The National Trust

Woodland Management Plan

Caldy Hill, Harrock Wood, Burton Mill Wood and Helsby Hill

Caldy Hill (top left), Harrock Wood (top right), Burton Mill Wood (bottom left) and Helsby Hill (bottom right)

Plan period 2018-2028
5 Year review 2023

No.	UKFS Management Plan Criteria	Approval Criteria	Applicant Check
1	Forest management plans should state the objectives of management and set out how the appropriate balance between economic, environmental and social objectives will be achieved.	Have objectives of management been stated? Consideration given to economic, environmental and social factors (Section 2.2)	✓
2	Forest management plans should address the forest context and the forest potential and demonstrate how the relevant interests and issues have been considered and addressed.	Does the management strategy (section 6) take into account the forest context and any special features identified within the woodland survey (section 4)	✓
3	In designated areas, for example national parks, particular account should be taken of landscape and other sensitivities in the design of forests and forest infrastructure.	Have appropriate designations been identified (section 4.2) if so are these reflected through the work proposals in the management strategy (Section 6)	✓
4	At the time of felling and restocking, the design of existing forests should be re-assessed and any necessary changes made so that they meet UKFS Requirements.	Felling and restocking are consistent with UKFS forest design principles (Section 5 of the UKFS)	
5	Consultation on forest management plans and proposals should be carried out according to forestry authority procedures and, where required, the Environmental Impact Assessment Regulations.	Has consultation happened in line with current FC guidance and recorded as appropriate in section 7	✓
6	Forests should be designed to achieve a diverse structure of habitat, species and ages of trees, appropriate to the scale and context.	Do the felling and restocking proposals create or improve structural diversity (refer to the plan of operations)	✓
7	Forests characterised by a lack of diversity due to extensive areas of even-aged trees should be progressively restructured to achieve a range of age classes.	Do the felling and restocking proposals create or improve age class diversity (refer to the plan of operations)	
8	Management of the forest should conform to the plan, and the plan should be updated to ensure it is current and relevant.	Has a 5 year review period been stated (1st page) and where relevant achievements recorded in section 3	✓
9	New forests and woodlands should be located and designed to maintain or enhance the visual, cultural and ecological value and character of the landscape.	When new planting is being proposed under this plan is it consistent with UKFS and FC guidance on woodland creation	

Contents

Maps	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
1 NT Ownership and woodland compartments	1a	1b	1ci, 1cii	1d
2 Designations	2a	2b	2c	2d
3 Footpaths	3a	3b	3c	3d
4 Stand types	4a	4b	4c	4d

Appendix 1 Compartment Schedule

Summary

The National Trust owns and manages approximately 130ha on the Wirral Peninsula of which the largest single site is Thursaston Common (79ha). This management plan covers four woodland sites with a total area of nearly 30ha; Caldy Hill (5.09ha), Harrock Wood (1.75ha), Burton Mill Wood (12.09ha) and Helsby Hill (10.55ha).

Caldy Hill and Burton Mill Wood are located on the west side of the Wirral Peninsula on low sandstone hills overlooking the Dee Estuary. Harrock Wood lies on the Arrowe Brook between Irby and Heswall. Helsby Hill, not strictly on the Wirral, is a prominent sandstone hill between Ellesmere Port and Frodsham overlooking the Mersey Estuary

The woodlands at Caldy and Helsby are relatively recent, having colonised open heathland since the 1960's. Small areas of heathland remain at Caldy. The woodlands at Burton and Harrock have a longer history and are more diverse. Harrock Wood may be a small remnant of ancient woodland. Little is known about the biodiversity of the woodlands but they are likely to support a range of common species. The main archaeological feature is the Iron Age hill fort at Helsby which is a Scheduled Monument, but all of the sites have archaeological features. All four sites well used by the public with Caldy and Helsby providing spectacular views over the surrounding landscape.

The long term vision is that Caldy Hill, Harrock Wood, Burton Mill Wood and Helsby Hill will continue to provide important areas of semi-natural woodland which are valued areas of open space where people can enjoy quiet walks and feel close to nature and the landscape. Historic plantings will be retained and archaeological features protected.

The main threat to the woodlands is the spread of invasive non-native plants particularly rhododendron and cherry laurel. Unauthorised activities such as mountain biking, horse riding, dumping and fires are also a potential problem.

The vision will be achieved by a combination of active management and limited intervention. Rhododendron, cherry laurel and other problem species will be eradicated where possible or controlled and reduced within the plan period. Non native tree species will generally be retained unless vigorous regeneration threatens more native stands. Timber production is not an objective so no silviculture is proposed. Instead, the woodlands will be allowed to develop and mature with the natural processes of gap creation and regeneration providing structural diversity. Surveys will improve knowledge about the sites' biodiversity and this will be used to inform management. Paths, boundaries and estate furniture will be maintained in good condition.

1 Background information

1.1 Location

	Nearest town, village or feature	Grid reference	Total area (ha)	Local Authority
Caldy Hill	Caldy	SJ223855	5.09	Wirral
Harrock Wood	Irby	SJ263846	1.75	Wirral
Burton Mill Wood	Burton	SJ313745	12.09	Cheshire West
Helsby Hill	Helsby	SJ492755	10.55	Cheshire West

Compartments

Caldy Hill	1a	3.30	Caldy North West
	1b	1.79	Caldy South East
	Total	5.09	
Harrock Wood	ALL	1.75	Harrock Wood
Burton Mill Wood	1a	3.09	Burton Mill North West
	1b	1.27	Burton Mill North East
	1c	1.55	Burton Mill South
	1d	1.38	Burton Mill Central
	2a	2.47	Wood Lane (local authority land)
	2b	1.45	Quaker Grave and Church Land
	2c	0.44	Mill Lane (local authority land)
	3	0.44	Neston Road Strip
	Total	12.09	
Helsby Hill	1	2.48	Chester Road Wood West
	2	4.75	Carriage Drive Wood South West
	3	2.42	Carriage Drive Wood East
	4	0.33	Rock Mount Wood
	5	0.57	Hill Road South Wood
	Total	10.55	
Total Area		29.48	

See Maps 1a-d for compartment boundaries

1.2 Description of the woodlands in the landscape

Caldy Hill and Burton Mill Wood are prominent landscape features on the west side of the Wirral Peninsula and are on low sandstone hills overlooking the Dee Estuary. Helsby Hill, between Ellesmere Port and Frodsham, is also a sandstone hill overlooking the Mersey Estuary. The woodlands at Caldy, Burton and Helsby are of relatively recent origin. All three sites would have been covered in open heathland until the late 19th and early 20th Century, and Caldy still retains a significant heathland element. Burton Mill Wood was partially planted by Sir Arthur Kilpin Bulley, founder of Ness Botanic Gardens and some of the original plantings are now amongst the largest specimen trees on the Wirral. An Iron Age hill fort occupies the summit of Helsby. More recently Helsby was owned by the Marquis of Cholmondeley and a carriage drive was constructed in the Victorian era to take visitors up to the summit view point. Harrock Wood lies between the settlements of Irby and Heswall and is quite different in character being a mature mixed valley woodland on Arrowe Brook. Several woodland plant species found here indicate a long history of woodland cover

Although the Trust's landholding at Caldy is relatively small (5.09ha), it forms part of a much larger area of area of open heathland and woodland (95ha) which is owned by the local council and is a valued public open space. Caldy lies within 1km of Thursaston Common (79ha), also managed by the National Trust which is a similar mosaic of heathland and woodland. At Burton adjacent land in council ownership provides additional woodland habitat. At Harrock Wood the National Trust also owns a strip of farmland to the south of the wood on the Arrowe Brook, whilst at Helsby the Trust owns two fields at the top of the hill, one of which includes the hill fort.

Caldy, Harrock and Burton lie within the Wirral National Character Area (59) whilst Helsby is in the Mersey Valley NCA (60)

1.3 History of Management

Caldy

Caldy Hill was a gift from Alfred Vaughn Paton KBE in 1929. Aerial photos show that the site was still largely open heathland until the 1980's, however since then it has been colonised by woodland with only small areas of open ground remaining. Some tree planting was also obviously carried out in the 1980's (Scots pine, Turkey oak and Swedish whitebeam). Is in a EWGS scheme (see below).Rhododendron control and small scale clearance of scrub around heathland areas has been carried out. Viewpoints have been kept clear, and tree safety work and boundary repairs undertaken.

Harrock

Harrock Wood was acquired in 1927.Is in EWGS (see below). Recent management has included path maintenance, fence maintenance and tree safety work.

Burton Mill Wood

The hill was grazed until the mid 1800's and was probably open heathland at this time. By the late 1800's, grazing had ceased and the site was planted with trees and rhododendron to provide cover for game birds. At about this time the site was owned by Sir Arthur Kilpin Bulley (founder of Ness Botanic Gardens) who considered creating a garden here before selecting the site at Ness. Some of the tree planting (e.g. the group of deodars and sweet chestnuts on the southern edge of the site) is attributed to him. He gave Burton Mill Wood to the National Trust in 1928. There are no records of early management. Recent management has involved bracken and rhododendron clearance by volunteer groups (4-5 per year). No herbicides have been or are used in the management of invasive vegetation (because the work has largely been carried out by volunteer groups).Windblown trees have been deliberately left in situ unless they block paths or are a hazard. At the request of the local authority (initially Ellesmere Port and Neston Borough Council) since 1998 Trust management activities have also covered the adjacent local authority land (info from draft management plan 1998 which covers both NT, local authority and church land). The current EWGS covers only the main block of NT land (i.e. does not include compartments 2 or 3)

Helsby

Helsby was purchased in 1947 with funds raised by the Cheshire Branch of the Campaign to Protect Rural England (CPRE). Old maps and more recent aerial photos show that the majority of what is now woodland was open ground until the 1970's and 1980's when it was colonised by woodland, however the eastern part of the woodland has its origins as a pine plantation from the late 19th century. Rhododendron control has been carried out over many years by volunteer groups. The Trust has a felling licence (Ref 010/83/11-12) for clearance of trees and scrub from the hill fort. Some work has recently been carried out on this.

Current EWGS Grants

Site	EWGS Ref	Dates of Agreement	Management to be undertaken
Caldy Hill	32535	2014-19	Control of invasive non native plants, maintain heathland, increase deadwood, maintain public access and safety
Harrock Wood	28891	2013-18	Increase dead wood, maintain public access and safety
Burton Mill Wood	32526	2014-19	Control of invasive non native plants, maintain heathland, increase deadwood, maintain public access and safety
Helsby Hill	32524	2014-19	Rhododendron control, path maintenance, increase dead wood habitat, grey squirrel control. Draft agreement only.

2 Woodland Information

2.1 Areas and features

Designated Areas	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Special Areas for Conservation				
Special Protection Area				
Ramsar Sites				
National Nature Reserves				
Site of Special Scientific Interest				
National Park				
Areas of Outstanding Natural Beauty				
Local Nature Reserves				
TPO / Conservation Area	✓		✓	
Local Wildlife Site	✓	✓	✓	✓

Details

Caldy Hill

Compartment 1a is part of the site is part of the larger Caldy Hill Local Wildlife Site and Local Geological Site (RIGS). Compartment 1b lies within the Caldy Conservation Area. Any tree felling within this area will require permission of Wirral Borough Council. See Map 2a for boundaries

Harrock Wood is a Local Wildlife Site. See Map 2b for boundaries.

Burton Mill Wood

The whole site is a Local Wildlife Site (Grade C). Compartments 2b, 2c, 3 and the western part of 1c lie within the Burton Conservation Area. Any tree felling in this area will require the permission of Cheshire West and Chester Council. (The Local Authority land is shown on some documents as being LNR. See Map 2c for boundaries

The whole of Helsby Hill is a Local Wildlife Site. Helsby is also a Regionally Important Geological Site (RIGS) (No information found). See Map 2d for boundaries

Rare and important species	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Schedule 1 Birds				Peregrine
BAP Birds		Dunnock Song thrush	Song thrush	Dunnock Song thrush
Red list birds (not BAP)				
Amber list birds (not BAP)				Kestrel Willow warbler
BAP Mammals				
Bats				
Other Protected Mammals			Badger	
BAP Reptiles/Amphibians	Common lizard			
BAP Invertebrates				
BAP Plants	Bluebell	Bluebell	Bluebell	Bluebell
BAP Fungi/Lichens				

Details

Peregrine regularly breeds on the cliffs at Helsby Hill.

Full NT Biological surveys have not been carried out for any of these sites, so biological information is very sparse. The only records appear to be a vegetation survey and bird survey of Harrock Wood carried out by the Wirral Group of Cheshire Wildlife Trust in 2013/4 (reports on NT network). The other bird information included above is from observations made during the survey for this plan (May and June 2016)

Common lizard has been recorded at Caldy within the last 3 years (J Twigg pers com)

Bluebell is a Cheshire BAP species

Habitats	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Ancient semi-natural woodland (ASNW)		?		
Other semi-natural woodland	✓	✓	✓	✓
Plantations on ancient woodland sites (PAWS)				
Veteran and other notable trees		✓	✓	
BAP Priority Habitats	✓			

Details

None of the sites are shown as ASNW on the Register. Harrock Wood has a number of indicator species and may be partly remnant ASNW but was too small to be included in the register (min size 2ha)

A veteran tree survey was carried out in 2010. Five veteran trees were found , two at Harrock Wood and three at Burton Mill Wood;

Site	Species	Circumference at 1.5m	Grid Ref
Harrock Wood	Beech	3.26	SJ2634 8456
Harrock Wood	Beech	3.23	SJ2634 8459
Burton Mill Wood	Sycamore	4.00	SJ3112 7438
Burton Mill Wood	Sweet chestnut	3.72	SJ3129 7433
Burton Mill Wood	Sweet chestnut	3.40	SJ3136 7432

(Info from Woodland Trust Ancient Tree Hunt website)

Lowland heathland is still present at Caldy Hill where it occurs as small areas within the woodland.

Water	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Watercourses		✓		
Lakes				
Ponds			✓	
Wetland habitats				

Details

Harrock Wood lies on the Arrowe Brook and has small areas of wet woodland on the banks. At Burton Mill Wood several small temporary pools are present in hollows in compartment 1a. There are no watercourses, ponds or wetland habitats at any of the other sites

Landscape	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Landscape designated areas				
Landscape features	✓		✓	✓
Rock exposures	✓			✓
Historic landscapes				

Details
Caldy Hill, Burton Mill Wood and Helsby Hill are all located on prominent landscape features which form a backdrop to settlements. There are exposures of sandstone at Caldy and Helsby. At Helsby the sandstone forms an impressive cliff face on the north west scarp slope above the woodland.

