Environmental Impact Assessment Report
Volume 3, Appendix 26.1: Transport Assessment

MarramWind Offshore Wind Farm

December 2025

MarramWind

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Appendix A Visibility Splays

1. Introduction

1.1 Overview

1.1.1.1 At the scoping stage, a Transport Assessment (TA) was proposed, which was subsequently agreed by Aberdeenshire Council, to consider the impact of traffic of the construction stage of the Project on the local transport network and this TA has been prepared accordingly. It was also agreed with Aberdeenshire Council that traffic associated with decommissioning and O&M would not be included in this assessment.

1.2 Purpose of the Transport Assessment

1.2.1.1 The TA aims to address the key transport and access issues associated with the Project. This Report identifies the anticipated key access routes and potential measures to accommodate the predicted temporary increase in traffic due to the construction of the Project.

1.2.1.2 This TA is structured as follows:

- **Section 2** identify the relevant policy, legislation and guidance which has informed the TA;
- **Section 3** outline the onshore construction elements and associated construction traffic origin;
- **Section 4** describes the baseline conditions and contains a review of the existing transport network;
- **Section 5** identify the volume of trips generated by construction activities and associated routing of vehicles, including Heavy Goods Vehicles (HGVs);
- **Section 6** outlines the potential impact of construction traffic on the operation of the local transport network and identify potential measures to mitigate the potential impacts;
- **Section 7** summarises the findings and conclusions of the TA;
- **Section 8** summarises the references used with this Report; and
- **Section 9** contains the glossary and abbreviations.

1.3 Scoping discussion

1.3.1.1 A Scoping Report (MarramWind Limited, 2023) was submitted by the Applicant to Aberdeenshire Council and MD-LOT on 26 January 2023.

1.3.1.2 A Scoping Opinion was adopted by MD-LOT on 12 May 2023 (Scottish Government, 2023b) and by Aberdeenshire Council on 22 March 2023 (Aberdeenshire Council, 2023b). An addendum from Aberdeenshire Council and MD-LOT was adopted on 26 April 2023 and 12 September 2023; respectively.

1.3.1.3 Most notably, as part of a Pre-Application Advice Report Aberdeenshire Council, 2024), Aberdeenshire Council highlighted a need to include visibility splays within this assessment. Subsequently, this has been provided within **Appendix A Visibility Splays.**

1.3.1.4 A full review of the Scoping Opinion and other correspondence relating to the scope of this study is provided in the **Volume 1, Chapter 26: Traffic and Transport**.

2. Transport Policy and Guidance Review

2.1.1.1 This Section identifies the national and local transport policy, standards and guidance relevant to the Project which will be complied with within this TA.

2.2 Policy context

2.2.1.1 The policies relevant to this TA includes:

- National Planning Framework 4 (NPF4) (Scottish Government, 2023a);
- Aberdeenshire Local Development Plan 2023 (Aberdeenshire Council, 2023a)
- Nestrans Regional Transport Strategy 2040 (Nestrans, 2021); and
- Aberdeen City and Shire Local Transport Strategy 2012 (Aberdeenshire Council, 2012).

2.3 Relevant technical standards

2.3.1.1 The technical standards relevant to this TA includes:

- National Roads Development Guide (Scottish Government, 2014); and
- Designing Streets: A Policy Statement for Scotland (Scottish Government, 2010).

2.4 Other relevant transport guidance

2.4.1.1 Other guidance relevant to this TA includes:

- Transport Assessment Guidance (Transport Scotland, 2012); and
- Planning Advice Note (PAN) 75 (Scottish Government, 2005).

3. The Project

3.1 Introduction

3.1.1.1 The onshore infrastructure elements which relate to this TA include the landfall(s), onshore export cable corridor and the onshore substations.

3.2 Onshore site context and location

3.2.1.1 The onshore infrastructure is predominantly situated on agricultural land, with residential areas at St Fergus and Kirktown to the west, and Inverugie to the south-east. The town of Peterhead also lies to the east of the Project, and scattered dwellings are present in the surrounding area. Longside Airfield is located directly to the west of the onshore export cable corridor, before crossing the A950 and is located to the north of the onshore substations.

3.3 Project description

3.3.1.1 The onshore infrastructure elements of the Project relate to the infrastructure, landward of Mean Low Water Springs (MLWS). The key components are:

- landfall(s) – the infrastructure associated with landfall(s) located above MLWS;
- underground onshore export cables running from the landfall(s) to the onshore substations;
- three onshore substations co-located at one site;
- underground grid connection cables (connecting the onshore substations to the grid connection point at Scottish and Southern Electricity Networks (SSEN) Netherton Hub[1]); and
- tie-in to grid connection point at the SSEN Netherton Hub.

3.3.1.2 The indicative locations of the onshore infrastructure are shown in **Volume 2, Figure 4.1: Onshore Red Line Boundary and indicative onshore infrastructure layout.**

3.4 Vehicle classification

3.4.1.1 This assessment has been prepared based on the estimated level of trips generated by construction activities and the vehicles to be used.

3.4.1.2 It is anticipated that construction activities will be supported by the following key vehicle types:

- HGVs transporting construction materials, plant and equipment to / from site;
- tipper trucks (for example, for transporting aggregates and concrete) to site;
- low loaders (for example, various plant items, excavators) to site;
- Light Commercial Vehicles (LCVs) delivering lighter materials and staff to site; and

[1] This is a separate project and does not form part of the consenting applications that this Environmental Impact Assessment relates to.

- cars transporting staff to and from site; and
- a variety of abnormal loads referring to vehicles carrying cargo that exceeds standard legal limits for weight, width, or length.

3.4.1.3 The largest and heaviest vehicles, not considered an abnormal load, associated with construction is a 16.5m articulated HGV. Assessment of abnormal load deliveries such as horizontal directional drilling (HDD) (or similar trenchless technique) rigs, cable drums and onshore substations transformers are detailed in **Appendix 26.2: Abnormal Load Assessment**.

3.5 Construction works and timescales

3.5.1.1 The overall duration of construction of the offshore infrastructure is anticipated to be up to 12 years. This will be subject to the final grid connection date, supply chain discussions and further site surveys (pre-consent).

3.5.1.2 A shorter period within the 12 years is expected for construction of the onshore infrastructure; in the range of up to nine years.

3.5.1.3 The Project will be delivered in phases, which are reflected in the indicative construction programme. It is anticipated that construction of the Project would commence in 2030.

3.5.1.4 In light of this, the indicative construction programme (see **Volume 1, Chapter 4: Project Description**) identifies the most intense onshore construction period as the second year, consequently assumed to be 2031. As it is anticipated that construction activities are less in years following 2031, this reflects the worst-case year of construction traffic generation, consequently leading to a more robust assessment. The main tasks included in the construction of the onshore infrastructure are:

- **landfall(s):**
  - temporary construction compound construction;
  - access road construction;
  - transition joint bay(s) construction; and
  - ducting and earthworks;
- **onshore export cable corridor (onshore export cable corridor from the landfall(s) to the onshore substations:**
  - primary and secondary construction compounds construction;
  - HDD (or similar trenchless technique) compounds and access road construction;
  - haul road construction and drainage;
  - Joint bay construction;
  - trenching earthworks and ducting; and
  - protection tiles for trenched corridor;
- **onshore substations:**
  - access road construction;
  - foundations and earthworks;
  - temporary construction compound construction; and

- structure and equipment materials;

- **grid connection cable (GCC) corridor (onshore export cable corridor from the onshore substations to SSEN Netherton Hub):**
  - haul road construction and drainage;
  - joint bay construction;
  - trenching earthworks and ducting; and
  - protection tiles for trenched corridor.

3.5.1.5 The onshore export cable corridor will include the underground export cables to be installed between the landfall(s) and the three proposed onshore substations co-located at the onshore substation site, and from the onshore substations to the point of connection at the SSEN Netherton Hub substation (see **Volume 2**, **Figure 4.1**). The onshore export cables will be installed in three phases to align with the energisation of the Wind Turbine Generators (WTGs).

3.5.1.6 The onshore export cables for Phase 1 will be either laid directly in trenches or cable ducts will be installed and the onshore export cables for Phase 1 installed into the ducts. In Phase 1 cable ducts will also be installed to enable the later phase cables (Phases 2 and 3) to be installed without having to re-excavate at locations where there will be a shared routing between phases. The joint bays (JBs), required to connect each section of onshore export cable to the next, will be constructed in three phases, to align with the phased installation of associated onshore export cables. The temporary construction corridor is generally routed as straight as possible to reduce overall length and to facilitate the pulling of cables into ducts.

3.5.1.7 In the event that more than one landfall is required, the connecting onshore export cables, from the common onshore export cable corridor to the additional landfall(s), may be laid in trenches or installed in ducts to align with the phased installation of the landfalls.

3.5.1.8 The landfall(s) infrastructure will be constructed in three phases to align with the phased installation of the export cables and energisation of the WTGs. Similarly, the three onshore substations co-located within the onshore substation site, one for each Project phase, will be built sequentially to also align with the phased energisation of the WTGs.

3.5.1.9 The above is reflective of the indicative construction programme provided within **Volume 1, Chapter 4: Project Description**.

3.6 Construction working hours

3.6.1.1 Construction activities would in general be undertaken during daytime periods as secured in **Volume 4: Outline Construction Environmental Management Plan**, core working hours for onshore construction works for the Project are as follows:

- 08:00 to 18:00 hours Monday to Friday; and
- 08:00 to 13:00 hours on Saturday.

3.6.1.2 Prior to and following the core working hours Monday to Friday, a ‘shoulder hour’ for mobilisation and shut down will be applied (07:00 to 08:00 and 18:00 to 19:00) for which restrictions will be applied and are described further in **Volume 4: Outline Construction Environmental Management Plan**. No activity outside of these hours, including Sundays, public holidays or bank holidays will take place apart from under the following circumstances:

- where continuous periods (up to 24-hours, seven days per week) of construction work are required for HDD (or similar trenchless technique);
- for other works requiring extended working hours such as concrete pouring which will require the relevant Planning Authority to be notified at least 72 hours in advance;
- for the delivery of abnormal loads to the connection works, which may cause congestion on the local road network, where the relevant highway authority has been notified prior to such works 72 hours in advance;
- where works are being carried out on the foreshore; or
- as otherwise agreed in writing with the relevant Planning Authority.

3.6.1.3 Any other out of hours working would be agreed in advance with Aberdeenshire Council as could be the case for HDD (or similar trenchless technique) construction and abnormal load deliveries.

3.7 Construction traffic origin

3.7.1.1 As shown in **Volume 2, Figure 4.1**, multiple temporary construction compounds are proposed in support of the construction of the various onshore infrastructure elements. These compounds will provide storage for materials, construction plant and welfare facilities for workers.

3.7.1.2 It is acknowledged that onshore construction activities include aggregate and concrete deliveries generated throughout the construction programme which will not originate from the compounds. It is not currently known which quarries and suppliers would be used during the construction stage, it therefore has been assumed that aggregates and concrete would be transported from the nearest quarry, identified as Breedon Stirlinghill Quarry, which can provide both aggregate and ready-mixed concrete. It is further assumed that these deliveries will be made on the Trunk Road Network (TRN) (further described in **Section 4.2**), where possible, via the most direct route.

3.7.1.3 Construction traffic origin is further explained in **Section 3.7**.

3.8 Potential access routes

3.8.1.1 This Section identifies the potential access routes that could be used to support the delivery of aggregates, materials and equipment to identified indicative access points and temporary construction compounds, with this forming the study network (shown in **Plate 3.1**) for the purpose of this assessment. This assessment aims to make use of the classified road network as far as possible.

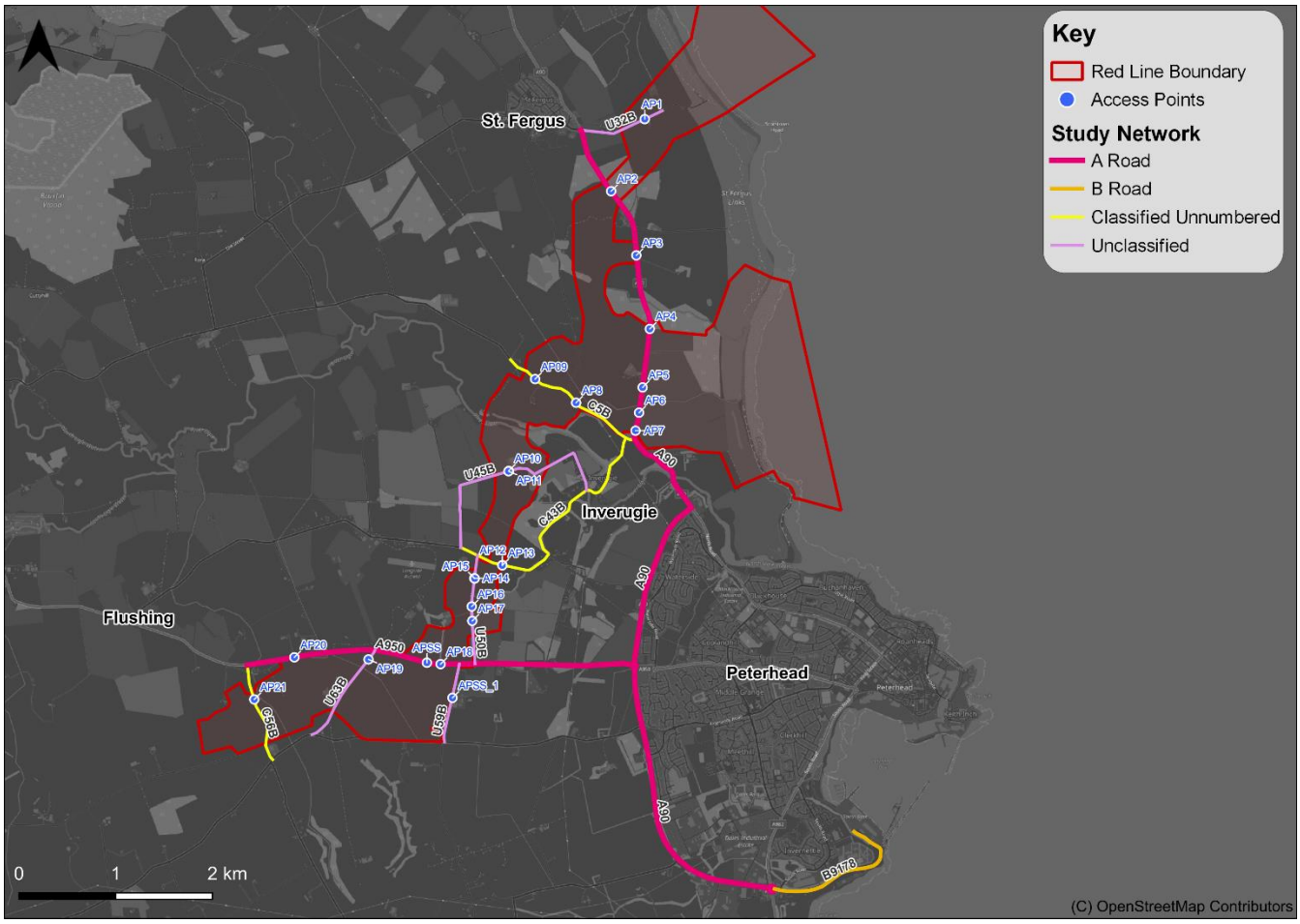
3.8.1.2 Access to the landfall(s) sites and onshore export cable corridor will be achieved through the construction of temporary access tracks. Permanent paved accesses will be constructed for the onshore substations based on the maximum design scenario of there being two site accesses.

