



# **Norwich Western Link**

## **Environmental Statement**

### **Chapter 10: Biodiversity**

#### **Appendix 10.34: Air Quality Ecological Impact Assessment**

##### **Sub Appendix C: Results**

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## 1 Sub-Appendix C – Maximum Effect of Air Quality Changes

1.1.1 It is to be noted that some transects may refer to more than one Site due to proximity to neighbouring Sites or overlapping designations. Therefore, the extent of the impact may differ between Sites dependent on their total size. Percentage impact therefore refers to the Sites, respectively.

**Table C-1 Potentially Adverse Significant Effects from Nitrogen Deposition upon Sites in Opening Year (2029)**

Transect no.	Site Name	Max Baseline (2019) N-dep (kg/ha/yr)	Max transect (DM 2029) total N-dep (kg/ha/yr)	Max transect (DS 2029) total N-dep (kg/ha/yr)	Difference in N-dep (kg/ha/yr) between DS and DM Scenario (i.e. max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of Site experiencing increase in N-dep greater than 1% of CLd)
ECO54	Alderford Common SSSI	49.94	45.05	45.56	0.51	2.6%	3	4.0%
ECO35	Attebridge Hills CWS	45.46	40.50	41.87	1.37	13.7%	90	77.8%
ECO53	Broom & Spring Hills CWS	45.26	40.47	42.80	2.33	23.3%	50	100.0%
ECO72	Church Wood Ancient Woodland	42.07	37.97	38.17	0.20	2.0%	32	1.4%
ECO85	Fakenham Road RNR	27.37	24.50	34.43	9.93	99.3%	0.00	100.0%
ECO86	Fakenham Road RNR	27.72	24.84	30.53	5.69	56.9%	16.00	100.0%
ECO16	Land Adjoining Foxburrow Plantation Wildlife Site	25.17	22.58	26.31	3.74	24.9%	20	80.6%
ECO37	Land Adjoining Foxburrow Plantation Wildlife Site	25.17	22.57	23.69	1.12	7.5%	60	80.6%



Transect no.	Site Name	Max Baseline (2019) N-dep (kg/ha/yr)	Max transect (DM 2029) total N-dep (kg/ha/yr)	Max transect (DS 2029) total N-dep (kg/ha/yr)	Difference in N-dep (kg/ha/yr) between DS and DM Scenario (i.e. max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of Site experiencing increase in N-dep greater than 1% of CLd)
ECO13	Marriott's Way Wildlife Site	49.00	43.61	44.91	1.30	13.0%	5	0.3%
ECO55	Norfolk Valley Fens SAC/ Potter & Scarning Fens, East Dereham SSSI	36.39	35.09	35.65	0.56	5.6%	4	0.1%/ 4.9%
ECO18	Old Covert, Wood Lane	43.96	39.71	40.38	0.88	8.8%	70	43.9%
ECO38	Primrose Grove Ancient Woodland	45.26	40.47	41.13	0.66	6.6%	110	100.0%
ECO38	Primrose Grove CWS	45.26	40.47	42.68	2.21	22.1%	30	100.0%
ECO62	Primrose Grove CWS/ Ancient Woodland	45.25	40.46	42.48	2.02	20.2%	36	100.0%
ECO63	Primrose Grove CWS	45.28	40.48	42.05	1.57	15.7%	80	100.0%
ECO82	River Tud at Easton and Honingham	22.96	38.42	38.92	0.50	5.0%	0.00	1.0%
ECO81	River Tud at Easton and Honingham	22.94	30.21	30.54	0.33	3.3%	12.00	1.0%
ECO84	River Tud at Easton and Honingham	23.18	32.04	32.63	0.60	6.0%	0.00	1.0%
ECO83	River Tud at Easton and Honingham	23.98	22.36	22.51	0.15	1.5%	36.00	1.0%
ECO28	River Wensum SAC River Wensum SSSI/ River Wensum Pastures	25.47	22.77	33.07	10.31	68.7%	4	0.9%/ 0.9%/ 59.9%
ECO39	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures	25.46	22.77	34.58	11.82	78.8%	4	0.9%/ 0.9%/ 59.9%



Transect no.	Site Name	Max Baseline (2019) N-dep (kg/ha/yr)	Max transect (DM 2029) total N-dep (kg/ha/yr)	Max transect (DS 2029) total N-dep (kg/ha/yr)	Difference in N-dep (kg/ha/yr) between DS and DM Scenario (i.e. max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of Site experiencing increase in N-dep greater than 1% of CLd)
ECO7	Walsingham Plantation CWS	44.04	39.30	39.73	0.43	4.3%	150	100.0%
ECO21	Walsingham Plantation CWS	49.33	41.72	42.74	1.03	10.3%	8	100.0%

**Table C-2 Potentially Adverse Significant Effects from NH3 upon Sites in Opening Year (2029)**

Transect no.	Site Name	Max Baseline (2019) NH3 (µg/m3)	Max transect (DM 2029) total NH3 (µg/m3)	Max transect (DS 2029) total NH3 (µg/m3)	Difference in NH3 (µg/m3) between DS and DM Scenario (i.e. max NH3 impact)	Change in NH3 between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% site experiencing increase in NH3 greater than 1% of CLvl)
ECO54	Alderford Common SSSI	3.63	3.76	3.82	0.05	1.8%	3	2.5%
ECO35	Attebridge Hills CWS	3.17	3.21	3.34	0.13	12.9%	90	61.9%
ECO53	Broom & Spring Hills CWS	3.21	3.24	3.44	0.20	20.4%	50	100.0%
ECO2	Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation	2.96	3.25	3.27	0.01	1.4%	64	2.6%
ECO72	Church Wood Ancient Woodland	2.72	2.97	2.99	0.02	2.0%	32	6.2%
ECO85	Fakenham Road RNR	3.35	3.44	5.10	1.66	166.0%	0	100.0%
ECO86	Fakenham Road RNR	3.40	3.50	4.44	0.94	94.0%	16	100.0%

