Habitats Regulations Assessment (HRA) – Calderdale Local Plan

Screening Methodology

Released February 2017

CALDERDALE LOCAL PLAN

Calderdale Council

Table of Content

Abbreviations and Acronyms

HRA	Habitats Regulations Assessment
AA	Appropriate Assessment
SPA	Special Protected Area
SAC	Special Area of Conservation
JNCC	Joint Nature Conservation Committee
NE	Natural England
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
RSPB	Royal Society for the Protection of Birds
EC	European Commission
EU	European Union
BAP	Biodiversity Action Plan
BTO	British Trust for Ornithology
NO_X	Nitrous Oxides
SO_2	Sulphur Dioxide
NH_3	Hydrogen nitride (ammonia)
AQMA	Air Quality Management Area
NPPF	National Planning Policy Framework
GIS	Geographical Information Systems
IPOPI	Imperative reasons of overriding public interest
AA	Appropriate Assessment
SIPs	Site Improvement Plans
IPENS	Improvement Programme for England's Natura 2000 Sites

Background: Directive 2009/147/EC on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended) known as "the birds directive" was transcribed into UK law in 1981. As part of the directive the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species was established (JNCC, 2014a). Following this Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, (Habitats Directive) was adopted in 1992. Part of the directive created protected sites by designating Special Areas of Conservation (SACs) for habitats listed on Annex I and for species listed on Annex II (JNCC, 2014b). Together SACs and SPAs sites are legally protected to ensure conditions for the long-term conservation of habitats and species, based on the presence of selected habitats and species. Together, they form the core of the European Ecological Network Natura 2000. The Habitats and Species Regulations 2010 (as amended) ('the Habitats Regulations') were created transcribing the amended Habitats Directives into UK law which following a legal challenge by the European counts of justice ruled in 2006 that land use plans were subject to assessment. Regulation 102 "*Assessment of implications for European sites and European Offshore marine site*" of the Habitats Regulation states that where a land use plan is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) the plan-making authority for that plan must, before the plan is given likely effect, make an appropriate assessment of the implications for the site in view of that sites conservation objective. However in order to establish if an appropriate assessment is needed a screening assessment should to be undertaken (Defra, 2012a).

1 The Habitat Regulations Assessment (HRA) process

Based on the guidance from European Commission (2001), Defra (2012a), Dodd et al (2007) and European Commission (2000) the following assessment structure has been adopted in order to carry out the assessments required under Article 6(3) and (4) of the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora and regulations 102 ("*Assessment of implications for European sites and European Offshore marine site*") of the Habitats and Species Regulations 2010 (as amended) ('the Habitats Regulations')[1].

Whereas as there is no accepted methodology for carrying out a HRA, the general consensus is that the assessment adopts up to four stages (if necessary) in order for a plan to establish its legal compliance and obligations under the Habitats Directive and Regulation. These four stages are:

- *Stage One: Screening* — the process identifies the likely impacts of a project or plan on Natura 2000 sites, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

- Stage Two*: Appropriate Assessment* — the process assesses the identified impacts of the project or plan, either alone or in combination with other projects or plans with respect to the integrity of the Natura 2000 sites, i.e. site's function and conservation

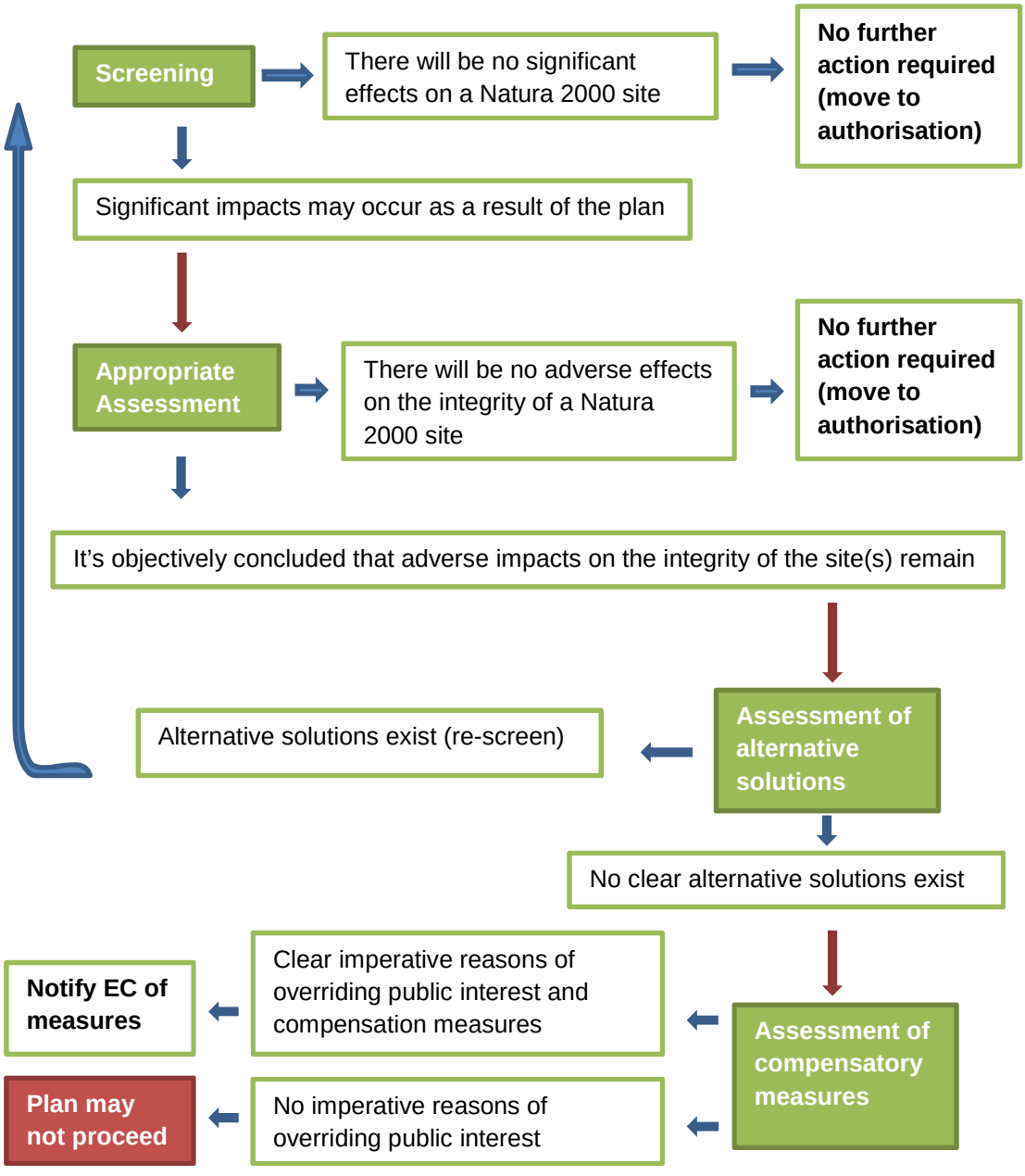
[1] It is beyond the scope of this report to fully outline to the relevant guidance and best practice for carrying out the HRA/ Article 6(3) and (4) assessment. Therefore for further information as to the background and process it is advisable to relate to the referenced materials.

objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

- Stage Three: *Assessment of alternative solutions* — the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;

- Stage Four: *Assessment where no alternative solutions exist and where adverse impacts remain* — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed. It's unusual for a plan to get to this stage in the process.

The process aims to objectively demonstrate the following (where applicable):



2 Identification of Natura 2000 sites which may be affected by the Local Plan

In order to establish any likely impact of the plan on designated Natura 2000 sites qualifying SPA/SAC which may be impacted need to be identified. This was done in GIS software by overlaying the Calderdale district boundary with the Natura 2000 site boundary data set provided by Natural England. This showed the Natura 2000 sites directly within the district and the sites most likely to be impacted by the Calderdale Local Plan. Two Natura 2000 sites fall directly within Calderdale the South Pennine Moors SAC and the South Pennine Moors SPA (Phase 2).

As well as site directly within the plan area, neighbouring and surrounding Natura 2000 sites may be impacted by a plan (Dodd et al, 2007). Therefore a 15 km buffer was created in GIS around Calderdale to extend the area of search for Natura 2000 sites that may be impacted by the local plan. The 15 km area of search is generally considered reasonable in addressing impacts to surrounding protected sites[2]. It is recognised that sites beyond the 15 km buffer may potentially be impacted. Such site will be identified as a result of reviewing neighbouring authorities and organisations plans for possible in combination affect with the Calderdale Local Plan on Natura 2000 sites[3].

The sites identified from the search are shown below in figure 1. Five European designated Natura 2000 sites were identified as being able to be potentially impacted by the plan (1) South Pennine Moors SAC, (2) South Pennine Moors Phase 2 SPA, (3) Peak District Moors (South Pennine Moors Phase) SPA, (4) Rochdale Canal SAC and (5) Denby Grange Colliery Ponds SAC.

[2] From a review of other districts local plan HRA as well as the latest guidance material available at the time of writing a 15 km buffer distance as well as a 10 km distance has been applied by other local authorities in their HRA. Therival (2009) analysis of HRA in England also showed the average distances used is 15 km. In line with the precautionary principle the larger buffer distance (15km) is to be applied for the HRA of the Calderdale Local Plan.

[3] In combination effects are discussed in section 8 and reviewed in appendix 4.

Figure 1: Calderdale HRA 15 km buffer showing surrounding Natura 2000 sites to be included in the Calderdale Local Plan HRA .

3 Natura 2000 sites attributes and characteristics.

Natura 2000 sites are designated due to their attributes. These include certain species and habitats listed in the Habitats Directive and or the species listed in the Bird Directive, when in certain abundances. The attributes also contribute and define the integrity of the sites. The attributes of the identified sites for the HRA process are listed below in table 1[4]

Table 1: European site qualifying features (within 15k buffer)

South Pennine Moors SAC[1]	South Pennine Moors Phase 2 SPA[2]	Peak District Moors (South Pennine Moors Phase 1) SPA	Denby Grange Colliery Ponds SAC[4]	Rochdale Canal SAC[5]
Annex I habitats (primary selection reason) 4030 European dry heaths 7130 Blanket bogs (priority feature) 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles **Annex I habitats present as a qualifying feature (not a primary selection reason)** 4010 Northern Atlantic wet heaths with *Erica tetralix* (cross-leaved heath) 7140 Transition mires and quaking bogs	**Article 4.1: Annex I Birds (breeding)** A098 *Falco columbarius (*Merlin) A140 *Pluvialis apricaria* (Golden Plover) **Article 4.2: Regularly occurring migratory birds - internationally important assemblage of breeding birds** Common Sandpiper *Actitis hypoleucos* Short-eared Owl *Asio flammeus* Dunlin *Calidris alpina schinzii* Twite *Carduelis flavirostris* Common Snipe *Gallinago gallinago* Curlew *Numenius arquata* Northern Wheatear *Oenanthe oenanthe* Golden Plover *Pluvialis apricaria* Whinchat *Saxicola rubetra* Redshank *Tringa tetanus* Ring Ouzel *Turdus torquatus* Lapwing *Vanellus vanellus*	**Article 4.1: Annex I Birds (breeding)** A098 *Falco columbarius (*Merlin) A082 - *Circus cyaneus* (Hen Harrier) A140 *Pluvialis apricaria* (Golden Plover) A103 - *Falco Peregrinus* (Peregrine Falcon) **Article 4.2: Regularly occurring migratory birds- internationally important assemblage of breeding birds** No species are listed on the Peak District Moors SPA citation as qualifying under Article 4.2	**Annex II species (primary selection reason)** 1166 *Triturus cristatus* (Great crested newt)	**Annex II species (primary selection reason)** 1831 *Luronium natans* (Floating water-plantain)
[1]JNCC (2016a)	[2]SPA citation	[3]SPA citation	[4]JNCC (2016b)	[5]JNCC (2016c)

[4] It's important to note that information as to European site qualifying features are conflicting with different sources citing different species. Advice was sought from Natural England in relation to this during the preparation of the HRA report for the Bradford Core Strategy, which indicated that the species listed on the original SPA citation should be used in the assessment. Natural England stressed that the original citations are the only citations to date and therefore hold the only legal stature. Therefore this approach has been followed.