3.8.1.3 For the purpose of this TA, 22 access points and associated access routes has been identified to support onshore infrastructure construction. These access points are stated in **Table 3.1** and further visualised in **Plate 3.1** along with the potential access routes.

Table 3.1 Access point determination

Construction Element	Access Point (AP)	Roads Utilised
Landfall(s)	AP01	A90, U32B
	AP05	A90
	AP06	A90
Onshore export cable corridor	AP02	A90
	AP03	A90
	AP04	A90
	AP07	A90
	AP08	A90, C5B
	AP09	A90, C5B
	AP10	A90, A950, C5B, C43B, U45B, U50
	AP11	A90, A950, C5B, C43B, U45B, U50
	AP12	A90, A950, C5B, C43B, U50
	AP13	A90, A950, C5B, C43B, U50
	AP14	A90, A950, C5B, U50
	AP15	A90, A950, C5B, U50
	AP16	A90, A950, C5B, U50
	AP17	A90, A950, C5B, U50
	AP18	A90, A950
Onshore substations	APSS onshore substations (APSS_1) Secondary onshore substations access	A90, A950, (U59B)
GCC corridor	AP19	A90, A950, U63B
	AP20	A90, A950
	AP21	A90, A950, U63B, C56B

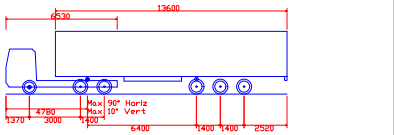
Plate 3.1 Access points and study network



3.9 Access junctions

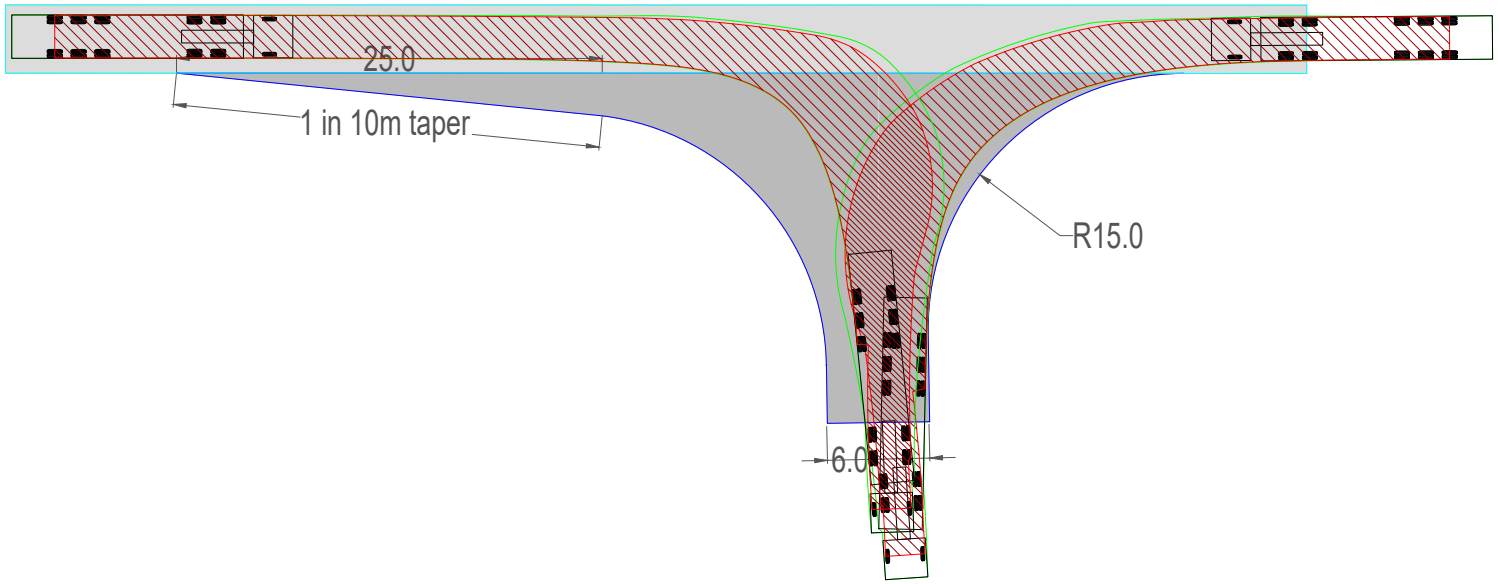
3.9.1.1 Most of the onshore infrastructure construction elements will be accessed via new temporary junctions to be formed from the adopted road network with the exception of the two onshore substation site accesses which will be permanent.

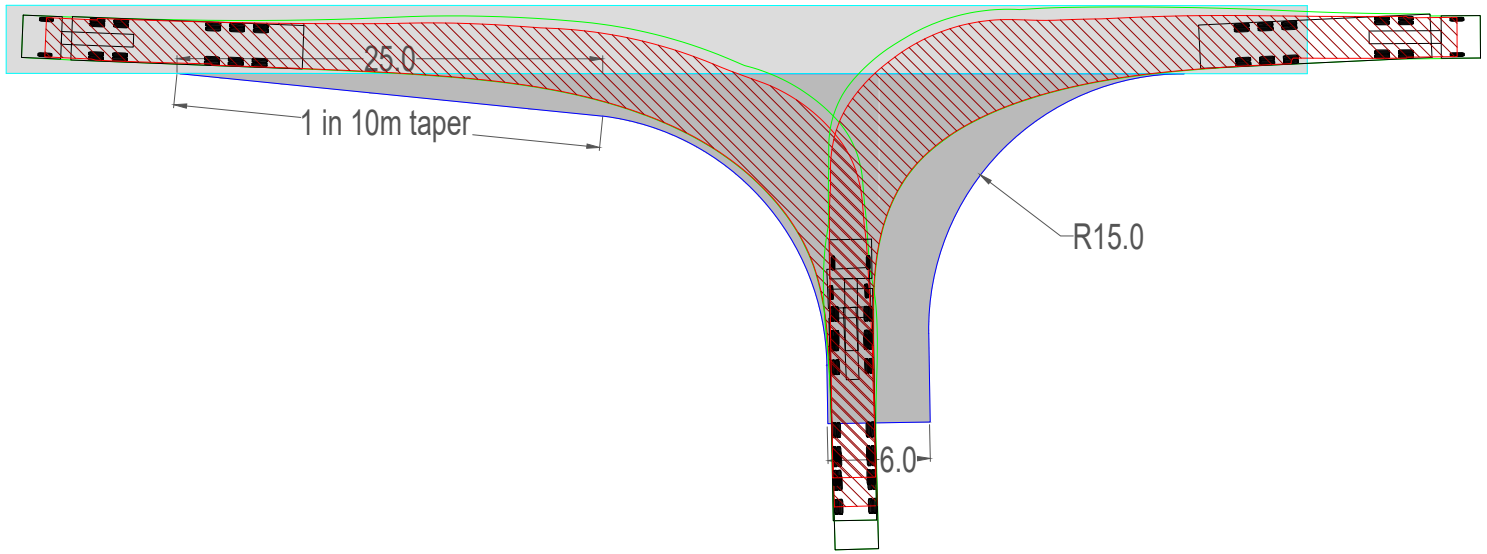
3.9.1.2 The indicative typical layout of the proposed temporary access junctions is shown in **Plate 3.2**. Also shown, is a standard 16.5m articulated HGV accessing and egressing the typical layout on which the access layout dimensions is based.



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16500mm
Overall Width	2550mm
Overall Body Height	3681mm
Min Body Ground Clearance	411mm
Max Track Width	2500mm
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6530mm





DO NOT SCALE

KEY

- WHEEL OUTLINE
- VEHICLE OUTLINE
- EXISTING CARRIAGEWAY
- PROPOSED ACCESS

REV	DATE	BY	DESCRIPTION	CHK	APP
P01					

DRAWING STATUS: FOR ISSUE

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CLIENT:

ARCHITECT:

PROJECT: MARRAM OFFSHORE WIND FARM

TITLE: PLATE 3.2 ACCESS POINT - INDICATIVE LAYOUT

SCALE @ A2:	CHECKED:	APPROVED:
N/A	PW	PW

PROJECT No:	DESIGNED:	DRAWN:	DATE:
UK0041808.9006	AM	AM	August 25

DRAWING No:	REV:
UK0041808.9006 - SK001	P01

3.10 Visibility requirements

3.10.1.1 Visibility requirements are assessed in terms of 'visibility splays' which are essential for ensuring safe vehicle movements at junctions and site access points. The visibility splay consists of clear triangular areas that must remain unobstructed by walls, fences, vegetation, or parked vehicles in order to reduce the risk of collisions and allow drivers to see and be seen by approaching traffic.

3.10.1.2 The splay is defined by two measurements: the 'X' distance, which is the setback from the edge of the major road, and the 'Y' distance, which extends along the major road in both directions. These dimensions are influenced by factors such as vehicle speeds, traffic volumes, and road geometry.

3.10.1.3 During scoping, Aberdeenshire Council requested that visibility splays of site access points are provided as part of the application and therefore subsequently included within **Appendix A**.

3.10.1.4 The visibility splays provided in **Appendix A** are representative of a worst-case scenario, based on the existing speed limits however, it is proposed that temporary speed restrictions are imposed as part of the traffic management of construction, reducing the visibility requirements. Any temporary speed restrictions are subject to agreement with local and strategic road authorities.

4. Baseline Conditions

4.1.1.1 This Section discusses the local road network to be used throughout the duration of the construction of the Project. **Plate 3.2** shows the Onshore Red Line Boundary, identifying the access routes which it is assumed that construction traffic will utilise. The majority of the road network is rural in nature, and it is reflected in the variety of road standards within the network.

4.2 Trunk Road Network (TRN)

4.2.1.1 The TRN is a network of major highways of strategic national importance, designated and maintained by the national government rather than local authorities. In Scotland, this authority is Transport Scotland (TS).

4.2.1.2 The A90(T) is predominantly a two-lane single carriageway road running through the study network. However, the road has some short sections of dual carriageway. The A90(T) runs from Fraserburgh to Edinburgh passing through Aberdeen and Dundee, where it is dual carriageway from Aberdeen to Edinburgh. The road has the National Speed Limit (NSL) of 60mph in rural areas and in urban settlements it has a speed limit of 40mph. Through smaller settlements such as Crimond the speed limit is 30mph and through Longhaven the speed limit is 50mph. Within the study network, the route passes through Peterhead forming a junction with the A950 and north to Fraserburgh along the east coast. In built up areas the road has streetlighting and footways.

4.3 Local road network

4.3.1.1 The local road network refers to roads and streets managed by a local government, designed primarily to provide access to local properties like homes and businesses within a specific area rather than for through traffic. The A950, B9178, and a series of C-class and unclassified roads provide east-west and local access, supporting both project-related and general traffic. These roads vary in width, surface quality, and provision for non-motorised users.

A Roads

4.3.1.2 The A950 is a two lane, single carriageway road forms an east west link through the study network, linking Peterhead town centre to the A98. The road within the built-up areas has a speed limit of 30mph, streetlights and has footways either side. The road runs through the settlements of Mintlaw and New Pitsligo and has a key junction with the TRN (A90(T)) west of Peterhead. Outside of built-up areas the speed limit is the NSL.

B Roads

4.3.1.3 The B9178 is a two lane, single carriageway road which forms an east west link from Peterhead port to the A90(T). The road has a speed limit of 40mph, no streetlights and no footways. The road runs south of Burnhaven and Inverettie and has a key junction with the TRN (A90(T)) south of Peterhead.

C Roads

4.3.1.4 The C5B is a two-lane, single carriageway road (no centre line marking) running east west through the study network, linking the A90(T) to the A952 just north of Mintlaw. The road is

rural in its entirety with no lighting or footway provision. The road is subject to the NSL and is of sufficient width to accommodate HGVs.

4.3.1.5 The C43B is predominantly a single carriageway road running south north through Inverugie located within the study network. This road forms a link between the C5B at the A90 and Longside Airfield to the southwest. The road is rural in nature with no lighting or footway provision. The road is subject to the NSL and varies in width between approximately 3-5m.

4.3.1.6 The C56B is a two-lane single carriageway road (with centre line marking) running north south through the study network. This road forms a link between the A950 at Thunderton and the C38B to the south. The road is subject to the NSL and rural in nature with no lighting or footway provision.

Unclassified Roads

4.3.1.7 The U32B is a single carriageway road running east west through the study network connecting St Fergus to Scotstown Beach. The road is subject to the NSL, approximately 4m in width and rural in nature, with no lighting or footway provision.

4.3.1.8 The U45B is a single carriageway road running east west through the Easterton and Ravenscraig settlements within the study network, connecting Inverugie with Longside Airfield. The road is subject to the NSL, approximately 4m in width and rural in nature, with no lighting or footway provision.

4.3.1.9 The U50B is a single carriageway road running north south through the Blackhills settlement within the study network, connecting the C43B with the A950. The road is subject to the NSL, approximately 4m to 5m in width and rural in nature with lighting provided, with no footway provision.

4.3.1.10 The U59B is a single carriageway road running north south through Howemuir within the study network, connecting the C38B with the A950. The road is subject to the NSL and is of sufficient width to accommodate larger vehicles at the northern end of the road. This rural road is not supported by lighting or footway provision.

4.3.1.11 The U63B is a two-lane single carriageway road (with centre line marking) running north south through the study network. This road forms a link between the A950 at Thunderton and the C38B to the south. The road is subject to the NSL and rural in nature with no lighting or footway provision.

4.4 Pedestrian, core path and cyclist facilities

4.4.1 Pedestrian facilities

4.4.1.1 The Onshore Red Line Boundary passes through an area which is predominantly rural in nature, with limited pedestrian facilities provided outwith towns and villages. There are pedestrian facilities provided by way of footways adjacent to carriageway on a few sections of the access routes, predominantly along the A90 adjacent to Peterhead.

4.4.2 Core paths

4.4.2.1 A review of the core path network within Aberdeenshire indicates that the following core paths are located within or intersects with the Onshore Red Line Boundary or study network as shown in **Plate 4.1**.

- 7LD.01.18 – Coastal Path: Old Rattray to Peterhead;
- 217.01 – St Fergus: Scotstown Head Path;
- L30R – St Fergus: Scotstown Head road link;
- 7LD.03MP.05 – The Formartine and Buchan Way: Longside to Peterhead;
- 7LD.03MP.06 – The Formartine and Buchan Way: Peterhead;
- 215.11 / 215.02 – Peterhead: A90(T);
- 215.04 – Peterhead: Boddam; and
- 7LD.01.22P / 7LD.01.24 – Coastal Path: Peterhead Prison.

4.4.2.2 The impact on the core path network during the construction stage of the Project from traffic and transport and construction activities have been assessed in detail within **Volume 4: Construction Traffic Management Plan, Appendix B: Outline Core Path Management Plan.**

Plate 4.1 Core path network

4.4.2.3 The impact during construction of the Project on these paths are reviewed in detail within the Outline Core Path Management Plan which forms **Appendix B** to **Volume 4: Outline Construction Traffic Management Plan**.

