

Emmock 400 kV Substation Environmental Impact Assessment (EIA) Volume 4 | Appendix 12.1

Transport Assessment

July 2025





CONTENTS

LIST OF A	BBREVIATIONS	3
1.	INTRODUCTION	4
1.1	Purpose of the Transport Assessment	4
1.2	TA Structure	4
2.	SITE BACKGROUND	5
2.1	Site Location	5
2.2	Description of the Proposed Development	5
2.3	Proposed Abnormal Indivisible Loads	6
3.	TRANSPORT & PLANNING POLICY	8
3.1	Introduction	8
3.2	National Policy and Guidance	8
3.3	Local Policy and Guidance	9
3.4	Angus Local Plan	9
3.5	Policy and Guidance Summary	9
4.	ASSESSMENT METHODOLOGY	10
4.1	Introduction	10
4.2	Project Phases – Transport Overview	10
5.	BASELINE TRANSPORT CONDITIONS	11
5.1	Access Arrangement	11
5.2	Study Area	11
5.3	Pedestrian & Cyclist Links	13
5.4	Road Access	13
5.5	Existing Traffic Conditions	14
5.6	Accident Review	15
5.7	Future Baseline	16
6.	TRIP GENERATION & DISTRIBUTION	18
6.1	Trip Generation	18
6.2	Traffic Distribution	18
6.3	Abnormal Indivisible Load Deliveries	19
6.4	Operational and Decommissioning Phases	19
7.	TRAFFIC IMPACT ASSESSMENT	21
7.1	Construction Impact	21
8.	FRAMEWORK CONSTRUCTION TRAFFIC MANAGEMENT PLA	\N 22
8.1	Proposed Measures	22
8.2	Emmock Road Passing Areas	22
8.3	Public Information	23
8.4	Pedestrian Management	23
8.5	AIL Management Measures	23
8.6	Public Information	24
8.7	Convoy System	24
8.8	Operational Phase Mitigation	24
9.	SUMMARY & CONCLUSIONS	25
ANNEX A:	SITE ACCESS JUNCTION	26
ANNEX B:	EMMOCK ROAD WORKS	27
ANNEX C.	ATI REPORT	28



LIST OF ABBREVIATIONS

Term in full	Abbreviations	Definition
Abnormal Indivisible Load	AIL	Loads / vehicles which exceed the maximum vehicle weight, axle weight or dimensions which are set out in the Road Vehicles (Construction and Use) Regulations 1986 as amended.
Automatic Traffic Counter	ATC	Equipment which is laid across a road and measures traffic characteristics such as the number of vehicles passing over it, speed and classification.
Average Daily Traffic	AADT	The average traffic flow over the course of a day which passes a particular location on the road network each day.
Construction Traffic Management Plan	СТМР	Document which outlines traffic management measures to mitigate adverse impacts associated with construction related traffic.
Department for Transport	DfT	UK Government Department for Transport
Design Manual for Roads and Bridges	DMRB	Design Manual for Roads and Bridges
Electronic Service Delivery for Abnormal Loads	ESDAL	Outlines who needs to be notified about a proposed abnormal load delivery route.
Environmental Impact Assessment Report	EIAR	A document detailing the effects a project would have on the environment.
Heavy Goods Vehicle	HGV	All goods vehicles > 3.5 tonnes gross maximum weight.
The Institution of Environmental Management and Assessment	IEMA	The Institution of Environmental Management and Assessment
Light goods vehicles	LGV	All commercial vehicles < 3.5 tonnes gross maximum weight.
Miles per Hour	mph	Measurement unit of speed on British roads.
National Cycle Network	NCN	Designated National Cycle Routes within the UK.
National Road Traffic Forecast	NRTF	Factors used to apply future year growth to traffic flows.
Ordnance Survey	OS	Great Britain's national mapping agency.
Planning Advice Note	PAN	Scottish Government's planning guidance documents.
Route Survey Report	RSR	Report assessing the suitability of a route to transport abnormal loads.
Transport Scotland	TS	Transport Scotland



1. INTRODUCTION

1.1 Purpose of the Transport Assessment

Pell Frischmann (PF) has been commissioned by LUC, on behalf of Scottish & Southern Electricity Networks Transmission (SSEN Transmission), to undertake a Transport Assessment (TA) for a proposed electrical substation (the Proposed Development), known as Emmock.

No liability is accepted for the use of all or part of this report by third parties. This report is © Copyright of Pell Frischmann 2024 and SSEN Transmission. No section of this report may be reproduced without prior written approval.

This appendix identifies the key transport and access issues associated with the Proposed Development and provides a review of the likely traffic impacts in the study area. The TA identifies where mitigation works may be required to accommodate the predicted traffic impacts associated with the Proposed Development, to be developed during detailed design. It should be read in conjunction with **Chapter 12: Transport and Access** of the **EIA Report** for full details of the Proposed Development.

This appendix is supported by the following:

- Annex A Site Access Junction
- Annex B Emmock Road Works (refer Figures 12.1 and 12.2)
- Annex C Route Survey Report

1.2 TA Structure

Following this introduction, the TA is structured as follows:

- Chapter Two describes the site and proposed development background;
- Chapter Three reviews the relevant transport and planning policies;
- Chapter Four sets out the methodology used within this assessment;
- Chapter Five describes the baseline transport conditions;
- Chapter Six describes the trip generation and distribution of traffic in the study area;
- Chapter Seven summarises the traffic impact assessment;
- Chapter Eight considers mitigation proposals in the form of a Framework Construction Traffic Management Plan; and
- Chapter Nine summarises the findings of the TA and outlines the key conclusions.



2. SITE BACKGROUND

2.1 Site Location

The Proposed Development would be constructed on farmland to the northeast of the existing Tealing Substation, located to the north of Dundee. The Proposed Development is located approximately 2.25km to the west of Tealing and is located with the Angus Council (AC) administrative area.

The Proposed Development would occupy an area currently used for agriculture. Access to the Site would be taken from the Emmock Road, a public road maintained by AC.

The location of the Proposed Development is shown on Figure 2.1: Site Location below.

Figure 2.1 Site Location



The existing substation provides the termination point to the proposed Kintore to Tealing 400 kV Overhead Line (OHL).

2.2 Description of the Proposed Development

The proposed works would involve the construction of a new substation, together with associated High Voltage (HV) equipment. The layout of the Proposed Development is illustrated in **Figure 2.2: Proposed Development Layout**.

