



**Assesment of Impact as a % of Critical Load****WHITMOOR COMMON**

Estimated Worst Case Background 2020	Critical Load*	Worst case process cont	PEC	PEC as % of Critical load	
11.2	10	0.018	11.22	112	
11.2	20	0.018	11.22	56	

**IS IMPACT LESS THAN 1% OF CRITICAL LOAD?**

Where critical load is taken as

10	0.175	NO
20	0.088	YES

**IS PEC LESS THAN 70% OF CRITICAL LOAD?**

10	112	NO
20	56	YES

**\*CRITICAL LOADS****APIS 2011****kg N ha-1 y-1**Northern Atlantic wet Heaths  
with Erica tetralix

10 - 20

**APIS 2011****kg N ha-1 y-1**WOODLARK NIGHTJAR AND  
DARTFORD WARBLER

10 - 20

**Assesment of Impact as a % of Critical Load****WHITMOOR COMMON**

Distance (m)	Estimated Worst Case Background 2020	Critical Load*	Worst case process   PEC	PEC as % of Critical load	
5	10.78	10	0.018	10.80	108
10	10.78	10	0.016	10.80	108
50	10.78	10	0.007	10.79	108
100	10.78	10	0.002	10.78	108

**IS IMPACT LESS THAN 1% OF CRITICAL LOAD?**

Where critical load is taken as

5	10	0.175	NO
10	10	0.161	NO
50	10	0.067	YES
100	10	0.022	YES

**Distance Regression (Exponential)**

DISTANCE	EXPONENTIAL
10	0.1598
<b>35</b>	<b>0.0922</b>
50	0.0663

**\*CRITICAL LOADS****APIS 2011**Northern Atlantic wet Heaths  
with Erica tetralix**kg N ha-1 y-1**

10 - 20

**APIS 2011**WOODLARK NIGHTJAR AND  
DARTFORD WARBLER**kg N ha-1 y-1**

10 - 20

DMRB Volume 11 Section 3 Part 1 HA 207/07

Assessment of Designated Sites Annex F

**1. Identify Sensitive Site**

Is the site sensitive to N deposition?

Whitmoor Common SPA (within 200m of A320)

**Part of Thames Basin Heaths**

SPA due to three bird species - See APIS

All sensitive to Nitrogen - See APIS

## 2. Obtain total average N deposition for 5km grid square

See APIS

Whitmoor Common SPA - Location for SSSI units 8 & 9\* - SU993538 & SU 996536

[www.gridreferencefinder.com](http://www.gridreferencefinder.com) - 499300, 153800 / 499600, 153600

NB - Location ~200m & 130m from A320

[www.apis.ac.uk](http://www.apis.ac.uk) - search database by habitat or species - Site Relevant Critical Loads

Therefore:

Species	2005 N deposition (kg/ha/yr)	2020 N deposition (kg/ha/yr)
Woodlark	16.24	10.78
Nightjar	16.24	10.78
Dartford Warbler	16.24	10.78

TYPICAL N DEPOSITION FOR CALCULATION 10.78

\*[www.english-nature.org.uk](http://www.english-nature.org.uk)

SSSI Whitmoor Common	2005 N deposition (kg/ha/yr)	2020 N deposition (kg/ha/yr)
Northern Atlantic wet Heaths with Erica tetralix	17.07	11.2

### 3. Obtain NO2 and NOX background

Air Quality Archive - <http://uk-air.defra.gov.uk/>

Local Air quality Managment (LAQM) - Tools for LAQM - Background Maps - Nox NO2 etc 2008 background maps - download CSV 2008 2020 background maps

Select Authority - Select Pollutants (NO2 -Nox) - Select year (2010) - Get data - save

Locate grid ref (see previous sheet)

Therefore:

Best Grid ref to 499300, 153800 / 499600, 153600

Grid Ref chosen	NO2 2020	NOX 2020
498500, 153500	8.12	10.6

\*NB this location is within Guildford Borough Council and is approx 370m from roadside. Guidance recommends background is taken from up to 4km away so that road contrib is not double Counted. Road contribution to Nox is calculated here as at ~1.6ug/m3

**4. Calculate the NO2 Concentration in transect near the road**

See typical DMRB screening

**Most App Background for Whitmoor Common 2020 (Only Available to 2020 - can use as worst case)**

<b>Nox</b>	<b>NO2</b>	
500500, 161500	10.87	8.19

With out dev flows A		With Dev (scenario D) flows A320	WITH MINUS WITHOUT		% HGV without	with	Ave Speed (kph)		WORST CASE PC
20052		22542	2490		5	4	without	with	
					AVERAGE		4.5	AVERAGE	78.3
Receptor number	Name	Year	NO <sub>x</sub>		NO <sub>2</sub> *		Annual mean	Annual mean	
			Annual mean µg/m³		Annual mean				
1	Whitmoor Common A320 without 5m	2025	24.08		12.33				
2	Whitmoor Common A320 with 5m	2025	24.72		12.50				0.18
3	Whitmoor Common A320 without 10m	2025	22.77		11.97				
4	Whitmoor Common A320 with 10m	2025	23.35		12.13				0.16
5	Whitmoor Common A320 without 50m	2025	14.92		9.61				
6	Whitmoor Common A320 with 50m	2025	15.13		9.68				0.07
7	Whitmoor Common A320 without 100m	2025	11.89		8.59				
8	Whitmoor Common A320 with 100m	2025	11.95		8.61				0.02

\* See traffic analysis for derivation of AADF

**NB IS WITH MINUS WITHOUT GREATER THAN 1000? FURTHER ANALYSIS REQUIRED**

**5. Estimate the dry deposition of NO2 in a transect near the road**

Distance from Road	NO2 2020	N deposition 2020*
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5m	0.18	0.018
10m	0.16	0.016
50m	0.07	0.007
100m	0.02	0.002

\* As per EMEP Eulerian photochemistry model see Annex F



**6. Determine the road increment to NO2 dry deposition**

Step 6 not clear. Therefore :

APIS Background N for this location in 2020	10.78
Calculated 'process contribution' N deposition for this location at 5m*	0.018
Calculated 'process contribution' N deposition for this location at 10m*	0.016
Calculated 'process contribution' N deposition for this location at 50m *	0.007
Calculated 'process contribution' N deposition for this location at 100m*	0.002

\* Based upon Annex F instructions