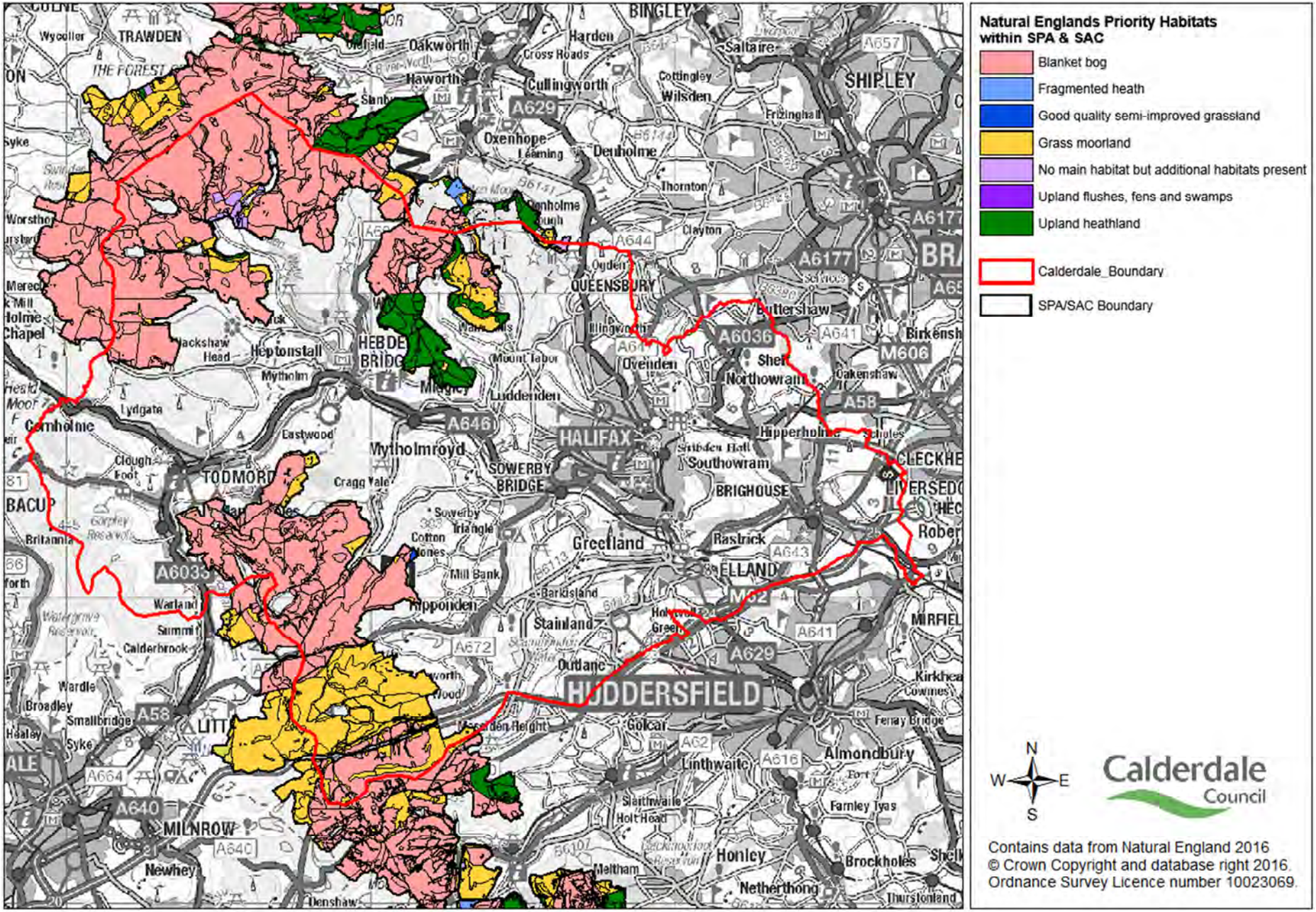


Figure 2: UK biodiversity priority habitats within the South Pennine Moors SAC and the South Pennine Moors Phase 2 SPA

A detailed breakdown of the five identified Natura 2000 site applicable to this HRA process are shown in Appendix 3. This identifies the site qualifications, habitat classification and coverage, current threat and pressures and the conservation objectives of the sites.

Habitat Communities

The sites most likely to be impacted by the plan are those that fall directly within the Calderdale boundary. Figure 2 shows the extent and distribution of both the qualifying habitat features and UK biodiversity priority habitats within the Natura 2000 sites that in the Calderdale Boundary.

The key habitats are listed and described below[5]:

Blanket Bog

Blanket bog is the dominant habitat community found on the South Pennine Moors SAC. It is a peatland habitat restricted to cool, wet climates. In the UK it is one of the most extensive semi-natural habitats. Depths typically range from 0.3 – 5 m but can often extend to > 5m. In terms of being defined as a EC Habitats Directive Priority Habitat the habitats has to be defined as 'Active' and therefore supporting a significant area of vegetation that would be normally peat-forming (JNCC, 2001). Communities often occur alongside blanket bog flush, fen and swamp. The total coverage of blanket bog is not agreed however it is estimated that England supports ~ 215,000 ha. Historical trends show that blanket bog has reduced by ~20 % during the last century, which is attributed to drainage and heavy grazing, peat cutting and atmospheric pollution in the Pennines. This habitat supports a high species richness including terrestrial and aquatic vertebrates and invertebrates. They are especially important for supporting Eurasian golden plover *Pluvialis apricaria,* which is listed as qualifying species for the South Pennine Moors Phase 2 SPA. Importantly blanket bog is considered a significant carbon store acting as an important habitat for climate change mitigation.

Upland Heathland

Upland heathland occurs throughout the uplands and moorlands of the UK on areas of mineral soils and thin peats in which the presence of dwarf shrubs is at least 25%. For an upland heathland to be classed as 'high quality' they are generally structurally diverse containing vegetation at different stages of growth including mature heathers. Upland heath supports an important assemblage of birds in particular merlin *Falco columbarius* which is listed as qualifying species for the South Pennine Moors Phase 2 SPA. This habitat type is estimated to cover 270,000 ha in England, and recognised as being internationally important because they are largely confined within Europe. As with blanket bog there has been a considerable loss of this habitat in recent times accounting for ~20% loss during the last century. This loss is largely attributed to-heavy grazing by sheep and afforestation. This negative trend is expected to continue.

Upland Flushes, Fens and Swamps

The UK Biodiversity Action Plan (BAP) defines Upland flushes, fens and swamps as "peat or mineral-based terrestrial wetlands in upland situations, which receive water and nutrients from surface and/or groundwater sources as well as rainfall". It is a priority habitat that is

[5] Information adapted from Maddock (2011) unless stated.

restricted to upland areas. It is a varied habitat category dominated by sedges, rushes and grasses. As well as supporting a rich flora of vascular plants this habitat provides a nesting habitat for a variety of waders including curlew *Numenius arquata*, snipe *Gallinago gallinago* and redshank *Tringa tetanus* all are listed as 'regularly occurring migratory birds' within the South Pennine Moors Phase 2 SPA. The habitat also supports a variety of invertebrate fauna which act as an important food source for upland breeding birds. Its extent is widespread however often found in small areas.

European dry heaths (grass moorland)[6]

This habitat type accounts for the second most abundant within the Natura 2000 sites found in Calderdale, especially in the south of the district. European dry heaths is usually found on freely-draining, acidic to circumneutral soils with generally low nutrient content. Ericaceous dwarf-shrubs dominate the vegetation, the most common of which is heather *Calluna vulgaris*. The majority of dry heaths are semi-natural, deriving from woodland through a long history of grazing and burning. Dry heaths in upland areas are often managed as grouse moors. This habitat is still widely distributed within its current range and no evidence of substantive loss for the South Pennines is recorded. The main pressures on this habitat are a result of over-grazing, invasive species (namely the heather beetle *Lochmaea suturali*), burning and air pollution. Throughout the South Pennine Moors its cover occurs mainly on the lower slopes of the moors on mineral soils or where peat is thin. They support a rich invertebrate fauna, especially moths, and important bird assemblages.

Bird Communities[7]

In order to assess the impact of the local plan of the qualifying bird species it's important to investigate the current population status, trends and wider ecology of the SPA bird species[8].

Merlin

The Merlin is listed as an annex 1 (breeding) species under the Birds Directive and qualifying features for the South Pennine Moors Phase 2 SPA designation. They are small, agile falcons, and have been of long-standing conservation concern in Britain (Ewing et al, 2008). In Britain they mostly breed in heather moorland areas, mainly in the uplands. There range also extends to some lowland moorland. The estimated European breeding population of the species is ~10,166-16,612, however as shown in the table below the UK population accounts for <10% of this and is in moderate long-term decline. Ewing et al (2008) attributed most of this decline to northern England. In recent years habitat loss, related to the conversion of heather moorland to grass moorland, has been identified as the main reason a reduction in breeding range. Almost half of the UK population is found within UK SPA, therefore highlighting there importance for the species. Ewing et al (2008) estimated 29 breeding pair are found within the Southern Pennines.

Species	UK Population Estimate	Trend (% change)	Trend classification

[6] Information adapted from the JNCC accessed at: http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H4030

[7] All bird population estimates are for breeding pair numbers

[8] Information adapted from Stroud et al (2001) (JNCC The UK SPA network: its scope and content) as well as additionally cited research.

Falco columbarius	1,100	94	Moderate long-term decrease
*****Data taken from Hayhow et al (2014) (RSPB- The state of the UK's birds 2014)			

Golden Plover

Golden plovers are listed as an annex 1 (breeding) species under the Birds Directive and qualifying features for the South Pennine Moors Phase 2 SPA designation. They are ground nesting birds which primarily breed on heather moorland, blanket bog and acidic grasslands. Individuals often fly about 1–4 km from the nest in order to forage (Pearce-Higgins & Yalden, 2003). Adjacent pastures with abundant earthworms and tipulid larvae are important for feeding adults. As shown in the table below the UK population is relatively high however in recent years the number of breeding pairs has decreased. There population UK's SPA suite for Golden Plovers supports, on average, 5,907 pairs, amounting for about 26% of the UK breeding population. The South Pennines provide habitat for an estimated 3.2% of the UK Golden Plover population and is therefore significant for the conservation of the species (Pearce-Higgins & Yalden, 2003). Reductions in the UK have been attributed a reduction of moorland burning, resulting in the development of tall vegetation that is avoided by breeding birds, and reduced predator control.

Species	UK Population Estimate	BBS trend %(1995 – 2012)	Trend classification
Pluvialis apricaria	38,000-59,000 pairs	-6	Moderate long-term decrease
*****Data taken from Hayhow et al (2014) (RSPB- The state of the UK's birds 2014)			

South Pennine Moors Internationally Important Assemblage of Birds

As well as the two listed Article 4.1: Annex I Birds (breeding) species listed in the SPA citation twelve other species are also listed as components of the Internationally Important Assemblage of Birds within the South Pennine Moors (Phase 2) SPA citation. These can be sub-divided into the following groups;

Breeding waders

Under article 4.2 of the Birds Directive the **Common Sandpiper, Dunlin, Common Snipe, Curlew, Golden Plover, Lapwing and Redshank** have been listed and identified within the internationally important assemblage of birds. The Dunlin is found in upland and moorland habitats, which marks the species UK distribution. The species has an estimated breeding population of 9150 pairs. Defra (2015) states the species status is in weak long term decline, but showing stable trends in recent years. Of the UK population 74% is found with SPA sites, with the south pennies moors accounting for ~140 breeding pairs.

The Curlew preferred breeding habitats are fens, peat-bogs, heathlands, coastal marshes, large swampy river valleys, and damp steppe, however it has also adapted well to agricultural grasslands and arable fields (EC – Environment, 2007). The estimated breeding population in the UK is 33,000. Defra (2015) states that the species is in a stable population trend with little to no long-term or short-term change in the UK. SPA's in the UK account for ~12% of the population. However there is not significant breeding abundances of the species in the South Pennine moors.

Common Sandpiper, Snipe, Lapwing and Redshank are not found in high enough breeding abundances to UK SPA to meet the 1% population thresholds for their citation, however they are still categorised within the South Pennine Moors Internationally Important Assemblage of Birds for their reliance on the sites for foraging. Of these species Defra (2015) states that the common sandpiper, lapwing and redshank are in weak long term decline as well as strong short-term decline. Snipe is listed as being in strong long-term and short-term decline. Therefore the integrity of the SPA is important to help mitigate the decline of the species.

Breeding passerines

Under article 4.2 of the Birds Directive the **Northern Wheatear, Ring Ouzel, Whinchat and Twite** have been listed and identified within the internationally important assemblage of birds. These four species have very different breeding requirements associated with the heathland, acid grassland and scrub habitats found within the SPA.

The estimated UK breeding population of Twite is 7,842 and has experienced major long-term decrease (Hayhow et al, 2014). McGhie et al (1994) produced a comprehensive study of breeding ecology of Twite commissioned by English Nature which focused on twite nesting on the South Pennines in West Yorkshire. They found that nests were predominately located in areas of bracken and heather moorland but the birds travelled up to 4km from the nest site to forage on fields with unripened dandelion seeds and sorrel seeds. There long term population decrease is attributed to conversion to farmland and farming practices. Hayhow et al (2014) highlights the strong need to protect and sympathetically manage habitat for this vulnerable species.

The Northern Wheatear often nest in areas of short grazed grassland where there is grass root caterpillars to forage. Numbers of Wheatear have declined in the UK and it is an Amber listed species.

Whinchats are often found in low scrub, with low gorse scrub being the preferred nesting habitat. They feed in areas of short grass and regularly by roadside verges. Defra (2015) lists the Whinchat is in strong long-term decline and weak short-term decline.

The ring ouzel is considered a rare UK breeding bird often found in rock outcrops and steep valley sides. It has an estimated population of 5,332 and in major long-term population decrease by ~74% (Hayhow et al, 2014). Therefore it's important to protect the integrity of the SPA in relation to the conservation of the species.

Breeding Owls

The Short-eared Owl is the only owl listed. It's important to note that whist not originally being in high enough abundances to be listed **Article 4.1** as a site qualifying feature, it has such been established that its abundance does qualify, and has since been listed on the JNCC site page for the South Pennine Moors (Phase 2) SPA[9].