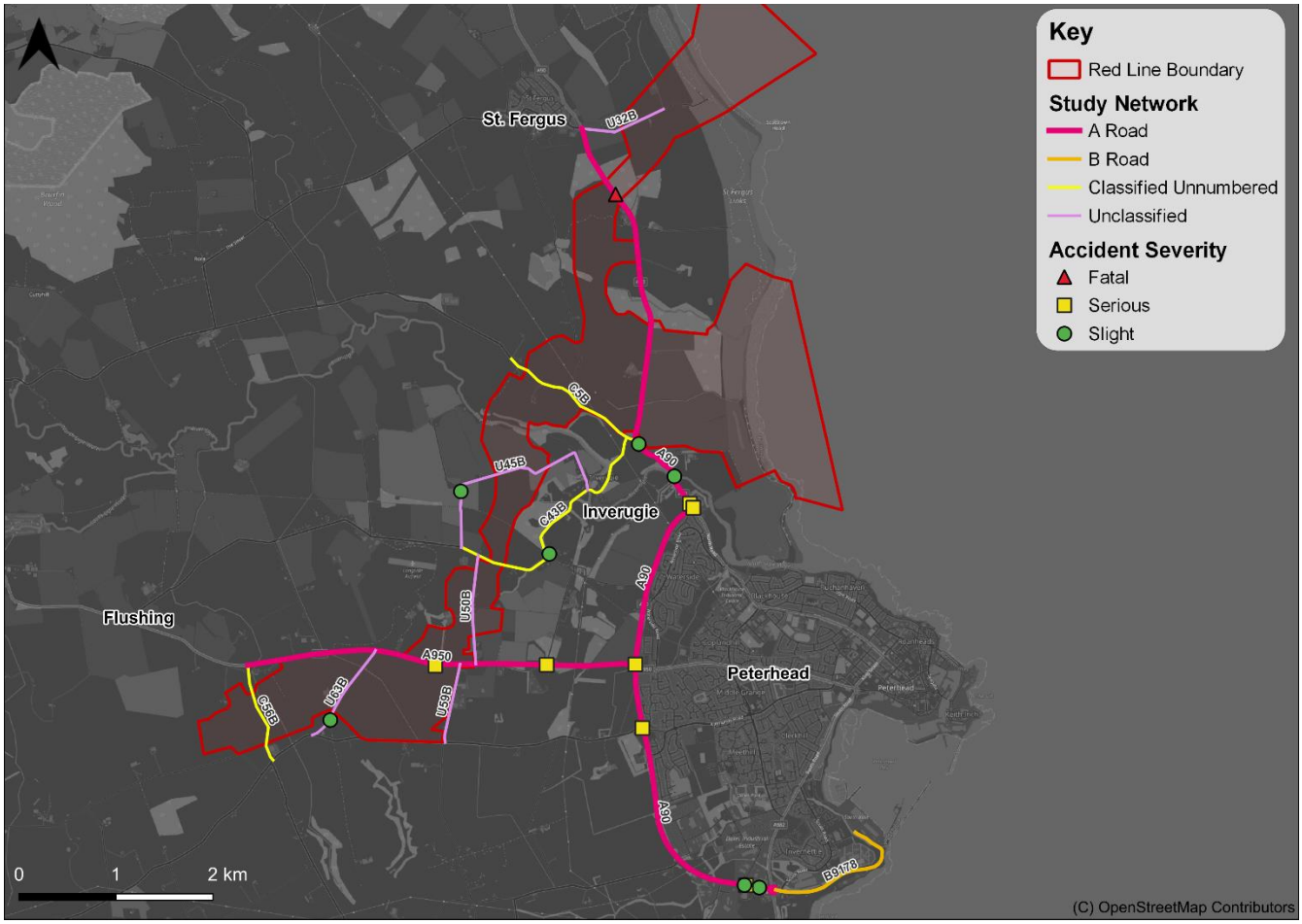
4.4.3 Cycle facilities

4.4.3.1 There are limited cycle facilities in the vicinity of the Onshore Red Line Boundary, however, the Formartine and Buchan Way, which forms part of Aberdeenshire's core path network, is a long-distance off-road trail that links Dyce with Peterhead and Fraserburgh. This route crosses the study network south of Inverugie at the C43B and U45B roads.

4.5 Personal injury accident review

4.5.1.1 Injury accident data for the most recently available five-year period, covering 2019 to 2023, was obtained for the local road network from STATS19, a dataset which include personal injury road traffic collisions that are reported to the police in Great Britain. The locations and severity of the accidents reported in the study network are shown in **Plate 4.2**.

Plate 4.2 Personal injury accident (PIA) locations



4.5.1.2 A total of 15 accidents were recorded on the roads within the study network in the vicinity of the Project's previously identified access routes. There were seven slight, seven serious and one fatal accident recorded.

4.5.1.3 The fatal accident was recorded on the A90(T) south of St Fergus and involved frontal collision during an attempt to overtake. The accident was reported as a result of driver error and failure to judge oncoming vehicle speeds.

4.5.1.4 All seven serious accidents occurred along the A90(T) and A950, often at junctions. The two accidents on the A950 involved miscalculated overtaking or right turn into a minor road and is attributed as a result of driver error. The five serious accidents along the A90 occurred along the section of road bypassing Peterhead. All five accidents were a result of driver error at junctions through failure of being attentive at the junction.

4.5.1.5 The five remaining slight accidents mostly occurred on minor roads and caused by driver error as a result of manoeuvring vehicles along narrow carriageways, as was particularly the case for the two accidents along the U45B and C43B. Another slight accident occurred along the U63B where the cause of the accident was similar to the ones on the other minor roads. Finally, two slight accidents occurred along a section of the A90 between Inverugie and Peterhead. Both of these were also a result of driver error in the form of reckless driving on a bend and inexperienced driving with no other vehicles involved.

4.5.1.6 **Table 4.1** identifies the accident rates associated with each of the roads within the study network, comparing these to the national average by road types as defined by the Department for Transport (DfT) and reported within RAS0302 (DfT, 2023).

Table 4.1 PIA summary

PIA study network	Road Type	Slight	Serious	Fatal	Total	PIA Rate (per Million Vehicle Km)	National average PIA rate (per Million Vehicle Km)	Above or below national average
A90 between A982 at Whitehilll and A950	Trunk Road.	2	2	0	4	0.09	0.43	Below
A90 between A950 and A982 at Waterside	Trunk Road.	0	2	0	2	0.12	0.43	Below
A90 between A982 and C5B	Trunk Road.	2	1	0	3	0.35	0.12	Above
A90 between C5B and U32B	Trunk Road.	0	0	1	1	0.02	0.12	Below
A950 between A90 and C56B	A Road.	0	2	0	2	0.03	0.12	Below
C43B between C5B and U45B	Rural Road.	1	0	0	1	N/A*	0.20	Below

PIA study network	Road Type	Slight	Serious	Fatal	Total	PIA Rate (per Million Vehicle Km)	National average PIA rate (per Million Vehicle Km)	Above or below national average
U45B between U50B and C43B	Rural Road.	1	0	0	1	N/A*	0.20	Above
U63B between A950 and C38B at Stockbridge	Rural Road.	1	0	0	1	1.22	0.20	Below

**No baseline traffic available to establish PIA rate.*

4.5.1.7 As shown in **Table 4.1**, of the local roads that experienced accidents, the majority of them are shown to have annual accident rates below the national average for the road characteristics.

4.5.1.8 A closer review of the sections with higher-than-average accident rates, A90(T) (A982 and C5B) and U63B (between A950 and C38B) suggests that the accidents on these sections are likely attributed to driver error as no clustering indicating underlying safety issues, were identified.

4.5.1.9 The accident data review has therefore confirmed that there are no specific underlying safety concerns within the study network.,

4.6 Existing traffic flows

4.6.1.1 To establish baseline traffic flows, Automatic Traffic Counters (ATCs) were installed in September 2023 during the baseline data collection for the Project at the following locations:

- ATC 2: B9178 east of A90(T) Inverettie roundabout;
- ATC 3: A950 between A90(T) and C56B; and
- ATC 7: U63B between A950 and C38B at Stockbridge.

4.6.1.2 To supplement the ATC surveys, traffic survey data has been obtained from the following DfT and Transport Scotland (TS) traffic count sites for the remaining road network contained within the study network:

- DfT Traffic Count ID 80572, 2022 - A90(T) between A982 at Whitehilll and A950;
- DfT Traffic Count ID 80573, 2022 - A90(T) between A950 and A982 at Waterside;
- DfT Traffic Count ID 931840, 2019 - C5B between A90(T) and Cairnhill; and
- TS Traffic Counter ID Unknown, 2023 - A90 between C5B and U32B.

4.6.1.3 The most recent data available on the DfT website has been used and extrapolated to 2023 where necessary to align with the ATC data. A summary of the existing two-way flows on coded road links contained in the study network is provided in

4.6.1.4 **Table 4.2** with the locations of the traffic count sites shown in **Plate 4.3**.

Plate 4.3 Traffic count site locations

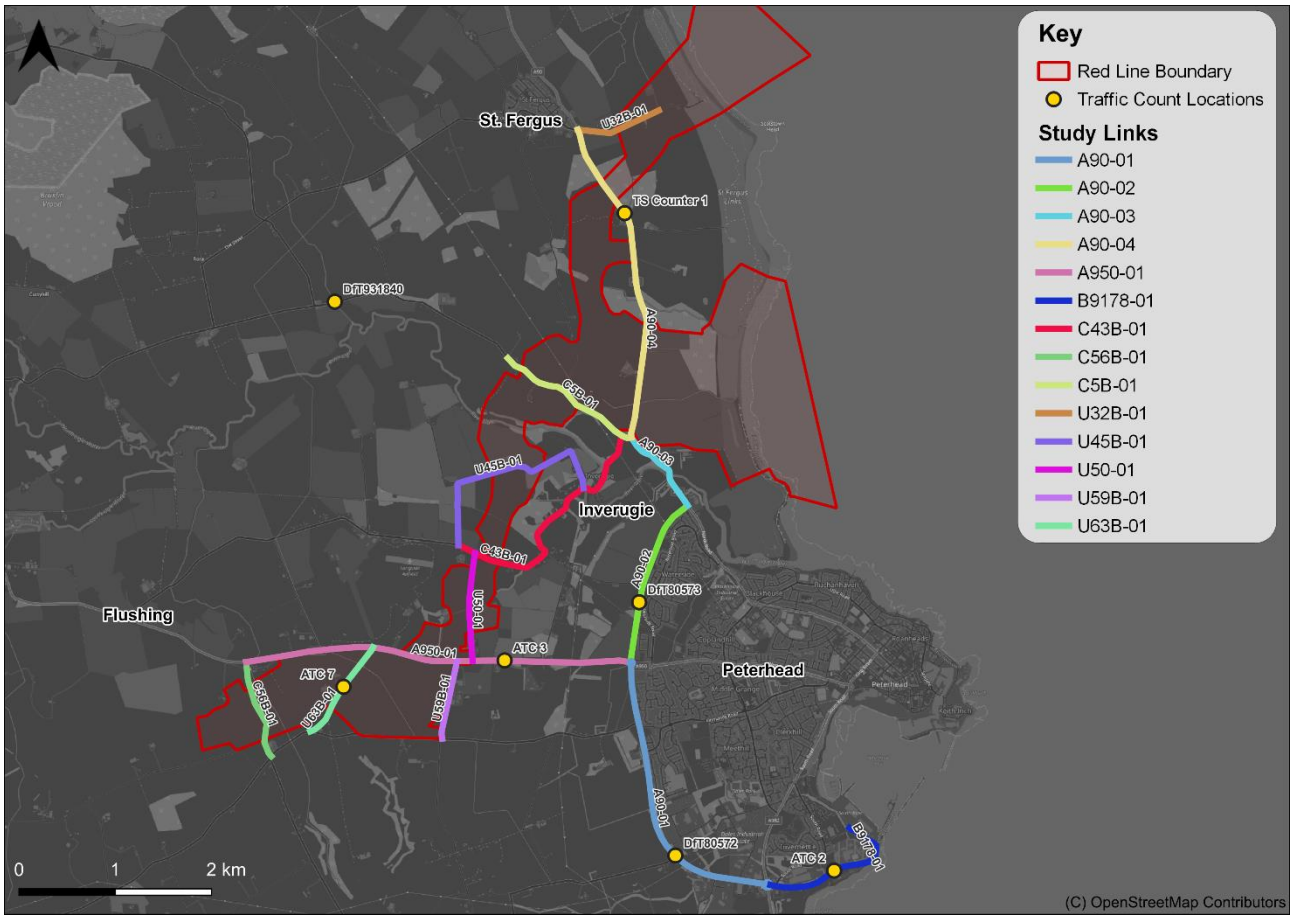


Table 4.2 Existing annual average daily traffic (AADT) two-way traffic flows

Study link	Location	Survey Year	Survey ID	Survey Year 24hr Two-Way Flows		HGV Proportion
				HGV	*Total*	
A90-01	A90 between A982 at Whitehilll and A950.	*2022*	*DfT 80572*	**649**	**7462**	8.7%
A90-02	A90 between A950 and A982 at Waterside.	*2022*	*DfT 80573*	**176**	**4356**	4.0%
A90-03	A90 between A982 and C5B.	*2022*	*DfT 80573*	**176**	**4356**	4.0%
A90-04	A90 between C5B and U32B.	*2023*	*TS Counter 1*	**343**	**5917**	5.8%

Study link	Location	Survey Year	Survey ID	Survey Year 24hr Two-Way Flows		HGV Proportion
				HGV	*Total*	
A950-01	A950 between A90 and C56B.	*2023*	*ATC 3*	**792**	**7614**	10.4%
C5B-01	C5B between A90 and Cairnhill.	*2019*	*DfT 931840*	**22**	**537**	4.1%
U63B-01	U63B between A950 and C38B at Stockbridge.	*2023*	*ATC 7*	**47**	**421**	11.2%
B9178-01	B9178 east of A90 Inverettie Roundabout.	*2023*	*ATC 2*	**506**	**2072**	24.4%

4.7 Future baseline traffic conditions

4.7.1.1 To assess the impact during the construction stage of the Project, future baseline traffic (2031) was determined by applying TEMPro growth factors for the existing traffic flows shown in **Table 4.2.**

4.7.1.2 The growth factors for each year are shown in **Table 4.3**.

Table 4.3 TEMPro growth factors

Years	TEMPro Growth Factor
2019 – 2031	1.103
2022 – 2031	1.074
2023 – 2031	1.065

4.7.1.3 Additionally, to provide a robust assessment, and to align with the current information on construction working hours, it is assumed that construction traffic movements could take place over a 12-hour day (between 07:00 and 19:00).

4.7.1.4 Conversion factors have therefore been derived from DfT Road Traffic Statistics – Table TRA0308: 'Traffic distribution on all roads by time of day and day of the week, for selected vehicle types in Great Britain' for the latest data available, 2024, to convert the DfT and ATC 7-day average AADT flows to 6-day average, 12-hour flows.

4.7.1.5 The following factors have been derived for cars, light vehicles and HGVs to convert 7-day, 24hr AADT to 6-day, 12hr traffic:

- HGVs – 0.759; and
- all vehicles – 0.798.

4.7.1.6 These factors have been applied in addition to the TEMPro growth factors and the resulting traffic volumes summarised in **Table 4.4**.