<b>Transect no.</b>	<b>Site Name</b>	<b>Max Baseline (2019) NH3 (µg/m3)</b>	<b>Max transect (DM 2029) total NH3 (µg/m3)</b>	<b>Max transect (DS 2029) total NH3 (µg/m3)</b>	<b>Difference in NH3 (µg/m3) between DS and DM Scenario (i.e. max NH3 impact)</b>	<b>Change in NH3 between DS and DM Scenario as a percentage of CLvl</b>	<b>Min distance from road centre line of which changes exceed 1% (metres)</b>	<b>Total Extent of impact (% site experiencing increase in NH3 greater than 1% of CLvl)</b>
ECO16	Land Adjoining Foxburrow Plantation CWS	3.11	3.15	3.72	0.57	57.4%	20	97.5%
ECO37	Land Adjoining Foxburrow Plantation CWS	3.11	3.15	3.31	0.16	16.2%	60	97.5%
ECO13	Marriott's Way CWS	3.65	3.68	3.81	0.14	13.6%	5	<0.1%
ECO55	Norfolk Valley Fens SAC/ Potter & Scarning Fens, East Dereham SSSI	4.60	5.24	5.33	0.09	9.3%	4	0.9%/ 8.1%
ECO18	Old Covert, Wood Lane, CWS	3.11	3.71	3.25	0.07	6.9%	80	35.2%
ECO38	Primrose Grove Ancient Woodland	3.21	3.24	3.29	0.05	5.1%	110	100.0%
ECO38	Primrose Grove CWS	3.21	3.24	3.43	0.19	19.1%	30	100.0%
ECO62	Primrose Grove CWS/ Ancient Woodland	3.21	3.24	3.41	0.17	17.1%	36	83.3%/ 100.0%
ECO63	Primrose Grove CWS	3.21	3.24	3.37	0.13	13.4%	80	100.0%
ECO82	River Tud at Easton and Honingham	2.47	5.44	5.51	0.07	6.8%	0	0.4%
ECO81	River Tud at Easton and Honingham	2.47	4.07	4.11	0.05	4.5%	12	0.4%
ECO84	River Tud at Easton and Honingham	2.49	4.37	4.46	0.09	8.9%	0	0.4%
ECO83	River Tud at Easton and Honingham	2.59	2.78	2.80	0.02	2.0%	36	0.4%



Transect no.	Site Name	Max Baseline (2019) NH3 (µg/m3)	Max transect (DM 2029) total NH3 (µg/m3)	Max transect (DS 2029) total NH3 (µg/m3)	Difference in NH3 (µg/m3) between DS and DM Scenario (i.e. max NH3 impact)	Change in NH3 between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% site experiencing increase in NH3 greater than 1% of CLvl)
ECO28	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	3.12	3.15	4.87	1.72	171.7%	4	1.4%/ 1.4%/ 84.6%
ECO39	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	3.12	3.15	5.12	1.97	197.3%	4	1.4%/ 1.4%/ 84.6%
ECO7	Walsingham Plantation CWS	3.13	3.16	3.20	0.04	3.5%	150	100.0%
ECO21	Walsingham Plantation CWS	3.56	3.42	3.53	0.11	10.8%	8	100.0%

**Table C-3 Potentially Beneficial Significant Effects from N-dep upon Sites in Opening Year (2029)**

Transect no.	Site Name	Max Baseline (2019) N-dep (kg N/ha/yr)	Max transect (DM 2029) total N-dep (kg N/ha/yr)	Max transect (DS 2029) total N-dep (kg N/ha/yr)	Difference in N-dep (kg N/ha/yr) between DS and DM Scenario (i.e., max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of Site experiencing decrease in N-dep greater than 1% of CLd)
ECO36	Attebridge Hills CWS	62.52	56.33	55.10	-1.24	-12.37%	4	2.0%
ECO61	Brook House Marshes CWS	31.73	23.39	22.67	-0.72	-7.24%	8	7.2%
ECO65	Church Hill Common CWS	44.00	40.91	39.15	-1.76	-17.61%	3	8.8%
ECO67	Costessey Pits (East) CWS	26.27	24.67	23.92	-0.74	-7.45%	8	21.8%
ECO78	Earlham and Colney Marshes CWS	33.44	31.96	31.29	-0.67	-4.48%	7	5.1%
ECO80	East Hills CWS	48.79	46.26	43.97	-2.29	-22.95%	5	6.5%
ECO64	Hellesdon Pastures CWS	26.66	23.96	23.67	-0.29	-2.91%	21	6.5%
ECO79	Horsham Meadows CWS	24.15	22.28	22.09	-0.19	-1.95%	17	5.2%
ECO76	Intwood Carr CWS	70.58	64.75	64.16	-0.59	-5.88%	9	2.4%
ECO69	Jennis' Wood & Dryhill Plantation CWS	44.91	41.98	39.95	-2.03	-20.32%	2	18.9%
ECO1	Mouse Wood CWS	43.90	43.98	40.22	-3.76	-37.57%	5	57.8%
ECO18	Old Covert, Wood Lane, CWS	43.95	44.59	40.44	-4.15	-41.55%	5	29.8%
ECO50	River Wensum SAC/ River Wensum SSSI	27.39	23.15	22.08	-1.07	-7.12%	3	0.2%
ECO42	River Wensum SAC/ River Wensum SSSI	38.63	33.25	32.77	-0.48	-3.17%	4	0.2%/0.2%
ECO66	River Wensum SAC/ River Wensum SSSI	35.30	30.49	30.14	-0.35	-2.32%	4	0.2%/0.2%