[9] http://jncc.defra.gov.uk/page-2001

The short-eared owl is a small to medium sized owl which frequently occupies moor, heath, afforested hillsides, marsh and bog habitat. The species is an opportunistic feeder, heavily reliant upon vole and mice populations, upon which its distribution and nesting success tend to revolve. Short-eared Owls have a scattered breeding distribution in Western Europe, occurring in upland, moorland and heathland areas of Britain, the Low Countries, Denmark and Germany. The UK breeding population is estimated to be ~1,100, relatively low compared to the rest of Europe. Numbers and local distribution also fluctuate greatly in association with periodic cyclical changes in populations of prey species. The UK's SPA suite for Short-eared Owls supports, on average about 13 pairs. This amounts to about 13% of the British breeding population.

Peregrine

Following the original designation of the sites qualifying numbers of **Peregrine (*Falco Peregrinus)*** *were recorded* within the South Pennine Moors Phase 2 SPA following the JNCC Review published in 2001 and have since been added to JNCC site page as a qualifying species and therefore have been acknowledged in the HRA.

It's a large powerful falcon found within the UK. Peregrines occur widely throughout Europe, although they are generally highly dispersed and nest at low densities. In the UK, the Peregrine occurs in all areas where suitable nesting habitat can be found, together with the availability of food. The species suffered substantial population decline caused by organochlorine pesticide poisoning in the 1950s and 60s, the population has however since recovered strongly throughout the UK. The European population is estimated at between 5,633 and 6,075 pairs; of this the UK breeding population is estimated to be 1,167. In the breeding season, the UK's SPA suite for Peregrine contains the nesting sites used by ~109 pairs amounting to about 8.8% of the British breeding population. The main population threat is illegal killing and persecution of the species.

4 Assessment of 'likely significant effects' of the Local Plan

Regulation 102 of the Habitats Regulations requires that an assessment needs to be undertaken in order to establish any 'likely significant effects'. Due to the uncertainly in the impact of the various aspects of the Calderdale Local Plan on Natura 2000 sites a screening exercise was undertaken. In order to do this a screening matrix was constructed which is shown in Appendix 4. A previous screening matrix was constructed for the preparation of the Calderdale Core Strategy, however following the decision to move to a single local plan this matrix was modified in order to better screen both policies and sites.

In line with the guidance Defra (2012b) and EC (2000)[10] on the assessment of impacts of Natura 2000 sites the precautionary principle will be used to assess likely impacts. It's highlighted with respect to the impacts of plan proposals; the precautionary principle should be applied under Article 6(4) of the EC Habitats Directive 92/43/EEC. Therefore an outcome

[10] The EC states that and appropriate assessment shouldn't be only triggered by a certainty but also a likelihood of significant effects and likelihood alone ('*could be')* is enough to justify such measure. This is therefore consistent with the precautionary principle.

of ‘no significant effect’ will only be applied if it was considered very unlikely based on best available knowledge that the proposal would have a significant effect on a Natura 2000 site.

In order to record the likely impacts of the policies and sites within the Calderdale Local Plan on Natura 2000 sites a simple ‘traffic light’ approach has been adopted using the colours shown below:

Red	Proposal will likely have significant effects (**Appropriate Assessment required**)
Amber	Proposal may have significant effects, but this is currently uncertain (**Appropriate Assessment required**)
Green	There are unlikely to be significant effects (**Appropriate Assessment not required**)

5 Screening assumptions and evidence base used to establish likely significant effects

In order to establish if and what part of the local plan may have a significant effect on the identified Natura 2000 sites the HRA will screen each Local Plan policy. The site allocations have been screened both with respect to type e.g. housing, employment etc and their proximity to the identified Natura 2000 sites. Where proximity factors need to be accounted for GIS software has been used. In order to access the sites in this way the following evidence has been drawn upon in order to establish set distances and likely effects.

EU case law currently demands certainty provided by science, however it’s argued that science can never rule out uncertainty (Opdam et al, 2009). In order to screen the plan a wide evidence base has been reviewed for the most up-to-date information relating to the impacts of development and land-use planning on both European Natura 2000 sites and the identified sites within the scope of the plan. As well as this primary data has been commissioned and collected to further inform the evidence base of the HRA. This information has been used to establish the screening assumptions presented in this section.

Table 2 below show a range of potential impacts that development and there related activities can have on Natura 2000 sites.

Table 2: Potential impacts and activities adversely affecting Natura 2000 sites

Broad Categories and examples of potential impacts of Natura 2000 sites	Examples of activities responsible for impacts
Physical loss • Removal (including offsite effects, e.g. foraging habitat) • Mine collapse • Smothering • Habitat degradation	• Development (e.g. housing, employment infrastructure, tourism) • Infilling (e.g. of mines, water bodies) • Alterations or works to disused quarries • Structural alterations to buildings (bat roosts) • Afforestation • Tipping • Cessation of or inappropriate management for nature conservation

Physical damage • Sedimentation / silting • Prevention of natural processes • Habitat degradation • Erosion • Trampling • Fragmentation • Severance / barrier effect • Edge effects • Fire	• Flood defences • Dredging • Mineral extraction • Recreation (e.g. motor cycling, cycling, walking, horse riding, water sports, caving) • Development (e.g. infrastructure, tourism, adjacent housing etc.) • Vandalism • Arson • Cessation of or inappropriate management for nature conservation
Non-physical disturbance • Noise • Vibration • Visual presence • Human presence • Light pollution	• Development (e.g. housing, industrial) • Recreation (e.g. dog walking, water sports) • Industrial activity • Mineral extraction • Navigation • Vehicular traffic • Artificial lighting (e.g. street lighting)
Water table/availability • Drying • Flooding / stormwater • Water level and stability • Water flow (e.g. reduction in • velocity of surface water • Barrier effect (on migratory species)	• Water abstraction • Drainage interception (e.g. reservoir, dam, infrastructure and other development) • Increased discharge (e.g. drainage, runoff)

Toxic contamination • Water pollution • Soil contamination • Air pollution	• **Agrochemical application and runoff** • **Navigation** • **Oil / chemical spills** • **Tipping** • **Landfill** • **Vehicular traffic** • **Industrial waste / emissions**
Non-toxic contamination • Nutrient enrichment (e.g. of soilsand water) • Algal blooms • Changes in salinity • Changes in thermal regime • Changes in turbidity • Air pollution (dust)	• Agricultural runoff • Sewage discharge • Water abstraction • Industrial activity • Flood defences • Navigation • Construction
Biological disturbance • Direct mortality • Out-competition by non-native species • Selective extraction of species • Introduction of disease • Rapid population fluctuations • Natural succession	• Development (e.g. housing areas with domestic and public gardens) • Predation by domestic pets Introduction of non-native species (e.g. from gardens) • Fishing • Hunting • Agriculture • Changes in management practices (e.g.grazing regimes, cutting/clearing)

Physical loss of habitat (site and functionally connected habitat)

All development resulting from the Local Plan will occur within Calderdale and therefore physical loss of habitat to Natura 2000 site beyond the boundaries of Calderdale can be ruled out in the screening stages. Development will not occur as a result of the local plan within any Natura 2000 site. However there may be potential for the integrity of the South Pennines Moors (phase 2) SPA to be impacted. The classifying bird populations of the SPA

breed within the SPA boundary. However these populations often forage and roost within habitats outside of the SPA. Areas in which this occurs are termed 'functionally connected land' meaning the SPA is functionally dependent on the integrity of this surrounding land. Dallimer et al (2012) showed the importance of offsite habitat in supporting moorland breeding waders from surveying 37 paired sites comprising an area of moorland and an area of farmland in the Peak District. The mean distance between the sites was 2.03km (0.65-4.95).Whittingham et al (2000) showed that golden plover use multiple habitats in an upland landscape travelling 1.1-3.7 km from their moorland nests and spent less than 5% of their foraging time on moorland. Importantly Chapman & Tyldesley (2016a)[11] recently highlighted the importance of acknowledging 'functionally linked land' in assessing the integrity of Natura 2000 sites based on a review of EU and UK case law. Based on the evidence it's therefore important that the HRA considers the extent of the South Pennine Moors (phase 2) SPA functional connected land within the boundaries of Calderdale.

Two bird surveys were commissioned by Calderdale Council and undertaken by West Yorkshire Ecology targeting the fringes around the South Pennine Moors (phase 2) SPA in Calderdale to establish the functionally connect land and the extent of the use of the surrounding land by the SPA bird communities. The first survey was undertaken in 2012 to inform the then Core Strategy HRA and the second in 2015 in order to reinforce the evidence base for the Calderdale Local Plan HRA. The two surveys used a modified version of the BTO/ JNCC/ RSPB Breeding Bird Survey (BBS) and Common Bird Census (CBC) methodologies. The map in Appendix 1 shows the scope and coverage of the two bird surveys. Surveys were conducted between 06:00-18:00 during suitable weather conditions. Within each target area (*c.* 1-km^2), a minimum of two 1-km transects were walked, following public footpaths, bridleways and using open access land. Each transect was surveyed slowly, a minimum of 1-hr/ transect, or approximately 1-km/ hour, to record all the target bird species heard and seen. Where possible, morning surveys began with transects starting on the SPA boundary, in order to track the movements of birds breeding on the SPA, using feeding grounds in the fringe area. This was facilitated by vantage point surveys, carried out during the first hour of the survey period. All bird records and associated activities were recorded on transect maps, so exact locations could be digitised. The surveys targeted both the SPA designated bird species as well as the breeding bird assemblage. It also of relevance to note that a PhD student is currently finalising a study looking at the potential impacts of development plans on SPA birds around Calderdale, Kirklees and Bradford. It is hoped this study will feed into the HRA evidence base.

The result of the two birds surveys have been presented in Figure 3 below and show the spatial coverage of the species outside the SPA boundary. There is variation in the distances travelled from the SPA between both species and individual within the bird populations. As shown in the figures below the majority of the birds travelled within 2km from the SPA with a gradual decrease in density away from the site. Among the data there are variations particularly around north east Hebden Bridge in which the majority of the survey records indicating that the bird populations stayed within ~1km from the SPA. The surveys also showed that many of the bird's ranges extend beyond 2km of the SPA to forage around Todmorden; however this was away from areas of development. There is also variation in

[11] Importantly the report presents case law which highlights the acknowledgment that 'functional connected land' doesn't hold the same legal level however is often merited the same legal protection due to its importance to the sites.

the distance travelled by different species with curlews frequently recorded at greater distances from the SPA than others.

Table 3: Recorded abundances and foraging of birds from the South Pennine Moors (phase 2) SPA fringe bird surveys

Species	2012 moorland fringe survey		2015 moorland fringe survey	
	Recorded abundance (individuals)	**Percentage of individuals foraging (%)**	**Recorded abundance (individuals)**	**Percentage of individuals foraging (%)**
Article 4.1 species				
Golden Plover	33	39.4	11	63
Merlin	2	50	1	0
Breeding Bird Assemblage				
Common Sandpiper	14	50	1	0
Lapwing	80	31.3	52	17
Curlew	320	53.1	110	66
Peregrine	4	50	1	0
Redshank	5	80	0	0
Ring Ouzel	1	100	1	0
Short-eared Owl	13	100	0	0
Snipe	39	5.1	13	0
Twite	12	41.7	1	100
Wheatear	42	95	28	96
Whinchat	3	33	1	100

The Merlin was recorded very close to the SPA fringe; however Golden Plovers are shown to travel up to and beyond 2km of the SPA fringe in some cases. As well as the spatial range of the SPA bird communities the activity of the birds were recorded. As part of the HRA process, similar bird surveys undertaken by City of Bradford Metropolitan District Council for their Core Strategy HRA, the results were shared with Calderdale as part of the HRA process. The surveys show that the distances travelled by the SPA bird's communities around Bradford range from 1.5 km up to 3 km which is mostly consistent with the Calderdale surveys and therefore further validate the distances travelled by the SPA birds.

Table 3 shows the percentage of recorded species foraging. This shows that a significant proportion of the recorded birds used the surrounding fringe to forage and therefore the land acts as an important functional habitat for the South Pennine Moors (phase 2) SPA birds.

Based on the bird survey data it's clear that functionally connected habitat exist around the SPA fringes of Calderdale. Based on the two bird surveys it is assumed that the potential for physical loss or damage to offsite functional connected habitat is most likely to be significant if development takes place within 2km of the SPA.

Dodd et al (2007) highlights caution in relation to the use of such buffer zones, highlighting inappropriate use of a buffer zone, without objective information to back it up, could result in effects of policies or proposals outside the buffer being missed. However the outlined

evidence base is believed to act as appropriate ‘objective information’ to confidently use such buffer zones.

Impacts resulting from physical loss of habitat from the plan can be screened out in relation to the Rochdale Canal SAC because these sites do not include mobile species amongst their qualifying features. Impacts relating to Denby Grange Colliery Ponds SAC can also be screened out in relation to physical loss as Calderdale is considered well beyond the mobile range of great crested newt. Finally impacts can be screened out in relation to Peak District Moors (South Pennine Moors Phase 1) SPA due to its distance from Calderdale.

Therefore, effects relating to physical loss of habitat onsite need to be considered in relation to the South Pennine Moors SAC and South Pennine Moors (phase 2) SPA. Offsite effects also need to be considered in relation to the South Pennine Moors (phase 2) SPA.