Cultural Features	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Public rights of way	✓	✓	✓	✓
Prominent viewing points	✓			✓
Existing permissive footpaths	✓		✓	✓
CROW Access land	✓	✓	✓	
Public recreational facilities				✓
Visitor information				

Details

Caldy
Caldy FP54 and FP55 cross the north east part of the site. All other paths are permissive. The site is Open Access. It provides a good viewing point over the Dee Estuary and West Kirby and several memorial seats are located on the site. Informal car parking in a lay-by on Kings Drive. See Map 3a.

Harrock Wood
Irby FP68 follows the eastern bank of the Arrowe Brook. The site is Open Access. Informal parking in lay-by on Thingwall Road. See Map 3b.

Burton
Neston FP40 runs along the southern boundary of comp 1c and 2b from the Mill Lane entrance to Vicarage Lane. FP41 follows the southern boundary of comp 2c. All other paths are permissive. The site is Open Access. There is a small parking area at the Mill Lane entrance. See Map 3c.

Helsby
Several public footpaths cross the site; Helsby FP18 is the carriage drive (Middle Walk), FP24/26 is the upper path and FP25 runs from Hill Road South to Firs Farm. There is a viewpoint at the summit with panoramic views across the Mersey Estuary and surrounding countryside. There is a small Local Authority car park (associated with Helsby Quarry Nature Reserve) on Alvanley Road. The cliffs are a popular rock climbing venue. See Map 3d.

Archaeological Features	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Scheduled monument				✓
Unscheduled monuments	✓	✓	✓	✓
Registered parks and gardens				
Listed buildings				
Other				

Details

Caldy

There are five features on the National Trust Sites and Monuments Record (NTSMR); two quarries (NTSMR 56104, 56103) a track way (56102) and two find spots (56101 flint blades, 56100 flint artefacts). In addition, the boundary wall between the western and eastern parts of the site appears to have been the boundary of the Caldy Estate, and several boundary stones are marked on old OS maps. There is also a memorial plaque to Arthur Vaughn Paton KBE who gave Caldy to the National Trust.

Harrock

There is one feature on the NTSMR; a find spot of a Medieval spindle whorl (56150). In addition a raised bank (possibly a hedge bank) is present on the eastern boundary of the site. This may or may not be an old feature.

Burton Mill Wood

There are two features on the NTSMR; the site of a building (56001) and post medieval spoil heaps (56000) which may be associated with the windmill (which is not on NT land).In addition Quaker's graves are marked on the OS map in compartment 2b (see Draft Management Plan for Burton Mill Wood)

Helsby Hill

Helsby Hill hill fort is a Scheduled Ancient Monument (NTSMR 55100). The area covered by the SAM overlaps with the woodland. Various other features have been recorded from within the hill fort including; banks forming part of the ramparts of the fort (NTSMR 55104, 55114), possible WW2 observation post and associated features (55107, 55110), a Royal Observer Corps Cold War bunker (55109- not in NT ownership), two possible golf tees (55112, 55106) and a find spot of a small scoop (55105). In addition the tracks which contour around the flanks of the hill to the summit are an old carriage drive built by the Marquis of Cholmondeley.

The NTSMR can be accessed on the NT network

2.2 Woodland resource characteristics

Site	Broadleaf	Conifer	Open Ground
Caldy Hill	2.95ha (58%)	0.57ha (11%)	1.57ha (31%)
Harrock Wood	1.75 (100%)	0	0
Burton Mill Wood	7.1ha (59%)	4.86ha (40%)	0.13ha (1%)
Helsby Hill	8.21ha (78%)	0.82ha (8%)	1.52ha (14%)

See Maps 4 a-d for detail of stand types, and Appendix 1 for the full Compartment Schedule.

2.3 Site description

Caldy Hill (5.09ha)
The National Trust's Caldy property lies on the west facing slope of the hill overlooking the village of Caldy and the Dee Estuary. It rises from 35m above sea level adjacent to Caldy Road (B5141), to 74m above sea level on the north eastern boundary (the actual summit of Caldy Hill lies on the local authority land to the north).

The site is divided into two sections by a wall (formerly the boundary of the Caldy Estate). The north western part (sub compartment 1a- 3.30ha) is a mosaic of recent secondary woodland, scrub, bracken, lowland heath and frequent outcrops of sandstone. The main tree species are birch, sessile and pedunculate oak and frequent Turkey oak with an understorey of holly, Swedish whitebeam, hawthorn, rowan, occasional yew saplings and gorse. There are two groups of 25 year old Scots pine and Corsican pine (0.21ha). Sweet chestnut is occasional and there is some sycamore in the southern corner. Elsewhere common whitebeam and horse chestnut are occasional. There is also a small group of Lawson cypress along the eastern boundary. The ground flora is dominated by bracken, bramble with some bluebell, foxglove, honeysuckle, rosebay willowherb, wood sage and ivy.

Approximately 1.38 ha (40 %) is still open ground. This includes two areas of gorse (0.24ha). The remaining open ground (0.64ha) is dominated by dense bracken with scattered naturally regenerating birch, oak, rowan pine saplings and rhododendron. (see non –natives below). Heather is present around rock outcrops.

The south eastern part (sub compartment 1b-1.79ha) is more densely wooded (89% cover). The higher ground is dominated by mature P1900-1970 broadleaf woodland (0.64ha). The canopy here includes sycamore, pedunculate oak, common lime, beech and Turkey oak. There are occasional Corsican pine and hornbeam and an understorey of sycamore, horse chestnut and ash natural regeneration along with wych elm, birch, Swedish whitebeam and hawthorn. The ground flora includes ivy, bramble, bracken and ground ivy. There are several distinct stands of mature (P1950) Scots and Corsican pine (0.36ha) with windswept crowns. More recent secondary woodland covers the lower slopes of 1b (0.58). Here the canopy includes P1980-2000 mixed broadleaves such as birch, oak, rowan and sycamore. There is a holly and gorse understorey with a ground flora dominated by bracken with bramble, ivy, honeysuckle and buckler fern.

Yew, beech, common whitebeam and Turkey oak are occasional. The open areas are dominated by bracken and gorse with occasional oak and abundant birch natural regeneration.

Rhododendron, cherry laurel, shallon, prickly heath, azalea, Holm oak and amelanchier are present, the first four forming dense patches in places.

There are several archaeological features on the site which are recorded on the NTSMR; two quarries (56104, 56103) a track way (56102) and two find spots (56101 flint blades, 56100 flint artefacts). In addition there is also a memorial plaque to Arthur Vaughn Paton KBE who gave Caldy to the National Trust. Caldy is an important local view point and popular walking area and is crossed by a network of public footpaths and permissive paths. It is also open access land. The south eastern part lies within Caldy Conservation Area whilst compartment 1a is part of both the Caldy Hill Local Wildlife Site, and the local geological site (RIGS). See Map 2a. There is no physical boundary between land in Trust ownership and the adjacent Wirral Borough Council owned land. The latter is currently in a Higher Level Stewardship agreement and some scrub/tree clearance has recently been carried out.

Harrock Wood (1.75ha)
Harrock Wood lies between Irby and Pensby on the Arrowe Brook south of Thingwall Road. It is surrounded by agricultural land. The Trust ownership extends southwards along the brook but this land (2.38ha) is leased to an agricultural tenant and is farmed (See Map 1b). The mature mixed woodland is dominated by oak, beech and sycamore with frequent ash, alder, crack willow and wych elm. A good variety of age classes are present including several large beech trees with diameters close to one metre. The understorey has holly, hazel, field maple, hawthorn, blackthorn, dog rose, elder and rowan with saplings of naturally regenerating sycamore, hawthorn, hazel, beech ash, wych elm, wild cherry and horse chestnut. The ground flora is rich with bluebell, wild garlic, primrose, wood avens, lesser celandine, herb Robert, red campion, male fern, broad buckler fern, pignut and greater stitchwort. Ivy, bramble, dock and nettle are also present. Wet areas along the brook have yellow iris, meadowsweet and wild angelica. Dead wood is abundant. The wood supports an assemblage of common bird species (see Bird Survey 2013/14) and a rookery was noted at the northern end of the wood in 2016. A public footpath runs the length of the wood on the eastern bank and is well used/eroded in parts. Several non native plant species are present in the wood including variegated yellow archangel, Montbretia, cultivated daffodil, cotoneaster, Portuguese laurel and ground elder. There is one feature on the NTSMR; a find spot of a Medieval spindle whorl (56150). In addition a raised bank (possibly a hedge bank) is present on the eastern boundary of the site. The wood is a Local Wildlife Site

Burton Mill Wood (12.09ha)
Burton Mill Wood lies on the south facing slope of a low sandstone hill overlooking Burton Village and the Dee Estuary with a small detached area to the west of Neston Road. The Trust's landholding extends to 7.73ha but adjacent areas of woodland owned by Cheshire West and Chester Council and the Church have been included in past management plans and so are included here, making a total area of 12.09ha. The wood is divided into three compartments; compartment 1 is the main block of National Trust owned woodland, compartment 2 is the local authority/church owned land, and compartment 3 is the narrow strip of NT owned woodland to the west Neston Road (See Map 1ci and 1cii). The wood is well used by local people. It is a Local Wildlife Site.

Compartment 1 (National Trust 7.29ha).
Compartment 1a (3.09ha) is predominantly P1920-1930 Scots pine with occasional mature mixed broadleaves including beech, oak (both pedunculate and sessile) and birch (2.76ha). There are occasional younger oaks (P1970/80) and an understorey of rowan and holly. The canopy is mostly open and here the ground flora is dominated by bracken, bramble, buckler fern and ivy with patches of bluebell and snowdrop. In the western corner there is an area with close spaced beech and Scots pine with no understorey and bare ground. A narrow strip of mature mixed broadleaves links the compartment with Wood Lane (0.14ha). There are frequent rhododendron and cherry laurel bushes. Small hollows have temporary pools with soft rush and creeping buttercup.

Compartment 1b (1.27ha). The canopy in the southern part of this compartment is dominated by large mature (P1900) well spaced Scots pine with occasional mature oak, birch and European larch(0.71ha).The understorey includes holly and rowan and the ground flora areas of dense bracken with bramble. There is some horse chestnut, Scots pine and western hemlock natural regeneration. Rhododendron is frequent. North of the main track the canopy is semi-mature (p1950-1960) mixed broadleaves including oak and sycamore with holly and rowan in the understorey (0.56ha). Western hemlock is also present and there is a small stand of bamboo adjacent to a garden in the north east corner.

Compartment 1c (1.55ha).This is a mature P1850-1900 mixed broadleaf (oak, birch, sycamore, sweet chestnut, beech and occasional Turkey oak and Norway maple) mixed conifer (Scots pine and deodar) stand. The canopy is approximately 50% broadleaf and 50% conifer. On the southern boundary is a group of c20 mature deodar which are thought to have been planted by Sir Arthur Kilpin Bulley at the beginning of the 20th Century. These are now 70-80cm diameter and up to 28m tall. Many of the sweet chestnut have diameters greater than 1m. The understorey includes holly, hawthorn, rowan, elder with oak, sycamore wych elm and beech saplings. There is a good age class mix and abundant fallen and standing dead wood. The ground flora is predominantly bracken, bramble, buckler fern and ivy. There are occasional amelanchier, cherry laurel and rhododendron. There is also some gooseberry and variegated yellow archangel near the western entrance. A public footpath runs along the southern boundary. Other footpaths are permissive. The boundary with Cheshire West and Chester Council land (compartment 2c) is marked by short concrete posts in the ground.

Compartment 1d (1.38ha). This is a mature stand of P1850-1900 sweet chestnut, pedunculate oak and occasional sycamore and P1950 birch. There are also some mature P1930 Scots pine. The understorey includes some areas of dense holly. The ground flora of buckler fern and bramble is sparse. There is a good mix of age classes. Several trees have fallen recently and semi-mature P1980 birch and oak are now well established in the gaps together with some P2000 sweet chestnut and beech. There is abundant fallen and standing dead wood. Cherry laurel and rhododendron bushes are frequent. On the plateau in the middle of the compartment the main (permissive) path is ill defined and there is extensive erosion and soil compaction.

Compartment 2 (Cheshire West Council/Church 4.36 ha)
Compartment 2a (2.47ha) is owned by Cheshire West and Chester Council. The majority of this compartment is secondary woodland of semi- mature (P1950/60) oak and sycamore. There is a stand of P1930 Scots pine (0.35ha) in the south west corner. Beech, rowan and birch are frequent with occasional yew. There is also a group of self seeded western hemlock saplings (7-15cm dbh, 1 to 5m high) on the

southern boundary. A large area of rhododendron has recently been cleared and abundant birch natural regeneration has colonised this open area (0.06ha). Despite this work rhododendron has not been fully eradicated from the compartment. An open grassy area in the north east corner of the compartment was formerly mown by the local authority but is now left uncut.

Compartment 2b (1.45ha). The western part of Compartment 2b is owned by Cheshire West and Chester Council whilst the eastern part is owned by the Church (see Map 1cii). It is a long strip of mature (P1900-1930) beech, oak, sweet chestnut and sycamore with occasional ash. The understorey is dominated by cherry laurel but also includes holly, hazel, elder and beech saplings. There is a diverse range of age classes and a good structure to the canopy. There is also abundant fallen and standing dead wood. Some garden waste has been dumped in the woods. The main feature of archaeological interest are the Quaker graves at grid ref SJ 31597 74375. A public foot path runs from the western end to Vicarage Lane.

Compartment 2c (0.44ha) is owned by Cheshire West and Chester Council. It is contiguous with 1c and is a mature mixed broadleaf stand (P1850-1900 oak, birch, sycamore, sweet chestnut, beech and Scots pine). The canopy is approximately 50% broadleaf and 50% conifer. The understorey includes holly, rowan, whitebeam with oak, sycamore and beech saplings. There is a good age class mix and abundant fallen and standing dead wood. The ground flora is predominantly bracken, bramble, buckler fern and ivy. A public footpath follows the southern boundary.