Table 4.4 2031 Annual average daily two-way traffic flows (12-hour)

Study link	Location	Main onshore infrastructure element	Survey Year	Survey Year 24hr Two-Way Flows		HGV Proportion
				HGV	*Total*	
A90-01	A90 between A982 at Whitehilll and A950.	Landfall(s) / onshore export cable corridor / onshore substations.	*2022*	**529**	**6396**	8.3%
A90-02	A90 between A950 and A982 at Waterside.	Landfall(s) / onshore export cable corridor / onshore substations.	*2022*	**144**	**3734**	3.8%
A90-03	A90 between A982 and C5B.	Landfall(s) / onshore export cable corridor.	*2022*	**144**	**3734**	3.8%
A90-04	A90 between C5B and U32B.	Landfall(s) / onshore export cable corridor.	*2023*	**278**	**5028**	5.5%
A950-01	A950 between A90 and C56B.	Onshore export cable corridor / onshore substations.	*2023*	**640**	**6470**	9.9%
C5B-01	C5B between A90 and Cairnhill.	Onshore export cable corridor.	*2019*	**18**	**456**	4.0%
U63B-01	U63B between A950 and C38B at Stockbridge.	Onshore export cable corridor / onshore substations.	*2023*	**38**	**357**	10.6%
B9178-01	B9178 east of A90 Inverettie Roundabout.	Onshore export cable corridor / onshore substations.	*2023*	**409**	**1761**	23.2%

4.8 Committed developments

4.8.1.1 A review of the short list of 'other developments' included in **Appendix 33.2: Onshore 'Short List' of 'Other Developments'** was undertaken to estimate the traffic related impact of these committed developments. The review was undertaken in line with established practice, with the following screening factors of applications undertaken to determine those that should be included in the assessment:

- will the application use the same study network as the Project?
- is the application determined, and as such, can be considered as committed development?

- if the application results in temporary traffic, will these traffic flows occur at the same time as those for the Project?
- does the application provide publicly available traffic data in the relevant traffic classes?

4.8.1.2 The committed developments identified as relevant to this assessment are shown in **Table 4.5.**

Table 4.5 Committed development traffic flows (two-way)

Development	Location	Description	Comments
APP/2023/1454 – Green Volt Offshore Wind Farm	A linear cable corridor starting approximately 1.25km north of Peterhead and running east-west to the grid connection point approximately 5.5km from New Deer and 0.45km southeast of the existing National Grid New Deer Substation.	Formation of onshore landfall(s) point, laying of underground cable and erection of substation.	Consented. Construction expected to take place 2025 -2027 and be finalised before Project construction commences. Operational trips minimal and assumed to be accounted for in the TEMPRO growth factors.
APP/2024/1410 – Salamander Offshore Wind Farm	2.5 km north of Peterhead on Scotstown Beach between Kirkon and Lunderton. Land to the east of Lunderton, St Fergus, Peterhead.	Onshore transmission infrastructure for Salamander Offshore Wind Farm including formation of landfall(s) infrastructure, onshore export cables corridor, substation and associated works.	Consented. Construction expected to take place somewhere between 2027-2029 and be finalised before Project construction commences. Operational trips minimal and assumed to be accounted for in the TEMPRO growth factors.
APP/2024/2000 – Muir Mhor Offshore Wind Farm	Land to the north of Buckie Farm, Peterhead. Landfall at Sandford Bay.	Onshore transmission infrastructure for Muir Mhòr Offshore Wind Farm including formation of onshore landfall(s) point, laying of underground cables, erection of substation, and associated works.	Consented. Construction expected to take place 2028-2030 and be finalised before Project peak construction occurs. Operational trips minimal and assumed to be accounted for in the TEMPRO growth factors.
APP/2025/0444 – Battery Energy Storage Systems part of Salamander Offshore Wind Farm	Land At Lunderton, north of Peterhead, Aberdeenshire.	Installation of Battery Energy Storage System with an installed Capacity of 180MW and Associated Infrastructure (Salamander project).	Consented. Construction period shared with Salamander Offshore Wind Farm works. Operational trips minimal and assumed to be accounted for in the TEMPRO growth factors.

Development	Location	Description	Comments
APP/2024/1714 – Netherton Hub	Netherton Hub. Land to the west of Parkhill Farm, Blackhills, Peterhead.	Erection of a strategic electricity transmission hub, including 400kV Alternating Current Substation, 132kV Alternating Current Substation, 2 High Voltage Direct Current Converter Stations, Transmission Hall, Spares Warehouse, Operations Base.	Consented. This application is required for the Project to enable its electrical grid connection and is included on that basis. Peak traffic data from **Volume 1, Chapter 26: Traffic and Transport** has been used, with the peak traffic assumed to occur at some point between 2026 and 2031, with the potential to coincide with the Project's construction.

4.8.1.3 The review of the shortlist was undertaken to identify committed developments, including other energy developments, within the vicinity of the Project which could share the same study network as the Project during construction, and for which there could be combined traffic flows on the public road network. As shown above, only the SSEN Netherton Hub Project satisfies these parameters. At this stage, only developments where traffic numbers are readily available have been considered in this assessment. **Table 4.6** shows the combined committed development traffic along study links shared with this project.

Table 4.6 Committed development annual average daily two-way traffic flows (12-hour)

Study link	Location	24hr two-way flows		HGV proportion
		HGV	*Total*	
A90-01	A90 between A982 at Whitehilll and A950	**173**	**281**	61.6%
A90-02	A90 between A950 and A982 at Waterside	**43**	**70**	61.4%
A950-01	A950 between A90 and C56B	**216**	**351**	61.5%

5. Trip Generation and Distribution

5.1 Construction stage

5.1.1.1 During the construction stage, as described in **Section 3.5**, the following types of traffic will require access to the site:

- staff transport, in either cars or Light Commercial Vehicles (LCVs);
- construction equipment and materials, deliveries of machinery and supplies such as concrete and aggregate; and
- Abnormal Loads (AL) comprising onshore substation transformer delivery, cable drums and HDD (or similar trenchless technique) rigs. At this stage, these ALs have been identified for inclusion in the **Appendix 26.2** as it is considered that these ALs represent the largest loads delivered to the construction sites**.** However, other AL movements may be required as the Project progress, and more information is made available.

5.1.1.2 Average monthly traffic flow data were used to establish the construction trips, based on the assumptions detailed in the following sections. There may be variations in the following calculations due to rounding, which are not considered significant.

5.1.1.3 As previously established in **Section 3.5**, 2031 has been identified as the most intense period of onshore construction. For the purpose of this assessment, the following assessment only considers construction traffic generation in 2031 to establish the worst-case scenario of impact from construction traffic.

5.2 Construction vehicle movements

5.2.1.1 Estimates of construction HGV movements have been calculated for the Project using professional judgement and previous experience in combination with the material requirements for the various construction activities.

5.2.1.2 Estimations of total construction traffic movements have been separated out into the following construction activities:

- landfall(s);
- onshore export cable corridor construction;
- onshore substations construction; and
- grid connection cabling construction.

5.2.1.3 The above construction activities represent types of construction which all occur simultaneously, resulting in the highest intensity of construction activities. It is during this time, Year 2 of construction will take place.

5.2.1.4 Further detail as to what type of construction works are involved within each of the above construction activities is outlined within **Volume 1, Chapter 4: Project Description**.

5.2.1.5 To account for staff movements, the following daily rates have been applied to the assessment:

- **landfall(s) construction:** 25 personnel, 25 two-way trips;
- **onshore export cable corridor construction**: 75 personnel, 150 daily two-way trips; and

- **onshore substation site construction**: 125 personnel, 250 daily two-way trips.

5.2.1.6 The above staff trips are based on an assumption of two staff per LCV travelling from a gathering point (temporary construction compound) to a construction access point. A further assumptions to include additional LCV movements movement of staff and materials between various construction sites has been made, with these equating to half of HGV movements.

5.2.2 Landfall(s) construction

5.2.2.1 Calculations of estimated total vehicle movements for the landfall(s) construction works are set out in **Table 5.1**. This activity predominately includes:

- temporary construction compound construction;
- access road construction;
- transition joint bay construction; and
- ducting and earthworks.

5.2.2.2 It should be noted that some of the above activities may occur shortly prior or after the peak year of construction, however, has been included to quantify HGV generation of associated works. The estimation of construction traffic movements associated with landfall(s) construction also includes delivery of abnormal loads for HDD (or similar trenchless technique) rigs.

Table 5.1 Vehicle movement assumptions for landfall(s) construction

Landfall vehicle movements summary (two-way)	
Temporary construction compound	**129 HGVs**
Access road	**151 HGVs**
Transition joint bay(s)	**14 HGVs**
Landfall(s) ducts	**8 HGVs**
Site reinstatement / demobilisation	**290 HGVs**
Total HGV movements (two-way)	129 + 151 + 14 + 8 + 290 = **592 HGVs**
Total LCV movements (two-way)	25 daily staff movements x 24 days a month x 12 months = **7,200 movements**. 7,200 + 592/2 = **7,496 movements**

5.2.3 Onshore export cable corridor construction

5.2.3.1 Calculations of estimated vehicle movements on the onshore export cable corridor construction works are set out in **Table 5.2**. This activity predominately includes:

- primary and secondary construction compounds construction;
- HDD (or similar trenchless technique) compounds and access road construction;

- haul road construction and drainage;
- joint bay construction;
- trenching earthworks and ducting; and
- protection tiles for trenched corridor.

5.2.3.2 It should be noted that some of the above activities may occur shortly prior or after the peak year of construction, however, has been included to quantify HGV generation of associated works. The estimation of construction traffic movements for onshore export cable corridor construction includes delivery of abnormal loads for HDD (or similar trenchless technique) rigs and cable drums.

Table 5.2 Vehicle movement assumptions for onshore export cable corridor construction

Onshore export cable corridor vehicle movements summary (two-way)	
Primary Construction Compounds	**1,628 movements**
Secondary Construction Compounds	**2,080 movements**
HDD (or similar trenchless technique) Compounds	**6,168 movements**
HDD (or similar trenchless technique) Compounds Access Roads	**228 movements**
Export Cable Corridor Haul Road	**3,697 movements**
Export Cable Corridor Trenches	**4,008 movements**
Export Cable Corridor Protection Tiles	**67 movements**
Export Cable Corridor Ducts	**428 movements**
Export Cable Corridor Haul Road Drainage Trenches	**2 movements**
Joint Bay Construction	**1,833 movements**
Site reinstatement / demobilisation	**12,938 movements**
Total HGV movements (two-way)	1,628 + 2,080 + 6,168 + 228 + 3,697 + 4,008 + 67 + 428 + 2 + 1,833 + 12,938 = **33,077 movements**
Total LCV movements (two-way)	75 daily staff movements x 24 days a month x 17 months = **30,600 movements**. 30,600 + 33,077/2 **= 47,138 movements**

5.2.4 Onshore substation site construction

5.2.4.1 Calculations of estimated vehicle movements to the onshore substation construction are set out in **Table 5.3**. This activity predominately includes:

- access road construction;
- foundations and earthworks;
- temporary construction compound construction; and
- structure and equipment materials;

5.2.4.2 It should be noted that some of the above activities may occur shortly prior or after the peak year of construction, however, has been included to quantify HGV generation of associated works. The estimation of construction traffic movements for onshore substation construction also includes delivery of abnormal loads such transformers, cable drums and HDD (or similar trenchless technique) rigs.

Table 5.3 Vehicle movement assumptions for onshore substations construction

Onshore substation site vehicle movements summary (two-way)	
Onshore Access Road	**300 movements**
Onshore Substation foundations and earthworks	**1,882 movements**
Onshore Substation Temporary Construction Compound	**1,067 movements**
Onshore substation structure and equipment	**1,795 movements**
Site reinstatement / demobilisation	**40**
Total HGV movements (two-way)	300 + 1,882 + 1,067 + 1,795 + 40 = **5,084 movements**
Total LCV movements (two-way)	75 daily staff movements x 24 days a month x 17 months = **30,600 movements**. **36,918 movements**

5.2.5 Onshore grid connection cable corridor construction

5.2.5.1 Calculations of estimated vehicle movements for the onshore grid connection cable corridor construction are set out in **Table 5.4**. This activity predominately includes:

- primary and secondary construction compounds construction;
- HDD (or similar trenchless technique) compounds and access road construction;
- haul road construction and drainage;
- trenching earthworks and ducting; and
- protection tiles for trenched corridor.

5.2.5.2 It should be noted that some of the above activities may occur shortly prior or after the peak year of construction, however, has been included to quantify HGV generation of associated works. The estimation of construction traffic movements for grid connection construction also includes delivery of abnormal loads for HDD (or similar trenchless technique) rigs and cable drums.

Table 5.4 Vehicle movement summary for onshore GCC corridor construction

GCC vehicle movements summary (two-way)	
GCC haul road	**706**
GCC trenches	**882**
GCC protection tiles	**15**
GCC ducts	**137**
GCC drainage trenches	**1**
Site reinstatement / demobilisation	**2,751**
Total HGV movements (two-way)	706 + 882 + 15 + 137 + 1 + 2,751 = **4,492 movements**
Total LCV movements (two-way)	Assumed to be half of HGV movements plus an average of 75 daily two-way trips based on advised daily construction staff numbers and 2 workers per LCV. **7,046 movements**

5.3 Trip distribution and assignment

5.3.1.1 The distribution and assignment of LCV and HGV construction traffic have been analysed separately reflecting their differing impacts on the road network and associated infrastructure demands.

5.3.2 LCV and staff movements

5.3.2.1 For LCV's trips, which will predominately support staff and the transportation of lighter materials and equipment, it is assumed that these movements mostly occur from primary and secondary temporary construction compounds to construction site access points. This is considered reflective of daily movements to and from staff welfare facilities and material storage locations. The assumption has been made for the purposes of the assessment, that all LCVs movements for each access point will route to and from the closest temporary construction compound.

5.3.3 HGV movements

5.3.3.1 In the case of HGVs, these have been assumed to originate from the trunk road network, (A90 (T)) and the assignment of these trips on the study network have been split into HGVs delivering aggregate and concrete, and other HGV movements which include transportation of materials, equipment and construction plant. This has been done in an attempt to reflect the use of local suppliers for aggregate and concrete deliveries whilst the origin of other materials and equipment is regarded as being unknown at this stage.

5.3.3.2 Aggregate and concrete deliveries have been assumed to originate from the closest quarry to the site which is located along the A90(T) just south of Peterhead, (grid reference NK 12347 41393). This assumption means that all earthwork HGV movements to all access points will originate from the south along the A90(T), this ensures that the movements will

cover as much of the study network as possible, resulting in a worst-case scenario and added robustness of the assessment.

5.3.3.3 For other HGVs movements, these have been assumed to originate from both south and north of the study network along the A90(T), 80 per cent and 20 per cent respectively. This assumption is reflective of the fact that more equipment and materials are likely to be transported from the south from places such as Aberdeen and Dundee.

5.4 Trip derivation and generation

5.4.1.1 The peak of construction activity is expected to occur in 2031 and results in an average of 7,851 monthly two-way movements across the network, equating to an average of 327 daily movements. Of these, 102 are associated with HGV movement of construction plant, materials and aggregate. The remaining 225 movements are associated with construction staff movements along the study network between primary and secondary construction compounds and construction access points.

5.4.1.2 This monthly average traffic generation has been derived from the total construction traffic generated in Year 2 of construction, distributed over the year as shown in the indicative construction programme in **Volume 1, Chapter 4: Project Description**.

5.4.1.3 During the most intense period of construction, Year 2, the average monthly peak construction development trips per access point are summarised in **Table 5.5**.

