ECOLOGY BUILDING SOCIETY

THE DESIGN REPORT

DESIGNS FOR THE LANDSCAPE AROUND THE ECOLOGY BUILDING SOCIETY HEADQUARTERS

Mark Fisher, March 2005

on behalf of the Permaculture Association

MARK FISHER
GARDEN PROJECTS

the Ecology Building Society

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DESIGNS FOR LANDSCAPES
A REPORT FOR THE ECOLOGY BUILDING SOCIETY

INTRODUCTION This is a report of the design process for landscaping around the new HQ of the Ecology Building Society on Belton Road, Silsden, West Yorkshire. The design process was based on a number of stages, and on a developing relationship between client and designer. The process involved the participation of staff members from the building society, encouraging them to become actively involved in choices made within the design.

The design is guided by the principles of sustainability, which seek to integrate environmental with social and economic considerations. Thus the design endeavours to incorporate and interconnect the productive, educational and leisure activities of people with the enduring use of the land. A principle aim is to amplify biological diversity within the remit of the design. This is best achieved by giving high regard to the natural characteristics of the location and by making use of the plants that would historically have existed there, if nature was unrestrained.

The physical development of the landscape solutions and its subsequent long-term use are commended to follow contemporary methods based on natural systems. These seek to minimise environmental impact while increasing productive opportunity, and incorporate the re-use or recycling of wastes and resources.

DEVELOPING THE BRIEF The client provided a preliminary brief at a site meeting, after which a design proposal was drawn up and approved. (Appendix 1) Base mapping of the site was carried out to update the site plan provided by the client, and a species survey was collected.

As a first stage in developing the brief, members of staff were invited to fill in PASE Element Generator sheets (PASE stands for Plants, Animals, Structures and Events – instructions for its use are shown in Appendix 2). This is a simple exercise used to identify the clients' needs and desires. The PASE sheets were subsequently reviewed at an onsite meeting with a group of staff members. The onsite meeting served two purposes: review of the PASE sheets provides the broad context of the brief, and the interview that followed began to add detail and set the choices that had to be made in the design. The interview was carried out while walking the site as it helped to set the physical boundaries of the site, but also provided a picture of the general location in which the site exists.

THE CONCEPT REPORT After the site visit, a concept report was developed and then presented to a group of staff members. The report took the form of schematics that identify the major elements of the design concept and how they connect with each other. Based on responses to the presentation, modifications were made to areas of the concept design, and the overall design could commence.

THE OVERALL DESIGN This was done in stages based on a potential sequence of development and the subdivisions of the land identified in the concept design. Textual explanation and, in some cases, greater detail for particular design elements are given to support the schematic representations of the design for the subdivisions. Quantities and indicative costings are also supplied. Some observations are made in drawing together development actions.

QUANTITIES AND COSTINGS Quantities shown represent material needed to fully

implement the design as shown in the schematics. Indicative costings are given for comparative purposes and are based on representative catalogue prices. They exclude VAT and any element of delivery charge. They do not necessarily imply current availability.

THE PRELIMINARY BRIEF

The client has specified an overall aim for the site design of low maintenance, and identified four areas of the site for consideration in the design proposal (see SITE PLAN overpage):

Open space to the North East– a public space for use by local residents, probably walking their dogs. Elements are an earth bund, a path and receptacle for collection of dog wastes. The major space is to be maintained as a meadow.
Flower borders – below the walls to the rear of the car park and on the boundary with the footpath on Belton Road. Planting schemes.
Transition boundary – a border between the car park and the building/proposed meeting room space. Planting to create separation.
Open space to the South West – a private space for use of the staff. Elements include a meadow, an earth bund and a spinney of young trees. Design considerations are the closing off of this space, but securing and ensuring access to and around the building.

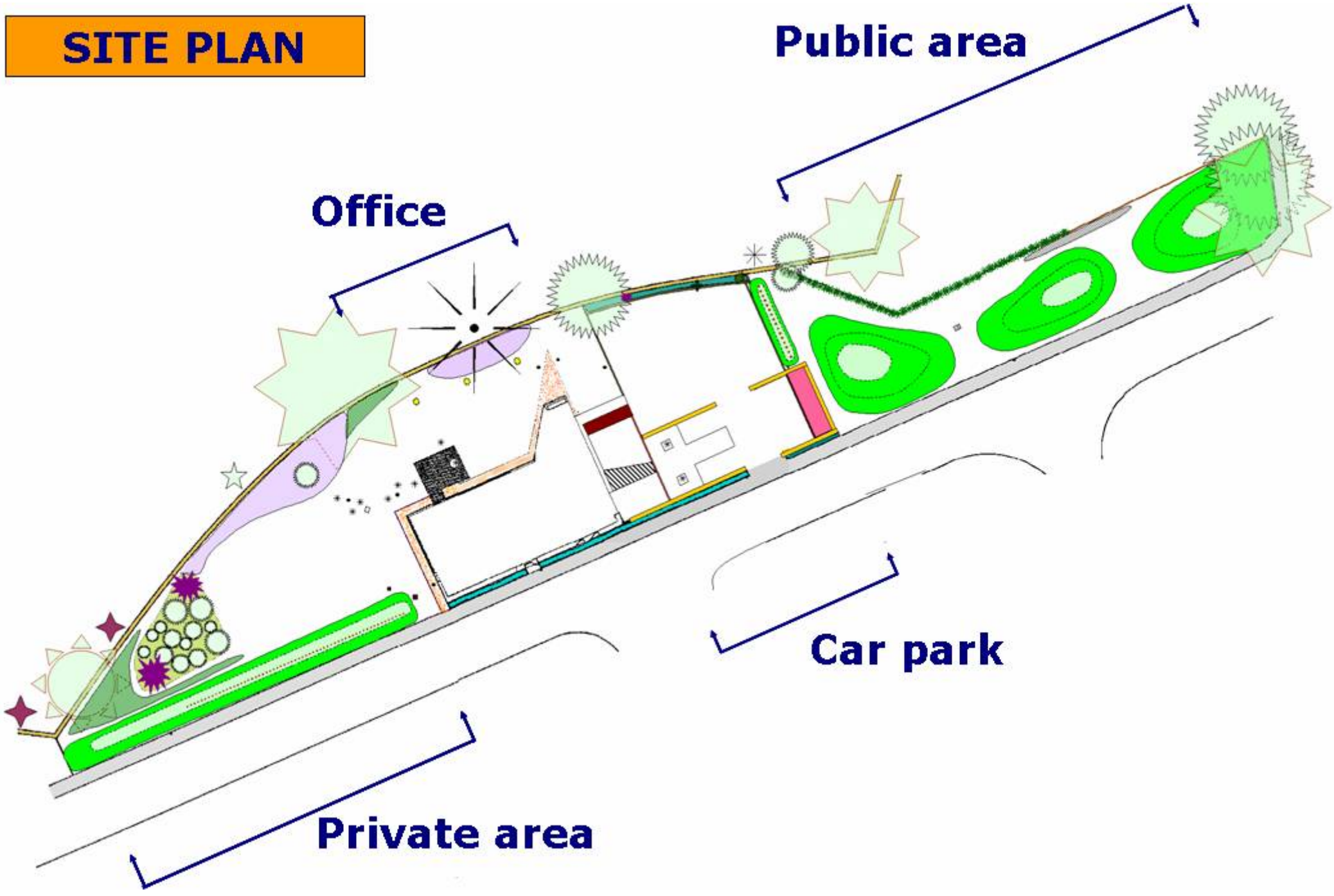
The open space behind the office building (to the North) is designated for the eventual construction of the meeting room. Landscaping proposals for this space were not part of the initial brief, but there may be an issue of access to this area during that construction phase caused by the recent plantings of birch.

PASE ELEMENT GENERATOR SHEETS

Four PASE sheets were returned from staff members. These were compiled into one sheet and used as the basis for discussion during the follow-up site walk with a staff group. A copy of the compilation PASE sheet is given after the Site Plan.

The information from this site visit confirmed the preliminary brief, giving more information on choices for the likely development of the landscape, and allowed a realistic evaluation of the various proposals in the PASE sheets. These discussions formed the basis of the information needed to devise the Concept Designs. It should be noted that it is not the intention that the Concept Designs should contain every idea put forward in the PASE sheets. Some latitude should always be left for later development after the initial phase.

SITE PLAN



PLANTS	ANIMALS	STRUCTURES	EVENTS
Fragrant plantings: lavender, roses, lilac Roses, companion planted Insect attracting plants (for honey bees?) Natural drifts, planting Large clumps, in scale with building Nature garden around copse Architectural plantings near meeting room Bulbs, all season, under trees Stonecrop along path borders Herbs Berried and fruiting shrubs Groundcover Meadow area near copse Native plants Avenue of trees Low maintenance planting Year-round interest Barrier planting where appropriate	Hedgehogs Butterflies Bird boxes in copse Bat boxes Bird baths and tables Bees	Seating areas: open views, in copse, under an arch/living arbour Paths, walkways, meandering through whole site Picnic Area Outdoor lighting A hide Compost bin/area	Staff social events Lunchtime eating out (cover?) Quiet, relaxing area Spill-out from AGM/meetings

THE DESIGN PROPOSITION

THE NATURAL LANDSCAPE Silsden is a small town of about 8,000 population that is located to the NW of the Bradford District. It lies in the Aire valley, with the river below it, and it backs into the millstone grit uplands that line the N of the valley. A similar upland geology faces Silsden to the S. The valley bottom immediately below Silsden is a plagioclimax of improved grassland, a few of these fields flooding in winter. There is little area of woodland, but some broad-leafed trees and hedgerow shrubs dot the landscape boundaries.

Plagioclimax is the term describing landscapes where humans and their farming activity restrain the natural vegetation. Grassland is the favoured landscape for the livestock farming that characterises the Aire valley. If these farming activities were removed, the landscape would gradually revert through a process of natural succession to the woodland that covered most of the Aire valley some 5,000 years ago. It is likely that this woodland vegetation would follow the pattern that would be seen in most of the millstone grit areas of the south Pennines, of a climax woodland of sessile oak (*Quercus petrea*). Large oak trees would dominate the landscape, but there would be considerable variety within this wooded landscape since there would be openings of varying size, and a range of species are able to grow within an oak woodland canopy.

Tansley has documented the characteristic natural vegetation of the south Pennine oakwoods. Along with oak, the tree layer would also have contained birch, holly, mountain ash, wych elm, bird cherry and gean, but also ash, alder and crack willow in the wetter places. The shrub layer would also be rich in having hazel, hawthorn, field maple, blackthorn, dog rose, guelder rose, elderberry, bramble and raspberry. Some of the trees and shrubs would thrive only at the woodland edge, whereas others – such as holly, hazel, dog rose, bramble, raspberry and elderberry - can be found growing within the woodland canopy.

The understorey and woodland edges would also have been home to a range of perennial plants such as the ferns, foxglove, golden rod, wild garlic, lords and ladies, woodrush, wood sorrel, bugle and dogs mercury. The wetter areas of the woodland, along streamsides and near flushes, could have meadow sweet, flag iris, marsh marigold and water avens.

Higher up the valley sides, oak would become less dominant, making way for a woodland of birch and mountain ash, and a characteristic shrub layer of heather and bilberry. Locally there is also some gorse, broom, holly and willow. The perennial plant layer is less rich here except where flushes support a good range of upland moisture-loving plants such as sundew, ragged robin and bog asphodel. (Unfortunately, the spread of bracken is crowding out these perennial layers).

While the data of Tansley gives us a good general picture of what the landscape would have been, there is another source that precisely documents the plant species that have been found currently and historically in the Silsden area. This arises from a project of the Natural History Museum called Flora for Fauna, in which an online database of native plants can be accessed on the basis of postal code. The results for BD20 are shown in Appendix 3, but it should be noted that the entries from historical lists indicate that not all the species will necessarily be found in the Silsden area today.

The majority of the entries in the lists are consistent with the underlying natural

characteristics of the Silsden area in terms of soil type and varying moisture content, and in the amount of shade they will tolerate if woodland were to exist. A rule of thumb in successfully using plants is to match them with their characteristic growing conditions of soil type, moisture conditions, and shade requirements. Thus these lists provide an excellent guide to plant choices for the Silsden area.

THE NATIVE AND THE EXOTIC The British enthusiasm for gardening over the last few centuries, initially spurred on by wealthy landowners, created a demand for new plants to be brought in from around the world to supplement our own native species deemed to be of sufficient garden worth. (You may note that several of the plants in the BD20 list have GW appended to indicate an established judgement on their worthiness for use in the ornamental garden).

The well-known plant hunters of Yorkshire, such as Reginald Farrar of Ingleborough Hall, were inspired to collect species from habitats similar to their home place so that they could bring them back and successfully establish them to embellish where they lived. Thus they still followed the essential rule of putting the right plant in the right place - for Farrar it was for alpines and wooded upland hillsides.

