

# **CC149d HABITATS REGULATIONS ASSESSMENT OF THE DRAFT CALDERDALE LOCAL PLAN - Air Quality Assessment**

## **Comment Submitted by Amanda & Mark Tattersall 21 March 2022**

We also rely on our previous written statements and comments made at hearings on air quality and transport (including our previous comment on CC149)

### **SAC/SPA Target is “Restore”**

#### **Statement of Common Ground CC149c**

#### **Calderdale Local Plan Causes Further Exceedance of N Deposition**

#### **N Deposition Emissions**

#### **N Deposition emissions and CC122b Smart Motorway Assumptions**

#### **Total Area of SAC Now Used in Assessment**

#### **Smart Motorway - Natural England Advice and Impact Likely to be Underestimated**

### **Appendix 1 Further points and additional information**

#### **1. SAC/SPA Target is “Restore”**

The target for the Special Area of Conservation and Special Protection Area is “Restore” (para 3.6.6). All 574 assessed receptors are shown to be exceeded for Nitrogen Deposition. There are also exceedances for NH<sub>3</sub> and NO<sub>x</sub>. Further deterioration will make it harder to achieve benchmark targets and will reduce the potential to restore any species previously lost because of air quality deterioration.

Para 6.2.3 says: *“However, caselaw has determined that ‘site integrity’ means keeping the site at a favourable conservation status and must be determined with reference to: ‘the lasting preservation of the constitutive characteristics of the site concerned that are connected to the presence of a priority natural habitat whose preservation was the objective justifying the designation of that site’<sup>38</sup>”*

#### **2. Statement of Common Ground CC149c**

In the Statement of common Ground Natural England agrees that *“...the Local Plan will not lead to any new or further exceedance of the critical loads or levels for **NO<sub>x</sub>** (either alone or in-combination with other plans or projects)...”* (our emboldening). Surprisingly, the other two types of emissions assessed for air quality in CC149d, Nitrogen Deposition and NH<sub>3</sub> (ammonia), are not included in this statement. Our particular concern is that Natural England has not agreed the same outcome for Nitrogen Deposition. The area said to be affected, some 0.008% (which, following a change of approach, is now based on the total South Pennine Moors SAC which extends below Sheffield) is a further exceedance of N Deposition (para 6.2.5 & 6.2.6). (The area of SPA affected is 0.024% (para 6.2.6.))

We believe that the Local Plan does cause a further exceedance of N Deposition and that this needs to be addressed by Natural England within the Statement of Common Ground. We also make further comment on the calculation of Nitrogen Deposition in point 4 below.

(The Statement of Common Ground mentions a document of Natural England’s response dated 22 September 2021. We note this document hasn’t been released for consideration.)

## 2a Calderdale Local Plan Causes Further Exceedance of N Deposition

(Following the Council’s change of approach, our comment now focuses on the Habitats of Principle Importance within the SAC/SPA, rather than all the SAC/SPA area impacted by increased emissions.)

Table 5 and Table 8 show that N Deposition is already exceeded in 2019. Table 8 shows that all 574 of the assessed receptors are in exceedance (and for each future scenario). It also confirms that there is an increase in N Deposition emissions with the Calderdale Local Plan. Isoleth map 12d “Local Plan Alone Change” shows an increase above the 1% criterion in a Habitat of Importance (HPI) area (blanket bog) in the top left corner by the A58 Rochdale Road (see our Appendix point 1).

The Isoleth maps are somewhat confusing. There is no initial map which shows the future baseline without the Local Plans. The first isopleth map provided for each of the emissions is the “Future Baseline” one, but in addition to the background emissions etc., this already includes the Kirklees Local Plan and Bradford Core Strategy (as detailed in para 3.5.12). The next map, the “Local Plan Alone”, as well as including the Calderdale Local Plan, also includes the Kirklees Local Plan and Bradford Core Strategy (the Future Baseline). The “In-combination” map simply takes the “Local Plan Alone” inputs and swaps the Bradford Core Strategy for the Bradford Emerging Plan. This may explain why there is little change between the “Local Plan Alone” and the “In-combination”.