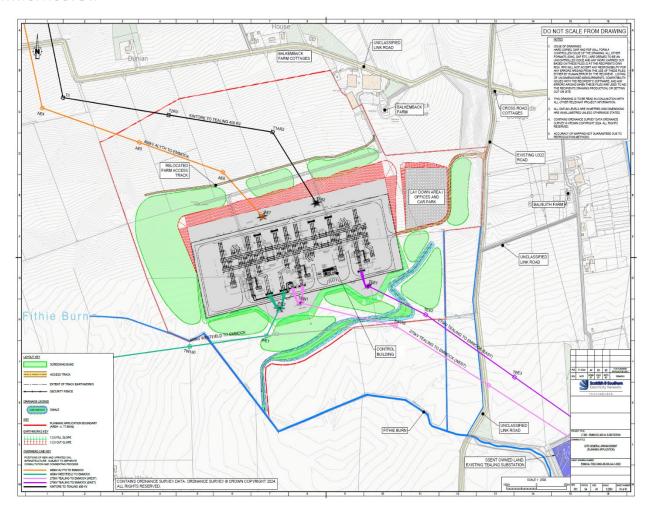


Figure 2.2: Proposed Development Layout

The Proposed Development will include the following:

- Cut and fill operations to create a development platform to accommodate the electrical infrastructure.
- Creation of a new permanent access road east of the Site from Emmock Road
- Construction of a structure over an unnamed culverted watercourse that drains to the Fithie Burn to the south;
- Widening of the access track at Emmock Road to allow for passage of HGVs;
- The erection and commissioning of electrical equipment;
- Erection of a single storey control building approximately 7m in height;
- Perimeter fence, potentially up to 4 m height;
- Landscaping, including screening bunds and new planting to deliver landscape and visual mitigation, and biodiversity net gain (BNG) measures (both on and off site);
- Permanent earthworks and site drainage provisions, including Sustainable Drainage Scheme (SuDS) basins, swales, and a network of interceptors draining into Fithie Burn;
- Internal accesses and parking spaces within the substation platform area;
- Temporary site compound lay down area and material storage areas; and
- Temporary site offices and welfare facilities for on-site construction workers.

2.3 Proposed Abnormal Indivisible Loads

The UK Government describes an Abnormal Indivisible Load (AIL) as "any load that cannot be broken down into smaller loads without undue expense or risk of damage". AIL movements remain a reserved matter for the UK parliament.



There are four main pieces of legislation that cover AIL movements:

The Road Vehicles (Construction & Use) Regulations 1986;

This covers all aspects of the vehicles setup from the weights and dimensions through to the braking system and environmental standards.

The Road Vehicles (Authorised Weight) Regulations 1998;

These regulations sets the limited maximum weight of the vehicle and axle loading of different vehicle categories.

The Road Vehicles (Authorisation of Special Types) (General) Order 2003;

The Special Types General Orders (STGO) is for vehicles not covered by either of the above Regulations and covers transformer and reactor delivery vehicles which are categorised as N3 for the tractor units and O4 for the specifically designed trailers. It states that the police, the relevant highway and bridge authorities or the Secretary of State may need to be notified of vehicle movement, dependent on the size of the load.

Notifications can be made online through the 'Highway Agency's Electronic Service Delivery for Abnormal Loads (ESDAL) System' or in paper form using the BE16 form for Special Orders.

The Road Vehicles Lighting Regulations 1989 (Authorisation of Special Types) (General) Order 2003;

These regulations defines whether front, side and rear lamps and reflectors are mandatory and which ones are permitted and which are not permitted.

Applications for a 'Vehicle Special Order' (VSO) should be made to the Vehicle Certification Agency (VCA) and it is recommended that applications are applied for at least 8 weeks prior to planned vehicle movements.

The largest plant items for the substation would be the transformer (one load) and reactors (two loads). Whilst the transformer manufacturer is not fully confirmed, it is anticipated that these items would be classed as AlLs. Indicative dimensions of the transformer are anticipated to be approximately 6.5 m long, 2.5 m wide and 4 m tall.

Other AILs predicted for the Proposed Development would be the delivery of the erection crane, classed as an AIL due to its width at 3 m.



3. TRANSPORT & PLANNING POLICY

3.1 Introduction

This part of the TA provides an overview of the relevant national and local transport planning policy and guidance.

3.2 National Policy and Guidance

National Planning Framework 4 (2023)

The National Planning Framework 4 (NPF4) was approved by Scottish Parliament on 11 January 2023 and was adopted by Scottish Ministers on 13 February 2023.

Policy 11: Energy within the NPF4 notes that:

"Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:

- Wind farms including repowering, extending, expanding and extending the life of existing wind farms;
- Enabling works, such as grid transmission and distribution infrastructure."

In addition, project design and mitigation will demonstrate how the following impacts are addressed:

- "Impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;
- Public access, including impact on long distance walking and cycling routes and scenic routes;
- Impacts on road traffic and on adjacent trunk roads, including during construction; and
- Cumulative impacts".

Policy 13: Sustainable Transport within the NPF4 notes the following in relation to Transport Assessments and Travel Plans:

"Where a development proposal will generate a significant increase in the number of person trips, a transport assessment will be required to be undertaken in accordance with the relevant guidance."

"Development proposals for significant travel generating uses, or smaller-scale developments where it is important to monitor travel patterns resulting from the development, will only be supported if they are accompanied by a Travel Plan with supporting planning conditions/obligations. Travel plans should set out clear arrangements for delivering against targets, as well as monitoring and evaluation."

Planning Advice Note (PAN) 75

Planning Advice Note (PAN) 75: Planning for Transport provides advice on the requirements for Transport Assessments. The document notes that:

"... transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

"All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal...For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

Transport Assessment Guidance (2012)

Transport Scotland's Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TA reports for development proposals in Scotland such that the likely transport impacts can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.



The document notes that a TA will be required where a development is likely to have significant transport impacts but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

3.3 Local Policy and Guidance

3.4 Angus Local Plan

The current Angus Local Development Plan (LDP), adopted in September 2016, is undergoing a review. The next Local Development Plan (Angus Plan) and is likely to be adopted in 2024.

Within the LDP, a Supplemental Guidance note, "Renewable and Low Carbon Energy Development" (June 2017) is provided and is relevant to this application. The note states:

"3.2: Traffic Access

Any project proposal may be required to prepare and submit a route assessment and traffic management plan, which demonstrates:-

- How access is to be achieved:
- Selected routes have been assessed and are capable of accommodating traffic generated;
- Traffic management over the construction phase; and
- Longer term access requirements.

If road improvements are required, these must be approved by Angus Council Roads. Site access should allow all vehicles visiting the site to have space to manoeuvre to ensure safe access and egress.

3.3: Public Access

Public rights of access under the Scottish land reform legislation exist over most land. Linear access may take place over core paths or public rights of way, or over other paths and tracks, which are generally within access rights. Access rights also generally apply to areas of land such as farmland, woodland and open land, regardless of the presence of paths or tracks. Recreational water access to rivers and lochs is also within access rights and may be a particular consideration for hydro-electric schemes.

Appropriate consideration of access will depend on the nature and location of the proposed development and existing patterns and levels of public use. New development should not significantly reduce people's ability to take recreational access. Where proposals will result in restrictions to access over core paths, public rights of way or other linear access routes, there will normally be a requirement for provision of an alternative route. Solar farms can remove large areas of land from public access, and may significantly affect people's ability to take access in their local area or to pass through an area, even in locations where there are no linear access routes and levels of public access are generally low. In such cases there may be a need to provide access corridors through or around the development. Visual impacts and other impacts on the amenity of the area will be a consideration where there is a well-used route such as a core path or an area of land which has a high recreational amenity value."