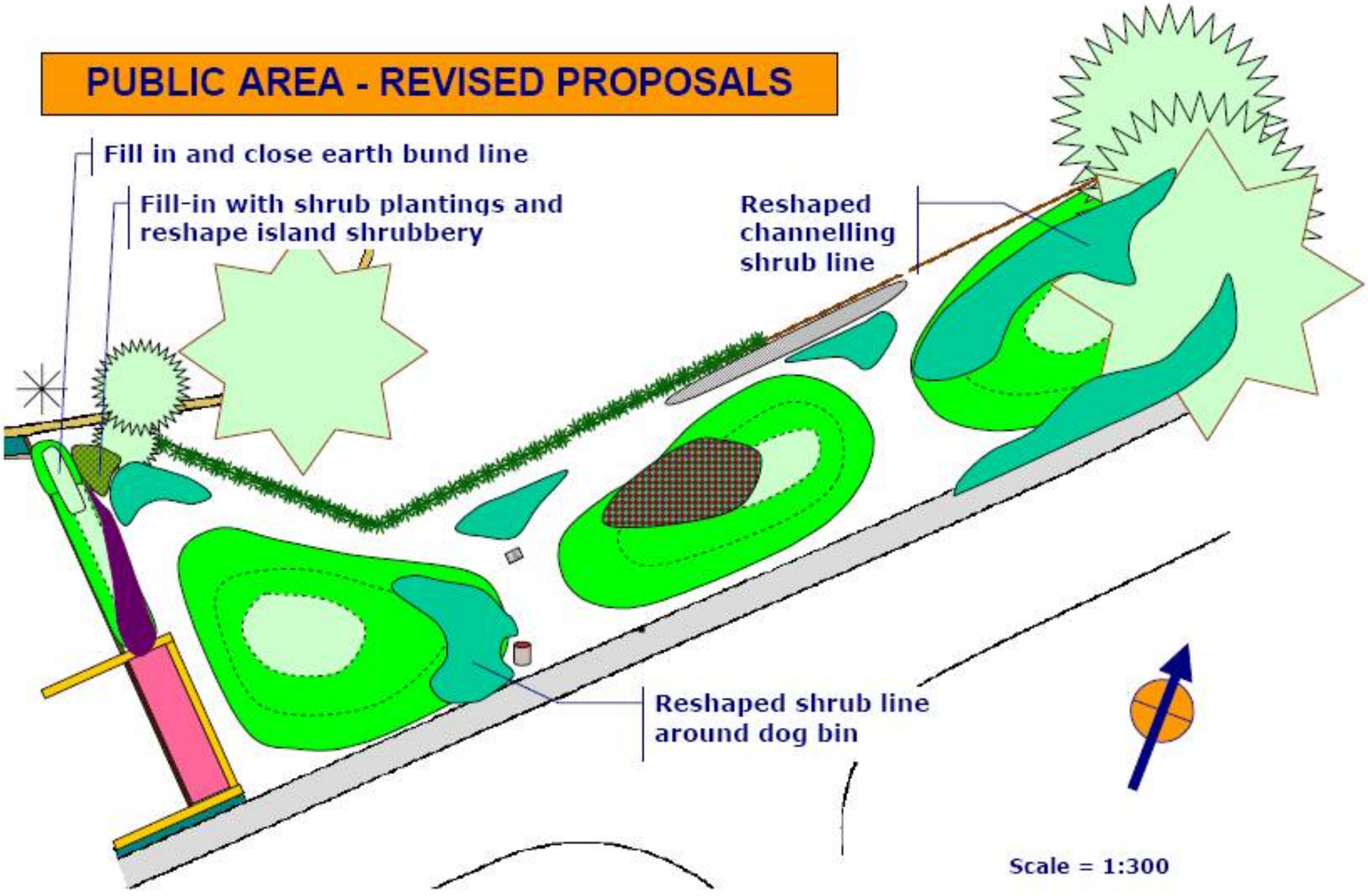
However, the distinction here is that the introduced plants were considered solely on the basis of their ornamental value – in a *gardening* situation – rather than their contribution to the attributes of the landscape. Ornamental value says nothing about their ability to combine successfully with other plants, their effect on soils and their ability to attract and provide habitat and sustenance to wildlife in general. While this is perhaps acceptable in a garden (although increasingly less so in current gardening trends) it is less appropriate for landscape solutions.

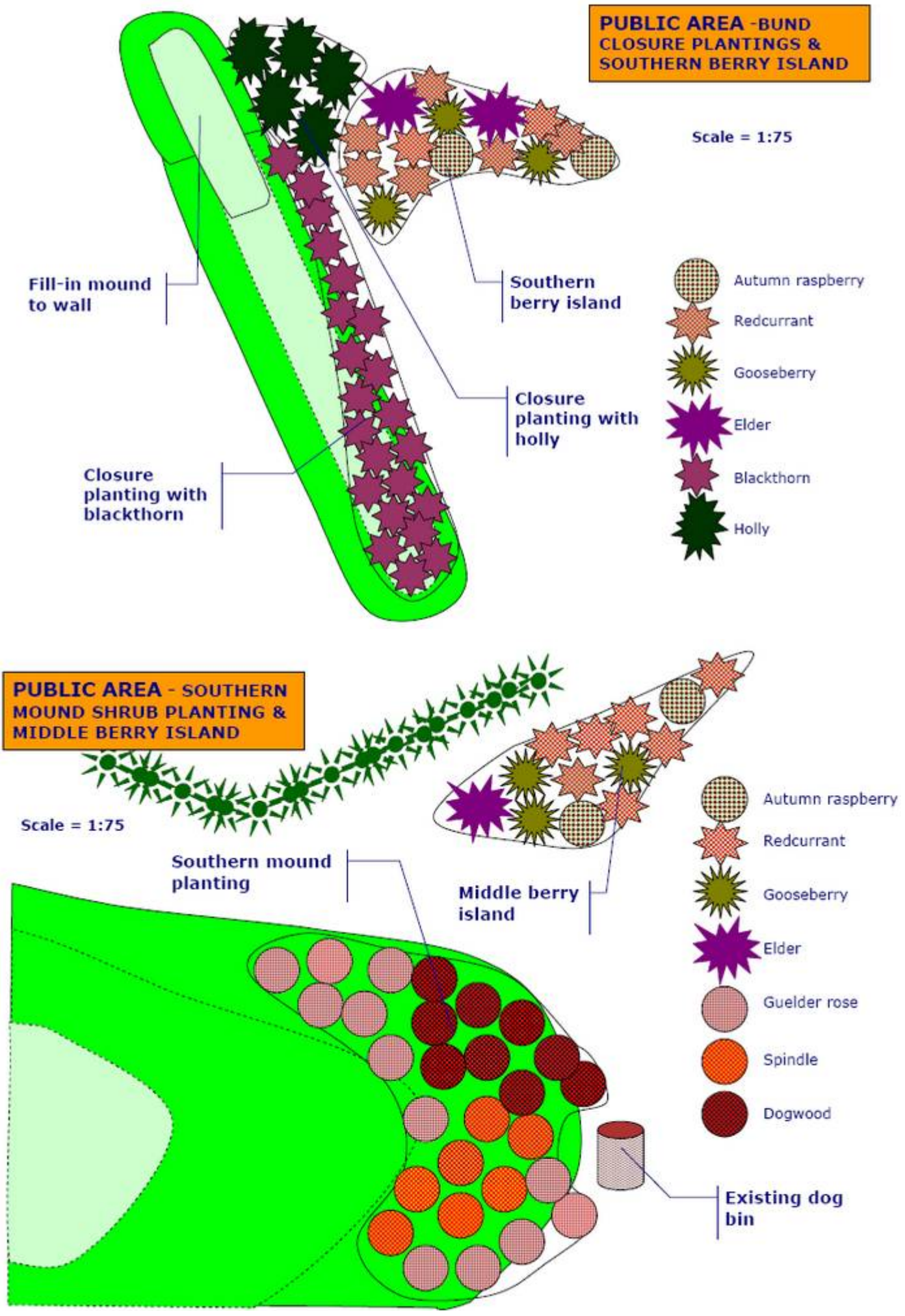
The difference is between: a garden that is the personal and private realisation of its owner, and which requires a high degree of maintenance to retain that vision; and the greater and more general function that an amply vegetated landscape can provide. Certainly, there can be ornamentation, and there can be human productivity and use in the landscape, but there is perhaps a greater responsibility when stewarding a landscape to realise those other attributes. Use of native plants, consistent with the underlying landscape characteristics, will always be the more successful approach to achieve that aim.

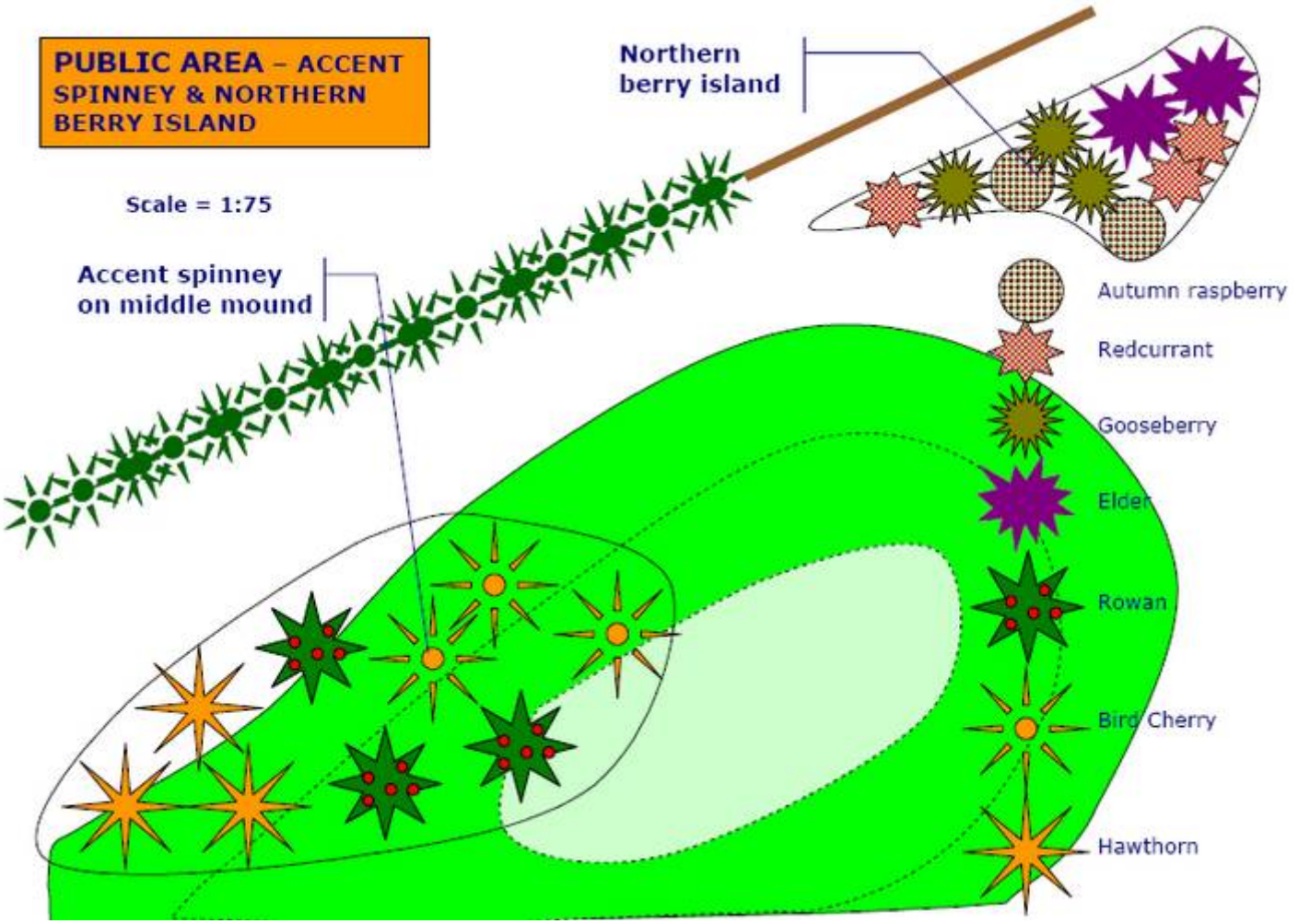
The biological diversity of the landscape will be amplified by removing the restraint to natural succession. With the surrounding farmland, it would be removal of grazing animals and allowing natural regeneration of woodland. In the case of the stewarded landscape around the Ecology Building Society HQ, it would be choosing to repopulate the landscape with the various stages and mixes of the characteristic sessile oak woodland that would have been the successional vegetation of the Silsden area. Taking this landscape past the plagioclimax of its present state would reduce some of the maintenance work that goes in to restraining succession (for instance, some areas would no longer need grass cutting). Moreover, natural landscapes require less work to maintain as they suffer less from disease or disproportionate predation. The ecological benefits from having a greater biological diversity would be both visible and invisible, but all in keeping with the ethos of the Society.

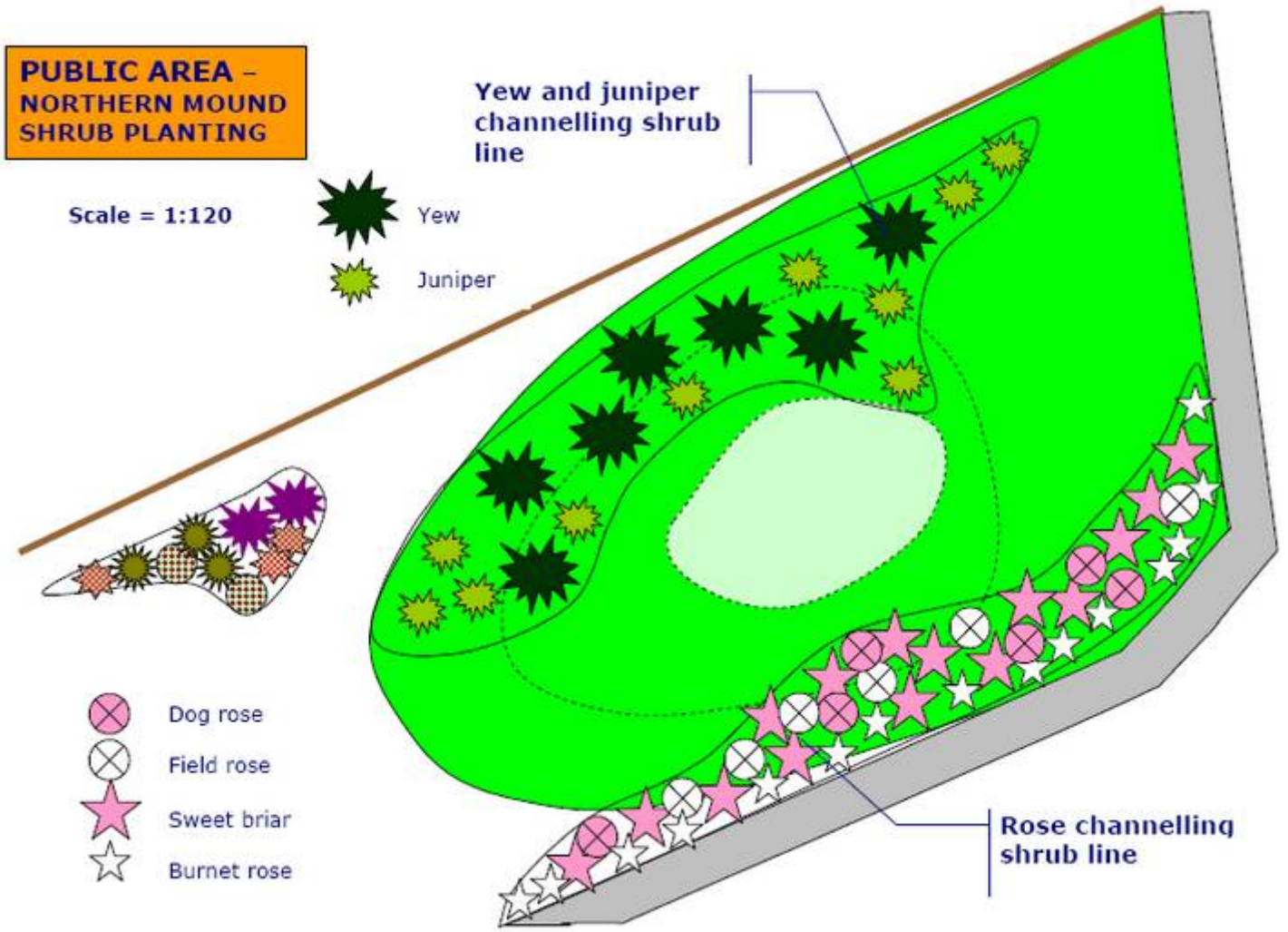
The following pages show, in succession, the base map, concept design and final design with quantities and costings for the different areas of the site. In the case of the Public and Private areas, modified Concept Designs are shown in addition to those from the original presentation, and reflect the feedback that was given.