Transect no.	Site Name	Max Baseline (2019) N-dep (kg N/ha/yr)	Max transect (DM 2029) total N-dep (kg N/ha/yr)	Max transect (DS 2029) total N-dep (kg N/ha/yr)	Difference in N-dep (kg N/ha/yr) between DS and DM Scenario (i.e., max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of Site experiencing decrease in N-dep greater than 1% of CLd)
ECO75	River Wensum SAC/ River Wensum SSSI	38.19	35.34	32.94	-2.40	-15.97%	5	0.2%/0.2%
ECO74	River Wensum SAC/ River Wensum SSSI	35.01	32.04	30.38	-1.66	-11.07%	4	0.2%/0.2%
ECO68	Snake Wood Ancient Woodland	48.45	40.49	38.48	-2.00	-20.03%	3	47.8%
ECO48	Sweetbriar Road Meadows, Norwich SSSI	34.21	31.80	30.88	-0.92	-9.19%	9	19.1%
ECO8	Taverham Mill CWS	44.15	40.17	39.57	-0.60	-6.01%	8	7.8%
ECO31	Weston Meadow CWS	29.66	25.72	24.38	-1.34	-13.44%	4	39.6%

**Table C-4 Potentially Beneficial Significant Effects from NH<sub>3</sub> upon Sites in Opening Year (2029)**

Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of site experiencing decrease in NH <sub>3</sub> greater than 1% of CLvl)
ECO36	Attebridge Hills CWS	4.71	5.06	4.92	-0.14	-14.10%	4	1.8%
ECO25	Botany Bay Farm CWS	3.34	3.53	3.51	-0.02	-2.24%	5	1.3%
ECO61	Brook House Marshes CWS	3.86	3.17	3.05	-0.12	-11.95%	8	12.3%
ECO65	Church Hill Common CWS	3.07	3.29	3.10	-0.19	-18.72%	3	7.6%



Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of site experiencing decrease in NH <sub>3</sub> greater than 1% of CLvl)
ECO67	Costessey Pits (East) CWS	3.21	3.49	3.36	-0.13	-12.65%	8	19.0%
ECO78	Earlham and Colney Marshes CWS	4.19	4.74	4.62	-0.12	-11.63%	7	9.3%
ECO80	East Hills CWS	3.30	3.80	3.57	-0.23	-23.24%	5	5.6%
ECO64	Hellesdon Pastures CWS	3.23	3.37	3.32	-0.05	-4.97%	21	12.1%
ECO79	Horsham Meadows CWS	2.88	3.10	3.07	-0.03	-3.31%	17	8.7%
ECO76	Intwood Carr CWS	4.96	5.81	5.74	-0.07	-6.85%	9	3.4%
ECO69	Jennis' Wood & Dryhill Plantation CWS	3.08	3.32	3.11	-0.22	-21.61%	2	17.2%
ECO60	Long Dell and Westlodge Hills CWS	3.63	4.11	4.08	-0.02	-2.39%	15	1.8%
ECO77	Meadow Farm Meadow CWS	3.54	3.84	3.82	-0.02	-2.17%	44	14.6%
ECO1	Mouse Wood CWS	3.11	3.64	3.23	-0.41	-41.12%	5	68.1%
ECO18	Old Covert, Wood Lane, CWS	3.11	3.71	3.25	-0.46	-45.71%	5	37.8%
ECO75	River Wensum SAC/ River Wensum SSSI	5.06	5.48	5.07	-0.41	-40.77%	5	0.6%/0.6%
ECO42	River Wensum SAC/ River Wensum SSSI	4.96	5.00	4.92	-0.08	-8.18%	4	0.6%/0.6%
ECO50	River Wensum SAC/ River Wensum SSSI	3.33	3.18	3.00	-0.18	-18.14%	0	0.6%/0.6%
ECO66	River Wensum SAC/ River Wensum SSSI	4.50	4.53	4.47	-0.06	-5.96%	4	0.6%/0.6%
ECO68	Snake Wood Ancient Woodland	3.40	3.22	3.00	-0.22	-21.68%	3	32.2%



Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2029) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of site experiencing decrease in NH <sub>3</sub> greater than 1% of CLvl)
ECO48	Sweetbriar Road Meadows, Norwich SSSI	4.31	4.73	4.57	-0.16	-16.14%	9	30.5%
ECO8	Taverham Mill CWS	3.01	3.16	3.10	-0.06	-6.42%	8	7.1%
ECO74	Wensum Pastures at Morton Hall/ River Wensum SAC/SSSI	4.61	4.91	4.62	-0.28	-28.13%	4	65.0%
ECO31	Weston Meadow CWS	3.85	3.81	3.58	-0.23	-22.77%	4	65.0%