Compartment 3 (National Trust 0.44ha)
This is a narrow and steeply sloping wood west of Neston Road which is dominated by mature sycamore, beech and oak (P1900-1970) with an understorey of holly (dense in places), hawthorn, elder and natural regeneration of sycamore and wych elm. There is a good mix of age classes. The ground flora has bluebell, ivy, herb Robert, and red campion. Winter heliotrope (a garden escape) is present. A permissive path crosses the wood.

There are two archaeological features in this part of the wood on the NTSMR; the site of a building (56001) and post medieval spoil heaps (56000).

Helsby Hill (10.74ha)
Helsby Hill is a sandstone hill rising 141m above the town of Helsby on the Mersey Estuary. The woodlands occupy the steep north west facing scarp slopes of the hill. Most of the woodland is very recent (P1970) with birch and oak the predominant canopy species. The eastern end appears to have been planted with Scots pine at the end of the 19th and in the early 20th Century. Sycamore, Corsican pine, beech, European larch and wild cherry are all occasional. There is a good mix of age classes and species diversity throughout the site. A group of several large beech, one of which has recently been felled, occur on the northern boundary (compartment 3). The trees towards the top of the hill are noticeably stunted due to exposure. The understorey is rowan and holly with extensive rhododendron and occasional amelanchier. The ground flora is dominated by bracken, bramble, and broad buckler fern with some bluebell and fumitory. Several public footpaths cross the site and the summit is a popular viewpoint. Helsby Hill hill fort, a Scheduled Ancient Monument (NTSMR 55100), lies at the summit of the hill but the boundary of the SAM overlaps the woodland compartment boundary. The footpaths use the old carriage drive constructed by the Marquis of Cholmondeley. The wood is part of the Helsby Hill Local Wildlife Site. Peregrines regularly nest on the

sandstone cliffs. These cliffs are a popular location for rock climbing and seasonal restrictions are in place when the peregrines are breeding.

The woodland is fairly uniform in terms of species (see Map 4d) but for the purposes of management the site has been divided into five compartments (taken from EWGS application);
1 Chester Road Wood West 2.48ha
2 Carriage Drive Wood South West 4.75ha
3 Carriage Drive Wood East 2.42ha
4 Rock Mount Wood 0.33ha
5 Hill Road South Wood 0.57ha

2.4 Constraints, threats and opportunities

Invasive non native plants
This is probably the most significant threat to the woodlands. The table below shows which invasive non native species are present at the four sites. Colour indicates current threat level (red-high, amber–medium, green-low)

	Caldy Hill	Harrock Wood	Burton Mill Wood	Helsby Hill
Amelanchier				
Azalea				
Bamboo				
Cotoneaster				
Cherry laurel				
Holm oak				
Montbretia	*			
New Zealand leatherleaf				
Periwinkle				
Portuguese laurel				
Prickly heath (Gaultheria mucronata)				
Rhododendron				
Shallon (Gaultheria shallon)				
Variegated archangel				

* Montbretia may only be on adjacent local authority land?

Of all the species listed above, the greatest threat is from rhododendron and shallon. Both can shade out the ground flora, replace the native understorey and prevent natural regeneration. Shallon is an evergreen shrub which forms a dense, impenetrable cover up to 1.5m tall and spreads mostly vegetatively by suckers (but also by seed). At Caldy it forms several large patches which so far appear not to have been managed. Rhododendron is well established at Caldy, Burton and Helsby although much work has been undertaken to control its spread.

All four sites are at risk from new invasive species due to the proximity of houses and gardens. The Arrowe Brook could also transport other harmful species (such as Japanese knotweed and Himalayan balsam) into Harrock Wood. Constant vigilance will be required to prevent new species becoming established.

Invasive non native plant species are not only a threat to habitats on Trust property but also to habitats on adjacent land. For example, at Caldy shallon is spreading onto the much larger area of local authority owned land on Caldy Hill (which is also a wildlife site) with a stand noted at SJ 22414 85745 just outside the Trust's boundary. The Trust has a responsibility to prevent invasive species spreading onto neighbouring land.

A single holm oak was found at Caldy. This species has become a problem elsewhere in England on heathland and limestone sites where its dense canopy can shade out native vegetation. Once established it can be very difficult to control due to the large quantity of viable seed it produces (information from Plantlife http://www.plantlife.org.uk/wild_plants/plant_species/evergreen_oak_holm_oak)

Visitor numbers and unauthorised activities

All four sites are popular with walkers and dog walkers, mostly local people. The lack of parking means that none of the sites attracts large numbers of visitors from further afield and this is in part a deliberate policy by the National Trust to prevent problems of path erosion/soil compaction, dog waste etc. Mountain/BMX bikers use the southern part of Burton Mill Wood (compartment 1c) with tracks becoming established. Unauthorised horse riding has been a problem in the past at Burton Mill Wood (Draft Management Plan). Leaving small felled/fallen timber on any of the sites may encourage unauthorised camp fires. Fire sites were noted at Caldy Hill in May 2016 and a recent wildfire at the summit of Helsby in June 2016. Structures such as signs, stiles, and tree shelters are prone to vandalism. Dumping of garden waste may also be a problem particularly at Burton Mill Wood.

High visitor numbers and dogs off leads can lead to disturbance of breeding birds particularly ground nesting species. Rock climbing at Helsby may disturb breeding peregrine, kestrel and raven.

Public perception

All four sites are well used by local people who take a close interest in the management of the sites. Reaction to work may be negative unless it is clearly explained beforehand. Many people like invasive non native species (e.g. rhododendron and azaleas) so removal may be unpopular.

Neighbours

Where private gardens adjoin the woodlands (Caldy, Burton and Helsby) clearance of rhododendron and cherry laurel from the boundaries may be unpopular as the shrubs provide screening and privacy. However retaining these species even just on the margins will allow re-colonisation of the sites in future. The presence of invasive non native species on neighbouring land (e.g. rhododendron at Helsby and shallon at Caldy) mean that future re-colonisation is a major threat.

Succession

At Caldy and Helsby most of the woodland is very recent, having colonised open heathland since the 1970's and 1980's. At Caldy there are still areas of heathland vegetation present. Without management, these are

likely to disappear as the woodland becomes more established. Over time the woodland is likely to change from birch to a more diverse canopy. At Helsby, little heathland vegetation remains.

Clearance of trees, whether within woodland or for heathland restoration can result in the development of stands of dense bracken which prevent the desired vegetation from becoming established. In the case of woodland, bracken may prevent natural regeneration.

Climate change

Natural England has identified possible threats to semi-natural woodland posed by climate change. Warmer winters may allow the expansion in distribution of many tree pests and diseases, as well as increasing the over-winter survival of mammals such as grey squirrel and deer. An increase in the frequency of storms is likely to lead to more regular disturbance of the woodland canopy which may change the species composition. Increased occurrence of summer drought will lead not only to tree stress, but also to loss of humid conditions for bryophytes and increased fire risk. See Natural England (2014b).

Disease

Phytopthora ramorum Sudden Oak Death mainly affects larch, but also has a wide range of conifer (Douglas fir, Sitka spruce) and broadleaf (Turkey oak, beech, sweet chestnut, horse chestnut) hosts as well as affecting rhododendron and bilberry. It is now well established in the UK, and there have been recent cases at the Trust's Styal Estate. If a stand becomes infected there is a statutory requirement to fell the diseased trees and rhododendron, plus susceptible trees and rhododendron within a 250m buffer zone of the infected site. There are also severe restrictions on harvesting and processing, and on what can be re-planted. There is some larch at Helsby and Burton and rhododendron is present/widespread at Caldy, Burton and Helsby.

Dothistroma septosporum Red Band Needle Blight is now established throughout the British Isles. It has been found on a range of conifer species, especially Corsican and lodgepole pine and, to a lesser extent, Scots pine. Whilst Scots pine has generally been considered to be of low susceptibility, an increase in the distribution and severity of the disease on this species is now being seen. It weakens the tree, reduces productivity and vigour and eventually leads to mortality. Dispersal is thought to occur through moist winds and mist along with the movement of infected material. Scots pine and Corsican pine is present Burton Mill Wood and Caldy.

Chalara disease of ash is unlikely to affect the woodlands to any great extent as ash has an extremely limited distribution at all of the sites.

Bats, badgers and birds

All bats are European Protected Species. Damaging or destroying a breeding or resting place is an offence regardless of whether the act was deliberate or reckless. Any work which may disturb bat roosts requires a licence from Natural England. Badger are also protected by law and work near a badger sett may require a licence. Woodland work should avoid the bird breeding season (April-August inclusive).

Grey squirrel

This species is present at all four sites but damage to trees such as beech and sycamore is minimal. Grey squirrels also take birds' eggs and young, so may have a negative impact on breeding bird populations. No control is currently carried out.

Tree Preservation Orders/Conservation Areas

The eastern part of Caldy is within the Caldy Village Conservation Area, whilst the southern part of Burton Mill Wood lies within the Burton Conservation Area (see Maps 2a and 2c). This means permission must be sought from the local authority for any tree work in these areas.

Lack of knowledge

The Trust does not have detailed up to date information about other biodiversity on the sites (e.g. location of priority birds, plants etc) and this may mean that woodland operations inadvertently damage important features.

Access for management

Vehicular access for management is severely limited at all four sites.

Public safety

Caldy, Burton and Helsby all have houses and gardens adjoining their boundaries. Tree safety is a major concern of the Trust in these areas.

Resources

All four sites are managed by a Ranger who also oversees the much larger Thursaston Common. Volunteer groups work on all four sites on a weekly to monthly basis and include local community groups and National Trust Volunteers. There is a small income from EWGS grants and agricultural rents at Harrock and Helsby.

3 Long term vision, management objectives and strategy

3.1 Long term vision (2066)

Caldy Hill, Harrock Wood, Burton Mill Wood and Helsby Hill provide important areas of semi-natural woodland in the largely agricultural and urban setting of the Wirral Peninsula. The sites are valued areas of open space within a wider network where people can enjoy quiet walks and feel close to nature and the landscape.

A range of native and near native trees and shrubs are present and the woods have a diverse structure with all age classes present from trees approaching veteran status to young trees and saplings. Dead wood is abundant. The woodlands are also important for biodiversity and support a range of woodland birds and invertebrates. At Caldy Hill, small areas of lowland heath add to the habitat diversity and windswept Scots and Corsican pines remain as an important feature of the landscape. Harrock Wood is a fine example of lowland woodland with predominantly native species and a rich ground flora. At Burton Mill Wood, exotic species such as deodar, Scots and Corsican pine and sweet chestnut provide a link to the past. The woods at Helsby are predominantly oak and birch with some remnant pines from historic plantings. Important archaeological features are protected and the spectacular views from Caldy and Helsby are maintained. Invasive non native plant species are absent.

Local people take an active interest in the management of these woodlands, and all four sites are well cared for.

3.2 Management Objectives

1. Protect and enhance biodiversity in the woodland and open habitats
2. Maintain current levels of public access
3. Conserve and protect cultural and historic features
4. Ensure the woodlands and other habitats are resilient to climate change and plant diseases
5. Comply with UK Forest Standard and UK Woodland Assurance Scheme

3.3 Strategy

1. Protect and enhance biodiversity in the woodland and open habitats

a) Eradicate non native invasive plant species
b) Use opportunities provided by natural processes (such as storms) in management
c) Actively increase amounts of dead wood
d) Identify and conserve current and future veteran trees
e) Maintain areas of low disturbance
f) Enforce climbing restrictions at Helsby when peregrines nesting
g) Time operations to avoid the bird breeding season
h) Maintain areas of heathland at Caldy Hill as open habitat
i) Carry out surveys for birds, bats, invertebrates etc and ensure results inform management

2. Maintain current levels of public access

a) Manage woodland primarily for quiet enjoyment and limit other activities
b) Maintain quiet areas with low disturbance
c) Maintain footpaths and estate furniture to a high standard
d) Carry out regular patrols
e) Undertake regular tree safety inspections and carry out work appropriate to the risk zone but retain hulks where possible
f) Recruit, involve and support volunteers

3. Conserve and protect cultural and historic features

a) Remove trees from archaeological sites as directed by the Regional Archaeologist
b) Consult Regional Archaeologist before undertaking works which may impact on historic features
c) Maintain historic planting at Burton Mill Wood (deodar and sweet chestnut)

4. Ensure the woodlands and other habitats are resilient to climate change and plant diseases

a) Increase structural heterogeneity in the woodland
b) Maintain the current diversity of native and non native tree species
c) Reduce the impact of other pressures on woodland and other habitats e.g. trampling, non native invasive species
d) Favour natural regeneration over planting where possible, but where planting is required, use locally grown trees

5. Comply with UK Forest Standard and UK Woodland Assurance Scheme

a) See UK Woodland Assurance Scheme 3rd Edition (2012)
b) See UK Forest Standard FC (2011)
c) Keep up to date records of management , monitoring etc
d) Follow guidance in all operations (e.g. protection of watercourses, use of pesticides, felling and restocking etc)

4 Management prescriptions/operations

4.1 Woodland Management

4.1.1. Stand development and the diversification of age class and species

Timber production is not an objective at Caldy Hill, Harrock Wood, Burton Mill Wood or Helsby Hill. All of the woodlands are small, very close to residential areas, with high levels of public access, low productivity, poor quality timber and have little infrastructure to enable efficient wood extraction. In addition the prominence of all of the woodlands in the landscape and their popularity mean that they will be managed for biodiversity, recreation and resource protection rather than as productive woodlands.

For each site the woodland will be allowed to progress towards a high forest structure rich in dead wood habitats and where natural processes such as gap creation, natural regeneration and nutrient cycling are allowed to occur. This does not mean non-intervention but targeted management may be required in certain areas to achieve a more semi-natural state. This will involve a flexible, adaptive and opportunistic approach to stand management, which will allow the diversification the stand structure, age class and species mix. Stand transformation for all of the woodlands will be a long term process.

Areas of recently established and even aged birch woodlands will be allowed to mature and progress naturally to canopy breakup. During this process the establishment of a second generation stand made up of more shade tolerant species such as oak will be taking place.

Natural disturbance (windblow, fire, insect) is, under normal circumstances, followed by rapid re-colonisation and a return to woodland by the pioneer tree species such as birch .The urge to ‘tidy up’

will be resisted and this opportunity will be utilised and managed as method to diversify the stand structure

4.1.2 Establishment, restocking and regeneration

Natural regeneration will be favoured wherever possible. Resources will be allocated to the aftercare of the young trees in the years immediately after establishment. Control of regeneration of undesirable tree species (such as western hemlock and holm oak) will be carried out where necessary.