The DMRB LA105 assessment criterion (which highlights receptors with a change >0.4 kgN/ha/yr) has largely been removed from this new version of CC149 (including Table 11) and is no longer mentioned in the conclusion in CC149d (PDF 47). However, the results can still be seen within Table 8 which shows that 7 receptors exceed this criterion for the “Local Plan Alone” scenario.

### 3. N Deposition Emissions

The N Deposition emissions appear to be underestimated as the Defra projected reduction in vehicle emissions has been applied which is contrary to guidance.

The large decrease in future emissions brought about from applying the DEFRA EFT v10.1 emissions toolkit is clearly seen in Tables 6 and 8 (for NO<sub>x</sub> and N Deposition). Excerpts from the tables are provided below. In the first row, the decrease between the 2019 base and the 2032 Future Baseline is quite dramatic, especially when considering that the Future Baseline also includes the Kirklees Local Plan and the Bradford Core Strategy (para 3.5.12).

Importantly, the NO<sub>x</sub> figures contribute to the N Deposition figures, but have been greatly reduced by the projected reduced emissions by the DEFRA toolkit. Several paragraphs in the suite of CC149 documents highlight the reductions should not be used for the N Deposition calculation (including the background rate being fixed at 26.6 kgN/ha/yr for N Deposition with no future reduction). Clarification is provided below.

We believe the N Deposition results are therefore underestimated and should be reconsidered as they include vehicle emission reductions in their calculation from the NO<sub>x</sub> source.

**Table 6 – Summary of predicted changes in annual mean NO<sub>x</sub> concentrations at transect receptors within South Pennine Moors**

Annual Mean NO <sub>x</sub> Parameter (µg/m <sup>3</sup> )	Sc. 1 2019 Base	Sc. 2 2032 Fut Base <sup>1</sup>	Sc. 3 2032 With Local Plan Only <sup>2</sup>	Sc. 4 2032 With Local Plan + Bradford <sup>2,3</sup>
Max. Roadside Contribution (Model)	102.0	29.2	33.1	33.1
Max. Total Concentration (Model + Background)	119.8	39.3	43.3	43.3
Number of receptors exceeding benchmark (30 µg/m <sup>3</sup> )	136	6	7	7
Total number of receptors (28 transects)	574	574	574	574

**Table 8 – Summary of predicted changes in N-deposition rates at transect receptors within South Pennine Moors**

N-Deposition Parameter (kgN/ha/yr)	Sc. 1 2019 Base	Sc. 2 2032 Fut Base <sup>1</sup>	Sc. 3 2032 With Local Plan Excluding Cumulative <sup>2</sup>	Sc. 4 2032 With Local Plan Including Cumulative <sup>2,3</sup>
Max. Roadside Contribution ( <i>Model</i> )	17.0	15.0	17.7	17.7
Max. Total Concentration ( <i>Model + Background</i> )	43.6	41.6	44.3	44.3
Number of receptors exceeding benchmark (5 kgN/ha/yr)	574	574	574	574
Total number of receptors (28 transects)	574	574	574	574

**Clarification**

- CC149d Para 3.7.4 confirms Defra;s EFT v10.1 have been applied:

*“Vehicle emissions of NOx have been derived using Defra’s EFT v10.1 emissions factors, which represent the latest version of the EFT at the time of completing this assessment...”*

- CC149d PDF 34 & 35 confirms that both NO<sub>x</sub> and NH<sub>3</sub> are converted and contribute to N Deposition

*4.3.10. Modelled road contributions to NOx concentrations at each receptor were converted to modelled road NO2 contributions using the Defra NOx to NO2 calculator (v8.1), then **both NO2 and NH3 road contributions were converted to dry N-deposition rates** (our emboldening) using specific conversion factors, as detailed below:*

- *Grassland and similar habitats:*
  - 1 µg/m<sup>3</sup> of NO<sub>2</sub> = 0.14 kg N/ha/yr
  - 1 µg/m<sup>3</sup> of NH<sub>3</sub> = 5.19 kg N/ha/yr

*4.3.11. The dry N-deposition rates from modelled road sources were subsequently added to the maximum average background deposition (26.6 kg N/ha/yr as detailed in **Table 5**) to derive the total annual N-deposition rate.*

- CC149a confirms that reduced emissions cannot be scientifically relied upon:

CC149a Council’s Response to Natural England (PDF 4)