**Table C-5 Potentially Beneficial Significant Effects from NO<sub>x</sub> upon Sites in Opening Year (2029)**

Transect no.	Site Name	Max Baseline (2019) NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DM 2029) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DS 2029) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Difference in NO <sub>x</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NO <sub>x</sub> impact)	Change in NO <sub>x</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of site experiencing decrease in NO <sub>x</sub> greater than 1% of CLvl)
ECO36	Attebridge Hills CWS	51.79	22.75	21.81	-0.94	-3.1%	4	0.6%
ECO61	Brook House Marshes CWS	42.10	11.87	10.53	-1.34	-4.5%	8	3.7%
ECO65	Church Hill Common CWS	14.06	11.08	9.14	-1.93	-6.4%	3	4.8%
ECO67	Costessey Pits (East) CWS	24.93	15.51	14.37	-1.14	-3.8%	8	7.6%
ECO78	Earlham and Colney Marshes CWS	57.37	28.34	27.39	-0.95	-3.2%	7	1.4%
ECO80	East Hills CWS	45.65	26.95	23.66	-3.29	-11.0%	5	2.8%
ECO64	Hellesdon Pastures CWS	36.32	19.15	18.72	-0.43	-1.4%	21	2.2%
ECO79	Horsham Meadows CWS	29.61	16.73	16.43	-0.30	-1.0%	17	0.8%
ECO76	Intwood Carr CWS	114.05	45.49	45.08	-0.41	-1.4%	9	<0.01%
ECO69	Jennis' Wood & Dryhill Plantation CWS	14.04	11.30	9.08	-2.23	-7.4%	2	6.8%
ECO1	Mouse Wood CWS	11.42	13.25	9.72	-3.53	-11.8%	5	23.9%
ECO18	Old Covert, Wood Lane, CWS	11.62	13.94	10.14	-3.81	-12.7%	5	18.7%
ECO42	River Wensum SAC/ River Wensum SSSI	67.57	25.53	24.84	-0.69	-2.3%	4	0.1%/ 0.1%
ECO50	River Wensum SAC/ River Wensum SSSI	23.92	10.77	9.18	-1.59	-5.3%	3	0.1%/ 0.1%
ECO66	River Wensum SAC/ River Wensum SSSI	53.48	21.39	20.88	-0.52	-1.7%	4	0.1%/ 0.1%



Transect no.	Site Name	Max Baseline (2019) NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DM 2029) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DS 2029) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Difference in NO <sub>x</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NO <sub>x</sub> impact)	Change in NO <sub>x</sub> between DS and DM Scenario as a percentage of CLvI	Min distance from road centre line of which changes exceed 1% (meters)	Total Extent of impact (% of site experiencing decrease in NO <sub>x</sub> greater than 1% of CLvI)
ECO75	River Wensum SAC/ River Wensum SSSI	54.71	24.08	20.35	-3.74	-12.5%	5	0.1%/ 0.1%
ECO74	River Wensum SAC/ River Wensum SSSI	42.43	19.56	16.94	-2.63	-8.8%	4	0.1%/ 0.1%
ECO68	Snake Wood Ancient Woodland	26.58	11.33	9.34	-1.99	-6.6%	3	21.6%
ECO48	Sweetbriar Road Meadows, Norwich SSSI	64.60	29.97	28.84	-1.13	-3.8%	9	7.9%
ECO8	Taverham Mill CWS	19.84	12.75	12.09	-0.66	-2.2%	8	1.3%
ECO31	Weston Meadow CWS	24.46	11.45	9.39	-2.06	-6.9%	4	28.5%

**Table C-6 Assessment of Potentially Adverse Significant Effects from Nitrogen Deposition upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) N-dep(kg N/ha/yr)	Max transect (DM 2044) total N-dep(kg N/ha/yr)	Max transect (DS 2044) total N-dep (kg N/ha/yr)	Difference in N-dep(kg N/ha/yr) between DS and DM Scenario (i.e., max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of Impact (% of site by area where impacts exceed 1% of CLd)
ECO54	Alderford Common SSSI	49.94	38.44	38.86	0.4	2.1%	3	17.5%
ECO35	Attebridge Hills CWS	45.46	33.78	35.56	1.8	17.9%	90	74.8%
ECO53	Broom & Spring Hills CWS	45.26	33.44	36.43	3.0	29.9%	50	100.0%
ECO2	Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation CWS	24.92	20.42	20.64	0.2	1.5%	64	19.1%
ECO3	Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation CWS	60.52	34.63	34.84	0.2	2.1%	10	19.1%
ECO85	Fakenham Road RNR	47.58	36.00	54.24	18.2	182.4%	0	100.0%
ECO86	Fakenham Road RNR	48.14	36.61	46.97	10.4	103.6%	16	100.0%
ECO16	Land Adjoining Foxburrow Plantation CWS	25.17	18.70	23.56	4.9	48.7%	20	94.3%
ECO37	Land Adjoining Foxburrow Plantation CWS	25.17	18.68	20.13	1.5	14.5%	60	94.3%
ECO60	Long Dell and Westlodge Hills CWS	54.71	44.62	44.98	0.4	3.6%	15	3.5%
ECO13	Marriott's Way CWS	49.00	36.10	37.68	1.6	15.8%	5	0.3%
ECO55	Norfolk Valley Fens SAC/ Potter & Scarning Fens, East Dereham SSSI	36.39	32.20	33.00	0.8	8.0%	4	0.1%/ 8.4%