4.2 New planting

No planting of new woodland is proposed in this plan.

4.3 Other operations

Boundaries of all woodlands, where they exist, should be maintained in good stock proof condition. Regular inspection and repair of boundaries will be carried out.

4.4 Protection and maintenance

4.4.1 Pest and disease management

Climate change and the expansion of international trade are likely to increase the threat posed to Britain's woodland by tree pests and diseases. The National Trust will preserve the health and vitality of its woodlands by excluding, detecting and responding to existing and new pests and pathogens of trees.

Phytopthora ramorum

Rhododendron will be eradicated at Caldy Hill and Helsby Hill within the plan period. This will reduce the likelihood of a Phytopthora outbreak. At Burton Mill Wood a small amount of rhododendron may need to be retained as a screen for adjacent residential properties (however where possible, holly should be encouraged as an alternative)

Red Band Needle Blight

This is applicable to the stands of Scots pine and Corsican Pine at Caldy, Burton Mill Wood and Helsby where the sparse open canopy is likely to limit the colonisation and spread of this disease.

See http://www.forestry.gov.uk/dothistromaneedleblight and http://www.forestry.gov.uk/pdf/DNBStrategy11-04-2012.pdf/$FILE/DNBStrategy11-04-2012.pdf

Grey Squirrels

Grey squirrels are currently causing little or no damage to trees at any of the four sites. The small size and isolated nature of the woodlands means that any control will be ineffective therefore no control is proposed.

Invasive non-native plants

All invasive non native species which are deemed to be a threat to the woodlands will be eradicated during the plan period (10 years). The priority will be rhododendron, cherry laurel and shallon. Time and resources will be allocated for follow up operations to ensure their continued absence from the woodlands. The density and extent of these plants varies. Removal from some compartments will be achieved easily by staff and volunteers. In other areas the work will need to be carried out by contractors in order to clear them safely, effectively and within the prescribed timescale. Methods of control need to be appropriate to the location and new techniques should be explored where possible, including stump removal. The Trust should seek to reduce the use of herbicides by utilising these methods especially near sensitive habitats. Cut material will be disposed of appropriately. Follow up spraying and the pulling of seedlings and saplings are essential to ensure the complete eradication of these invasive non-native plants. See individual compartment prescriptions.

The arrival of new invasive non native plants via natural spread from gardens or tipped material is always possible, and constant vigilance will be applied to identify and remove these before they can become established. The woodlands will be monitored for rhododendron and action taken to prevent its re-colonisation and spread.

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4.4.2 Fire plan

The National Trust has a fire plan for Caldy Hill, Harrock Wood, Burton Mill Wood and Helsby. It is held in the Ranger Office (or on NT Network)

4.4.3 Waste disposal and pollution

- Comply with COSHH regulations. See also 4.4.4 Pesticide Use
- Storage of fuel – See FC Forestry and water guidelines.
- Where brash needs to be burned fires will be managed to avoid damage to rock, soils and vegetation. Corrugated iron hearths will be used to raise the fire off the ground, reduce the risk of the fire spreading, and allow ash to be collected and disposed of away from sensitive habitats.
- Emergency Pollution control. A contingency plan will be drawn up to deal with accidental spillages (see FC Forestry and Water Guidelines)
- Old fencing wire, posts and plastic tree shelters these will be collected removed from site and disposed of appropriately
- All wastes will be disposed of to reputable and licensed waste disposal contractors.
- Biodegradable chain oil will be specified for all users.
- Contractors with machinery will be required to have anti-spill oil clean-up kits on site at all times with their machines.
- Suitable refuelling and overnight parking points will be discussed and marked on a map with the site risk assessment, to avoid sensitive areas such as proximity to water bodies or particularly sensitive ground vegetation.

4.4.4 Pesticide Use

- Pesticide use will be minimised. Users of pesticides will take all precautions to protect the health of humans and safeguard the environment and avoid the pollution of water.
- It will be ensured that pesticides are stored, used and disposed of responsibly and sustainably
- The responsible and sustainable use of herbicides will only be one element in the effective control on non-native invasive plants
- Young seedlings will be eradicated as soon as they establish preferably by hand, before they have a chance to spread. It is easier to control small seedlings by hand than large bushes.
- Pesticide application will take careful consideration of buffer areas, weather and ground conditions and the risk to water supplies.

4.4.5 Protection of other identified services and values

Soils

Soils will be protected and enhanced in terms of physical, chemical and biological properties. Estate and woodland operations will be planned and managed in order to avoid damage to the soil structure and function. If damage does occur, reinstatement work will be undertaken.

Water

Woodland operations will avoid creating pollution, erosion and sedimentation. Inspections will be carried out during any work and action will be taken immediately if pollution or sedimentation starts to occur. Machinery will not operate in or ford watercourses.

4.5 Protecting and enhancing landscape, biodiversity and special features

4.6.1 Management of designated areas

Tree work within the conservation areas at Caldy Hill and Burton will require permission from the relevant local authority. There are no other statutory designations.

4.6.2 Measures to enhance biodiversity and other special features [UKWAS 2.1.1/6.1.1]

Surveys and monitoring

Surveys and monitoring will be established for birds, mammals including bats, invertebrates, vascular and lower plants and fungi. These will identify areas of particular interest and help inform and guide management decisions. Specialist advice and guidance will be sought for rare and vulnerable species.

Identify areas that are important for biodiversity. Habitats at Caldy Hill, Harrock Wood, Burton Mill Wood and Helsby of particular value and interest for wildlife have been identified and include; semi-natural broadleaf woodland, transitional and woodland edge habitats, watercourses and heathland.

All of the woodlands will be managed for biodiversity. Special measures to enhance and ensure the long term protection of these habitats are detailed in the individual compartment prescriptions.

Veteran trees and potential veteran trees will be identified and recorded. All veteran and important trees will be protected and will be retained beyond their normal rotational length until their demise. There should be a presumption against felling large/ veteran trees for safety reasons unless absolutely necessary. Options such as crown reduction and hulking would be preferred alternatives. Stands will be allowed to develop towards an old growth type.

Dead Wood In most cases, fallen and standing dead wood of all species will be retained. Woodland management and tree safety work will also contribute to the accumulation of dead wood.

Non native tree species
Non native tree species (Scots pine, Corsican pine, sweet chestnut, beech, sycamore, Turkey oak, Swedish whitebeam and deodar) are an integral part of the woodland canopy at all four sites. They are not a threat to the biodiversity of the woodlands and will be retained. The status of these trees will be monitored and if regeneration of these species becomes a threat this policy should be reviewed.

Timing of Operations
Where possible tree felling and control of rhododendron/cherry laurel and other woody invasive non native shrubs will be carried out outside the bird nesting period (April to mid-August inclusive).

Trampling, erosion and disturbance
For current and proposed visitor infrastructure and facilities, (e.g. paths, picnic benches, play areas etc), an assessment will be made which considers their impact on the woodland environment and its wildlife. Factors that will be taken into consideration will include: Soil erosion, soil compaction and the effects of this on the health, wellbeing and safety of trees, siltation of watercourses and water bodies, trampling of ground vegetation, disturbance of birds and mammals by visitors and dogs. Facilities will be monitored and measures taken to prevent further damage to the integrity of the woodland and individual trees including the removal or relocation of paths or visitor infrastructure and facilities to a more robust location. Areas where little management is required, where access for management is poor/difficult, or where the habitat or breeding area of important species will be maintained as areas of low disturbance.

New paths will be carefully routed to avoid sensitive habitats and species, important breeding areas, wetlands, vulnerable historic features. Access will be restricted or discouraged from certain areas during the breeding season.

4.6.3 Special measures for ancient semi-natural woodland (ASNW) and semi-natural woodland (SNW)

All Semi natural woodland will be managed in accordance with the principle laid out in the Forestry Commission guidelines ‘Managing ancient and native woodland in England’ guide and the Practice guides to semi-natural woodland relevant to the type of woodland.
See individual compartment prescriptions (section 5) for more detail.

4.6.4 Special measures for plantation on ancient woodland site (PAWS)

There is no PAWS woodland at any of the sites.

4.6.5 Measures to mitigate impacts on landscape and neighbouring land [UKWAS 3.1.2]

As no silvicultural management is being proposed, the management outlined in this plan will have little or no impact on the landscape. The public will be kept informed of any operations and management through up to date interpretation and notices

4.6.6 Measures to mitigate against climate change

See Climate Change Adaptation Manual Chapter 1 Lowland Mixed Deciduous Woodland.

- The impacts of other pressures, such as pests, invasive non-native species, diseases, pollutants, development, damage, compaction and erosion of soils and will be reduced.
- Regeneration will be encouraged and protected.
- The future suitability of species present on the site will be assessed.
- A greater mix of native trees will be encouraged through active management
- The age structure and structural heterogeneity of woodland will be improved.
- Contingency planning will be undertaken for potential new pests or major new disturbance events such as wildfire.
- Near native and non native species including Scots pine, Corsican pine, sycamore, sweet chestnut, deodar and beech will be retained.
- Positive steps will be taken to increase the proportion and diversity of dead wood throughout sites so as to ensure both resilience of dependant species, and to replenish the organic content of woodland soils and hence maintain their capacity for moisture retention and provision of other essential ecological functions needed by trees and other species.

4.6 Management of social and cultural values

4.7.1 Archaeology and sites of cultural interest

Further survey work is recommended at all of the sites. All features will be protected. Specialist advice will be sought from the Regional Archaeologist. Woodland archaeology will be protected during all woodland and arboricultural operations, sensitive areas will discussed at pre-works site meetings and physically identified on the ground to warn operators of their presence.

4.7.2 Public access and impacts on local people

The public will be kept informed of management works and woodland operations through temporary on-site signage prior to work starting. An annual ongoing programme of roadside and property tree safety surveys will aim to ensure the safety of people and property on or passing near to the National Trust Property. Woodland furniture such as signs, waymarkers and path surfaces will be maintained and be in keeping with the surrounding estate. All woods will be managed to a high standard demonstrating the National Trust's care for the countryside. Where possible the Trust will seek to support local employment. Volunteers will be actively encouraged to participate in the monitoring, management and maintenance of the National Trust woodlands.

5. Detailed Management Prescriptions

Caldy Hill

The main threat to the woodland/heathland at Caldy is the presence of several invasive non native species, particularly rhododendron, cherry laurel, shallon and prickly heath. As a first step, these will be mapped so that the extent of the problem is clearer, and a programme of eradication can then be put in place. This will involve cutting and burning with stump treatment to prevent regrowth, and follow-up treatment of any regeneration. Burning of cut material will be carried out on corrugated iron hearths to prevent damage to ground vegetation, soils and rocks. The Trust will work with Wirral Borough Council to tackle these invasive non native species on a site wide basis.

The woodland will be allowed to develop to a more mature stand with Scots pine, Corsican pine, Turkey oak and Swedish whitebeam being accepted as part of the species mix. Remaining areas of open ground will be managed to maintain the heathland vegetation. This will involve tree and scrub removal, and bracken control where it has become too dense and is shading out heathland species. Maintaining these open areas will have the added benefit of maintaining viewpoints particularly from the four benches placed around the site. The archaeological features (quarries) will be maintained.

Harrock Wood

The wood requires little management. Luckily it has few invasive non native species, and those which are present (cotoneaster, Portuguese laurel- both single bushes) can be dealt with easily. Constant vigilance will be required to prevent the establishment of new invasives such as Himalayan balsam or Japanese knotweed. Beech regeneration in the oak dominated areas should also be monitored and if it becomes too prolific it should be weeded out to prevent the deep shade that would develop under a dense beech canopy and thus protect the ground flora.

Burton Mill Wood

The wood has a good structure with naturally occurring gaps providing opportunities for a new generation of trees to become established. There is therefore currently little need to create additional gaps (as proposed in the previous management plan) or to carry out any tree planting. Windblown trees will be retained whole in situ unless they block paths or are on boundaries. Sweet chestnut, Scots pine and deodar will all be retained. The main threat to the woodland is from invasive non native species particularly rhododendron and cherry laurel. These will be mapped and a programme of eradication put in place. This will involve cutting and burning with stump treatment to prevent regrowth, and follow-up treatment of any regeneration. Any burning will be carried out on corrugated iron hearths to protect soils and vegetation. The Trust will need to liaise with neighbours as in places the rhododendron and cherry laurel acts as a screen for adjacent gardens and these areas may need to be retained. Ideally holly should be used as a screen instead. The stand of young western hemlock in compartments 1b and 2a will be removed as soon as possible to prevent further seeding. The area of bamboo in 1b will also be removed. The permissive path in compartment 1d has become very wide causing compaction and lack of ground flora over a wide area. This will be rectified using strategically placed large diameter dead wood.

Helsby Hill

The woodland is mostly of recent origin and will develop over time into a more diverse stand. The main threat to this is the presence of rhododendron and cherry laurel. Although considerable work has been undertaken in the recent past much remains to be cleared. A survey will be carried out and the extent of rhododendron mapped. A programme of eradication will be put in place. Due to the steepness of the site, cutting and burning is probably not appropriate. Instead, the stem treatment method (described in FC Practice Guide 2006) should be used (this appears to have been used in the past). This involves making a cut or hole in stems over 3cm diameter and applying glyphosate at 25% solution, and is best carried out in March, April or October. Smaller bushes and regrowth can be treated by foliar application.

The Scheduled Ancient Monument of Helsby Hill Hillfort extends into the woodland compartment. Removal of trees and scrub from the ramparts will be continued.

