WEST OF ORKNEY WINDFARM

Onshore EIA Report, Volume 3, Outline Management Plan 2: Outline Construction Traffic Management Plan

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West of Orkney Windfarm

Values Teamwork Empowerment Commitment

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2	Whole document	Updated following Xodus review.
3	Whole document	Finalisation of document for use.

Contents

1. Introduction

1.1 Context

The West of Orkney Windfarm is being developed around 30km off the west coast of Orkney and around 25km from the north Sutherland coast. With an expected capacity of around 2GW, and first power scheduled for 2029, the project will be capable of powering the equivalent of more than two million homes.

The West of Orkney Windfarm has a grid connection agreement with National Grid for a connection in Caithness. This outline Construction Traffic Management Plan (CTMP) has been prepared by SYSTRA Ltd (SYSTRA) on behalf of Offshore Wind Power Limited (OWPL) in respect of the onshore elements of the West of Orkney Windfarm project, which are located within the administrative area of The Highland Council (THC). A full description of the development is provided in Onshore EIA Report Section 5: Project description.

The CTMP has been prepared with reference to the following guidance and regulations:

- Construction (Design and Management) Regulations 2015.
- DfT 'Design Manual for Roads and Bridges' (DMRB)[1] .
- Highland Council (2013) 'Roads and Transport Guidelines for New Developments'.
- IHT (1998). Guidelines for Traffic Impact Assessment.

The CTMP covers the access routes to and from the development and generally covers the geographical area illustrated by Figure 1-1 although some of the CTMP measures extend outwith this area.

The purpose of the CTMP is to minimise traffic and transport impacts during the construction of the development, and to bring forward management and mitigation measures that will address any potential traffic impacts (and associated environmental impacts) during the construction period. The process for consultation with parties who may be affected by construction traffic and for those responsible for managing the public road network are also detailed.

Until a contractor is appointed for the West of Orkney Windfarm project, OWPL will be responsible for implementing and managing the CTMP.

The CTMP will form part of the contracting process. Once appointed the lead contractor will be responsible for the CTMP, however OWPL will have an obligation to ensure the contractor is adhering to the CTMP in their role as the 'client'. The strategy for implementing, managing, monitoring and promoting the CTMP is detailed in this report.

The CTMP includes information on how OWPL / the contractor will liaise with stakeholders such as THC, Transport Scotland (TS), Police Scotland and members of local communities, prior to and during the construction period.

The CTMP is intended to be a working document that evolves during the construction period; for example, as new details emerge the CTMP shall incorporate these. This current version can therefore be viewed as an outline which will be subject to further updates post planning consent.

Monitoring of the CTMP will be undertaken and any necessary modifications will be made in consultation with THC as the local roads authority and with TS in terms of the impacts upon the strategic road network.

1.2 Report Structure

Following this introductory chapter, the CTMP is structured as follows:

- **Chapter 2:** Baseline Conditions;
- **Chapter 3:** Construction Details and Traffic Impacts;
- **Chapter 4:** Measures to Mitigate Construction Impacts;
- **Chapter 5:** Implementation and Monitoring of the CTMP;
- **Chapter 6:** Abnormal and Heavy Loads; and
- **Chapter 7:** Summary and Conclusions.

[1] https://www.standardsforhighways.co.uk/dmrb/ [Accessed 02/02/2023].

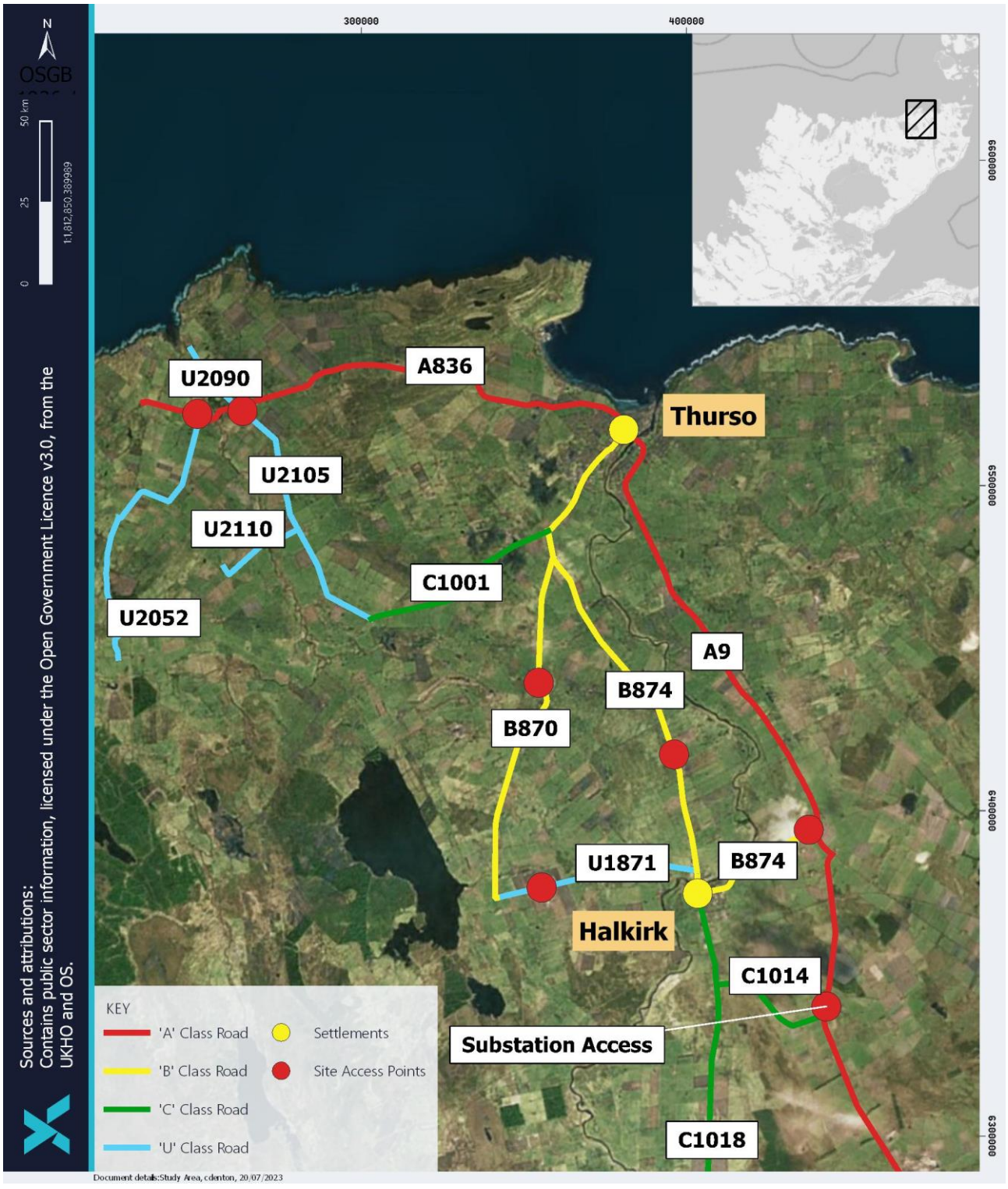


Figure 1-1 CTMP Study Area

2. Baseline Conditions

2.1 Road Network

Figure 2-1 shows the routes that will be used by construction traffic, along with their current suitability for two-way Heavy Goods Vehicle (HGV) traffic.