*“Further, the calculations used within the report are highly precautionary, and the likely increase in zero-emission vehicles within the national fleet will see a reduction in the N-deposition from road traffic, **though this cannot be scientifically relied upon at this stage.**”* our emboldening

- CC149d. The footnote to Table 5 confirms that guidance dictates that the background N Deposition rate is not reduced for the future:

*^ Background N-deposition rate not reduced for the future assessment year (2032), which is in line with the current IAQM<sub>14</sub> and DMRB guidance<sup>15</sup>*

CC149d Para 3.7.6 CREAM calculator applied for NH<sub>3</sub>

(note: CREAM means Calculator for Road Emissions of Ammonia and is a vehicle emissions toolkit to derive ammonia (NH<sub>3</sub>))

**3.7.6.**

*“...However, the evidence that is available supports a conclusion that the impacts on roadside nitrogen deposition from ammonia are at least of a similar magnitude to that from nitrogen oxides<sup>14</sup>.*

*3.7.7. The key features of the CREAM calculator are that:*

- 1. Petrol vehicles emit significantly more ammonia than diesel vehicles; and*
- 2. Emissions from petrol vehicles are not expected to improve over time.*

*3.7.8. The first feature arises from observation of vehicle emissions using remote sensing. The second is a precautionary position, based on uncertainty over the performance of 3-way catalysts as Euro 5 and 6 vehicles age and uncertainty in relation to emissions from hybrid petrol vehicles. Therefore, the CREAM tool is conservative with respect to deriving ammonia emissions from vehicles in future years (e.g. 2030 in this assessment), by which time emissions from vehicles would be expected to have improved with a shift towards zero emission vehicles.” (Our underlining)*

- CC132 Para 5.1.3 confirms DEFRA EFT v10.1 takes fully electric/zero emission vehicles into account:

*“...Euro 6 diesel emissions are better represented in the updated EFTv10.129 which has been used in this assessment. Although there is greater confidence in EFT v10.1, modal shift to public transport and the rate of uptake of cleaner electric vehicles are difficult to predict. **EFT v10.1 predicts that 7.5% of car vehicle-kilometres on England’s urban roads in 2030 will be by fully electric vehicles, with the equivalent values for rural roads and motorways being 7.2% and 6.8% respectively...**” our emboldening*

### **3a N Deposition emissions and CC122b Smart Motorway Assumptions**

The above comment is also relevant to the Council’s recent amendment to document CC122b (14 March 2022) which seeks to address the implications of the pausing of the delivery of the Smart Motorway. In CC122b, the Council, in part, relies on DEFRA’s projected reduction of vehicle emissions when considering the relevance of the 7% Smart Motorway uplift. The Council appears to conclude that the 7% increase will be reduced because of DEFRA’s projected reduction of vehicle emissions and that which remains will not be significant within the context of the results in CC149d

## **4. Total Area of SAC Now Used in Assessment**

We question the Council’s change of approach which produces an overall lower percentage of negative impact on the SAC/SPA. However, we do acknowledge that because of the other further changes in approach, this still results in a relatively small percentage (however, please see our other points, including on the underestimation of N Deposition).

In CC149d the Council changed its approach for how it calculates the percentage of the negative impact of the various pollutants on the SAC/SPA (note the SPA is smaller and is wholly within the SAC, so overlaps). In CC149 (para 5.5.2) the area of deterioration was calculated against “the relevant area”, some **18,237 ha**, which was the area of SAC/SPA within Calderdale (**around 9,000ha**) plus some further area just beyond its boundary to include the affected road network. (Note: the modelled grid area is **6,130ha**.)

CC149d now calculates the impact on the whole of the SAC which extends below Sheffield and is some **65,024ha**. We do not believe that this is a suitable comparison, including for deciding the impact on the integrity of the

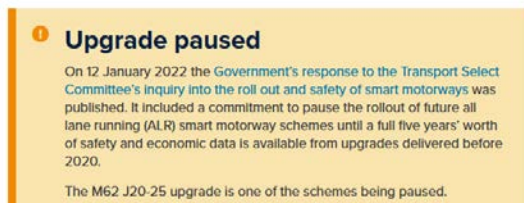
SAC/SPA sites. Other authorities may also have a negative impact on the overall area of the SAC. Following the different approach, Table 10 now shows that 0.4% of the SAC area has Nitrogen Deposition deterioration. This was previously 1.6%.