6 Work programme

Site	Activity	Year					
		1	2	3	4	5	6-10
Caldy Hill	Survey and map invasive non-native species	✓					
	Eradicate invasive non-native species		✓		✓		✓
	Maintain areas of open heathland vegetation	✓		✓		✓	
	Carry out surveys (birds, reptiles, invertebrates etc)			✓			
	Liaise with Wirral Borough Council over management	✓					
	Maintain paths, stiles, benches, signs etc	✓	✓	✓	✓	✓	✓
	Carry out regular patrols	✓	✓	✓	✓	✓	✓
	Protect archaeological features		✓		✓		✓
	Carry out tree safety inspections						
Harrock Wood	Monitor invasive non native species	✓		✓		✓	✓
	Remove cotoneaster and Portuguese laurel	✓					
	Monitor beech regeneration in oak woodland			✓			✓
	Maintain boundaries	✓		✓		✓	✓
	Maintain footpaths, gates, signs etc	✓	✓	✓	✓	✓	✓
	Repeat bird survey				✓		
	Carry out regular patrols	✓	✓	✓	✓	✓	✓
	Carry out tree safety inspections	✓	✓	✓	✓	✓	✓
Burton Mill	Survey and map invasive non-native species	✓					
	Eradicate invasive non-native species		✓		✓		✓
	Eradicate western hemlock			✓			
	Define path in comp 1d to reduce compaction and restore ground flora			✓	✓		
	Carry out surveys (birds, bats, invertebrates, flora)		✓				
	Carry out regular patrols	✓	✓	✓	✓	✓	✓
	Maintain paths, signs, entrance structures etc	✓	✓	✓	✓	✓	✓
	Carry out tree safety inspections	✓	✓	✓	✓	✓	✓
Helsby Hill	Survey and map extent of remaining rhododendron	✓					
	Eradicate rhododendron		✓		✓		✓
	Maintain Scheduled Monument by clearing trees and scrub			✓			✓
	Carry out tree safety inspections	✓	✓	✓	✓	✓	✓

7 Monitoring

Management objective / activity	Indicator of progress / success	Method of assessment	Frequency	Notes
Maintain biodiversity	Stable or increasing populations of priority species, volumes of dead wood	Various surveys e.g. breeding birds, bats, fungi ,invertebrates veteran trees etc.	As required	See detailed prescriptions and work plan for more detail
Maintain path network and estate infrastructure	Reduction of erosion/compaction	Ground survey	As required	Regular survey will enable early intervention
Control invasive non native plants	Reduction/elimination (rhododendron, cherry laurel etc)	Ground survey	Annual	Results of ground survey will guide work programme
Tree Safety		Tree Safety Inspection	As required	
Maintain woodland cover	Desired stocking levels achieved	Ground survey	As required following establishment	Results of survey will guide work programme and grazing regime.

8 Stakeholder Engagement

Individual/ Organisation	Date Contacted	Date feedback received	Response	Action

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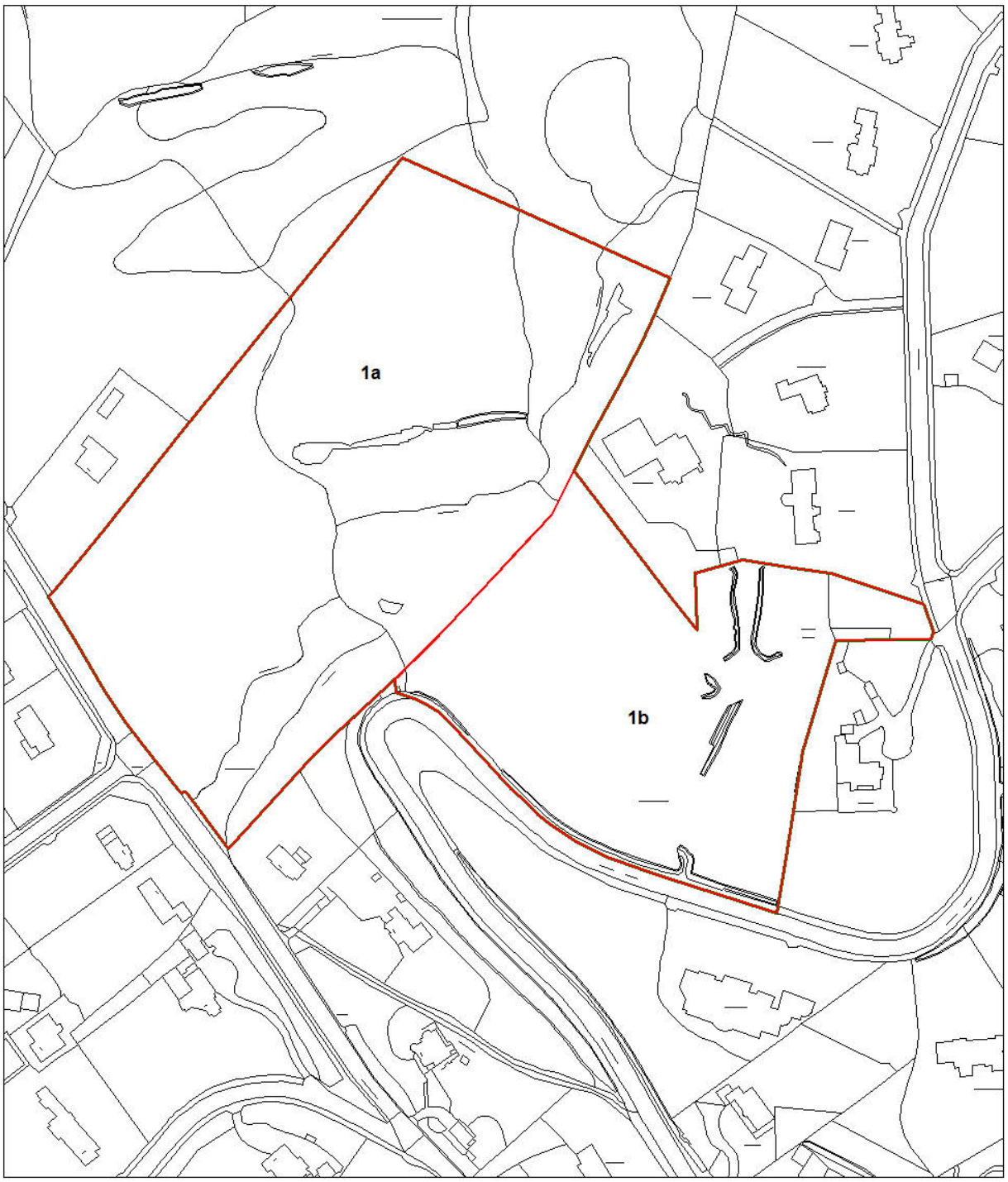
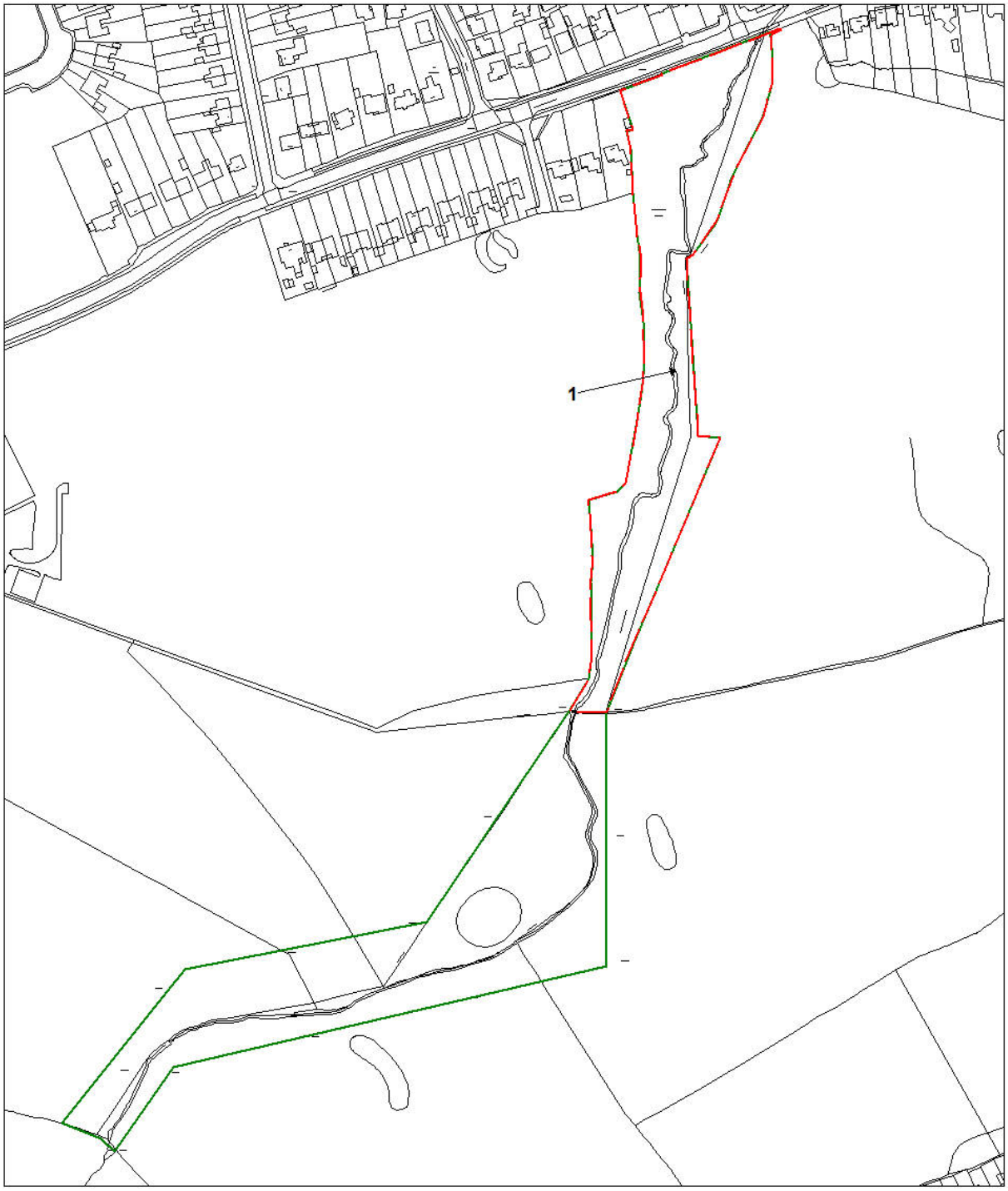


