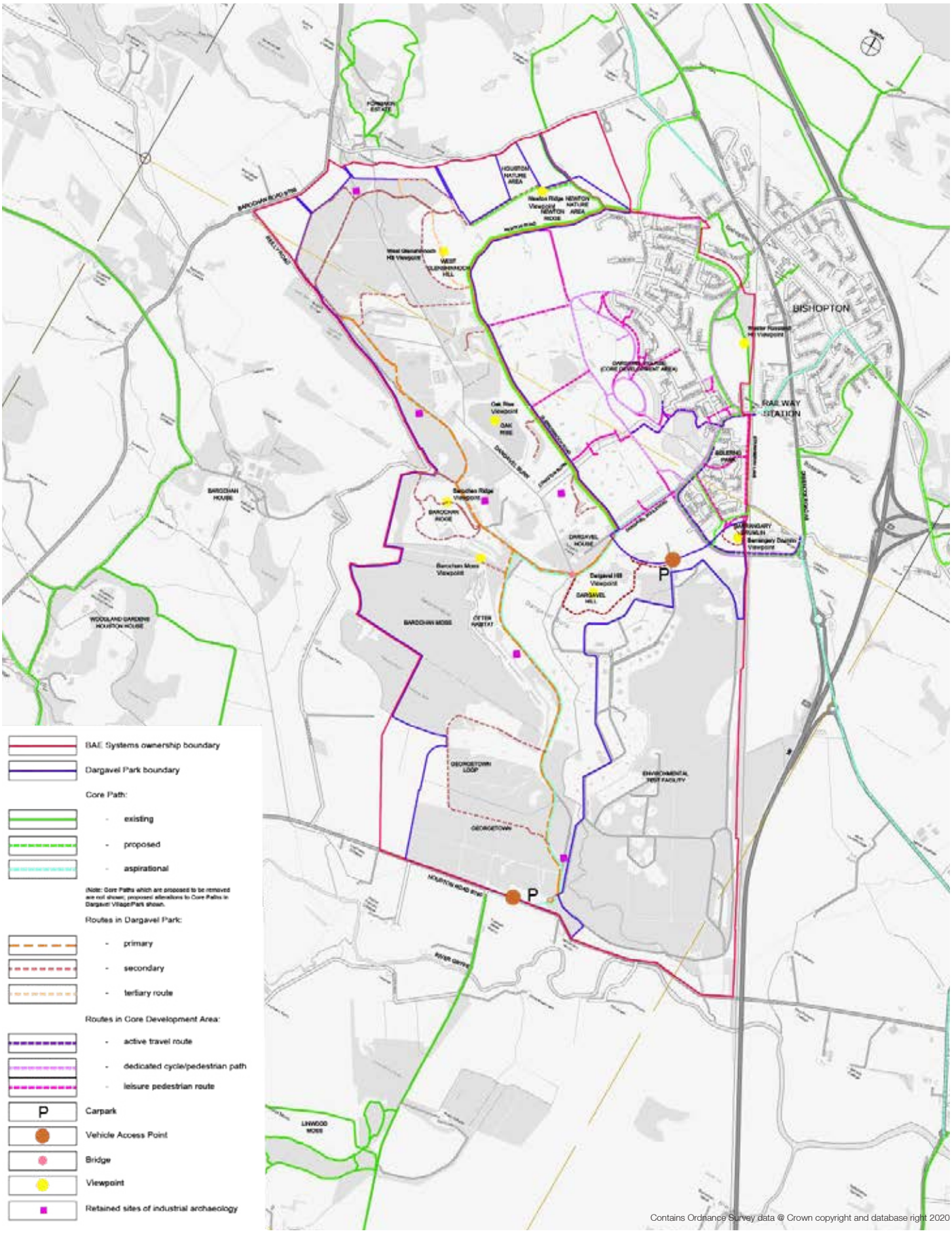

Figure 2A: Baseline Improvements - Footpath Strategy

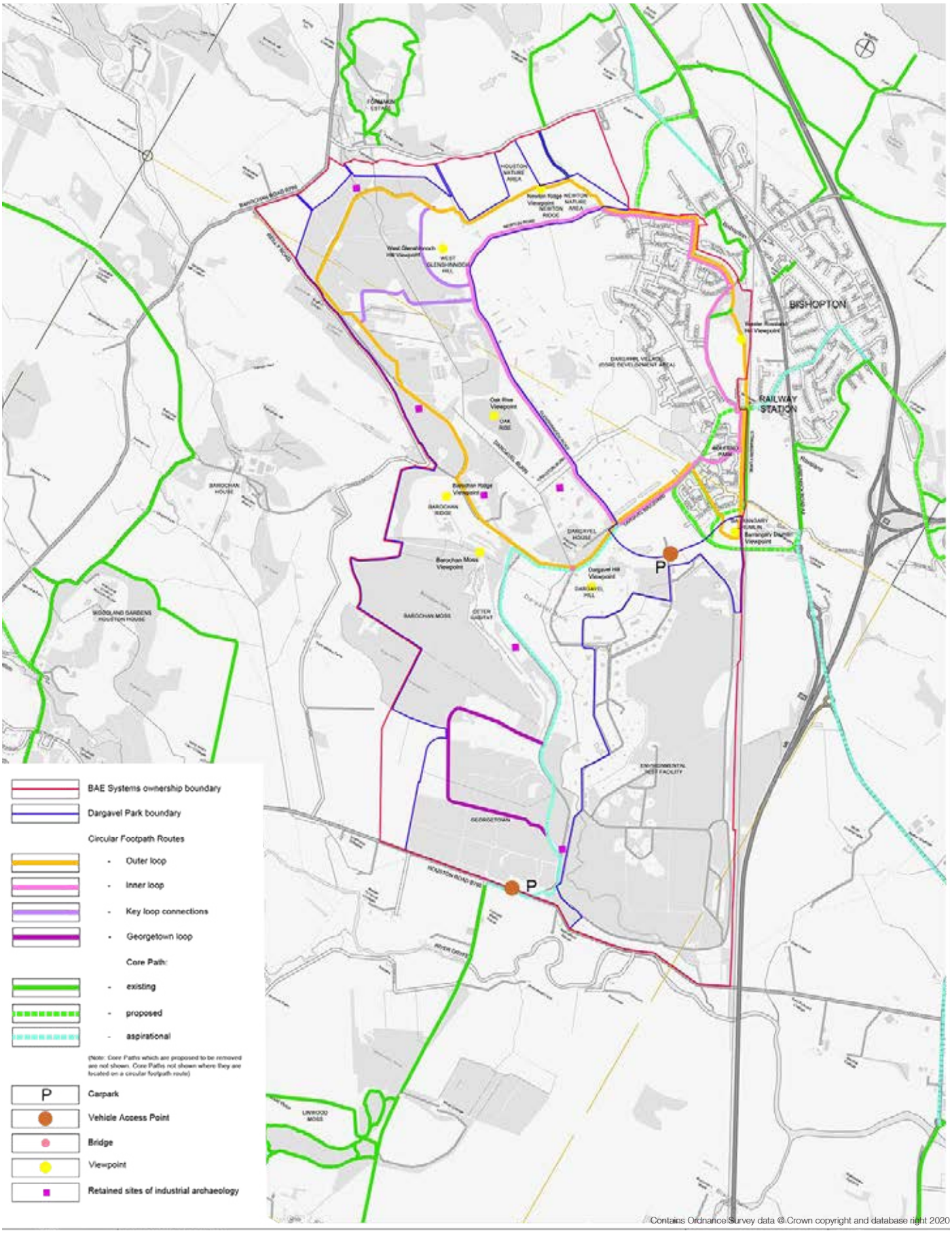

Figure 2B: Baseline Improvements - Circular Footpath Routes

Executive Summary

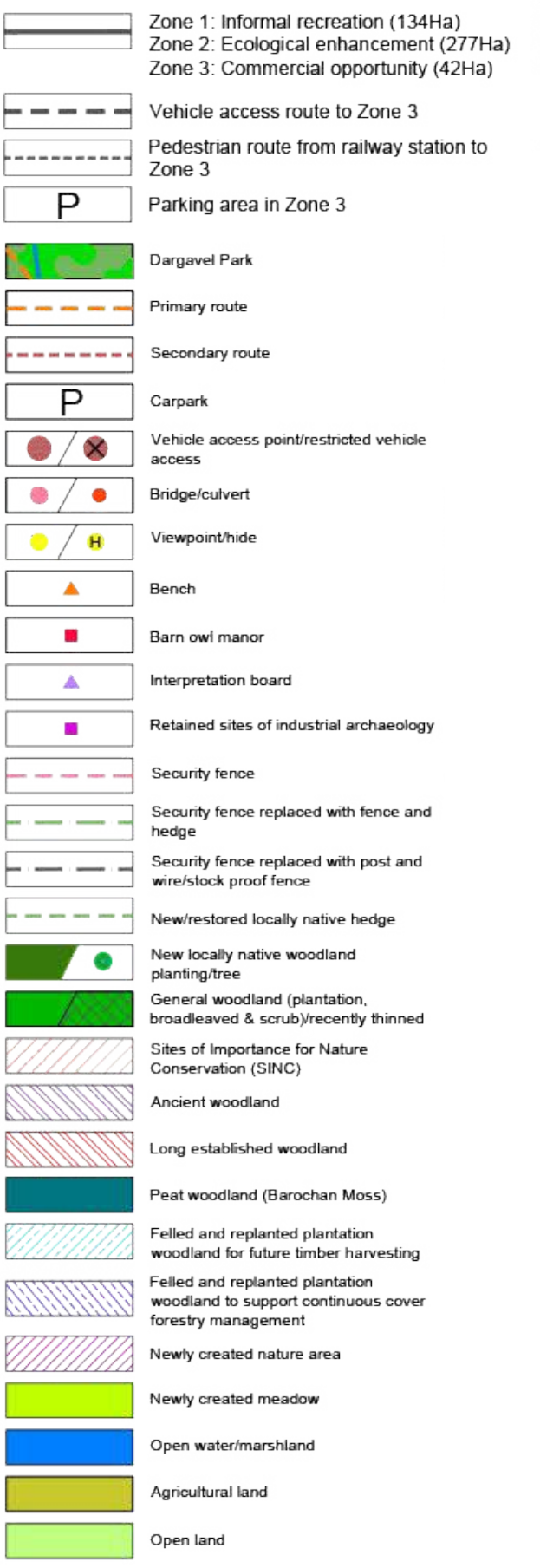

Figure 3: Added Value Interventions - Key

Executive Summary

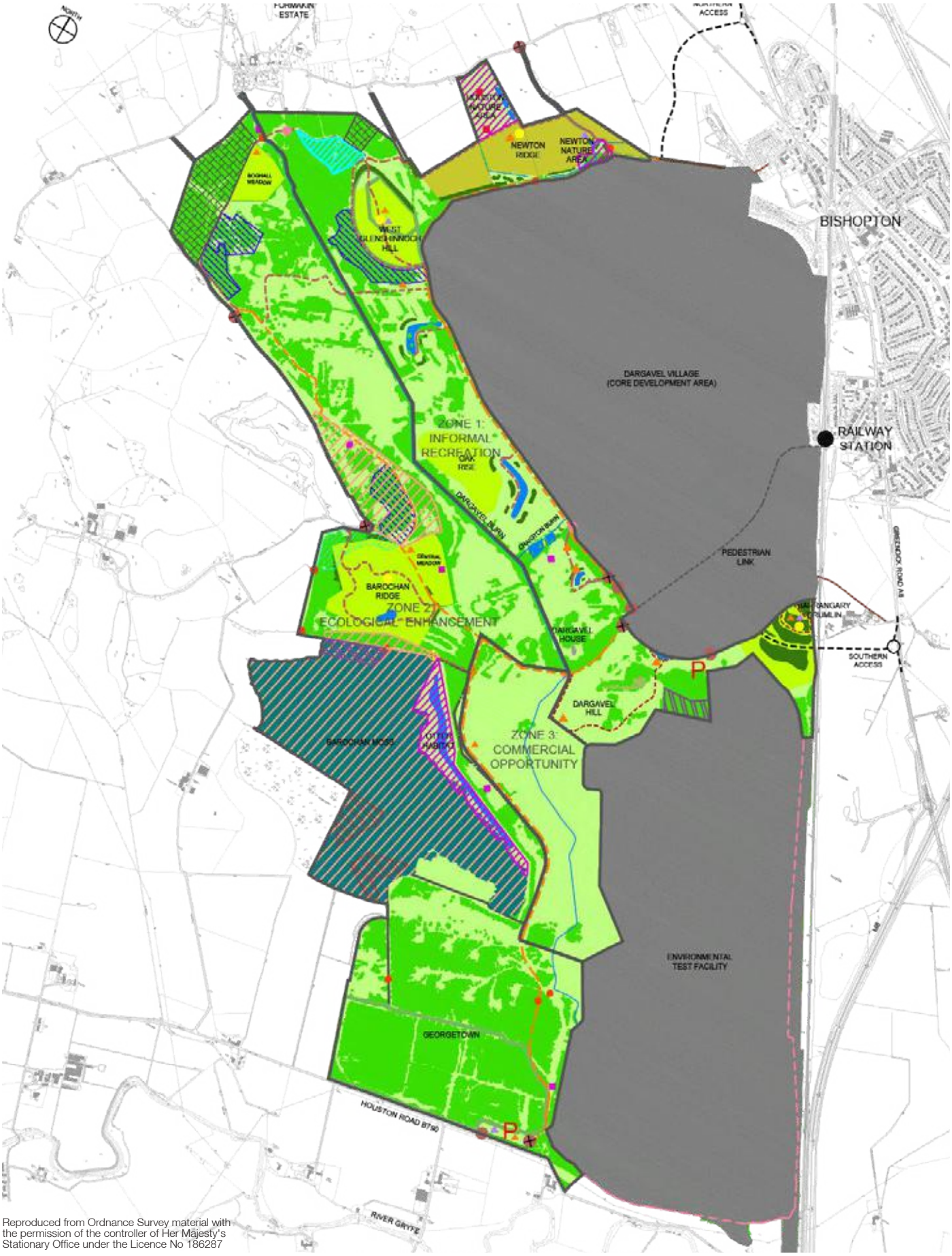

Figure 3: Added Value Interventions

1.0 Introduction and Key Principles

1.0 Introduction and Key Principles

Dargavel Village is a new community which is being formed through the managed expansion of Bishopton. It occupies the north eastern quadrant of the former Royal Ordnance Factory, at a location which is closest to Bishopton Rail Station. The south eastern part of the former Factory is an operational zone which is secure and managed by BAE Systems. The remainder of the Former Royal Ordnance Factory will become Dargavel Park. This will extend across an area of around 450 hectares (ha) of land.