PUBLIC AREA - REVISED PROPOSALS




PUBLIC AREA -BUND CLOSURE PLANTINGS & SOUTHERN BERRY ISLAND
Scale = 1:75
Fill-in mound to wall
Southern berry island
Closure planting with holly
Closure planting with blackthorn
Autumn raspberry
Redcurrant
Gooseberry
Elder
Blackthorn
Holly
PUBLIC AREA - SOUTHERN MOUND SHRUB PLANTING & MIDDLE BERRY ISLAND
Scale = 1:75
Southern mound planting
Middle berry island
Autumn raspberry
Redcurrant
Gooseberry
Elder
Guelder rose
Spindle
Dogwood
Existing dog bin


PUBLIC AREA – ACCENT SPINNEY & NORTHERN BERRY ISLAND
Scale = 1:75
Northern berry island
Accent spinney on middle mound
Autumn raspberry
Redcurrant
Gooseberry
Elder
Rowan
Bird Cherry
Hawthorn


PUBLIC AREA – NORTHERN MOUND SHRUB PLANTING
Scale = 1:120
Yew and juniper channelling shrub line
Yew
Juniper
Dog rose
Field rose
Sweet briar
Burnet rose
Rose channelling shrub line

PUBLIC AREA
OVERALL DESIGN

PUBLIC AREA

The overall design is shown on the previous page. All material used for shrub plantings will be pruned to achieve growth into a shrub shape and size. Trees in the optional spinney on the middle mound will be staked and grown as standards. The exception will be the hawthorns, which will be pruned to grow as shrubs and will not be staked.

A path is shown travelling through and around the public space. This has a width of 1m and is constructed from a 10cm layer of crushed sandstone laid onto geotextile. This is an optional element of the design.

PUBLIC AREA - LIST OF SHRUBS AND TREES

Common name	*Latin name*
Bird cherry	*Prunus padus*
Blackthorn	*Prunus spinosa*
Burnet rose	*Rosa pimpinellifolia*
Dog rose	*Rosa canina*
Dog wood	*Cornus sanguinea*
Elderberry	*Sambucus niger*
Field rose	*Rosa arvensis*
Gooseberry	*Ribes uva-crispa*
Guelder rose	*Viburnum opulus*
Hawthorn	*Crataegus monogyna*
Holly	*Ilex aquifolium*
Juniper	*Juniperus communis*
Rasberry	*Rubus idaeus*
Red currant	*Ribes rubrum*
Rowan	*Sorbus aucuparia*
Spindle	*Euonymus europaeus*
Sweet briar	*Rosa rubiginosa*
Yew	*Taxus baccata*

PUBLIC AREA QUANTITIES AND COSTINGS		Price	No.	Cost	Totals
	SHRUBS AND TREES				
BUND CLOSURE PLANTINGS					
HOLLY	2L 30-40cm		5		
BLACKTHORN	60-90cm		22		
SOUTHERN MOUND					
GUELDER ROSE	40-60		12		
DOGWOOD	40-60		9		
SPINDLE	20-40		7		
SOUTHERN BERRY ISLAND					
GOOSEBERRY	2L		3		
AUTUMN RASPBERRY	In 10s		2		
REDCURRANT	2L		8		
ELDER	60-90		2		
MIDDLE BERRY ISLAND					
GOOSEBERRY	2L		3		
AUTUMN RASPBERRY	In 10s		2		
REDCURRANT	2L		3		
ELDER	60-90		2		
NORTHERN BERRY ISLAND					
GOOSEBERRY	2L		3		
AUTUMN RASPBERRY	In 10s		2		
REDCURRANT	2L		7		
ELDER	60-90		2		
ACCENT SPINNEY					
BIRD CHERRY	90-120		3		
ROWAN	90-120		3		
HAWTHORN	90-120		3		
TREE STAKES	165cm x 75mm		6		
TREE TIE	45cm		6		
SPIRAL GUARD	45cm		6		
NORTHERN MOUND SHRUB LINES					
YEW	2L		7		
JUNIPER	2L		10		
DOG ROSE	40-60		6		
FIELD ROSE	40-60		6		
SWEET BRIAR	40-60		16		
BURNET ROSE	40-60		15		
	BUND REPAIR				
SOIL	Reclaimed - per tonne		4		
	PATHS				
BALLAST	Sub-base Type 1 p/t		21		
GEOTEXTILE	Terram 1000 per metre		32		
	TOTAL				

CAR PARK AND OFFICE AREA

HEATHER BORDERS

The local heathers of ling (Calluna vulgaris) and bell heather (Erica cinera) flower deep pink to purple red, appearing in late July and on into August. The foliage is retained but will lose its green colouration. While the heathers can often be seen growing in moist, acidic soil, they do tolerate much drier conditions providing that the soil is not alkaline. Modern cultivars from the garden trade of these common heathers have add an extended flowering season, and with varying flower and foliage colour.

The Alpine heather of central Europe (Erica carnea) has white flowers in winter, evergreen foliage, and grows in the limestone uplands. This heather and its hybrids also provide a range of cultivars with varying flower and foliage colour, but they are smaller and lower growing. Combining the winter and summer flowering cultivars can provide almost an all year round display of flowering heather, with a spectrum of flower colour that ranges from white, through pink to purple and red. Foliage colour is also varied, from dark green via yellow and gold, through to orange and bright red, most varying with season. The two tables show some examples of available cultivars.

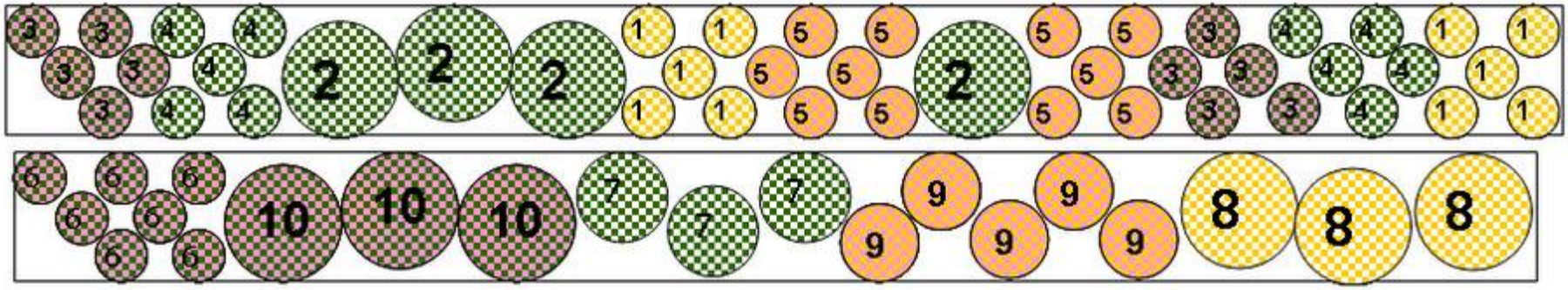
Heathers are loosely planted in groups of 1, 3, 5 and 7 depending on their size and the coverage that is needed, and with mixing of flowering season, flower colour and foliage. This mixing can be garish and only works best where there is a larger canvas so that the eye can wander. The narrow beds in front of the office building and car park walls do not present this, so the intention is to group similar flowering period heathers in the same stretch of border, bleeding flower and foliage colour along its length, and smoothly varying height. The winter flowering heathers will be used between the office building and pavement, and the summer flower heathers will be used below the stone wall of the car park. The tables show representative examples of the different flower and foliage colour cultivars that are available, and Some representative plantings for the narrow borders are show in the strips overpage (the numbers on plants in the strips refer to those in the tables).

Table 1 WINTER FLOWERING HEATHERS	
Erica carnea 'Golden Starlet' White flowers Dec.-March and golden foliage turning lime-green in Winter. 6in.(15cm)	1
Erica x darleyensis 'Ghost Hills' Plenty of deep pink flowers above deep green foliage tipped cream in Spring. Dec.-April. 18in.(45cm)	2
Erica carnea 'Challenger' Magenta-pink flowers; dark green foliage. Jan-April.6in(15cm)	3
Erica carnea 'Springwood White' White flowers with chocolate anthers; vigorous habit and mid to light green foliage. Feb.-April. 6-9in.(15-22.5cm)	4
Erica carnea 'Foxhollow' Reasonably vigorous with yellow foliage turning orange in very cold winters. Pale pink flowers. Feb.-April. 9in.(22.5cm)	5

Table 2 SUMMER FLOWERING HEATHERS	
Erica cinerea 'Pink Ice' Many soft rose-pink flowers on dark green foliage, bronze when young and in Winter. May-Sept. 8in.(20cm)	6
Calluna vulgaris 'Beoley Gold' Good quality, bright golden foliage all year, upright habit and attractive white flowers. July-Oct. 14in.(35cm)	7
Calluna vulgaris 'Gold Haze' Bright yellow foliage and attractive white flowers. July-Oct. 18in.(45cm)	8
Calluna vulgaris 'Robert Chapman' Golden foliage in Summer, orange by Autumn and glowing red in Winter. Attractive purple flowers, July-Oct. 1ft.(30cm)	9
Calluna vulgaris 'Annemarie' Outstanding double, rose-pink deepening with age. Sept.-Oct. 18in.(45cm)	10

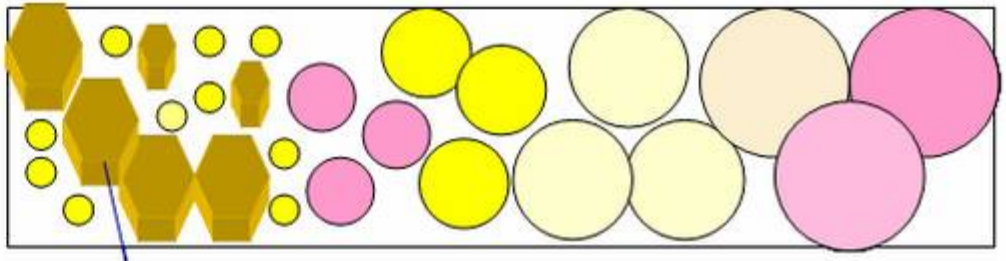
CAR PARK & OFFICE AREA

WINTER flowering heather border – scale = 1:25



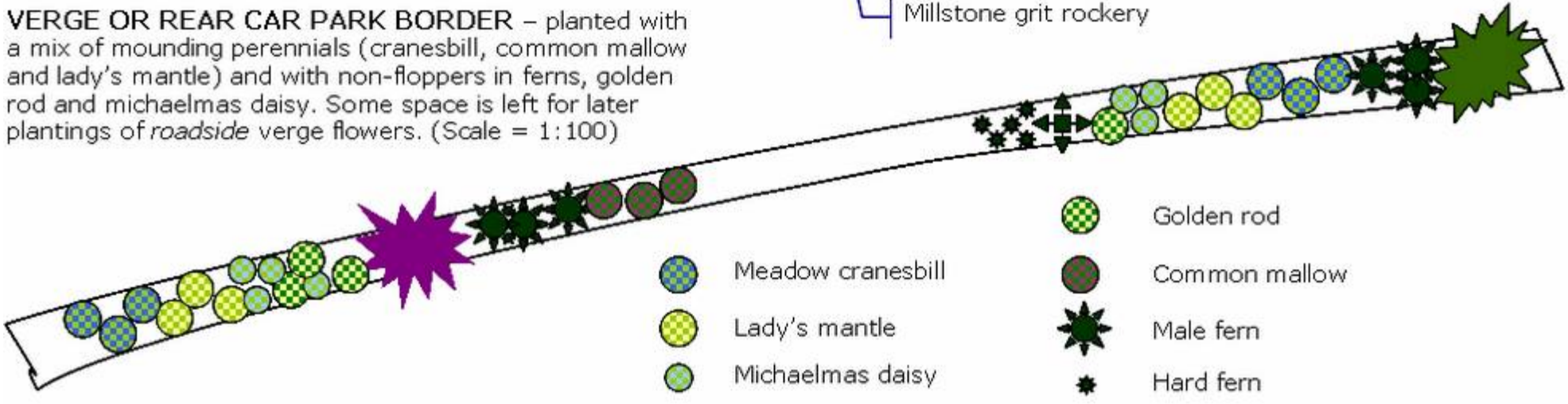
SUMMER flowering heather border – scale = 1:25

STONECROP BED the broader area of border in front of two office windows. Plant with a range of stonecrops, shown by the strip to the right (scale = 1:25). A few pieces of millstone grit in a rockery to the left and then groups of plantings as follows (l to r): Sedum acre, S. Vera Jameson, Rhodiola rosea, Sedum telephium subsp. Ruprechtii – and then one of S. 'Herbstfreude', S. telephium Matrona, and S. telephium Morchen



Millstone grit rockery

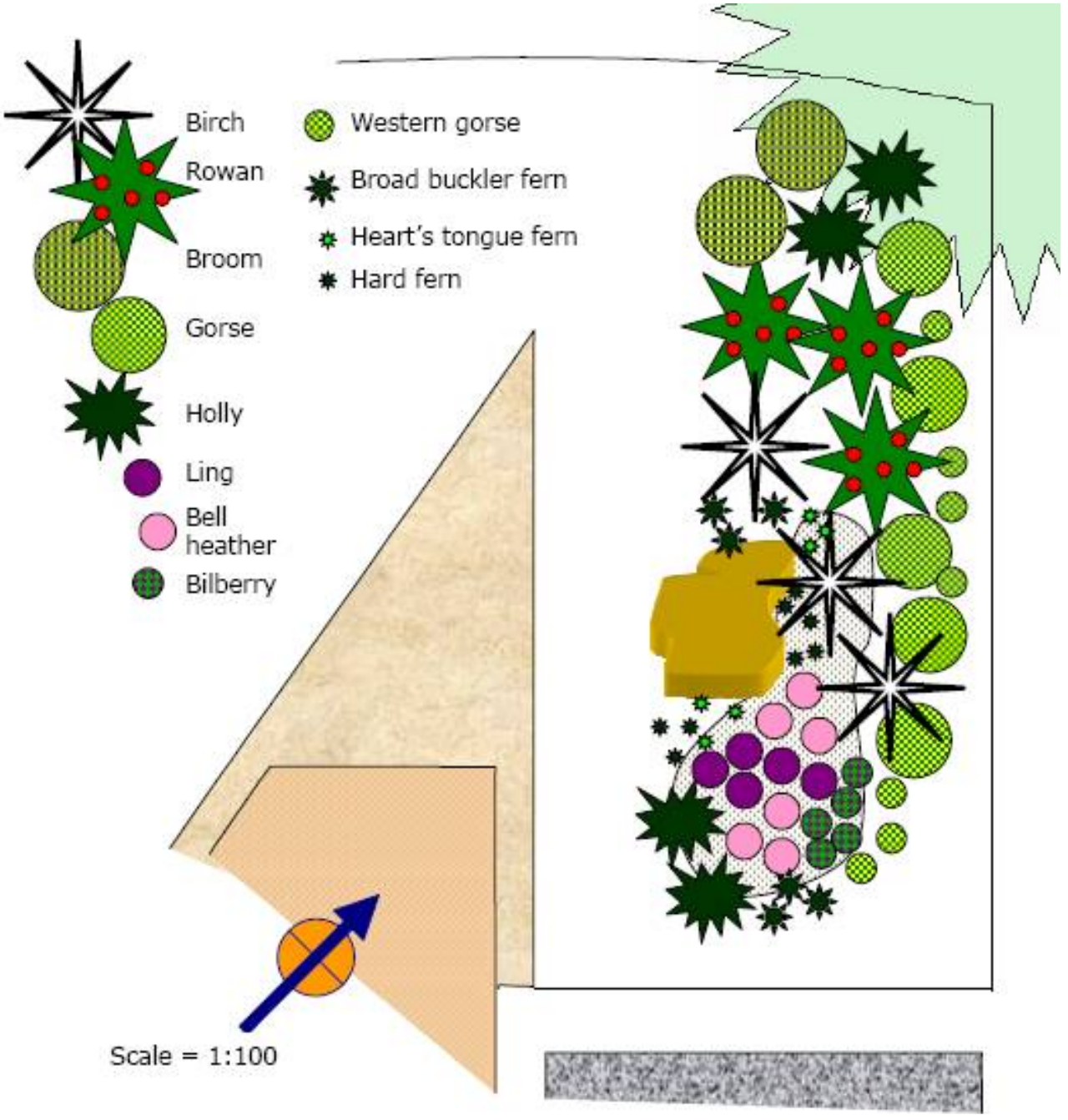
VERGE OR REAR CAR PARK BORDER – planted with a mix of mounding perennials (cranesbill, common mallow and lady's mantle) and with non-floppers in ferns, golden rod and michaelmas daisy. Some space is left for later plantings of *roadside* verge flowers. (Scale = 1:100)