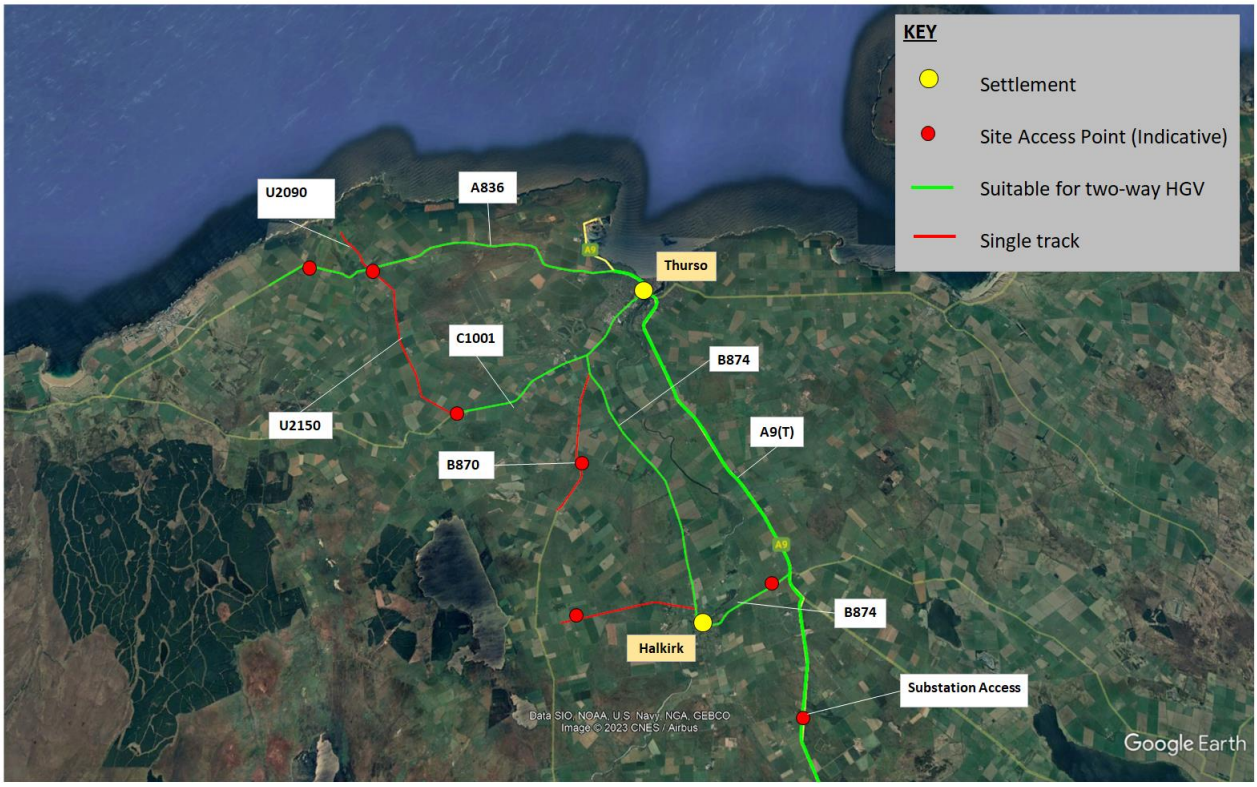


Figure 2-1 Construction Routes and Widths

The **A9(T)** is a single-carriageway trunk road that runs from Mybster in the south of the study area, passes to the east of Halkirk, runs through the town of Thurso terminating at Scrabster Harbour. As a trunk road, the A9 is designed to carry higher volumes of traffic, and a higher percentage of HGVs than local roads. Outside of urban areas it has a speed limit of 60 miles per hour (mph) and through settlements such as Thurso, it reduces to a 30 mph speed limit.

The **A836** is a single-carriageway road, suitable for two-way traffic, that runs in a westerly direction from the A9(T) to the north of Thurso. The route heads west and generally follows the north coast of Scotland, passing through Forss, Lybster, Reay and Tongue. At Tongue, the route turns south and runs to Lairg and eventually meets the A9 just south of the Dornoch Bridge. Within the Thurso urban area, the A836 has a speed limit of 30 mph, which rises to 60 mph to the west of the Wolfburn Distillery.

The **B874** is a single carriageway road, suitable for two-way traffic, which runs north-south, parallel with, and to the west of the A9(T). It commences in Thurso and runs south, passing through the small settlement of Halkirk before re-joining the A9(T) to the east of the village. Within both settlements, it has a speed limit of 30 mph but is subject to a 60 mph limit in other locations. Between Halkirk and the A9, the B874 crosses over a rail line, where an Automatic Half Barrier Level Crossing is in operation.

The **B870** is a single-track road, with regular passing places, that runs in a south-westerly direction from the B874, to meet the U1871 to the west of Halkirk. It has a speed limit of 60 mph, and passes through a rural area, providing access to isolated farms and steadings.

The **C1018** runs south from the centre of Halkirk. Within the village it has a speed limit of 30 mph, which rises to 60 mph to the south of the level crossing on the southern edge of the village. Between the centre of Halkirk and the C1014 junction, the C1018 is a single-carriageway road that is suitable for two-way traffic. To the south of the C1018 junction, it becomes a single-track road with passing places.

The **C1014** links the C1018 to the A9 to the east. It is a single-track road, with occasional passing places, and has a speed limit of 60 mph.

The **C1001** continues west from the B874, and is a single-carriageway road that is suitable for two-way traffic. It has a speed limit of 60 mph.

The **U2150, U2110, U2052, U1871** and **U2090** are all single-track, minor roads that provide access to isolated farms and steadings. The U2090 runs north from the A836 and provides access to the potential landfall point near St Mary's Chapel (Crosskirk landfall option).

2.2 Traffic Flows

Baseline traffic flows were obtained from a series of traffic counts that were undertaken in November 2022. November is a 'neutral' month in traffic flow terms, and therefore the recorded flows do not require factoring, and are suitable for the purpose of the assessment.

Automatic Traffic Counters (ATC) were in place at 16 locations as shown in Figure 2-2 between Sunday 6th November 2022 and Saturday 12th November 2022. The ATCs recorded classified traffic volumes and speeds. Results were recorded in hourly bins and by direction.

Table 2-1 provides details of the Annual Average Daily Flow (AADF) recorded at each location.

Table 2-1 ATC locations and baseline 2022 traffic flows in the study area

Link ref	Road link	2022 baseline Average Annual Daily Flow (AADF)
1	U2090 north of A836	25
2	A836 west of Thurso	2,512
3	U2105 between A836 and C1001	155
4	C1001 between B874 and U2105	1,294
5	B874 between A9 and C1001	3,036
6	B874 between C1001 and Halkirk	1,473
7	B780 between B874 and U1871	158
8	B874 between Halkirk and Roadside	1,347
9	C1018 south of C1014	544
10	A9 between Roadside and Thurso	3,516
11	C1014 south of A825	364
12	U1871 between B871 and B870	182
13	U2010 west of U2015	28
14	U2052 south of B836	84
15	A9 south of C1014	1,485
16	A9 within Thurso (between A836 and Princess St)	12,193

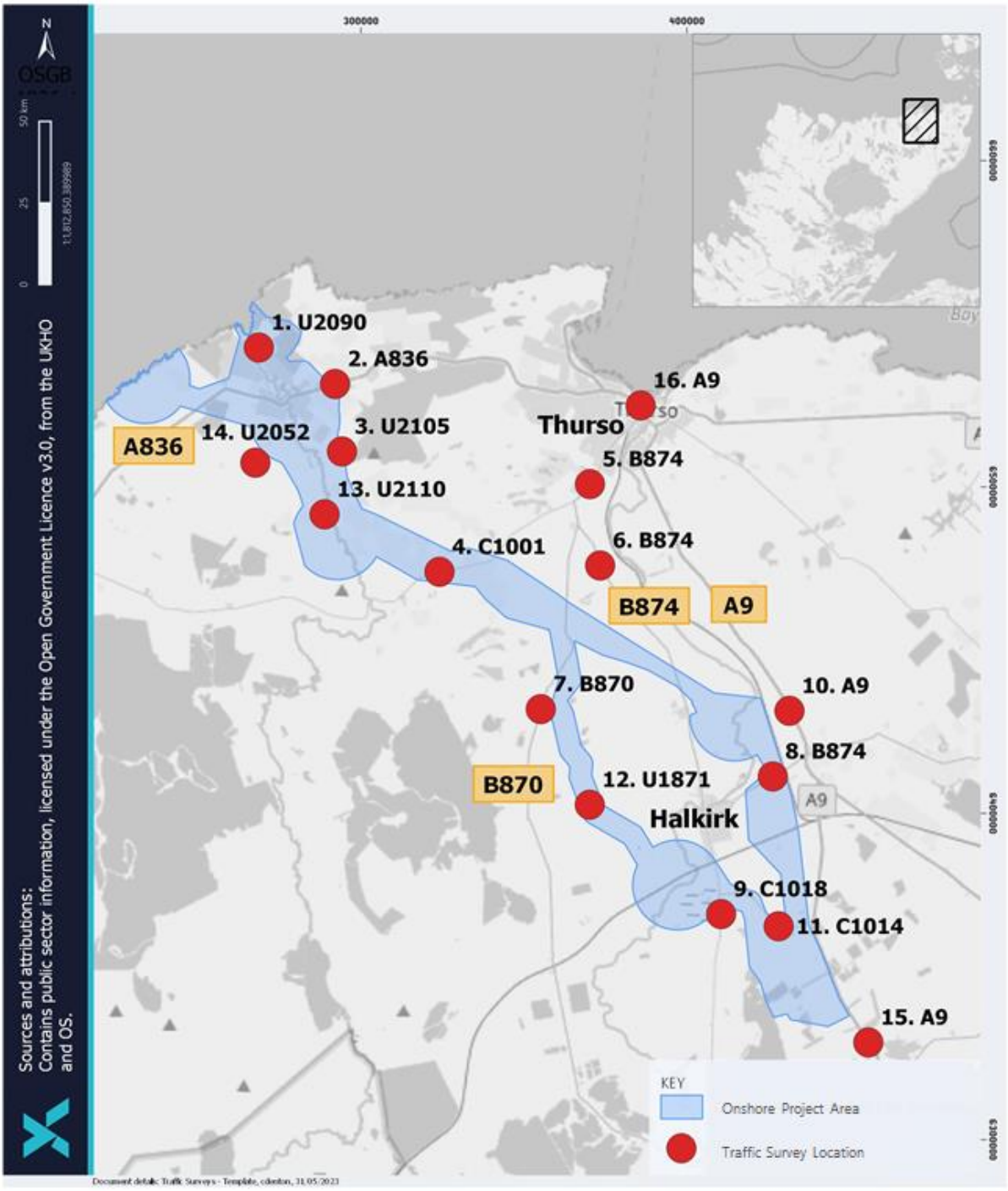


Figure 2-2 Traffic survey locations and AADF (two-way) in the study area

2.3 Road Traffic Accidents

Accident data has been obtained from two sources:

- Trunk Road accident data has been obtained from Transport Scotland's Roads Directorate team. This has been obtained for the latest available 5-year period, between January 2018 and January 2023; and

- Accident data on the local road network has been obtained from the CrashMap database. The CrashMap website is an online resource that provides details of the location, date and severity of reported road personal injury accidents on UK roads. The severity of accidents is recorded as either 'Slight', 'Serious' or 'Fatal', and is determined by the severity of the injury to the most severely injured casualty. Data was obtained for the period 2017-2021, which is the latest 5-year period available.

The findings from Crashmap and Transport Scotland are presented in Table 2-2 and Table 2-3, respectively.

Table 2-2 Recorded Accidents on Construction Routes (Crashmap; 2017 – 2021)

Link Ref	Road Link	Slight	Serious	Fatal
1	U2090 north of A836	-	-	-
2	A836 west of Thurso	5	-	2
3	U2105 between A836 and C1001	-	-	-
4	C1001 between B874 and U2105	1	-	-
5	B874 between A9 and C1001	4	-	-
6	B874 between C1001 and Halkirk	1	-	-
7	B780 between B874 and U1871	-	-	-
8	B874 east of Halkirk	-	-	-
9	C1018 south of C1014	8	1	-
11	C1014 south of A825	-	-	-
12	U1871 between B871 and B870	-	-	-
13	U2010 west of U2015	-	-	-
14	U2052 south of B836	2	-	-
	TOTAL	**21**	**1**	**2**

Table 2-3 Recorded Accidents on Construction Routes (Transport Scotland; 2018 – 2023)

Link Ref	Road Link	Slight	Serious	Fatal
10	A9 between Roadside and Thurso	6	1	-
15	A9 south of C1014	2	-	-
16	A9 between Millbank Road and A836 in Thurso	1	-	-
	TOTAL	**9**	**1**	**-**

The tables above shows that a total of 34 accidents have occurred, 30 of slight severity, two of serious severity, and two of which were fatal. Both fatal accidents occurred a short distance away from each other on the A836, by the bridge over Forss Water, and at the junction with U2090, approximately 400 metres (m) apart.

3. Construction Details and Traffic generation

3.1 Construction Programme

OWPL anticipates that construction of the bulk of the onshore elements of the West of Orkney Windfarm will take place over 48 months. Construction is anticipated to commence in 2027 subject to the completion of contracts and obtaining the necessary approvals.

As indicated by Figure 3-1, the programme is split into four main elements:

- Landfall Works;
- Onshore Cable Routes;
- Joint Bay Excavation and Installation; and
- Substation Works.

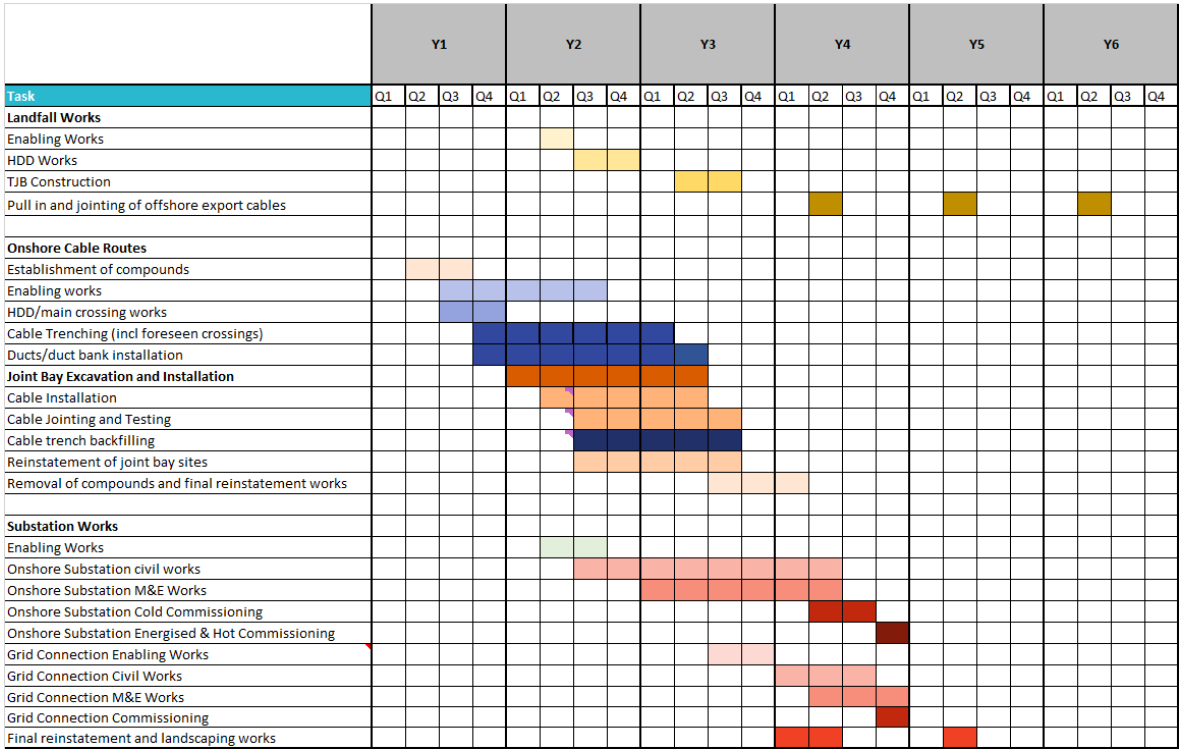


Figure 3-1 Indicative Construction Programme for Onshore Elements

The work elements will be undertaken in tandem rather than in sequence meaning that there will be traffic management issues to manage across several work areas at the same time. This has been factored into the access strategy for the development.

3.2 Construction Traffic Access Strategy

The routes that will be used by construction traffic have been carefully considered. The main factors that have been considered are:

- The strategy aims to make as much use of 'A' and 'B' roads as possible, which are generally more able to accommodate construction traffic.
- The River Thurso forms a constraint to east-west traffic in the area. Only two crossing points of the River Thurso exist, in Thurso and Halkirk, meaning that construction traffic will need to travel through both of these locations.
- The strategy aims to maximise the use of haul roads alongside the cable route, which will reduce the interactions between construction traffic and general traffic.
- The rail line to the south of Halkirk forms a constraint to north-south travel along the cable route.

The resultant access strategy is shown in Figure 3-2.