Transect no.	Site Name	Max Baseline (2019) N-dep(kg N/ha/yr)	Max transect (DM 2044) total N-dep(kg N/ha/yr)	Max transect (DS 2044) total N-dep (kg N/ha/yr)	Difference in N-dep(kg N/ha/yr) between DS and DM Scenario (i.e., max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of Impact (% of site by area where impacts exceed 1% of CLd)
ECO18	Old Covert, Wood Lane, CWS	43.96	32.99	33.86	1.1	11.3%	70	0.1%
ECO38	Primrose Grove Ancient Woodland	45.26	33.44	34.28	0.84	8.4%	110	100.0%
ECO38	Primrose Grove CWS	45.26	33.44	36.28	2.8	28.4%	30	100.0%
ECO62	Primrose Grove Ancient Woodland	45.25	33.44	36.02	2.6	25.8%	36	100.0%
ECO63	Primrose Grove Ringland CWS	45.28	33.45	35.46	2.0	20.1%	80	100.0%
ECO82	River Tud at Easton and Honingham	22.96	37.26	38.68	1.42	14.2%	0	1.0%
ECO81	River Tud at Easton and Honingham	22.94	28.02	28.86	0.84	8.4%	12	1.0%
ECO84	River Tud at Easton and Honingham	23.18	30.18	31.31	1.13	11.3%	0	1.0%
ECO83	River Tud at Easton and Honingham	23.98	19.19	19.47	0.28	2.8%	36	1.0%
ECO28	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	25.47	18.86	32.44	13.6	90.7%	4	1.0%/ 1.0%/ 70.3%
ECO39	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	25.46	18.86	34.43	15.6	103.9%	4	1.0%/ 1.0%/ 70.3%
ECO7	Walsingham Plantation CWS	44.04	32.62	33.15	0.5	5.3%	150	100.0%
ECO21	Walsingham Plantation CWS	49.33	35.13	36.30	1.2	11.7%	8	100.0%

**Table C-7 Assessment of Potentially Adverse Significant Effects from Ammonia upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% of site where impact exceeds 1% of CLvl)
ECO54	Alderford Common SSSI	3.63	3.89	3.93	0.04	1.4%	3	2.3%
ECO35	Attebridge Hills CWS	3.17	3.27	3.44	0.17	17.3%	90	63.8%
ECO53	Broom & Spring Hills CWS	3.21	3.28	3.55	0.27	27.3%	50	100.0%
ECO2	Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation	2.96	3.34	3.37	0.03	3.3%	64	19.1%
ECO3	Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation CWS	4.32	3.26	3.28	0.02	1.9%	10	19.1%
ECO85	Fakenham Road RNR	3.35	3.56	5.68	2.12	212.5%	0	100.0%
ECO86	Fakenham Road RNR	3.40	3.63	4.85	1.22	122.1%	16	100.0%
ECO16	Land Adjoining Foxburrow Plantation CWS	3.11	3.19	3.96	0.77	76.8%	20	98.9%
ECO37	Land Adjoining Foxburrow Plantation CWS	3.11	3.19	3.41	0.22	21.7%	60	98.9%
ECO60	Long Dell and Westlodge Hills CWS	3.63	4.32	4.35	0.03	3.3%	15	2.4%
ECO13	Marriott's Way CWS	3.65	3.72	3.89	0.17	16.9%	5	0.3%



Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% of site where impact exceeds 1% of CLvl)
ECO55	Norfolk Valley Fens SAC/ Potter & Scarning Fens, East Dereham SSSI	4.60	5.55	5.69	0.13	13.4%	4	0.1%/12.3%
ECO18	Old Covert, Wood Lane, CWS	3.11	3.89	3.30	0.09	9.3%	80	35.2%
ECO38	Primrose Grove Ancient Woodland	3.21	3.28	3.34	0.07	6.8%	110	100.0%
ECO38	Primrose Grove CWS	3.21	3.28	3.53	0.25	25.5%	30	96.6%
ECO62	Primrose Grove Ancient Woodland	3.21	3.28	3.51	0.23	22.9%	36	100.0%
ECO63	Primrose Grove CWS	3.21	3.28	3.46	0.18	17.9%	80	96.6%
ECO82	River Tud at Easton and Honingham	2.47	5.91	6.15	0.24	23.7%	0	1.0%
ECO81	River Tud at Easton and Honingham	2.47	4.34	4.48	0.14	13.7%	12	1.0%
ECO84	River Tud at Easton and Honingham	2.49	4.70	4.89	0.19	18.66%	0	1.0%
ECO83	River Tud at Easton and Honingham	2.59	2.87	2.91	0.04	4.26%	36	1.0%
ECO28	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	3.12	3.20	5.48	2.29	228.9%	4	1.4%/1.4%/88.4%

Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NH <sub>3</sub> impact)	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% of site where impact exceeds 1% of CLvl)
ECO39	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures CWS	3.12	3.20	5.82	2.63	262.9%	4	1.4%/ 1.4%/ 88.4%
ECO7	Walsingham Plantation CWS	3.13	3.21	3.26	0.05	4.5%	150	100.0%
ECO21	Walsingham Plantation CWS	3.56	3.49	3.61	0.13	12.6%	8	100.0%