The National Trust. Wirral Woodland Management Plan

Map 1a Caldy Hill National Trust Ownership and Compartments

National Trust and Compartment boundary

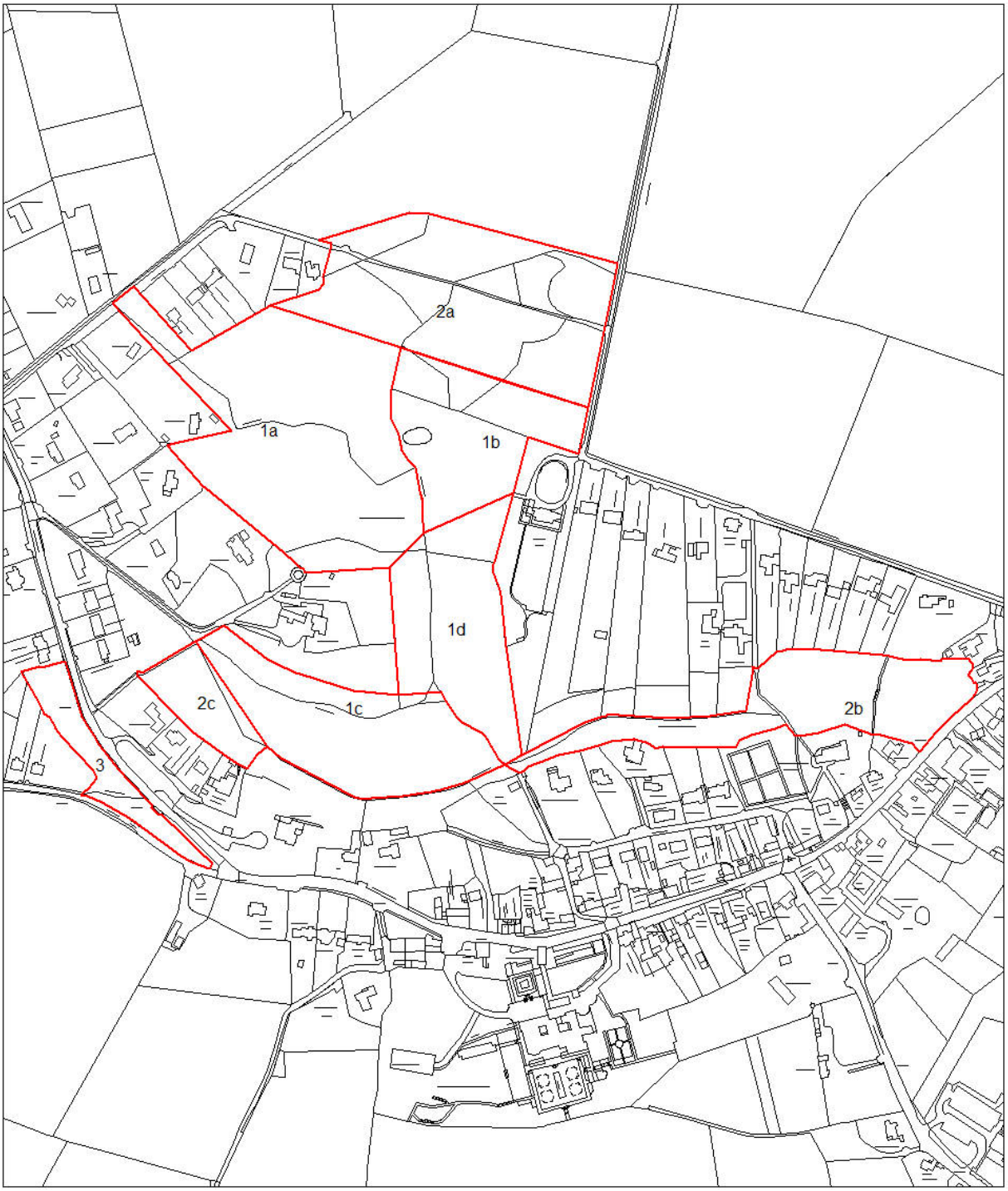


The National Trust. Wirral Woodland Management Plan

Map 1b Harrock Wood NT & CPTs

Compartment

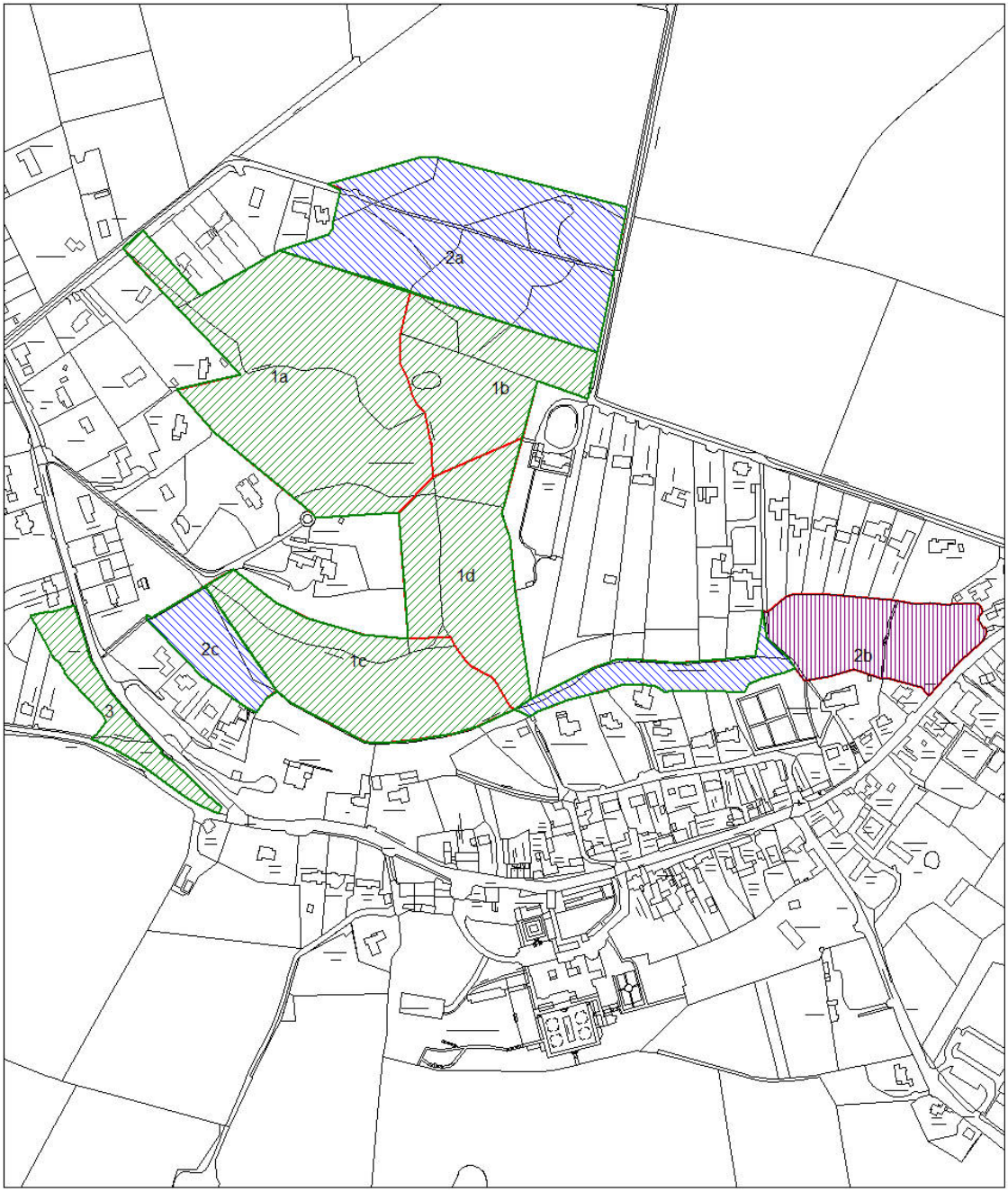
National Trust Ownership



The National Trust. Wirral Woodland Management Plan

Map 1ci Burton Mill Wood Compartments

Compartment



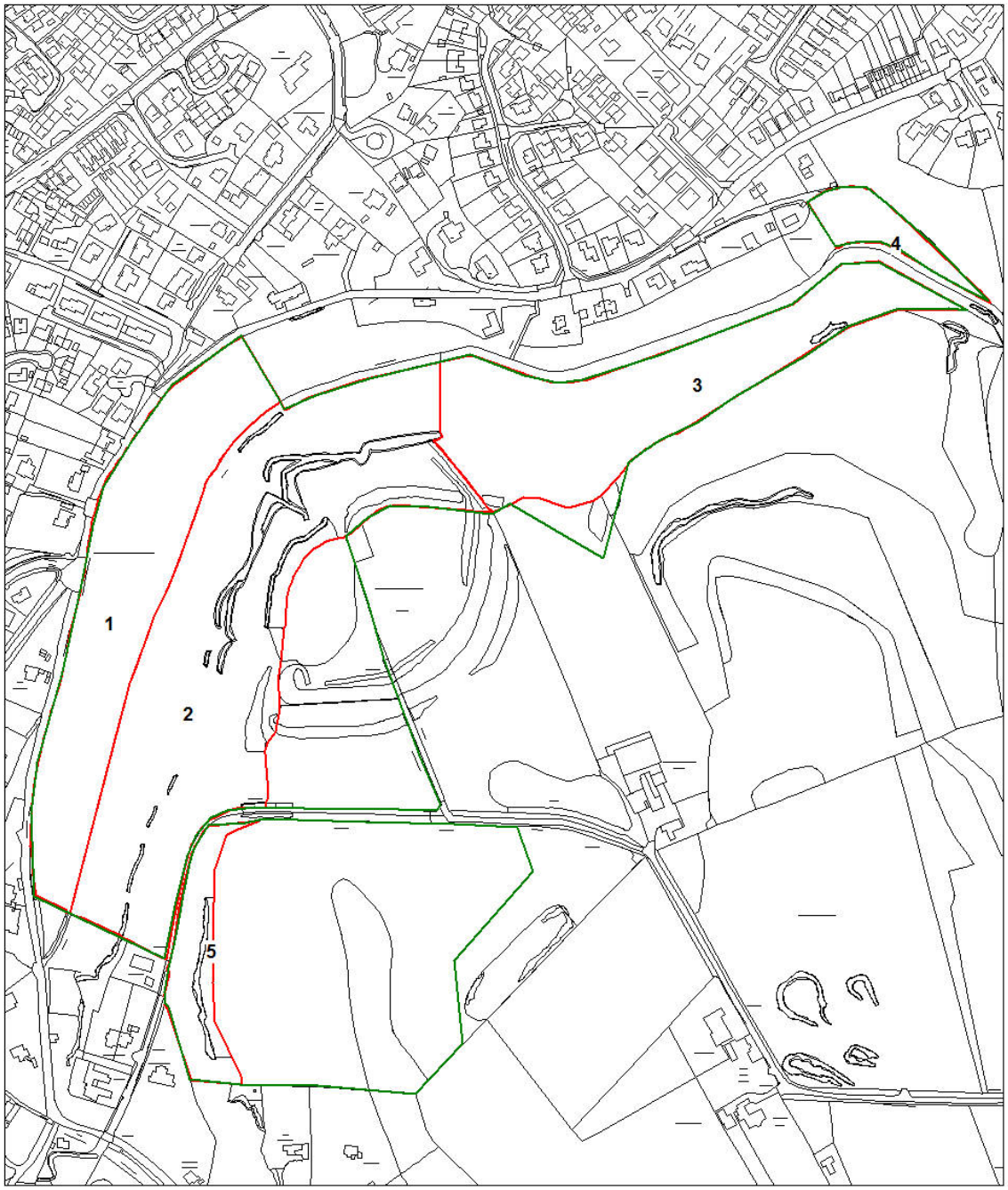
The National Trust. Wirral Woodland Management Plan

Map 1cii Burton Mill Wood Ownership

National Trust

Cheshire West & Chester Council

Church land

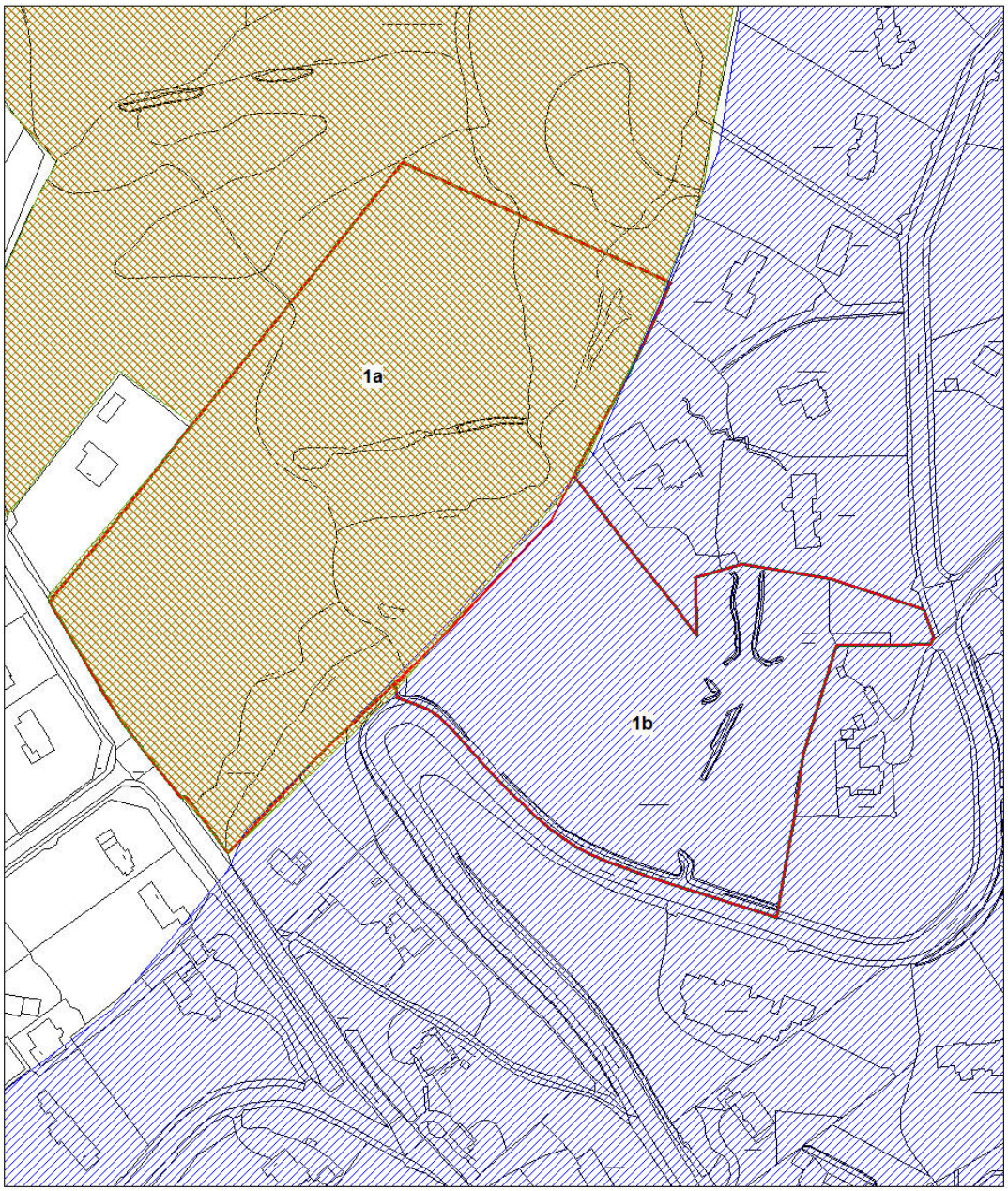


The National Trust. Wirral Woodland Management Plan

Map 1d Helsby National Trust Ownership & Compartments

National Trust

Compartment



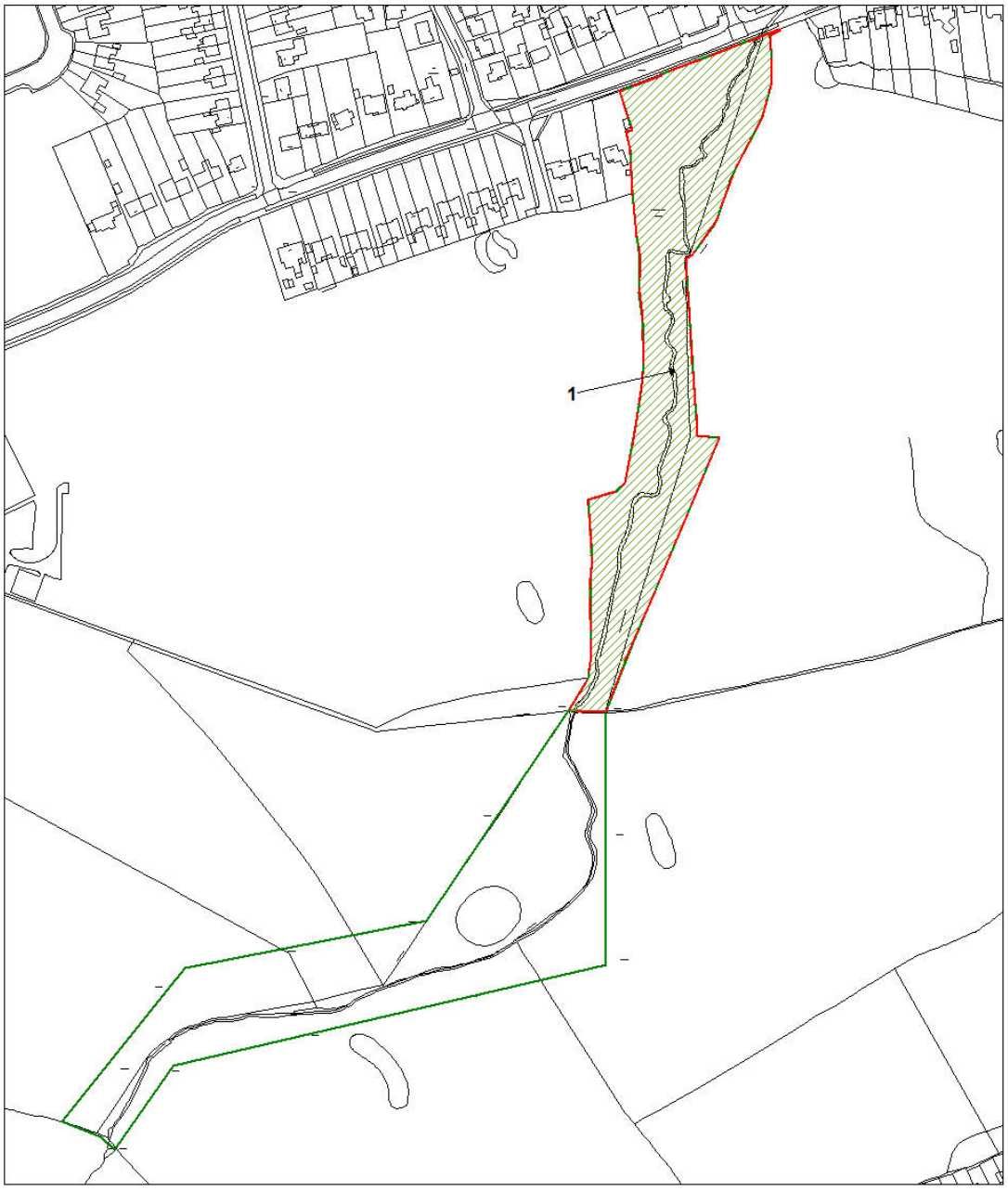
The National Trust. Wirral Woodland Management Plan