MILLSTONE GRIT GUILD – TRANSITION BOUNDARY

Planting some oaks would be a tribute to the former vegetation around Silsden. A mature oak of 40m height has a canopy of similar diameter. Its growth rate of 25cm per year suggests it would take at least 150 years to reach maturity. However, it is probably unwise to plant any oaks since there isn't the room on site for even a *bunched* spinney of them. However, we can represent the former vegetation by simulating the upland millstone grit guild, where the community has birch, rowan and holy as its tree layer, and broom, the gorses and heathers as the shrub layer. This guild planting will create a separation between the car park and the rear of the office.

A feature size stone of millstone grit will be backed into an earth mound. (max ht. 50cm). The mound will be planted with heathers and bilberry, and the surroundings will have a woodland edge of the trees and shrubs. Ferns will be planted where there is water run-off from the mound and rock.



PRE-PLANTED BORDER – CAR PARK

There is a rectangular border with drystone wall to three sides, on the righthand side when entering the car park. This bed has been planted up with a variety of shrubs and some perennials in a series of long rows. Many of the shrubs are evergreen, some have variegated or grey foliage, and flower colour will vary through white, yellow, mauve to blue. Some will have scented flowers. Plants identified are:

Artemisia, Buxus, Choisya, Elaeagnus, Heuchera, Lavandula, Mahonia, Taxus & Weigela

There is also a feature tree in the centre of the border – a cultivar of *Acer japonica*.

The planting theme of this border bears little relationship to the rest of the landscape. The linearity of the planting makes little sense and there will be conflicts as some the shrubs have the capacity to fill the border at the expenses of the others (Elaeagnus, Taxus). At a minimum, this border needs rearranging to allow the present plants the opportunity to survive and thrive.

It is proposed to remove the yew (Taxus) for use elsewhere, and to replant the rest in groupings that will reflect there relative potential sizes, and which create a more natural appearance.

COMPOST BINS

Soil fertility is aided by recycling plant wastes to the soil after composting, primarily through its use as a mulch. The design of the compost bin is not as important as the accessibility and ease of use of the bin, so that composting becomes second nature. Plant wastes can arise from all areas of the site, but their frequency from any one area would be seasonal compared to the likelihood that kitchen waste would arise from the buildings almost daily. Thus it is probably best to locate compost bins somewhere in the axis between the front door and the proposed new meeting room immediately behind the office, perhaps back towards the boundary wall. The precise location is best left until plans for the meeting room are finalised.

The layout recommended is a bank of three rectangular bins in a row (Fig. 1). This arrangement allows for easy turning of the heaps from bin to bin in the row, an essential part of the composting process. It also overcomes the common problem of composting, that fresh material continues to be added over time, creating a heap with a range of different states of decomposition. The bins will be made from posts set in the ground and with planking forming the carcass. The fronts of the bins will be formed from removable slats to gain easy access (Fig. 2). Indivdual heaps will be covered with an insulating "blanket" and the row of bins will have a sloped and hinged lid to keep out rain.

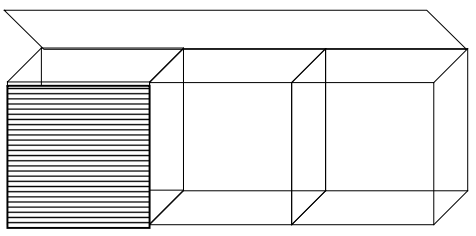


Figure 1

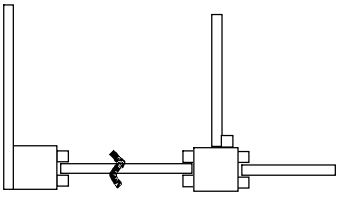


Figure 2

CAR PARK AREA - LIST OF PERENNIALS, SHRUBS AND TREES

Common name	*Latin name*
Bell heather	*Erica cinera*
Bilberry	*Vaccinium myrtiflus*
Birch	*Betula pendula*
Broad buckler fern	*Dryopteris dilata*
Broom	*Cytisus scoparius*
Common mallow	*Malva sylvestris*
Golden rod	*Solidago vigaurea*
Gorse	*Ulex europaeus*
Hard fern	*Blechnum spicant*
Heart's tongue fern	*Aspleniu m scolopendriu m*
Holly	*Ilex aquifoliu m*
Lady's mantle	*Alchemila Mollis*
Ling heather	*Calluna vulgaris*
Male fern	*Dryopteris filix-mas*
Meadow cranesbill	*Geraniu m pratense*
Michaelmas daisy	*Aster novae belgii*
Rowan	*Sorbus aucuparia*
Western gorse	*Ulex gallii*

Lists for the ornamental heathers and stonecrops are given earlier.

CAR PARK AREA – QUANTITIES AND COSTINGS

		Price	No.	Cost	Totals
	HEATHER BORDERS				
WINTER FLOWERING					
Erica carnea 'Golden Starlet'	1L		30		
Erica x darleyensis 'Ghost Hills'	1L		20		
Erica carnea 'Challenger'	1L		30		
Erica carnea 'Springwood White'	1L		30		
Erica carnea 'Foxhollow'	1L		30		
SUMMER FLOWERING					
Erica cinerea 'Pink Ice'	1L		40		
Calluna vulgaris 'Beoley Gold'	1L		20		
Calluna vulgaris 'Gold Haze'	1L		20		
Calluna vulgaris 'Robert Chapman'	1L		30		
Calluna vulgaris 'Annemarie'	1L		20		

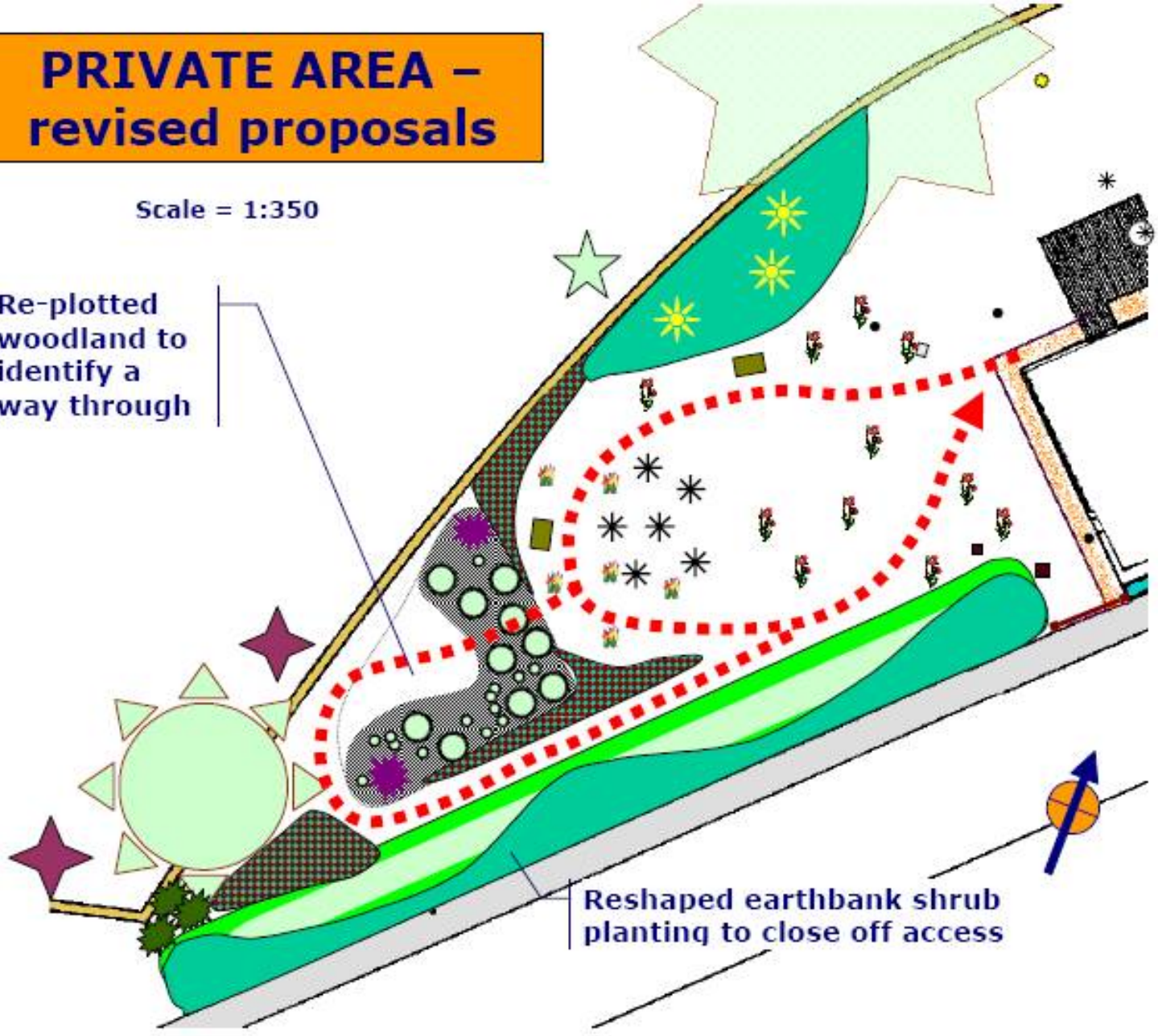
The table is continued overpage.

Continuation:

		Price	No.	Cost	Totals
	STONECROP BED				
Sedum Acre	7cm 10 plants + pp.		10		
Sedum 'Vera Jameson'	9cm		3		
Rhodiola rosea	9cm		3		
S. telephium ssp. ruprechtii	9cm		3		
S. telephium 'Herbstfreude'	9cm		1		
S. telephium 'Matrona'	9cm		1		
S. telephium 'Morchen'	9cm		1		
Gravel	Mulch <20mm		4		
Grit	Shaps		1		
Soil & Rockery stone	Found				
	VERGE BORDER				
Alchemilla glabra	1L		6		
Aster novae belgii	1L		8		
Geranium pratense	7cm		6		
Malva sylvestris	1L		3		
Solidago virgaurea	7cm		4		
Blechnum spicant	1L		5		
Dryopteris filix-mas	2L		6		
	MILLSTONE GRIT GUILD				
Asplenium scolopendrium	1L		6		
Blechnum spicant	1L		8		
Dryopteris dilata	2L		6		
Calluna vulgaris	P9		6		
Erica cinera	P9		5		
Vaccinium myrtilis	10-20		5		
Cytisus scoparius	2L 45-60		2		
Ulex gallii	P9		7		
Ulex europaeus	1L		5		
Ilex aquifolium	2L		4		
Betula pendula	90-120		3		
Sorbus aucuparia	90-120		3		
TREE STAKES	165cm x 75mm		6		
TREE TIE	45cm		6		
SPIRAL GUARD	45cm		6		
SOIL	Reclaimed - per tonne		7		
MILLSTONE GRIT STONE	per tonne		2		
	COMPOST BINS				
POSTS	100X100mm 1.5m		8		
BATTEN	25X25mm per metre		16		
SLATS & SIDES	100X25mm per metre		90		
LID	Sterling board 2.44x1.22m		1		
SCREWS	4.0x40mm SPAX /box 200		2		
HINGES, TEE	Black japanned 30cm /pair		2		
WOOD TREATMENT	Sadolin Classic 2.5l		1		
	TOTAL				