3.5 Policy and Guidance Summary

The Proposed Development can align with the stated transport policy objectives and the design of the Site and proposed mitigation measures will ensure compliance with national and local objectives.



4. ASSESSMENT METHODOLOGY

4.1 Introduction

There are three phases of the life of the Proposed Development. These are:

- The Construction Phase;
- The Operational Phase; and
- The Decommissioning Phase.

4.2 Project Phases – Transport Overview

Of all of the three phases, the construction phase is considered to have the greatest impact in terms of transport. Construction plant, bulk materials and staff will travel to Site, these may potentially cause a significant increase in traffic on the study network.

The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

The decommissioning phase involves fewer trips on the network than the construction phase, as elements of infrastructure are likely to be left in place (such as access tracks and platform areas), adding to local infrastructure that can potentially be used for further agricultural or leisure uses in the future.

It should be noted however the construction effects are short lived and transitory in nature.



5. BASELINE TRANSPORT CONDITIONS

5.1 Access Arrangement

Access to the Site will be taken from the public road network at Emmock Road, with material deliveries originating from the A90 corridor located to the east. The proposed access junction for the Proposed Development is shown in Annex A.

To accommodate traffic movements associated with the construction phase, inbound access to the Site will be taken from the A90 at the Moatmill access junction.

The Moatmill junction has been successfully used for deliveries associated with the nearby Seagreen offshore wind farm grid connection works. The same route, with a new extension through to Emmock Road will be used to enable access to the Site from the A90.

Traffic management will be used to ensure that the Moatmill junction is only used by construction traffic as a Left In junction. This is being proposed to ensure that traffic does not try to turn over the A90 dual carriageway mainline lanes.

To cater for traffic exiting the construction Site, it is proposed that traffic will exit the Site and use Emmock Road to connect back to the A90 at Emmock Roundabout. The roundabout will also allow traffic originating from the north to safely U-turn and access the Moatmill junction.

No construction traffic will be permitted to access the Site via Tealing or outbound via Moatmill. In addition, the section of Emmock Road running south to Dundee and Old Glamis Road will be barred for Heavy Goods Vehicle (HGV) traffic.

Once construction works have been completed, Site access will be via Emmock Road from the Emmock Roundabout. Traffic flows associated with this phase are very small and restricted to circa 10 movements per day.

5.2 Study Area

The proposed study area is based upon route that would be used by construction traffic accessing the Proposed Development. These include routes used for bulk material deliveries, staff movements and component transport.

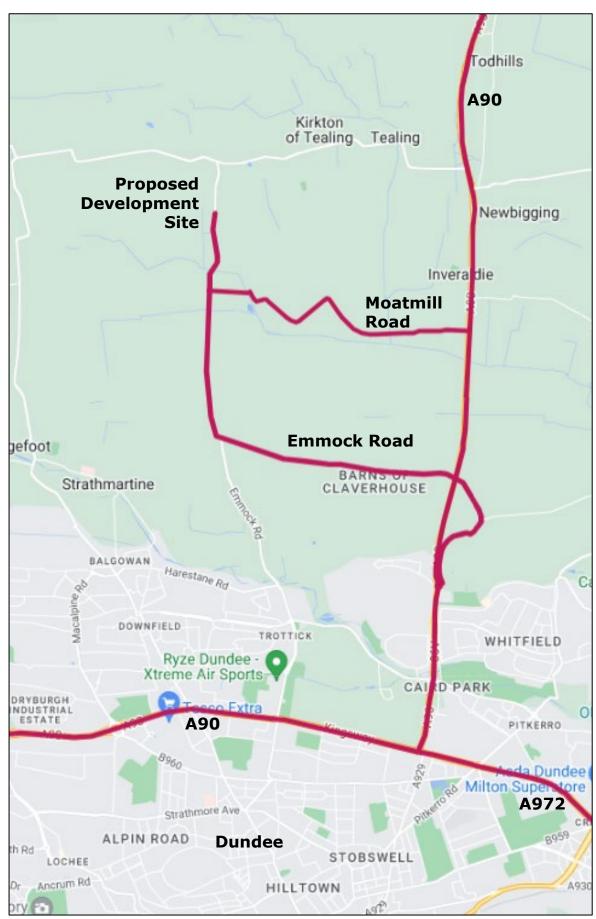
The study area assessed is as follows:

- Emmock Road (from the Emmock Roundabout through to the Site access junction);
- Moatmill Road;
- A90 (between Forfar and Dundee);
- A90 Kingsway West; and
- A972 Kingsway East.

The proposed study area is illustrated in Figure 5.1: Proposed Study Area.



Figure 5.1: Proposed Study Area





5.3 Pedestrian & Cyclist Links

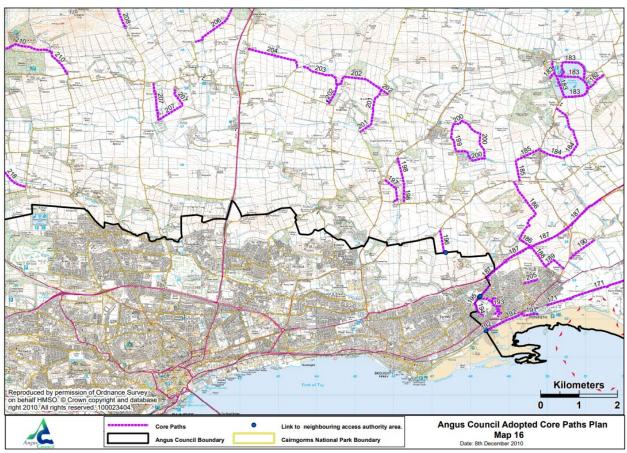
A review of the Angus Council Core Paths Plan has been undertaken. An extract for the study area is provided in **Figure 5.2: Core Path Plan Extract**. No Core Paths are present on Emmock Road, the closest path being Path 207, located on the Tealing Road which would be barred to construction traffic.

A review of the Dundee City Council Core Path also notes no Core Paths on Emmock Road within their administrative boundaries.

The A90 features footways to the south of the A90 Emmock Road Roundabout. Controlled pedestrian crossing are provided at various points, along with a pedestrian over bridge at Finavon Road.

No pedestrian facilities are provided on Emmock Road.

Figure 5.2: Core Path Plan Extract



https://www.angus.gov.uk/sites/default/files/2021-06/Map%2016.pdf

A review of the Sustrans National Cycle Network (NCN) indicates that there are no national cycle routes located in close proximity to the Site or study area.

5.4 Road Access

Emmock Road is a U class public road operated by AC. The road provides links from the A90 at the Emmock Roundabout (located in the Dundee City Council administrative area) through to its junction with the C6 Tealing Road. The road varies in its width along its length and is circa 4.5 – 5 m in width to the northwest of the A90. To the southeast of the A90, the road is circa 6 m in width.