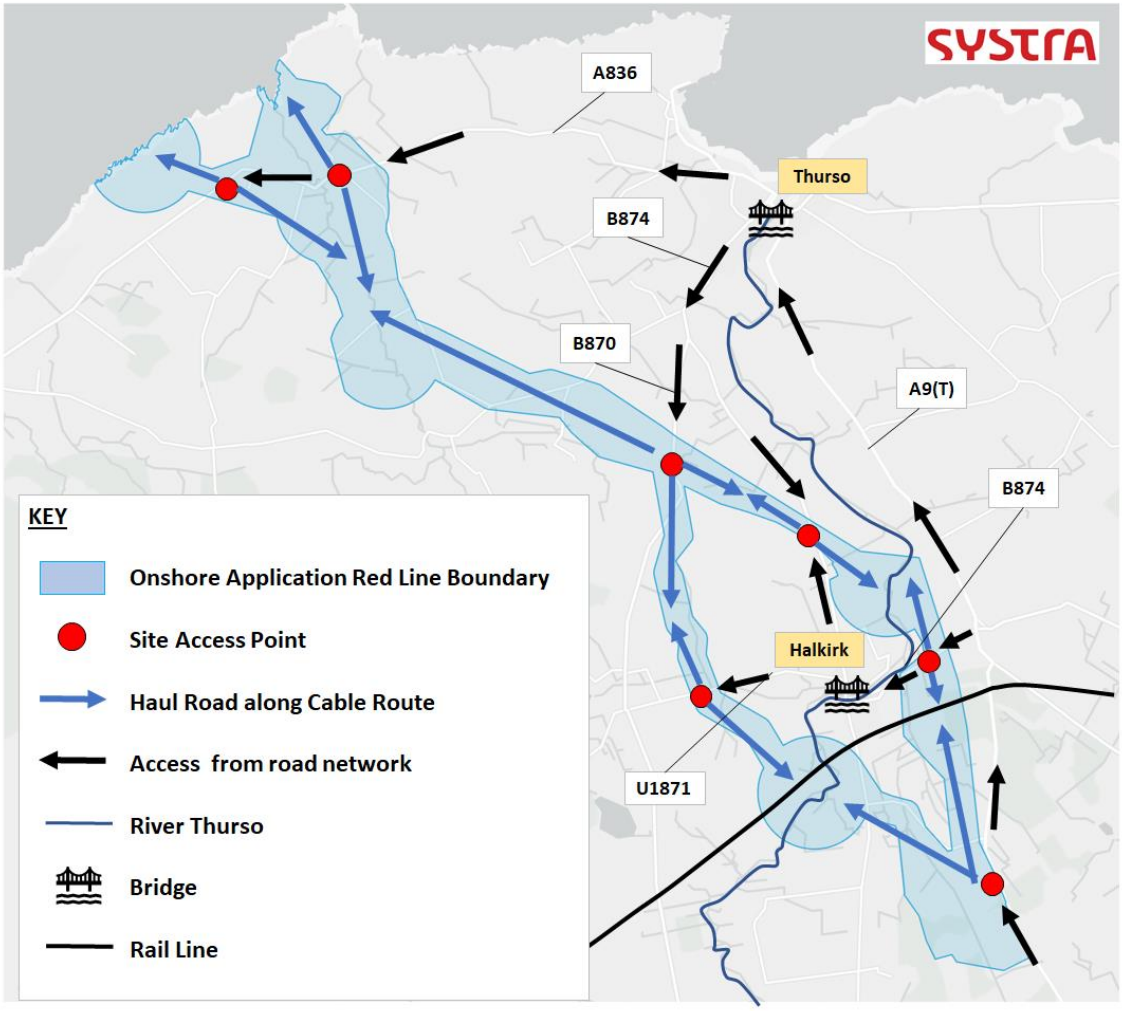


Figure 3-2 Construction Traffic Access Strategy

3.3 Site Access Points

As shown in Figure 3-2, seven indicative site(s) access points have been identified. These are:

- On the A836 to the west of the U2090;
- At the A836 / U2090 junction;
- On the B870, 2.7km south of the B874 / B870 junction;
- On the U1871, 3.3km west of Halkirk;
- On the B874, 3km to the north of Halkirk;
- On the B874 between the A9 and Halkirk; and
- On the A9(T) 3.4km south of the A9 / A882 junction. This is the substation access point.

All construction traffic has been assumed to originate from the main roads in the study area (A9 and A836), and travel to the operational work areas, before travelling back to the same location. All construction traffic (HGVs and construction worker vehicles) will travel on designated construction routes to each site access point, as shown in Figure 2-1.

The exact location of each access point, and the design of the junctions that will be created, has yet to be confirmed. It is anticipated that the CTMP will be updated as this information becomes available.

3.4 Construction Routes

The proposed designated construction routes are those road links shown in Figure 2-1. These will be discussed and agreed with THC and TS ahead of construction commencing on site(s).

Appointed contractors will have an obligation to use the agreed routes. The routes will be formally communicated to hauliers, and all drivers using the site(s) will be fully briefed.

The routes will be well signposted, and signage at road junctions will also clearly show which roads are not on the designated routes, so that drivers do not take wrong turns.

Any instances of vehicles not using the designated routes will result in the issue being raised with the individual driver and haulage company, and this will be escalated through formal procedures if required.

3.5 Construction Traffic Flows

This section describes the process that has been followed to calculate monthly and daily construction traffic flows. The following methodology was adopted:

- The number of HGVs required to transport the volumes / materials (e.g. amounts of concrete, aggregate, topsoil, steel etc.) for each sub-task has been calculated.
- The total number of HGVs for each sub-task has been split into quarterly and daily numbers of HGVs using the project programme supplied by OWPL.
- As discussed in section 3.1, the red line boundary of the scheme has been split into 7 work areas, each with a construction traffic site access point. OWPL has provided three potential phasing plans which set out which work areas might be in operation at different times.
- Based upon this, traffic has been assigned to the road network. All construction traffic has been assumed to originate from the A9 south of the study area with travel to the operational work areas and travel back to the same location. A small number of trips may originate from other destinations but these will be few in number, and have not been included in the assessment. A small number of abnormal loads may be transported from the harbours in Wick and Scrabster. The transportation of abnormal loads is discussed in Section 6.
- Trips associated with construction workers travelling to site(s) have been included in addition to the above, along with a small number of maintenance trips to the construction site(s).
- This process has identified the worst-case (i.e. highest) construction traffic flows on each link in each potential phase

Table 3-1 shows the calculated quarterly number of two-way construction trips, broken down by task and sub-task.

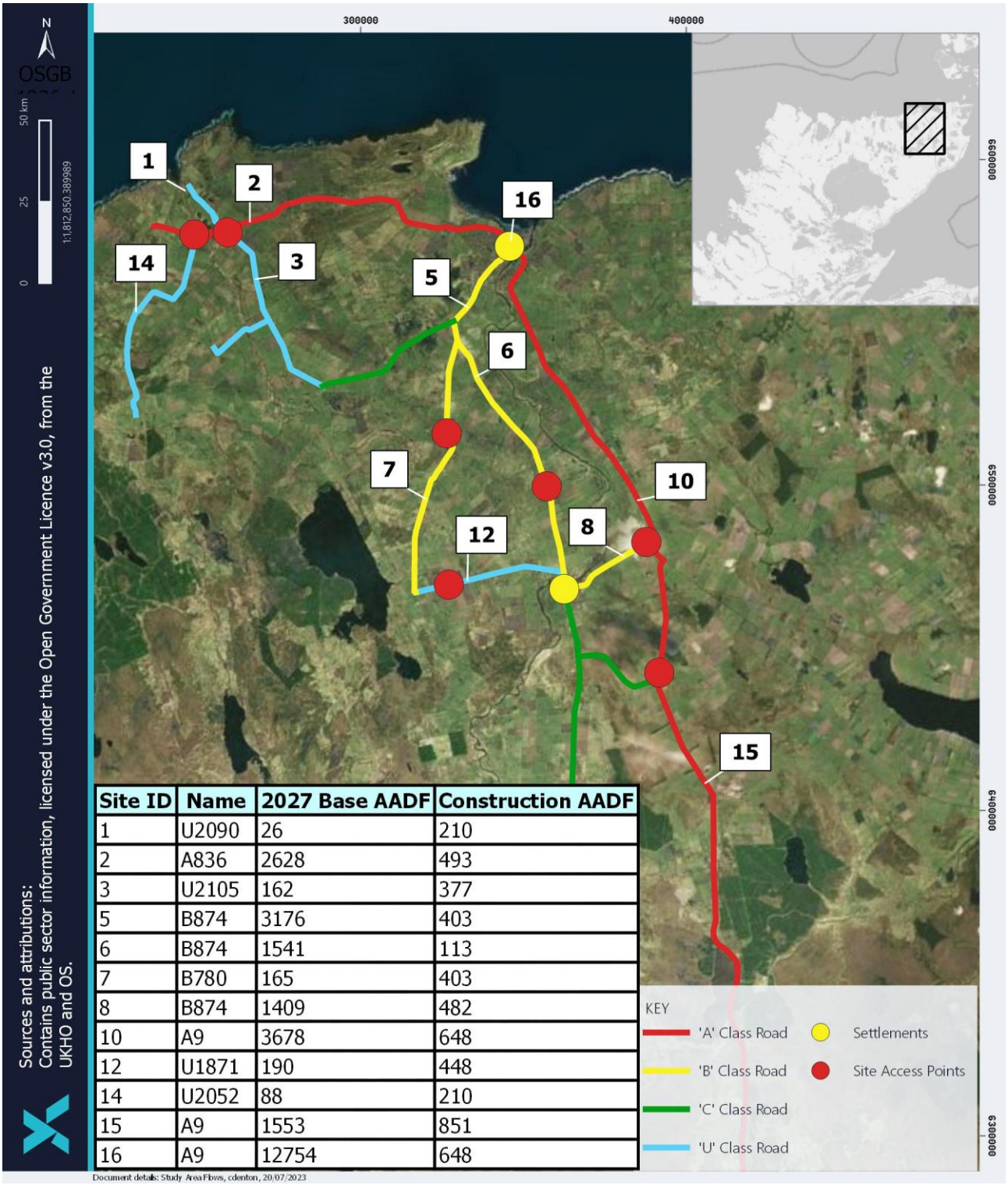
In Table 3-1**,** 'one-way flow' totals describe one trip to or from a site. 'Two-way flows' describe both movements i.e. an inbound and return journey.

