

11 Traffic and Transport

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11 Traffic and Transport

11.1 Executive Summary

11.1.1 This chapter presents the changes in transport and access impacts that are associated with the 2021 Layout of the Proposed Development compared to those presented for the 2020 Layout. The chapter details changes in material volumes and what effect that these have on vehicle numbers during the construction phase.

11.1.2 The changes to the scheme design, including the reduction in the number of turbines, the height of some of the turbines and the total length of access roads are described in full in Chapter 3. The changes in layout result in fewer car, LGV and HGV journeys during the construction phase. The significance of effects to users of the transport network in the vicinity of the site entrance, including pedestrians and cyclists, has therefore reduced compared to the 2020 Layout. The impacts are considered not significant.

11.2 Introduction

11.2.1 Chapter 11 of the 2019 EIA Report detailed the access and transport arrangements, estimated traffic impact and proposed mitigation associated with the 2019 Layout of the Proposed Development.

11.2.2 This chapter presents the changes in transport and access impacts that are associated with the proposed 2021 Layout and can be compared with those presented for the 2020 Layout. The chapter assesses changes in material volumes and what effect that these have on vehicle numbers during the construction phase. A review of suitable mitigation measures is also provided.

11.2.3 The revisions to the proposed layout are described in detail in Chapter 3 with the 2021 layout illustrated in Figure 1.1.

11.3 Response to Consultation Responses

11.3.1 Consultation received in response to the 2019 EIA Report is provided in Chapter 11 of the 2020 SEI. This chapter summarises responses received in response to the 2020 SEI submission.

Transport Scotland

11.3.2 Transport Scotland has not raised any objections to the Proposed Development as the site does not affect any of the trunk road network on the Scottish Mainland. In their response to the 2020 SEI they confirmed that their previous correspondence remained valid and they had no further comment to make.

Shetland Islands Council – Roads Department

11.3.3 The Roads Department of Shetland Island Council (SIC) confirmed that the comments made in response to the 2019 EIA Report were covered within the 2020 SEI and request the following conditions:

- The access junction, its link to the Cullivoe Hill Road and all improvements to the Cullivoe Hill Road are to be covered by a Road Construction Consent.
- A Construction Traffic Management Plan be submitted for review and approval prior to work starting on site in order to agree appropriate mitigations and controls for the construction of the windfarm and any associated projects. The CTMP needs to quantify all vehicle movements across the public road network in Shetland associated with the overall project.

- The developer will enter into a Section 96 Agreement under the Roads (Scotland) Act 1984 to address damage and accelerated wear and tear of the public roads that are subject to HGV and ALL movements associated with the overall project.
- 11.3.4 The Applicant is content for all the above to be made subject to suitably worded planning conditions.

Shetland Islands Council – Marine Planning

- 11.3.5 SIC Marine Planning Officer confirmed that they had no comments to make in response to the 2020 SEI.

11.4 Assessment of Residual Effects

- 11.4.1 The methodology for assessing the impacts and effects of the 2021 Layout on the study area road network have not altered from the 2020 SEI.
- 11.4.2 The differences in material volumes have resulted in traffic flow differences and these are detailed below for the areas and sections where change has occurred. The same methodologies for estimating traffic flows from the 2019 EIA Report and the 2020 SEI have been used in the estimation of the 2021 Layout traffic generation throughout this chapter.

Construction

- 11.4.3 The changes in materials associated with the 2021 Layout alterations from the 2020 Layout are described in the following sections.

Abnormal Load Traffic Movements

- 11.4.4 The number of turbines has decreased from 23 in the 2020 layout to 18. Table 11.1 illustrates the revised Abnormal Indivisible Loads (AIL) for the transport of components to site associated with the 2021 Layout. As the tip height has reduced to 180m for all turbines, one less tower section will be required when compared to the 2019 and 2020 Layouts.

Table 11.1 – 2021 Layout AIL Movement Traffic Generation

<i>Turbine Component</i>	<i>No. of Loads per Turbine</i>
Rotor Blades	3
Tower Sections	4
Nacelle	1
Other Components	5
Site Parts (shared load)	0.2
Total Movements	13.2
Number of Turbines	18
Total Journeys	476

- 11.4.5 There were 654 journeys proposed for the 2020 Layout. The reduction of turbines and the reduction in height of the turbines results in 178 fewer HGV traffic movements on the road network than that previously assessed in the 2020 SEI.

Abnormal Load Escort Traffic Movements

- 11.4.6 The change in turbine sections deliveries will also be reflected in the number of Police and civilian escorts required to access the site. Using the same methodology used in the 2019 EIA Report and 2020 SEI, the number of escort journeys will reduce from 680 to 485 journeys.

Construction Staff Traffic Movements

- 11.4.7 The number of staff required on-site will also fall as a result in the reduction of turbines proposed under the 2021 Layout and the reduction in access tracks and associated infrastructure. The staff estimates are illustrated in Table 11.2.