Emmock Road connects to the A90 at Emmock Roundabout, a circa 46 m inscribed circle diameter, four arm roundabout.



Moatmill Road (U319) is operated by Angus Council and is in use for traffic associated with the Seagreen Offshore Wind Farm grid connection and substation project. The road has been upgraded to accommodate Seagreen traffic and a new bridge has been provided for Seagreen AlL.

Moatmill Road connects to the A90 trunk road at a compact at grade junction. A circa 80m deceleration lane is provided for southbound traffic turning right in Moatmill Road.

An upgraded access track is to be provided between Moatmill Road and Emmock Road to facilitate access to the Site. This will reuse existing tracks and will feature new sections of track to accommodate HGV and abnormal load traffic.

The A90 forms the trunk road connection between Perth and Aberdeen and is operated on behalf of Scottish Ministers by Transport Scotland. The road is a dual carriageway and is generally subject to a 70 mph speed limit for car and Light Goods Vehicle (LGV) traffic, with all major junctions illuminated.

The A90 turns west towards Perth at its junction with the Kingsway in Dundee. To the east, the road becomes the A972 Kingsway East. This urban dual carriageway is operated by Transport Scotland on behalf of Scottish Ministers. The road is generally subject to a 40 mph speed limit and features pedestrian crossing and overbridges.

5.5 Existing Traffic Conditions

A review of traffic flow has been undertaken using the Traffic Scotland traffic database and new Automatic Traffic Count (ATC) surveys.

ATC traffic surveys were undertaken at the following locations between the 16th and 22nd of April 2024:

- 1. Emmock Road (near the location of the proposed substation access junction);
- 2. Moatmill Road; and
- 3. Emmock Road (at the A90 overbridge).

Traffic Scotland data for 2024 was obtained for the following locations:

- 4. A90 to the south of Forfar (Count site JTC00063);
- 5. A90 south of Moatmill Road (Count site JTC00064);
- 6. A90 south of Emmock Roundabout (Count site JTC00555);
- 7. A90 Kingsway West (Count site JTC00557); and
- 8. A972 Kingsway East (Count site JTC00554).

The locations of the survey points are illustrated in **Figure 5.3**: **Traffic Survey Locations**. The two-way traffic flows for 2024 are summarised in **Table 5.1**: **24 Hour Daily Traffic Flows (2024)**.



Figure 5.3: Traffic Survey Locations

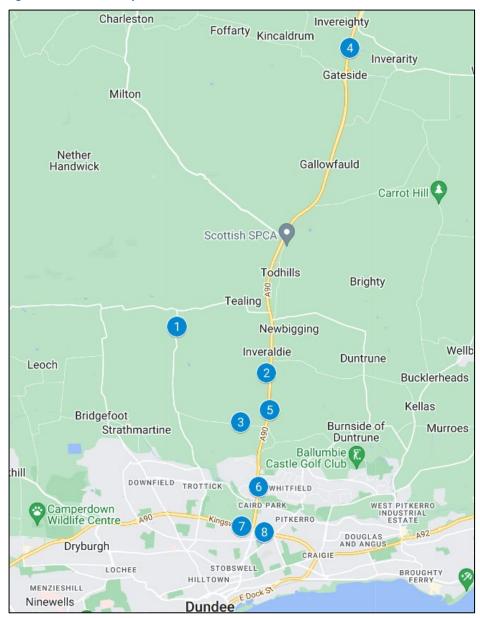


Table 5.1: 24 Hour Average Daily Traffic Flows (2024)

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	Emmock Road (Site Access)	716	6	722
2	Moatmill Road	108	14	122
3	Emmock Road	776	3	779
4	A90 Forfar	19,913	5,198	25,111
5	A90 south of Moatmill Road	19,371	3,392	22,763
6	A90 south of Emmock Roundabout	26,306	3,318	29,624
7	A90 Kingsway West	35,788	6,868	42,656
8	A972 Kingsway East	22,275	3,182	25,457

5.6 Accident Review

Emmock 400kV Substation



Road traffic accident data for the five-year period commencing 01 January 2018 through to the 31 December 2022 was obtained from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads. Accident data recorded along the local roads within the study area, and in the vicinity of junctions joining the local road network, was analysed.

Transport Assessment guidance requires an analysis of the accident data on the road network in the vicinity of any development to be undertaken for at least the most recent 3-year period, or preferably a 5-year period, particularly if the site has been identified as being within a high accident area.

The statistics are categorised into three categories, namely "Slight" for damage only incidents, "Serious" for injury accidents and "Fatal" for accidents that result in a death.

A review of accidents trends within the immediate study area (Emmock Road and the A90 between the Tealing Junction and Emmock Roundabout) has been undertaken using data from the online resource crashmap.co.uk.

In total, three accidents occurred on Emmock Road. These included two "Slight" accidents and one "Serious" accident. Of these three incidents, one "Slight" accident occurred during winter and involved one vehicle. The "Serious" accident involved a pedal cyclist and a motorcyclist, with the remaining "Slight" accident involving a young driver.

There were no recorded accidents at the junction of the A90 and Moatmill Road during the review period.

Whilst the junction is not being used for construction traffic, the A90 Tealing junction was also reviewed. Two accidents were noted, both occurring in winter months. One "Slight" accident and one "Serious" accident were recorded, the "Serious" accident involving a motorcyclist.

Six accidents were reported at the A90 Emmock Roundabout. Of these, three occurred during winter months and four involved single vehicles, indicating that driving style was the major factor. Two accidents were classified as "Slight" and four as "Serious". HGV traffic was involved in one "Slight" and one "Serious" accident. One "Serious" accident involved one vehicle driven by a young driver and resulted in six injuries.

There are no apparent trends that would be exacerbated by the proposed construction traffic. A Construction Traffic Management Plan (CTMP) however will be provided to assist all road users.

5.7 Future Baseline

Construction of the Proposed Development is expected to commence in 2026, if consent is granted, and is anticipated to take approximately 4 years, depending on weather conditions. The peak of construction traffic activities is expected to occur in 2027 and this has been used as the future assessment year.

To assess the likely effects during the construction and typical operational phase, base year flows were forecast by applying a National Road Traffic Forecast (NRTF) low growth factor to the 2024 flows in **Table 5.2: 24 Hour Average Daily Traffic Flows** (2027). The NRTF low growth factor for 2024 to 2027 is 1.016. This will be used in the Construction Peak Traffic Impact Assessment.



Table 5.2: 24 Hour Average Daily Traffic Flows (2027)

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	Emmock Road (Site Access)	727	7	734
2	Moatmill Road	109	14	124
3	Emmock Road	788	3	792
4	A90 Forfar	20,232	5,281	25,513
5	A90 south of Moatmill Road	19,681	3,446	23,127
6	A90 south of Emmock Roundabout	26,727	3,371	30,098
7	A90 Kingsway West	36,361	6,977	43,338
8	A972 Kingsway East	22,631	3,233	25,864

Please note that rounding errors can occur.