The Council has also now looked further into the types of areas impacted in the SAC/SPA. Following this, just the Habitats of Principle Importance area are left at the end of the assessment. We can see the reasoning for this approach, although we do not know if it is a recognised or suitable approach. For example, whether the discounted land may serve other purposes to support the SAC/SPA. The Twite (a Special Protection Area interest feature and locally known as the Pennine Finch) are known to breed 300metres from the M62 and are on the brink of extinction in England, may have some relevance to the discounted areas.

The document concludes that the Calderdale Local Plan will potentially cause damage to 5ha of the SAC/SPA (N Deposition 1% significance criterion), which is equated to 0.008% of the total SAC area (65,024ha). We do not think it is a suitable comparison to base the calculation for damage specifically to the Habitats of Principle Importance on the overall total area of the SAC and disagree with this approach.

## **5. Smart Motorway - Natural England Advice and Impact Likely to be Underestimated**

Excerpt below from National Highway's website which shows that the upgrade for the M62 junction 20 to 25 Smart Motorway has been paused:



We have previously made submissions that the Council's application of a 7% uplift for the Smart Motorway upgrade is lower than the figures Highways England's assessment produces. Highways England project an increase of traffic flow of between 10-17%:

Highways England EAR PDF 75 2.6.10 *"...The largest traffic changes are at the Proposed Scheme location where traffic flows increase by up to 10%, 17%, 12% in the AM, IP and PM periods respectively..."*

Excerpt below from Highways England Smart Motorway Report which highlights future capacity issues on the M62. Highways England Environmental Assessment Report for Smart Motorway Junction 20 to 25 (PDF25)

**2.1.3** Preliminary forecasts for 2031 show that vehicle capacity on this stretch of motorway is approaching capacity (over 80%) in AM peak in the eastbound direction and in the PM peak in the westbound direction. The forecasts show that capacity is likely to be above operational capacity in the eastbound direction between junction 22 and junction 25 in the AM peak and in the westbound direction between junction 20 and junction 23.

- Natural England has clearly said that the assessment for the Smart Motorway upgrade, undertaken by Highways England (now National Highways), should be taken into account:

CC149d Para 1.1.6 - *"As part of the scope for the initial technical note2, Natural England advised that "...the assessment undertaken by Highways England for the M62 Smart Motorway upgrade project should be taken into account"*

- Para 3.5.14 below confirms that the air quality assessment applies a 7% traffic flow uplift for the proposed Smart Motorway scheme (junctions 20-25) and also confirms which junctions it bases this uplift on.

Importantly, the changes observed at these junctions are for a shorter period than the Local Plan (so may increase further in future years).

*“...A 7% growth factor was adopted subsequent to reviewing the observed changes in traffic flows associated with the M62 Junction 26-27<sup>27</sup> and the M1 Junctions 25-28<sup>28</sup> Smart Motorway projects.”*

- WSP document CC122/TN14 is clear that the Smart Motorways scheme is a key form of mitigation for the planned growth in Calderdale:

*4.1.7 “...considered a key form of mitigation for the Strategic Road Network to be able to accommodate planned growth in Calderdale and elsewhere in the region.”*

Table 5.1 concludes that no intervention is required on the M62 Mainline as the Smart Motorway is planned.