**Table C-8 Assessment of Potentially Adverse Significant Effects from Nitrous Oxides upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NO <sub>x</sub> (µg/m <sup>3</sup> )	Difference in NO <sub>x</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario (i.e., max NO <sub>x</sub> impact)	Change in NO <sub>x</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Total Extent of impact (% of site where impact exceeds 1% of CLvl)
ECO60	Long Dell and Westlodge Hills CWS	63.78	29.44	30.18	0.75	2.5%	15	0.1%
ECO28	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures	12.23	8.53	31.29	22.80	76.0%	4	0.01%
ECO39	River Wensum SAC/ River Wensum SSSI/ River Wensum Pastures	12.19	8.52	34.37	25.88	86.3%	4	0.01%

**Table C-9 Assessment of Potentially Beneficial Significant Effects from Nitrogen Deposition upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) N-dep( $\mu\text{g}/\text{m}^3$ )	Max transect (DM 2044) total N-dep(kg N/ha/yr)	Max transect (DS 2044) total N-dep(kg N/ha/yr)	Difference in N-dep between DS and DM Scenario (i.e., Max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (metres)	Extent of impact (% of site experiencing decrease in N-dep greater than 1% of CLd)
ECO36	Attebridge Hills CWS	62.52	52.82	49.48	-3.34	-33.4%	4	2.9%
ECO25	Botany Bay Farm CWS	46.70	36.55	36.35	-0.21	-2.1%	5	1.2%
ECO61	Brook House Marshes CWS	31.73	20.40	18.99	-1.41	-14.1%	8	12.7%
ECO65	Church Hill Common CWS	44.00	36.02	32.52	-3.50	-35.0%	3	46.8%
ECO67	Costessey Pits (East) CWS	26.27	21.08	20.25	-0.83	-8.3%	8	21.8%
ECO78	Earlham and Colney Marshes CWS	33.44	30.18	29.45	-0.73	-4.9%	7	5.1%
ECO80	East Hills CWS	48.79	40.96	38.12	-2.85	-28.5%	5	15.3%
ECO64	Hellesdon Pastures CWS	26.66	20.52	20.25	-0.27	-2.7%	21	5.9%
ECO79	Horsham Meadows CWS	24.15	19.05	18.89	-0.15	-1.5%	17	1.4%
ECO76	Intwood Carr CWS	70.58	62.63	61.98	-0.65	-6.5%	9	3.2%
ECO69	Jennis' Wood & Dryhill Plantation CWS	44.91	37.25	33.21	-4.04	-40.4%	2	28.3%
ECO77	Meadow Farm Meadow CWS	29.72	24.23	24.09	-0.14	-1.4%	44	6.0%
ECO1	Mouse Wood CWS	43.90	38.27	33.37	-4.90	-49.0%	5	65.9%
ECO18	Old Covert, Wood Lane, CWS	43.95	39.02	33.60	-5.43	-54.3%	5	30.7%
ECO42	River Wensum SAC/ River Wensum SSSI	38.63	31.41	30.15	-1.26	-8.4%	4	0.5% 0.5%
ECO50	River Wensum SAC/ River Wensum SSSI	27.39	20.39	18.35	-2.04	-13.6%	3	0.5% 0.5%



Transect no.	Site Name	Max Baseline (2019) N-dep(µg/m3)	Max transect (DM 2044) total N-dep(kg N/ha/yr)	Max transect (DS 2044) total N-dep(kg N/ha/yr)	Difference in N-dep between DS and DM Scenario (i.e., Max N-dep impact)	Change in N-dep between DS and DM Scenario as a percentage of CLd	Min distance from road centre line of which changes exceed 1% (metres)	Extent of impact (% of site experiencing decrease in N-dep greater than 1% of CLd)
ECO66	River Wensum SAC/ River Wensum SSSI	35.30	28.03	27.11	-0.92	-6.2%	4	0.5% 0.5%
ECO75	River Wensum SAC/ River Wensum SSSI	38.19	33.87	29.69	-4.18	-27.9%	5	0.5% 0.5%
ECO74	River Wensum SAC/ River Wensum SSSI	35.01	29.72	26.82	-2.90	-19.4%	4	0.5% 0.5%
ECO68	Snake Wood Ancient Woodland	48.45	35.78	31.97	-3.81	-38.1%	3	75.2%
ECO48	Sweetbriar Road Meadows, Norwich SSSI	34.21	28.48	27.62	-0.86	-8.6%	9	16.0%
ECO8	Taverham Mill CWS	44.15	33.75	33.08	-0.67	-6.7%	8	8.9%
ECO31	Weston Meadow CWS	29.66	22.20	20.11	-2.08	-20.8%	4	65.8%