6. TRIP GENERATION & DISTRIBUTION

6.1 Trip Generation

During the construction period, the following traffic will require access to the to the Proposed Development sites:

- Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete and crushed rock; and
- Abnormal loads associated with the substation development.

At the peak of construction activity, 150 staff are expected on the Site. A Staff Travel Plan will be implemented to control access and it is assumed that 60% will access the Site via minibus, 30% by van, with the rest accessing using private car access.

SSEN Transmission civil engineers have undertaken a preliminary design of the substation. Using this design a Bill of Quantities and resulting traffic generation has been undertaken. The peak of construction activities is predicted to occur in Quarter 2 of 2027 and will result in the peak daily traffic generation described below.

- Peak Car & LGV Movements (2 way): 84 vehicles;
- Peak HGV Movements (2 way): 128 vehicles;
- Peak Total Traffic (2 way): 212 vehicles.

Traffic levels will fall following the peak month. The assessment however has used the peak as the worst case scenario to ensure a robust assessment has been undertaken and that all relevant mitigation has been considered.

6.2 Traffic Distribution

Aggregate, ready mix concrete and other bulk materials are expected to be sourced from local sources, with likely suppliers located as close to the A90 corridor as possible.

Local quarries to the north and east of the Proposed Development have been considered, with a split assumed based upon input from SSEN Transmission's contractor advisors. The split of quarry traffic is 20% of bulk material to be imported from the north and 80% from sources to the east (using the A90 and A972).

General construction traffic and the supply of specialist items, including cabling, ducting, etc, is assumed to originate from the Central Belt and will access the study area via the A90 from the west.

Staff working at the Site will be based locally and it is assumed that 90% will be based to the south in Dundee and the surrounding areas. Of these, an even split has been assumed between origin / destination points between the A90 (West) and A972.

The remaining 10% of staff are assumed to access the Site from the A90 (north).

For all traffic, the following routing assumptions have been used:

- All inbound traffic will enter the Site from Emmock Road, using Moatmill Road and the A90 (northbound carriageway);
- Traffic originating from the north will undertake a U turn at Emmock Roundabout. No right hand turns from the A90 will be permitted at the Moatmill Junction; and
- All traffic departing the Site will exit the Site via Emmock Road and will join the A90 at Emmock Roundabout.

Traffic associated with the construction phase has been distributed to these routes. The resulting traffic generation is summarised in Table 6.1: Distributed Construction Traffic (2 Way / Day).



Table 6.1: Distributed Construction Traffic

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	Emmock Road (Site Access)	84	128	212
2	Moatmill Road	42	64	106
3	Emmock Road	42	64	106
4	A90 Forfar	8	26	34
5	A90 south of Moatmill Road	46	64	110
6	A90 south of Emmock Roundabout	76	102	178
7	A90 Kingsway West	38	20	58
8	A972 Kingsway East	38	82	120

Please note rounding errors can occur.

To facilitate access on Emmock Road, a number of passing places are proposed to minimise conflicts between construction traffic and other road users. These works, which could be permanent or temporary features (to be determined by AC) are outlined in the figures provided in Figures 12.1 and 12.2 in Volume 3.

6.3 Abnormal Indivisible Load Deliveries

The largest plant items for the substation would be the transformer and reactor loads. Whilst the transformer manufacturer is not fully confirmed, it is anticipated that these items would be classed as abnormal loads. Indicative dimensions of the transformer are illustrated below in **Table 6.2**: AlL Dimensions.

Table 6.2: AIL Dimensions

Transport Dimensions	Length	Width	Height	Weight
Transformer	8.5 m	4.5 m	4.7 m	170,000 kg

The transformer can be transported without all of its cooling oil to reduces its overall weight. To provide a robust review, a margin of 10% on all dimensions and properties has been included and will be used in the subsequent swept path assessment.

It is expected that the transformer will be delivered from the Port of Dundee, located to the south of the Proposed Development. Access to the Site will be via Strips of Craigie Road, A972 Kingsway East, A90 Kingsway, Old Glamis Road and Emmock Road. A detailed Route Survey Report, featuring swept path assessments has been undertaken and is provided in Annex C.

To enable the delivery of the transformer to Site, minor modifications to the existing public road network will be required. These, along with a detailed structural review of the route will be undertaken post consent once the exact dimensions of the transformer have been established.

The detailed design pack will include swept path assessments at constrained locations and a full mitigation design pack will be provided along with ecological and drainage reviews of the proposed works.

The AIL movement will be escorted by the police at the Applicant's cost and will avoid peak network times as far as is possible. A detailed Transport Management Plan (TMP) will be prepared to assist in the operational planning of the movement of AlLs.

6.4 Operational and Decommissioning Phases

The operational phase is likely to result in occasional traffic accessing the Site for maintenance and monitoring works. This is likely to be in the region of less than 10 movements per day. This level of traffic is well within the accepted limits of daily traffic variation, and as such, no separate operational assessment is required.

Prior to decommissioning of the Site, a traffic assessment would be undertaken and appropriate traffic management procedures followed.



The decommissioning phase would result in fewer trips on the road network than the construction phase as it is considered likely that elements of infrastructure such as access tracks would be left in place and structures may be broken up onsite to allow transport by a reduced number of HGV.

7. TRAFFIC IMPACT ASSESSMENT

7.1 Construction Impact

The combined average daily development traffic was added to the future year (2027) traffic data. A comparison was then made between this traffic and the baseline flows to determine the percentage increase in traffic flows. The impact is detailed in **Table 7.1:** Peak Combined Traffic Flow and Construction Traffic Percentage Impact.

Table 7.1: Peak Combined Traffic Flow and Construction Traffic Percentage Impact (vehicles per day)

Site Ref.	Survey Location	Cars & LGV	HGV	Total	% Car & LGV	% HGV	% Total Traffic
1	Emmock Road (Site Access)	811	135	946	11.6%	1959.8%	28.9%
2	Moatmill Road	151	78	230	38.4%	449.9%	85.8%
3	Emmock Road	830	67	898	5.3%	1917.2%	13.4%
4	A90 Forfar	20,240	5,307	25,547	0.0%	0.5%	0.1%
5	A90 south of Moatmill Road	19,727	3,510	23,237	0.2%	1.9%	0.5%
6	A90 south of Emmock Roundabout	26,803	3,473	30,276	0.3%	3.0%	0.6%
7	A90 Kingsway West	36,399	6,998	43,397	0.1%	0.3%	0.1%
8	A972 Kingsway East	22,669	3,315	25,984	0.2%	2.5%	0.5%

Please note rounding errors can occur.

With the exception of Moatmill Road, total traffic movements are not predicted to increase by more than 30% across the study network. Traffic on Moatmill Road is predicted to increase by 85.8%. Whilst this is statistically significant, the actual increase in traffic is 106 vehicles, which on average is an additional 9 vehicles per hour (assuming a 12-hour working period).

The increases in HGV flows listed above are not considered significant in terms of overall total flows and are high due to the low base HGV flows. It should also be noted the construction phase is transitory in nature.