Table 3-1 Breakdown of Quarterly Construction Traffic Flows

TASK	Y1				Y2				Y3				Y4				Y5				Y6				TASK TOTAL
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Landfall Works																									0
Enabling works						835																			835
HDD works							935	935																	1,870
TJB construction										1,135	1,135														2,270
																									0
Onshore Cable Routes																									0
Establishment of compounds		21	0																						21
Enabling works			59	59	59	59	59																		295
Cable trenching (incl foreseen crossings)				736	736	736	736	736	736																4,416
Ducts/duct bank installation				5,948	11,896	11,896	11,896	11,896	11,896	11,896															77,322
Joint bay Excavation and Installation					1,322	1,322	1,322	1,322	1,322	1,322															7,930
Cable installation						20	20	20	20	20															100
Cable jointing and testing						289	579	579	579	579	579														3,182
Cable trench backfilling						1,013	2,025	2,025	2,025	2,025	2,025														11,138
Reinstatement of joint bay sites							289	289	289	289	289														1,447
																									0
Substation Works																									0
Enabling works						1,720	1,720																		3,440
Onshore substation civil works							1,268	1,268	1,268	1,268	1,268	1,268	1,268	1,268											10,146
Onshore substation M&E works									736	736	736	736	736	736											4,416
Onshore substation cold commissioning														96	96										192
Onshore substation energised & hot commissioning																134									134
Final reinstatement and landscaping works													593	593				593							1,779

HGV TOTAL ONE-WAY	0	21	59	6,743	14,012	17,889	20,849	19,070	18,871	19,270	6,032	2,004	2,597	2,693	96	134	0	593	0	0	0	0	0	0	
HGV TOTAL TWO-WAY	0	42	118	13,486	28,025	35,779	41,697	38,139	37,741	38,539	12,065	4,009	5,195	5,387	192	268	0	1186	0	0	0	0	0	0	
CONSTRUCTION WORKERS ONE-WAY	0	4,320	4,320	4,320	4,320	7,200	7,200	7,200	6,480	7,200	7,200	2,160	2,160	2,160	2160	2160	0	2160	0	0	0	0	0	0	
CONSTRUCTION WORKERS TWO-WAY	0	8,640	8,640	8,640	8,640	14,400	14,400	14,400	12,960	14,400	14,400	4,320	4,320	4,320	4320	4320	0	4320	0	0	0	0	0	0	
MAINTENANCE TWO-WAY	0	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	0	80	0	0	0	0	0	0	
TOTAL TWO-WAY	0	8,762	8,838	22,206	36,745	50,259	56,177	52,619	50,781	53,019	26,545	8,409	9,595	9,787	4592	4668	0	5586	0	0	0	0	0	0	

The volume of construction traffic travelling upon each link will vary depending upon which geographical areas of the cable route are being developed at any one time. Figure 3-3 shows the highest number of daily construction trips expected to occur at any point in the programme on each selected road link.



Site ID	Name	2027 Base AADF	Construction AADF
1	U2090	26	210
2	A836	2628	493
3	U2105	162	377
5	B874	3176	403
6	B874	1541	113
7	B780	165	403
8	B874	1409	482
10	A9	3678	648
12	U1871	190	448
14	U2052	88	210
15	A9	1553	851
16	A9	12754	648

Figure 3-3 Peak Construction Traffic Flows (Two-way)

As shown in Figure 3-3, maximum daily construction traffic flows are expected to range from 113 two-way trips on the B874 north of Halkirk, to 851 two-way trips on the A9 in the vicinity of the sub-station access. These flows represent the 'worst case' flows on each link (i.e. the highest flows at any point during the construction programme), rather than average flows across the construction programme, which would be lower.

HGV and Light Goods Vehicle (LGV) trips will be spread out across the 12-hr working day, and staff trips will typically arrive and depart outside of the network morning and evening peak periods.

3.6 Working Hours

It is anticipated that construction hours will typically be:

- 08:00 – 19:00 Monday to Friday; and
- 08:00 – 13:00 on Saturdays.

Working hours may vary from day-to-day depending on the construction activity occurring on the site(s) and the time of year, e.g., the earliest departure could be around 16:00 in winter or on Fridays, and latest departure could be around 19:30 if work on-site not completed until 19:00 during the summer months.

Construction working shall not take place outside the normal working hours, apart from instances where this is required for safety or technical reasons (for example Horizontal Direction Drilling (HDD) underneath a railway). In instances such as this, THC would be notified of specific working arrangements.

3.7 Cumulative Impacts

The onshore EIA Report identified five projects (from an initial long-list of 16 projects) which have the potential to add cumulative traffic flows to the road network during the construction period. These impacts will be limited to the A9.

To manage cumulative impacts on the local road network, the Principal Contractor for the substation will keep up to date with the progress of nearby developments through regular communication with other construction sites (through their respective Principal Contractors). Where required, deliveries / routeing can be scheduled appropriately to minimise the impact to the public road network, and ensure that any cumulative impacts are minimised.

4. Measures to Mitigate Construction Impacts

4.1 Introduction

This section provides a summary of the measures that will be taken to mitigate the impact of traffic throughout the programmed construction stage.

4.2 Designated Construction Routes

All construction deliveries will be restricted to the designated route(s) detailed in Figure 1-1, so that the impacts of the construction traffic can be managed and monitored while preventing impacts on other routes or unnecessary impact to local residents.

Appointed contractors will have an obligation to use the agreed routes. The routes will be formally communicated to hauliers, and all drivers using the site(s) will be fully briefed.

The routes will be well signposted, and signage at road junctions will also clearly show which roads are not on the designated routes, so that drivers do not take wrong turns.

Any instances of vehicles not using the designated routes will result in the issue being raised with the individual driver and haulage company, and this will be escalated through formal procedures if required.

Members of the public will be able to report any violation of agreed routes, or poor driver behaviour to the appointed Site Liaison Officer (SLO), of OWPL's Contact for Road Safety (See Section 5.5) for whom contact details will be provided on the project website.

4.3 Contractor Speed Limit

It is proposed to impose reduced speed limit for construction vehicles along the road network, which will be reinforced by construction traffic speed limit signs. The proposed scheme is shown in Figure 4-1.

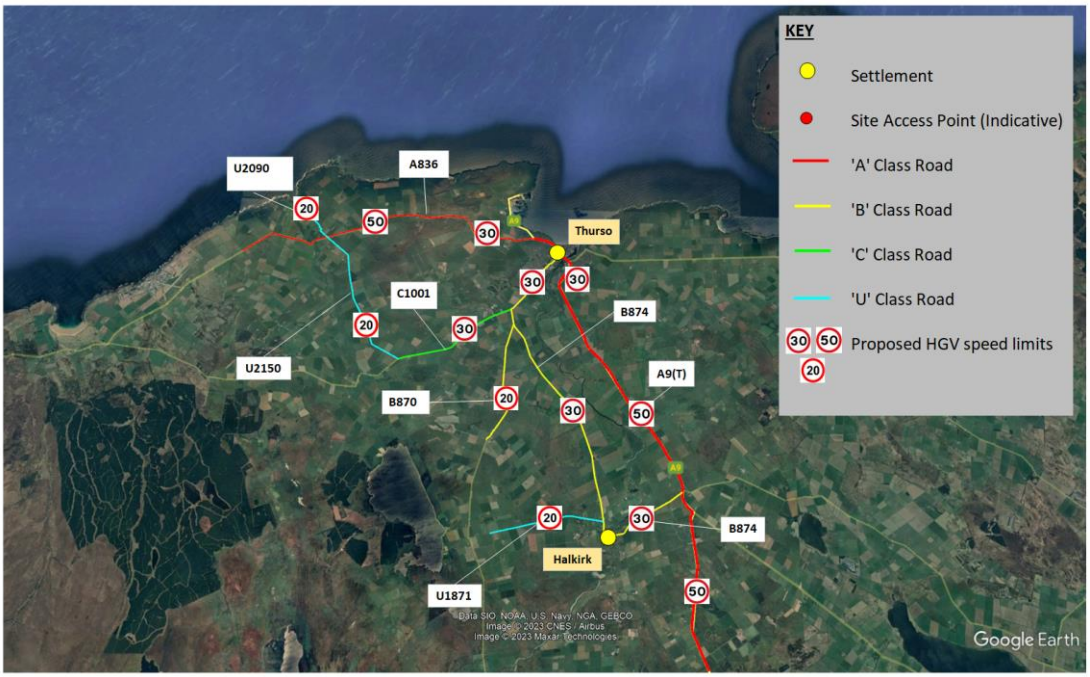


Figure 4-1 Proposed Speed Limits for Construction Traffic

The proposed regime is:

- A speed limit of 50mph on 'A' Class Roads;
- A speed limit of 30mph on single-carriageway 'B' and 'C' class roads; and
- A 20mph speed limit on 'U' class roads, and single-track roads.
- A speed limit of 20 mph for construction traffic on the local 'B' roads and unclassified roads on construction traffic routes;
- Local speed limits at sensitive locations (such as schools) will be agreed on a case-by-case basis with THC. It is recommended that 20mph speed limits are put in place at all times on the B874 in the vicinity of Miller Academy Primary School and Thurso Academy (both in Thurso), and on the B874 in the vicinity of Halkirk Primary School.
- Local residents will be able to report any instances of speeding to the SLO or CLM (See Section 5.5) who would take necessary action to prevent this happening again.
- The construction workforce will be briefed on the speed limit through induction sessions and through regular staff briefings. Other parties responsible for site deliveries will also be instructed on the restrictions and made aware of the requirements relating to existing road users.