This strategy plan sets out a clear vision for the creation and function of Dargavel Park. It shows how the western extents of the former Royal Ordnance Factory at Bishopton will be transformed into a resource for local people and the wider community to the west of Glasgow with a balance between public access, recreation and the enhancement of biodiversity. The overarching vision is:

"Dargavel Park will be an area of publicly accessible open space adjacent to Dargavel Village. It will be a recreational resource for Renfrewshire and the wider community to the west of Glasgow. The Park will provide opportunities for recreation and leisure. Existing ecological and landscape features which are of value will be protected and enhanced. New and diverse ecological habitats consistent with the local flora and fauna will be created."

The strategy plan provides a framework to guide and inform design decisions and evolving management protocols for the Park. The finer detail will be provided by way of applications for Approval of Matters Specified in Conditions (AMSC). Each AMSC application will relate to discrete stages in the creation of Dargavel Park.

The strategy plan meets the requirement of Part 17 of the planning obligation (Section 75 Agreement) which is attached to planning permissions in principle (principally reference 17/0393/PP and reference 17/0394/PP). The planning obligation sets out the essential topics to be covered by the strategy plan as follows:

1 The overriding aims and objectives for the Community Woodland.

2 Details of the essential infrastructure to be delivered, in phases, by the Landowner.

3 Details of the phased delivery of the Community Woodland.

4 An outline of the opportunities to engage with other parties in the enhancement and long term management of the Community Woodland.

5 A strategy for the long term management of the Community Woodland.

6 Details of the new habitat creation.

7 Details of archaeological constraints and opportunities.

8 Details of woodland management including new woodland and selective felling of existing woodland.

The Context

Dargavel Park sits alongside the managed expansion of Bishopton (Dargavel Village) and remediation/reclamation works as an integral part of the transformation programme at the former Royal Ordnance Factory. The total extent of the Park is shown in Figure 4.

The area covered by the Park contains a mosaic of character areas that will be affected to a varying extent by remediation and land reclamation activity. The character and key features as they exist at present is shown on Figure 1. Amongst the legacy buildings and industrial infrastructure there is a mix of open grassland, agricultural land, water courses and water bodies, woodland of varying age, species and quality and Barochan Moss – an area of high ecological value comprising Birch and Scots Pine on a raised peat bog.

There are two locally designated nature conservation areas (Sites of Importance for Nature Conservation – SINCs). One is Barochan Moss and the other is an area of mixed woodland along the central western edge of the Park (Figure 5).

The buildings which sit in the Park area are generally set out with large open spaces between them as a consequence of the nature of the work undertaken at the former factory. The transport routes include vehicle tracks, standard gauge and narrow gauge railway lines. Taken together, the mosaic of buildings, bunds, blast structures and transport corridors form an artificial “micro-landscape” associated with the operation of the factory.

Whilst there is a need for remediation and land reclamation across the whole Park, the approach will be tailored to align with the risks identified and the future land uses that are anticipated. With this in mind, a key aim is to minimise the degree of intrusive remedial works so as to conserve the essential structure provided by the woodland in particular. There are areas, however, which will change significantly. These areas tend to be associated with either the infrastructure requirements of Dargavel Village (such as SuDS ponds near the interface of the Park and Dargavel Village) or associated with the imperative to achieve a robust, but sustainable, programme of transformation (includes the landfill facility, the clay borrow area and zones used to deposit soils which are not capable of being reused). Impacts may also arise from the remediation works as they are refined in response to the site investigation programme.

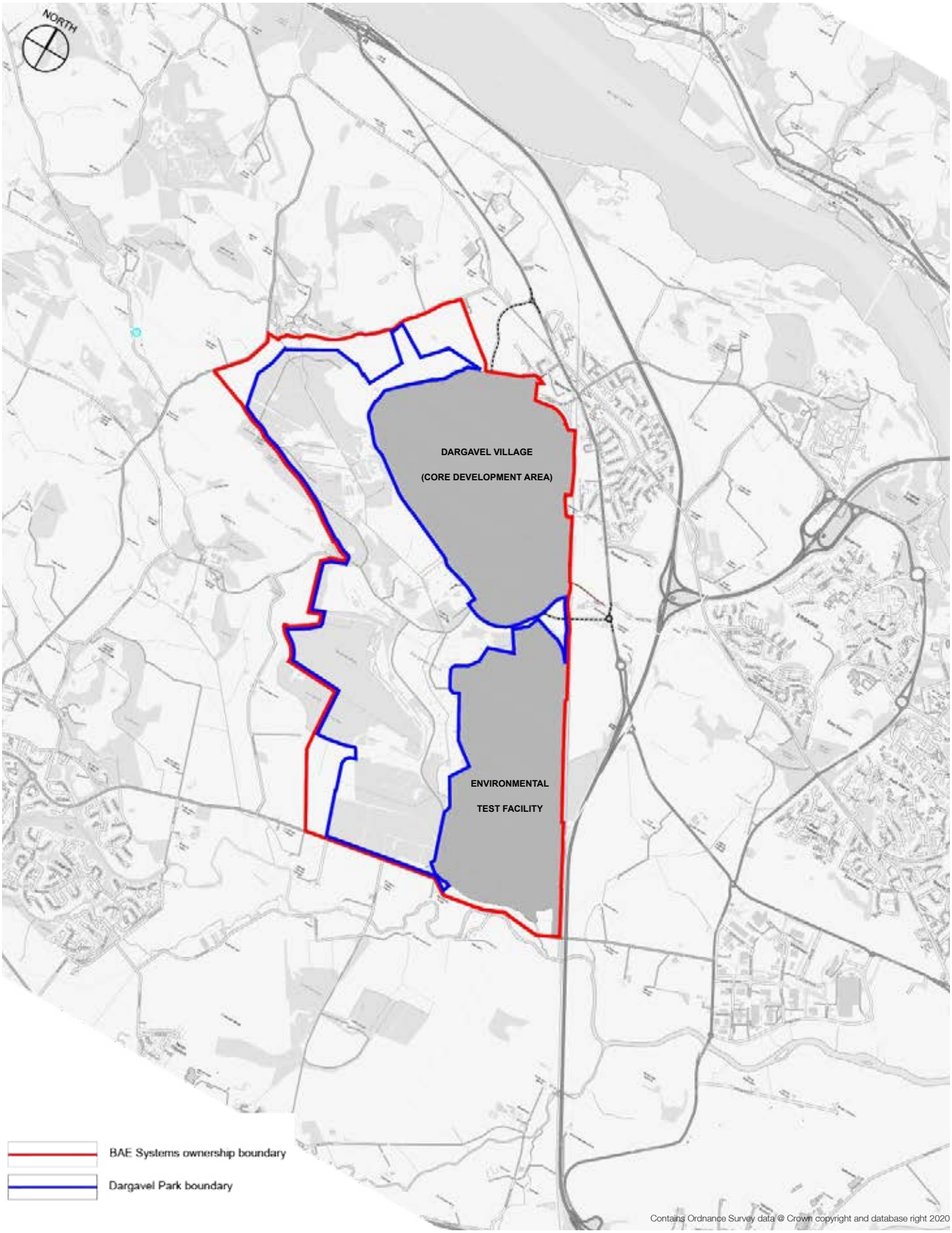

Figure 4: Boundary and Context Plan

1.0 Introduction and Key Principles

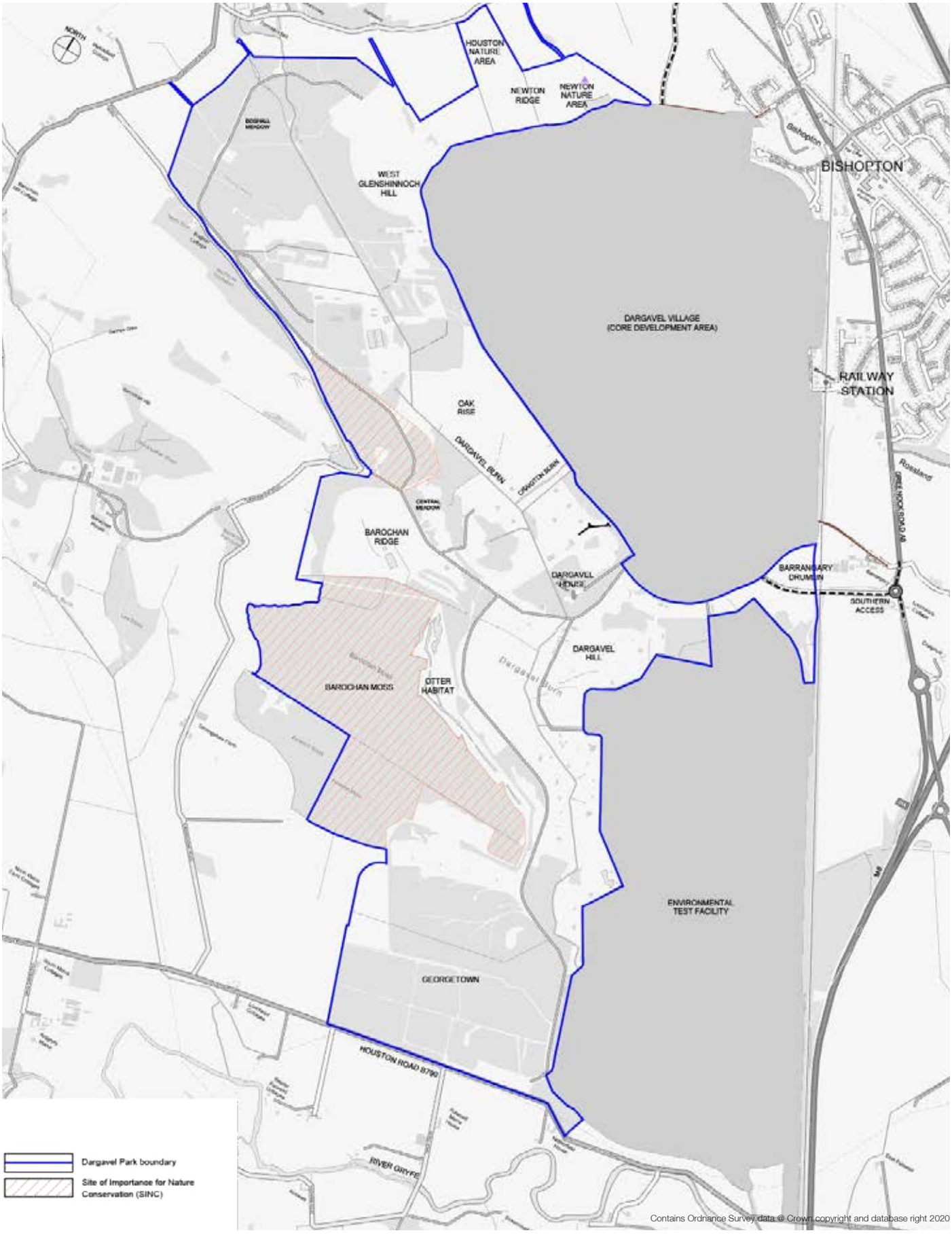

Figure 5: Sites of Importance for Nature Conservation (SINC)

1.0 Introduction and Key Principles

The process of remediation will lead to the removal of most of the former factory buildings but the key parts of the road and rail network will be retained. This includes Glenshinnoch Road which forms the boundary between the Park and Dargavel Village and the threshold parking and reception area at Houston Road along the southern edge of the Park (an area referred to as Georgetown).

In addition to the legacies from the factory, the Park area also contains Dargavel House (a B listed house from the mid sixteenth century).

The Park will not include the BAE Systems Environmental Test Facility (shown in Figure 4). This will remain as a secured site with no public access, although it does have potential to be managed in the interest of biodiversity.

Key Principles

There are a number of key principles that will shape the Park. These principles are threads which run through the strategy plan. There will need to be a sensitive balance between them.

- Address the historic industrial legacy issues in an appropriate and cost effective manner to bring the land back into beneficial use for the next generation
- Safe access to the countryside for all visitors
- Opportunities for informal recreation and leisure
- A gateway to the wider countryside
- A place to learn about the environment and history
- Protection and enhancement of important habitats including those supporting legally protected species and other notable species
- To help with the promotion of healthier lifestyles

The strategy plan will demonstrate how this core set of key principles will guide how the Park is designed, built, used and managed.

2.0 Strategic Objectives

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The detailed development of the strategic plan for the Park will be informed by a set of aims and objectives which sit alongside the guiding principles. These are important as they will influence the decisions made about what is retained, what is improved and what facilities are needed to make the Park a successful and sustainable resource. These aims and objectives are:

1 To remediate the land to allow the discharge of the relevant land contamination planning conditions and enable the development of the Park.

2 To balance recreational activities with the protection of valuable aspects of the landscape and important habitats.

3 To recognise the significance of the woodland for its inherent character, ecological value and seasonal variation.

4 To include zones of amenity grassland and species rich meadow for wildlife value.

5 To provide opportunities for wood pasture (occasional livestock grazing) grazing farmland, and coppiced woodland.

6 To ensure that new woodland and pasture delivers gains for biodiversity.

7 To connect valuable habitats across the area.

8 To upgrade the network of routes providing connections with nearby neighbourhoods and the adjoining countryside.

9 To enhance access through well-defined site entrances, car parking, signage and secure boundaries where necessary.

10 To incorporate opportunities for education based around the history and ecology of the area.

11 To incorporate measures to reduce pressure on ecologically sensitive areas through appropriate planting and discrete fencing.

12 To put in place sustainable measures for the management and maintenance of the Park.

13 To continue to involve the local community in development and management decisions

2.0 Strategic Objectives

In order to realise these objectives there are five topics or key considerations to be taken into account.

(i) Management of Woodland

The strategic plan encourages the development and implementation of solutions to enhance woodland management, with a focus on priority woodland habitats and native trees. The strategy encourages increased woodland diversity in species and age structure to deliver more resilient woodlands. The overall aim is to generate biodiversity, landscape and socio-economic benefits.

(ii) Enhancement of Habitats

Habitat networks will be created. These should be connected in a way that dependent species can disperse between areas to create linked populations. A healthy and sustainable habitat network enables species to be more resilient to environmental changes, particularly the impacts of climate change.

(iii) Landscape, Open Water and Watercourses

The strategic plan provides direction on how to protect the qualities of the landscape which are of particular value and it encourages the sensitive development of new landscape components that achieve a balance between existing and new woodland, open grassland and riparian corridors. There is an opportunity to create landscape value from the new drainage retention ponds in the Park and to strengthen the character of the Dargavel Burn corridor and the Craigton Burn corridor.

(iv) Access, Community and Recreation

The Park is an important host for outdoor recreation activities. The strategy promotes public access and responsible behaviour and encourages the public use of the Park for recreation and outdoor education.

(vi) Heritage

The legacy of the former Royal Ordnance Factory will be recognised through the retention of buildings or structures which give a glimpse of the past industrial and pre-industrial use of the land. This will be supported by interpretation which will explain the retained industrial archaeology and include narrative on the social history of the place.

3.0 Existing Conditions

3.0 Existing Conditions

The natural elements of the site include raised landforms, watercourses, open grassland and woodland.