A review of existing road capacity has been undertaken using the Design Manual for Roads and Bridges (DMRB), Volume 15, Part 5 "The NESA Manual". The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 7.2: Theoretical Capacity Review**.

Table 7.2: Theoretical Capacity Review

Site Ref.	Survey Location	2027 Baseline	Theoretical Capacity	2027 Base + Development Flows	Spare Capacity (%)
1	Emmock Road (Site Access)	734	3,360	946	71.86%
2	Moatmill Road	124	3,360	230	93.17%
3	Emmock Road	792	3,360	898	73.29%
4	A90 Forfar	25,513	81,600	25,547	68.69%
5	A90 south of Moatmill Road	23,127	81,600	23,237	71.52%
6	A90 south of Emmock Roundabout	30,098	72,000	30,276	57.95%
7	A90 Kingsway West	43,338	72,000	43,397	39.73%
8	A972 Kingsway East	25,864	72,000	25,984	63.91%

Please note rounding errors can occur.

The results indicate there are no road capacity issues with the Proposed Development and ample spare capacity exists within the trunk and local road network to accommodate construction phase traffic.



I KANSMISSION

8. FRAMEWORK CONSTRUCTION TRAFFIC MANAGEMENT PLAN

8.1 Proposed Measures

The following measures would be implemented through a Construction Traffic Management Plan (CTMP) during the construction phase. The CTMP would be agreed with AC prior to construction works commencing:

- Where possible the detailed design process would minimise the volume of material to be imported to Site to help reduce HGV numbers;
- A Site worker transport and travel arrangement plan, including transport modes to and from the work site (including pick up and drop off times);
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to
 prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the Site entrance, depending on the views of AC;
- Appropriate traffic management measures would be put in place on Emmock Road at the Site access junction to avoid conflict with general traffic, subject to the agreement of AC. Typical measures would include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;
- A 40mph speed limit is placed on the A90 northbound to improve safety for all road users in the vicinity of the Moatmill Road junction. In addition, no Right Turn (diagram 612) signs would be placed at the junction to ban construction traffic from crossing A90 traffic streams. Diversion signs using Emmock Roundabout would be provided;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site;
- Adoption of a voluntary speed limit of 20 mph for all construction vehicles travelling on the Emmock Road and Moatmill Road:
- All drivers would be required to attend an induction to include:
 - A tool box talk safety briefing;
 - The need for appropriate care and speed control;
 - A briefing on driver speed reduction agreements (to slow Site traffic at sensitive locations through the urban areas); and
 - o Identification of the required access routes and the controls to ensure no departure from these routes.

AC may require an agreement to cover the cost of abnormal wear and tear on roads within the study area. Video footage of the pre-construction phase condition of the construction vehicle's route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs would be coordinated with the Council. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to public traffic, would be repaired immediately.

Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.

There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

8.2 Emmock Road Passing Areas

To improve access on Emmock Road, a series of passing places will be created. The location and general design of these are illustrated in Figures 12.1 and 12.2 in Volume 3.



The passing places will allow for a 6 m wide passing area to be provided and will feature a minimum of 7 m long tapers at either end. The locations of the laybys will be agreed with AC and secured via a suitably worded planning condition.

A layby is proposed at the Fithie Burn bridge to ensure safe access over this structure.

The proposed Site access junction will feature road widening to allow traffic to pass in safety. The junction from the private track connecting Moatmill Road and Emmock Road (to the north of Craigowl Farm) will also be widened to allow passing traffic.

8.3 Public Information

The Applicant would also ensure information was distributed through its communication team via the project website, local newsletters and social media.

8.4 Pedestrian Management

The Principal Contractor would ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the core path and at crossing points. Advisory speed limit signage would also be installed on approaches to areas where core path users may interact with construction traffic.

Signage would be installed on the Site exit that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This would also be emphasised in weekly tool box talks.

8.5 AIL Management Measures

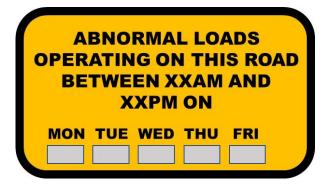
There are a number of traffic management measures that could help reduce the effect of the proposed six abnormal load convoys.

All abnormal load deliveries will be undertaken at appropriate times (to be discussed and agreed with the relevant roads authorities and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys will travel in the early morning periods, before peak times while general construction traffic will generally avoid the morning and evening peak periods.

The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Advance warning signs will be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in **Figure 8.1: Example Information Sign**. Flip up panels (shown in grey) will be used to mask over days where convoys would not be operating. When no convoys are moving, the sign would be bagged over by the traffic management contractor.

Figure 8.1: Example Information Sign



This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).

The location and numbers of signs will be agreed post consent and will form part of the wider Traffic Management Proposal for the Proposed Development.



The Abnormal Load Transport Management Plan will also include:

- Procedures for liaising with the emergency services to ensure that police, fire, and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates, and agreeing communication protocols and lay over areas to allow overtaking;
- A diary of proposed delivery movements to liaise with the communities to avoid key dates;
- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- Proposals to establish a construction liaison committee to ensure the smooth management of the project. This will provide
 a public interface with the Applicant, the construction contractors, the local community, and if appropriate, the police.
 This committee will form a means of communicating and updating on forthcoming activities and dealing with any potential
 issues arising.

8.6 Public Information

Information on the convoys will be provided to local media outlets such as local papers and local radio to help assist the public.

Information will relate to expected vehicle movements from the port of entry through to the Site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

The Applicant would also ensure information was distributed through its communication team via the project website, local newsletters and social media.

8.7 Convoy System

A police escort will be required to facilitate the delivery of the predicted loads. The police escort will be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort will warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy will remain in radio contact at all times where possible.

The abnormal loads convoys will be no more than one component long, or as advised by the police, to permit safe transit along the delivery route and to allow limited overtaking opportunities for following traffic where it is safe to do so.

The times in which the convoys would travel will be agreed with Police Scotland who have sole discretion on when loads can be moved.

8.8 Operational Phase Mitigation

Site entrance roads would be well maintained and monitored during the operational life of the Proposed Development. Regular maintenance would be undertaken to keep the Site access track drainage systems fully operational and to ensure there are no run-off issues onto the public road network.



9. SUMMARY & CONCLUSIONS

Pell Frischmann (PF) has been commissioned by LUC, on behalf of SSEN Transmission, to undertake a Transport Assessment (TA) for a proposed electrical substation at Emmock.