None physical disturbance

As well as physical disturbances, none physical disturbance is an important factor to consider arising from the outcomes of the Calderdale Local Plan. None physical disturbances are most likely to occur during the construction of new developments. Such activities are most likely to disturb bird species and other fauna therefore they are a key consideration with respect to Natura 2000 sites where birds and other fauna are the qualifying feature. Reviews of multiple studies have shown the negative ecological consequences of night-time light pollution, especially with respect to encroachment of artificial light into previously unlit areas of the night-time environment (Gaston et al, 2012).

The impact of anthropogenic noise on animal communities is a well-researched topic. Research shows that such communities respond to noise stressors by increasing vigilance, hiding and/or retreating which may correspondingly decrease the amount of time they spend foraging (Kight & Swaddle, 2012). Anthropogenic noises are often louder, more frequent and more common than natural acoustic stimuli. As well as this the review by Kight & Swaddle (2012) showed that anthropogenic noise can lead to DNA damage, alterations in gene expression and changes to a myriad of cellular processes related to appropriate neural, developmental, immunological and physiological functioning. In addition, previous authors have discussed ways in which noise can impact animal behaviour and community ecology. Therefore any development near to the identified Natura 2000 sites have the potential to adversely impact the integrity of the site(s) and its conservation objective.

Based on the assessment of the evidence for the functionally connected land presented in the previous section it's assumed that effects of none physical disturbance are most likely to be significant within land 2km of the Natura 2000 sites. None physical impacts resulting from the Local Plan will only impact the Natura 2000 sites within Calderdale or directly adjacent to the (South Pennines Moors (phase 2) SPA and the South Pennine Moors SAC. However of these identified Natura 2000 sites only the South Pennines Moors (phase 2) SPA contains fauna (in this case birds) as a qualifying feature. **Therefore, the impacts of non-physical disturbance only need to be considered in relation to South Pennine Moors (phase 2) SPA.**

Air pollution

Biodiversity 2020 identifies air pollution as a direct threat to biodiversity in England. Such pollutants can change the pH and nutrient levels of soils, which can change species composition, as well as flora, fauna may also be secondary affected. Many habitats of

nature conservation importance in the UK are adapted to low nutrient conditions and/or are vulnerable to acidification including many Natura 2000 sites. They are, therefore, sensitive to additional airborne nitrogen oxides (NO_x), sulphur dioxide (SO_2) and ammonia (NH_3), as well as to nitrogen deposition and acid deposition (Natural England, 2016a). National Atmospheric Emission Inventory (2015) identified that transportation is the single largest source of NO_x emissions and is emitted by road traffic in much larger quantities than SO_2 and NH_3. Natural England (2016b) review of the ecological impacts of road traffic concluded that vegetation was impacted by exposure to motor vehicle pollution up to 200m from roads and that distance has the potential to be greater. They also found that impacts are greatest within the first 50-100m from roads.

As a result of this evidence Natura 2000 sites within 200m of the major road network (motorways and A roads) will be highlighted as being at risk from increased air pollution. Figure 4 shows the major road network within the HRA study area with a 200m buffer. This shows that multiple major roads fall within 200m of the South Pennine Moors SPA and SAC including the M62 motorway. Denby Grange Colliery Ponds is also within 200m of the A637 to the south and Rochdale Canal SAC cuts across a number of strategic roads. Calderdale currently has seven Air Quality Management Areas (AQMA) throughout the district however these are away from the Natura 2000 sites with the closest situated within the centre of Hebden Bridge ~1.7 km from the closest Natura 2000 boundary.

Natural England (2016a) produced mapping showing the SACs and broad areas within them that have both a high exposure to NO_x as well as sensitivity to these pollutants. This mapping as well as the data used in there preparation was provided by Natural England. It shows that the South Pennine Moors SAC currently has a medium sensitivity to NO_x exposure. The spatial distribution of the estimated NO_x exposure levels from road traffic were also investigated. The study shows (table 4) the South Pennine Moors SAC is above 100% of it critical load for NO_x. It's estimated that the majority of the SAC currently has low exposure; however the most of the areas with high and medium estimated exposure are located within Calderdale where the M62 intersects the district. It's important to note that this study and the acquired data only gives a spatial context to exposure and sensitivity of SACs to NO_x emissions from road traffic in a national context. Due to the methodology of the study and advice from Natural England it would not be appropriate to use the statistics to inform the HRA assessment process. It is however presented in the HRA to contextualise the sensitivity of the site and where its estimated high exposure is experienced.

Table 4: South Pennine Moors SAC categorisation of potential risk of impacts due to NO_x concentration from road traffic 2011 data*

Site sensitivity	Medium	Medium	Medium
Baseline deposition cf. CL	>100%	>100%	>100%
Exposure to NOx from traffic taking account of background concentrations	H	M	L
South Pennine Moors SAC	**2727.6 ha**	**1243.11 ha**	**60888.07 ha**

**Data provided by Natural England which formed the preparation of the Natural England (2016a) report. The information should however be taken in a national context opposed to a localised study.*

As part of the Core Strategy Calderdale Council commissioned work to undertake detailed traffic modelling. This concluded that any of the preferred options would lead to a significant

impact on the local transport network and as a result likely lead to an increase in air pollution. The work did not identify any significant road networks increases within 200m of the Natura 2000 sites in Calderdale. However since Calderdale is producing a single local plan including site allocations, this modelling work is outdated and does not reflect the current plan proposals. It does however suggest that due to the overall scale development proposed through the Local Plan it is likely to result in an increase in traffic on the strategic road networks in and around Calderdale[12].

Because of this, and the fact that the updated detailed traffic modelling relating to the scale and location of development in the Local Plan has not yet be produced the potential for increased air pollution to impact any Natura 2000 sites in and outside Calderdale (+15km) needs to be considered within the screening assessment.

Recreation and Urban Impacts

Recreation activities and human presence can have an adverse impact on the integrity of a Natura 2000 site though physical disturbance i.e. erosion, arson and trampling as well as disturbance to species including breeding birds. This is because these areas have been shown to be widely used by the local populations for a range of recreational activities (Clarke et al, 2006). The degree of impact and sensitivity of SAC and SPA habitats and species are summarised below in table 5a and 5b[13]. It shows that most habitats and bird species have a direct negative degree of impact from recreational site users.

Figure 5a: Relative sensitivity of moorland features to recreation and urban impacts adapted from Anderson (1990)

Habitats	Direct Impact		Indirect Impact	
	Tramping	**Disturbance**	**Fire**	**Management**
Dry dwarf-shrub heath	**XX**		**XXX**	
Wet dwarf-shrub heath	**XXX**		**XX**	
Blanket mire	**XXX**		**XXX**	
Mountain	**XXX**		**X**	
Acid grassland	**XX**		**XX**	
Calcareous grassland	**XX**			**XX**
Flushes/springs	**XXX**			
Rock ledges	**XX**			
Screes	**XX**			
Breeding birds		**XXX**	**XXX**	**XX**
Wintering birds (Raptor roosts)		**X**		
Invertebrates	**XX**		**XX**	**X**
Key (degree of negative effects): Least	**X**	**XX**	**XXX**	Most

[12] Traffic forecast data for the planned level of growth will determine if increases in vehicle traffic in and around Calderdale are likely to be significant. Such work is currently being undertaken, and this will be drawn on to inform the HRA.

[13] Tables adapted from Anderson (1990) referenced in the Bradford core strategy HRA.

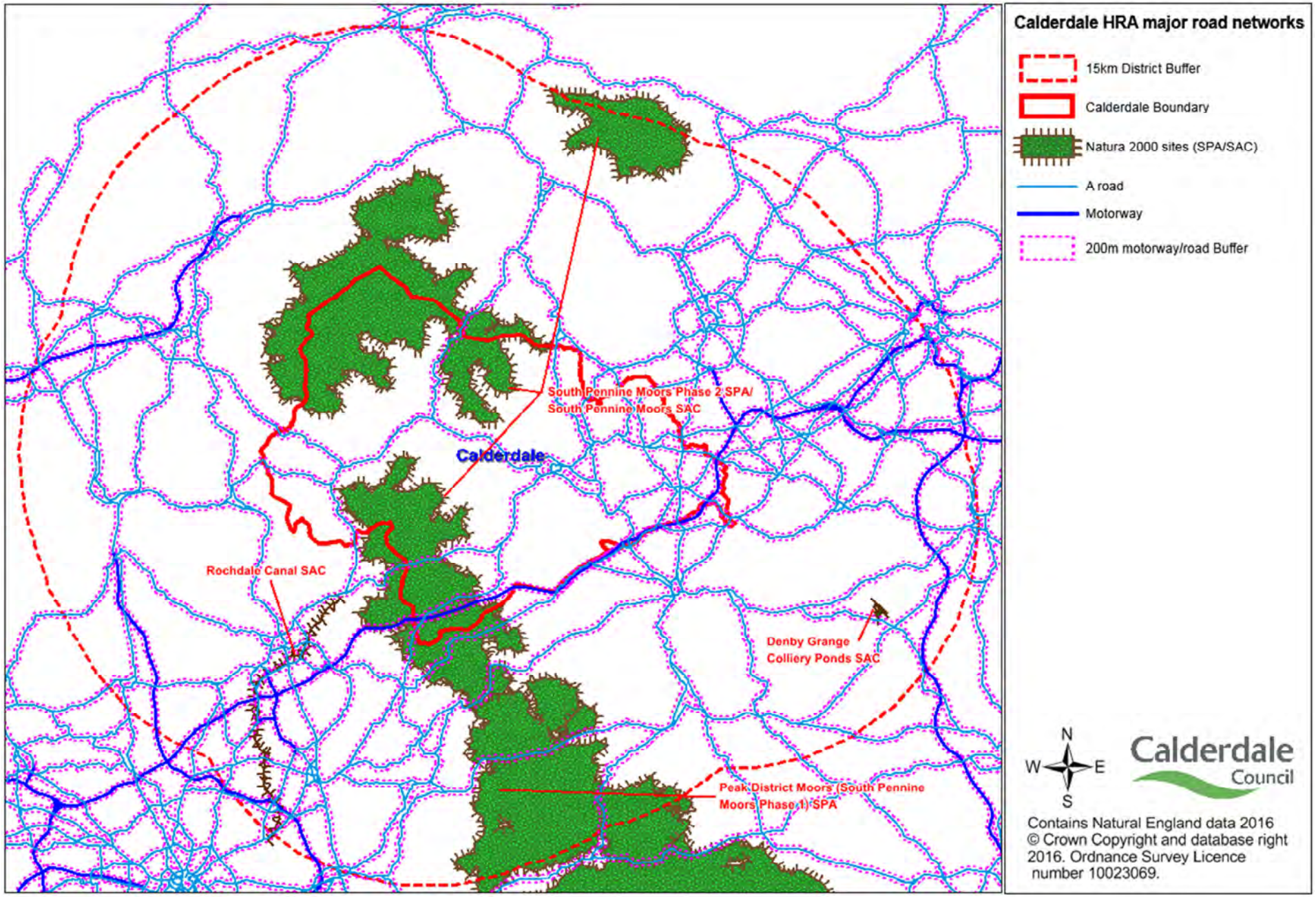


Figure 4: Major road networks (motorway & A roads) with 200m buffer distance within Calderdale + 15km

Table 5b: Relative sensitivity of moorland plants to trampling adapted from Anderson (1990)			
Less Sensitive	Species	Notes	SAC/SPA Presence
	Common bent/crested dog's tail	As in some in-bye land	Not major component of SAC Annex 1 habitats
	Wavy hairgrass/ sheep's fescue	On mineral soils	Often minor component of SAC dry heath habitat
	Heather	Young	Major component of Annex 1 dry heath and blanket bog habitats
	Mat-grass	Usually on drier, thin peats or peaty mineral soils	Often component of heavily grazed dry heath habitat
	Purple moor-grass	Usually on wetter flushed peaty soils.	Major component of wetter heath and blanket bog habitats
	Bracken	Young plants	Can be invasive on drier heath and acid grassland habitats
	Heather	Old – old plants are brittle and easily broken.	Major component of Annex 1 dry heath and blanket bog habitats. Important for nesting SPA birds
	Crowberry/bilberry	On peat	Major component of Annex 1 dry heath and blanket bog habitats
	Cotton-grass spp.	Cotton-grass mire on peat	Major component of Annex 1 blanket bog habitats
More sensitive	***Sphagna***	Flushes, mire on peat.	Major component of blanket bogs ***More sensitive*** and transition mire habitats

Importantly blanket bog and dry heath are qualifying feature of the South Pennine Moors SAC, both of which have a high sensitivity. Table 2b lists Cotton-grass *spp* and Heather as more sensitive to trampling, both of which are again found within the South Pennine Moors SAC.

Policies or site allocations in the Local Plan may potentially lead to an increase in visitor numbers within Natura 2000 sites. Consideration will be given to factors such as the characteristics and current use of the Natura 2000 sites and their accessibility from potential development areas. On this basis, recreation and urban impacts are considered to be key considerations with regards to the South Pennine Moors SAC and SPA but are less likely to

be significant in relation to Denby Grange Colliery Ponds and Rochdale Canal SAC due to the relative distance from Calderdale.