Rising land to the north of the Park

Shape and Features of the Land

The topography and natural landforms can be separated into two distinct zones. On the northern and western margins there is undulation in the natural morphology with raised landforms (see Figure 6). The southern and central zone is more low lying and level, forming a drainage basin for the River Gryfe beyond the southern boundary. A shallow valley runs through the southern and central zone within which is Dargavel Burn. The valley becomes more incised towards the northern site boundary.

(i) Topography

3.0 Existing Conditions

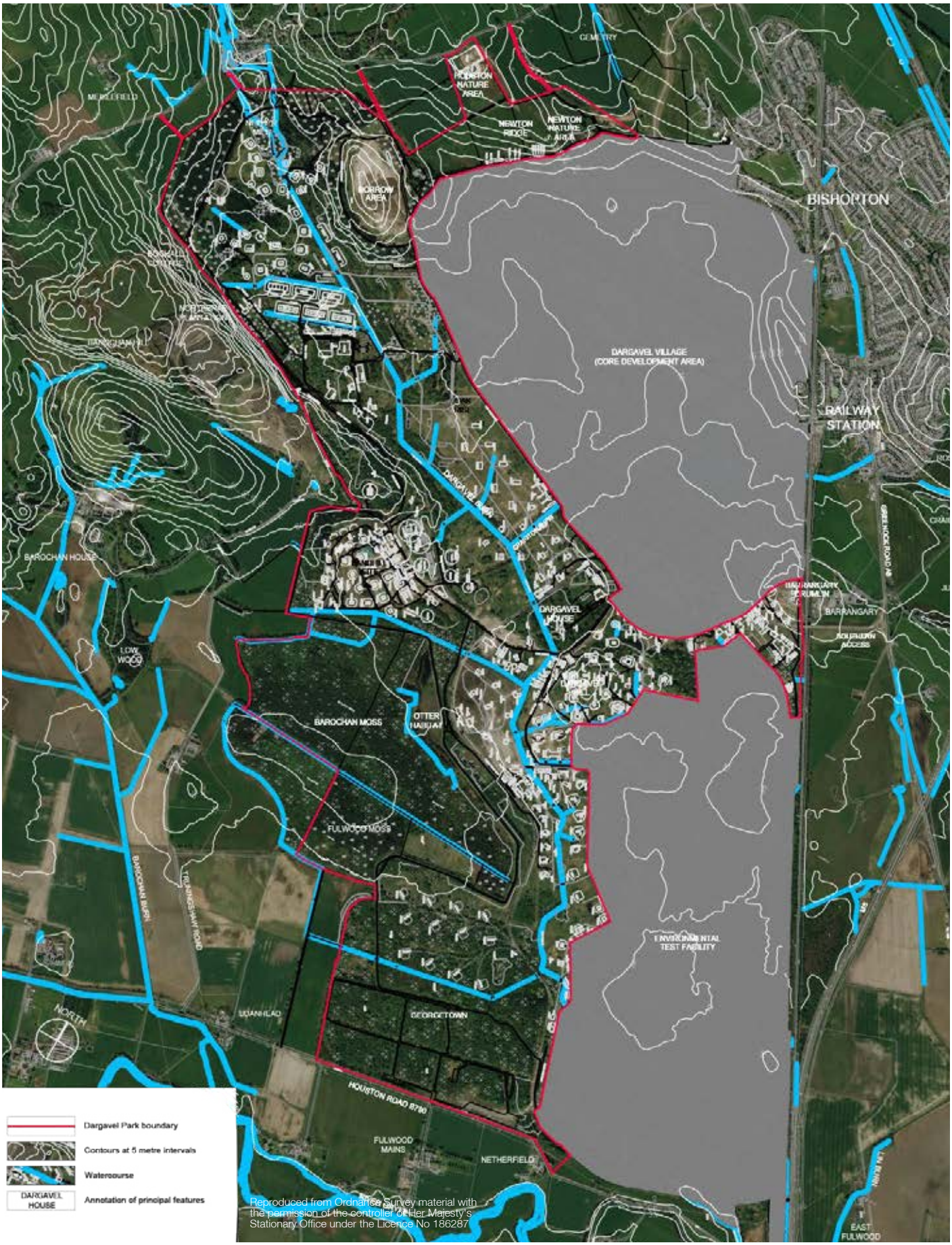


Figure 6: Shape and Features of the Land

3.0 Existing Conditions

With regards to topography, the current engineering works across the Park represent the initial phases of the Baseline Improvements detailed in Chapter 4.0. These engineering operations are being carried out in a phased programme across the Park and are therefore work in progress.

The principal ways in which the topography is being affected is by the removal of engineered earth bunds and a limited number of major earthworks operations. These major earthworks operations which are in progress relate to:

- Clay extraction at the borrow area.
- The deposition of soil materials in a partly formed mound by Glenshinnoch Road.
- The deposition of materials into a landfill facility.

The clay borrow area

(ii) Drainage and Watercourses

In terms of drainage, the Dargavel Burn is the primary watercourse running through the length of the Park from north to south. It has been partially canalised. On both sides of Dargavel Burn the landform remains predominantly level creating the feature of a low-lying valley floor. To the south of Barochan Moss the shallow valley enters the wider flood plain of the River Gryfe. A further defined watercourse (the Craigton Burn) has a confluence with the Dargavel Burn at the centre of the site (see Figure 7).

The drainage network is completed with a series of drainage ditches which accepted surface water run-off from the factory.

3.0 Existing Conditions

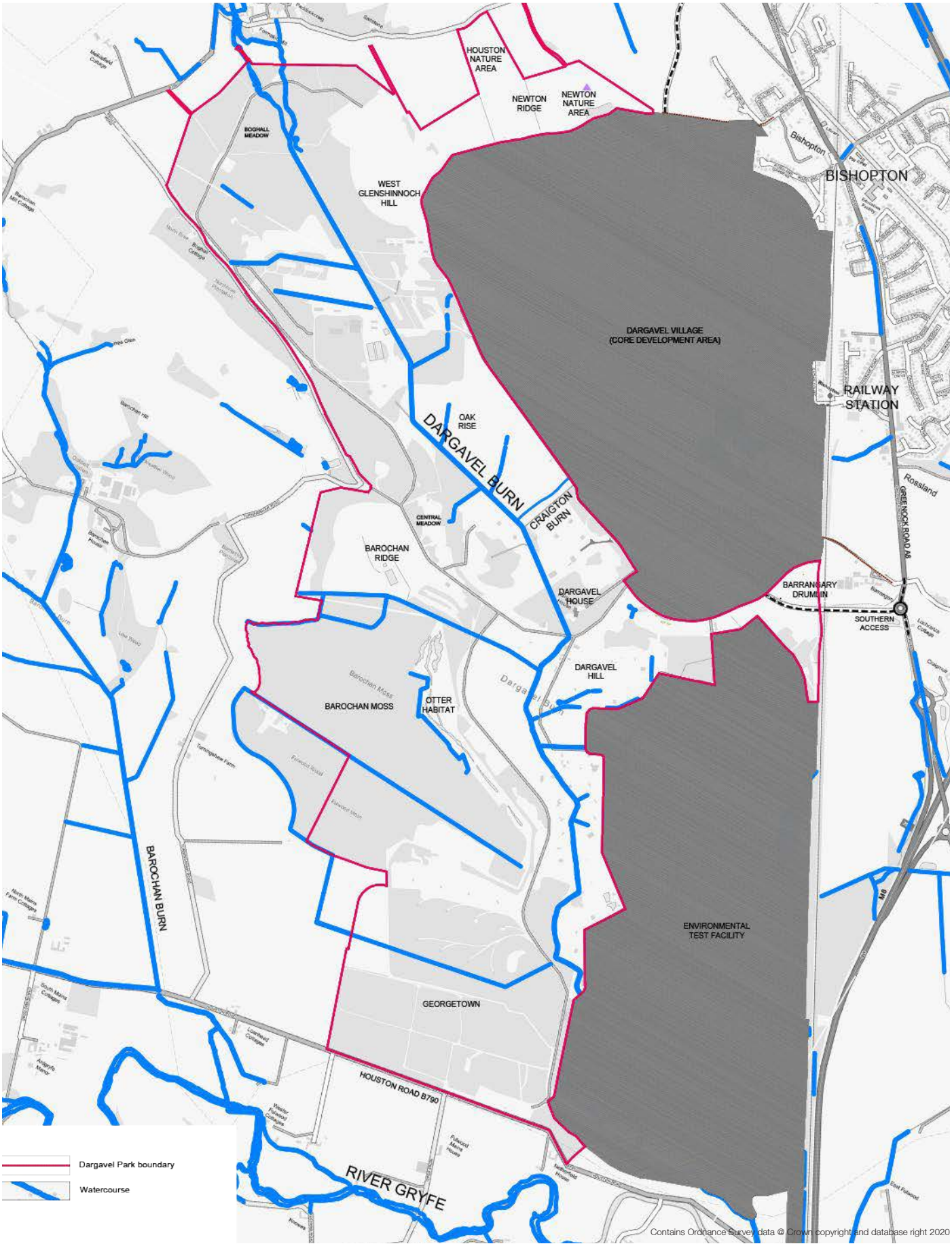


Figure 7: Principal Watercourses

3.0 Existing Conditions

Dargavel Burn in the northern part of the Park (top)
and in the southern part of the Park (left)

A number of improvements have recently been made to the surface water drainage network in the Park. These include:

- Restoring the previously piped Cordite Burn back to a surface water feature in the northern part of the Park.

Cordite Burn resorted to a surface water channel

- Creating a series of ponds and wetland areas in two nature areas in the northern part of the Park at Houston Nature Area and Newton Nature Area.

Transient pond in Houston Nature Area

Pond at the edge of the Park (Pond S7)

- Creating a pond which straddles the Park and the southern edge of Dargavel Village (SUDS pond S7). The pond is designed to attenuate the surface water run-off from the southern part of Dargavel Village prior to discharging rain water into the surrounding watercourses. This will prevent the new development contributing towards flooding downstream during periods of high rainfall. The ecological capacity of this pond is augmented with aquatic planting, a fringe of marginal vegetation and a mosaic of wildflower meadows and wetland woodlands.

- Creating an aquatic otter habitat in Barochan Moss in the central part of the Park.

Otter habitat in Barochan Moss

3.0 Existing Conditions

Biodiversity

The biodiversity interest has been surveyed over many years. A detailed picture has been built up of the ecology and habitats.

There are several protected species on site, including badgers, bats, kingfisher, crossbills, barn owls, otters, Atlantic salmon and brook lamprey.

The designated SINCs are Barochan Moss (an extensive area of relict lowland raised peat bog now heavily invaded with rhododendron) and an area of relict woodland and grassland near to the western boundary (Netherbrae SINC).

Areas of ancient woodland are found within the Park lying along the northern edge of Barochan Moss and at the northern edge of the Environmental Test Facility (ETF).

Scots Pine at Barochan Moss

Lichen heath wood at the SINC near Barochan Moss

Principal areas of long term ecological value include:

- The Dargavel Burn corridor which runs through the Park area from north-west to south-east. It is important not just as habitat but as a corridor for the free movement of many of the protected species.
- Barochan Moss.
- Netherbrae SINC
- The woodland within the Georgetown area of the site
- Newton and Houston Nature Areas

3.0 Existing Conditions

- Rough grassland areas providing barn owl foraging habitat.

- Ancient woodland areas and mature broadleaved woodland, for example, those within Dargavel House grounds and off Reilly Road.

Many of the protected species are dependent on the balance of grassland and trees as feeding habitat, commuting routes and refugia. It will be necessary to maintain areas of grassland and scrub as well as encourage biodiversity by the replacement of many of the plantation areas with mixed or broad leaf woodland.

Valuable wetland areas along a canalised section of Dargavel Burn with Crack Willow hybrid which hosts the rare Willow Blister fungus, Cryptomyces maximus and the even rarer Godronia fuliginosa

It is notable that the site contains a significant variety of UK Biodiversity Action Plan (BAP) habitats. The diverse range of habitats present in a what is a relatively small area is reflected in the list of species that have been recorded on site to date. For the species groups that have been better recorded there are current totals of 23 species of mammal, 115 species of birds, 5 species of amphibians, 374 species of plants, 522 species of fungi, 15 species of butterflies and 9 species of dragon and damselflies.

There are only two areas specifically identified as Sites of Interest for Nature Conservation (SINCs) but UK BAP habitats present across the site include: rivers, ponds, hedgerows, wet woodlands, lowland mixed deciduous woodland, lowland Raised Bog and the open mosaic habitats on previously developed land.

3.0 Existing Conditions

UK BAP priority species recorded on site include: Hedgehog, Brown Hare, Otter, Soprano Pipistrelle Bat, Brown Long-eared Bat, Common Toad, Skylark, Tree Pipit Lesser Redpoll, Linnet, Cuckoo, Yellowhammer, Reed Bunting, Herring Gull, Grasshopper Warbler, Spotted Flycatcher, House Sparrow, Tree Sparrow, Dunnock, Bullfinch, Starling, Song Thrush, Lapwing, European Eel, Atlantic Salmon, Brown Trout, Small Heath and Small Pearl-bordered Fritillary.

Young otters near Dargavel Burn

In addition, there are at least another twelve species of birds of conservation concern (amber or red listed) regularly breeding on site including Mistle Thrush, Grey Wagtail, Stock Dove and Kingfisher.

The site is of particular significance for several species at a county level (Vice County of Renfrewshire) and more so if the current Renfrewshire Council area is used as the limit. Species such as Jay, Tree Pipit and Little Ringed Plover are scarce in the county away from the Bishopton site. It also holds a significant population of Stock Dove, Barn Owl, Garden Warbler and Ringed Plover.

Grassland being taken over by scrub

The invertebrates on site include all but one of the ten species of dragon and damselflies known to occur in the county with several areas having most of the species in a single location. The butterflies include important populations of both Small Pearl-bordered and Dark Green Fritillaries. The Dark Green, while not rare nationally, is a very scarce and local butterfly in Renfrewshire. The Bishopton population appears to be expanding slowly and is now known to be found in several parts of the site. Less is known of the moths but the population of Cinnabar Moths is significant at a county level and there is also a healthy population of Six-spot Burnet Moths.

Among the fungi, while there are no UK BAP species noted, there are many nationally rare species and several that have been found are new species to Scotland. Among the more outstanding finds are the bright orange Pluteus aurantiorugosus, a first for Scotland found on a decaying Wych Elm at Dargavel House in 2015. Another first for Scotland was a small, black fungi appropriately named Bombardia bombarda on account of it resembling small bombs. Many of the fungi are specific to individual habitats that are to be found on site. Areas of particular interest and importance are the old Beech, Oak and Lime woodlands around Dargavel House. The wet willow woodland contains the internationally rare Willow Blister fungus Cryptomyces maximus and the even rarer discomycte Godronia fuliginosa. Specimens from the latter species from Bishopton are now in the herbarium in Kew as the only representatives of the species in the collection.