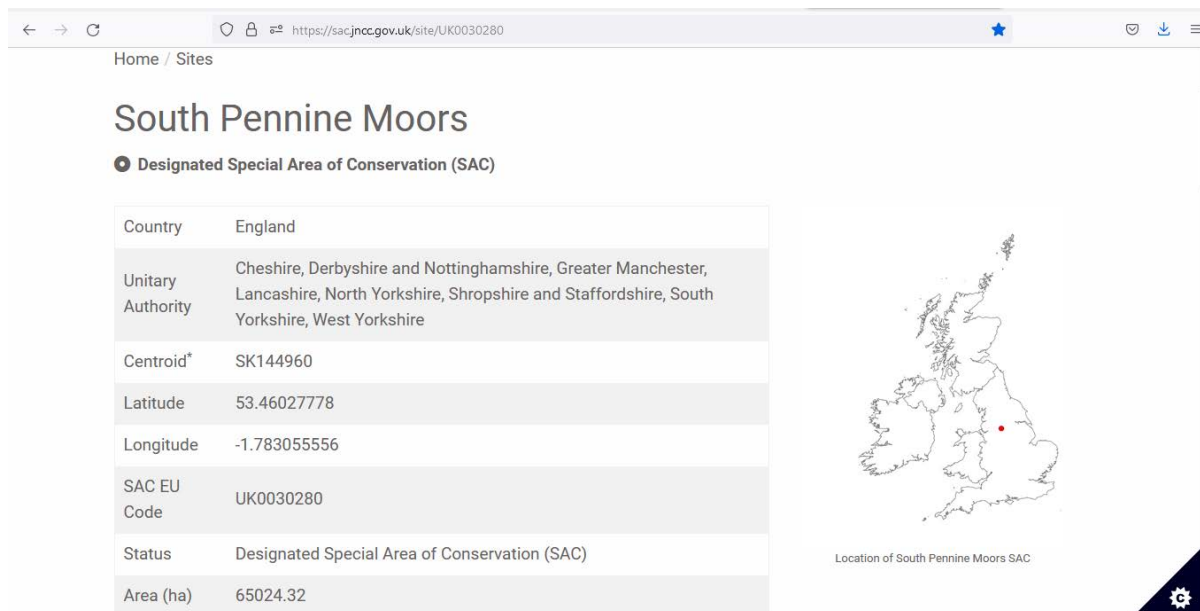
The Local Plan needs to be clear about the need for the Smart Motorway before it is approved. One of the reasons is because there are current safety concerns, with the safety of Smart Motorways currently being investigated. Approving the Local Plan on the understanding the Smart Motorway is not a requirement and then that position changing later would create extra pressure for the Smart Motorway to go ahead, which could be at odds with current safety concerns.

## **Appendix 1 Further points and additional information**

### **Point 1**

The Council has changed its approach in CC149d and now calculates the exceedances in the SAC on the total area of the SAC (65,024ha).

JNCC website below confirms the SAC total area. The total area of the Special Area of Conservation is 65,024ha and extends below Sheffield (the Special Protection Area Phase 2 is smaller and is wholly within the SAC).