4.4 Provision of Passing Places on Single-track Roads

A scheme for the provision of appropriately located passing places on the following road links will be agreed with THC:

- Road link 1 – U2090 north of A836;
- Road link 3 – U2105 between A836 and C1001;
- Road link 7 - B870 between B874 and U1871;
- Road link 12 - U1871 between B871 and B870; and
- Road link 14 – U2052 south of B836.

It is expected that the design and agreement of these passing place schemes will be required as a Planning Condition, and that they will require to be constructed prior to work beginning on site(s) or prior to using each road as an access route.

4.5 Heavy Goods Vehicle (HGV) Specification

HGVs associated with the development will:

- Have side guards fitted, unless it can be demonstrated to the reasonable satisfaction of the employer, that the lorry will not perform the function for which it was built, if side guards are fitted;
- Have a close proximity warning system fitted comprising of a front mounted, rear facing CCTV camera (or Fresnel Lens where this provides a reliable alternative), a Close Proximity Sensor, an in-cab warning device (visual or audible) and an external warning device to make the road user in close proximity aware of the driver's planned manoeuvre;
- Have a Class VI mirror; and
- Bear prominent signage on the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.

The Principal Contractor shall ensure that all contractors and fleet operators at the site(s) with vehicles over 3.5 tonnes will be required to have the vulnerable road user safety kit fitted, as shown in Figure 4-2.

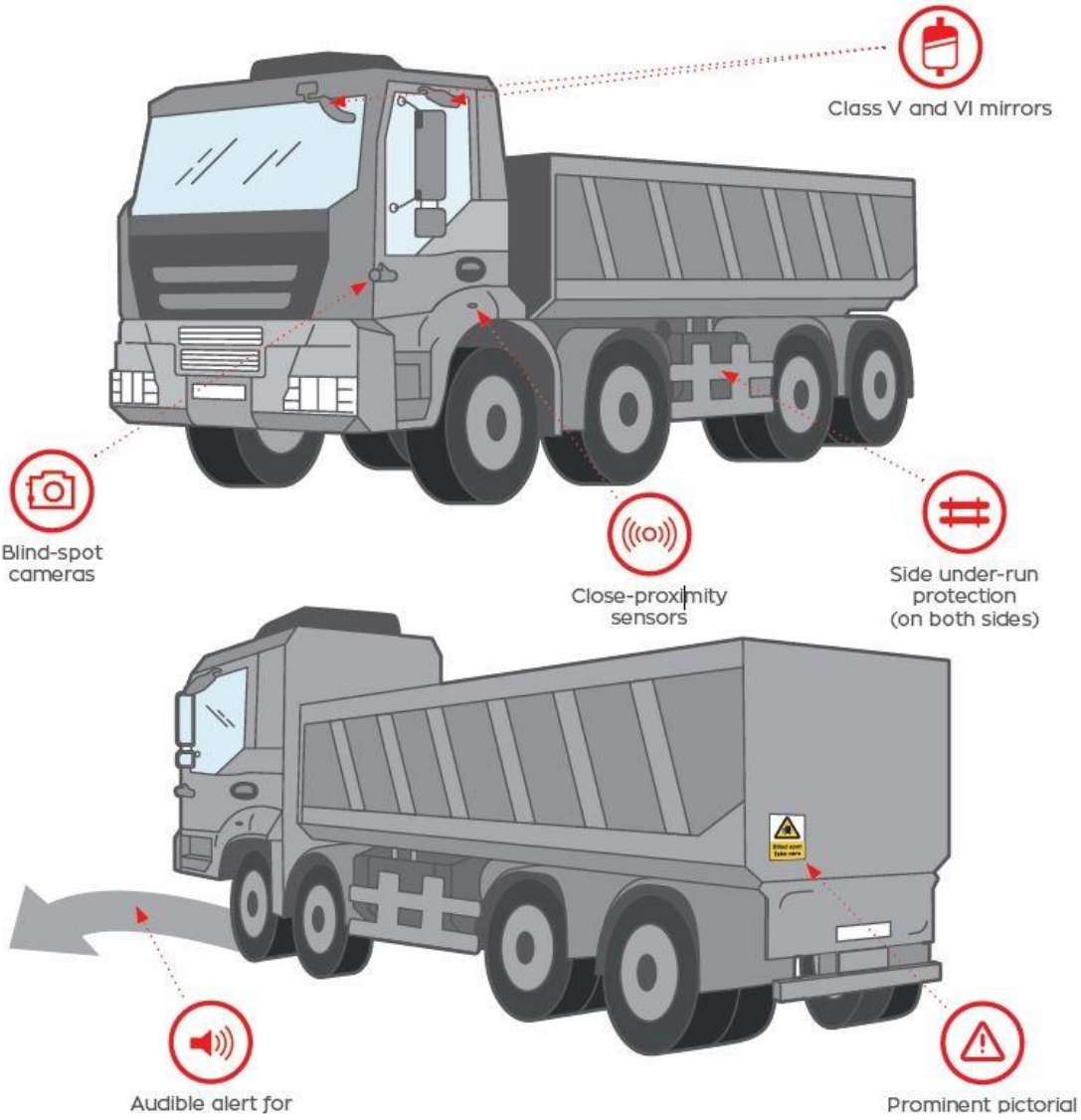


Figure 4-2 HGV Safety Measures

The Principal Contractor shall ensure that checks of vehicles accessing the site(s) are undertaken, to ensure they comply with the required safety specification. In the event that a vehicle arrives at a site(s) that is not fitted with the above safety kit then the vehicle shall be refused entry and a non-conformance report completed.

The Principal Contractor / Contractor shall ensure that all contractors and fleet operators accessing the site(s) have received the correct level of training and have had driver license checks.

4.6 Delivery Control

Where possible normal HGV deliveries will be restricted to the standard daytime construction working hours on weekdays and weekends, thereby minimising the potential for disturbance to residents adjacent to the main access route and other users of the route.

The Principal Contractor will be required to plan and manage deliveries and collections from the site(s) to minimise the impact on the surrounding road network. The Principal Contractor shall consider, as a minimum, the following measures during the construction period:

- Peak hours for a construction site(s) are generally outside regular 'office / employment' hours and where possible deliveries (especially abnormal loads) shall not be within the morning and evening road network peaks of 08:00-09:00 and 17:00-18:00 respectively;
- Deliveries that pass sensitive locations such as schools, will be closely controlled, so that these do not coincide with school drop-off or pick-up times. The schools that could potentially be affected by HGV deliveries are:

- Halkirk Primary School, which is accessed from the B874 in Thurso. School times 09:15 – 14:45 / 15:15.
- Miller Academy Primary School, which is accessed from the B874 in Thurso. School times 08:50 – 14:45 / 15:15 Mon - Thu, 08:50 – 12:50 on Fridays.
- Thurso High School, which is accessed from the B874 in Thurso. School times 08:40 – 15:35 Mon-Thur, 08:40 – 12:25 on Fridays.

- The Principal Contractor shall ensure that HGV deliveries to and from the work sites do not pass the above schools at the times at which children may be travelling to or from school.
- The number of delivery trips shall be minimised through a combination of consolidated ordering, rationalising suppliers and consolidated deliveries;
- On-site waste shall be minimised through recycling and re-use to minimise the number of collections from site(s); and
- During peak construction periods, deliveries to the site(s) will be staged with drivers given specific time windows for arrival on-site. The release of vehicles from the site(s) will be controlled to avoid large convoys of vehicles travelling along the local road network.

4.7 Bankspeople / Vehicle Marshalls

Where appropriate, bankspeople / vehicle marshals will be deployed to assist in the management of HGV construction traffic. These workers will also be deployed during the delivery of the abnormal load and during peak construction periods.

The banksmen / vehicle marshals will be deployed at the site(s) access points to control access and egress.

4.8 Sustainability

The Principal Contractor will plan and execute construction with a demonstrably high regard to sustainability. In particular, the following objectives will be set in place.