The grasslands are also of interest and while the waxcap numbers have no doubt declined as the woodland expands, there are still some to be found at a few locations along with other grassland species such as the club fungus and entolomas.

The lack of intense management of the woodlands over the years has

3.0 Existing Conditions

Georgetown woodland

Mosaic of habitat types including wetland, scrub, evergreen and deciduous trees near the Borrow Area

resulted in the presence of deadwood. This is extremely important for both insects and fungi.

There are several scarce and rare species living on the areas of ash substrate which include the perimeter tracks and lichen heath SINCs.

Another of the habitats is the degraded raised bog at Barochan Moss. Whilst this is not currently in a good condition as a functioning wetland, it still has significant depth and volume of peat and is perhaps the most extensive lowland raised bog left in the county. It has some long-established Scots Pine plantations on it with some areas of Birch classified as ancient (of semi-natural origin). Much of the rest of the moss has a dense covering of birch and rhododendron and has lost much of it's original open bog vegetation. The trees are not without their own interest however and the significantly high proportion of standing deadwood among the Scots Pine may prove to be of value to invertebrates once examined. There are some nationally rare fungi associating with the birch, most notably the Birch Bark Stripper Xenotypa aterrima. At a nearby location the very rare tiny discomycete Rutstroemia johnstonii has been found in association with this fungus. It may be present at Barochan as well if searched for. The Birch Bark Stripper has also been noted on some of the Downy Birch that has invaded the derelict areas of the factory between Barochan Moss and Dargavel House. This is an unusual phenomenon as it generally prefers wetter areas of birch. Also, in association with these birch can be found another rare fungus, Daldinia decipiens, an extremely rare fungus in Great Britain.

Although little of national importance has been discovered among the plants on site so far, there are numerous species which are of local importance, many of these are associated with the brownfield element

of the site (a UK BAP Priority Habitat). The currently identified SINCs on site were chosen on botanical grounds. The Ancient Woodland Inventory Scotland lists four areas (three areas of Barochan and one at the northern edge of the ETF) but the woodlands around Dargavel House and nearby Glenshinnoch Road would also qualify under this category as there has been woodland shown at Dargavel House since the time of the earliest maps and the ancient Yew and Hornbeam by the house testify to the antiquity of the site even if the woodland has changed over the years due to fashions in landscape design.

Dargavel Park as a whole is part of a network of woodland that covers significant areas of the low lying ground between Port Glasgow and Paisley. The significant difference is the presence of large areas of open grassland and wetland interspersed with the woodland, forming a mosaic of habitats in a lowland environment that are of importance for many scarce and rare species which are not found as regularly in the more intensively farmed areas nearby.

The phased transformation of the former factory has so far included interventions to enhance biodiversity. These include:

- The creation of a range of surface water features as described above.

- The creation of Houston and Newton Nature Areas to support a range of protected species. Located on the site of an old reservoir and stable complex respectively, these areas in the northern part of the Park support, amongst other bird species, Barn Owls and Yellowhammer. Other protected species found in these nature areas include badgers and bats. Works carried out to support these species include the erection of a Barn Owl tower and poleboxes, the creation of a series of ponds/wetlands and tree/shrub planting.

Grassland management and nature areas at Formakin Ridge

3.0 Existing Conditions

Newton Nature Area

Houston Nature Area

- Phased felling and restocking of woodland blocks to enhance biodiversity (see woodland section below).

- Woodland and hedgerow planting at Formakin Ridge in the northern part of the Park.

- Managing the grassland in the northern part of the Park so that it provides a rich foraging habitat for owls.

- Creating a mosaic of wildflower meadows and woodlands across the eastern part of the Park at Barrangary Drumlin.

- All planting carried out in the Park has been locally native to maximise ecological gain and comply with Scottish legislation. The only exception to the use of locally native species is where tree species have been planted under specific Forestry Commission licence as described below.

Barrangary Drumlin

3.0 Existing Conditions

Woodland

The woodland character is closely related to its biodiversity interest. The woodland cover is significant and varied. As a consequence the general impression of the site is enclosed and wooded.

Groups of trees can be distinguished according to species composition and age (see Figure 8). Five key categories of trees and woodland have been identified:

i. Historical Planting and Woodland: There are individual trees and tree groups which pre-date the factory. Culturally, visually and ecologically, these mature trees and woodland are amongst the most valuable on the site. This category includes the remnants of the Dargavel Estate, the Barochan Moss and ancient woodland of semi-natural origin on the northern border of the ETF.

The Dargavel Yew tree is thought to be of comparable, or older, age to Dargavel House circa 500-1000 years old. The tree was described as “of considerable age” in 1890 by the Royal Scottish Arboriculture Society.

The Dargavel Hornbeam tree thought to have been planted at the time of major remodelling work to the house in 1670 so circa 350 years old

3.0 Existing Conditions

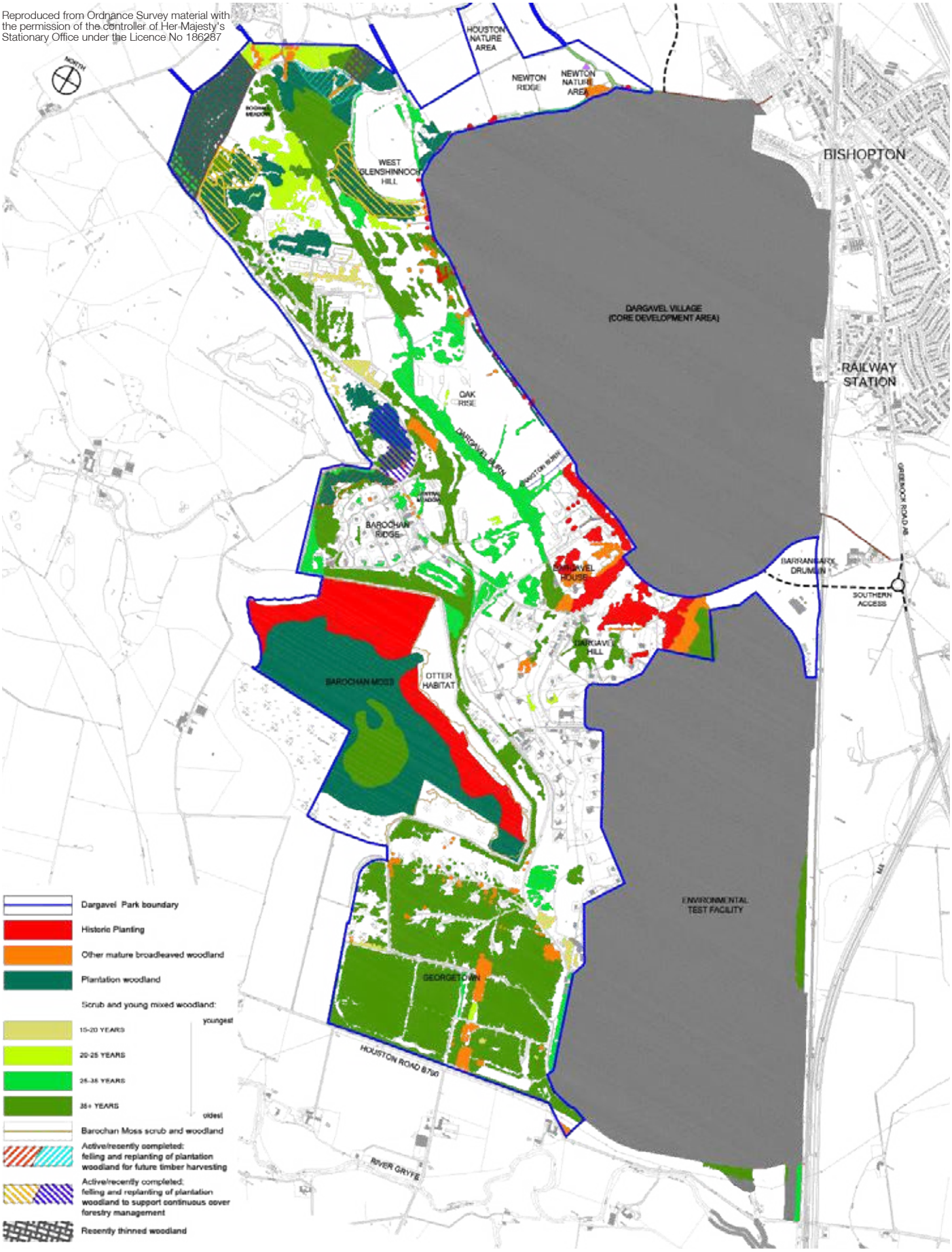
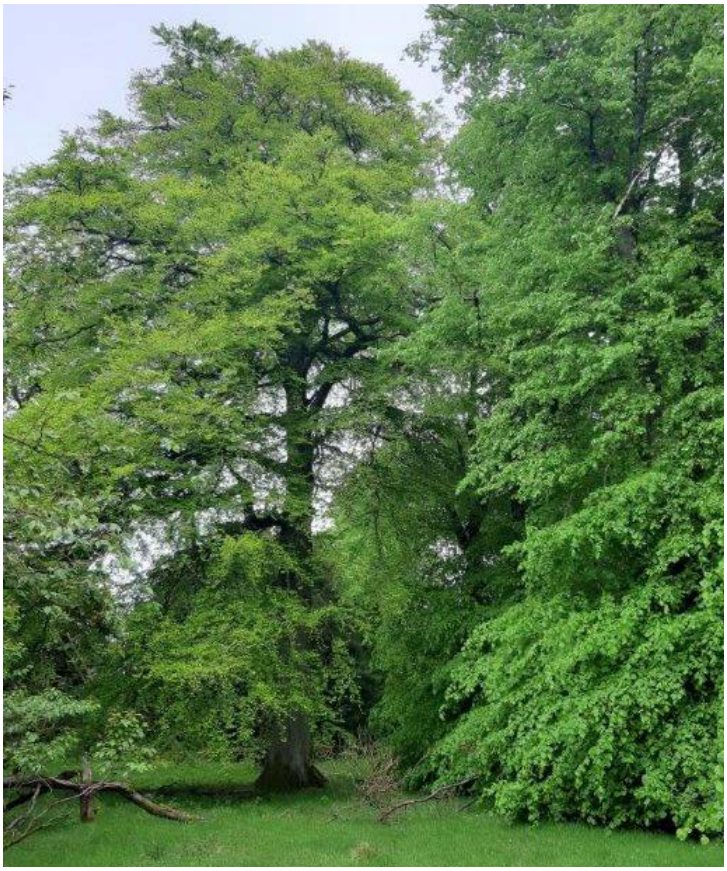
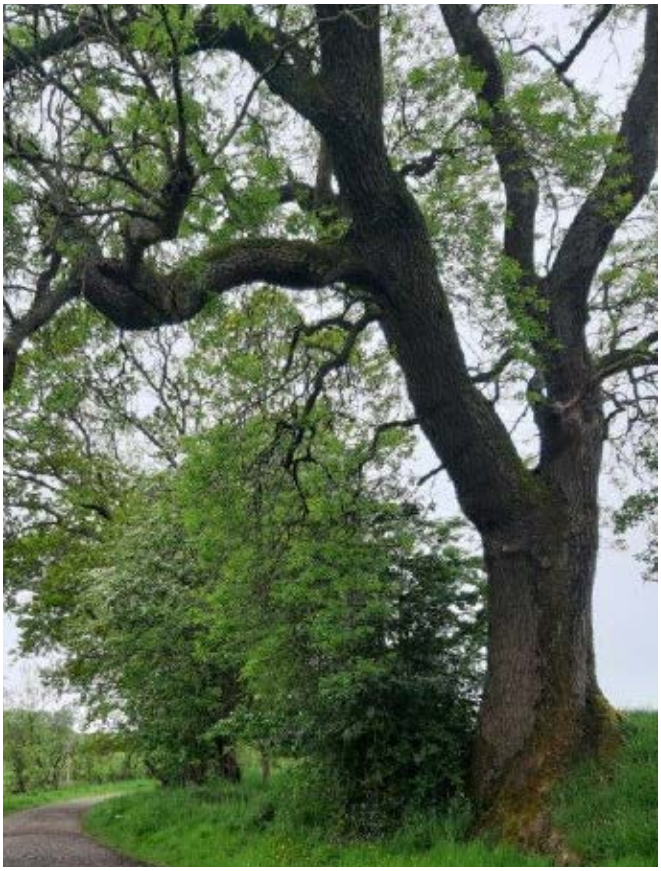


Figure 8: Categorisation of Trees and Woodland

3.0 Existing Conditions



An example of the mature collection of trees in the Dargavel Estate which are likely to have been planted as part of remodelling in the mid 1800s.



Mature hedgerow tree in the northern part of the Park

Barochan Moss, a mature Scots Pine and Birch woodland on a raised peat bog, is an important ecological feature containing small areas of Ancient Woodland and Long-Established Woodland.

ii. Other Mature Broadleaf Planting: More recent, mainly deciduous woodland, often planted as part of the factory. This category includes a mixture of copses, roadside and amenity planting. They are valuable landscape and ecological features.

iii. Softwood Plantations: Through the operational life of the factory a reasonably extensive programme of softwood planting was carried out. This is generally at outlying locations to the north, east and south of the Park area. Planting is dominated by Sitka Spruce and Larch. Plantations are generally densely planted and are in need of management. The peripheral plantations provide a dense screen, restricting views into and out of the Park area and contributing to the enclosed, wooded nature of the site. The plantations themselves are of monotonous visual character although the presence of the coniferous plantations adds to the biodiversity of the area. Species closely associated include Goldcrest, Coal Tit, Jay, Siskin and a range of fungi and insects.

3.0 Existing Conditions

iv. Scrub and Mixed Woodland: This category generally consists of naturally colonised species with an age profile from recently seeded to over 50 years. This woodland is frequently on disturbed or neglected ground which is likely to require remediation. More established trees are found at Georgetown, Boghall and Netherbrae.

v. Waterside Planting: Mainly naturally colonising riparian woodland along the banks of the Dargavel Burn. The water features themselves are important ecological corridors and the trees being an important component.

The woodland areas are interspersed with significant zones of grassland. When the factory was in full operation the grassland was managed and cut at regular intervals so as to minimise fire risk. However, since the cessation of activity the flora in the open parts of the site is evolving to a rough grassland character with signs of scrub invasion.

Forestry and Land Scotland carried out a Woodland Survey of the Park area in 2016 and this report contains a detailed description of the woodland stock, compartment by compartment. This body of work is a useful reference for much of the site and can be used to inform interventions. However, it should be noted that the subsequent remediation and woodland management works have resulted in some of this woodland survey now requiring revision.