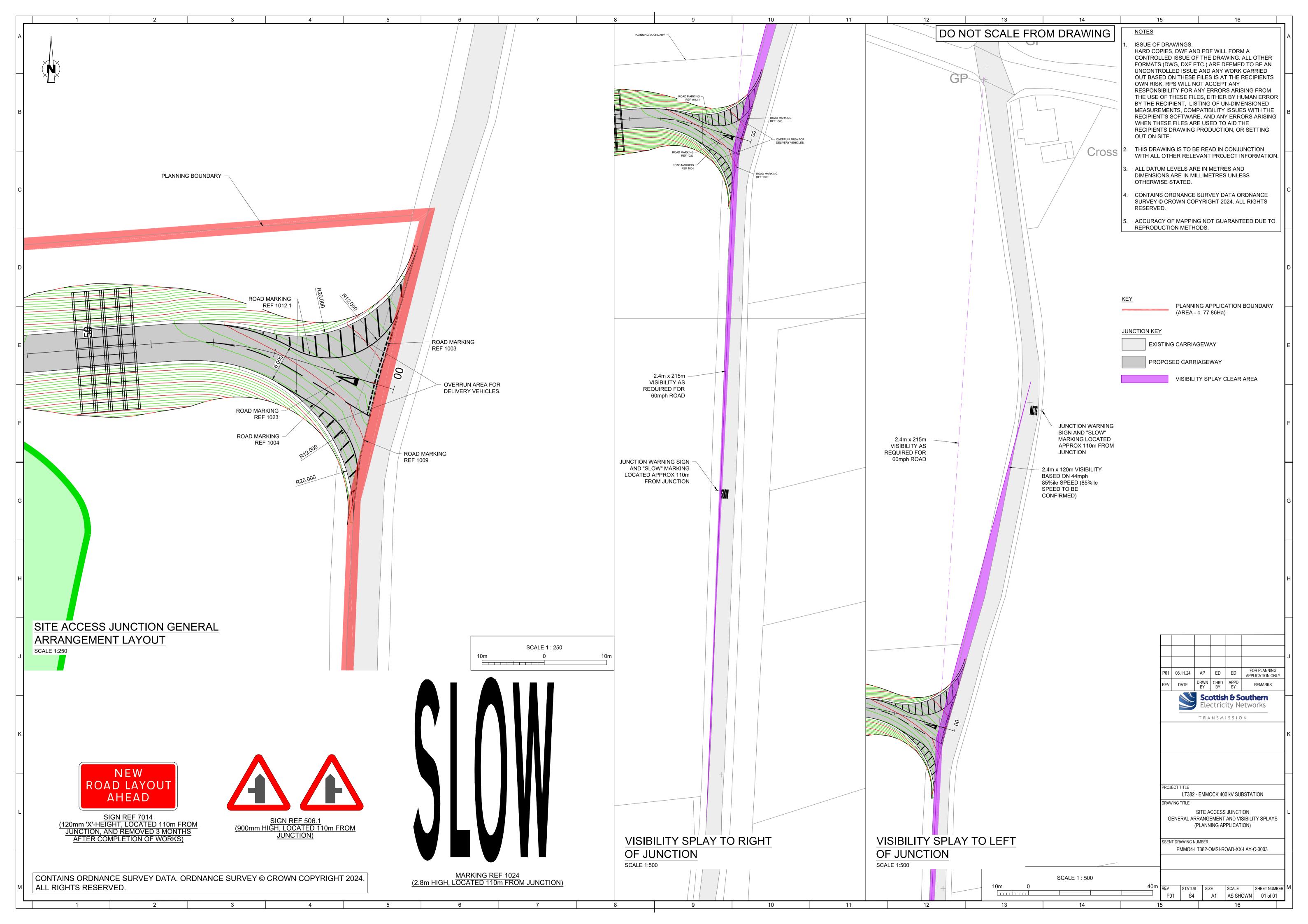
The assessment has reviewed access to the Site and likely traffic generation associated with the construction phase. It is estimated that 212 daily trips would be associated with the Proposed Development at the peak of construction resulting in a maximum impact of 89.2% on Moatmill Road.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of both the construction and operational phase traffic flows. This includes layby works on Emmock Road and banning right turns at the Moatmill Road / A90 junction.