**Table C-10 Assessment of Potentially Beneficial Significant Effects from Ammonia upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Extent of impact (% of site experiencing decrease in NH <sub>3</sub> greater than 1% of CLvl)
ECO36	Attebridge Hills CWS	4.71	5.54	5.15	-0.38	-38.5%	4	2.2%
ECO25	Botany Bay Farm CWS	3.34	3.64	3.61	-0.02	-2.5%	5	1.0%
ECO61	Brook House Marshes CWS	3.86	3.35	3.11	-0.23	-23.5%	8	19.6%
ECO65	Church Hill Common CWS	3.07	3.52	3.14	-0.38	-37.7%	3	14.0%
ECO67	Costessey Pits (East) CWS	3.21	3.53	3.39	-0.14	-4.7%	8	9.3%
ECO78	Earlham and Colney Marshes CWS	4.19	5.11	4.99	-0.13	-12.6%	7	9.0%
ECO80	East Hills CWS	3.30	3.92	3.63	-0.29	-29.2%	5	6.3%
ECO64	Hellesdon Pastures CWS	3.23	3.42	3.38	-0.05	-4.6%	21	11.1%
ECO79	Horsham Meadows CWS	2.88	3.14	3.11	-0.03	-2.6%	17	5.5%
ECO76	Intwood Carr CWS	4.96	6.38	6.31	-0.07	-7.1%	9	2.4%
ECO69	Jennis' Wood & Dryhill Plantation CWS	3.08	3.59	3.15	-0.44	-43.6%	2	28.6%
ECO30	Lenwade Pits (West) CWS	3.42	3.51	3.49	-0.02	-1.6%	69	4.0%
ECO77	Meadow Farm Meadow CWS	3.54	4.05	4.03	-0.02	-2.3%	44	13.3%
ECO1	Mouse Wood CWS	3.11	3.81	3.27	-0.54	-54.4%	5	78.9%

Transect no.	Site Name	Max Baseline (2019) NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DM 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Max transect (DS 2044) total NH <sub>3</sub> (µg/m <sup>3</sup> )	Difference in NH <sub>3</sub> (µg/m <sup>3</sup> ) between DS and DM Scenario	Change in NH <sub>3</sub> between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (metres)	Extent of impact (% of site experiencing decrease in NH <sub>3</sub> greater than 1% of CLvl)
ECO18	Old Covert, Wood Lane	3.11	3.89	3.29	-0.60	-60.5%	5	35.8%
ECO42	River Wensum SAC/ River Wensum SSSI	4.96	5.45	5.23	-0.22	-21.6%	4	0.9%/ 0.9%
ECO50	River Wensum SAC/ River Wensum SSSI	3.33	3.39	3.04	-0.35	-11.6%	3	0.9%/ 0.9%
ECO66	River Wensum SAC/ River Wensum SSSI	4.50	4.86	4.70	-0.16	-15.7%	4	0.9%/ 0.9%
ECO74	River Wensum SAC/ River Wensum SSSI	4.61	5.30	4.80	-0.50	-50.0%	4	0.9%/ 0.9%
ECO75	River Wensum SAC/ River Wensum SSSI	5.06	6.02	5.30	-0.72	-72.3%	5	0.9%/ 0.9%
ECO68	Snake Wood Ancient Woodland	3.40	3.47	3.05	-0.42	-41.7%	3	88.4%
ECO48	Sweetbriar Road Meadows, Norwich SSSI	4.31	4.81	4.66	-0.15	-15.0%	9	26.2%
ECO8	Taverham Mill CWS	3.01	3.21	3.13	-0.07	-7.2%	8	8.3%
ECO74	Wensum Pastures at Morton Hall	3.64	3.75	3.73	-0.02	-2.0%	80	1.3%
ECO31	Weston Meadow CWS	3.85	3.95	3.59	-0.36	-35.6%	4	81.5%

**Table C-11 Assessment of Potentially Beneficial Significant Effects from Nitrous Oxides upon Sites in Design Year (2044)**

Transect no.	Site Name	Max Baseline (2019) NOx (µg/m3)	Max transect (DM 2044) total NOx (µg/m3)	Max transect (DS 2044) total NOx (µg/m3)	Difference in NOx (µg/m3) between DS and DM Scenario (at furthest exceedance)	Change in NOx between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Extent of impact (% of site experiencing decrease in NOx greater than 1% of CLvl)
ECO36	Attebridge Hills CWS	51.79	24.86	22.48	-2.37	-7.9%	4	1.2%
ECO61	Brook House Marshes CWS	42.10	12.93	10.52	-2.41	-8.0%	8	10.8%
ECO65	Church Hill Common CWS	14.06	12.70	9.08	-3.62	-12.1%	3	5.7%
ECO67	Costessey Pits (East) CWS	24.93	14.88	13.73	-1.15	-3.8%	8	7.0%
ECO78	Earlham and Colney Marshes CWS	57.37	29.32	28.28	-1.04	-3.5%	7	2.3%
ECO80	East Hills CWS	45.65	26.76	22.87	-3.89	-13.0%	5	4.4%
ECO64	Hellesdon Pastures CWS	36.32	18.49	18.09	-0.40	-1.3%	21	0.5%
ECO69	Jennis' Wood & Dryhill Plantation CWS	14.04	13.16	9.01	-4.14	-13.8%	2	14.9%
ECO1	Mouse Wood CWS	11.42	13.84	9.58	-4.27	-14.2%	5	36.2%
ECO18	Old Covert, Wood Lane, CWS	11.62	14.60	10.00	-4.60	-15.3%	5	18.8%
ECO42	River Wensum SAC/ River Wensum SSSI	67.57	27.50	25.55	-1.95	-6.5%	4	0.2%/ 0.2%
ECO50	River Wensum SAC/ River Wensum SSSI	23.92	11.98	9.10	-2.87	-9.6%	3	0.2%/ 0.2%
ECO66	River Wensum SAC/ River Wensum SSSI	53.48	22.84	21.38	-1.46	-4.9%	4	0.2%/ 0.2%
ECO74	River Wensum SAC/ River Wensum SSSI	42.43	21.29	17.20	-4.09	-13.6%	4	0.2%/ 0.2%