A number of improvements have recently been made to the woodland in the Park under a felling licence granted by Scottish Forestry. This is allied to obligations to undertake restocking for some areas. These works are substantially complete with outstanding pockets of restocking due for completion by the end of 2021/beginning of 2022.The works include:

- Restocking a Sitka Spruce plantation at the southern end of Reilly Road to allow future timber harvesting operations and thinning. The plantation compartment has been clear felled with stumps left in place and brash recovered. The area is restocked with 1,387 mixed broad-leaved, 3,707 Sitka Spruce, 50 Western Hemlock and 1,252 Aspen.

- Works to support continuous cover forestry management:

- Thinning of historic Sitka Spruce plantation in the north western part of the Park by the removal of approximately 25% of the stock.

- Larch plantation at the southern end of Reilly Road clear felled with stumps and brash left in place. Restocked with 1,872 mixed broad-leaved and 3,744 Aspen.

- Thinning of a Sitka Spruce plantation in northern part of the Park by the removal of approximately 25% of the stock.

3.0 Existing Conditions

North Brae woodland restock

Woodland restock near Formakin

Woodland thinning near Formakin

3.0 Existing Conditions

Boundaries

The Park area is currently substantially contained by factory security fencing. This represents an urbanising influence which visually detracts from the surrounding rural setting.

The northern part of the Park abuts the attractive landscape of the Formakin Estate which is included in the Inventory of Gardens and Designed Landscapes in Scotland. Improvements to this part of the Park have already commenced. Here, the security fence has been replaced with stock proof fencing and hedgerow planting containing locally native trees and shrubs. This represents a repair to the landscape, improving both its visual and ecological qualities.

The security fence which is an urbanising feature in the landscape

Stock proof fencing and tree planting near the Formakin Estate

3.0 Existing Conditions

Access to the Park

As more of the Park becomes accessible to the public it will become increasingly important to the local population. Local residents are encouraged to access the Park via a network of footpaths and cycleways which penetrate the initial phases of Dargavel Village and the surrounding area.

The footpath network already connects with a number of Core Paths which explore the surrounding area and facilitate the movement of people to the Park from the broader countryside.

Due to the relatively small proportion of the Park area that is currently accessible to the public, it has not yet achieved importance as a sub-regional destination and so visitors are unlikely to travel great distances to the Park. No dedicated car parking provision is provided for Park users at present.

The majority of the Park area is currently secured while engineering works are carried out. BAE Systems and their contractors access the secured area at a limited number of locations. These points of access will alter as the engineering works progress. Currently BAE Systems and their contractors use a southern and northern point of access off Barrangary Road and Craigton Drive respectively.

In addition, farmers have access to areas of the Park across agricultural land.

BAE Systems has secure vehicular access points to the ETF across the Park from the southern part of Dargavel Village and from Houston Road (B790). The latter crosses a large area of hardstanding.

Area of hard standing at southern access to ETF

Access within the park

Two areas of the Park, Newton Ridge to the northwest and Barrangary Drumlin to the southeast of Dargavel Village, are already open for use by the public. These areas include footpath routes that link into Dargavel Village, circulate around the Park landscape and connect with the wider road and footpath network beyond the Park.

The footpaths within these areas of the Park reach two viewing areas at local high points where there is seating.

Refurbished track at Formakin Ridge

3.0 Existing Conditions

View from Formakin Ridge (above) and viewing area (left)

Viewing area at Barrangary Drumlin

3.0 Existing Conditions

Water crossing points

Two culverts have recently been installed in the vicinity of Newton Ridge to provide crossing points for the footpaths over watercourses. These are currently the only points at which the public can cross watercourses within the Park.

Within the secured area of the former factory there are a number of other bridges and culverts but these are not accessible to the public. These support the current engineering and security operations. These water crossing points are substantially based on the historic factory layout and maintained to a level commensurate with the current site operations.

Dargavel Bridge

Interpretation

An information board has been installed at Barrangary Drumlin to explain historical aspects of the Park.

A Healthy Walking Leaflet was produced in 2019 which shows how footpaths connect with Dargavel Village and the wider footpath network. The leaflet encourages the use of the footpaths by highlighting points of interest.

4.0 Baseline Improvements

4.0 Baseline Improvements

In order to achieve the Key Principles and to meet the Strategic Objectives, an extensive range of landscape and ecological works will be carried out as set out below.

Shape and Features of the Land

(i) Topography

The engineering works across the Park will result in a significant repair to the topography, restoring the majority of it to its pre-factory condition. The main components of this are the restoration of Formakin Hill (the Borrow Area) which will be returned to its natural shape and height, and the removal of extensive engineered bunds and other earthworks across the factory site.

In addition, new landforms are created. These have been sensitively designed to fit in with the surrounding topography and visually integrate Dargavel Village into its countryside setting. The principal new topographical features are found at:

- Barochan Ridge where the reclaimed landfill site extends a natural ridgeline further into the Park.

- An undulating mound along the western edge of Dargavel Village, known as Oak Rise, which helps to integrate the new built development into the wider landscape.

(iii) Drainage and watercourses

The existing surface water drainage system across the Park will be significantly augmented in the following ways:

- Addition of three more substantial ponds along the eastern edge of the Park. These are designed to attenuate the surface water run off from Dargavel Village prior to discharging surface water into the surrounding watercourses. This will ensure that Dargavel Village does not contribute towards flooding downstream during periods of high rainfall. Specially designed open ditches (swales) are used to link the new ponds to Dargavel Burn. The ecological capacity of these water features is enhanced with aquatic planting, a fringe of marginal vegetation and a mosaic of wildflower meadows and wetland woodlands.

- The channel of Craigton Burn is extended to increase its capacity to attenuate the rate at which water runs out of Dargavel Village from the existing water courses. Within the Park a series of wetland habitats will be created and again these will benefit biodiversity.

4.0 Baseline Improvements

- Creation of a pond and wetland area by Barochan Ridge in the vicinity of the landfill site.

- Introduction of outflow weirs/sluice to control hydrology at Barochan Moss to locally raise the water table.

Existing wetland by Barochan Ridge which could be improved

Biodiversity

A range of actions will be taken to support and improve biodiversity within the Park. These include:

- Expanding wetland habitats as described above.

- Carrying out tree works and replanting as described below.

- Removal of invasive Rhododendron from the grounds of Dargavel House.

- Elimination of Japanese Knot-weed at the few places where it occurs, mainly around Dargavel House.

- A number of durable barn owl boxes made from 100% recycled plastic have been purchased and will be erected in some of the cleared compartments of woodland as the temporary grassland is good foraging habitat for owls. Plastic boxes will be used to replace some of the wooden boxes which are coming to the end of their life.

4.0 Baseline Improvements

- From a biodiversity perspective, the management of Barochan Moss is particularly important. It forms a key part of the baseline improvements. The protocols for the management of Barochan Moss are set out in Appendix B.

- At Barochan Moss examine the potential for a viewing platform/hide and a solar powered web cam as part of a broader conservation and community engagement programme for Dargavel Park.

- Continue to work with NatureScot on a feasibility study to identify how the peatland at Barochan Moss can be restored.

- All planting carried out in the Park will be locally native to maximise ecological gain and comply with Scottish legislation. The only exception to the use of locally native species is where tree species have been planted under specific Forestry and Land Scotland licence.

- As the remediation programme progresses, ecological considerations will be taken into account to inform the engineering works. Legacies from the factory may be retained in suitable areas as these have proved valuable for a significant range of the plants and animals that occur on site. Some species closely associated with the buildings are Jackdaw, Swallow, Barn Owl as well as invertebrates and plants of local importance. Retention of some buildings (and improving them along with provision of nest boxes) will allow these species to remain on site once remediation is completed. Ecological assessments will establish which factory buildings and structures are of greatest ecological value and this information will inform the remediation programme.

- Preserve fungal diversity by minimising the extent of damage to soils, balancing the extent of intrusion of remediation operations with soil preservation.

Woodland

An intervention to form part of the baseline improvements is the ongoing and comprehensive management of woodland. This will be based on the survey undertaken by Forestry and Land Scotland (2016) which is mentioned in the preceding chapter. The protocols for woodland management are set out in Appendix A.

The recent improvements made to the woodland stock described in the previous chapter will continue to be made across the Park under a felling licence granted by Scottish Forestry with obligations to undertake restocking for some areas. These are:

- Restocking a Sitka Spruce plantation in the northern part of the Park to allow future timber harvesting operations and thinning. The

plantation compartment has been clear felled with stumps left in place and brash recovered. In turn, it has been restocked with 936 mixed broad leaf, 2,485 Sitka Spruce, 50 Western Red Cedar and 845 Aspen.

- Works to support continuous cover forestry style management:

- Sitka Spruce plantation in north western part of the Park to be clear felled with stumps and brash left in place. To be restocked with 1,387 mixed broad leaf, 3,707 Sitka Spruce, 50 Western Hemlock and 1,252 Aspen.

- Larch plantation by Barochan Ridge to be clear felled with stumps and brash left in place. To be restocked with 1,536 mixed broad leaf, 50 Douglas Fir, 2,921 Scots Pine, 594 Silver Fir, 594 Norway Spruce and 1,387 Aspen.

Restocking is to be carried out over the next two years using the above species. The composition of the mixed broad leaf species will vary between areas and include elements of riparian planting. The licence allows for the option to utilise more Sitka Spruce in the planned restocks but the intention is to maintain the mixtures above.

It is also planned to undertake maintenance of site perimeter access tracks by removing self-regenerating Birch.

Restocking of woodland will be an ongoing process in the overall management of Dargavel Park. There will be a review of restocking opportunities following the completion of each phase of land remediation.

Boundaries

The security fence around the operational ETF area will remain but other lengths of security fencing will be removed. This will be replaced with post and wire fencing which is more in keeping with the rural setting. The new fencing will be stock proof where it abuts agricultural land.

The southern part of Georgetown will be secured with a post and wire fence augmented with a hedgerow of locally native plant species. This is to be designated as a wildlife area containing woodland and will be known as the Georgetown Nature Area. The hedge will enhance the ecological qualities of the area while also deterring people from entering. Signage will explain the wildlife significance of the area and that access is controlled due to its wildlife status.

Access to the Park

The Park will be both a local and a regional destination. Local residents are encouraged to access the Park via a network of footpaths and cycleways which penetrate Dargavel Village and the surrounding area (Figure 2B).

4.0 Baseline Improvements

The footpath network connects with a number of Core Paths which explore the surrounding area and facilitate the movement of people to the Park from the broader countryside (Figure 2A). In this respect, the draft Renfrewshire Core Path Plan 2020 is significant as it shows longer distance aspirational routes such as the Linwood to Erskine Bridge cycle route which runs through Dargavel Park.

Visitors travelling a greater distance are likely to arrive by one of the following modes:

- By bicycle using the surrounding road network or dedicated cycle routes and gaining access to the Park from one of the entrance points.

- By rail arriving at Bishopton rail station and walking or cycling along the network of greenways to the Park.

- By car via the motorway and local road network. Two car parks are to be provided for visitors, one immediately to the south of Dargavel Village near the centre of the Park, and one off Houston Road (B790) at the southern part of the Park. The car parks make use of existing access points and areas of hard standing. The southern car park has the greatest capacity and could accommodate up to 300 vehicles. The car park that can be accessed from Dargavel Village will be smaller with a capacity of around 100 spaces.

Due to the considerable size of the Park, it is important that there are a number of other points where vehicles can enter for management purposes. These points of access will be restricted to prevent general public vehicle access. They are distributed around the perimeter of the Park: one at the road on the northern edge of the Park, two on Reilly Road on the western boundary and one at the southern limit of the Park. In addition, farmers have access to areas of the Park across agricultural land.

Three metre wide, hedge lined primary route created in the Park on the alignment of the historic track of Newton Road which predates the Royal Ordnance factory

4.0 Baseline Improvements

BAE Systems will continue to manage vehicular access to the ETF from the southern part of Dargavel Village and Houston Road (B790). The existing secure vehicle access point off Houston Road will continue to cater for a limited number of vehicle moments to/from the ETF (in the region of 0-5 movements per week). However, the majority of traffic to the ETF will use the principal secure access gained from Barrangary Road in Dargavel Village.

Access within the Park

Within the Park a network of pedestrian/cycle routes will be developed. Primary routes will cater for the key strategic linkages while secondary routes provide options to explore key landscape features.

The primary routes connect Bishopton and Slateford Road with Newton Road/Glenshinnoch Road. The latter forms the outer edge of Dargavel Village on an historic route that predates the factory. At its southern end, near to Dargavel House, the primary route penetrates the Park to link with a north/south primary route which connects Houston Road (B790) at the southern limit of the Park with Reilly Road at the northwest limit of the Park.

Secondary footpaths create additional linkages and facilitate looping routes for visitors (Figure 2B). They provide the following connections: a link from the north end of Dargavel Village to the public road to the north of the Park (Houston Road); links across the northern part of the Park between Reilly Road and the northern and western edges of Dargavel Village (these involve two crossings of Dargavel Burn) and a connection between the southern part of Dargavel Village and the

Example of an informal footpath mown into a meadow

primary footpath network. In addition, secondary footpaths explore the following landscape features: West Glenshinnoch Hill (former clay borrow area), Barochan Ridge (former landfill site), Barrangary Drumlin (former Landscape Mound 1), ponds near Craigton Burn and Barochan Hill and Georgetown.

The surfacing of the footpaths will be commensurate with their countryside setting. Both the primary and secondary routes are principally located on the existing roads which either predate the factory or were developed as part of the factory infrastructure.

The historic factory infrastructure provides a unique opportunity for the creation of a robust footpath network. Existing routes surfaced in bitmac and consolidated granular materials will be reused alongside the concrete surfaced routes which once accommodated the narrow gauge railway. Where the surface is uneven or of poor quality repairs will be made using a range of methods: loose and uneven surfaces will be planed and consolidated and hollows will be filled with compacted hardcore.

The primary footpaths will generally be three metres wide and the secondary footpaths two metres wide. Localised drainage will be installed where necessary to ensure that the footpath surfaces drain adequately.

Tertiary routes will be more informal but should be a minimum of 1.5 metres in width. Where possible, they will be formed through the reuse of factory infrastructure. Occasionally they will be mown grassland passing through the more open areas of Dargavel Park.

Controlled public access will be catered for in areas where ecology has a particularly high priority such as at Barochan Moss and Georgetown.

The safety of the public will be managed through the way in which all facilities are designed, constructed and manged. The comprehensive, phased remediation of the Park will ensure that the environment is suitable for providing a community park asset. Access will be provided that caters for all users as far as practicable. Areas where access is to be limited due to safety issues, such as at the main wetlands or where there are restrictions on use, will be fenced off. Planting techniques will be used to reduce accessibility to these areas. This will be supported with appropriate signage explaining why access is restricted.

Environmental constraints will be considered when identifying routes to ensure that sensitive environmental features such as Badger setts and Otter holts are not disturbed. Planned routes may need to be adjusted in order to accommodate the evolving pattern of environmental constraints.