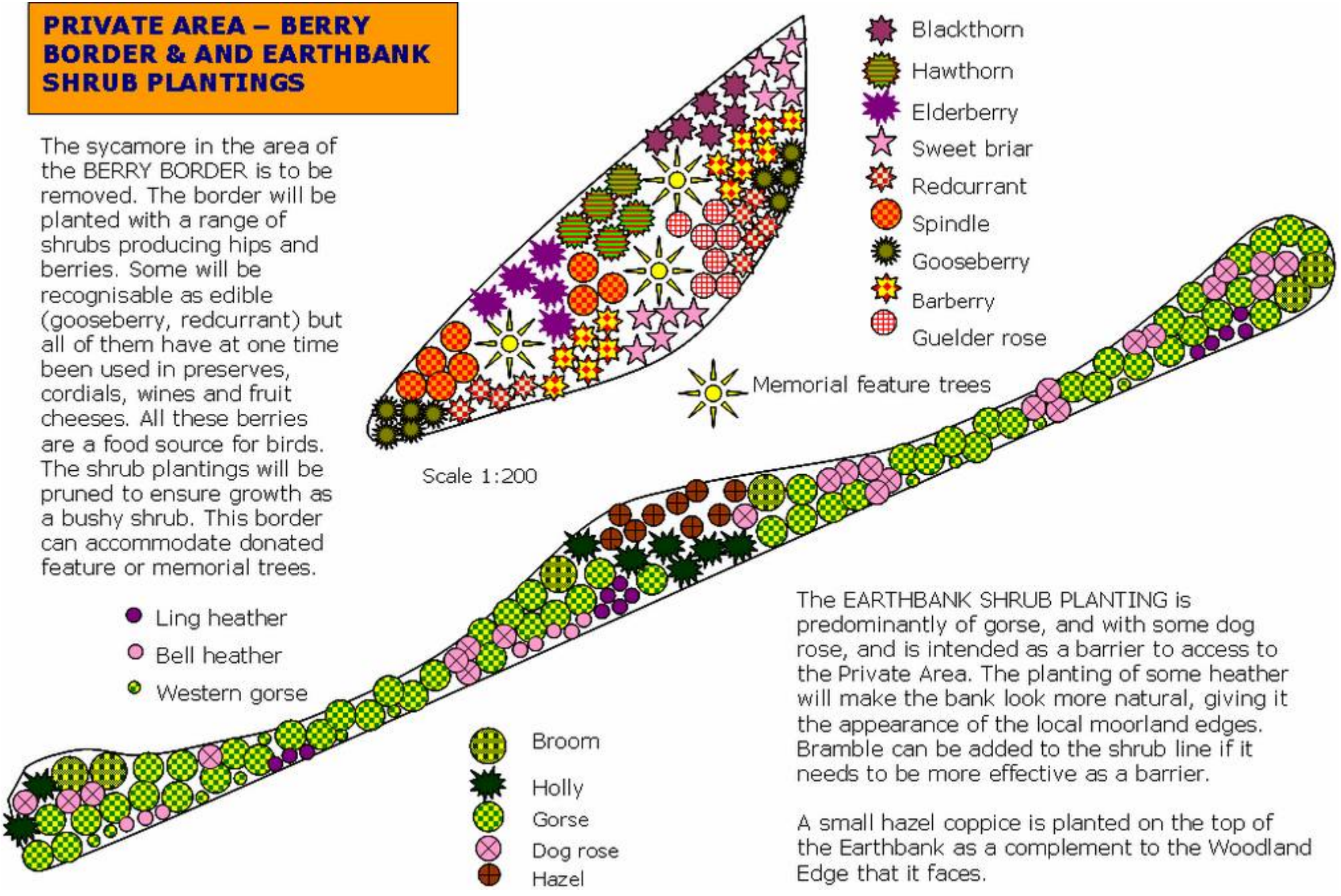
PRIVATE AREA – revised proposals

Scale = 1:350



PRIVATE AREA – BERRY BORDER & AND EARTHBANK SHRUB PLANTINGS

The sycamore in the area of the BERRY BORDER is to be removed. The border will be planted with a range of shrubs producing hips and berries. Some will be recognisable as edible (gooseberry, redcurrant) but all of them have at one time been used in preserves, cordials, wines and fruit cheeses. All these berries are a food source for birds. The shrub plantings will be pruned to ensure growth as a bushy shrub. This border can accommodate donated feature or memorial trees.



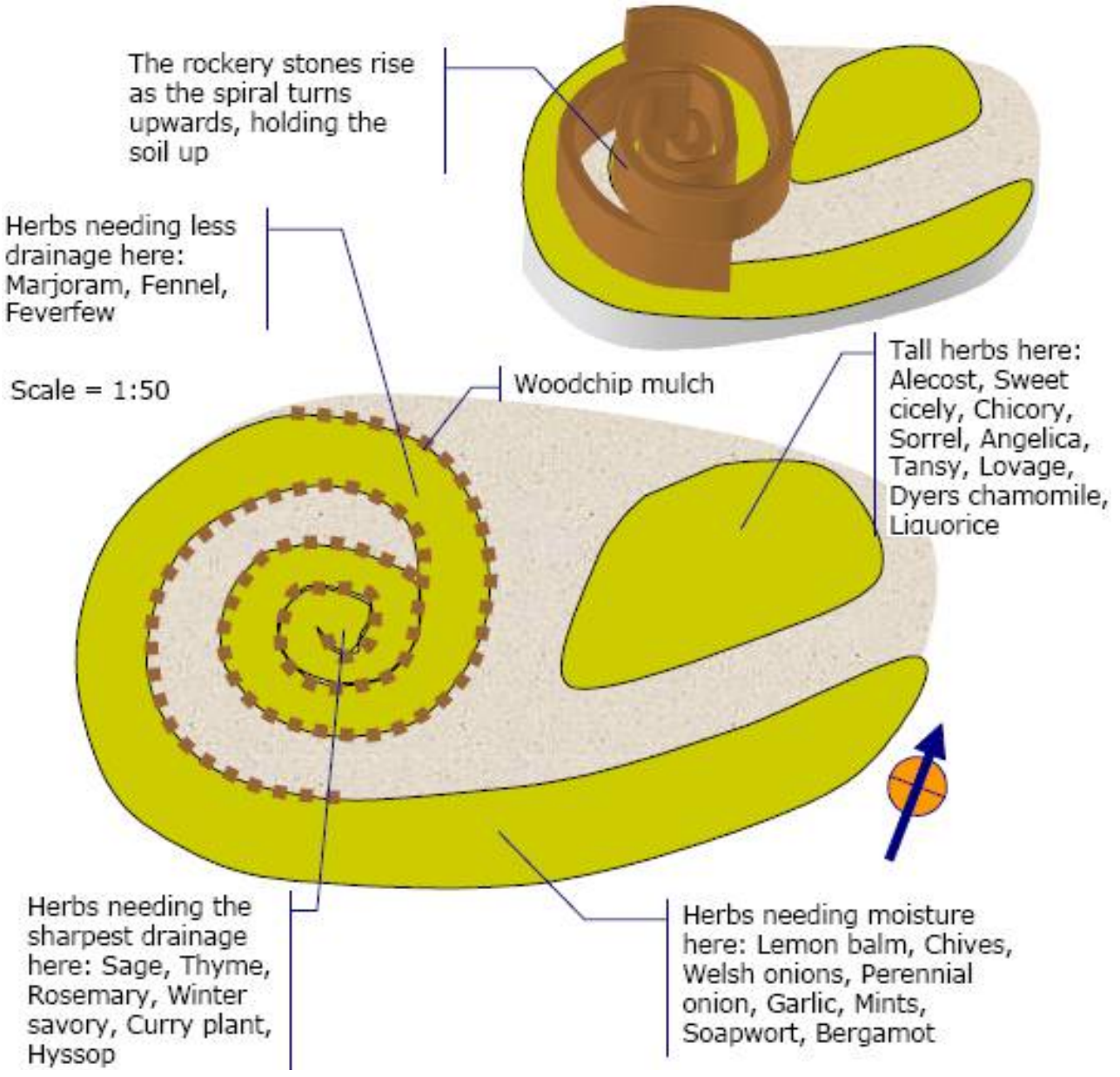
The EARTHBANK SHRUB PLANTING is predominantly of gorse, and with some dog rose, and is intended as a barrier to access to the Private Area. The planting of some heather will make the bank look more natural, giving it the appearance of the local moorland edges. Bramble can be added to the shrub line if it needs to be more effective as a barrier.

A small hazel coppice is planted on the top of the Earthbank as a complement to the Woodland Edge that it faces.

HERB BORDER

The Mediteranean shrubby herbs, such as sage and rosemary, are found in nature growing in sunny locations that have sharply draining soil. It is not surprising therefore that many gardeners find it difficult in our semi-upland area to keep these herbs alive. Its not so much the cold of winter that kills them, it is the combination of the cold and the excessive moisture around their roots that prevents them from coming through the winter unscathed.

This sharp drainage can be achieved by adding grit to the soil and by raising the soil up above ground level. These are the conditions that are created in a rockery. Permaculturists have developed a specialised herb rockery in the form of a spiral – a herb spiral. At the top of the spiral the soil is its highest above ground level, and the sharpest drainage is achieved. As the spiral turns, the drainage becomes less sharp and so a range of mositure/dryness can be achieved (see figure). A list of potential herbs for the spiral and border is shown overleaf.



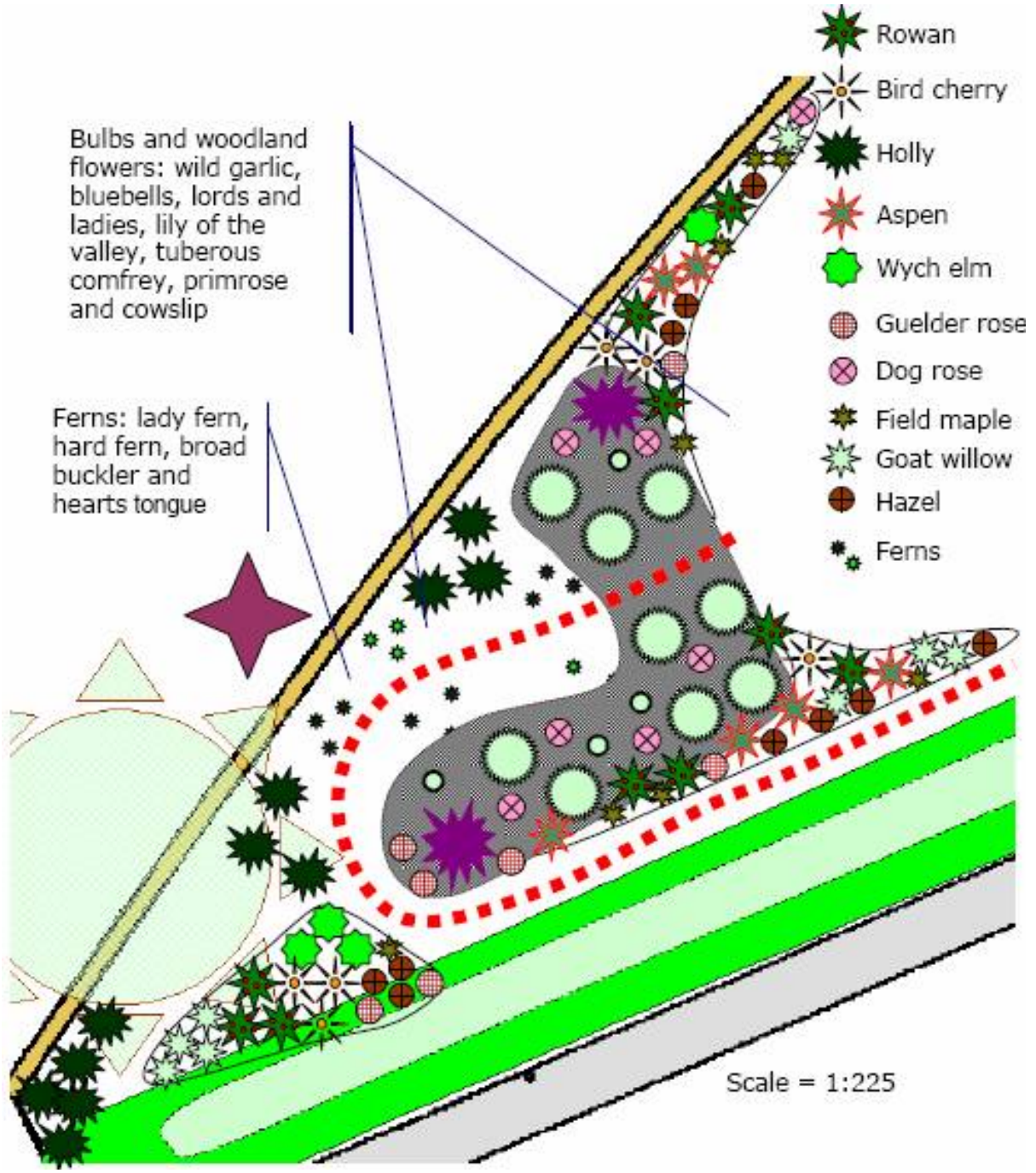
LIST OF HERBS

Common name	*Latin name*
Alecost	*Tanacetum balsamita ssp balsamita*
Angelica	*Angelica archangelica*
Applemint	*Mentha suaveolens*
Babington leek	*Allum babingtonii*
Balm, golden	*Melissa officinalis aurea*
Balm, lemon	*Melissa officinalis*
Bergamot, wild	*Monarda fistulosa*
Chamomile, Dyers'	*Anthemis tinctoria*
Chicory	*Cichorium intybus*
Chives	*Allium schoenoprasum*
Chives, garlic	*Allium tuberosum*
Curry plant	*Helichrysum italicum*
Fennel	*Foeniculum vulgare*
Fennel, bronze	*Foeniculum vulgare purpureum*
Garlic	*Allium sativum*
Hyssop	*Hyssopus officinalis*
Liquorice	*Glycyrrhiza glabra*
Lovage	*Levisticum officinalis*
Marjoram, golden	*Origanum vulgare aureum*
Marjoram, pot	*Origanum onites*
Onion, everlasting	*Allium cepa perutile*
Onion, tree	*Allium cepa proliferum*
Onion, welsh	*Allium fistulosum*
Peppermint	*Mentha x piperita*
Rosemary	*Rosemarinus officinalis*
Sage, broad leaved	*Salvia officinalis*
Sage, golden	*Salvia officinalis 'icterina'*
Sage, purple/red	*Salvia officinalis purpurea*
Savory, winter	*Satureja montana*
Soapwort	*Saponaria officinalis*
Sorrel, broad leaved	*Rumex acetosa*
Sorrel, buckler-leaved	*Rumex scutatus*
Spearmint	*Mentha spicata*
Strawberry, wild	*Fragaria vesca*
Tansy	*Tanacetum vulgare*
Thyme	*Thymus vulgaris*
Thyme, broad-leaved	*Thymus pulegioides*
Thyme, fragrant/orange	*Thymus fragrantissimus*
Thyme, lemon	*Thymus x citriodorus*

WOODLAND EDGE

A woodland edge is a most attractive and productive area. It has a great variety of plant species and an efficiency in the way that nature orders the plants, from low growing at the front, up through the shrubs, and into the woodland with the taller trees. Plants grow in the shade of the woodland, adapting to this by being evergreen or growing from a bulb so that flowering occurs before the canopy of leaves is formed.

The sycamore spinney provides a framework to develop a woodland edge, and to make use of the shade within the woodland. A large sycamore will be removed to open the path line. Spindly sycamores to the outside of the spinney will be thinned out and the crowns of the remainder lifted and thinned. Woodland edge shrubs and trees will be planted as shown in the schematic. Honeysuckle, ivy and dog rose will be dotted to the inside and outside edges, and evergreens, ferns and woodland bulbs will be planted through the front and rear of the woodland.



The groundlayer woodland plantings can be added to over the years, building the range and colour of the flowerings. Examples of additional plants could be: red campion, wood sorrel, wood anemone, herb bennet, great wood-rush, wood cranesbill, bugle, creeping jenny, St John's wort, white deadnettle, yellow archangel, golden rod, and wild strawberry.

A selection of bird boxes, a bat box and a hedgehog box have been specified for distributing within the woodland.

OPEN BIRCH WOODLAND

This is shown later in the final design for the Private Area with a more realistic size and spacing. The birch groupings planted near the office building and decking will be carefully transplanted to form this open woodland area.

MEADOW AREA

The meadow area is the grassland between the office building and in front of the Open Birch Woodland. Well growing plants of grassland species will be dotted through the meadow, some in drifts. To give them a good chance of surviving into later seasons, a square of turf (30x30cm) will be removed at each planting point and soil added to replace that lost. The table below shows the species chosen first to establish the meadow. Other species may be tried later from the list for BD20 given in Appendix 3.