Dowling (2012) investigated the impacts of recreational use of bird abundance and behaviour within the South Pennine Moor Phase 2 SPA. The study found that areas of the moors with high recreational use had the lowest values for bird community diversity, evenness and richness. The sites with the highest recreational use were closer to towns and roads, and had good quality footpaths and car parking facilities. Pearce-Higgins et al (2007) investigated the impacts of recreation on both the Golden Plover and Dunlin (qualifying species found on the South Pennine Moors phase 2 SPA) within the South Pennine Moors phase 1 SPA. The study found that for both species were negatively affected by visitor pressure only at high numbers (>30 visitors per weekend day) and showed no to little disturbance or nesting favourability in lower visitor numbers.

Byrne (2014) investigated attitudes and actions of recreational users within South Pennine Moor SPA. The study found that of the 558 users surveyed 59% (n=328) were non-locals participants (travelled over 3 miles to get to the site), while the other 41% (n=230) local participants (n=558) (travelled under 3 miles to get to the site). Of these users a 62% (n=344) did not know the site was protected, the study found a significant relationship between local participants who also knew the site was protected. It also found a significant number of people left the marked paths, increasing the likelihood of damaging behaviour. These findings highlight the recreational use can threaten the integrity of the South Pennine Moors Natura 2000 sites. Therefore it's logical to assume that an increase in visitor number to the South Pennine Moors may negatively affect the integrity of the Natura 2000 sites without appropriate mitigation in place.

In 2014 Natural England published a report entitled *Monitor of Engagement with the Natural Environment* [MENE] *Survey (2009-12): Visit taking in the South Pennines* (Burt et al, 2014). It analysed data from the 2009-12 period focusing largely on the South Pennines, in order to better understand visitor patterns, from a sample of 3,422 respondents over the study period. The report found that residents of the South Pennines are heavy users, of the 12 million visits to the moors throughout the study period 36% were taken by residents of the area, 18% were from people who live in the surrounding South Pennine Catchment area and 46% originated from further afield (cities) such as Leeds and Manchester. Visitors within the South Pennines were more likely to be in the most affluent socio-economic group. The study also highlighted that place of residence (i.e. urban, rural or urban fringe) are also significant factors with people from the urban populations taking far fewer visits on average. The report found that of users from the place of residence residents of urban areas take visits to moorlands far less frequently than people living in urban fringe or rural areas. From the study only 2.3% of the visitors recorded were from Calderdale. Other important findings concluded that majority of visits taken by residents of the South Pennines involved dog walking (68%). These points are very important in helping to understand how the South Pennine Moors Natura 2000 sites may be impacted by increased visitor numbers resulting from the local plan. It's therefore presumed that increased number of visitors generated from the plan will result from allocations close to the urban and rural fringes to the moors.

As well as recreational impacts, developments in close proximity to Natura 2000 sites can have a potential likely significant effect to the integrity of the site as a result of 'urban edge' or 'urbanisation' impacts. These impacts are especially significant for the moorlands of the

South Pennines Moors SPA and SAC. There close proximity can result in a broad range of impacts including fly tipping; dumping of garden waste and resultant introduction of invasive/alien plants; off-road vehicles leading to track erosion; disturbance to (conservation) grazing livestock; increased incidence of wildfire; and predation from domestic pets and urban scavengers. Such activates are reported and stored on the Pennine Watch Website[14] and show extensive reports of off-roading, fly tipping and wildfire starting, many of which are recorded within the boundaries of Calderdale. On the south coast of England Natural England identified a 400m zone around the Chichester and Langstone Harbours SPA within which housing development should not be located due to the potential effects of urbanisation particularly the risk of chick predation by cats.

As part of City of Bradford Core Strategy HRA, visitor surveys were commissioned to look at the recreational factors relating to the South Pennine Natura 2000 sites within their district. The study concluded that a 'zone of influence' resulting from recreational impacts on the Natura 2000 sites exists within 10.5 km around the sites. This zone represents the area within the most recreational visitors to the Natura 2000 sites are expected to originate. As well as this other urban factors called 'urban edge' impacts (which include fly tipping, off-road vehicle use, wildfire and increased domestic predation) where found to mainly take place within 400m of the Natura 2000 sites. The Bradford core strategy concluded that adverse effects on the integrity of the South Pennine Moors SAC and SPA could not be ruled out due to recreation pressure, loss of functionally linked land used by the breeding bird assemblage and urban edge pressures. As a result a policy was developed to act as mitigation which created three zones. This policy has recently amended through the Main Modifications stage as a result of scrutinised during the Examination in Public into the Bradford Core Strategy. The modified policy is shown in Appendix 2. The research undertaken for the HRA of the Bradford Core Strategy is being drawn on as appropriate to inform the HRA of the Calderdale Local Plan, following its same use in the Kirklees Draft Local Plan HRA report.

The nature of development proposed is important to consider, for example employment sites are considered less likely to result in increased recreation pressure/use than residential sites as employees will be at work within the development site for the majority of the time.

Consideration is being given to the potential need to take a strategic approach to mitigation of recreation pressure on the South Pennine Moors SAC and SPA, in the form of buffers for development.

Therefore, at this stage, recreation related impacts need to be considered within the screening exercise in relation to all of the Natura 2000 sites within Calderdale (+15km) but greater consideration with respect to the South Pennine Moors SAC and South Pennine Moors SPA (Phases 2).

Water quality and quantity

Development arising from the Calderdale Local Plan has the potential to increase demand for water resources. Yorkshire Water published its 'Water Resources Management Plan' which sets out there plan to maintain the supply and demand of water resources for the next 25 years (2015/16- 2039/40). Yorkshire Water (2014) incorporates future pressures on

[14] http://www.moorwatch.co.uk/view-reports

supply and demand driven by predicted climate change. It also incorporates future changes to the Yorkshire population, housing and water use in the Yorkshire region. Calderdale lies within the Grid SWZ, which is a highly integrated surface and groundwater zone dominated by the operation of rivers and reservoirs. The report concludes that the baseline supply-demand balance for the Grid SWZ dry year annual average scenario shows a substantial deficit which increases over the planning period as the forecast supply cannot meet the forecast demand. This defect is largely the result of the impacts of climate change and sustainability reductions. Climate change is forecast to create a year on year incremental reduction in supply. The report sets out a number of options for balancing the deficit, involving a combination of demand reduction (including reducing leakage and processing losses) and ways of increasing supply (including increasing abstraction from certain boreholes). It was concluded that a surplus can be achieved during the 25 year plan period.

As part of the Water Resources Management Plan a HRA was undertaken on the preferred solution in order to assess its impact on Natura 2000 and Ramsar sites. The conclusions of the HRA showed that with the appropriate mitigation in place the plan would not have a significant effect on the integrity of identified sites. **Therefore in line with the Water Resources Management Plan HRA the Calderdale Local Plan is not expected to have a significant effect on the integrity of the identified Natura 2000 sites as a result of increased water demand.**

As well as potential impacts to water quantity, water quality may be adversely affected from the impacts of the Calderdale Local Plan. The existing waste water treatment plants within Calderdale (shown in table 6) are located downstream form the South Pennine Moors SAC and (phase 2) SPA. The Rochdale Canal SAC is a water cause that has the potential to be adversely impacted from waste water discharge due to its proximity and physical connection to Calderdale. Water supplied to the Rochdale Canal also partly arises from the Pennines. The Rochdale Canal SAC is however located to the West of Calderdale and would therefore not be by affected by discharges from the waste water treatment works that serve Calderdale. Denby Grange Colliery Ponds SAC is not known to be hydrologically connected to water bodies within Calderdale that receive discharges from the waste water treatment. As well as this it's important to note that the treatment of waste water is governed by a variety of regulatory and legislative measures including the EU Water Framework Directive[15] which address the environmental impacts of waste water including the impacts on Natura 2000 sites. This should therefore provide sufficient protection to the integrity of the sites irrespective to any hydrological links between the site and impacts of the Calderdale Local Plan.

Table 6 : Main waste water treatment works serving settlements in Calderdale

Waste water treatment plant	Settlement	Discharges to
Brighouse Upper Sludge Treatment Facility	Brighouse	River Calder
Copley Sewage Sludge Treatment Plant	Sowerby Bridge	River Calder

[15] Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy

Therefore based on the screening assumptions water quality impacts arising from the Calderdale Local Plan can be screened out in relation to all the identified Natura 2000 sites within Calderdale (+15km).

Summary of the screening assumptions

Based on the outlined evidence a number of screening assumption have been established to inform the HRA screening process of the Calderdale Local Plan. Based on these screening assumptions the following effects on the multiple identified Natura 2000 sites have been screened in/out as shown in Table 7 below.

Table 7: Screening assumption conclusions

	South Pennine Moors (phase 2) SPA	South Pennine Moors SAC	Peak District Moors (South Pennine Moors Phase 1) SPA	Rochdale Canal SAC	Denby Grange Colliery Ponds SAC
Physical loss of habitat (site and functionally connected habitat)	Screened in (onsite and offsite)	Screened in (onsite only)	Screened out (offsite and onsite)	Screened out (offsite and onsite)	Screened out (offsite and onsite)
None physical disturbance	Screened in (onsite and offsite)	Screened out (offsite and onsite)	Screened out (offsite and onsite)	Screened out (offsite and onsite)	Screened out (offsite and onsite)
Air Pollution	Screened in	Screened in	Screened in	Screened in	Screened in
Recreation and Urban Impacts	Screened in (greater consideration)	Screened in (greater consideration)	Screened in	Screened in	Screened in
Water quality and quantity	Screened Out	Screened Out	Screened Out	Screened Out	Screened Out

6 Interpretation of 'likely significant effect'

Due to the subjectively and interpretation of the Habitats Regulations applicable case law can be used to interpret when effects should be considered as a likely significant effect, when carrying out HRA of a land use plan. Case law is a vital source of information regarding how legislation should be correctly interpreted and applied (Chapman & Tyldesley, 2016b). Firstly the Waddenzee case[16], in which Landelijke Vereniging tot Behoud van de Waddenzee (National association for conservation of the Waddenzee, 'the Waddenvereniging') and the Nederlandse Vereniging tot Bescherming van Vogels (Netherlands association for the protection of birds, 'the Vogelbeschermingsvereniging') challenged the Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Secretary of State for agriculture, nature conservation and fisheries, 'the Secretary of State') for the issuing of licences for the mechanical fishing of cockles in the special protection area (SPA) of the Waddenzee (Holland).The European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), including that:

- An effect should be considered 'likely', *"if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site"* (para 44).
- An effect should be considered 'significant', *"if it undermines the conservation objectives"* (para 48).
- Where a plan or project has an effect on a site "*but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned"* (para 47).

Another interpretation delivered to the Court of Justice of the European Union[17] commented that:

"The requirement that an effect in question be 'significant' exists in order to lay down a de minimus *threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having* any *effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."*

This opinion therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered 'trivial' or *de minimus*; referring to such cases as those *"that have no appreciable effect on the site"*. In practice such effects could be screened out as having no likely significant effect; they would be 'insignificant'.

7 Mitigation provided by the Local Plan

Potential impacts of the Calderdale Local Plan may be mitigated to different levels of degree through the implementation of both certain designations (green spaces) as well policies.

Dodd et al (2007) discussed as to what stage mitigation should be incorporated into the HRA process, specifically its role within the screening process. They highlight that it is important that screening is not confused with the assessment of the effects of mitigation measures

[16] ECJ Case C-127/02 "Waddenzee" Jan 2004.
[17] *Advocate General's Opinion to CJEU in Case C-258/11 Sweetman and others v An Bord Pleanala* 22nd Nov 2012.

within an Appropriate Assessment (AA). There justification is that it's wrong to confuse the test for whether an AA

** To be completed**

7 Identification of other plans and projects which may have 'in combination' effects

Regulation 102 of the Habitats Regulations states an Appropriate Assessment is necessary when "*a land use plan is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of the site*". In line with regulation 102 it's necessary to consider whether there may also be significant effects in combination with other plans or projects, where likely significant effects have been identified in the Calderdale Local Plan.

In order to do this plans and projects that may result in combination significant effects with the Calderdale Local Plan have been identified. Early work was undertaken in relation to identifying such plans and projects as part of the now ceased Calderdale Core Strategy HRA. However much of this information is out-of-date and therefore has been updated during this HRA process

Due to the large scale of plans and following the approach taken in the Core Strategy HRA, the search focused on planned spatial growth plans within the authorities adjacent to Calderdale and within the wider strategic region. As well as highlighting the potential in combination effects resulting from these plans, any HRA outcome/work for the respective plans have been summarised. The following authority's plans have been included in the scope of this exercise:

- City of Bradford Metropolitan Council
- Kirklees Council
- Oldham Council
- Rochdale Council
- Rossendale Council
- Burnley Council
- Pendle Council
- Craven Council
- Leeds City Council
- Wakefield Council
- Greater Manchester Combined Authority
- West Yorkshire Integrated Transport Authority

The full assessment to date of the in combination effects as part of the screening exercise are shown in Appendix 4.