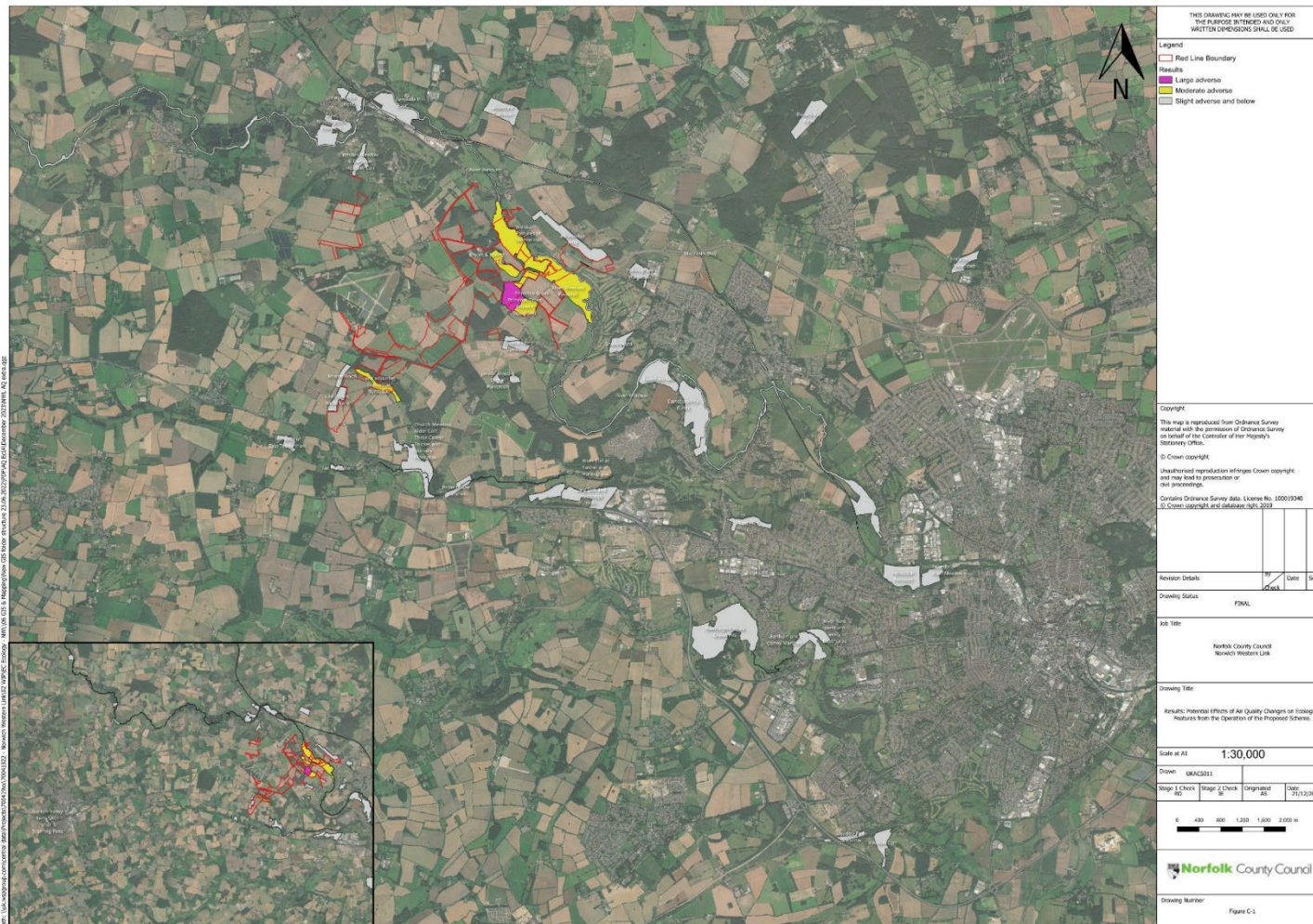


Transect no.	Site Name	Max Baseline (2019) NOx (µg/m3)	Max transect (DM 2044) total NOx (µg/m3)	Max transect (DS 2044) total NOx (µg/m3)	Difference in NOx (µg/m3) between DS and DM Scenario (at furthest exceedance)	Change in NOx between DS and DM Scenario as a percentage of CLvl	Min distance from road centre line of which changes exceed 1% (meters)	Extent of impact (% of site experiencing decrease in NOx greater than 1% of CLvl)
ECO75	River Wensum SAC/ River Wensum SSSI	54.71	26.53	20.73	-5.79	-19.3%	5	0.2%/0.2%
ECO68	Snake Wood Ancient Woodland	26.58	12.82	9.25	-3.57	-11.9%	3	33.3%
ECO48	Sweetbriar Road Meadows, Norwich SSSI	64.60	28.58	27.51	-1.08	-3.6%	9	8.1%
ECO8	Taverham Mill CWS	19.84	12.34	11.67	-0.67	-2.2%	8	1.2%
ECO31	Weston Meadow CWS	24.46	11.96	9.00	-2.97	-9.9%	4	46.3%





Figure C 1 Maximum Effect Of Air Quality Changes On Ecological Features From The Operation Of The Proposed Scheme.



**Figure C 2 Maximum Effect Of Air Quality Changes On Veteran/Ancient Trees From The Operation Of The Proposed Scheme.**