Common name	*Latin name*
Angelica, wild	*Angelic sylvestris*
Betony	*Stachys officinalis*
Bistort	*Persicaria bistorta*
Common mallow	*Malva sylvestris*
Common restharrow	*Ononis repens*
Common toadflax	*Linaria vulgaris*
Devils bit scabious	*Succisa pratensis*
Field scabious	*Knautia arvensis*
Globeflower	*Trolius europaeus*
Greater burnet	*Sanguisorba officinialis*
Ladys mantle	*Alchemila mollis*
Meadow cranesbill	*Geranium pratense*
Wood cranesbill	*Geranium sylvaticum*

PRIVATE AREA SEATING

A bench and a seat made from recycled plastic have been specified for the private area. These will be earth-anchored for security.

GATE

A standard galvanised metal field gate and posts have been specified to close the opening between the office building and the earthbank in the private area.

PRIVATE AREA
OVERALL DESIGN

PRIVATE AREA

The overall design is shown on the previous page. All material used for shrub plantings will be pruned to achieve growth into a bushy shape and size. Trees in the Open Birch Woodland be staked and grown as standards.

A path is shown travelling through and around the private space. This has a width of 1m and is constructed from a 10cm layer of crushed sandstone laid onto geotextile. This is an optional element of the design.

PRIVATE AREA - LIST OF PERENNIALS, SHRUBS AND TREES

Common name	*Latin name*
Aspen	*Populus tremula*
Barberry	*Berberis vulgaris*
Bell heather	*Erica cinera*
Birch	*Betula pendula*
Bird cherry	*Prunus padus*
Bluebells	*Hyacinthoides non-scripta*
Broad buckler fern	*Dryopteris dilata*
Broom	*Cytisus scoparius*
Cowslip	*Primula veris*
Dog rose	*Rosa canina*
Elderberry	*Sambucus nigra*
Field maple	*Acer campestre*
Goat willow	*Salix caprea*
Gooseberry	*Ribes uva-crispa*
Gorse	*Ulex europaeus*
Guelder rose	*Viburnum opulus*
Hard fern	*Blechnum spicant*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Heart's tongue fern	*Asplenium scolopendrium*
Holly	*Ilex aquifolium*
Honeysuckle	*Lonicera periclimenum*
Ivy	*Hedera helix*
Lady fern	*Athyrium filix-femina*
Lily of the valley	*Convalaria majalis*
Ling heather	*Calluna vulgaris*
Lords and ladies	*Arum maculatum*
Meadow cranesbill	*Geranium pratense*
Primrose	*Primula vulgaris*
Red currant	*Ribes rubrum*
Rowan	*Sorbus aucuparia*
Snowdrop	*Galanthus nivalis*
Spindle	*Euonynus europea*
Sweet briar	*Rosa rubignosa*
Tuberous comfrey	*Symphytum tuberosum*
Western gorse	*Ulex gallii*
Wild garlic	*Allium ursinum*
Wych elm	*Ulmus glabra*

Lists of herbs and meadow flowers are given earlier.

PRIVATE AREA - QUANTITIES AND COSTINGS

		Price	No.	Cost	Totals
	WOODLAND				
REAR SHADE AREA					
Aspleniu m scolopendriu m	1L		5		
Athyriu m felix fe mina	1L		5		
Blechnu m spicant	1L		5		
Dryopteris dilata	2L		3		
Dryopteris filix-mas	2L		3		
Ilex aquifoliu m	2L		11		
Rosa canina	45-60		7		
GROUNDLAYER – WOODLAND EDGES					
Alliu m ursinu m	100 bulbs		1		
Aru m maculatu m	P9		10		
Convalaria majalis	10 bulbs		2		
Galanthus nivalis	100 bulbs		1		
Hyacinthoides non-scripta	100 bulbs		1		
Primula veris	1L		10		
Primula vulgaris	1L		10		
Symphytun tuberosu m	P9		5		
WOODLAND EDGE					
Acer campestre	60-90		8		
Corylus avelana	40-60		10		
Hedera helix	P9 30-40		10		
Lonicera periclymenu m	2L		10		
Populus tremula	60-90		6		
Prunus padus	60-90		6		
Salix caprea	60-90		8		
Sorbus aucuparia	60-90		10		
Ulmus glabra	40-60		4		
Viburnu m opulus	40-60		7		
BOXES					
BIRD BOX	25mm hole		1		
	32mm hole		1		
	open front		1		
SPARROW BOX	Terrace 3 box		1		
BAT BOX			1		
OWL BOX			1		
HEDGEHOG BOX	D45cmxW44cmxH33cm		1		
	EARTHBANK				
Calluna vulgaris	P9		13		
Erica cinera	P9		8		
Corylus avelana	40-60		9		
Cytisus scoparius	2L 45-60		6		
Rosa canina	40-60		24		
Ulex europaeus	1L		54		
Ulex gallii	P9		11		

Table continued overpage.

Quantities and costings continued

		Price	No	Cost.	Totals
	OPEN BIRCH WOODLAND				
Betula pendula	150-180 fthd		6		
TREE STAKES	165cm x 75mm		6		
TREE TIE	45cm		6		
SPIRAL GUARD	45cm		6		
SWEET BRIAR	40-60		10		
BLACKTHORN	60-90cm		6		
GUELDER ROSE	40-60		7		
SPINDLE	20-40		8		
HAWTHORN	90-120		5		
GOOSEBERRY	2L		9		
REDCURRANT	2L		9		
ELDER	60-90		5		
	HERB BEDS				
HERB PLANTS	Budget		1		
GRIT	per bag 25Kg		5		
SOIL CONDITIONER	Composted bark 80L		10		
SOIL	Reclaimed - per tonne		5		
MILLSTONE GRIT	per tonne		2		
STONE					
GEOTEXTILE	Terram 1000 4.5m roll, per metre		3		
WOODCHIP/BARK	per bag		15		
	MEADOW				
Angelica sylvestris	1L		5		
Alchemila glabra			5		
Geranium pratense	1L		5		
Geranium sylvaticum			5		
Knautia arvensis	1L		5		
Linaria vulgaris	1L		5		
Malva sylvestris	1L		5		
Ononis repens			5		
Persicaria bistorta			10		
Sanguisorba officinialis	1L		5		
Stachys officinalis	1L		5		
Succisa pratensis	1L		10		
Trolius europaeus			5		
	BENCH and SEAT				
SMITHY BENCH	2100 X 32cm recycled plastic slats, extended legs		1		
SMITHY SEAT	2100cm, recycled plastic slats, extended legs		1		

Table continued overpage.

Quantities and costings continued

		Price	No.	Cost	Totals
	GATE				
UNIVERSAL FIELD GATE	Metal bar, D Loop, galv. 4.73m		1		
HANGING POST	Metal tube, galv. 11.5cm O.D.		1		
SLAMMING POST	Metal tube, galv., self-locking, 11.5cm O.D		1		
BALLAST	Sand:gravel 25Kg per bag		2		
CEMENT	per bag		1		
	PATHS				
BALLAST	Sub-base Type 1 sandstone p/t		25		
GEOTEXTILE	Terram 1000 4.5m roll, per metre		33		
	TOTAL				

OVERALL COST OF MATERIALS

Public area	
Carpark area	
Private area	
Total cost	

IMPLEMENTATION

Groundwork can commence at any time, starting first by extending the earthbank of the Public Area, locating the stone for the Millstone Grit Guild in the Transition Boundary and building the associated earth mound, and building the herb spiral in the Private Area. The small rockery in the stonecrop bed can be made.

Clearing through and shaping the trees in the sycamore spinney is best done during the dormant period of winter.

Planting areas can be marked out and prepared by cutting surface vegetation as close as possible, removing it and then flame weeding the areas two or three times over a period of weeks. Where the plantings are more open (Open Birch Woodland, Accent Spinney and Yew-Juniper shrub line) reasonable sized planting points only will be cleared in this way rather than the whole area. The narrow borders on the path line will need hand weeding and then flamed a few weeks later. The Verge Border will have a sufficient area of turf removed and soil replaced for each planting.

Time of planting depends on the nature of the plant material. Bare root material will need to be planted before the beginning of April. Potted material can be planted at any time of the year. Plants in the pre-planted border in the car park will need to be lifted with a rootball before the new growing season starts and be replanted carefully. Spring flowering bulbs would need to have been planted in Autumn, and perhaps could be delayed until after the first growing season.

APPENDIX 1

DESIGN PROPOSAL FOR LANDSCAPING THE SITE OF

THE ECOLOGY BUILDING SOCIETY

Belton Road, Silsden, West Yorkshire

Produced by Mark Fisher on behalf of the
PERMACULTURE ASSOCIATION
July 2004

THE DESIGN PROCESS

The design process has a number of stages that are described below. The process is based on building a relationship between the client and the designer, and it is expected that the client will become an active participant in the design.

The design will be guided by the principles of sustainability. These seek to integrate environmental concerns with social and economic considerations. In broad brush, a successful design incorporates the roles and functions of people and their productive, business, educational and leisure activities, and interconnects them with the enduring use of the land.

The proposals for the physical development of the land and its long-term management, will be based on natural systems making using of contemporary developments where these are appropriate. The overall aim is to minimise environmental impact while achieving the expected outputs from the design. Where possible, local sources of materials and resources will be specified for use and proposals will be made for the re-use or recycling of wastes or resources that may arise from the long-term management of the site.

DEVELOPING THE BRIEF

A preliminary interview and site walk with the client has provided an initial brief for the landscaping on the site of the new headquarters building of the Ecology Building Society. Walking the site helps to set the physical boundaries of the site, and provides a picture of the general location in which the site exists. The client has specified an overall aim for the site design of low maintenance, and identified four areas of the site for consideration in the design proposal:

Open space to the North East– a public space for use by local residents, probably walking their dogs. Elements are an earth bund, a path and receptacle for collection of dog wastes. The major space is to be maintained as a meadow.
Flower borders – below the walls to the rear of the car park and on the boundary with the footpath on Belton Road. Planting schemes.
Transition boundary – a border between the car park and the building/proposed meeting room space. Planting to create separation.
Open space to the South West – a private space for use of the staff. Elements include a meadow, an earth bund and a spinney of young trees. Design considerations are the closing off of this space, but securing and ensuring access to and around the building.

The open space behind the office building (to the North) is designated for the eventual construction of the meeting room. Landscaping proposals for this space were not part of the initial brief, but there may be an issue of access to this area during that construction phase caused by the recent plantings of birch.

Design proposals for the open space to the south west (the *private space*) would benefit from a further development of the brief. The client has proposed that two staff representatives will make themselves available during a subsequent site visit to explore their potential use of this area. In preparation for this, these representatives (and other willing members of staff) are invited to fill in PASE Element Generator sheets. (PASE stands for Plants, Animals, Structures and Events). This is a simple exercise that helps potential users of open space to record their wishes and desires for the site. Copies of the sheet have been provided to the client for distribution amongst staff and they incorporate instructions for their use. The completed PASE sheets will be reviewed with the staff representatives while walking the proposed private space.

The client has provided copies of a site plan (scale 1:500) which shows in schematic form the original landscaping proposals for the site. The site walk with the client revealed recent woody plantings that are not consistent with the schematic. In addition the schematic does not reveal the topography of the site. This is particularly important in the area of the proposed public space since the moundings there may predict the route of the path that is identified for this area.

It is proposed therefore to carry out a qualitative site survey to produce a new base map of the site. The survey will build up an informational picture based on:

- Nature and ownership of boundaries
- Aspect, elevation and slope
- Sector analysis (sun, wind and water) and variations across the site in local habitat
- Topography over the site
- Soil
- General and specific flora, and confirming major elements shown in schematic, and assessing overhang and safety of trees
- Access – especially for maintenance to buildings and boundaries, and to inspection covers
- Pipe and cable services and their depth
- Current people and animal use of the site
- Immediate and local resources
- Any contextual archaeology and history
- Sense of place

The client should confirm details of ownership or tenure of the site, and responsibility for each of the boundaries. Knowledge of previous site use, mine workings, pipe runs, cabling or other potential hazards should have been identified by the client by contacting local suppliers of gas, electricity and water, highways authorities and any residual body for mining information. Any planning permissions on the site that relate to landscaping should be made available. It would be helpful if the client can give some indication of any likely developments occurring around and outwith the site so that their potential impact or inter-relationship with the site can be judged.

A key element of the design will be the level of access for the local community. It is expected that community access will be encouraged for the open space to the North east, whereas the rest of the site will not generally be open to public use. This differential access has to be made very clear. Vandalism and petty theft are an

unwelcome feature of contemporary society, although often it is a small minority who carry it out. Design can reduce some of the opportunity for vandalism within the site, and the nature of controlled access through boundaries can set the level and the time of acceptable public presence on the site. Psychological boundaries coming from the strategic placing of elements are as important as gross physical boundaries. Permeable boundaries allow pedestrian access but can prevent wheeled access. We would ask that the client give thought to this as it is likely to be a significant theme of the concept report.

THE CONCEPT REPORT

After the site visit and base mapping, a concept report will be developed and be given as a presentation at a meeting with the client. The concept report will take the form of a series of schematics that show the different aspects of the base mapping and work through the design considerations of the major areas of the design, showing how they connect with each other. Some supplementary interpretative text may be needed to add detail or explain any innovative or experimental concepts. Approximate locations on the site will be advanced of the new design elements along with the priorities that they represent and a *sighting* indication of their material cost. There will also be some speculation on the necessary level of future management of areas of the site in the light of its activities and purpose.

The Concept Report is intended to be a discussion document for the client and thus will not be exhaustive or definitive. Its contents are an aid in the process of refining the design by identifying the core elements that meet the client's priorities. It will also help to identify any consents or Planning Permissions that may be required. Feedback from the client on the Concept Report will lead to an agreement of the final design elements and will create confidence that a full design can go ahead.

THE OVERALL DESIGN

The overall landscaping for the site will be designed in detail and represented in a series of plans. Indicative working plans will be produced of individual elements where they are needed for clarification. Each of the new elements will have estimates of quantities and costings for materials and some indication of their long term management needs. It must be emphasised that the client will be contracting the implementation of the design as a separate process to the design itself. However, a guide for a phasing of implementation will be given.

THE WORK PROGRAM

	Days	*Cost*	*Expenses*	*Total Cost*
Site visit and site survey	0.75			
Design Concept report, presentation and feedback	1.5			
Design Plans and Costings	3			
		Overall Cost		

VAT is not charged on these costs. The contractual relationship will be between the Ecology Building Society as the client, and the Permaculture Association as the designer. An invoice for the full amount will be issued on delivery to the client of the full Design Plans and Costings.

THE DESIGNER

Mark Fisher (BSc DPhil Dip Perm Des) will be the designer acting on behalf of the Permaculture Association. Mark is an established innovator in the UK Permaculture community. He gained his Diploma in Permaculture Design in 1997, which is peer recognition of his ability and experience in applying Permaculture Design. His clients have included Bradford Council and the Glass Park Development Company near Doncaster.