Map 2a Caldy Hill Designations

Conservation Area

Geological Site

Local wildlife site



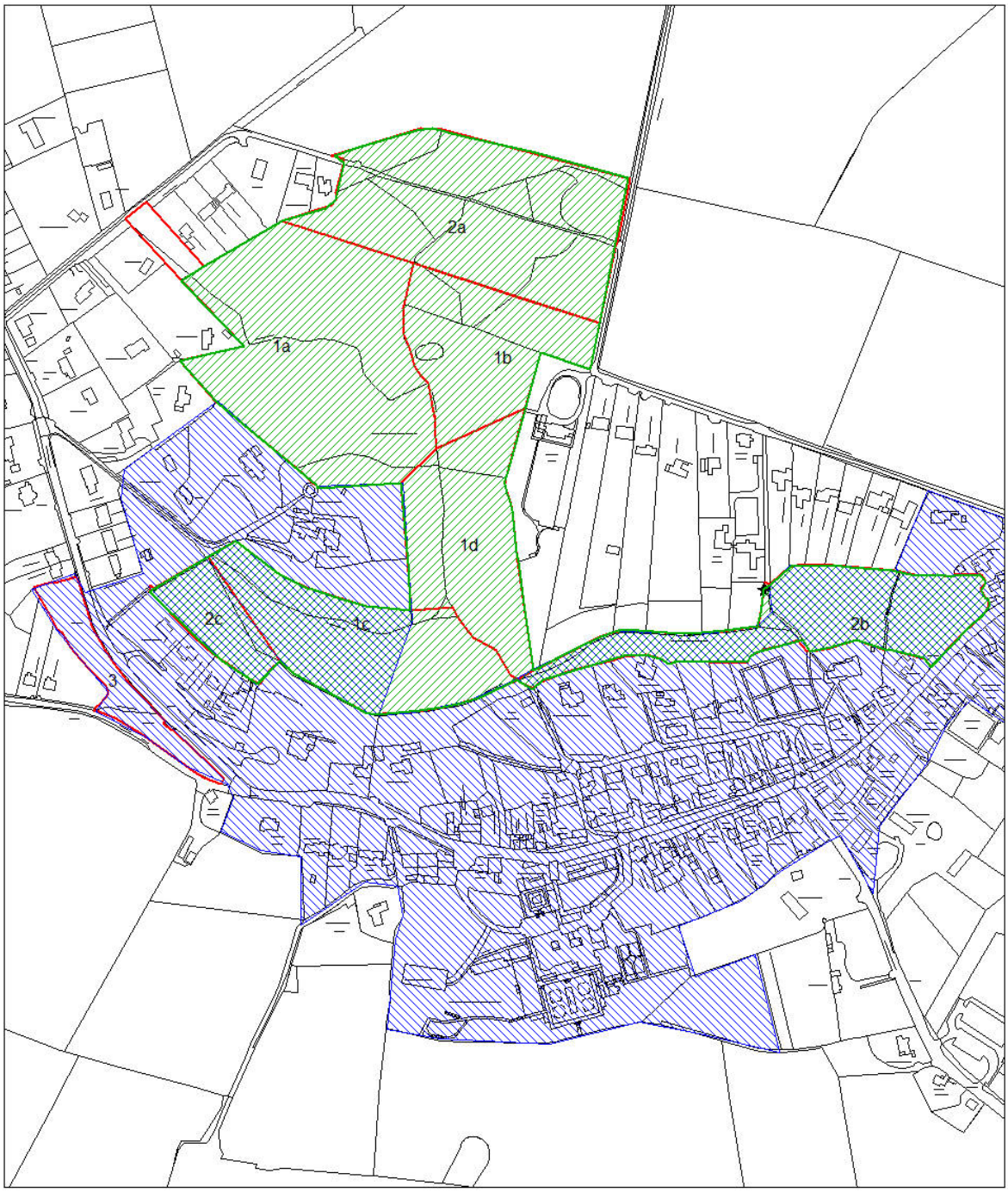
The National Trust. Wirral Woodland Management Plan

Map 2b Harrock Wood Designations

Compartment

National Trust Ownership

Wildlife Site



The National Trust. Wirral Woodland Management Plan

Map 2c Burton Mill Wood Designations

Wildlife Site

Conservation Area

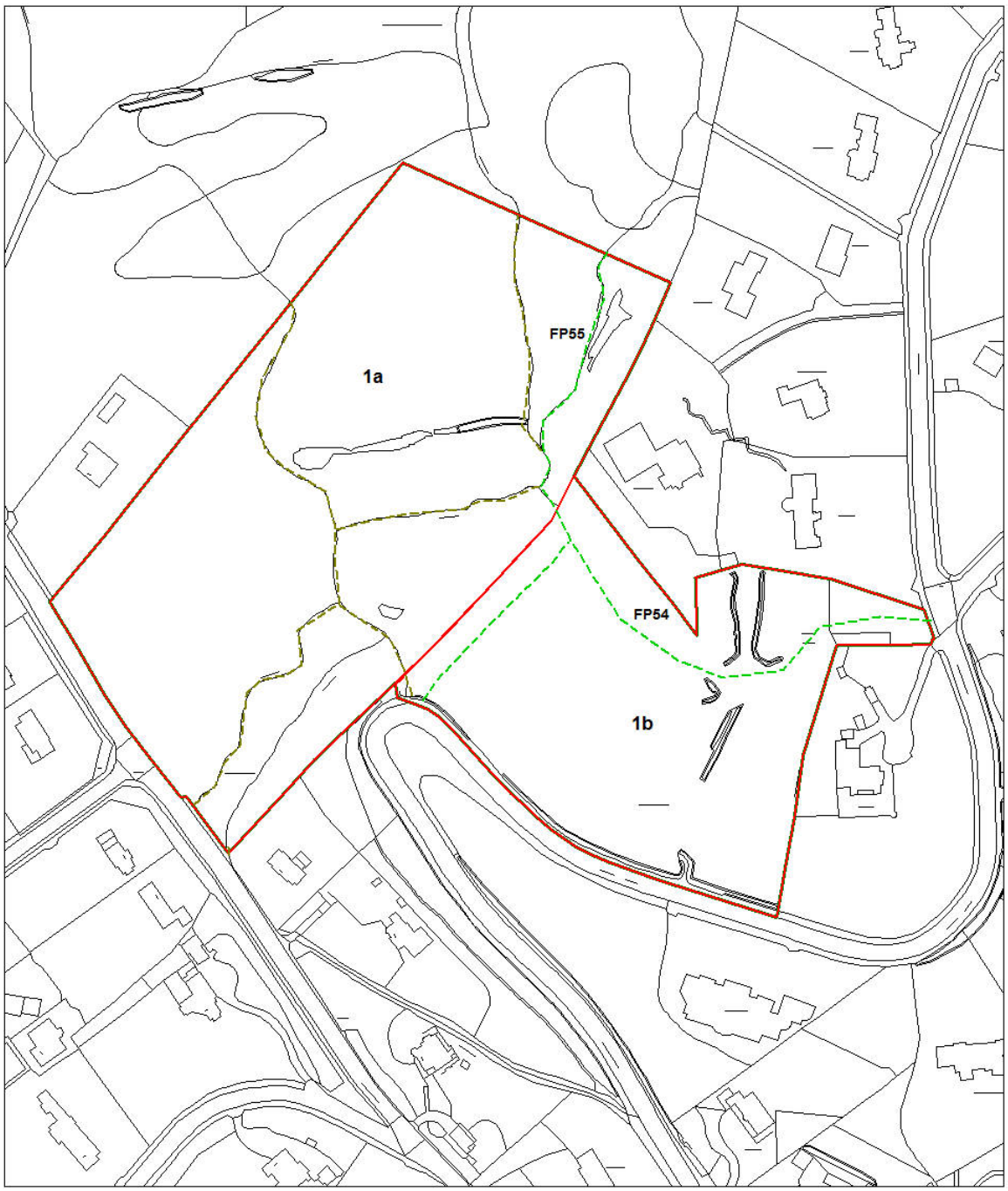
The National Trust. Wirral Woodland Management Plan

Map 2d Helsby Designations

National Trust

Compartment

Wildlife Site

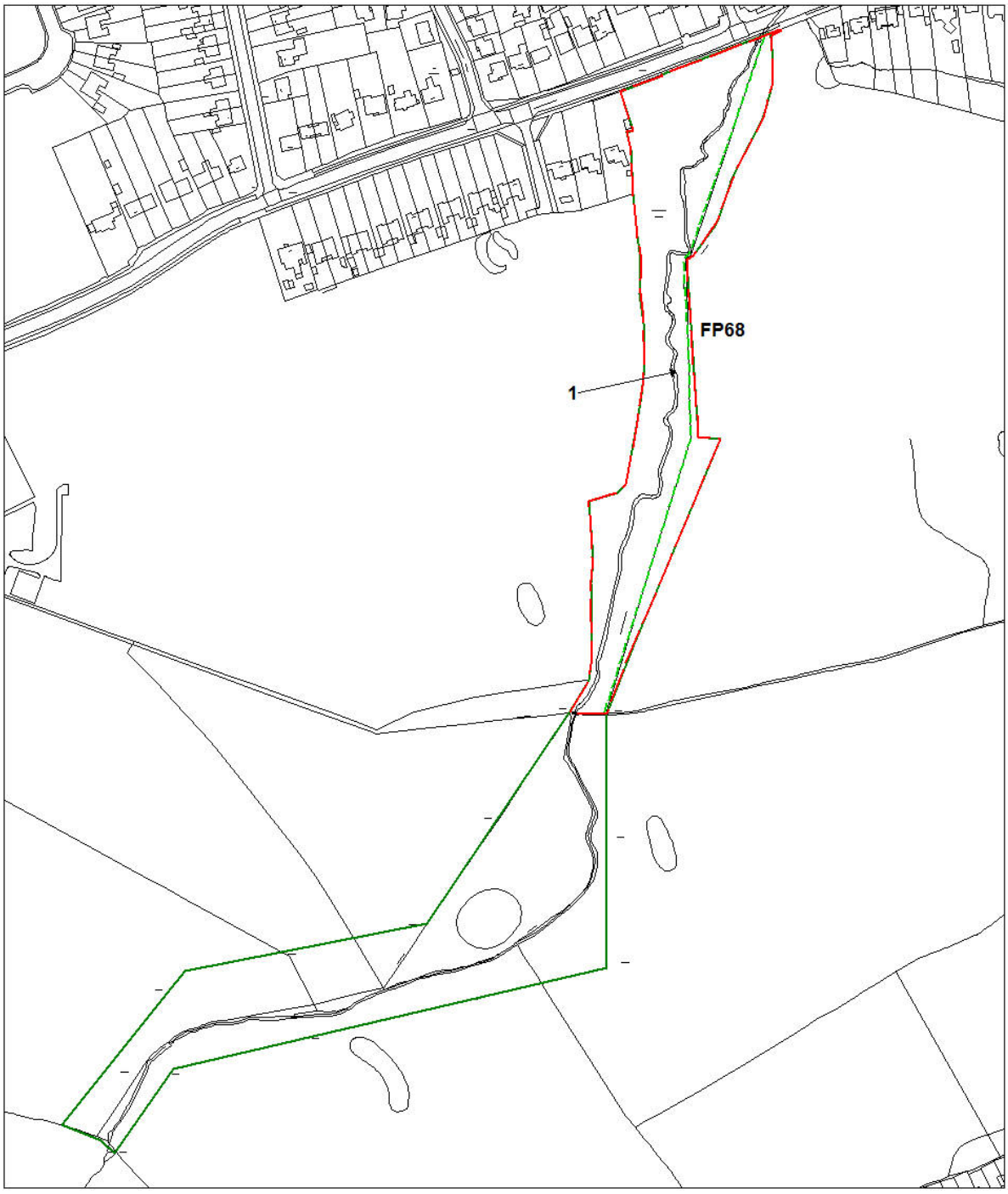


The National Trust. Wirral Woodland Management Plan

Map 3a Caldy Hill Footpaths

Public Footpath

Permissive Footpath



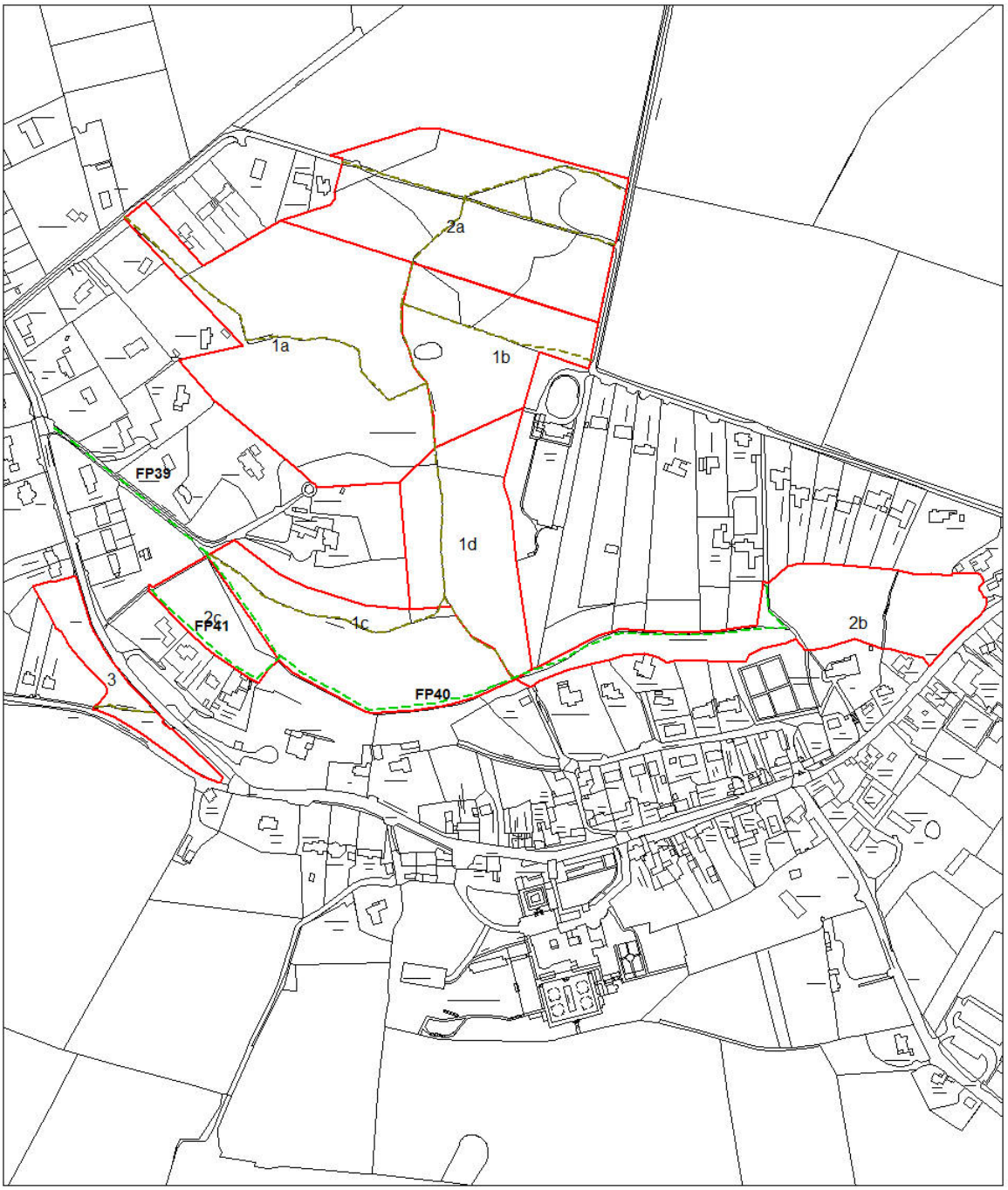
The National Trust. Wirral Woodland Management Plan