References:

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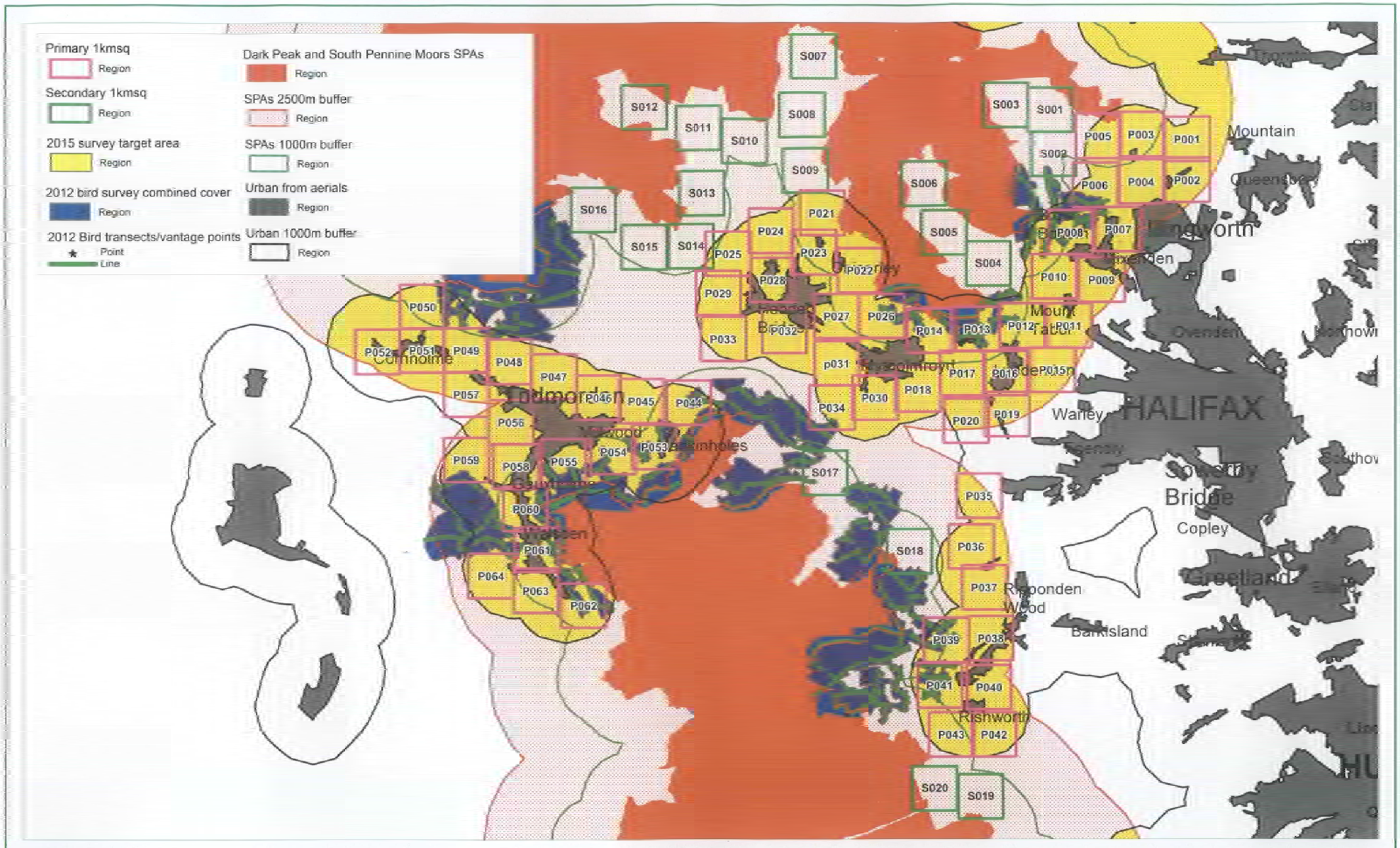
Appendix 1: **2012 & 2015 bird survey extent and coverage**



Appendix 2: Bradford Core Strategy modified strategic policy SC8 "Protecting the South Pennine Moors SPA and SAC and their zone of influence

Subject to the derogation tests of Article 6(4) of the Habitats Directive, development will not be permitted where it would be likely to lead, **directly or indirectly** to an adverse effect **(either alone or in combination with other plans or projects), which cannot be effectively mitigated** upon the integrity **of the SPA or the SAC.** ~~directly or indirectly, of the South Pennine Moors Special Protection Area and Special Area of Conservation.~~

To ensure these sites are not harmed, a number of zones have been identified:

Zone A is land up to 400m from the South Pennine Moors Special Protection Area ("SPA") and South Pennine Moors Special Area of Conservation ("SAC") boundary;
Zone B is land up to 2.5km from the SPA and SAC boundary; and.

Zone C is land up to 7km from the SPA and SAC boundary.

In Zone A N **n**o development involving a net increase in dwellings would be permitted ~~within a suitable buffer area around the upland heath/ South Pennine Moors (normally 400m)~~ unless, as an exception, the form of residential development **and/or its use** would not have an adverse effect upon the ~~sites~~' integrity **of the SPA or SAC**.

~~Zone Bi~~
In Zone ~~Bi~~ **B** ~~would apply between 400m and 2.5km of the designated Site boundary Within Zone Bi the Council will take a precautionary approach to the review and identification of potential Greenfield sites for development based on an assessment of carrying capacity using the available evidence from bird and habitat surveys and appropriate additional monitoring. The underlying principles will be to avoid loss or degradation of areas outside European Sites that are important to the integrity of sites and that sufficient foraging resources continue to be available, in order to ensure the survival of bird populations.~~ **it will be considered, based on such evidence as may be reasonably required, whether land proposed for development affects foraging habitat for qualifying species of the SPA.**

~~Zone Bii~~
~~Zone Bii would apply between 2.5km and up to 7km of the designated Site boundary~~
~~Within Zone Bii appropriate assessment is still likely to identify significant adverse effects in combination with other proposals, however appropriate avoidance or mitigation measures should allow development to take place. Zones Bi and Bii Within Zones Bi (taking into account the need to avoid loss or degradation of areas outside European Sites that are important to the integrity of the sites) and~~
~~Zone Bii residential~~

In Zone C**, in respect of residential** developments that result in a net increase of one or more dwellings, ~~will be required to contribute to~~:**it will be considered how recreational pressure on the SPA or SAC, that such development might cause, will be effectively mitigated. The mitigation may be:**

(i) either on-site and / or deliverable off-site measures, such as the provision of accessible natural greenspace; or

(ii) in the form of a financial contribution from the developer to:

1. The provision of additional natural greenspace and appropriate ~~facilities~~ **measures** to deflect pressure from moorland habitats and the long-term maintenance and management of that greenspace.

2. The implementation of access management measures, which may include further provision of wardens, in order to reduce the impact of visitors

3. A programme of habitat management and manipulation and subsequent monitoring and review of measures

To mitigate impacts on ~~European Sites~~ **the SPA and SAC** due to the increase in population, an approach will be adopted that sets out a mechanism for the calculation of ~~planning~~ **financial** contribution**s.**

Appendix 3 HRA Natura 2000 site details[18]

<table>
<tr><td colspan="3">Natura 2000 site: South Pennine Moors Phase 2 SPA (Site Code: UK9007022)</td><td>Site Area (ha): 20944.46</td></tr>
<tr>
<td>Site Qualification:

Article 4.1 qualification (79/409/EEC): During the breeding season the area regularly supports: Asio flammeus 0.3% of the GB breeding population; Falco columbarius 2.2% of the GB breeding population; Pluvialis apricaria [North-western Europe - breeding] 1.3% of the GB breeding population.

Article 4.2 Qualification (79/409/EEC): An internationally important assemblage of birds.</td>
<td>Habitat Classification (% cover):

▪ Inland water bodies (standing/running water) (2)
▪ Heath, Scrub, Maquis and Garrigue, Phygrana (21)
▪ Humid grassland, Meosphile grassland (31)
▪ Bogs, Marshes, Water fringed vegetation, Fens (46)</td>
<td>Threats and pressures (impact code and impact type e.g – ve/+ve):

▪ Hunting and collection of wild animals (terrestrial) (F03-ve)
▪ Outdoor sports and leisure activates, recreational activates (G01-ve)
▪ Fire and fire suppression (J01-ve)
▪ Human induced changes in hydraulic conditions (J02-ve)
▪ Reduced fecundity/ genetic depression (K05-ve)
▪ Modification of cultivation practices (A02+ve)
▪ Grazing (A04+ve)
▪ Annual and perennial on-timber cops (A06+ve)
▪ Forest and Plantation management & use (B02+ve)
▪ Grazing in forest/woodlands (B06+ve)</td>
<td>Conservation Objectives:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

▪ The extent and distribution of the habitats of the qualifying features;
▪ The structure and function of the habitats of the qualifying features;
▪ The supporting processes on which the habitats of the qualifying features rely;
▪ The population of each of the qualifying features, and;
▪ The distribution of the qualifying features within the site.</td>
</tr>
<tr><td colspan="3">Natura 2000 site: South Pennine Moors SAC (Site code: UK0030280)</td><td>Site Area (ha): 65024.32</td></tr>
</table>

[18] Information taken from the JNCC "*Spreadsheet of UK Natura 2000 information as contained within the Natura 2000 standard data forms submitted to the European Union*" dataset updated on the 28th January 2016 (Available at : http://jncc.defra.gov.uk/page-1409) .

Site Qualification:	***Habitat Classification (% cover):***	***Threats and pressures (impact code and impact type):***	***Conservation Objectives:***
Northern Atlantic wet heaths with *Erica tetralix* for which the area is considered to support a significant presence. European dry heaths for which this is considered to be one of the best areas in the United Kingdom. Transition mires and quaking bogs for which the area is considered to support a significant presence. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles for which this is considered to be one of the best areas in the United Kingdom. Blanket bogs for which this is considered to be one of the best areas in the United Kingdom.	▪ Inland water bodies (standing/running water) (1) ▪ Humid grassland, Meosphile grassland (4.8) ▪ Mixed woodland (0.1) ▪ Heath, Scrub, Maquis and Garrigue, Phygrana (45.5) ▪ Non-forest areas cultivated with woody plants (including Orchards, Groves, Vineyards, Dehesas) (0.1) ▪ Bogs, Marshes, Water fringed vegetation, Fens (42.7) ▪ Broad-leaved deciduous woodland (1) ▪ Dry glassland, Steppes (4.8)	▪ Outdoor sports and leisure activities, recreational activities (G01-ve) ▪ Agriculture activities not referred to above (A11-ve) ▪ Air pollution, air-borne pollutants (H04-ve) ▪ Fire and fire suppression (J01-ve) ▪ Human induced changes in hydraulic conditions (J02-ve) ▪ Modification of cultivation practices (A02+ve) ▪ Mowing / cutting of grassland (A03+ve) ▪ Grazing (A04+ve) ▪ Annual and perennial non-timber crops (A06+ve) ▪ Forest and Plantation management & use (B02+ve) ▪ Grazing in forests/ woodland (B06+ve) ▪ Improved access to site (D05+ve)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; ▪ The extent and distribution of the qualifying natural habitats; ▪ The structure and function (including typical species) of the qualifying natural habitats, and; ▪ The supporting processes on which the qualifying natural habitats rely.
Natura 2000 site: Peak District Moors (South Pennine Moors Phase 1) SAC (Site Code: UK9007021)			**Site Area (ha): 45300.54**
Site Qualification:	***Habitat Classification (% cover):***	***Threats and pressures (impact code and impact type):***	***Conservation Objectives:***
Article 4.1 qualification (79/409/EEC): During the breeding season the area regularly supports: *Asio flammeus* at least 2.2% of the GB breeding population; *Falco columbarius* at least	▪ Bogs, Marshes, Water fringed vegetation, Fens (35) ▪ Heath, Scrub, Maquis and Garrigue, Phygrana (40) ▪ Inland water bodies (Standing	▪ Hunting and collection of wild animals (terrestrial) (F03-ve) ▪ Outdoor sports and leisure	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by

2.3% of the GB breeding population; *Pluvialis apricaria* [North-western Europe - breeding] at least 1.9% of the GB breeding population.	water, Running water) (1) ▪ Inland rocks, Screes, Sands, Permanent Snow and ice (1) ▪ Dry grassland, Steppes (16) ▪ Humid grassland, Mesophile grassland (6) ▪ Broad-leaved deciduous woodland (1)	activates, recreational activates (G01-ve) ▪ Fire and fire suppression (J01-ve) ▪ Human induced changes in hydraulic conditions (J02-ve) ▪ Reduced fecundity/ genetic depression (K05-ve) ▪ Modification of cultivation practices (A02+ve)) ▪ Grazing (A04+ve)) ▪ Forest and Plantation management & use (B02+ve)) ▪ Improved access to site (D05 +ve)	maintaining or restoring; ▪ The extent and distribution of the habitats of the qualifying features; ▪ The structure and function of the habitats of the qualifying features; ▪ The supporting processes on which the habitats of the qualifying features rely; ▪ The population of each of the qualifying features, and; ▪ The distribution of the qualifying features within the site.
Natura 2000 site: Rochdale Canal SAC (Site code: UK0030266)			**Site Area (ha):** 24.86
Site Qualification: *Luronium natans* for which this is considered to be one of the best areas in the United Kingdom.	***Habitat Classification (% cover):*** ▪ Inland water bodies (Standing water, Running water) (90) ▪ Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (10)	***Threats and pressures (impact code and impact type):*** ▪ Air pollution, air-borne pollutants (H04-ve) ▪ Human induced changes in hydraulic conditions (J02-ve)	***Conservation Objectives:*** Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; ▪ The extent and distribution of the habitats of qualifying species; ▪ The structure and function of the habitats of qualifying species; ▪ The supporting processes on which the habitats of qualifying species rely;

			▪ The populations of the qualifying species, and; ▪ The distribution of the qualifying species within the site.
Natura 2000 site: Denby Grange Colliery SAC (Site Code: UK0030036)			**Site Area (ha):** 18.34
Site Qualification: *Triturus cristatus* for which this is considered to be one of the best areas in the United Kingdom.	***Habitat Classification (% cover):*** ▪ Inland water bodies (Standing water, Running water) (5) ▪ Improved grassland (12) ▪ Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (3) ▪ Broad-leaved deciduous woodland (75) ▪ Coniferous woodland (5)	***Threats and pressures (impact code and impact type):*** ▪ Forest and Plantation management & use (B02 - ve) ▪ Pollution to groundwater (point source and diffuse sources) (H02-ve) ▪ Invasive non-native species (I01-ve) ▪ Human induced changes in hydraulic conditions (J03-ve) ▪ Other ecosystem modification (J03-ve)	***Conservation Objectives:*** Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; ▪ The extent and distribution of the habitats of qualifying species; ▪ The structure and function of habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats rely; ▪ The populations of qualifying species, and; ▪ The distribution of qualifying species within the site.

