

Appendix 5.1Consultation with EHO



Subject: STDC - EIA addendum for air quality [Filed 25 Aug 2020 14:35]

Attachments: Receptors.jpg

Dear

Thanks very much for all the help you have provided so far on our assessment of STDC.

We are now in a position to carry out the additional assessment work as previously discussed, and would like to confirm our methodology with you. Please find details below for your agreement.

- 1. We will carry out additional roads modelling to include the A66 in Middlesbrough. Please see map attached. The methodology for this will be as that carried out for the previous assessment, other than selection of additional receptors along the A66, use of DfT traffic data for the extended A66 region and the use of the newly issued Emissions Factor Toolkit (EFT) (Defra, version 10.0).
- 2. We will carry out a sensitivity test using the new EFT for verification purposes and for all previously assessed receptors.
- 3. We will consider the Prairie EfW (ERF) in our assessment. To do this we will use a conservative (pessimistic) approach whereby we will apply the maximum predicted concentrations (EfW PC) from the EfW modelled grid area to the predicted concentrations at each receptor.

I look forward to hearing from you.

Kind regards,

Environmental Consultant | Environment and Sustainability

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Appendix 5.2 Traffic Data and Road Details



Appendix 5.2: Traffic Data and Road Details

- F_{1.1} The modelled road network used in this assessment is presented below in Table 1 and was used for both the construction traffic and operational traffic assessments.
- F_{1.2} The traffic data used in the operational traffic assessments is shown below in Table 2.

Table 1: Modelled road network details for construction and operational traffic assessments

AQ ID	Road name	Modelled as junction	Road width (m)
18_1	A1085 Trunk Road Road		12.5
18S_J1	A1085 Trunk Road	Junction	11.0
18N_J2	A1085 Trunk Road	Junction	8.0
20S_J1	A1053 Greystones Road	Junction	6.5
20N_J2	A1053 Greystones Road	Junction	10.0
20_1	A1053 Greystones Road	Road	19.0
R_TR	Trunk Road roundabout	Roundabout	13.0
19N_1	A1085 Broadway	Road	7.0
195_2	A1085 Broadway	Road	7.0
17_J3	A1053 Tees Dock Road	Junction	22.0
17S_J1	A1053 Tees Dock Road	Junction	8.0
17N_J2	A1053 Tees Dock Road	Junction	8.0
17_1	A1053 Tees Dock Road	Road	18.0
15_2	A66	Road	17.8
15_J2	A66	.66 Junction	
15_J1	A66	Junction	21.9
15_1	A66	Road	18.8
12_J1	A66	Junction	22.7
12_J2	A66	Junction	20.3
12_1	A66	Road	19.0
7_J2	A66	Junction	20.2
7_1	A66	Road	16.9
R_A66	A66 Roundabout	Roundabout	11.8
7_J1	A66	Junction	26.9
19_3	A1085 Broadway	Road	7.4
20_J1	A1053 Greystones Road	Junction	27.0
20_2	A1053 Greystones Road	Road	19.0
R_TDR	Tees Dock Road roundabout	Roundabout	10.0
16_J1	Tees Dock Road	Junction	16.0
16_1	Tees Dock Road	Road	9.8
10_1	Normanby Road	Road	11.1
10_J1	Normanby Road	Junction	17.0
11_J1	Normanby Road	Junction	15.3
14_1	Church Lane	Junction	11.4
8_1	Middlesbrough Road East	Road	6.9

Appendix 5.3 Addendum Modelled Receptor Results

AQ ID	Road name	Modelled as junction	Road width (m)
8_J1	Middlesbrough Road East	Junction	14.5
2_1	Dockside Road	Road	7.0
3_1	Old Station Road	Road	6.6
3_J1	Old Station Road	Junction	15.8
3_J2	Old Station Road	Junction	15.6
2_J1	Dockside Road	Junction	11.6
6_J1	A66	Junction	31.0
6_1	A66	Road	17.8
6_J2	A66	Junction	23.3
9_J1	Middlesbrough Road West	Junction	18.4
9_1	Middlesbrough Road West	Road	7.5
1_1	B1513 Dockside Road	Road	6.7
1_J1	B1513 Dockside Road	Junction	11.6
R_HS	High Street roundabout	Roundabout	10.0
21 J1	B1380 High Street	Junction	10.3
21 1	B1380 High Street	Road	7.0
22E_J1	A174	Junction	11.7
22E_1	A174	Road	8.5
22W_1	A174	Road	7.4
22W J1	A174	Junction	7.7
23_J1	A174	Junction	29.0
23_1	A174	Road	22.0
15_J3	A66	Junction	20.4
19N_J1	A1085 Broadway	Junction	7.1
19S_J2	A1085 Broadway	Junction	7.3
11 J2	Normanby Road	Junction	9.0
24N	East of A19 junction northbound	Road	13.0
24S	East of A19 junction southbound	Road	13.0
25N	·		7.0
25S	East of A1032 (Newport R'about) southbound	Road	7.0
26E	A66 flyover eastbound	Road	7.5
26W	A66 flyover westbound	Road	7.5
27E	West of connection to A172 eastbound	Road	11.0
27W	West of connection to A172 westbound	Road	11.0
28E	West of Cargo Fleet Lane eastbound	Road	10.0
28W	West of Cargo Fleet Lane westbound	Road	7.0
29E	Between junction with Borough Rd and the A172 eastbound	Road	7.0
29W	Between junction with Borough Rd and the A173 westbound	Road	7.0
28W_J1	West of Cargo Fleet Lane westbound	Junction	9.5
28E_J1	West of Cargo Fleet Lane eastbound	Junction	11.5