- Minimisation of unnecessary vehicle movements to / from the site(s);
- Promotion of shared transport arrangements for site operatives;
- Thorough pre-planning of operations on-site to optimise the redistribution of earthworks materials together with minimisation of haul distances; and
- Apply a ‘reduce-reuse-recycle’ philosophy to all waste processing activities.

4.9 Workforce Travel and Parking Arrangements

It is expected that the majority of staff would travel to the site by works cars / vans and private vehicles, although a small proportion may access the site(s) by walking, cycling or by public transport.

Taking into consideration the need to balance the promotion of sustainable travel against the risk of over-spill parking, appropriate on-site provision will be made for car parking by site construction personnel, within the temporary construction compounds. All vehicular access will be controlled at the gate(s) where access and egress will be recorded. No overspill parking onto surrounding roads will be permitted.

4.10 Measures to Maintain Pedestrian Safety

It is acknowledged that there will be an increase in construction vehicle movements on the local road network adjacent to the site(s), and pedestrian safety throughout the construction programme will be paramount. The measures outlined within this CTMP, such as the erection of temporary signage, deployment of banksmen and introduction of a contractor speed limit, will act as control measures should there be pedestrians on the local road network. This is particularly pertinent in the built-up areas of Thurso and Halkirk. Pedestrian movements elsewhere are likely to be small and infrequent.

To ensure pedestrian safety during loading and unloading activity, the banksman / vehicle marshal shall be present to minimise the likelihood of conflict with pedestrians. Warning signage will be provided locally to the site(s) to ensure that vehicles, pedestrians and cyclists are aware that construction activity is taking place. The site(s) will be properly secured and monitored, helping to ensure that pedestrians and the general public cannot access the construction site(s) unauthorised.

Daily inspections will be undertaken in the vicinity of the site(s) and on footways to check for potential hazards (including blocked footways and the build-up of rubbish).

4.11 Staff Induction

On commencement of the mobilisation phase, all site operatives and personnel will report for induction at the site(s) compounds. The induction will also be communicated to any sub-contractors at their inception meeting.

The induction will be undertaken by the Principal Contractor and other relevant parties, as required. Operatives will be advised on the following, as a minimum:

- Emergency procedures;
- Assembly points;
- Health & Safety and first aid;
- Site rules and location of welfare facilities;
- Policies and contacts at this time; and
- Any specific sensitivities in the context of the surrounding community particularly in relation to local residents and schools.

Operatives will be instructed to sign in and out at the site(s) access points each day.

All site personnel will be informed about traffic management arrangements and procedures via site induction literature. All contractor induction literature will contain information on the CTMP arrangements such as car parking provision.

4.12 Notice Boards

In addition to the staff induction process, travel notice boards will be erected within site(s) offices, and maintained up to date with relevant travel information.

Site contact details and out of hours emergency contact details will also be prominently displayed on-site hoardings.

4.13 'Wear and Tear' Agreement

THC's 'Roads and Transport Guidelines for New Developments' (2013), states that,

"9.4.1 Even with road improvements, whether temporary or permanent, development construction traffic and the movement of associated abnormal loads can lead to potential damage to existing public roads. In such an event, a Local Roads Authority has the powers, under the terms of Section 96 of the Roads (Scotland) Act 1984, to seek extraordinary expenses incurred in maintaining roads damaged by heavy vehicles or traffic. As a result, planning consent for a new development that is likely to generate significant volumes of construction traffic and/or abnormal loads, such as wind farms or very large developments, will usually require the developer to enter into a "Wear and Tear" Agreement with the Council to cover costs of any damage caused by the development to the local road network.

9.4.2 As part of the "Wear and Tear" Agreement, the developer will be required to undertake a Road Assessment Condition Survey of existing road conditions of agreed delivery routes, from point of origin to the site. Usually, the survey shall be undertaken jointly with the Council, in order to agree the survey results. The Council would then monitor conditions until construction work was completed at which time a Final Road Condition Survey would be undertaken to identify any necessary reinstatement work that can be reasonably attributed to the new development".

It is recognised that the existing road surface could degrade as a result of construction traffic, particularly on the 'B', 'C' and 'U' Class road networks.

As set out in the THC Guidelines, it is therefore proposed that a pre-start condition survey will be undertaken along agreed sections of the public road network in each area. The survey will include a video recording of the route, plus preparation of an inspection report for submission to THC, who will be invited along to the initial condition survey. The timing of the survey in each area, and the roads to be surveyed, will be agreed with THC, and will depend upon the specific construction works that are planned.

The initial inspection report will record any existing defects in each section. Defects could include surface wear, potholes, breaking up of edges, verge damage and signing / lining defects. The initial survey will provide an agreed baseline for future surveys to compare against and will allow identification of any accelerated wear and tear as a result of the construction works.

On completion of the construction works in each area, the final condition survey will be undertaken, and a meeting held to agree any remedial works that are necessary.

In a situation where accelerated wear and tear occurs, the details of any required remedial works will be discussed and agreed with THC. SYSTRA suggest that regular monitoring of construction routes is undertaken by the principal contractor, to help identify any issues which may arise.

It is accepted that the responsibility for any maintenance requirements resulting from incidental damage to carriageway surfaces and shown to be as a direct result of substation construction traffic, will lie with OWPL, including:

- Street furniture;
- Structures;
- Drainage features; and
- Highway verges.

General road maintenance and all maintenance post-construction will remain the responsibility of THC. The public roads are expected to be fit-for-use prior to the works starting.

4.14 Dust and Dirt

The control of dust and dirt is a prime concern for all construction projects, particularly during periods of dry and windy weather. Best practice guidance 'Dust and Air Emissions Mitigation Measures' guidance provided by the Institute for Air Quality Management[2] will be utilised to control dust.

Mud and debris on the road is regarded as one of the main environmental nuisances and safety problems arising from construction site(s). Unless unavoidable, no vehicles used for travel on public roads will be permitted to drive over broken or unsealed ground in order to minimise the potential for tracking mud, dust and stones outside of the site(s). Notwithstanding this, the following measures will be implemented at the site(s) to manage the effects of dust and dirt:

- **Mechanical road sweeping** – a road brush will be used as required to maintain clean routes within the site(s) and along the public road network;
- **Covering of loads** – where required HGVs carrying material to and from the site(s) will be covered during transportation to minimise wind-blowing materials from being deposited onto the public road network;
- **Dust suppression** – during periods of particularly dry weather, dust suppression measures such as water spraying will be used on the internal and external access roads where necessary; and
- **Wheel washing** – a wheel cleaning procedure will be used in order to mitigate the amount of mud that could potentially be deposited on the local road network by vehicles exiting the site(s). An area close to the site exit will be utilised for wheel washing prior to vehicles leaving site(s). A power washer will be used to wash off any mud from the vehicles' wheels, with excess mud / slurry being collected and disposed of.

The Principal Contractor will undertake daily inspections of the site(s) and the roads surrounding the site(s) to ensure that dust control measures are complied with. The Principal Contractor will record and respond to all dust and air quality pollutant emissions complaints and will maintain a log of any complaints and any action taken to resolve the issues.

The frequency of site inspections will increase when activities with a high potential to produce dust are being carried out as well as during periods of prolonged dry or windy conditions.

4.15 Signage

Temporary construction site signage will be erected on the local road network in the vicinity of the site(s) access points, and along construction routes, to warn people of construction activities and vehicles. The purpose of such signage is to provide driver information and to maintain road safety along the construction vehicle route. The exact nature and location of the signage will be agreed with THC and Transport Scotland prior to construction activity on-site.

The signing strategy will include clear signs to guide HGV drivers to site(s) so that they do not stray from the intended route. Such signs will also warn other drivers that they are sharing a route with construction traffic with signs such as the examples indicated by Figure 4-3 provided in advance of bends to warn of dangers ahead.

[2] http://www.iaqm.co.uk/text/guidance/iaqm_mitigation_measures_2012.pdf

Figure 4-3 Example of Signage to be Provided Along Route

Temporary construction traffic speed limit signs will also be provided along with information signs indicating the intended date for the delivery of any abnormal loads. Signs will be provided to denote the site(s) access point and to warn drivers that large vehicles could be turning from the access point.

4.16 Fuel Consumption and Emissions

The Principal Contractor will aim to procure local contractors for the project, thereby minimising transport costs and impact on the local environment. The use of the booking system for deliveries will also help to ensure that the construction site(s) is serviced in an efficient manner which will help to minimise the number of vehicle movements that would be generated.

A further measure that will be employed is encouraging all delivery vehicles to switch off engines as they are waiting at the site(s), thereby preventing unnecessarily idling vehicles.

5. Implementation and Monitoring of the CTMP

5.1 Introduction

The implementation of this CTMP will be the responsibility of OWPL, via its Principal Contractor, who will also be responsible for the monitoring of the plan. Further evolution of the CTMP will likely be required during the construction period itself.