Mark has long experience of community horticulture and food growing, and has designed and built pocket parks for urban centres and rural fringe, as well as public demonstration gardens for sustainable horticulture. He has been a regular speaker to gardening clubs and societies in the region on various aspects of gardening, has been a teacher of natural food growing for over a decade, and also teaches a course on general (ornamental) gardening called Building Natural Gardens. Mark had a long association with Springfield Community Garden, designing and building its food growing areas.

In early 2000, Mark collaborated on the development of proposals for an area-wide design to increase agricultural productivity of peri-urban farmland to the SE of Bradford. The proposals were adopted by the Sustainable Farmland Management Network of Bradford District (co-ordinated by Bradford Council) and were used as the network's response to consultation on the Rural White Paper.

His most recent design contracts were with the Glass Park Development Company in designing and then starting construction of a working one acre demonstration centre as a community market garden, and developing proposals for landscaping around a new hostel building.

Andy Goldring is an apprentice designer who will be following this design process. The Permaculture Association may later seek permission for a learning event on site for other Permaculture Designers.

Mark Fisher (mn.fisher@ukonline.co.uk)

PLANTS	ANIMALS	STRUCTURE	EVENTS

PASE ELEMENT GENERATOR

Use this sheet to record the visions of the people involved with the site. Ask them to write a key word on the sheet that describes the ideas and things they would like to see on the site under each heading.

It does not matter at this stage whether these ideas are practical. The exercise should be fun so that it brings out the most creative ideas, which can then can be discussed together to build an overall vision for the site. If you have trouble getting started, pin the sheet up somewhere so that you can add things as you pass by.

This column is for key-word descriptions of the trees, shrubs, flowers, herbs, fruit, vegetables, fungi and climbers you want to see on the site. Try to think of it as a whole landscape and maybe you have a particular style or character that you want, such as Cottage Garden, natural drifts or ornamental. Do you have a particular purpose for the plants say in food production or in attraction of wildlife? Write in key-words for this.

Write in here your key-word descriptions of the animals, birds, insects and water creatures you want. You may not want to keep animals as livestock for food, but are there other visiting animals or creatures that you would like to encourage such as frogs or hedgehogs. Are birds important to you?

This section is for buildings and it is also about how you and your community organise themselves and the working of the site. The buildings can be sheds, greenhouses, toilets, seating or just some cover for when it rains. Community structures are such things as the Trusts set up to own the land, and business ventures associated with the land and their management. You may have a particular role that you can state for the site such as a benefit for the community.

For your key-words here, think about how the community is drawn into the site. Do you want to hold open days, celebrations, teaching sessions, community shared meals, work parties, or have a relaxed area where the community can sit in your landscape and appreciate it?

APPENDIX 3

Native flora recorded from postal district BD20 - Silsden area

Plant distribution data are derived from the Atlas of the British Flora, 3rd Edition (published by the Botanical Society of the British Isles, 1982). The dataset currently contains 1,353 species (about 90 percent of Britain's native flora).

Please note: by including historical as well as current records, the floral dataset attempts to give a picture of native distribution, so not all species on this list will necessarily be present today.

Annuals

Annual Meadow-grass	Poa annua
Barren Brome	Anisantha sterilis
Black Medick GW	Medicago lupulina
Black Mustard	Brassica nigra
Black-bindweed	Fallopia convolvulus
Black-grass	Alopecurus myosuroides
Blinks	Montia fontana
Bugloss GW	Anchusa arvensis
Celery-leaved Buttercup	Ranunculus sceleratus
Changing Forget-me-not GW	Myosotis discolor
Charlock	Sinapis arvensis
Cleavers	Galium aparine
Common Cow-wheat GW	Melampyrum pratense
Common Fumitory	Fumaria officinalis
Common Orache	Atriplex patula
Common Poppy GW	Papaver rhoeas
Common Stork's-bill agg.	Erodium cicutarium agg.
Common Whitlowgrass	Erophila verna
Corn Chamomile GW	Anthemis arvensis
Corn Spurrey	Spergula arvensis
Cut-leaved Crane's-bill GW	Geranium dissectum
Cut-leaved Dead-nettle	Lamium hybridum
Dove's-foot Crane's-bill GW	Geranium molle
Early Hair-grass	Aira praecox
Eyebright	Euphrasia confusa
Eyebright	Euphrasia nemorosa
Fairy Flax GW	Linum catharticum
Fat-hen	Chenopodium album
Field Forget-me-not GW	Myosotis arvensis
Field Gentian GW	Gentianella campestris
Field Madder	Sherardia arvensis
Field Pansy GW	Viola arvensis
Field Woundwort GW	Stachys arvensis
Fool's Parsley GW	Aethusa cynapium
Green Field-speedwell	Veronica agrestis
Grey Field-speedwell	Veronica polita
Groundsel	Senecio vulgaris
Hairy Bitter-cress	Cardamine hirsuta
Heath Groundsel	Senecio sylvaticus
Hedge Mustard	Sisymbrium officinale
Henbit Dead-nettle GW	Lamium amplexicaule
Herb-Robert GW	Geranium robertianum
Hop Trefoil GW	Trifolium campestre
Ivy-leaved Speedwell	Veronica hederifolia
Large-flowered Hemp-nettle	Galeopsis speciosa
Lesser Trefoil	Trifolium dubium
Marsh Cudweed	Gnaphalium uliginosum
Marsh Dock	Rumex palustris
Marsh Lousewort	Pedicularis palustris
Nipplewort	Lapsana communis
Pale Persicaria	Persicaria lapathifolia
Parsley-piert agg.	Aphanes arvensis agg.
Petty Spurge	Euphorbia peplus
Prickly Sow-thistle	Sonchus asper
Purple Ramping-fumitory	Fumaria purpurea
Red Bartsia	Odontites vernus
Red Dead-nettle GW	Lamium purpureum
Redshank	Persicaria maculosa
Rue-leaved Saxifrage	Saxifraga tridactylites
Sand Spurrey	Spergularia rubra
Scarlet Pimpernel	Anagallis arvensis
Scented Mayweed GW	Matricaria recutita
Shepherd's-needle	Scandix pecten-veneris
Shepherd's-purse	Capsella bursa-pastoris
Shining Crane's-bill GW	Geranium lucidum
Silver Hair-grass	Aira caryophyllea
Small Nettle	Urtica urens
Small Toadflax	Chaenorhinum minus
Smooth Hawk's-beard	Crepis capillaris
Smooth Sow-thistle	Sonchus oleraceus
Soft-brome	Bromus hordeaceus
Spear-leaved Orache	Atriplex prostrata
Sticky Groundsel	Senecio viscosus
Sticky Mouse-ear	Cerastium glomeratum
Sun Spurge	Euphorbia helioscopia
Thale Cress	Arabidopsis thaliana
Three-nerved Sandwort	Moehringia trinervia
Thyme-leaved Sandwort	Arenaria serpyllifolia
Trifid Bur-marigold	Bidens tripartita
Upright Hedge-parsley	Torilis japonica

Wall Barley	Hordeum murinum
Wall Speedwell	Veronica arvensis
Water-pepper	Persicaria hydropiper
Wavy Bitter-cress	Cardamine flexuosa
Yellow-rattle GW	Rhinanthus minor

Biennials

Autumn Gentian GW	Gentianella amarella
Common Scurvygrass	Cochlearia officinalis
Foxglove GW	Digitalis purpurea
Garlic Mustard	Alliaria petiolata
Giant Bellflower GW	Campanula latifolia
Great Mullein GW	Verbascum thapsus
Hairy Rock-cress	Arabis hirsuta
Harebell GW	Campanula rotundifolia
Hemlock	Conium maculatum
Hogweed	Heracleum sphondylium
Marsh Thistle	Cirsium palustre
Musk Thistle GW	Carduus nutans
Ribbed Melilot	Melilotus officinalis
Rough Chervil GW	Chaerophyllum temulum
Rough Hawk's-beard GW	Crepis biennis
Spear Thistle GW	Cirsium vulgare
Upright Brome	Bromopsis erecta
Viper's-bugloss GW	Echium vulgare
Weld GW	Reseda luteola
Welted Thistle GW	Carduus crispus
Wild Carrot GW	Daucus carota
Wild Mignonette GW	Reseda lutea
Wild Teasel GW	Dipsacus fullonum
Winter-cress	Barbarea vulgaris
Wood-sorrel GW	Oxalis acetosella

Climbers

Climbing Corydalis	Ceratocapnos claviculata
Hedge Bindweed	Calystegia sepium
Honeysuckle GW	Lonicera periclymenum
Hop GW	Humulus lupulus
Ivy GW	Hedera helix

Geophytes (bulb, rhizome, etc.)

Bee Orchid GW	Ophrys apifera
Bird's-nest Orchid	Neottia nidus-avis
Black Bryony	Tamus communis
Bluebell GW	Hyacinthoides non-scripta
Bracken	Pteridium aquilinum
Broad-leaved Helleborine GW	Epipactis helleborine
Butterbur GW	Petasites hybridus
Colt's-foot	Tussilago farfara
Common Spotted-orchid GW	Dactylorhiza fuchsii
Common Twayblade	Listera ovata
Early-purple Orchid GW	Orchis mascula
Enchanter's-nightshade GW	Circaea lutetiana
Field Horsetail	Equisetum arvense
Fragrant Orchid	Gymnadenia conopsea
Frog Orchid	Coeloglossum viride
Great Horsetail	Equisetum telmateia
Greater Butterfly-orchid	Platanthera chlorantha
Heath Spotted-orchid GW	Dactylorhiza maculata
Hemlock Water-dropwort	Oenanthe crocata
Herb-paris GW	Paris quadrifolia
Lesser Twayblade	Listera cordata
Lily-of-the-valley GW	Convallaria majalis
Lords-and-Ladies GW	Arum maculatum
Marsh Horsetail	Equisetum palustre
Marsh Woundwort GW	Stachys palustris
Moonwort	Botrychium lunaria
Moschatel GW	Adoxa moschatellina
Pignut GW	Conopodium majus
Ramsons GW	Allium ursinum
Rough Horsetail	Equisetum hyemale
Snowdrop GW	Galanthus nivalis
Tuberous Comfrey GW	Symphytum tuberosum
White Bryony	Bryonia dioica
Wild Onion	Allium vineale
Wood Horsetail	Equisetum sylvaticum
Yellow Iris GW	Iris pseudacorus
Yellow Star-of-Bethlehem GW	Gagea lutea

Herbaceous Perennials

Agrimony GW	Agrimonia eupatoria
Bird's-eye Primrose GW	Primula farinosa
Black Horehound GW	Ballota nigra
Blue Water-Speedwell GW	Veronica anagallis-aquatica
Broad-leaved Willowherb	Epilobium montanum
Brooklime GW	Veronica beccabunga
Bugle GW	Ajuga reptans
Bulbous Buttercup GW	Ranunculus bulbosus
Common Dog-violet GW	Viola riviniana
Common Wintergreen	Pyrola minor
Cowslip GW	Primula veris
Creeping Buttercup	Ranunculus repens
Creeping-Jenny GW	Lysimachia nummularia
Crosswort GW	Cruciata laevipes
Daisy GW	Bellis perennis
Early Dog-violet GW	Viola reichenbachiana
Germander Speedwell GW	Veronica chamaedrys
Globeflower GW	Trollius europaeus
Goldilocks Buttercup	Ranunculus auricomus
Great Burnet GW	Sanguisorba officinalis
Great Willowherb GW	Epilobium hirsutum
Ground-ivy GW	Glechoma hederacea

Gypsywort	Lycopus europaeus
Hairy Violet GW	Viola hirta
Heath Speedwell GW	Veronica officinalis
Hoary Willowherb	Epilobium parviflorum
Intermediate Wintergreen	Pyrola media
Kidney Vetch GW	Anthyllis vulneraria
Lady's-mantle GW	Alchemilla glabra
Lady's-mantle GW	Alchemilla xanthochlora
Lesser Celandine GW	Ranunculus ficaria
Lesser Spearwort	Ranunculus flammula
Marsh Speedwell	Veronica scutellata
Marsh Violet GW	Viola palustris
Marsh Willowherb	Epilobium palustre
Meadow Buttercup GW	Ranunculus acris
Meadowsweet GW	Filipendula ulmaria
Mountain Pansy GW	Viola lutea
Oxeye Daisy GW	Leucanthemum vulgare
Pale Willowherb	Epilobium roseum
Primrose GW	Primula vulgaris
Rosebay Willowherb	Chamerion angustifolium
Round-leaved Sundew	Drosera rotundifolia
Salad Burnet GW	Sanguisorba minor
Selfheal GW	Prunella vulgaris
Short-fruited Willowherb	Epilobium obscurum
Skullcap GW	Scutellaria galericulata
Sneezewort GW	Achillea ptarmica
Sweet Violet GW	Viola odorata
Tansy GW	Tanacetum vulgare
Thyme-leaved Speedwell	Veronica serpyllifolia
Water Avens GW	Geum rivale
White Dead-nettle GW	Lamium album
Wild Basil GW	Clinopodium vulgare
Wild Marjoram GW	Origanum vulgare
Wild Pansy GW	Viola tricolor
Wild Strawberry GW	Fragaria vesca
Wood Anemone GW	Anemone nemorosa
Wood Avens GW	Geum urbanum
Wood Sage GW	Teucrium scorodonia
Wood Speedwell GW	Veronica montana
Yarrow GW	Achillea millefolium
Yellow Archangel GW	Lamiastrum galeobdolon
Yellow Pimpernel GW	Lysimachia nemorum

Large Shrub or Small Tree

Bird Cherry GW	Prunus padus
Crab Apple GW	Malus sylvestris
Dogwood GW	Cornus sanguinea
Elder GW	Sambucus nigra
Goat Willow GW	Salix caprea
Grey Willow GW	Salix cinerea
Guelder-rose GW	Viburnum opulus
Hawthorn GW	Crataegus monogyna
Hazel GW	Corylus avellana
Holly GW	Ilex aquifolium
Osier GW	Salix viminalis
Purple Willow GW	Salix purpurea
Spindle GW	Euonymus europaeus
Wild Privet GW	Ligustrum vulgare
Yew GW	Taxus baccata