Concrete and Associated Traffic Movements

- 11.4.8 It is proposed that on-site batching will be used at the Proposed Development for the production of concrete used in the turbine foundations and on the substation / control building foundation.
- 11.4.9 A review of a typical foundation mix has been undertaken to estimate the number of dry mix deliveries. Cement would be delivered by powder tanker, whilst sand / aggregate mix would be delivered in 20 tonne tipper HGVs.
- 11.4.10 It is proposed that each turbine will require 1810 m³ of concrete in each turbine foundation. In addition up to 100 m³ of concrete would be required for the substation / control building foundation and other minor works located within the site. The total concrete requirement is therefore approximately 32,680 m³.
- 11.4.11 Based upon the delivery vehicle capacities noted in Paragraph 11.4.9, the resulting number of concrete materials delivery vehicles are 2,214 journeys. This is a reduction from 2,828 journeys for the 2020 Layout.
- 11.4.12 The amount of steel required in each turbine foundation is 120 tonnes. A further provision of 20 tonnes has been made for the substation / control building foundation. The total number of steel reinforcement journeys is therefore 146 journeys. This is a reduction from 186 journeys for the 2020 Layout.
- 11.4.13 A provision for the delivery of batching plant has also been made with up to 60 journeys during the construction period allocated to this element. This is the same as for the 2020 Layout.

Access Track Capping Layer Traffic Movements

- 11.4.14 The capping layer of the access tracks is still predicted to be imported into the site as a worst case scenario. As the total length of access tracks and number of crane pads has reduced, the total volume of imported road material is now 21,787 m³. This results in a total of 3,922 journeys during the construction period. This is a reduction from 4,062 journeys for the 2020 Layout.
- 11.4.15 The associated geotextile deliveries also reduces as a result of the revised infrastructure layout and the resultant number of journeys for the 2021 Layout is 20 journeys. This is a reduction from 22 journeys for the 2020 Layout.

Cabling Traffic Movements

- 11.4.16 The reduction in track lengths and number of turbines also shortens the cable connections and associated need for infrastructure. The total number of journeys associated with the import of cabling sand is 778 journeys, whilst the revised number of cable delivery journeys is now 20 journeys. These are reductions from 826 and 22 journeys respectively for the 2020 Layout.

Substation Building Traffic Movements

- 11.4.17 A total of 150 journeys has been accounted for to include the deliveries of blockwork, roof trusses, roofing materials, fencing and other associated materials associated with the construction of the substation and control building. This is unchanged from the 2020 Layout.

Revised Construction Traffic Programme

11.4.18 The overall construction period of 24 month remains unchanged. The revised traffic flow estimates have been applied to the programme to identify the peak construction period. Table 11.2 illustrates the revised construction programme and trip estimates.

Table 11.2 – Construction Programme and Trip Generation Profile

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Site Establishment	120	120										
General Site Deliveries	4	12	20	24	30	30	32	36	40	40	40	40
Plant Delivery	10	20	30									
Aggregate			392	392	392	392	392	392	392	392		
Reinforcement				15	15	15	15	15	15	15	15	15
Concrete				185	185	185	185	185	185	185	185	185
Cable Deliveries								3	3	3	3	3
Cabling Sand								97	97	97	97	97
Geotextile Deliveries								3	3	3	3	3
HV Electrical Deliveries									16	16	16	16
Substation Building						25	25	25	25	25	25	
Cranage												
AIL Deliveries												
AIL Escorts												
Staff	161	484	806	967	1209	1209	1290	1451	1612	1612	1612	1612
Total per Month	295	636	1248	1583	1830	1855	1938	2206	2388	2388	1995	1970
Total HGV / Day	6	7	20	28	28	29	29	34	35	35	17	16
Total Car / Day	7	22	37	44	55	55	59	66	73	73	73	73

Table 11.2– Construction Programme and Trip Generation Profile (continued)

Activity	Month											
	13	14	15	16	17	18	19	20	21	22	23	24
Site Establishment									60	60	60	60
General Site Deliveries	40	40	30	20	4	4	4	4	4	20	4	4
Plant Delivery		30										30
Aggregate												
Reinforcement	15											
Concrete	185	185	185									
Cable Deliveries	3	3	3									
Cabling Sand	97	97	97									
Geotextile Deliveries	4											
HV Electrical Deliveries	16	16										
Substation Building												
Cranage	30									30		
AIL Deliveries		59	59	59	59	59	59	59	59			
AIL Escorts		61	61	61	61	61	61	61	61			
Staff	1612	1612	1612	1612	1612	1612	1612	1612	1209	806	161	161
Total per Month	2001	2102	2046	1752	1736	1736	1736	1736	1273	886	225	255
Total HGV / Day	18	20	17	4	3	3	3	3	3	4	3	4
Total Car / Day	73	76	76	76	76	76	76	76	55	37	7	7

11.4.19 The peak months for traffic generation are Months 9 and 10. This results in a peak of 73 Cars & Light Goods Vehicles (LGV) and 35 Heavy Goods Vehicles (HGV) per day at the peak of construction activities.