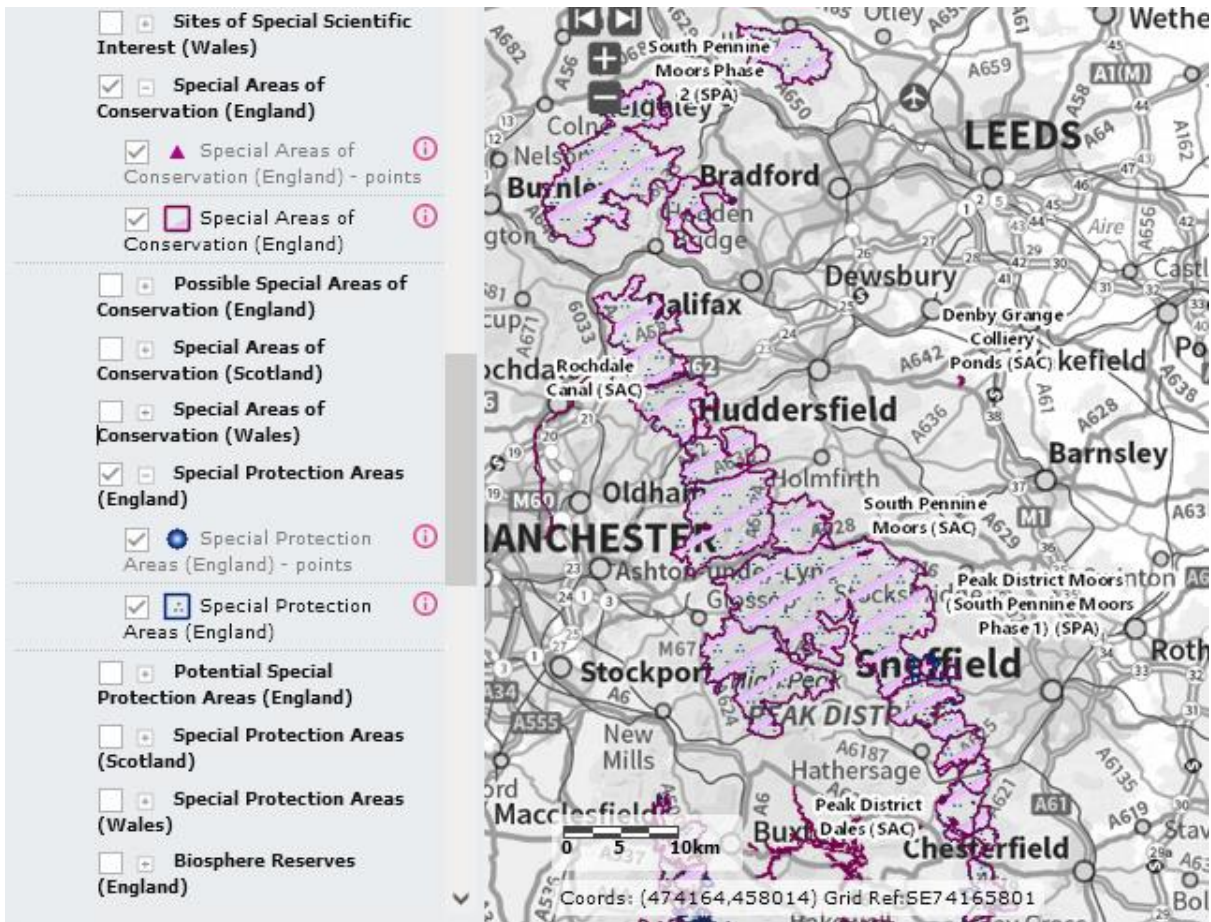


The screenshot shows a web browser window with the URL <https://sac.jncc.gov.uk/site/UK0030280>. The page title is "South Pennine Moors" and it is identified as a "Designated Special Area of Conservation (SAC)". A table provides the following details:

Country	England
Unitary Authority	Cheshire, Derbyshire and Nottinghamshire, Greater Manchester, Lancashire, North Yorkshire, Shropshire and Staffordshire, South Yorkshire, West Yorkshire
Centroid*	SK144960
Latitude	53.46027778
Longitude	-1.783055556
SAC EU Code	UK0030280
Status	Designated Special Area of Conservation (SAC)
Area (ha)	65024.32

To the right of the table is a map of the United Kingdom with a red dot indicating the location of the South Pennine Moors SAC. Below the map is the text "Location of South Pennine Moors SAC".

Magic Maps below showing the extent of the SAC. (The SPA Phase 2 is also shown)