Appendix 4: Identification of other plans and projects which may have 'in combination' effects

Plan or Project	
City of Bradford Metropolitan Council Core Strategy- publication versions (February 2014) *Submitted to examination* *Following examination the Bradford Core Strategy is being amended via the 'main proposed modifications document' which has been reviewed alongside the original publication document.*	
Bradford borders the district of Calderdale to the north east and contains a significant amount of the **South Pennine Moors SPA (phase 2)** and **SAC** along with Calderdale making it of key strategic importance in the HRA process[19]. **Development Aims:** • 42,100 dwellings - between 2013 and 2030. The majority of this will be in the regional city of Bradford, followed by the principle towns of Ilkley, Keighley and Bingley, the local growth centres of Queensbury, Silsden, Steeton and the Local service centres respectively. • 135 ha of employment land throughout the local plan period with the majority of this to be within the city of Bradford, followed by the Airedale Corridor and the Wharfedale corridor respectively. • As well as the provision for housing and employment the plan aims to provide a wide variety of infrastructure, ancillary and supporting development to achieve regeneration and build sustainable communities. As this is a core strategy no site allocations have been proposed and therefore the impact of some of the plan cannot be fully understood at this stage in the process. The outcome of further examination of the Bradford Core Strategy also needs to be followed.	**HRA conclusions:** The recently amended *Habitats Regulations Assessment for the Bradford District Core Strategy (Proposed Modifications)* found that adverse effects resulting from (1) wind turbine development, (2) increased water demand and (3) impacts on water quality are not considered likely for any of their four Natura 2000 sites. Loss of supporting habitats and urbanisation impacts are assessed as likely to affect the South Pennine Moors SAC/SPA. Recreational impacts were assessed as potentially affecting any of the four sites. Presented evidence indicated that, if left unmitigated, impacts are likely to be greater in relation to the South Pennine Moors sites due to their relative proximity to locations for future development. The likelihood of traffic-related atmospheric pollution affecting any of the four sites will be determined through more detailed traffic modelling during the pre-allocations testing stage. In response to the identified likely significant effects and on the recommendation of the HRA a policy was created which was believed to mitigate against any likely significant affects to the Natura 2000 sites. **Policy SC8** was produced and shown in Appendix 2 as well as being discussed in section 3. The policy compromised zone in which no development is permitted, development shown to have no impacts will be permitted and a wider zone in which measure will be put in place to mitigate recreational pressures on the Natura 2000 sites. This will be demonstrated in a supplementary planning document. **There is potential for similar development within Calderdale in combination with the effects identified from the Bradford Core Strategy to adversely effects on the integrity of the SAC/SPA. Therefore, a similar approach to Bradford may need to be considered within the Calderdale**

[19] Due to its importance advice has been sought with Bradford Council throughout the HRA process as well as the sharing of data.

	Local Plan, however this is largely dependent on the development pressures and potential adverse effects identified through the HRA.
Kirklees Council Local Plan- draft version (November 2015)	
Kirklees borders the district of Calderdale to the south east and is a key strategic link to Calderdale. The **South Pennine Moors SAC**, the **South Pennine Moors SPA (Phase 2)** and a small part of the **Peak District Moors (South Pennine Moors Phase 1) SPA** fall within the boundary of Kirklees. **Development Aims:** • The plan sets out a strategic vision and objectives for development of Kirklees up to 2031. In order to do this it presents a series or policies and land allocations. • The plan aims to deliver 32,200 jobs over the plan period from 2013-31. In order to do this a total 265 ha is required. In order to do this the plan will allocate new prime land for employment use, safeguard existing employment sites and promoting town centre regeneration. • In order to meet housing demand the plan seeks to deliver 29,340 dwellings from 2013-31 equating to an annual requirement for 1,630 homes. The home will be spread throughout Huddersfield, Kirklees rural, Batley and Spean, and Dewsbury and Mirfield respectively. • As well as this the plan sets out policies and allocations to meet waste requirements, environmental protection, infrastructure provisions and sustainable development goals. The Kirklees Local Plan document allows for a good understanding of the potential 'in combination' effects due to it proposing both policies and site allocations. However due to the fact the plan is still in its draft stage there is potential for these effects to change.	**HRA conclusions:** The HRA for the Draft Kirklees Local Plan concluded that following screening and appropriate assessment, and as long as identified mitigation and recommendations take place adverse effects to the integrity of the identified Natura 2000 sites should not take place in relation to; (1) physical loss or damage to offsite habitat; (2) noise/vibration and light pollution; (3) recreation and (4) changes to water quality and quantity. However adverse effects to the identified Natura 2000 sites couldn't be ruled out in relation to air pollution until detailed traffic modelling is undertaken. This has been identified to be addressed at the later version of the HRA (publication). The outlined mitigation includes the use of a 2km buffer zone around the Natura 2000 sites in which potential impacts to functionally connected land will be listed as a constraint and addressed at the planning permission stage. In relation to mitigation resulting from potential recreational and urban edge impacts the report recommend the consideration of a similar policy as the Bradford Core Strategy. The Kirklees HRA is however still in progress and it's expected the report will change following comments and any changes to the Kirklees Local Plan itself. It's therefore important to follow the process of the Kirklees Local Plan HRA alongside the production of the Calderdale Local Plan HRA. **There is potential for similar development within Calderdale in combination with the effects identified from the Kirklees Local Plan to adversely effects on the integrity of the SAC/SPA in relation to air pollution due, to the close proximity and linked road network from Kirklees to Calderdale[20]. Other in combination effects also cannot be ruled out at this stage in the HRA.**

[20] As part of the detailed traffic modelling to be undertaken for the Calderdale Local Plan, in combination impacts of traffic generation from neighbouring boroughs will be taken in to account. Due to the identified importance of Kirklees in relation to traffic generation, dissuasions have been ongoing between the two councils throughout the local plan process.

Oldham Council LDF Joint Core Strategy and Development Management Policies Development Plan (adopted November 2011)	
Oldham borders the southern tip of the district of Calderdale beyond the M62 and joined by the **South Pennine Moors SPA (phase 2)** and **SAC**. The border is the smallest covering only ~ 1.98km over the Natura 2000 site. **Development aims:** • The plan sets out the council's vision for Oldham up to the year 2026 and how this change will be accomplished. This is mainly in the form of policies and land allocations. • The plan will allocate land to accommodate 289 dwellings a year equating to 4,624 throughout the plan period. The majority of dwellings will be in East and West Oldham. • As well as this the plan will designate ~80 ha of employment land business, industry and office developments. • As well as provision for infrastructure the plan will include new transport links including Metrolink extensions. Oldham in currently preparing a new development plan in line with the NPPF, therefore any new plan document needs to be reviewed as they are published.	**HRA conclusions:** The HRA for the plan and associated land allocations concluded that at the screening stage the Rochdale Canal SAC had the potential to adversely affect the integrity of the site. This resulted in a appropriate assessment of the potential effects. It concluded that "*although development is proposed in areas relatively close to the Canal, providing that mitigating plans, policies and strategies are adopted and implemented appropriately through the development management process, in principle development areas planned for in the Joint DPD can be allowed to go forward without harm being caused to the special interest of the Rochdale Canal SAC*" it was therefore concluded that the plan would not have an adverse impact on its identified Natura 2000 sites. **Therefore due to this conclusion, in combination effects with the Calderdale Local Plan can be ruled out for this HRA.**
Rochdale Council Publication Core Strategy (suspended 2013) *The Rochdale Core Strategy was submitted for publication in May 2013. Consideration of all the evidence submitted the Inspector has requested that the council undertake some additional work to provide the appropriate basis to assess the 'soundness' of the Core Strategy. in order to undertake this work the council has, following approval from Cabinet, sought a suspension of the examination. No main modification document was available at the time of the HRA production.*	
Rochdale borders the district of Calderdale to the south west with a large part of this border across the **South Pennine Moors SPA (phase 2)** and **SAC.** As well this site Rochdale contains the majority of the **Rochdale Canal SAC.** **Development aims:** • Core Strategy is the leading document of the LDF and sets a strategic framework for growth and development in the borough up to 2028. It will also set out what the overall scale of development needs to be and broadly where it should be focussed within the borough. • The core statergy aims to provide sufficient land to provide at least 400 new dwellings per year up to 2028 and focus 80% of this residential	**HRA conclusions:** The HRA for the Rochdale Core Strategy concluded that following screening the Rochdale Canal SAC and the South Pennine Moors (phase 2) SPA and SAC would be adversely affected as a result development and growth generated by the plan. Many of the identified impacts resulting from the plan are unique to Rochdale as they are a result of direct effects on the Rochdale Canal SAC. Impacts on the other identified Natura 2000 are a result of recreational pressure and specific developments. As a result of the screening exercise more detailed appropriate assessment was undertaken. This Assessment has concluded that, providing the recommended mitigation measures, which take the form of amending and controlling development in the strategic locations through the Plan and amending the core

development on previously developed land. seven housing-led regeneration areas ('Strategic Housing Locations'), one additional housing site outside the urban area, and three strategic mixed use sites • The core strategy also provides provision for the supply of up to 210ha of land for employment needs. As well as this the plan has identified five economic growth corridors. • As well as this the plan sets out policies and allocations facilitate environmental protection, infrastructure provisions and sustainable development goals. As this is a core strategy document no site allocation have been proposed, therefore the impact of some of the plan cannot be fully understood at this stage in the process meaning the Rochdale Local Plan needs to be monitored.	policies, are put into place, controlled development within the identified areas can proceed without harm being caused to the special interests of the Natura 2000 sites. Mitigation measures included the need for development close to the site to submit and ecological statement. The HRA concluded that if recommended mitigation was adopted in the plan the integrity of the identified sites would not be impacted. However during the examination Natural England's expressed concerns with the publication draft of the plan as they felt the Core Strategy did not adequately contain mitigation measures recommended by the HRA. Natural England's stated that provided the changes outlined are incorporated into the Core Strategy and amendments made to the HRA, Natural England would be satisfied with the conclusions made by the Council. The Core Strategy HRA has assessed as much as possible without having the exact details of land allocations and future proposals. **Therefore, in combination effects of any plans with the Calderdale Local Plan will need to be reviewed. At this stage however combination effects with the Calderdale Local Plan can be ruled out for this HRA.**
Rossendale Council Core Strategy Development Plan Document: *The Way Forward (2011 - 2026)* (adopted November 2011) *Part 2 of the Rossendale Local Plan "Site Allocations and Development Management DPD" was withdraw on the 24th February 2016 therefore more detailed potential in combination affects resulting from land allocation cannot be established at this stage in the HRA process.*	
Rossendale borders the district of Calderdale to the west. None of the border however is connected by the Natura 2000 sites. **The district of Rossendale has no Natura 2000 sites within its boundary.** The closest Natura 2000 site to the district is the South Pennine Moors (phase 2) SPA and SAC. **Development aims:** • The Core Strategy sets out the policies facilitate the development of Rossendale up to 2026. It also outlines the justification for these policies as well the wider scope. • The plan seeks to provide 37,000 net additional dwellings from 2011-2026 equating to 247 dwellings annually. Of these 65% is aimed to be built on brownfield land. It will also push for higher density development. • The plan will seek to provide sufficient employment land for 20.84 ha for	**HRA conclusions:** The HRA has assessed whether the 30 policies within the Plan are likely to lead to significant effects to the identified Natura 2000 sites and what these likely impacts are. The HRA concluded **none** of the 30 screened policies in the plan would lead to likely significant effects on the sites. The plan did acknowledge that site allocation at a later stage may lead to likely significant impacts. The HRA recommended that any planning applications that arise on a case by case basis from the policies within the Core Strategy that may have a likely significant effect on an international site will be subject to further consideration a will need to submit and ecological assessment. The HRA therefore concluded that at this stage the plan would not adversely affect the integrity of the sites. **Therefore, in-combination effects with the new Calderdale Local Plan can be ruled out at this stage. It is however important to state that in combination effect may occur as the result of specific land allocations,**