Map 3b Harrock Wood Footpaths

Compartment

National Trust Ownership

Public Footpath

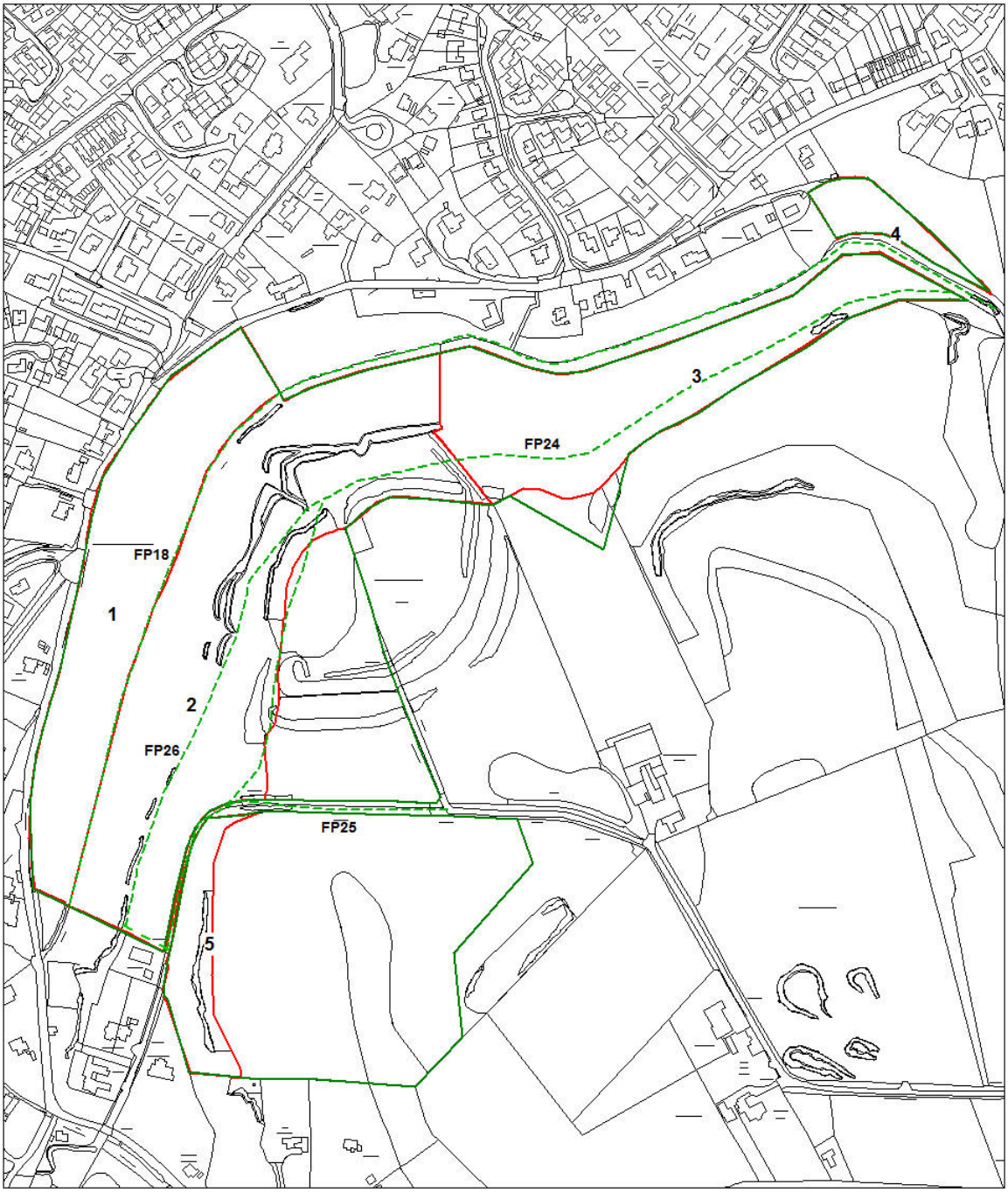


The National Trust. Wirral Woodland Management Plan

Map 3c Burton Mill Wood Footpaths

Public Footpath

Permissive Footpath



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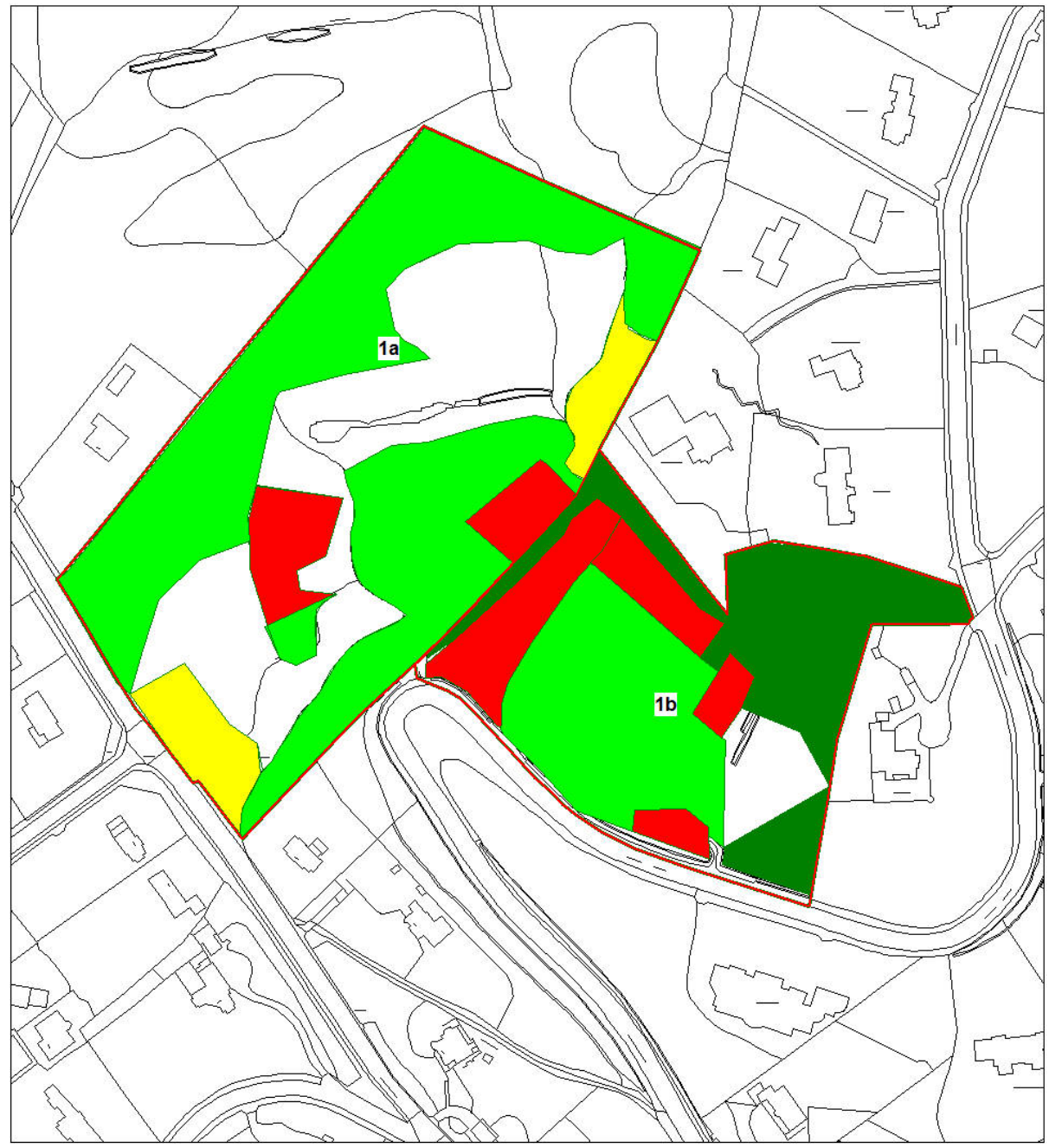
Map 3d Helsby Footpaths

National Trust

Compartment

Public Footpath



The National Trust. Wirral Woodland Management Plan

Map 1d Caldy Hill Stands

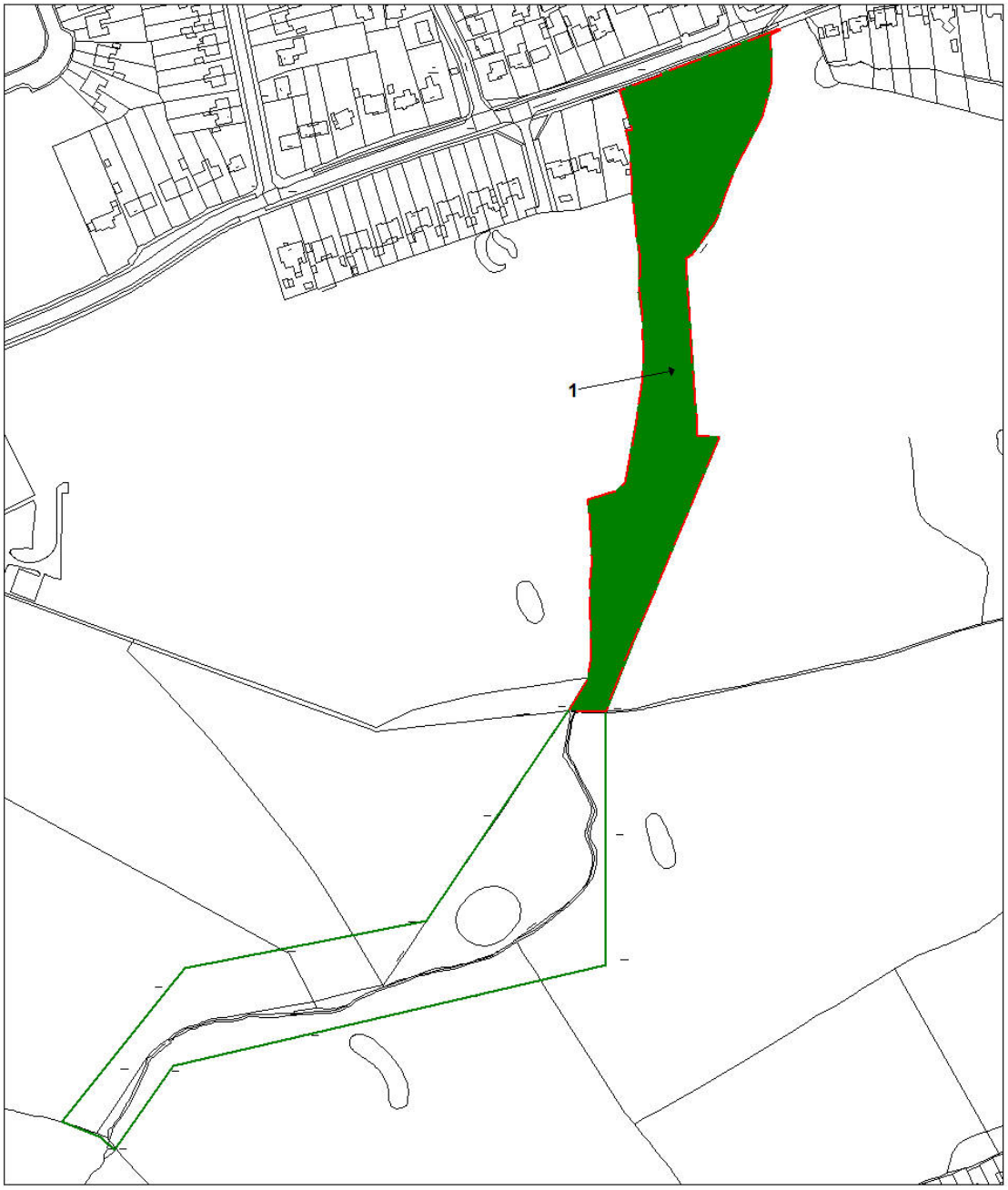
Gorse

Conifer

Semi-mature broadleaves

Mature mixed broadleaves

Open ground



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Map 4b Harrock Wood Stands

Compartment

National Trust Ownership

Mature Mixed Broadleaves

The National Trust. Wirral Woodland Management Plan

Map 4c Burton Mill Wood Stands

Mature Mixed Broadleaves

Scots Pine

Mixed broadleaves and Conifers

Open Ground

The National Trust. Wirral Woodland Management Plan

Map 4d Helsby Stands

- National Trust
- Semi-mature Mixed Broadleaf
- Mature Beech
- Mature Scots Pine & Mixed Broadleaf
- Open Ground