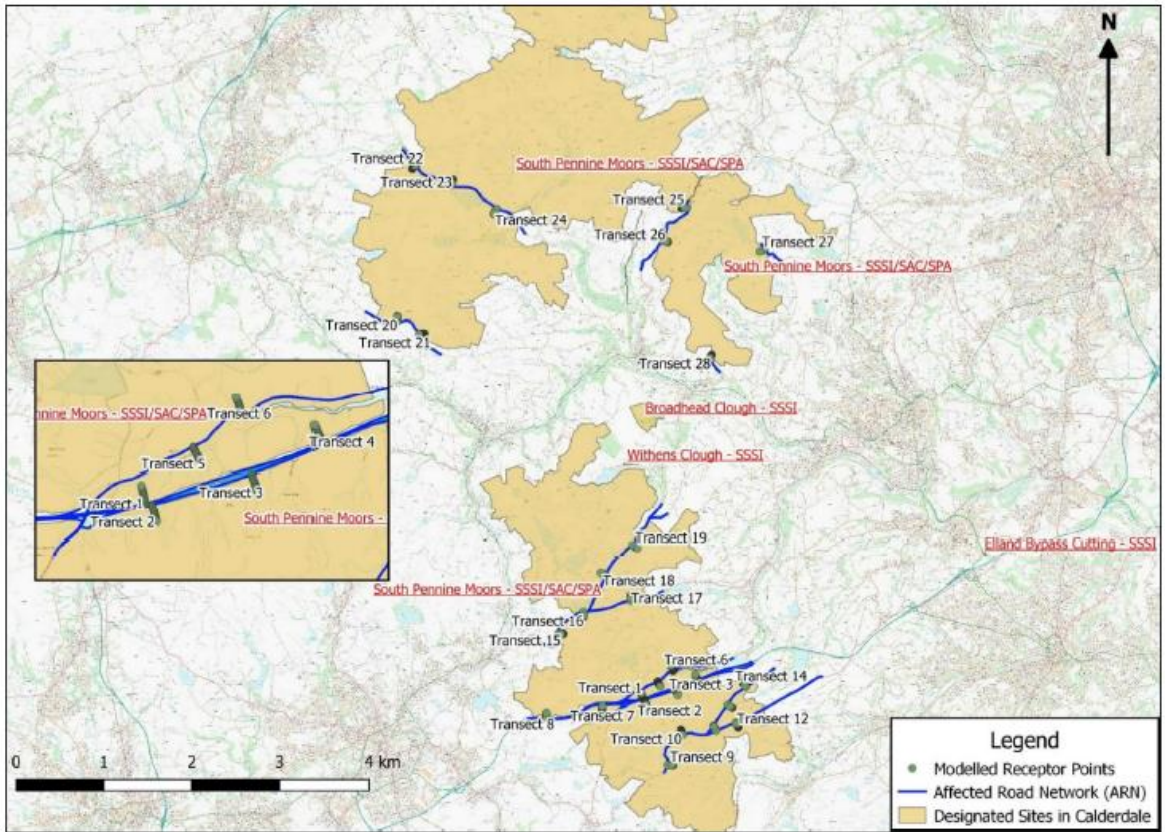


CC149d Para 4.3.1 below appears to be referring to the total area of the SAC, but Figure 1 in CC149d does not show the full extent of the SAC (shown in “Magic Maps” above.)

*“The South Pennine Moors has overlapping designations as a SAC and SPA, being the only designated sites that are located within 200 m of an affected road link and thus form the focus of this assessment. The South Pennine Moors covers a large area and is split into two main locations (north and south), as shown in Figure 1”*

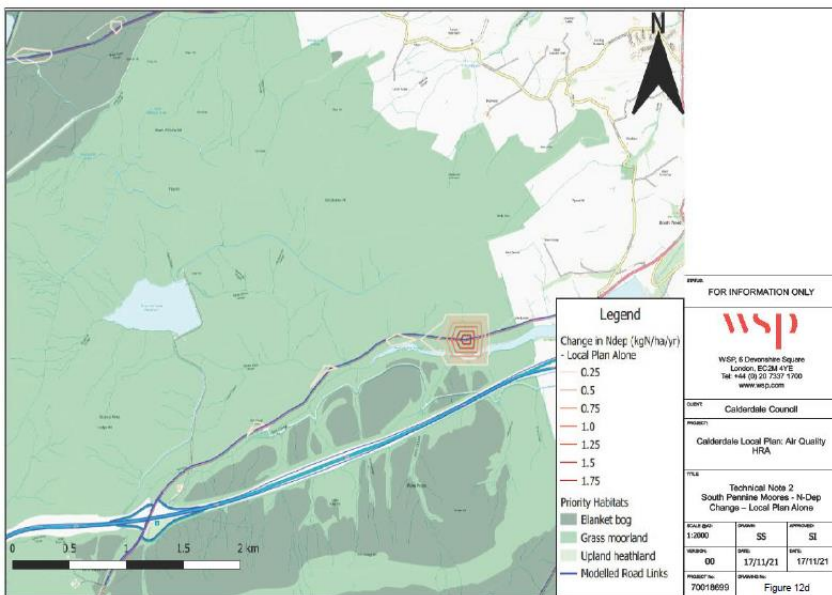
CC149d (PDF 50) Figure 1 – Modelled area:

Figure 1|– Modelled Affected Road Network and Receptor Transects



**Point 2**

Figure 12d which shows the Nitrogen Deposition exceedance (by the A58 top left corner) for the Local Plan change.



**Point 3**

Figure maps 9a and 9b (below) do not show all the Habitats of Principle Importance area within Calderdale and appear to be restricted to the modelled area.

Figure Series 9 – Habitats of Principal Importance