OWPL may employ a number of contractors on the site(s) and all will fall under the auspices of the CTMP and will have an obligation to adhere to the plan written into their contracts.

5.2 Responsibilities of the Principal Contractor

The Construction (Design and Management) Regulations 2015 describe the responsibilities of the Principal Contractor in detail.

A principal contractor is appointed by the client to control the construction phase of any project involving more than one contractor.

Principal contractors have an important role in managing health and safety risks during the construction phase so they must have the skills, knowledge, experience and, where relevant, organisational capability to carry out this work.

In this instance, The Principal Contractor will nominate a person to be responsible for the co-ordination of all elements of traffic and transport during the construction process. This person will work alongside OWPL's appointed Contact for Road Safety, so that the community have a point of contact for information purposes or to discuss matters pertaining to traffic management or site operation.

The Principal Contractor will review and update the number of site personnel, traffic numbers, and the construction programme as the project progresses. Regular updates shall be provided to THC, Transport Scotland and Police Scotland. Any significant changes shall be discussed and agreed with both THC and Transport Scotland (if appropriate). Regular meetings, where required, shall be organised for monitoring purposes.

5.3 Transport Co-ordinator

The Principal Contractor will be responsible for the co-ordination of all elements of HGV transport to and from the construction site(s). They will be responsible for coordination and liaison with THC and TS, the police, emergency services and local community.

The person nominated by the Principal Contractor will inform THC and TS of any significant matters that may affect traffic movement by means or reports issued at regular intervals or by day-to-day reports of any significant essential changes to transport plans necessitated by circumstances.

Contact details for the nominated person will be made available to all relevant parties prior to commencement of works on-site. The details will be provided to the local community via a newsletter and via a dedicated website for the project.

5.4 Monitoring of the CTMP

The CTMP will be monitored by the Principal Contractor who in turn would report to THC via OWPL. A report will be prepared by the Principal Contractor on a quarterly basis and issued to THC. This report will include comparisons with this document and will identify any breaches projected traffic flows associated with construction vehicles and traffic associated with the employed workforce.

As necessary, meetings will be held with THC, the Principal Contractor and OWPL to discuss the CTMP and to discuss any relevant issues raised by the local community.

Use of the agreed routes by hauliers will be monitored by undertaking spot checks by the Principal Contractor and / or the roads authority. These spot checks would take the form of observations or surveys at key locations.

The information collected from the spot checks will be held by the Principal Contractor and OWPL and will be made available to THC, TS, Police Scotland and the local community on request.

5.5 Liaison with the Local Community

The CTMP will be communicated to the local community, and will take on board any feedback received. As indicated above, the Principal Contractor should follow best practice 'Considerate Constructor' guidelines[3] and should appoint a Site Liaison Officer. The Site Liaison Officer will provide support to OWPL's appointed Contact for Road Safety for all aspects regarding community engagement on traffic and transport issues.

The Contact for Road Safety, with support from the Site Liaison Officer, will communicate with all neighbouring residents and businesses to ensure they are aware of the construction programme and the development proposals. Communication with local residents and businesses in Thurso and Halkirk will begin prior to commencement of construction. The Contact for Road Safety will be responsible for keeping the local community informed of progress on the site(s) and warning them of upcoming activities which may give rise to increased construction vehicle movements.

The Contact for Road Safety would be able to attend Community Council meetings to provide a report and to be on hand to answer any questions that the local community may have. A website will be set up to provide information to the public and contact details would be provided for the Community Liaison Manager (telephone number and email address) so that members of the public have an opportunity to ask questions and provide feedback.

OWPL will also make use of the local press in order to disseminate information regarding traffic management and the movement of abnormal loads.

5.6 Website

A dedicated website with information about the construction of the project will be set up by OWPL. This website will be kept up-to-date throughout the construction period by OWPL, through regular updates provided to OWPL by the Principal Contractor. If visitors to the site(s) are unable to find the answer to their question in the web pages, an email address will also be provided so that members of the public can ask for information or submit queries.

5.7 Letters / Telephone Calls/ Meetings

OWPL and the Principal Contractor will be happy to respond to enquiries from members of the public regarding the construction of the project and update residents / interested parties through traditional methods particularly for those without the internet.

[3] https://www.ccscheme.org.uk/ccs-ltd/code-of-considerate-practice-2/

6. Abnormal and Heavy Loads

6.1 Introduction

Construction of the substation will require the delivery of large electrical components, such as transformers, as abnormal loads. There are also likely to be abnormal loads associated with the delivery of the Horizontal Directional Drilling (HDD) equipment. Further detail is provided in the Onshore EIA Report Supporting study (SS) 15: Abnormal Loads Assessment (ALA) which forms part of the application package.

At this stage, it is anticipated that abnormal loads will be transported to Wick or Scrabster harbours, and then transported by road to site.

An appointed Site Liaison Officer will provide THC, Police Scotland and TS with advanced warning of any abnormal loads. The schedule of abnormal load movements will be dependent on the availability and approval of the police escort.

The following relates to general conditions which shall be adhered to in order to facilitate the movement of abnormal loads as efficiently as possible.

6.2 Wear and Tear

As discussed earlier in the CTMP, prior to commencement of abnormal load movements, dilapidation surveys will be carried out in conjunction with THC on the identified haul route. These surveys will assess any damage to the highway caused by the abnormal load.

6.3 Peak Hour Restrictions

The abnormal load movement will be restricted to outwith the peak hours when existing traffic flows on the route will be low, and will avoid passing sensitive locations at certain times (e.g. schools at drop-off or pick-up times). Information on the movement of the abnormal load will also be provided to the local press to help inform the public and those directly affected by the movements in the local area would be notified via a newsletter.

Local residents along the abnormal load route will be informed when the abnormal load will be travelling along the route to ensure that interaction between local residents and the abnormal load delivery vehicle is minimised.

6.4 Advanced Warning Signs

Advance warning signs will be installed at various points along the abnormal load route to advise drivers that an abnormal load will be operating on the route with dates and times provided. The purpose of the signs is to provide driver information which would allow people to either avoid the area until the convoy had passed, take an alternative route or to proceed with caution.

To further improve driver information, Transport Scotland will be approached as operators of Variable Message Signs to investigate whether the existing signs on the A9 could be used to warn other drivers of the abnormal load and to warn them of potential delays.

6.5 Vehicle Retraction

Once the abnormal loads have been delivered to their destinations, the abnormal load delivery vehicles are able to retract to the size of a regular HGV, so their impact tends to be in the inbound direction only.

7. Summary and Conclusion

7.1 Summary

This Construction Traffic Management Plan (CTMP) has been prepared by SYSTRA Ltd (SYSTRA) on behalf of Offshore Wind Power Limited (OWPL) in respect of the onshore elements of the West of Orkney Windfarm.

The CTMP provides detail on the proposed traffic management measures and procedures that will be put in place to support the construction stage of the project, and to minimise disruption to local residents while maintaining road safety on the adjacent road network.

The CTMP is intended to be a working document that evolves during the construction period; for example when suppliers are identified OWPL / the contractor will be responsible for revisiting the CTMP and consulting with stakeholders such as THC as appropriate.

Management measures have been identified for both the movement of general construction traffic, primarily HGVs and site operative's vehicles. The movement of abnormal loads is covered in the separate Abnormal Loads Assessment.

The proposed mitigation measures include:

- The identification and agreement of designated construction routes, to ensure that construction traffic is directed appropriately;
- The creation of suitable passing place schemes on single-track roads;
- Ensuring the deliveries are properly managed, controlled and scheduled appropriately;
- Ensuring that all workforce vehicles can be accommodated on site(s);
- Ensuring that suitable warning signs are in place along designated construction routes; and
- Undertaking pre- and post-construction road condition surveys in each area to attribute 'wear and tear' costs appropriately.

The implementation of the CTMP will be the responsibility of OWPL, via its Principal Contractor, who will also be responsible for the monitoring of the plan. Further evolution of the CTMP will likely be required during the construction period itself.

7.2 Conclusion

It is considered that implementation of the CTMP will reduce, as far as possible, the impact of construction traffic associated with the development.

As a project with a construction phase duration of a number of years, it is important that the CTMP is kept up to date as the project is delivered, to react to any issues encountered, and to ensure good relations between the project team and local communities and residents.

Abbreviations

Term	Definition
AADF	Average Annual Daily Flow
ALA	Abnormal Loads Assessment
ATC	Automatic Traffic Counter
CTMP	Construction Traffic Management Plan
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
LGV	Light Goods Vehicle
m	Metres
Mph	Miles per hour
OP	Outline Plan
OWPL	Offshore Wind Power Limited
RTGND	Roads and Transport Guidelines for New Developments
SLO	Site Liaison Officer
SS	Onshore EIA Report Supporting Study
TA	Transport Assessment
THC	The Highland Council
TS	Transport Scotland

West of Orkney
Windfarm