11.4.20 The peak traffic has been applied to the two survey stations using the same base year as the 2019 EIA Report. Table 11.3 illustrates the base traffic flows, whilst Table 11.4 illustrates the generated peak construction traffic.

Table 11.3 – Base Traffic Flows

	Base Year Traffic Flows		
Survey Location	Cars & LGV	HGV	Total
A968 Ulsta	389	129	518
A968 / Old Cullivoe Road	369	110	479

Table 11.4 – Construction Trip Generation

	Peak Construction Traffic Flows		
Survey Location	Cars & LGV	HGV	Total
A968 Ulsta	73	35	109
A968 / Old Cullivoe Road	73	35	109

11.4.21 Table 11.5 illustrates the peak construction traffic assigned to the study network combined with the baseline traffic flows. The percentage increase in traffic associated with the construction phase is also provided.

Table 11.5 – Base+ Construction Traffic Flows and Percentage Increases

	Base Year + Construction Traffic Flows		
Survey Location	Cars & LGV	HGV	Total
A968 Ulsta	462	164	627
A968 / Old Cullivoe Road	442	145	588
Percentage Increase in Traffic Flows			
Survey Location	Cars & LGV %	HGV %	Total %
A968 Ulsta	18.84%	27.32%	20.95%
A968 / Old Cullivoe Road	19.86%	32.04%	22.66%

11.4.22 The increase in overall traffic impact is less than that estimated in the 2020 SEI.

11.4.23 The previous mitigation measures proposed in the 2019 EIA Report and 2020 SEI to offset the potential impacts and associated effects remain valid and as such, no further mitigation works are proposed. A summary of effect and significance is provided in Table 11.6.

Operation

11.4.24 There is no change to the operational phase of the Proposed Development from that presented in the 2019 EIA Report and 2020 SEI.

Decommissioning

11.4.25 There is no change to the decommissioning phase of the Proposed Development from that presented in the 2019 EIA Report and 2020 SEI.

11.5 Additional Mitigation

- 11.5.1 No additional mitigation beyond that which is proposed in the 2019 EIA Report and 2020 SEI is required or proposed as a result of the revised assessment.

11.6 Assessment of Cumulative Effects

- 11.6.1 No further cumulative assessment has been undertaken.

11.7 Comparison of Effects

- 11.7.1 The 2021 Layout results in fewer construction journeys on the study network compared to the 2020 Layout. There would be a reduction of 11 Cars & LGV journeys and 18 HGV journeys at the site access junction during the peak months.
- 11.7.2 The percentage increase of total traffic flows (cars, LGVs and HGVs combined) would be 22.66% at the site entrance during the peak months, compared to 28.54% for the 2020 Layout.
- 11.7.3 As a result of the reduction in traffic flows at the site entrance and on the nearby road network, the significance of effects of the 2021 Layout (all minor adverse) is less than for the 2020 Layout (all moderate adverse; as noted in the summary table overleaf, Table 11.6).
- 11.7.4 No additional traffic mitigation measures are proposed, and the Applicant has advised that they are willing to accept suitably worded planning conditions to satisfy the queries raised to date by stakeholders.

Table 11.6: Summary of Effect and Mitigation

Description of Effect	2020 Effects		Mitigation Measure	2021 Effects	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction					
Severance to users of Old Cullivoe Road / Core Path CPPY04 resulting from HGV traffic movements	Moderate (Significant)	Adverse	Implementation of CTMP, application of speed limits, AIL movements controlled through CTMP, traffic management on Old Cullivoe Road and at site access junctions, restricted delivery hours, segregation from construction traffic	Minor (Not Significant)	Adverse
Amenity of pedestrians (cyclists and horse riders) using Old Cullivoe Road / Core Path CPPY04 resulting from HGV traffic movements	Moderate (Significant)	Adverse	Implementation of CTMP, application of speed limits, AIL movements controlled through CTMP, traffic management on Old Cullivoe Road and at site access junctions, restricted delivery hours, segregation from construction traffic	Minor (Not Significant)	Adverse
Fear and Intimidation affecting pedestrians (cyclists and horse riders) using Old Cullivoe Road / Core Path CPPY04	Moderate (Significant)	Adverse	Implementation of CTMP, application of speed limits, AIL movements controlled through CTMP, traffic management on Old Cullivoe Road and at site access junctions, restricted delivery hours, segregation from construction traffic	Minor (Not Significant)	Adverse

Description of Effect	2020 Effects		Mitigation Measure	2021 Effects	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Operation					
No effects anticipated					
Decommissioning					
Effects will be similar to those identified during the construction period. However, as traffic flows are anticipated to be lower they are anticipated to be less significant					

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