junction

Notes:

The road type was "urban (not London)".

Traffic data were provided by Arup transport consultants, with the exception of the flows for the roundabouts, which were calculated by the air quality specialists using the flows from the arms of the roundabouts as provided.

Table 2: Operational traffic data

AO ID (1-2-2-4 (1-1-2-4-4)	Constant (looks)	2019 E	Baseline	2028 Do-I	Minimum	2028 Do-Something	
AQ ID	Speed (kph)	AADT	%HDV	AADT	%HDV	AADT	%HDV
18_1	112	15,227	7%	15,981	7%	17,414	7%
18S_J1	20	7,401	7%	7,752	7%	8,742	8%
18N_J2	20	7,826	7%	8,230	7%	8,672	7%
20S_J1	20	10,161	9%	11,040	9%	11,844	9%
20N_J2	20	9,630	9%	10,396	9%	11,841	9%
20_1	112	19,791	9%	21,436	9%	23,685	9%
R_TR	20	18,637	8%	19,853	8%	21,799	8%
19N_1	64	3,024	7%	3,347	7%	3,391	7%
19S_2	64	4,004	7%	4,453	7%	4,524	7%
17_J3	20	32,503	7%	34,196	7%	38,180	8%
17S_J1	20	17,448	7%	18,562	7%	19,886	8%
17N_J2	20	15,055	7%	15,634	7%	18,294	8%
17_1	112	32,503	7%	34,196	7%	38,180	8%
15_2	80	39,407	10%	41,326	10%	43,731	10%
15_J2	20	39,407	10%	41,326	10%	43,731	10%
15_J1	20	39,407	10%	41,326	10%	43,731	10%
15_1	80	39,407	10%	41,326	10%	43,731	10%
12_J1	20	43,006	13%	44,519	13%	46,848	13%
12_J2	20	43,006	13%	44,519	13%	46,848	13%
12_1	80	43,006	13%	44,519	13%	46,848	13%
7_J2	20	35,805	13%	37,060	13%	39,593	13%
7_1	80	35,805	13%	37,060	13%	39,593	13%
R_A66	20	16,958	12%	17,799	12%	20,465	12%
7_J1	20	35,805	13%	37,060	13%	39,593	13%
19_3	64	7,028	7%	7,800	7%	7,915	7%
20_J1	20	19,791	9%	21,436	9%	23,685	9%
20_1	112	19,791	9%	21,436	9%	23,685	9%
R_TDR	20	31,239	14%	32,976	14%	36,999	14%
16_J1	20	21,808	32%	23,406	32%	29,088	28%