Marsh Plant

Bladder-sedge	Carex vesicaria
Bog Asphodel	Narthecium ossifragum
Bog Stitchwort	Stellaria uliginosa
Bogbean GW	Menyanthes trifoliata
Bottle Sedge GW	Carex rostrata
Bristle Club-rush	Isolepis setacea
Common Butterwort	Pinguicula vulgaris
Common Cottongrass GW	Eriophorum angustifolium
Common Reed	Phragmites australis
Common Spike-rush	Eleocharis palustris
Common Water-starwort agg.	Callitriche stagnalis agg.
Compact Rush GW	Juncus conglomeratus
Creeping Forget-me-not GW	Myosotis secunda
Creeping Yellow-cress	Rorippa sylvestris
Fen Bedstraw	Galium uliginosum
Flat-sedge	Blysmus compressus
Floating Sweet-grass	Glyceria fluitans
Flowering-rush GW	Butomus umbellatus
Fool's-water-cress	Apium nodiflorum
Hard Rush	Juncus inflexus
Hare's-tail Cottongrass GW	Eriophorum vaginatum
Lesser Pond-sedge	Carex acutiformis
Lesser Water-parsnip	Berula erecta
Marsh Arrowgrass	Triglochin palustre
Marsh Cinquefoil GW	Potentilla palustris
Marsh Hawk's-beard	Crepis paludosa
Marsh Ragwort	Senecio aquaticus
Marsh Stitchwort	Stellaria palustris
Marsh-marigold GW	Caltha palustris
Northern Spike-rush	Eleocharis austriaca
Pale Forget-me-not GW	Myosotis stolonifera
Plicate Sweet-grass	Glyceria notata
Purple-loosestrife GW	Lythrum salicaria
Reed Canary-grass	Phalaris arundinacea
Reed Sweet-grass	Glyceria maxima
Round-leaved Crowfoot	Ranunculus omiophyllus
Small Sweet-grass	Glyceria declinata
Soft-rush GW	Juncus effusus
Tufted Forget-me-not GW	Myosotis laxa
Water Horsetail	Equisetum fluviatile
Water-cress agg.	Rorippa nasturtium-aquaticum agg.
Wood Club-rush	Scirpus sylvaticus
Woodruff GW	Galium odoratum
Yellow Loosestrife GW	Lysimachia vulgaris

Parasite

Mistletoe GW	Viscum album

Perennials

Velvet Bent agg.	Agrostis canina agg.
Common Bent GW	Agrostis capillaris
Black Bent GW	Agrostis gigantea
Creeping Bent GW	Agrostis stolonifera
Marsh Foxtail	Alopecurus geniculatus
Meadow Foxtail GW	Alopecurus pratensis
Bog Pimpernel	Anagallis tenella
Wild Angelica GW	Angelica sylvestris
Sweet Vernal-grass GW	Anthoxanthum odoratum
Cow Parsley GW	Anthriscus sylvestris
False Oat-grass	Arrhenatherum elatius
Wormwood GW	Artemisia absinthium
Mugwort	Artemisia vulgaris
Wall-rue GW	Asplenium ruta-muraria
Maidenhair Spleenwort GW	Asplenium trichomanes
Lady-fern GW	Athyrium filix-femina
Hard-fern GW	Blechnum spicant
False Brome	Brachypodium sylvaticum
Quaking-grass GW	Briza media
Hairy-brome	Bromopsis ramosa
Large Bitter-cress GW	Cardamine amara
Cuckooflower GW	Cardamine pratensis
Slender Tufted-sedge	Carex acuta
Green-ribbed Sedge	Carex binervis
Spring-sedge	Carex caryophyllea
White Sedge	Carex curta
Dioecious Sedge	Carex dioica
Brown Sedge	Carex disticha
Star Sedge	Carex echinata
Glaucous Sedge	Carex flacca
Hairy Sedge	Carex hirta
Tawny Sedge	Carex hostiana
Smooth-stalked Sedge	Carex laevigata
Common Sedge	Carex nigra
False Fox-sedge	Carex otrubae
Oval Sedge	Carex ovalis
Pale Sedge	Carex pallescens
Carnation Sedge	Carex panicea
Greater Tussock-sedge GW	Carex paniculata
Pill Sedge	Carex pilulifera
Flea Sedge	Carex pulicaris
Remote Sedge	Carex remota
Spiked Sedge	Carex spicata
Thin-spiked Wood-sedge	Carex strigosa
Wood-sedge	Carex sylvatica
Common Knapweed GW	Centaurea nigra
Greater Knapweed GW	Centaurea scabiosa
Common Mouse-ear	Cerastium fontanum
Rustyback GW	Ceterach officinarum
Greater Celandine GW	Chelidonium majus
Alternate-leaved Golden-saxifrage	Chrysosplenium alternifolium
Opposite-leaved Golden-saxifrage	Chrysosplenium oppositifolium
Creeping Thistle	Cirsium arvense
Melancholy Thistle	Cirsium heterophyllum
Field Bindweed	Convolvulus arvensis
Crested Dog's-tail	Cynosurus cristatus
Brittle Bladder-fern GW	Cystopteris fragilis
Cock's-foot GW	Dactylis glomerata
Heath-grass	Danthonia decumbens
Tufted Hair-grass GW	Deschampsia cespitosa
Wavy Hair-grass GW	Deschampsia flexuosa
Alpine Clubmoss	Diphasiastrum alpinum
Narrow Buckler-fern GW	Dryopteris carthusiana
Broad Buckler-fern GW	Dryopteris dilatata
Male-fern agg.	Dryopteris filix-mas agg.
Common Couch	Elytrigia repens
Crowberry GW	Empetrum nigrum
Hemp-agrimony GW	Eupatorium cannabinum
Tall Fescue	Festuca arundinacea
Giant Fescue GW	Festuca gigantea
Sheep's Fescue GW	Festuca ovina
Meadow Fescue	Festuca pratensis
Red Fescue GW	Festuca rubra
Northern Bedstraw GW	Galium boreale
Hedge Bedstraw GW	Galium mollugo
Common Marsh-bedstraw	Galium palustre
Heath Bedstraw	Galium saxatile
Limestone Bedstraw	Galium sterneri
Lady's Bedstraw GW	Galium verum
Meadow Crane's-bill GW	Geranium pratense
Wood Crane's-bill GW	Geranium sylvaticum
Downy Oat-grass	Helictotrichon pubescens
Yorkshire-fog	Holcus lanatus
Creeping Soft-grass	Holcus mollis
Meadow Barley GW	Hordeum secalinum
Marsh Pennywort	Hydrocotyle vulgaris
Hairy St John's-wort GW	Hypericum hirsutum
Trailing St John's-wort	Hypericum humifusum
Slender St John's-wort GW	Hypericum pulchrum
Square-stalked St John's-wort GW	Hypericum tetrapterum
Cat's-ear GW	Hypochaeris radicata
Sharp-flowered Rush	Juncus acutiflorus
Jointed Rush	Juncus articulatus
Bulbous Rush	Juncus bulbosus
Field Scabious GW	Knautia arvensis
Crested Hair-grass	Koeleria macrantha
Toothwort	Lathraea squamaria
Bitter-vetch GW	Lathyrus linifolius
Meadow Vetchling GW	Lathyrus pratensis
Autumn Hawkbit	Leontodon autumnalis
Rough Hawkbit GW	Leontodon hispidus
Smith's Pepperwort	Lepidium heterophyllum
Pale Toadflax GW	Linaria repens
Common Toadflax GW	Linaria vulgaris
Perennial Rye-grass	Lolium perenne

Common Bird's-foot-trefoil GW	Lotus corniculatus
Greater Bird's-foot-trefoil	Lotus pedunculatus
Field Wood-rush	Luzula campestris
Heath Wood-rush	Luzula multiflora
Hairy Wood-rush	Luzula pilosa
Great Wood-rush GW	Luzula sylvatica
Ragged-Robin GW	Lychnis flos-cuculi
Common Mallow GW	Malva sylvestris
Lucerne	Medicago sativa
Mountain Melick	Melica nutans
Wood Melick GW	Melica uniflora
Water Mint GW	Mentha aquatica
Corn Mint GW	Mentha arvensis
Dog's Mercury	Mercurialis perennis
Wood Millet GW	Milium effusum
Purple Moor-grass GW	Molinia caerulea
Wall Lettuce	Mycelis muralis
Wood Forget-me-not GW	Myosotis sylvatica
Mat-grass	Nardus stricta
Common Restharrow GW	Ononis repens
Pellitory-of-the-wall	Parietaria judaica
Grass-of-Parnassus	Parnassia palustris
Lousewort	Pedicularis sylvatica
Common Bistort GW	Persicaria bistorta
Timothy agg.	Phleum pratense agg.
Hart's-tongue GW	Phyllitis scolopendrium
Mouse-ear-hawkweed GW	Pilosella officinarum
Greater Burnet-saxifrage	Pimpinella major
Burnet-saxifrage GW	Pimpinella saxifraga
Ribwort Plantain	Plantago lanceolata
Greater Plantain	Plantago major
Hoary Plantain GW	Plantago media
Flattened Meadow-grass	Poa compressa
Wood Meadow-grass	Poa nemoralis
Smooth Meadow-grass agg.	Poa pratensis agg.
Rough Meadow-grass GW	Poa trivialis
Heath Milkwort	Polygala serpyllifolia
Common Milkwort GW	Polygala vulgaris
Hard Shield-fern GW	Polystichum aculeatum
Trailing Tormentil	Potentilla anglica
Silverweed GW	Potentilla anserina
Tormentil GW	Potentilla erecta
Creeping Cinquefoil GW	Potentilla reptans
Barren Strawberry GW	Potentilla sterilis
Common Fleabane GW	Pulicaria dysenterica
Cloudberry GW	Rubus chamaemorus
Stone Bramble	Rubus saxatilis
Common Sorrel	Rumex acetosa
Sheep's Sorrel	Rumex acetosella
Clustered Dock	Rumex conglomeratus
Curled Dock	Rumex crispus
Broad-leaved Dock	Rumex obtusifolius
Wood Dock	Rumex sanguineus
Knotted Pearlwort	Sagina nodosa
Procumbent Pearlwort	Sagina procumbens
Sanicle GW	Sanicula europaea
Meadow Saxifrage GW	Saxifraga granulata
Small Scabious GW	Scabiosa columbaria
Black Bog-rush	Schoenus nigricans
Water Figwort GW	Scrophularia auriculata
Common Figwort GW	Scrophularia nodosa
Green Figwort GW	Scrophularia umbrosa
Biting Stonecrop GW	Sedum acre
Common Ragwort	Senecio jacobaea
Saw-wort GW	Serratula tinctoria
Blue Moor-grass GW	Sesleria caerulea
Pepper-saxifrage GW	Silaum silaus
Red Campion GW	Silene dioica
White Campion GW	Silene latifolia
Bladder Campion GW	Silene vulgaris
Goldenrod GW	Solidago virgaurea
Perennial Sow-thistle	Sonchus arvensis
Betony GW	Stachys officinalis
Hedge Woundwort GW	Stachys sylvatica
Lesser Stitchwort GW	Stellaria graminea
Greater Stitchwort GW	Stellaria holostea
Wood Stitchwort	Stellaria nemorum
Devil's-bit Scabious GW	Succisa pratensis
Common Comfrey GW	Symphytum officinale
Dandelions	Taraxacum officinale agg.
Alpine Penny-cress	Thlaspi caerulescens
Wild Thyme GW	Thymus polytrichus
Goat's-beard GW	Tragopogon pratensis
Deergrass	Trichophorum cespitosum
Chickweed-wintergreen GW	Trientalis europaea
Zigzag Clover GW	Trifolium medium
Red Clover GW	Trifolium pratense
White Clover GW	Trifolium repens
Yellow Oat-grass GW	Trisetum flavescens
Common Nettle	Urtica dioica
Cranberry GW	Vaccinium oxycoccos
Marsh Valerian GW	Valeriana dioica
Common Valerian GW	Valeriana officinalis
Tufted Vetch GW	Vicia cracca
Bush Vetch GW	Vicia sepium

Shrubs

Bell Heather GW	Erica cinerea
Bilberry GW	Vaccinium myrtillus
Bittersweet GW	Solanum dulcamara
Blackthorn GW	Prunus spinosa
Bramble	Rubus fruticosus agg.
Broom GW	Cytisus scoparius
Cowberry GW	Vaccinium vitis-idaea
Creeping Willow GW	Salix repens
Cross-leaved Heath GW	Erica tetralix
Dewberry GW	Rubus caesius
Dog-rose agg.	Rosa canina agg.
Downy Currant GW	Ribes spicatum
Dyer's Greenweed GW	Genista tinctoria
Eared Willow GW	Salix aurita

Field-rose GW	Rosa arvensis
Gooseberry GW	Ribes uva-crispa
Gorse GW	Ulex europaeus
Heather GW	Calluna vulgaris
Petty Whin GW	Genista anglica
Raspberry GW	Rubus idaeus
Spiny Restharrow GW	Ononis spinosa
Western Gorse GW	Ulex gallii

Trees

Alder GW	Alnus glutinosa
Ash GW	Fraxinus excelsior
Aspen GW	Populus tremula
Bay Willow GW	Salix pentandra
Beech GW	Fagus sylvatica
Black-poplar agg.	Populus nigra agg.
Crack-willow GW	Salix fragilis
Downy Birch GW	Betula pubescens
Field Maple GW	Acer campestre
Hornbeam GW	Carpinus betulus
Pedunculate Oak GW	Quercus robur
Rowan GW	Sorbus aucuparia
Sessile Oak GW	Quercus petraea
Silver Birch GW	Betula pendula
White Willow GW	Salix alba
Wych Elm GW	Ulmus glabra

Water Plants

Alternate Water-milfoil	Myriophyllum alterniflorum
Amphibious Bistort	Persicaria amphibia
Arrowhead GW	Sagittaria sagittifolia
Blunt-leaved Pondweed	Potamogeton obtusifolius
Bog Pondweed	Potamogeton polygonifolius
Branched Bur-reed GW	Sparganium erectum
Broad-leaved Pondweed	Potamogeton natans
Bulrush GW	Typha latifolia
Common Club-rush GW	Schoenoplectus lacustris
Common Duckweed	Lemna minor
Curled Pondweed	Potamogeton crispus
Fennel Pondweed	Potamogeton pectinatus
Fine-leaved Water-dropwort	Oenanthe aquatica
Frogbit	Hydrocharis morsus-ranae
Horned Pondweed	Zannichellia palustris
Ivy-leaved Crowfoot	Ranunculus hederaceus
Ivy-leaved Duckweed	Lemna trisulca
Lesser Bulrush GW	Typha angustifolia
Lesser Pondweed	Potamogeton pusillus
Mare's-tail	Hippuris vulgaris
Opposite-leaved Pondweed	Groenlandia densa
Perfoliate Pondweed	Potamogeton perfoliatus
Shoreweed	Littorella uniflora
Small Pondweed	Potamogeton berchtoldii
Spiked Water-milfoil	Myriophyllum spicatum
Unbranched Bur-reed GW	Sparganium emersum
Water-plantain GW	Alisma plantago-aquatica

Woody Perennials

Common Rock-rose GW	Helianthemum nummularium
Spring Sandwort	Minuartia verna

Please remember: The distribution maps used to compile this database often include historical as well as recent records. This means that species on this list will not *necessarily* be found in the BD20 postal district today.

Important note: The distribution records on which this list is based indicate the presence or absence of a given species within each of 3,259 10x10 kilometre grid squares of the British and Irish Ordnance Survey grid systems. This method of recording species distribution means that the database cannot give information with a resolution of less than 10 kilometres. Thus the list for any postal district may include species which occur just outside the district boundary.