Table 5.5 Year 2 peak construction total traffic flows (two-way)

Access Point	Location	Cars and LCVs	HGVs	Total
AP01	*U32B – Near Scotstoun east of St. Fergus.*	2,643	485	3,128
AP02	*A90 – South of St. Fergus.*	3,127	2,654	5,781
AP03	*A90 – South of St. Fergus.*	2,980	2,360	5,340
AP04	*A90 – South of St. Fergus.*	2,980	2,360	5,340
AP05	*A90 – South of St. Fergus.*	3,962	3,124	7,085
AP06	*A90 – South of St. Fergus.*	3,345	1,889	5,234
AP07	*A90 – South of St. Fergus.*	2,720	1,840	4,560
AP08	*C5B – North-west of the A90.*	2,502	1,404	3,905
AP09	*C5B – North-west of the A90.*	2,980	2,360	5,340
AP10	*U45B – West of Inverugie.*	2,720	1,840	4,560
AP11	*U45B– West of Inverugie.*	2,762	1,924	4,685
AP12	*C43B – East of Longside Airfield.*	2,502	1,404	3,905
AP13	*C43B – East of Longside Airfield.*	2,502	1,404	3,905

Access Point	Location	Cars and LCVs	HGVs	Total
AP14	*U50 – East of Longside Airfield.*	2,720	1,840	4,560
AP15	*U50 – East of Longside Airfield.*	2,720	1,840	4,560
AP16	*U50 – East of Longside Airfield.*	2,720	1,840	4,560
AP17	*U50 – East of Longside Airfield.*	2,720	1,840	4,560
AP18	*A950 – Near Blackhills.*	3,127	2,654	5,781
AP19	*U63B – South of junction with A950.*	2,642	1,684	4,327
AP20	*A950 – Near Blackhills.*	2,642	1,684	4,327
AP21	*C56B – South of junction with A950.*	2,642	1,684	4,327
APSS	*A950 – Near Blackhills.*	7,699	2,197	9,896
APSS_1	*U59B – South of junction with A950.*	7,699	2,197	9,896

5.4.1.4 The figures in **Table 5.5** represent the total amount of traffic estimated for each access point during busiest year of construction which is 2031. The data takes into account the various construction elements expected at each access point as shown in **Volume 2, Figure 4.1.**

5.4.1.5 It should also be mentioned that access points AP1, AP5 and AP6 are to provide access for landfall(s) construction however, the actual works might only include one or a combination of these locations. All trips associated with landfall(s) construction have therefore been assigned to each location, overestimating the potential traffic generation at these specific access points, providing additional robustness to the assessment.

5.4.1.6 The general difference in construction movements between access points are reflective of the expectation that some access points such as AP02 – AP06 will support the landfall(s) and onshore export cable works, whilst APSS (onshore substation site) will support export cable corridor and onshore substations works generating different types and number of vehicle movements. The same approach applies to the onshore export cable corridor construction sites and various temporary construction compounds.

6. Construction Traffic Impact Assessment

6.1 Construction traffic impact

6.1.1.1 The average peak month traffic flows from the construction movements were added to the future baseline (2031) and committed development traffic to allow for impact analysis. This is done in terms of 12-hour daily traffic generation.

6.1.1.2 The increase in traffic volumes and the subsequent percentage impact is shown in **Table 6.1.**

Table 6.1 2031 baseline + committed development + Project construction traffic volumes and impact (12Hr, two-way)

Study link	Location	Cars and LCVs	HGV	*Total*	Cars and LCVs %	HGV%	*Total%*
A90-01	A90 between A982 at Whitehilll and A950	5,974	1,033	7,008	1.8%	95.2%	9.6%
A90-02	A90 between A950 and A982 at Waterside.	3,914	431	4,346	9.0%	200.5%	16.4%
A90-03	A90 between A982 and C5B.	3,887	388	4,276	8.3%	170.5%	14.5%
A90-04	A90 between C5B and U32B.	5,048	522	5,570	6.3%	88.2%	10.8%
A950-01	A950 between A90 and C56B.	6,415	1,064	7,479	7.7%	32.4%	10.2%
C5B-01	C5B between A90 and Cairnhill.	562	117	679	28.4%	533.6%	48.8%
U63B-01	U63B between A950 and C38B at Stockbridge.	430	108	538	34.5%	184.7%	50.4%
B9178-01	B9178 east of A90 Inverettie Roundabout.	1,353	410	1,763	0.1%	0.2%	0.1%

6.1.1.3 A review of the existing road capacity has been undertaken using the Design Manual for Roads and Bridges Vol.15, Part 5 “The NESA Manual” (Scottish Government, 2015). The theoretical road capacity has been estimated for each study link for a 12-hour period with the results summarised in **Table 6.2**.

Table 6.2 2031 baseline + committed development + Project construction capacity impact (12Hr, two-way)

Study Link	Location	2031 Baseline Flow	Theoretical Road Capacity	2031 Baseline + Committed Development + Development Flow	Spare Road Capacity
A90-01	A90 between A982 at Whitehilll and A950.	6,396	31,200	7,008	77.5%
A90-02	A90 between A950 and A982 at Waterside.	3,734	31,200	4,346	86.1%
A90-03	A90 between A982 and C5B.	3,734	31,200	4,276	86.3%
A90-04	A90 between C5B and U32B.	5,028	31,200	5,570	82.1%
A950-01	A950 between A90 and C56B.	6,470	26,400	7,479	71.7%
C5B-01	C5B between A90 and Cairnhill.	456	4,800	679	85.9%
U63B-01	U63B between A950 and C38B at Stockbridge.	357	16,800	538	96.8%
B9178-01	B9178 east of A90 Inverettie Roundabout.	1,761	16,800	1,763	89.5%

6.1.1.4 The results indicate there are no significant road capacity constraints with the combined baseline, committed and development traffic and ample spare capacity exists within the trunk and local road network to accommodate construction stage traffic of the Project.

6.2 Potential mitigation

6.2.1.1 In addition to the capacity assessment, each road within the study network was reviewed using Ordnance Survey (OS) mapping and Google StreetView to identify geometric constraints which may require mitigation to allow HGV movements.

6.2.1.2 **Table 6.3** summarises the potential constraints on roads where HGV movements might impact on road users.

Table 6.3 Potential mitigation summary

Road	Location	Potential Mitigation Measure
U32B	Between AP01 and A90.	No mitigation proposed – Narrow carriageway but sufficient passing place provision.
C5B	Between AP09 and A90.	No mitigation proposed – Sufficient carriageway width to allow two-way traffic.
U45B	Between C43B and AP10 and AP11.	Introduce passing places – Narrow carriageway will not allow two-way traffic. If existing traffic is low, potential traffic management measures sufficient.
C43B	Between U50B and AP12 and AP13.	No mitigation proposed – Narrow carriageway width for short section only and traffic management to mitigate impact.
U50B	Between A950 and C43B.	No infrastructure mitigation proposed however, more rigorous traffic management potentially required due to the number of access points on this road.
U59B	Between A950 and APSS_1.	No mitigation proposed – Narrow carriageway width for short section only and traffic management to mitigate impact.
U63B	Between A950 and AP19.	Introduce passing places – Narrow carriageway will not allow two-way traffic.
U56B	Between A950 and AP21.	No mitigation proposed - Sufficient carriageway width to allow two-way traffic.

6.2.1.3 There may also be a requirement to alter the alignment of roads or kerb lines at existing junctions and constrained sections of road or reinforcement of structures to accommodate HGV movements associated with construction activities. While the requirement for these needs to be confirmed through topographical and structural surveys, the potential road improvement is summarised in **Table 6.4**.

Table 6.4 Potential road improvements

Road	Location	Potential Improvement
U32B	Bridge structure.	Reinforcement – Assessment to confirm.
U45B	Bridge structure.	Reinforcement – Assessment to confirm.
U45B	Bend at Johnston Farm.	Junction widening.

6.3 Additional mitigation measures

6.3.1.1 Whilst no traffic volume capacity related constraints are predicted, other mitigation measures are required to reduce the impact of the construction traffic on other road users

and nearby residents., Further details on potential mitigations are outlined in **Appendix 5.2: Commitments Register**. Additionally, specific mitigations potentially required in relation to abnormal load deliveries are identified in **Appendix 26.2**.

7. Conclusion

7.1.1.1 In conclusion, it is considered that the construction traffic generated by the most intense period of the Project's construction is not likely to have a significant impact on road capacity on the trunk road or local road network. Additionally, the impact of construction traffic from other committed developments in the area in combination with construction traffic generated by the Project, is also not expected to have a significant impact on the operation of the road network used.

7.1.1.2 However, discounting capacity impact, public road improvements have been identified to manage construction traffic movements, and it is intended that this TA be used to support dialogue with Aberdeenshire Council and Transport Scotland to develop an initial set of measures and management strategy which can be used to support the Project progressing through the planning process.

7.1.1.3 A Principal Contractor, once appointed, will subsequently have further detailed dialogue with Aberdeenshire Council and Transport Scotland as plans are refined, to ensure that a suitable set of measures are implemented in advance of the commencement of construction to mitigate any impacts. These discussions and implementation of mitigations will be further supported by the **Volume 4: Outline Construction Traffic Management Plan**.

8. References

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9. Glossary of Terms and Abbreviations

9.1 Abbreviations

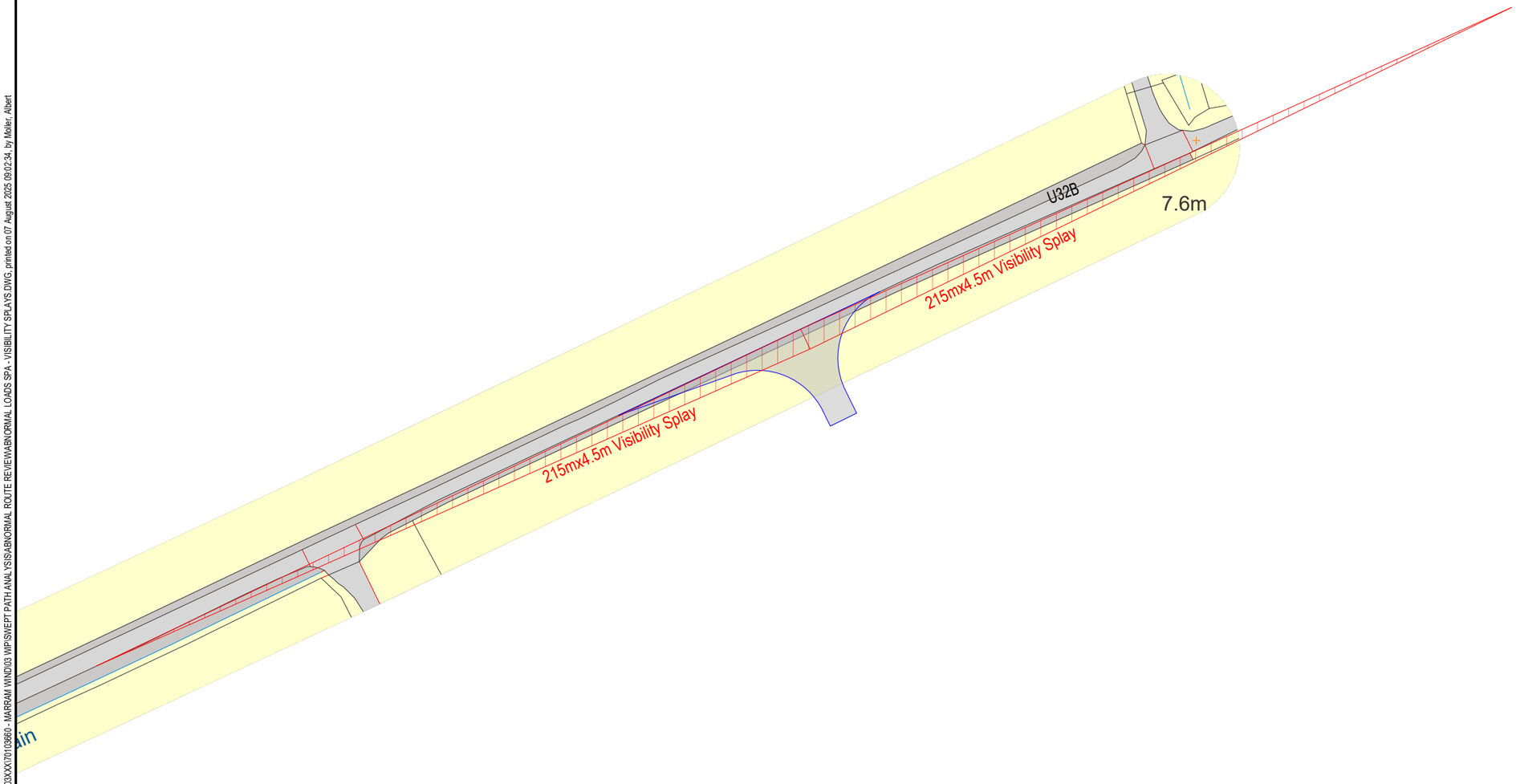
Acronym	Definition
AADT	Annual Average Daily Traffic
AP	Access Point
ATC	Automatic Traffic Counter
DfT	Department for Transportation
GCC	Grid Connection Cable
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
LCV	Light Commercial Vehicle
MLWS	Mean Low Water Springs
NSL	National Speed Limit
PIA	Personal Injury Accident
SSEN	Scottish and Southern Electricity Network
TA	Transport Assessment
TRN	Trunk Road Network
TS	Transport Scotland

9.2 Glossary of terms

Term	Definition
Annual Average Daily Traffic	A measure of road traffic volume that represents the average number of vehicles that pass a specific point on a road each day over the course of a year.
Department for Transportation	The government department responsible for the transport network in the UK.
Heavy Goods Vehicle	Is defined as a commercial vehicle with a gross weight exceeding 3,500 kg (3.5 tonnes).

Term	Definition
Light Commercial Vehicle	Is defined as a commercial vehicle with a gross weight of 3,500 kg (3.5 tonnes) or less.
Transport Scotland	The national transport agency of Scotland, established by the Transport Scotland Act 2005 as an Executive Agency of the Scottish Government.
Visibility Splay	An unobstructed triangular area of land at a junction or access that ensures drivers have enough clear vision to see approaching traffic on the main line of a road in accordance with visibility requirements.