4.0 Baseline Improvements

Water crossing points

A number of bridges and culverts will be provided to create safe water crossings suitable for the public to use. Where possible, existing structures will be employed and, where necessary, works will be carried out to upgrade them so that they are suitable for public use. Where existing structures cannot be made good, new bridges or culverts will be installed. The key locations for additional water course crossing points, over and above those already provided for public use as set out in Chapter 3 (Existing Conditions), will be located:

- Where watercourses cross the perimeter track around Dargavel Village with one crossing at the north and one at Craigton Burn.
- Where footpaths traverse Dargavel Burn (which bisects the Park). These crossing points are located as follows: two in the north where the burn enters the Park; one near West Glenshinnoch Hill and one near Dargavel House.
- Along the southern section of the primary route through the Park where a ditch crosses the route.
- Where water courses cross secondary routes (not accounted for above) near Barochan Ridge.
- Where water courses cross other tracks that are likely to contribute towards the Added Value scenario described in the following chapter.

Seating

Seating opportunities will be provided throughout the Park. In addition to those already described in the Existing Conditions (Chapter 3), seats will be provided at:

- Regular intervals along the primary route overlooking Central Meadow, at the Houston Road parking area at the southern end of the Park and overlooking Dargavel Burn valley.
- Seats will also be provided on the secondary routes that are located closer to Dargavel Village and near to Boghall Meadow.

The new seating could be timber benches to be in keeping with their countryside setting but they could be formed through the imaginative repurposing of retained parts of the factory infrastructure. They will be positioned to capture views across water bodies, meadows and long distances. Where possible the benches will be located in sunny positions and orientated with a southern aspect. Environmental constraints will be considered when placing seats to ensure that sensitive environmental features such as Badger setts and Otter holts are not disturbed.

4.0 Baseline Improvements

Interpretation

Information boards will be installed at a number of the key landscape locations across the Park. This includes one in the south of the Park near the entrance at Georgetown Nature Area, one in the northern part of the Park at Newton Ridge and one on West Glenshinnoch Hill. These boards will interpret the surrounding landscape and ecological features but could also be used to provide an understanding of the industrial use of the site in the past with a focus on parts of the industrial archaeology that are to be retained.

The Healthy Walking Leaflet, which has already been produced, will be updated periodically as significant phases of the Park are completed and opened to the public. The leaflet will identify the new routes and show how they connect with Dargavel Village and the wider footpath network as well as highlighting points of interest.

Heritage

As remediation operations continue across the Park, ground investigations will be carried out giving rise to the detailed remediation strategy. This is likely to result in the identification of buildings and structures that could be considered for retention in the long term. For example, it is possible that narrow-gauge railway lines could be made into footpaths or a structure retained in which protected species such as badgers or bats live.

A number of structures have already been identified which have particular heritage value. There is a reasonable degree of confidence that they can be retained. These are:

(i) Nethermill Dam

Nethermill Dam predates the factory and is located in the north on Dargavel Burn as it enters the Park.

Nethermill Dam

4.0 Baseline Improvements

(ii) Inspection building

This is a single storey brick building with concrete slab roof which was used for inspecting explosives during the operational phase of the Royal Ordnance factory. It is located near to Craigton Burn. Not only does it signal the industrial heritage of the site, it is also of ecological importance as it is used by bats and barn owls. The building will be secured and enhanced as a habitat for these protected species.

Inspection Building

(iii) Station Platforms

Four of the station platforms will be kept from the railway system which connected parts of the factory. These are located on, or near, the primary route to the north of Barochan Ridge, at Central Meadow, near the Otter habitat and to the north of the southern entrance to the Park.

Netherfield Station

5.0 Added Value Opportunities

5.0 Added Value Opportunities

Following the implementation of the baseline improvements it is anticipated that the Park will continue to evolve to meet the needs of the community and wildlife interests. The local community will grow as the settlement of Dargavel Village is built.

In tandem with this, the phased development of the Park will enable community involvement to grow. It is also likely that the Scottish Government, Renfrewshire Council, charities and community groups will want to further develop the Park. The exact direction that this will take will emerge over the next ten years. Because some of the details of the Dargavel Park Strategic Plan will be dynamic it is appropriate for the document to be reviewed and updated every three years. This will allow emerging ideas and interventions to be captured in successive iterations of the Plan.

This chapter sets out the type of added value opportunities that could be accommodated, building on the baseline improvements to be carried out by BAE Systems.

Management Zones

The Park is divided into three main management zones, each with a different focus (Figure 3):

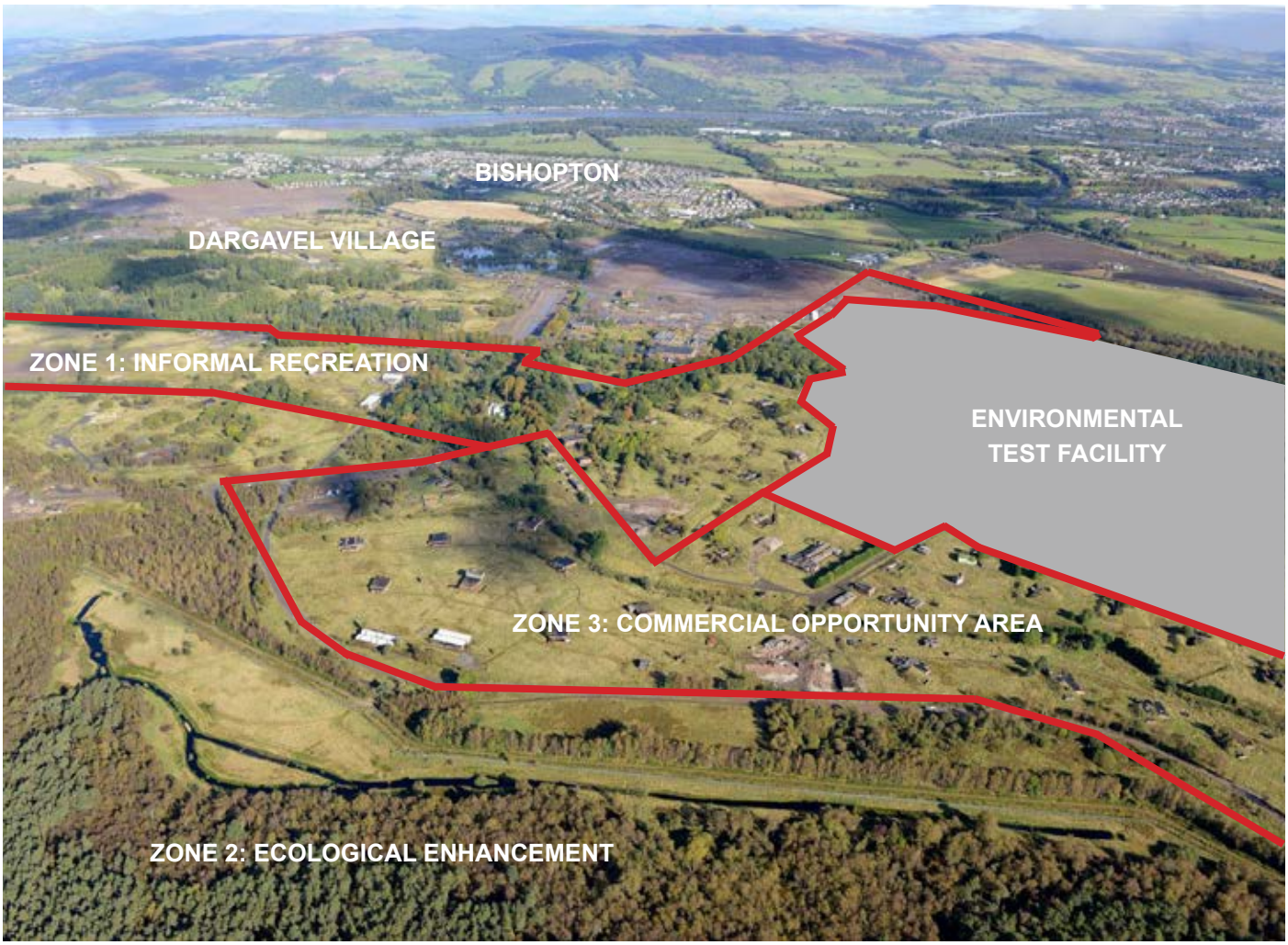
Zone 1: Informal Recreation

This zone wraps around Dargavel Village and will absorb the majority of informal recreational pressures generated by the local population by virtue of its proximity to Dargavel Village. Penetration further into the Park is to a considerable extent restricted by the presence of Dargavel Burn which creates a natural barrier to the more distant parts of the Park.

Zone 2: Ecological Enhancement

Dargavel Burn itself is an important ecological corridor and forms a boundary to Zone 2 where there is an ecological focus when it comes to landscape management. As well as Dargavel Burn, there are a number of other significant ecological assets in this area including Barochan Moss, ancient and long-established woodland and the Georgetown Nature Area. There is an emphasis on managing this zone for ecology, augmenting and connecting the existing ecological assets. Within this zone there could be limited opportunities for pastoral farmland but this would need to be accompanied by a more continuous land management regime. Conservation grazing that is well managed will benefit ecology through the maintenance of a mosaic of habitats. There are a number of crossing points over Dargavel Burn which facilitate pedestrian access to the area and connect the footpath network to Dargavel Village and beyond.

5.0 Added Value Opportunities



Aerial photograph showing management zones

Zone 3: Commercial Opportunity Area

There is a flat, open area in the central part of the Park to the south of Dargavel House. This area has been identified as having the capacity to accommodate commercial operations with an outdoor focus.

The image above shows the context of the Commercial Opportunity Area (Zone 3) and, in particular, its proximity with Dargavel Village which is currently under construction. Zone 1, Informal Recreation, lies between the village and the Commercial Opportunity Area while Zone 2, Ecological Enhancement, wraps around the outer edge of the Park.

5.0 Added Value Opportunities

The types of commercial operations that could be considered for this area include adventure play facilities like those illustrated below.

Examples of adventure play at:

Rivington Go Ape (top),

Yarrow Valley Country Park (middle)

and Cuningar Loop Boulder Park, Rutherglen, Glasgow (bottom)

5.0 Added Value Opportunities

Access

The main change to vehicular access is likely to be that required for commercial operators. This would make use of the existing vehicle access point on Houston Road. The pedestrian route between Houston Road (B790) and the Commercial Zone would need to be upgraded to take vehicles as well as pedestrians and cyclists. Currently there is a licence restriction associated with the ETF which limits the number of vehicles using this route to 500 vehicle moments per 24 hours. This is likely to be the primary point of access for the Commercial Zone for vehicles so the number of vehicles visits per day would be limited.

A cycle hire scheme at Bishopton Railway station would broaden the ways in which people travelling from the Greater Glasgow region could access the Park. A cycle hire scheme could be delivered in a range of ways. The process may be led by the National Cycle Network which is developed by Sustrans with support from Transport Scotland. The cycle routes in the Park have potential to provide a link to the longer distance cycleway to the south which provide a cycle route to Linwood across Linwood Moss.

Walking routes could be further developed in a number of ways:

- More routes could be provided within the Park. Additional links could be created across Dargavel Burn. The network of redundant road and rail routes could be utilised further to create more route options for walkers and cyclists. This would also strengthen the heritage connections by putting historic routes back into use for recreational purposes.

- The footpath circuits could be further extended to include viewpoints in the surrounding countryside such as the core paths at Whitemoss (core path LAN/11) and the Formakin Estate (core path LAN/16) as well as to the restored landfill site at Reilly Road.

5.0 Added Value Opportunities

Drainage and Watercourses

The drainage system could be further enhanced in the following ways:

- Re-naturalising canalised sections of Dargavel Burn to increase its biodiversity and wildlife capacity as well as flood protection.
- Introduction of outflow weirs/sluice to control hydrology at Georgetown Wildlife Area to locally raise the water table.
- Exploring the potential to lever in investment through the Water Environment Fund (WEF) administered by the Scottish Environment Protection Agency. This can assist in the re-naturalisation of Dargavel Burn which is, in part, canalised and removing barriers to migrating fish (the weir system on Dargavel Burn) or improving habitat for local fish.

Woodland

The woodland could be further enhanced in ways that are informed by the woodland management protocols set out in Appendix A. Improvements could include:

- A rolling programme of woodland planting and management should be established to allow for future timber harvesting and to support continuous cover forestry style management.
- Water table management to encourage wet woodland.
- Selective felling and restocking with locally native species to create a more diverse structure in areas like the Georgetown Nature Area.
- Enhancing scrub with additional native species to encourage bird species such as Lesser Whitethroat.
- Retaining deadwood wherever possible including sensible retention adjacent to public areas. Erection of nest boxes and bat boxes in areas of woodland where such features are limited due to the age of the trees.
- Encourage the spread of native flora into newly established woodlands or those with existing limited diversity. This could include the propagation of local seed.
- Exploring the potential for investment in improved and more diverse woodland through CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation).
- Periodically update the Woodland Survey prepared by Forestry and Land Scotlandin 2016 so that there is a detailed record of the woodland stock which can be used to inform interventions.

Northern part of Georgetown which would benefit from management to improve biodiversity

5.0 Added Value Opportunities

Biodiversity

Potential added value works to enhance the biodiversity of the Park may include:

- Create nesting banks for Kingfishers and Sand Martins as part of any proposed river restoration on the Dargavel Burn and other watercourses. A nest bank would be suitable at many locations on site and would be a valuable addition.

- Enhancement planting around sensitive ecological features to shield them from any disturbance which may arise from the presence of the public when the Park opens.

- Ecological enhancement planting around the retained Inspection Building to improve the habitat for protected species.

- Reinforce the perimeter stock proof fence with a hedge on the Park side where this has not already been established.

- Improved quality and better management regime for the peatland at Barochan Moss drawing on expertise and funding provided by Scottish Natural Heritage under the banner of Peatland ACTION. Any project to restore the raised bog at Barochan should take into account the value of the existing habitat and preserve this where of suitably high quality. This should be informed by the management protocols for Barochan Moss set out in Appendix B.

Create habitat to benefit Kingfishers

6.0 Key Considerations

6.0 Key Considerations

In order to realise the objectives of the Strategic Plan there are five topics or key considerations to be taken into account.

The structural diversity of the woodland at Georgetown to be diversified

(i) Management of Woodland

The strategic plan encourages the development and implementation of solutions to enhance woodland management, with a focus on priority woodland habitats and native trees (Appendix A). The strategy encourages increased woodland diversity in species and age structure to deliver more resilient woodlands. The overall aim is to generate biodiversity, landscape and socio-economic benefits.

A key consideration is the strengthening of woodland corridors to link existing woodlands within the Park with woodlands in the surrounding area as set out in the Enhancement of Habitats section below. Engagement with neighbouring land owners to extend the reach of the woodland corridors into the surrounding countryside should be encouraged.

Within the Park the aim is to improve woodland quality by selective felling and restocking with locally native species to create more diverse woodland structures and to encourage the spread of native flora into newly established woodlands or those with limited diversity.