AO ID Sa	Speed (kmh) 2019 Baseline		Baseline	2028 Do-	Minimum	2028 Do-Something	
AQ ID	Speed (kph)	AADT	%HDV	AADT	%HDV	AADT	%HDV
16_1	48	21,808	32%	23,406	32%	29,088	28%
10_1	48	6,274	18%	6,622	18%	6,764	18%
10_J1	20	6,274	18%	6,622	18%	6,764	18%
11_J1	20	7,045	1%	7,186	1%	7,399	2%
14_1	20	7,132	1%	7,284	1%	7,492	1%
8_1	48	1,964	1%	2,211	1%	2,492	2%
8_J1	20	1,964	1%	2,211	1%	2,492	2%
2_1	48	2,357	24%	2,452	24%	10,975	14%
3_1	48	7,298	18%	7,915	18%	12,873	15%
3_J1	20	7,298	18%	7,915	18%	12,873	15%
3_J2	20	7,298	18%	7,915	18%	12,873	15%
2_J1	20	2,357	24%	2,452	24%	10,975	14%
6_J1	20	34,992	13%	35,518	13%	39,580	13%
6_1	80	34,992	13%	35,518	13%	39,580	13%
6_J1	20	34,992	13%	35,518	13%	39,580	13%
9_J1	20	4,733	1%	6,292	1%	7,786	3%
9_1	48	4,733	1%	6,292	1%	7,786	3%
1_1	80	5,179	28%	5,357	28%	8,890	22%
1_J1	20	5,179	28%	5,357	28%	8,890	22%
R_HS	20	24,563	4%	27,131	4%	28,255	5%
21_J1	20	6,688	9%	7,463	9%	7,605	9%
21_1	48	6,688	9%	7,463	9%	7,605	9%
22E_J1	20	16,447	4%	18,256	4%	18,773	4%
22E_1	112	16,447	4%	18,256	4%	18,773	4%
22W_1	112	16,711	4%	18,951	4%	19,179	4%
22W_J1	20	16,711	4%	18,951	4%	19,179	4%
23_J1	20	38,615	2%	42,416	2%	43,778	2%
23_1	80	38,615	2%	42,416	2%	43,778	2%
15_J3	20	39,407	10%	41,326	10%	43,731	10%
19N_J1	20	3,024	7%	3,347	7%	3,391	7%

AO ID Speed (kmh)		Speed (kmb) 2019 Baseline		2028 Do-l	Minimum	2028 Do-Something	
AQ ID Speed (Speed (kph)	AADT	%HDV	AADT	%HDV	AADT	%HDV
19S_J2	20	4,004	7%	4,453	7%	4,524	7%
11_J2	20	7,045	1%	7,186	1%	7,399	2%
24N	80	40,584	5%	41,802	5%	43,363	5%
24S	80	44,731	5%	46,073	5%	48,310	5%
25N	80	39,423	5%	40,606	5%	42,167	6%
25S	80	35,161	6%	36,216	6%	38,452	6%
26E	80	33,484	6%	34,489	6%	36,175	6%
26W	80	33,639	6%	34,648	6%	37,064	6%
27E	80	33,484	6%	34,489	6%	37,268	6%
27W	80	33,639	6%	34,648	6%	38,629	6%
28E	80	22,899	8%	23,586	8%	26,365	8%
28W	80	25,078	7%	25,830	7%	29,812	7%
29E	80	26,050	7%	26,832	7%	29,611	7%
29W	80	29,359	7%	30,239	7%	34,221	8%
28W_J1	20	25,078	7%	25,830	7%	29,812	7%
28E_J1	20	22,899	8%	23,586	8%	26,365	8%

Appendix 5.4 Addendum Modelled Receptor Results

Appendix 5.4: Addendum Modelled Receptor Results

The below receptor results include the original and addendum receptors when the A66 was included in the model, and also include the process contribution from the Energy Recovery Facility in the DM and DS results, as described in the air quality chapter of the ES addendum.

Table 1: Predicted annual mean NO₂ concentrations at assessed receptors for operational traffic and the ERF

	Annual mean NO₂ modelling results						
Receptor ID	Base 2019 NO ₂ (μg/m³)	DM 2028 NO ₂ (μg/m³)	DS 2028 NO ₂ (μg/m³)	Change (DS - DM)	Impact descriptor		
R1	19.1	21.4	21.8	0.5	Negligible		
R2	18.0	20.2	20.4	0.2	Negligible		
R3	17.8	20.0	20.2	0.2	Negligible		
R4	18.0	20.3	20.6	0.3	Negligible		
R5	17.9	20.2	20.6	0.4	Negligible		
R6	15.7	17.9	18.0	0.1	Negligible		
R7	15.3	17.5	17.6	0.1	Negligible		
R8	14.6	16.9	16.9	0.1	Negligible		
R9	15.6	18.0	18.1	0.1	Negligible		
R10	16.1	18.6	18.8	0.2	Negligible		
R11	14.3	16.7	16.7	0.1	Negligible		
R12	14.4	16.8	16.8	0.1	Negligible		
R13	15.8	18.3	18.4	0.1	Negligible		
R14	15.4	17.9	18.0	0.1	Negligible		
E1	18.6	20.7	20.8	0.1	Negligible		
E2	18.5	20.7	20.7	0.1	Negligible		
R15	26.3	28.5	28.6	0.1	Negligible		
R16	26.2	28.4	28.7	0.3	Negligible		
R17	22.3	24.5	24.6	0.2	Negligible		
R18	24.9	27.1	27.3	0.2	Negligible		
R19	28.5	30.7	31.2	0.4	Negligible		
R20	28.5	30.7	31.2	0.4	Negligible		
R21	33.9	36.4	37.2	0.8	Slight adverse		
R22	23.6	25.8	26.1	0.3	Negligible		
R23	22.6	24.8	25.1	0.3	Negligible		
	1 -2.0		1 -3.1	1 3.5			