Appendix A
Visibility Splays



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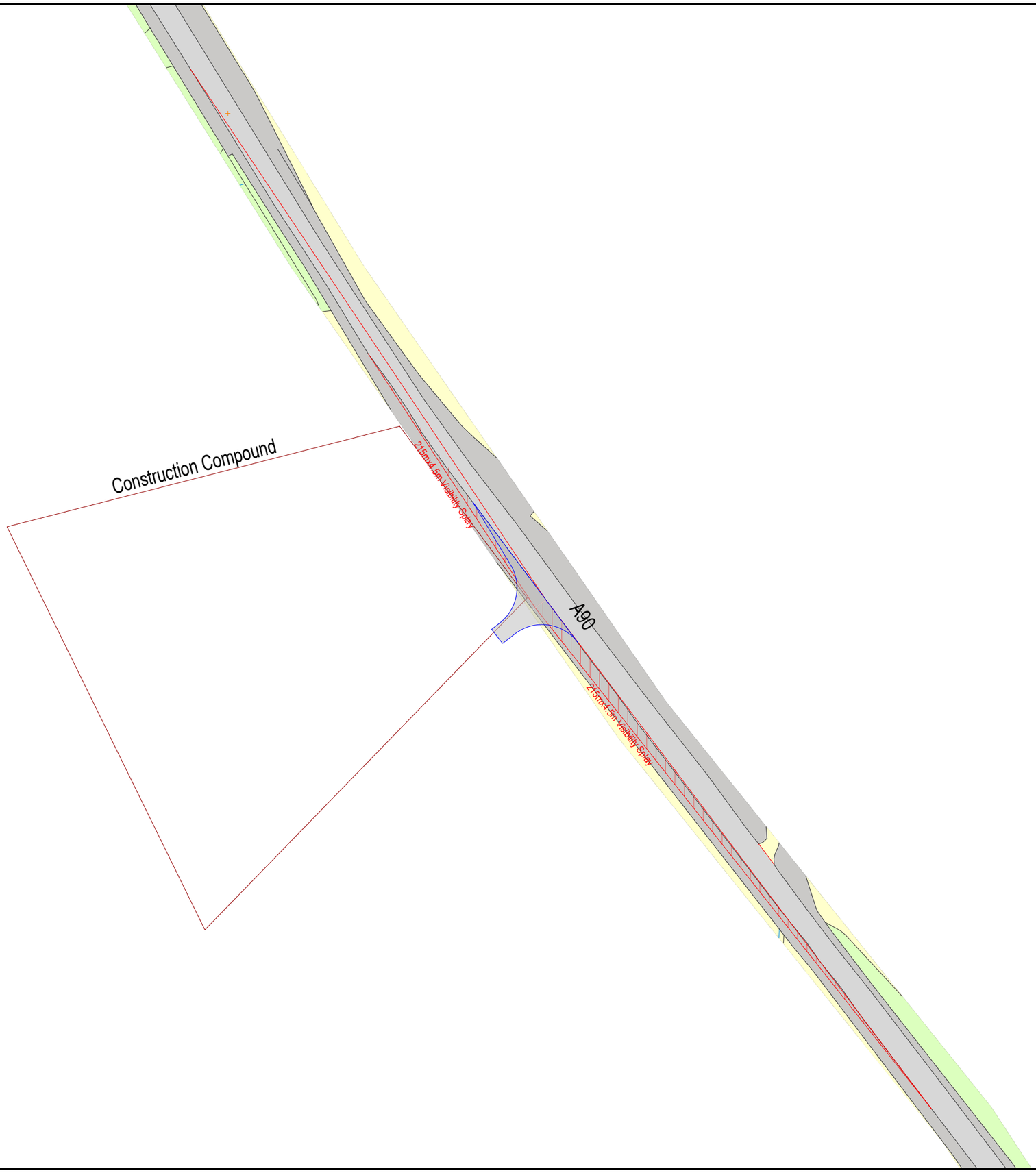

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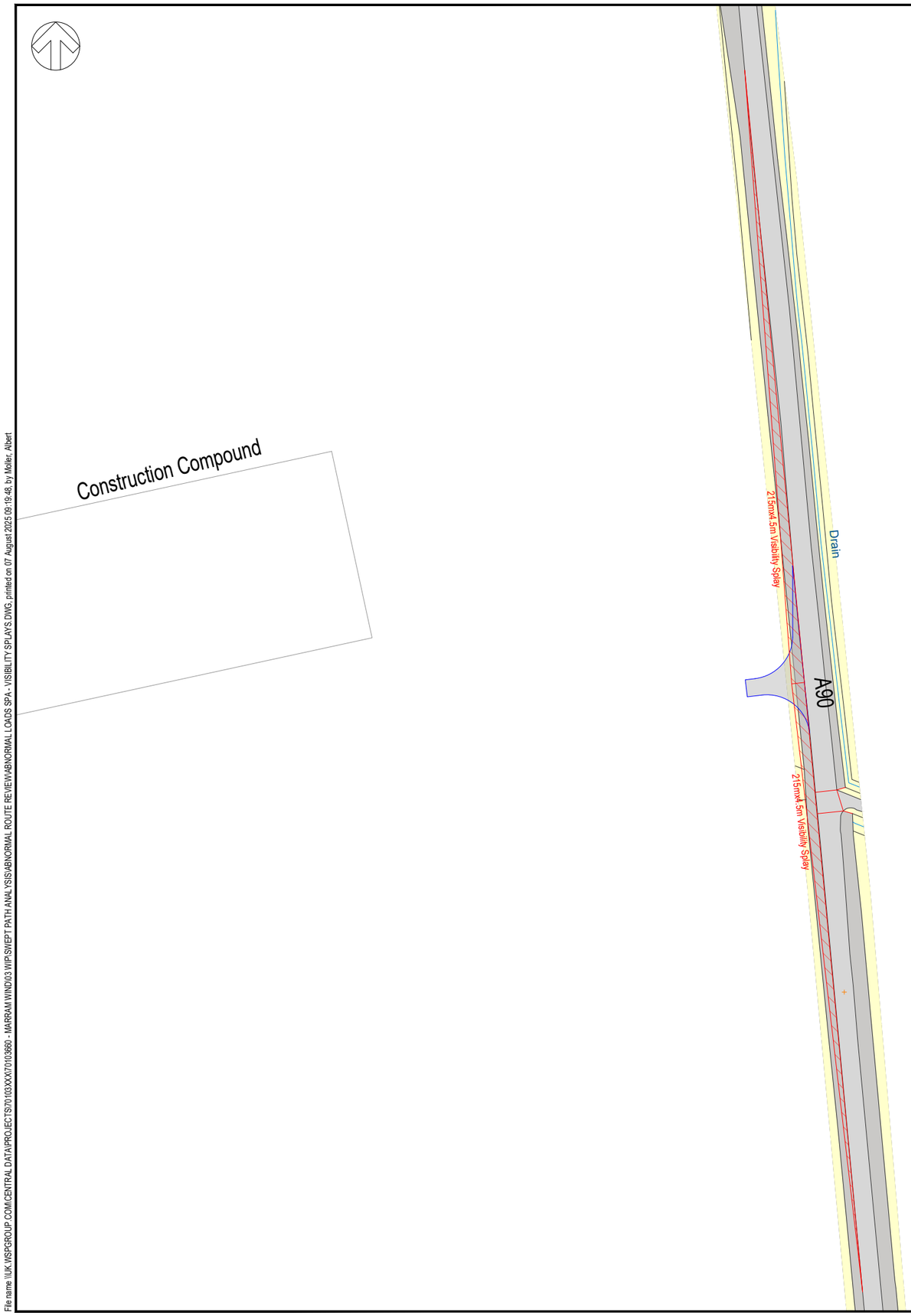

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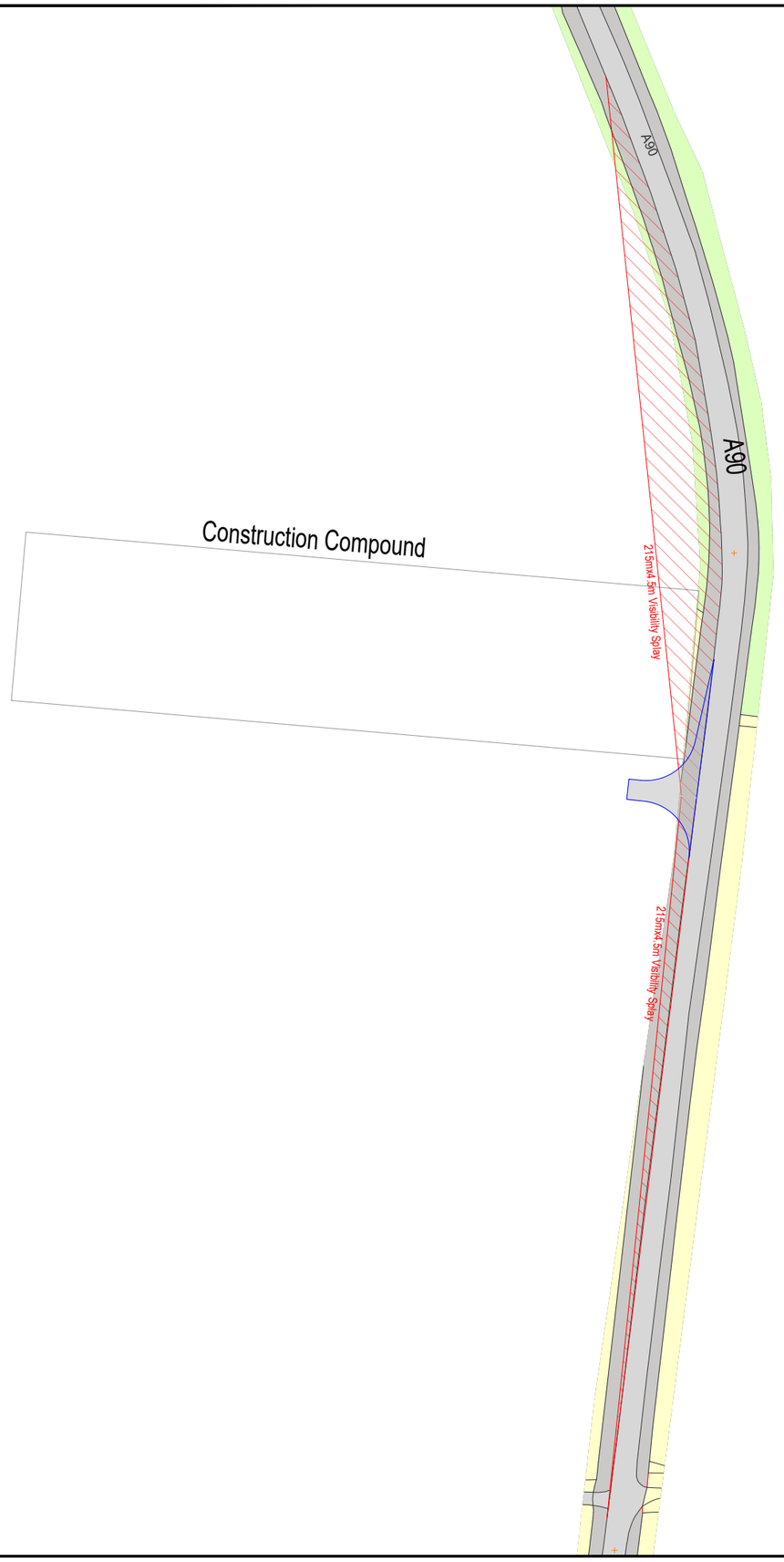

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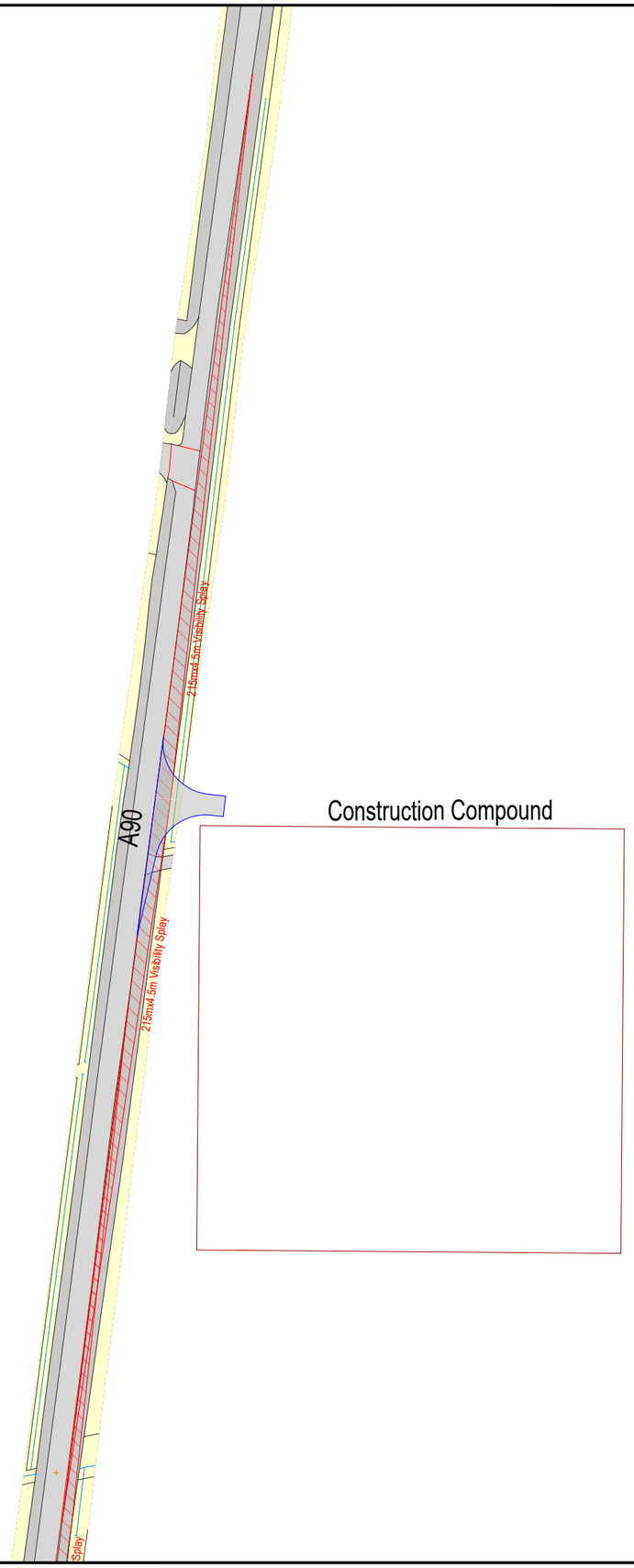

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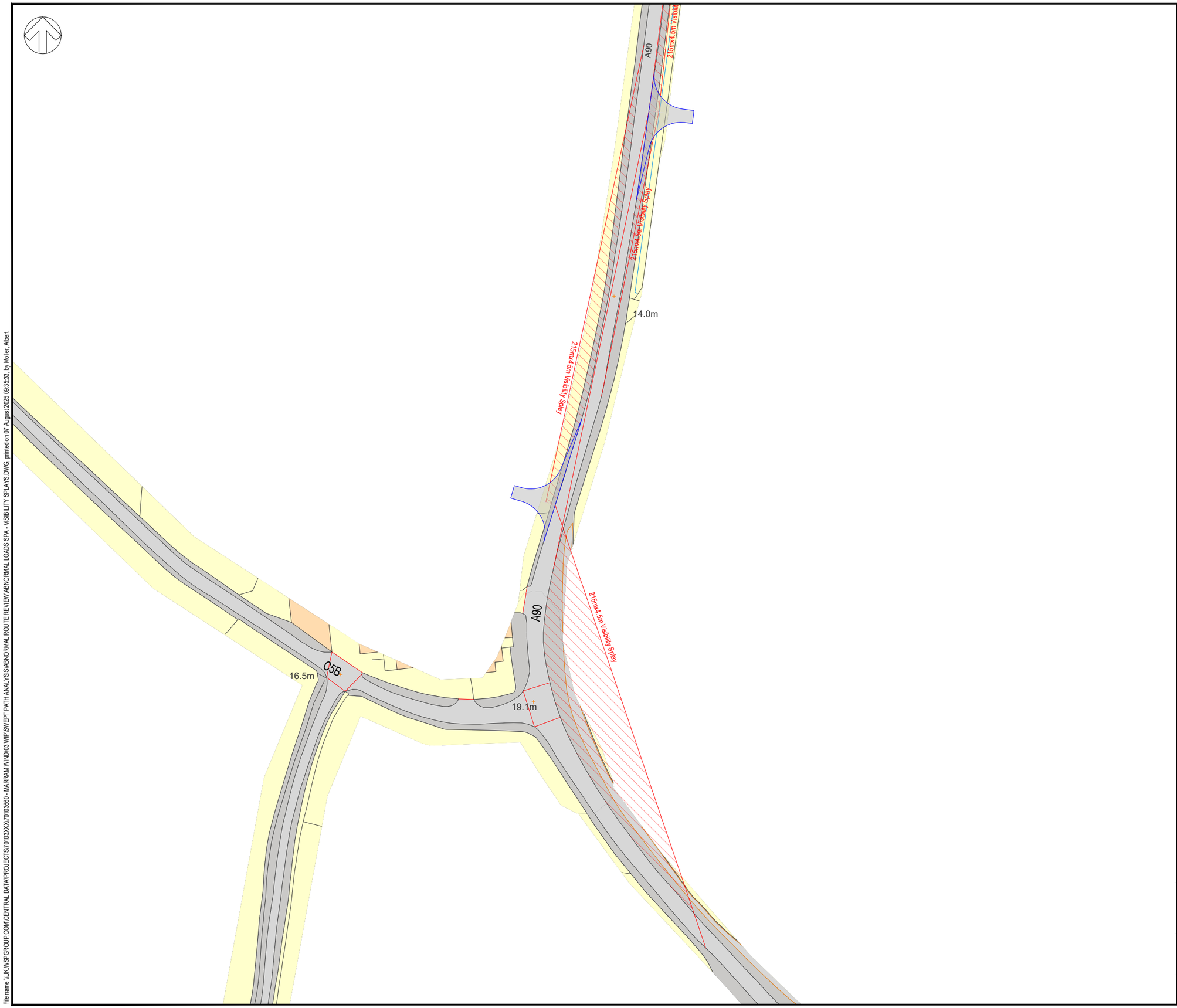