The movement towards a continuous cover forestry style management should be encouraged.

(ii) Enhancement of Habitats

Ecological constraints such as Badger setts to be accommodated and their foraging habitat enhanced

Habitat networks will be created. These should be connected in a way that dependent species can disperse between areas to create linked populations. A healthy and sustainable habitat network enables species to be more resilient to environmental changes, particularly the impacts of climate change.

The design and location of all interventions and provisions in the Park will need to take into account ecological constraints such as Badger setts and Otter holts which are not to be disturbed. The ecological constraints change over time as mobile species move and habitats evolve. The ecological constraints are monitored and recorded by onsite ecologists. Interventions which will require the consideration of the existing ecological constraints include the provision of footpaths, water crossing points, seating and information boards. Activity in the Commercial Opportunity Area will need to respond to the ecological constraints posed by the Dargavel Burn corridor and the feeding habitat for Barn Owls.

6.0 Key Considerations

(iii) Landscape, Open Water and Watercourses

The Strategic Plan provides direction on how to protect the qualities of the landscape which are of particular value and it encourages the sensitive development of new landscape components that achieve a balance between existing and new woodland, open grassland and riparian corridors. There is an opportunity to create landscape value from the new drainage retention ponds in the Park and to strengthen the character of the Dargavel Burn corridor and the Craigton Burn corridor.

New surfaces within the Park should be constructed using porous materials as far as practicable in order to facilitate sustainable drainage.

(iv) Access, Community and Recreation

The Park is an important host for outdoor recreation activities. The strategy promotes public access and responsible behaviour and encourages the public use of the Park for recreation and outdoor education.

The design and location of access, community and recreation facilities in the Park will need to respond to the countryside setting of the site. This will involve the use, for instance, of sustainably sourced timber for buildings and outdoor furniture such as benches and picnic tables. These will be positioned to capture views across landscape features such as water bodies, meadows and other long distance views. They will also capitalise on solar gain by being orientated towards the south where appropriate.

Planning permission will be required for development such as built structures to support the Commercial Opportunity Area. A hub building is likely to be required to facilitate an outdoor activity-based function and potentially additional satellite structures may also be needed. The built form of any new development should reflect its countryside location and consider the following:

- Siting of built structures should not be detrimental to the visual amenity and quality of either the landscape or the woodland environment. The visual qualities of the Park and the rich diversity of its natural and cultural heritage are important assets which new development must respect.

- Development should be compatible with the neighbouring land uses.

- Buildings should be sited in unobtrusive locations and in such a way as to be integrated into the surrounding landscape.

6.0 Key Considerations

- Built structures should be sited against a backdrop of trees to assist with achieving integration with the surrounding landscape. There is also a need to ensure that the trees and vegetation which create the setting are safeguarded.

- Built structures should generally be limited to one or two storeys in height.

- Buildings should be designed and constructed to high standards and incorporate measures to promote energy efficiency.

- The needs of people with disabilities must be taken into consideration in order to maximise the extent to which new facilities are accessible to all.

- Existing access routes should be used wherever possible.

- New development should respect and complement the vernacular of Dargavel Village.

- New surfaces should be constructed using porous materials as far as practicable.

- The perimeter boundary between the Commercial Opportunity Area and the adjacent zones should integrate seamlessly with the surrounding landscape.

- Services will need to be designed to support the requirements of buildings or activities. This may include extending services from existing points of connection in consultation with the statutory authorities or the provision of off grid services such as wind powered electricity.

- Additional planting will be required to enrich and strengthen visual screening and to reinforce the setting of new structures.

There are distances from the ETF within which there are limitations on certain types of development. Any new buildings, and the access to them, will need to comply with these requirements. The key impacts on potential commercial operations are:

- The hub building

The best opportunity for a hub building is in the north western part of the Commercial Zone where there are no limits on carrying capacity.

- Access

Access for the Commercial Zone is from the Houston Road (B790) at the southern limits of the Park. The capacity of this access route is limited to less than 500 vehicle movements in 24 hours. Therefore, the capacity of the car park associated with the Commercial Development

would be limited to a maximum of 250 vehicles as each vehicle would generate at least two movements in a day. This will need to be factored in to any viability appraisal of commercial operations. As an alternative to private car use, environmentally sensitive forms of travel such as electric powered land trains could be considered.

There are additional areas in the south eastern part of the Park where no publicly accessible footpaths are permitted. These areas will be fenced off and planted with prickly shrubs to deter access. Signs will explain that the areas have been designated for wildlife and public access is not permitted.

(v) Heritage

The legacy of the former Royal Ordnance Factory will be recognised through the retention of buildings or structures to give a glimpse of the past industrial use of the land. This will be supported by interpretation to explain the retained industrial archaeology and include narrative on the social history of the place.

Dargavel House falls in the Park. It is a Category B listed building in a distinct setting of mature woodland. It was in use for staff training and meetings as part of the Factory but it has been vacant for some time. The costs of repair, renovation and conservation, combined with the domestic internal layout of small rooms, does limit the potential for viable alternatives uses. BAE Systems will explore the opportunities to bring the building back into beneficial and sustainable use but in the interim it will ensure that it is secure and protected from the weather.

7.0 Delivery

7.0 Delivery

(i) Remediation, Landscape Renewal and Infrastructure

Delivery of the Park will take place towards the end of the overall transformation programme at the former Royal Ordnance Factory. The starting point will be the remediation activities needed to make the area safe for its future use. Where possible these activities will be light touch, dealing with contamination hotspots but not generally requiring the widespread removal of woodland or other vegetation. Former factory buildings will be decontaminated and demolished to slab level. The slabs will be punctured and left in place so as to avoid extensive disturbance of soils. There is an opportunity to retain a selection of buildings and structures as a reminder of how the land has been used over the last century.

Land remediation will be followed by some reforming of the landscape across discrete parts of the Park. This involves the creation of drumlin like features using soils which have been surrendered by the process of land reclamation. The majority of new woodland and grassland planting will be concentrated at and around these new components of the landscape.

The essential infrastructure for the Park will then be formed by upgrading tracks, replacing security fencing with more appropriate boundary treatment, strengthening bridge crossings over the burns and creating car parks at the key thresholds to the Park. Regular inspections will be carried out and repairs to facilities such as bridges, culverts, footpaths, fencing and seating will be done routinely to maintain an attractive and functional environment.

(ii) Phased Approach to Baseline Improvements

It is anticipated that the remediation, earthworks, landscape and infrastructure works will be complete by 2035. However, in order to provide a resource much sooner than this, it is planned to deliver elements of the Park in phases as shown in Figure 9.

The first phase has already been put in place and spans 24 hectares. This is located on two pieces of land: land at the northern margin of Dargavel Village to give public access to the countryside and land at the southern gateway into the village along Barrangary Road. The first parts of the Park are complete and open to the public as described in Chapter 3, (Existing Conditions). Subsequent phases will give public access to parts of the Park along the western edge of Dargavel Village. These further early release phases of the Park include:

- Formakin Link 2 - an area of 16 hectares in the northwest of the Park.
- A zone of transition between Dargavel Village and the Park (along the Glenshinnoch Road corridor).

7.0 Delivery

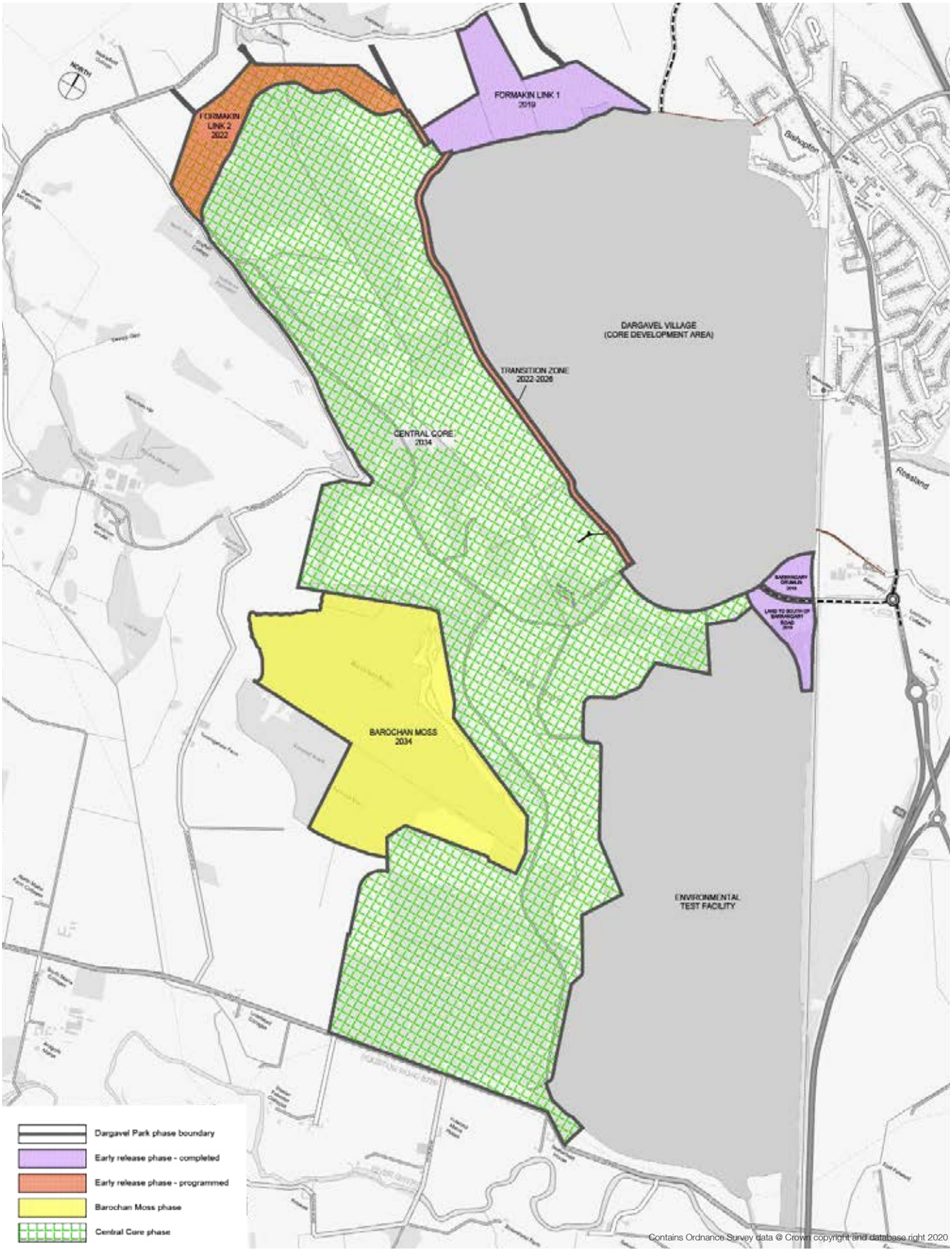


Figure 9: Phasing

7.0 Delivery

In addition, Barochan Moss - an area of 70 hectares - is receiving ecological improvements. These works have already commenced with, for example, the creation of Otter habitat as illustrated on page 35. The implementation of ecological works will continue to be phased across the whole period up to 2034. Public access from the eastern margin will be put in place following the completion of engineering works through the Central Core of the Park. A viewing area looking out across Barochan Moss will be installed by 2034. The ongoing management of Barochan Moss will be informed and guided by the protocols set out in Appendix B.

Ongoing engineering operations will be taking place through the rest of the Park until the end of the transformation programme. The final phase of the Park, the Central Core, which is 336 hectares in extent, will be released on the completion of the programme.

The actual/anticipated dates for the phased release of the Park are provided below:

PARK AREA NAME	AREA (HA)	COMPLETION DATE
Barrangary Drumlin	3	2018
Formakin Link 1	21	2019
Land to South of Barrangary Road	5	2019
Formakin Link 2	16	2022
Transition Zone	2	2022-26
Barochan Moss	70	2034
Central Core	336	2034
Total	453	

Phased release of the Park

(iii) Opportunities for Added Value Interventions

In the delivery of the Park there will always be a need to carefully balance ecological, recreational and commercial interests. For this reason any commercial uses are to be clustered in a well defined zone that can be accessed from Houston Road (B790). At this stage it is not possible to be definitive about the commercial uses that might be incorporated but they must be aligned with the theme of recreation in a natural setting.

(iv) Management Principles

For the foreseeable future the management of the land will rest with BAE Systems. However, over the next 15 years it is likely that a partnership can be formed with other organisations that will take an interest in the management of all or parts of the Park. These organisations might have an interest in woodland management, the management of habitats, the management of open land or have an interest in commercial opportunities. The management structure will become more settled

as the time approaches when the Park becomes fully accessible and available for public use.

Additional management responsibilities will lie with a number of other bodies including:

- The sustainable drainage system of ponds and water courses attenuating the surface water runoff from Dargavel Village prior to discharge into the surrounding drainage network will be maintained (in accordance with the SUDS Maintenance Manual) by Scottish Water. This includes the vegetation in and around the SUDS ponds and watercourses.

- BAE Systems will continue to manage the ETF entry points from Houston Road and the southern part of Dargavel Village. BAE Systems will also continue to maintain the boundary fence to the ETF.

(v) Review of the Dargavel Park Strategic Plan

This Strategic Plan provides a framework for the ongoing development and management of the Park. The design detail and management opportunities will evolve and mature in the period leading up to the full opening of the Park (2034). It is therefore important and appropriate to review the Strategic Plan every three years. Each review will capture and be informed by the ever increasing body of information about the area of the Park. The first review will be in 2024.

Appendicies

Appendix A - Woodland Management

A comprehensive woodland survey was carried out across Dargavel Park in 2016 by Forestry Commission Scotland. This recorded the woodland types across the site in detail and set out the potential for future management.

The woodland management protocols set out below draw upon the recommendations set out in the woodland report and bring them up to date by taking into account:

- The recommendations that have been implemented with regards to woodland thinning and restocking.
- The ongoing remediation programme which has resulted, and will continue to result, in alterations to the woodland stock.
- The Government's introduction of the Peatland ACTION fund for projects that restore, or lead to the restoration of, peatlands.

The woodland survey divides Dargavel Park into seven compartment which are referred to in the protocols and are illustrated on the following page.

The ecological management of Dargavel Park is fundamental to the approach taken. This will be aimed at maintaining the overall ecological value of the site and ensuring that protected species are accommodated post-development. In particular, focus will be given towards preserving and improving all habitats and habitat mosaics, which contribute significantly towards the site's biodiversity value. Together with the implementation of ecological enhancements and careful planning of recreational areas, appropriate management will limit further disturbance and help offset biodiversity loss within the Core Development Area.

The site's Ecological Design and Management Plan (EDMP), last updated in 2019, outlines detailed recommendations for protected species. With respect to improving baseline habitats and creating opportunities for protected species there is a number of management protocols.