Note:

'R' denotes residential receptors

'E' denotes ecological receptors

Table 2: Predicted annual mean PM₁₀ concentrations at assessed receptors for operational traffic and the ERF

	Annual mean PM ₁₀ modelling results						
Receptor ID	Base 2019 PM ₁₀ (μg/m³)	DM 2028 PM ₁₀ (μg/m³)	DS 2028 PM ₁₀ (μg/m³)	Change (DS - DM)	Impact descriptor		
R1	12.1	12.5	12.6	0.1	Negligible		
R2	12.4	12.8	12.9	< 0.1	Negligible		
R3	12.1	12.5	12.6	< 0.1	Negligible		
R4	12.1	12.5	12.6	< 0.1	Negligible		
R5	12.1	12.6	12.6	0.1	Negligible		
R6	11.9	12.3	12.4	< 0.1	Negligible		
R7	11.8	12.2	12.3	< 0.1	Negligible		
R8	13.5	13.9	13.9	< 0.1	Negligible		
R9	13.7	14.1	14.1	< 0.1	Negligible		
R10	12.2	12.7	12.7	< 0.1	Negligible		
R11	12.1	12.5	12.5	< 0.1	Negligible		
R12	12.1	12.5	12.5	< 0.1	Negligible		
R13	12.3	12.8	12.8	< 0.1	Negligible		
R14	12.3	12.7	12.7	< 0.1	Negligible		
E1	10.6	11.0	11.1	< 0.1	Negligible		
E2	10.6	11.0	11.0	< 0.1	Negligible		
R15	15.2	16.0	16.0	< 0.1	Negligible		
R16	15.4	16.4	16.5	0.1	Negligible		
R17	14.4	15.6	15.7	0.1	Negligible		
R18	15.1	16.5	16.6	0.1	Negligible		
R19	14.0	14.3	14.3	0.1	Negligible		
R20	14.0	14.3	14.3	0.1	Negligible		
R21	15.3	13.8	13.8	0.1	Negligible		
R22	13.1	13.5	13.6	0.1	Negligible		
R23	12.7	13.1	13.2	0.1	Negligible		

Note:

^{&#}x27;R' denotes residential receptors

^{&#}x27;E' denotes ecological receptors

Table 3: Predicted annual mean PM_{2.5} concentrations at assessed receptors for operational traffic and the ERF

		Annual mean PM _{2.5} modelling results						
Receptor ID	Base 2019 PM _{2.5} (μg/m³)	DM 2028 PM _{2.5} (μg/m³)	DS 2028 PM _{2.5} (μg/m³)	Change (DS - DM)	Impact descriptor			
R1	7.9	8.0	8.0	< 0.1	Negligible			
R2	8.1	8.2	8.2	< 0.1	Negligible			
R3	7.8	7.9	7.9	< 0.1	Negligible			
R4	7.8	7.9	8.0	< 0.1	Negligible			
R5	7.8	8.0	8.0	< 0.1	Negligible			
R6	7.7	7.8	7.8	< 0.1	Negligible			
R7	7.7	7.8	7.8	< 0.1	Negligible			
R8	8.0	8.2	8.2	< 0.1	Negligible			
R9	8.1	8.3	8.3	< 0.1	Negligible			
R10	7.7	7.8	7.8	< 0.1	Negligible			
R11	7.6	7.7	7.7	< 0.1	Negligible			
R12	7.6	7.7	7.7	< 0.1	Negligible			
R13	7.7	7.9	7.9	< 0.1	Negligible			
R14	7.7	7.8	7.9	< 0.1	Negligible			
E1	7.1	7.2	7.2	< 0.1	Negligible			
E2	7.1	7.2	7.2	< 0.1	Negligible			
R15	9.5	9.8	9.8	< 0.1	Negligible			
R16	9.9	10.3	10.4	< 0.1	Negligible			
R17	9.0	9.6	9.6	< 0.1	Negligible			
R18	9.7	10.4	10.5	0.1	Negligible			
R19	9.0	9.0	9.1	0.1	Negligible			
R20	9.0	9.0	9.1	0.1	Negligible			
R21	9.8	8.7	8.8	< 0.1	Negligible			
R22	8.4	8.5	8.5	< 0.1	Negligible			
R23	8.2	8.3	8.4	< 0.1	Negligible			

Note:

^{&#}x27;R' denotes residential receptors

^{&#}x27;E' denotes ecological receptors