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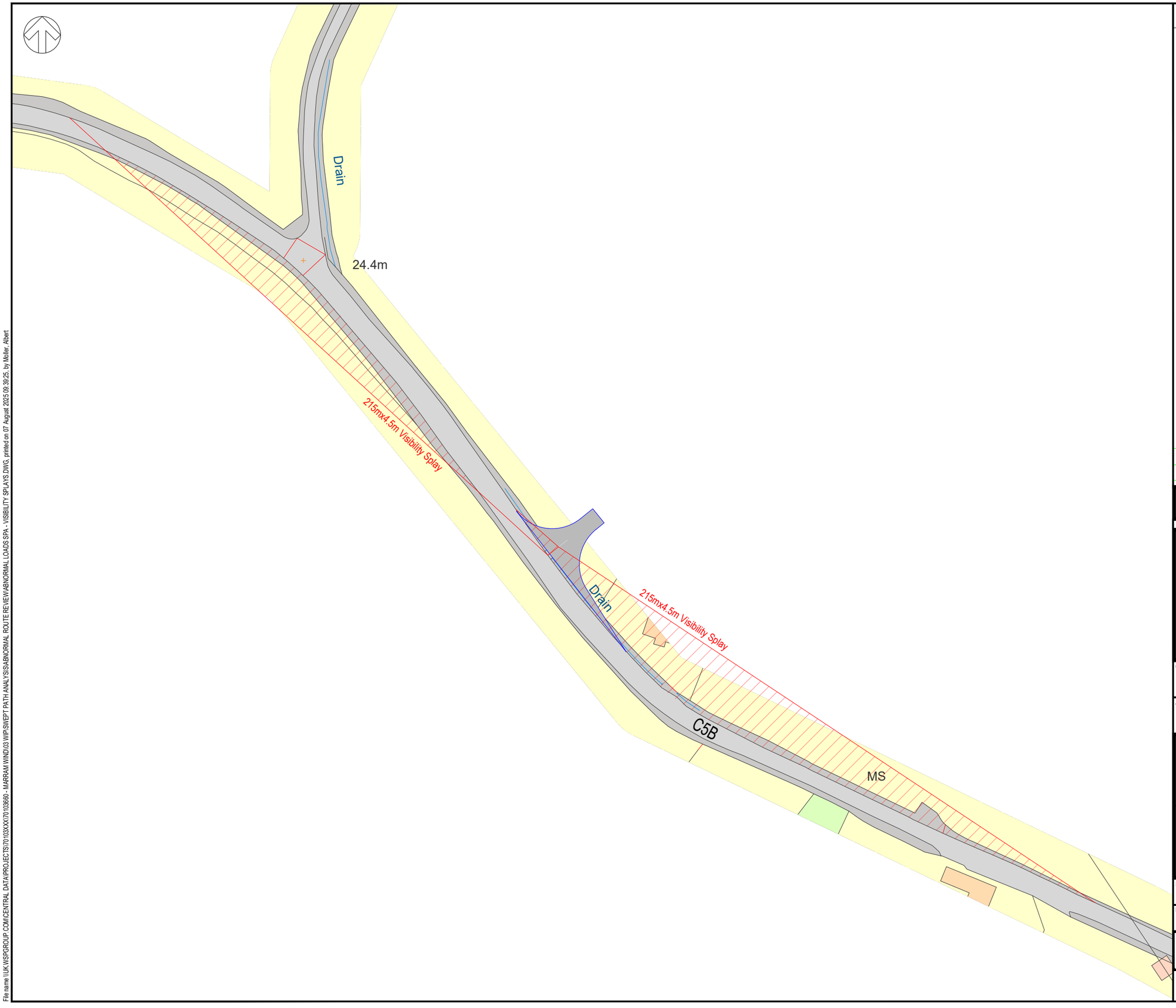

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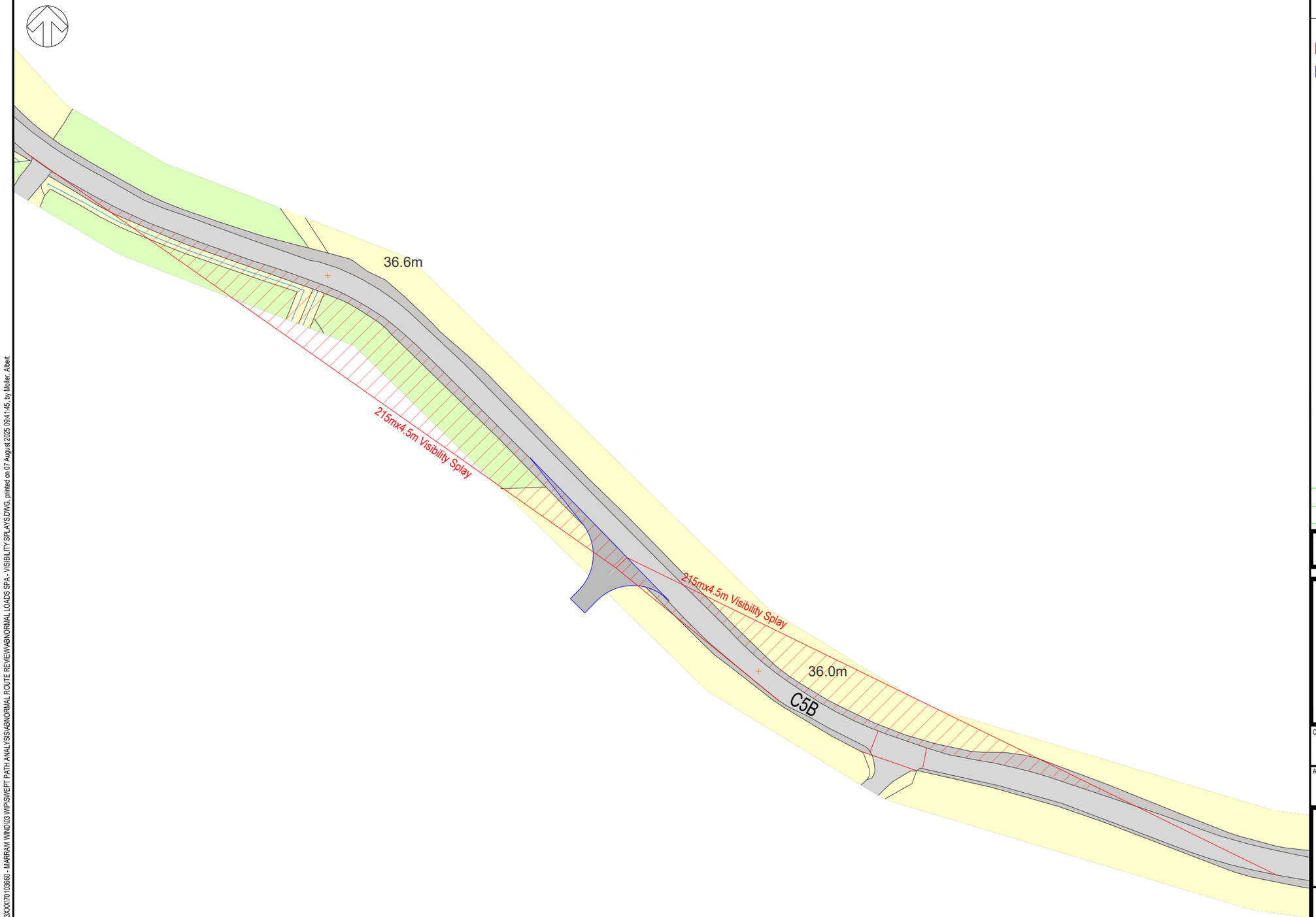

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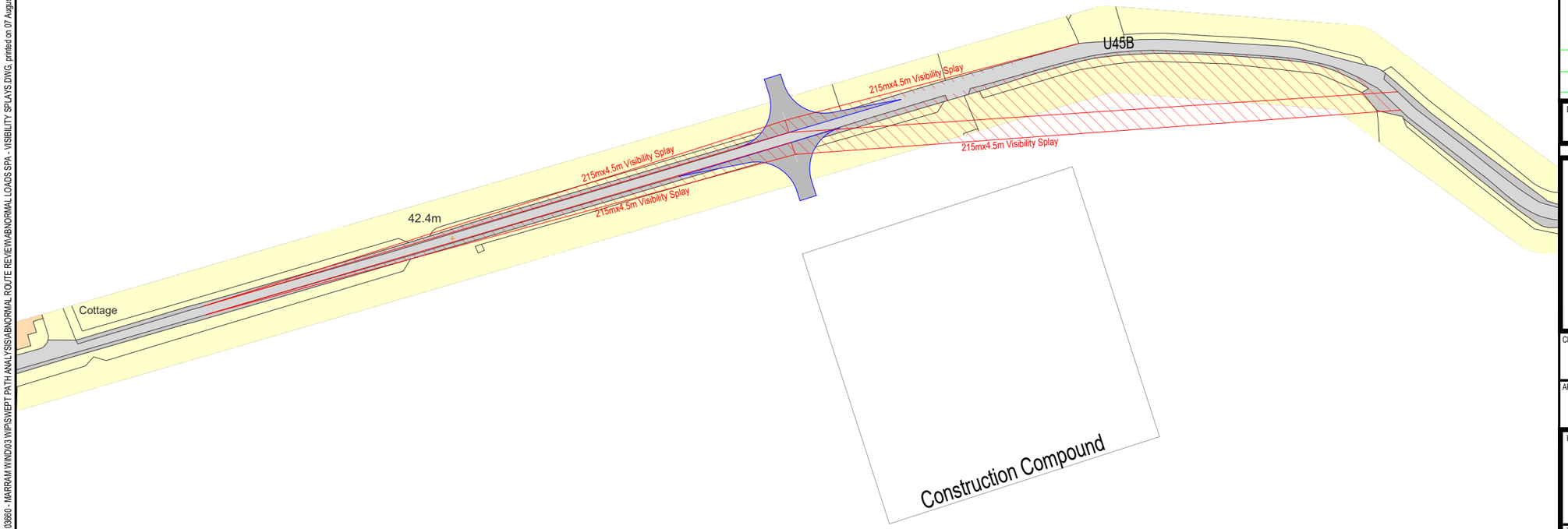

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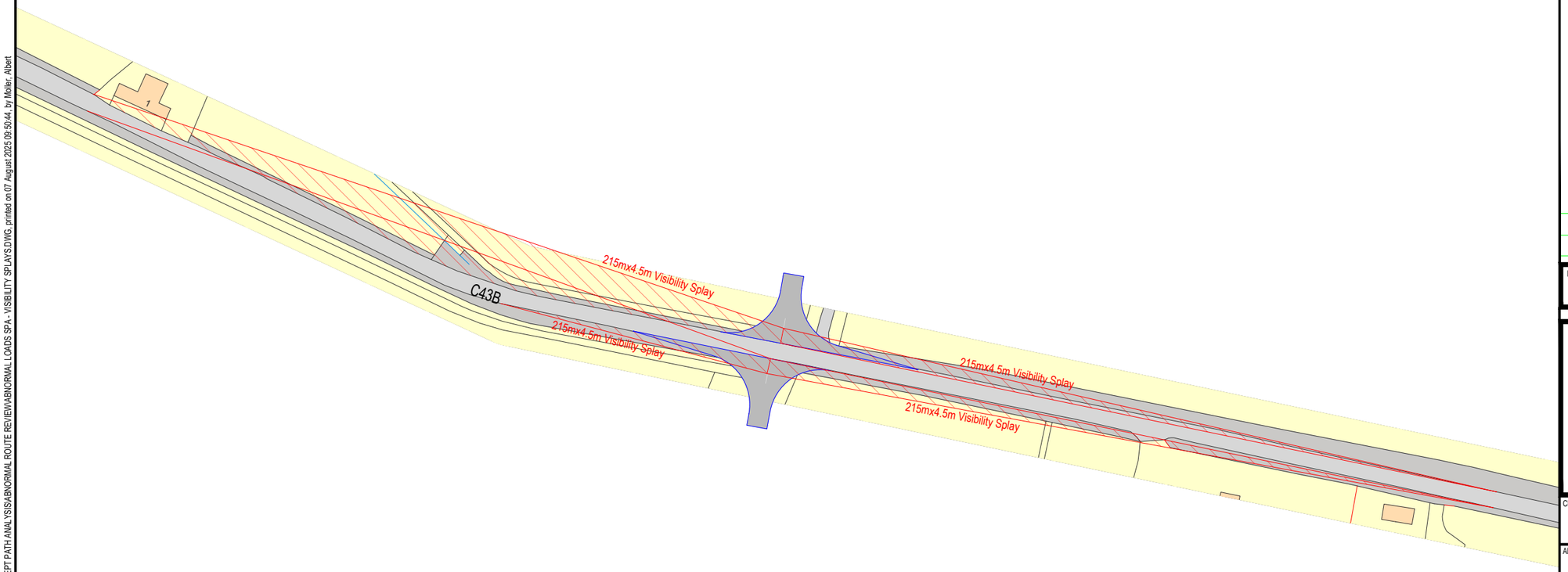

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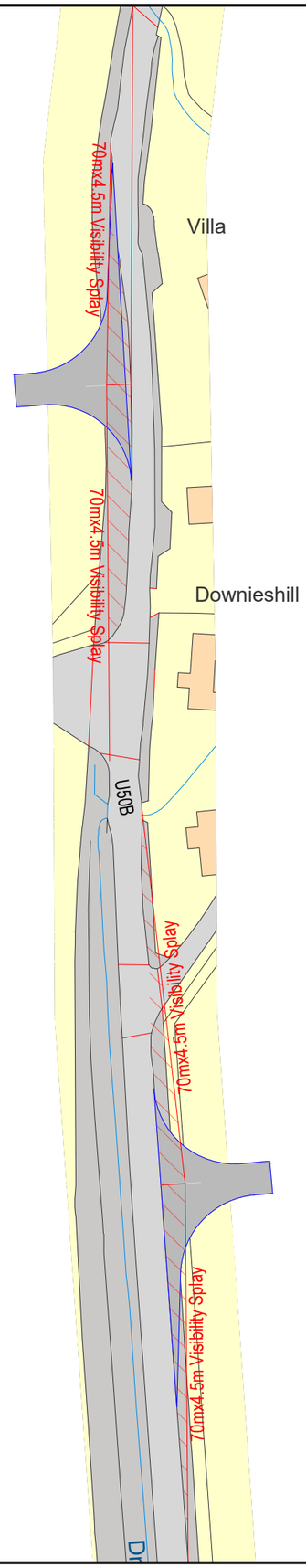