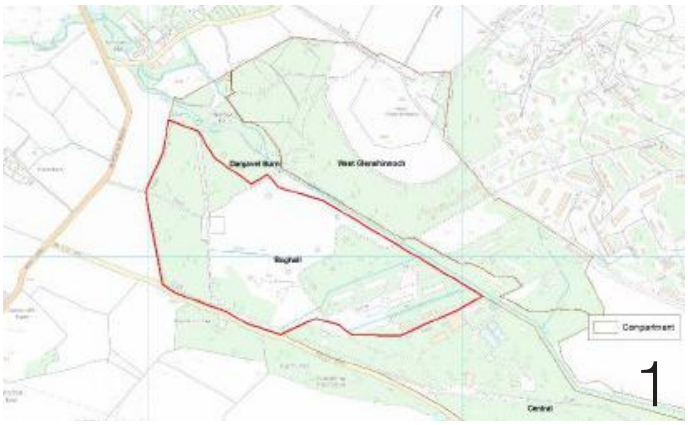
Protocol 1

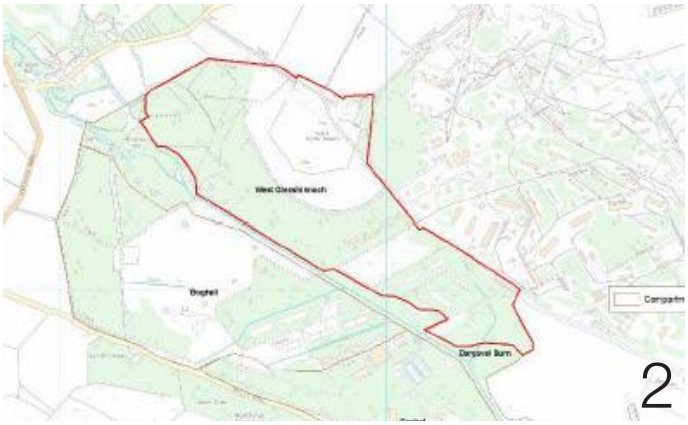
Many of the more mature and natural woodlands on the site, particularly in the lower sub compartments of West Glenshinnoch, Boghall, the Central area and the northern part of Georgetown, are at risk during future site remediation works. It is recommended that efforts are made to investigate the possibility of infilling and burying steep drops into deep voids and potential contamination issues to limit the affects upon the well-developed surrounding woodland habitats.

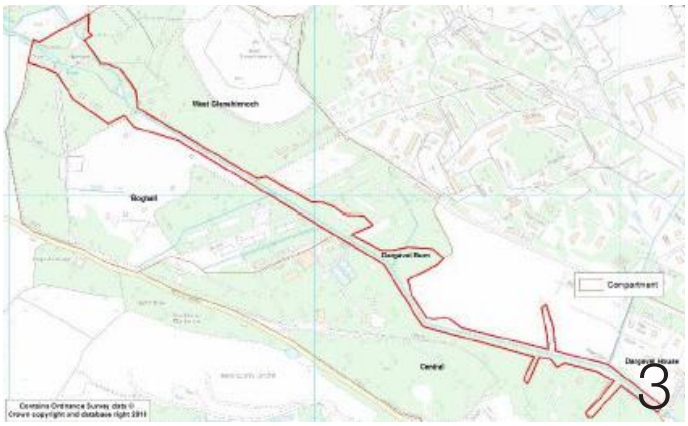
Protocol 2

The conifer plantations within Boghall and west Glenshinnoch, were all over-mature and largely un-managed for some time. Over the last few years these conifer plantations have been thinned or harvested and replaced by tree mixes including native broad-leaved trees as described in chapter 3. This work is substantially complete with the following to be actioned:

Appendix A - Woodland Management







1 Boghall Compartment
2 West Glenshinnoch
3 Upper Dargavel Burn
4 Central Area (and Barochan rindge)
5 Dargavel House
6 Barochan Moss
7 Georgetown

Woodland compartments

Appendix A - Woodland Management

- the restocking of one compartment to the south of the borrow area which is programmed for completion by early 2022.

- 20% of the restocking of the compartment to the north of the landfill site which will be complete by the end of 2021.

Protocol 3

There are woodland compartments close to the Borrow Area which are in good condition with a range of woodland types including large specimens of Douglas Fir. Much of these are growing over bunkers and bunds of considerable size. Site remediation within this woodland area should take into consideration the tree cover and retain as much as possible. Infilling rather than demolition of these features would be preferred.

Protocol 4

Pioneer woodland blocks should be retained and allowed to develop naturally. However, in some places these are invading tracks and pathways which should be kept open. It may be beneficial that where large isolated mature specimens of broad-leaved trees occur, the regenerating birches and willows are cleared to remove shade from seedlings allowing a secondary woodland to develop more quickly. The open scrubland areas, where the transition to woodland has not commenced, would benefit from tree-planting to assist in woodland development without needing to wait for natural succession to occur. Locally sourced native species typical of the nearby woodlands should be planted, principally these would be Oak and Ash, but Rowan, Hornbeam, Wych Elm, Holly and Yew would all complement the existing woodland composition. Silver Birch, Alder and Aspen could also be planted on damper soils.

Protocol 5

Dargavel House grounds should be restored sympathetically through removal of invasive scrub (Rhododendron and Snowberry) and thinning of common tree species. Many of the ornamental trees require arboricultural works to stabilise some of the veteran trees within both the garden and the associated policy woodlands. In particular, the Hornbeam should be retained and surrounding trees removed to allow additional light and space for this specimen. There are several specimens which are standing dead wood, while these are very important ecologically, these should be checked for instability and managed accordingly.

Protocol 6

Barochan Moss has significant potential to make considerable biodiversity gains for the whole site - refer to Appendix B.

Protocol 7

Georgetown has many structures associated with the historic factory infrastructure. Structures within the oldest part of the site have mature trees growing on and around them. It is unlikely that all structures will be demolished. Where structures are retained it is recommended that these are made safe and closed up to prevent public access. In the

more recently abandoned parts of Georgetown, the structures remain largely free from woodland cover and full clearance would be possible without directly affecting the woodland. Paths, particularly the boundary track, will need regular clearance to control the Birch regeneration.

Protocol 8

Should tree planting in currently non-wooded sub-compartments be planned, the relative depth of made ground will need to be investigated to determine the appropriate course of action. Areas where pioneer tree species have developed will have a covering of organic topsoils from leaf-fall and these may be deep enough to plant whips. Elsewhere, tree species will need careful consideration. The pioneer species (Silver and Downy Birch, Alder and Grey and Goat Willow) are capable of dealing with thin soils with little nutrient load. Aspen, Holly, Rowan and Elm are all also capable of dealing with low nutrient conditions, provided there is sufficient soil within the made ground areas. Oak and Ash generally require better, richer soils and could be planted on areas with shallow made ground, or in remnant natural soil areas.

Protocol 9

There is currently a large cleared area between West Glenshinnoch and Dargavel House. A wildflower-rich flora has developed on this area due to its low nutrient load. This may be a preferable solution in areas of significant deposits of made ground, in lieu of tree planting.

Protocol 10

Adverse impacts from herbivores is currently relatively low, but it is acknowledged that this is due to historic management of deer. The cessation of this, plus the removal of the security fence will allow the deer population to increase and it may be necessary to include either significant fencing of woodland areas, or future deer management within any long-term site management plans to prevent significant damage being incurred on woodlands within the site.

Protocol 11

Ecological Design and Management Plan Protocols:

- Woodland management: To date, management of woodland areas within Dargavel Park has improved species-poor spruce (Picea sp.) monoculture through the targeted felling and thinning of over-mature plantations. Input from the on-site ecology team ensured all notable specimens and tree groups of wildlife value were preserved. Following forestry operations, a planting scheme was developed using a mix of native broadleaved and coniferous trees, ensuring new woodland blocks will be productive whilst offering increased amenity and biodiversity value. Future management will aim to enhance both species and structural diversity within and surrounding the Park's woodland areas. This includes undertaking all forestry works under ecological guidance; retaining standing deadwood and other features of ecological interest; and creating diverse, graduated edge habitats to all woodland blocks.

Appendix A - Woodland Management

- Waterbodies, wetland and watercourses: All new SUDS features, associated drainage and realignment of existing watercourses will be open-cut to provide increased aquatic habitats within the site. Rapid establishment of native vegetation will be achieved through reinstating topsoil, seeding bare areas and undertaking wetland edge planting. Where recommended, willow scrub will be planted to provide suitable cover for wildlife, including commuting, feeding and breeding otter (Lutra lutra). Felled scrub and trees will be used to create log/brash piles in suitable locations, providing nesting opportunities for birds, as well as shelter and foraging opportunities for mammals and amphibians. Where possible, any re-profiling works required will create banks for breeding kingfisher (Alcedo atthis). Wetland and pond habitats will also be created from ground works and left to establish naturally. Throughout Dargavel Park, full consideration will be given to the location of public access to minimise potential disturbance of riparian fauna and their associated habitats.
- Buildings and structures: A small number of buildings in suitable areas of the site will be retained and managed to enhance their value for bats and breeding birds, including barn owl (Tyto alba) and stock dove (Columba oenas). Buildings will be fully secure and have suitable access points and nesting boxes for birds. Bat features will include a range of bat boxes and roosting opportunities inside the building. In addition, bat boxes will continue to be installed throughout the wider park, on suitable mature trees. Standalone roosting and nesting structures are also available for barn owl, including barn owl manors, pole boxes and the barn owl tower, created from recycled construction materials, situated in the Formakin Link area of the site. Ongoing monitoring of these features is important.
- Grassland: Management of grassland throughout the site will vary depending on the individual compartment, surrounding habitats and proximity to protected species. For example, maintenance of rough grassland optimal for barn owl foraging will aim to control scrub invasion and preserve a deep litter layer, achieved by topping the grassland to a height of no less than 130 mm every other year. Areas disturbed during remediation works may be suitable for the creation of species-rich wildflower meadows, using a nutrient poor topsoil and native seed mix of local provenance. Management of wildflower meadows involves mowing and removing arisings once per year, in late summer/early autumn after flowers have set seed. Further areas, including those closer to recreational zones and areas which have been disturbed/lost through remediation activities, may be suitable for management as a badger (Meles meles) foraging resource. These areas of improved grassland should be mown regularly to maintain a short sward. The application of vermicide will be prohibited.
- Scrub: Scrub throughout the site will be strategically managed to maintain a habitat mosaic with surrounding grassland and woodland

habitats. Management will promote a diverse age structure whilst preventing excessive encroachment of scrub into grassland, wetland and areas of open ground. The control of scrub, including felling and repositioning of over-mature stands of hawthorn (Crataegus monogyna), will be used to create dense habitat patches suitable for a range of breeding birds whilst protecting younger stands from deer grazing. Effective scrub management will also be used to deter public access into sensitive habitats and areas of the site supporting protected species, such as known otter holts and badger setts.

Appendix B - Management of Barochan Moss

Barochan Moss is the largest Site of Importance of Nature Conservation (SINC) within Dargavel Park. The SINC comprises a degraded lowland raised peat bog with peat depths extending to over 12 metres in certain areas. It is one of several bogs formerly present in the lower Gryfe/Black Cart basin. The bog supports mature Scots pine (Pinus sylvestris), mixed downy (Betula pubescens) and silver birch (Betula pendula) woodland and has been colonised by a dense cover of invasive rhododendron (Rhododendron ponticum). There are no significant open areas within the moss and open water is limited to a single small pool.

Historically, Barochan Moss has been subject to attempts to improve the ground for agriculture. This resulted in removal of peat around the periphery of the moss, although peat is still present below the surrounding farmland. No areas of the moss are shown as wooded on the Roy 1752-55 map, however the 1857 OS map indicates deciduous woodland over the north of the moss and a mixed woodland plantation (Fullwood Wood) across the centre of the moss. These areas appear on the Ancient Woodland Inventory Scotland. In recent decades, Barochan Moss has not been subject to management and is considered to be a secondary moss, which has been damaged by afforestation and neglect, resulting in ongoing direct and indirect drainage of the peat. As such, the habitat lacks abundant cover of bog mosses (Sphagnum spp.) associated with an active or primary bog, and is therefore suitable for restoration. At the beginning of the former factory redevelopment, adjacent land was used to create wetland habitat for otters on site; this is likely to have raised the water table at the northern side of the moss. Whilst management protocols for Barochan Moss are to be informed by further survey, the following bog restoration measures may be implemented:

- Drain blocking: To be informed by hydrological survey, drain blocking is likely to be necessary to prevent ongoing water loss and raise the water table of the bog. There are surprisingly few significant drains within the moss, although plantation areas have numerous shallow drains which are usually dry at most times of year.
- Re-profiling: There are areas of steep, almost vertical peat, typically occurring along the edge of the raised bog, potentially a result of historical peat stripping operations during the time the bog was being reclaimed for agricultural use. These areas may benefit from reprofiling works to prevent further drying out of the peat. Re-profiling can also provide flood compensation and promote the establishment of wetland and lagg fen habitats, commonly associated with active raised bogs.
- Woodland management: Afforestation often contributes to the degradation of peat bogs due to trees lowering the water table. The woodland within Barochan Moss includes planted Scots pine and native downy and silver birch, which provide ecological value in their own right. Trees provide habitat and opportunities for a range of fauna and fungi, therefore feasibility studies will seek to achieve a balance between restoring the peatland habitat and retaining valuable trees. Selective felling, informed by peat depth surveys, is

likely to be employed to remove less favourable trees and remove tree cover from areas which would benefit from the creation of wetland habitats such as open water, swamp and fen. It is noted that the Scots pines are not regenerating and there is a significant resource of deadwood present, both standing and fallen. Existing standing deadwood can be retained and felled timber may be used to create habitat piles in suitable areas. The naturally occurring birch are host to some nationally scarce fungi species including the Birch Bark Stripper (Xenotypa aterrima). The even rarer parasite of this species, the disc fungus (Rutstroemia johnstonii), has been recorded on a nearby moss and may also be present at Barochan Moss. In the longer term, ongoing management of regenerating trees is likely to be required.

- Invasive species management: Rhododendron cover within the woodland shrub layer is extensive and requires ongoing management to control its extent and spread. This has smothered native flora and there are now just limited pockets of the original ground cover of blaeberry (Vaccinium myrtillus), heather (Calluna vulgaris), cross-leaved Heath (Erica tetralix) and hare's-tail cottongrass (Eriophorum vaginatum).
- Creation of open water: There is potential to create a range of open water and wetland features in areas with a higher water table. For example, excavating to the correct depth profile encourages open water bodies with swamp and fen margins, attractive to a range of species including dragonflies, damselflies and water birds. Excavated peat material may then be used for other management actions such as filling in drains and re-profiling works.

In the long-term, public access to Barochan Moss will be informed by a detailed management plan. In particular, measures will be taken to ensure sensitive areas of regenerating bog mosses are not disturbed by human activity.

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