B1, B2 and B8 use classes. • The plan also outline policies to address transport needs, renewable energy development, protecting the environment and achieving wider sustainable development. As this is a core strategy document and due to the fact that the Local Plan "Site Allocations and Development Management DPD" was withdraw, it important to monitor the plan process.	**however this can't be established at this stage and won't likely be available within the Calderdale Local Plan timescale.**
Burnley's Local Plan: Issues and Options (February 2014)	
Burnley borders the district of Calderdale to the north west with ~7.4km of the 11.7 km border connected by the **South Pennine Moors SPA (phase 2)** and **SAC.** **Development aims:** • Burnley's Local Plan is a framework that will shape the future of the borough up to 2030 and replace the existing 2006 Local Plan. The plan will cover all aspects of the way in which land is used, and it will allocate particular sites for development. • The plan presents three growth options for housing prevision: 60 (Low), 100 (Medium) and 150 (High) new dwellings per year are proposed. • In terms of employment the plan proposes that between 30 and 65 ha of employment land is needed for the plan period. The plan is in its very early stages meaning details and evidence is likely to change and more detailed policies and site will emerge. Therefore possible in combination effects will be identified at a later stage.	**HRA conclusions:** The HRA for the plan acknowledges the Local Plan is currently at a very early stage in its development and the spatial options are broad, making their likely significant effects on European sites difficult to predict with any accuracy. This means that the specific nature, size, scope and distribution of land allocation are unknown. Therefore the HRA concluded that as a result it isn't possible (at this stage) to rule out the possibility of significant effects on any identified Natura 2000 sites. As the Burley Local Plan develops and more information is available future versions of the HRA will assess the likely significant effects to the Natura 2000 sites. This will be undertaken for the draft local plan. As more detailed proposals for specific sites are developed and policies finalised, it will also be possible to assess the likely in combination effects of developing those sites with more certainty. **Therefore it is not yet possible to reach a conclusion regarding the potential for in combination effects with the Calderdale Local Plan. To date no future version of the Local Plan or accompany HRA for Burley have been published, therefore its process will be continued to be monitored for the HRA process.**
Pendle Local Plan Part 1: Core Strategy 2011-2030 (Adopted December 2015)	
Pendle borders the district of Calderdale to the north west. The boundary is entirely connected by the **South Pennine Moors SPA (phase 2)** and **SAC.** These are the only Natura 2000 sites within Pendle. **Development aims:**	**HRA conclusions:** The HRA for the Pendle Local Plan Core Strategy was published in September 2014 and is the most recent version found to be available. The HRA concluded that the strategic objectives and the policies which facilitate them, either alone or 'in combination', are unlikely to have a significant effect on any of the short-listed sites. Therefore it concluded that any effects of the Pendle Borough Council Core Strategy DPD upon European Sites

• The plan represents addresses how Pendle will develop and grow between 2011 and 2030 through strategic planning policies. It also shows how this growth can take place alongside sustainable development. • Between the plan period the plan will aim to deliver a minimum of 5,662 new dwellings equalling 298 per year. • The plan will also aim to provide 68 ha of additional employment land during the plan period. It's important to state that at this stage the plan only shows adopted policies, and land allocations are not available to screen, this is however being prepared.	are not likely to be significant and therefore the sites can be screened out as being unlikely to be affected. **Therefore in-combination effects with the new Calderdale Local Plan can be ruled out at this stage. It is however important to note that the future site allocation document may have in combination affects, but at this stage they are unknown.**
Craven Local Plan Draft (September 2014)	
Craven is located to the North of Calderdale connected by the districts of Bradford and Pendle. It doesn't share a physical boundary with Calderdale however is connected by the **South Pennine Moors SPA (phase 2)** and **SAC.** **Development aims:** • The Craven Local Plan sets out a strategic vision and objectives for development Craven. In order to do this it presents a series or policies and land allocations. • The plan seeks to provide a minimum of 2,400 new homes during the plan period. The majority of these will take place in Skipton. • As well as this the plan seeks to provide 25 ha of new employment land during the plan period. The Craven Local Plan is in the process of being amended for the publication version, which is when a HRA will likely be published.	**HRA conclusions:** No HRA was found for the Craven Local Plan during the search for relevant plans. The progress and area for action document (Feb, 2015) makes reference to the status of the HRA saying "*A Screening exercise is currently being undertaken by the Planning Policy team to determine whether an Appropriate Assessment will be required. The Bradford Core Strategy Local Plan is of note, as during the preparation of the Core Strategy, the HRA process in considering the scale of growth for the district together with the proximity to designated sites (including the South Pennine Moors SPA/SAC) has necessitated in modifications to the distribution strategy to limit potential impacts".* **Therefore as this stage of the Calderdale HRA process it is not yet possible to determine the potential for in-combination effects with the Calderdale Local Plan.**
Leeds City Council Core Strategy: Adopted (November 2014)	
Leeds is located to the east of the district of Calderdale separated by the districts of Bradford and Kirklees. Leeds is an important strategic link to Calderdale due to its size. Leeds contains a small amount of the **South Pennine Moors SPA (phase 2)** and **SAC** in the north west of the District. **Development aims:** • The Leeds Core Strategy addresses how Leeds will develop and grow	**HRA conclusions:** The Leeds Core Strategy was screened under the Habitats Regulation and the results published in December 2012 which revised the earlier February 2012 version. The original screening concluded that the Core Strategy policies would not give rise to any likely significant effects on the identified Natura 2000 sites either alone or in-combination with other plans and/or projects and therefore that an Appropriate Assessment was not required. The revised HRA again concluded that, even taking into account the

between 2012 and 2028 through strategic planning policies. Whilst taking into account sustainable development aims. • The plan aims to provide 70,000 new dwellings throughout the plan period. The majority of this housing will be located in the centre and to the south of the district. • In terms of employment the plan aims to provide 706,250sqm of office floorspace will be provided within the District, with a minimum of an additional 160,000sqm to be identified in or on the edge of the city centre and town centres. As well as this 493ha of general employment land will be provided in the District. Along with the Core Strategy, Leeds City Council is also in the process of finalising its land allocation document (part 2) of the Local Plan, this has been screened for in combination effects (see below).	Pre-Submission changes to the Core Strategy, Appropriate Assessment was not required as the new and amended policies did not give rise to any likely significant effects on the Natura 2000sites, either alone or in-combination with other plans and/or projects. Where needed, avoidance mechanisms had already been built into policies either in the Natural Resources and Waste DPD or the Core Strategy. No further updates to the HRA Report were made during the Examination. **Therefore, in-combination effects with the new the Calderdale Local Plan can be ruled out on the bases of the HRA. However this is only in relation to policies.**
Leeds City Council Site Allocations Plan Publication Draft (September 2015)	
Leeds is located to the east of the district of Calderdale separated by the districts of Bradford and Kirklees. Leeds is an important strategic link to Calderdale due to its size. Leeds contains a small amount of the **South Pennine Moors SPA (phase 2)** and **SAC** in the north west of the District. • The plan sets out the second part of the Leeds Local Plan 'site allocations' which provides site allocations and requirements that will help to deliver the Core Strategy policies, ensuring that sufficient land is available in appropriate locations to meet the policy objectives in the core strategy. • The plan allocates sites for housing and employment, and retail designations, safeguarded land and designations of Green space sites across Leeds. • The sites are distributed around the district on a mix of brownfield and Greenfield land. Assuming the plan is adopted, the Leeds local plan has been reviewed as much as possible at this stage.	**HRA conclusions:** During the formation of the Leeds City Council Site Allocations Plan Publication Draft a HRA was undertaken to determine any likely significant effect. The HRA concluded that based on this assessment and, it is considered that an Appropriate Assessment under the Habitats Regulations is not required. This is because it is considered that after Avoidance Measures have been applied, the sites proposed for allocation do not give rise to any potential Likely significant effects either alone or in-combination with other relevant Development Plan Documents (local plans). The HRA highlighted the avoidance measures such as commitments by the council to enhance Green space and Green Infrastructure provision within Leeds via the positive management of Green space within NW Leeds and delivery of the Chevin Forest Park Action Plan. These interventions serve to help manage the LSE of any recreational impacts upon the South Pennine Moors SPA (Phase 2), North Pennine Moors SPA and South Pennine Moors SAC and North Pennine Moors SAC. **Therefore in-combination effects with the Calderdale Local Plan can be ruled out on the bases of the Leeds Site Allocations HRA report.**
Wakefield Site Specific Local Plan (Adopted September 2012)	

Wakefield lies to the east of the district of Calderdale, separated by the districts of Kirklees. Wakefield contains the **Grange Colliery Ponds SAC**, however no other Natura 2000 sites are located within 10 km of it. **Development aims:** • The plan lists and identifies on the Policies Map, all the development sites necessary to meet the needs identified in the Core Strategy. It identifies the scale, type and location of new development and transport investment. • The plan allocates sites to meet the 20,552 new home target for the plan period • It also allocates an additional 95 ha of employment land for the plan period. • As well as this is plan allocates land for transport, green space and other designations. The plan has been reviewed as much as possible at this stage.	**HRA conclusions:** The HRA of the Wakefield plan only identified the Denby Grange Colliery Ponds SAC within the HRA screening process. On advice from Natural England a buffer of 2km was established around the site. It states that allocations outside the buffer zone will not have any direct or indirect impacts on the SAC, rather by focusing development away from the SAC the proposals actually have an indirect positive impact towards protecting it. Based on the assessment the HRA report concluded that "*policies in the Sites Plan would not result in any harm to Denby Grange Colliery Ponds SAC. By concentrating development in larger settlements and proposing new environmental and habitat protection allocations the Sites Plan will help to protect the integrity of the SAC".* **Therefore in-combination effects with the Calderdale Local Plan can be ruled out at this stage.**
Greater Manchester Combined Authority - Greater Manchester Spatial Framework	
The Greater Manchester Spatial Framework is in the early stages of its development. The GMCA recently produced a series of strategic options background papers which were published in November 2015. • It will manage the supply of land for jobs and new homes across Greater Manchester up to 2035. It will also identify the new infrastructure (such as roads, rail, Metrolink and utility networks). • It will be the overarching development plan within which Greater Manchester's ten local planning authorities can identify more detailed sites for jobs and homes in their own area. • One of the other main components of the framework will to look at the environmental capacity of Greater Manchester, setting out how we enhance and protect the quality of the natural environment; conserve wildlife and tackle low carbon and flood risk issues, so that we can accommodate growth sustainably. Due to the early nature of the framework it isn't possible to review and screen the potential in combination impacts at this stage. However the process of the plan will be monitored throughout the duration of the Local Pan HRA process .	**HRA conclusions:** Due to the fact that the Greater Manchester Spatial Framework is in the early stage of development no HRA work has been undertaken which is available for this HRA. It is however expected a HRA report will be produced for the plan which will be reviewed when available.

West Yorkshire Integrated Transport Authority- West Yorkshire Local Transport Plan (Adopted)	
The plan sets out the statutory plan for transport in West Yorkshire between 2011 and 2026. The plan local outlines the strategy transport planning and delivery in West Yorkshire, including: • maintenance; • operation and management of transport assets; • delivery and coordination of transport services; • provision of information under the Bus Information Duty; • influencing travel behaviour, and • making enhancements to the transport system. As well as the strategy the use of 'implementation plans' are highlighted to cover three year periods and be guided by amounts of funding available and local priorities for that period.	**HRA conclusions:** As part of the creation of the West Yorkshire Local Transport Plan and the requirement to undertake a HRA was incorporated into a single Integrated Sustainability Appraisal (ISA) which also incorporated the Strategic Environmental Assessment, Health Impact Assessment, and Equalities Impact Assessment. With respect to the HRA component the ISA identified Natura 2000 site within and 15km beyond West Yorkshire. The ISA outcomes list biodiversity, flora and fauna as being slightly adversely affected, however it states in relation to the HRA component that its likely as a result of implementation of the scheme there will be no significant increase in the incidence of killings of fauna, there is a small risk of physical loss of or damage to habitats, there is an increase risk to fauna. However as further schemes develop an Appropriate Assessment, under the terms of the Habitats Regulations, should be conducted, to determine local effects in certain buffer zone. Overall the assessment also concluded that the WYLTP will have no significant adverse environmental impacts, and will provide some benefits. These benefits include a reduction in CO_2 emissions from transport by 20% (as a result of mode shift, smoother traffic flows, new processes and support of new technologies). There are also predicted slight improvements in air quality generally. As the plan takes into account the growth of the district and shows that air quality will not be adversely affected. It also shows that individual transport projects are beyond the scope of the assessment but will be required to assess the project under the Habitats Regulations. **Therefore in-combination effects with the Calderdale Local Plan can be ruled out at this stage.**

Appendix 4: HRA Screening of the Calderdale Local Plan (example matrix)

Local Plan policy/ site	Likely activities resulting from the policy/site	Likely affects/impacts on Natura 2000 site (s) if implemented	Natura 2000 Sites affected	Potential Mitigation measures if implemented would avoid likely significant effect