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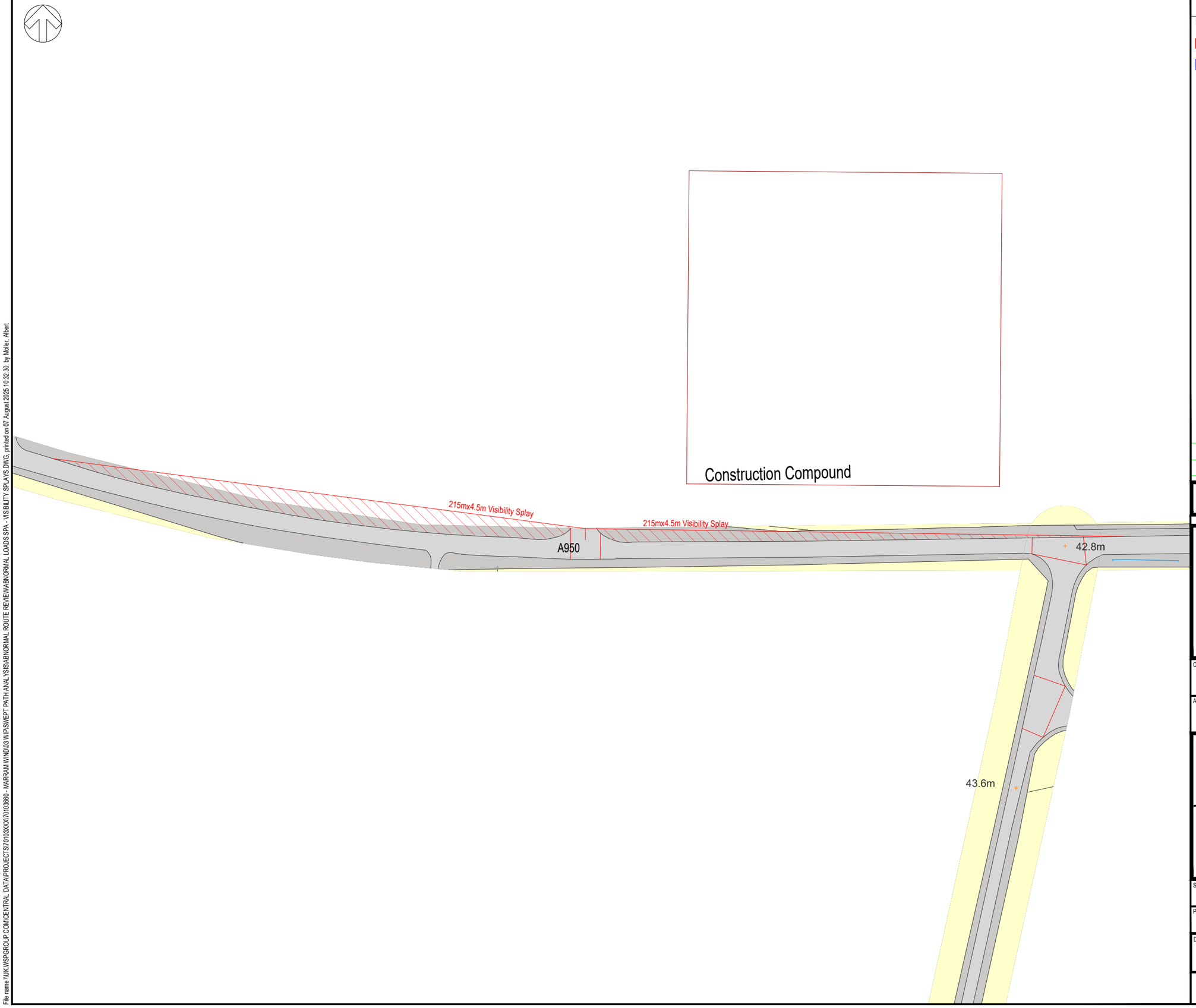

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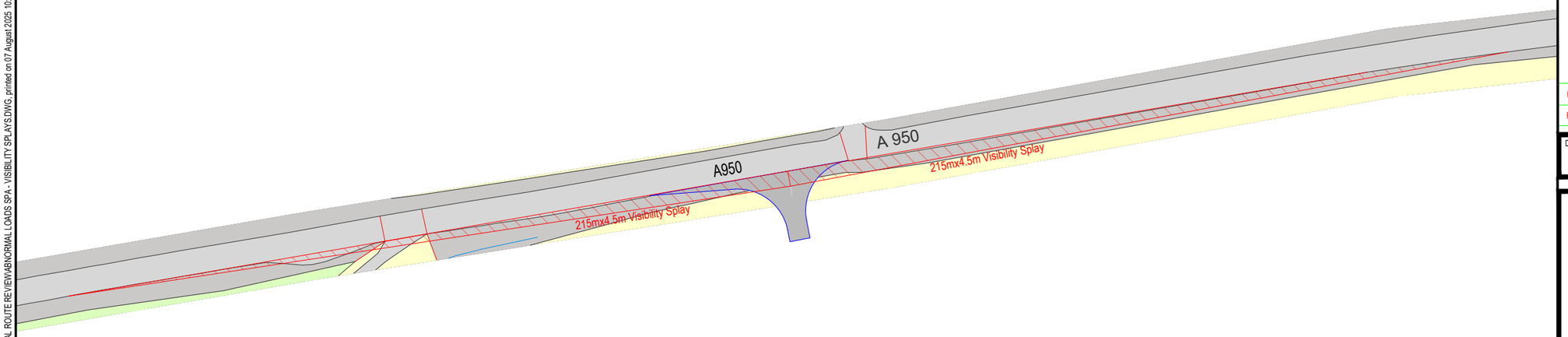

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UK0041808.9006_VIS_SK016	P01

DO NOT SCALE

KEY

VISIBILITY SPLAY

INDICATIVE PROPOSED ACCESS

REV	DATE	BY	DESCRIPTION	CHK	APP
P01					

DRAWING STATUS: FOR ISSUE

7 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH, UK
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wsp.com

CLIENT:

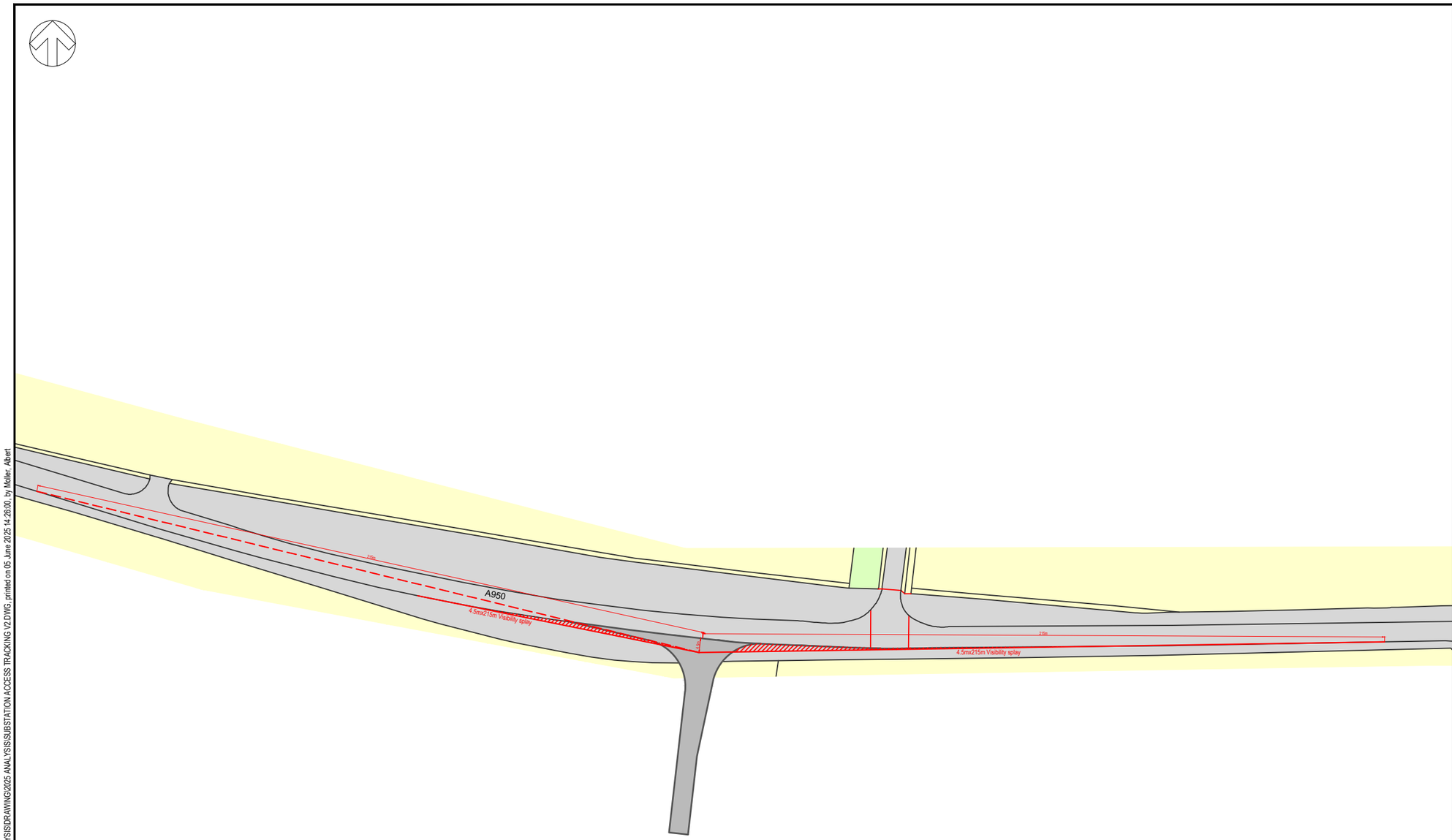
ARCHITECT:

PROJECT: MARRAM OFFSHORE WIND FARM

TITLE: AP 21 - C56B VISIBILITY SPLAY

SCALE @ A2:	CHECKED:		APPROVED:
N/A	PW		PW
PROJECT No:	DESIGNED:	DRAWN:	DATE:
UK0041808.9006	AM	AM	August 25

DRAWING No:	REV:
UK0041808.9006_VIS_SK017	P01



DO NOT SCALE

KEY

VISIBILITY SPLAY

INDICATIVE PROPOSED ACCESS

REV	DATE	BY	DESCRIPTION	CHK	APP
P01					

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ARCHITECT:

PROJECT:

MARRAM OFFSHORE WIND FARM

TITLE:

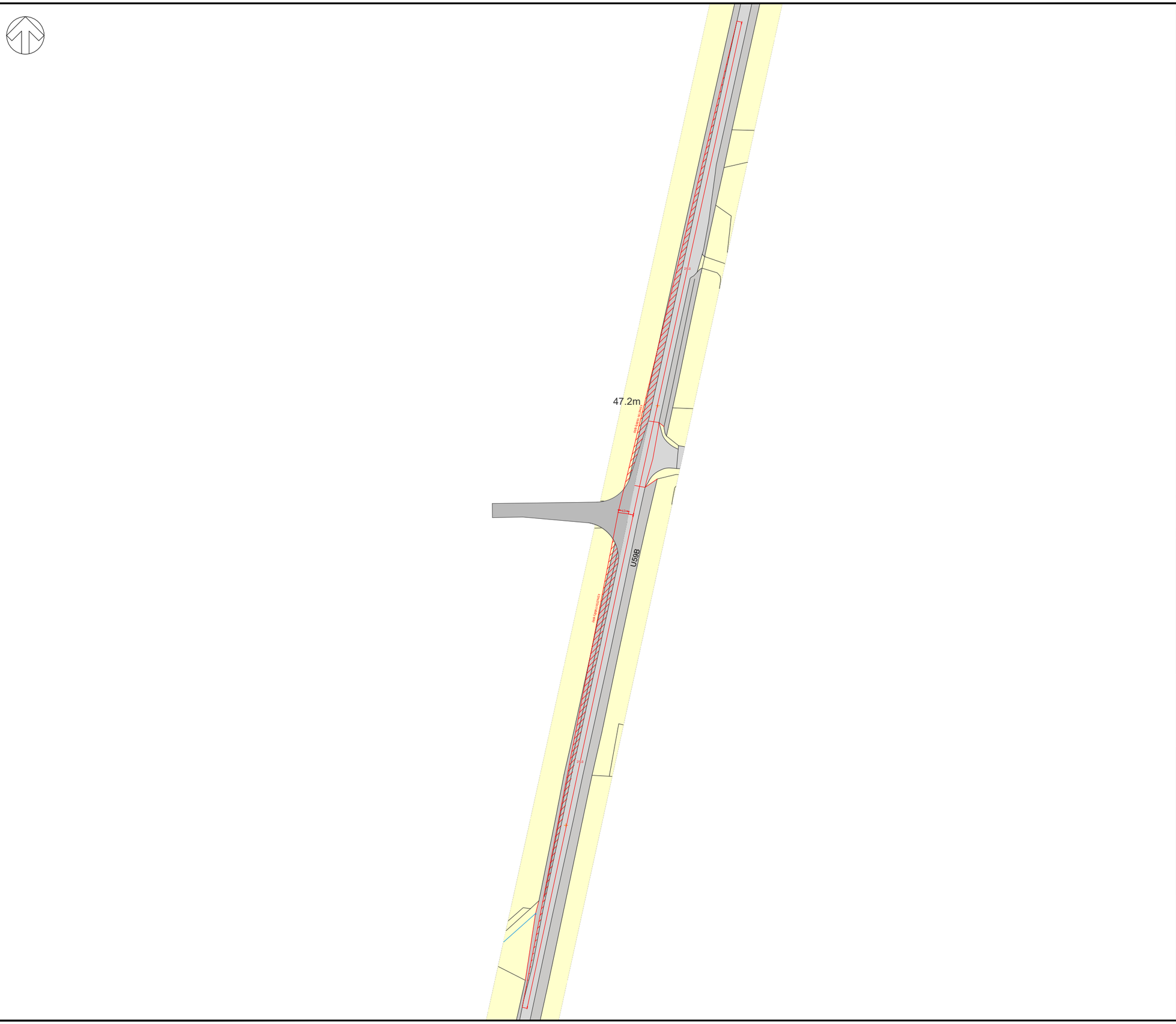
INDICATIVE LAYOUT OF
SUBSTATION ACCESS APSS -
4.5x215m VISIBILITY SPLAY

SCALE @ A2:	CHECKED:	APPROVED:
1:1000	PW	PW

PROJECT No:	DESIGNED:	DRAWN:	DATE:
UK0041808.9006	AM	AM	August 25

DRAWING No:	REV:
UK0041808.9006_VIS_SK0018	P01

File name: \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70103XX\70103960 - MARRAM WIND\03 WIP\SWEPT PATH ANALYSIS\DRAWING\2025 ANALYSIS\SUBSTATION ACCESS TRACKING V2.DWG, printed on 05 June 2025 14:26:00, by Moller, Albert



DO NOT SCALE

KEY

VISIBILITY SPLAY

INDICATIVE PROPOSED ACCESS

REV	DATE	BY	DESCRIPTION	CHK	APP
P01					

DRAWING STATUS: FOR ISSUE

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wsp.com

CLIENT:

ARCHITECT:

PROJECT: MARRAM OFFSHORE WIND FARM

TITLE: INDICATIVE LAYOUT OF ALTERNATIVE SUBSTATION ACCESS APSS_1 - 4.5x215m VISIBILITY SPLAY

SCALE @ A2:	CHECKED:	APPROVED:
N/A	PW	PW

PROJECT No:	DESIGNED:	DRAWN:	DATE:
UK0041808.9006	AM	AM	August 25

DRAWING No:	REV:
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File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70103XX\70103660 - MARRAM WIND\03 WIP\SWEPT PATH ANALYSIS\DRAWING\2025 ANALYSIS\SUBSTATION ACCESS TRACKING V4.DWG, printed on 07 August 2025 08:53:48, by Meller, Albert

MarramWind