No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

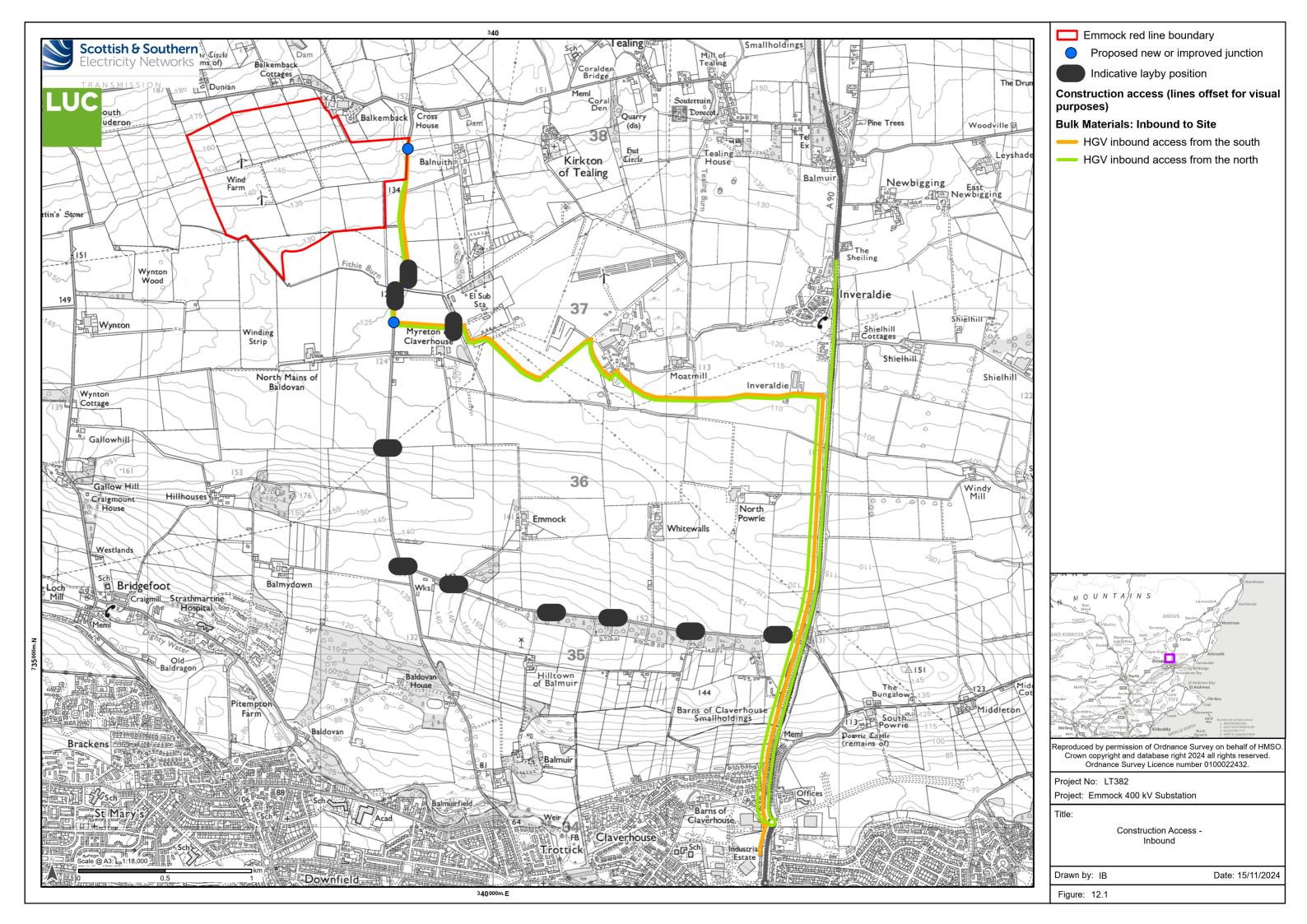


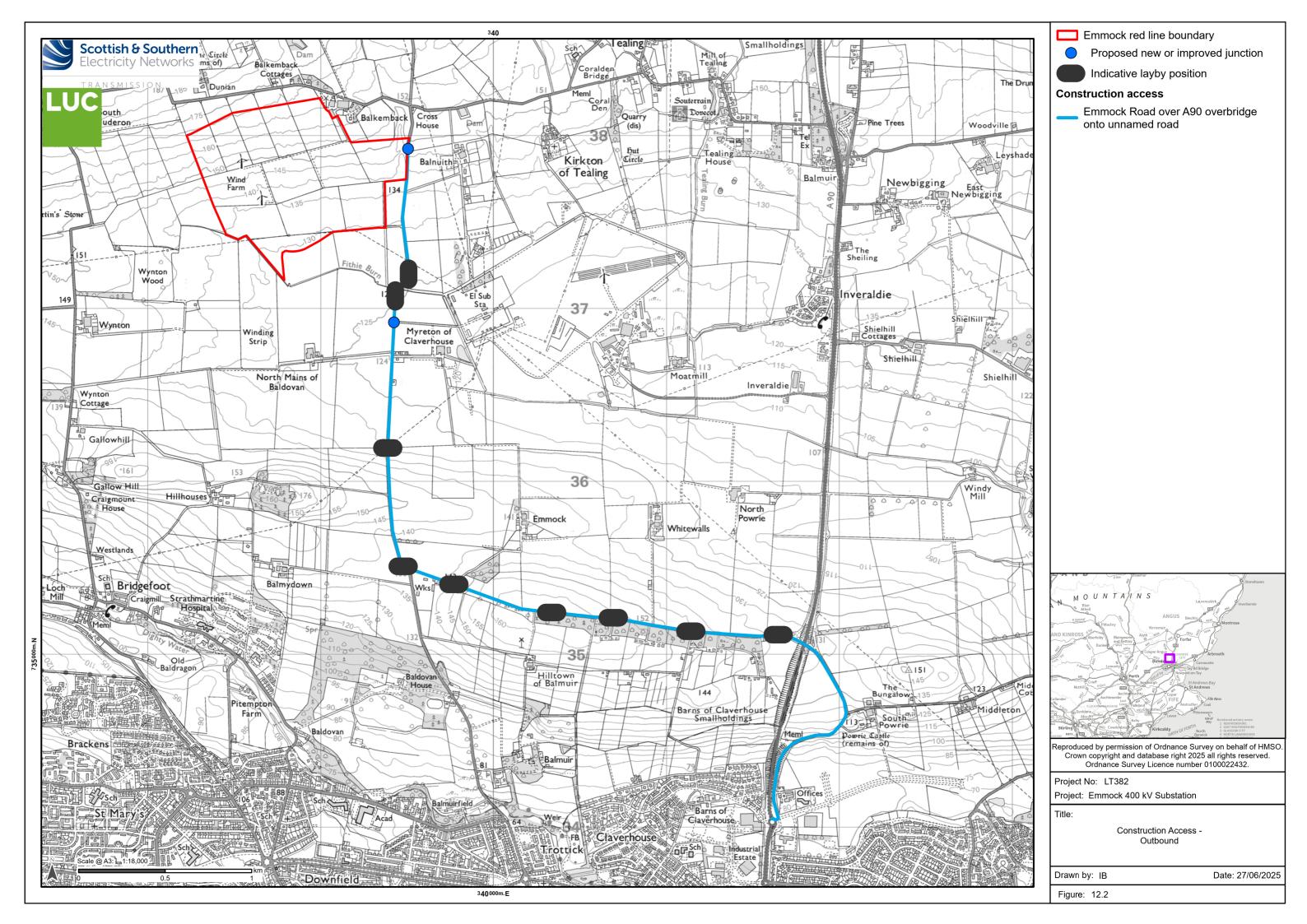
ANNEX A: SITE ACCESS JUNCTION





ANNEX B: EMMOCK ROAD WORKS







ANNEX C: AIL REPORT





Accelerated Strategic Transmission Investment (ASTI) Framework Emmock 400 / 275kV Substation

Route Feasibility Report for SGT Delivery from Alyth Substation and Forth Ports

Company	Project Number	Document Number
SSEN	LT000382	EMMO4-LT382-OMSI-ZZ-ZZ-RPT-H-0001
Omexom	692313	MN-692313-PM-RPT-001
Allelys	A242453	

Revision History

Omexom	SSEN	Status	Purpose	Prepared / Drawn / Designed	Checked	Approved	Date
P01	P01	S1	For Coordination	SJW	SJW	SJW	21-Jun-24





1. Executive Summary

Allelys have been commissioned by Cnoclee Environmental Services to provide a feasibility survey for the transport of 114 te Split Phase Super Grid Transformers (SGT) from Alyth Substation to Emmock Substation and 170 te SGT from Forth Ports (Dundee) to Emmock Substation.

The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.

The nominated transport configuration for delivery of the 114 te split phase SGT is a 6-axle bed 6-axle trailer and for the 170 te SGT is a 16-axle Girder Frame Trailer (GFT), subject to structural assessments. Both transport configurations are classified as Special Order due to gross weights of 168 te and 263 te respectively.

As the transport is classified as Special Order, in accordance with the Water Preferred Policy, Forth Ports (Dundee) has been considered as Port Of Delivery (POD) for the 170 te SGT as it is the closest marine facility to site capable of dealing with this size of cargo.

It is expected that Prince Charles Wharf be the nominated quay for use as it has a minimum low water depth of 9 m and is therefore suitable for use by deep sea vessels. Offload of the SGT from the delivery vessel by crane is available due to a maximum Ground Bearing Pressure (GBP) of 80 te/m². There is also sufficient quayside area to mobilise the 16-axle GFT ready for loading and onward movement of the SGT to site.

Route 1, from Alyth Substation to Emmock Substation, is not currently considered feasible in terms of structural capacity, as Perth & Kinross Council and Angus Council have advised that seven structures require further structural assessment. The LH turn from the unclassified road onto B954 is not physically negotiable due to the presence of a culvert on the B954, therefore, the 6 bed 6 trailer is to perform a shunt manoeuvre at this junction. In order for the vehicle to turn right onto the B954 northbound before travelling southbound and on to site, third-party land uptake is required to the inside of the turn with carriageway widening works required to accommodate the vehicle track. The remainder of the route to the A90 junction with the unclassified road into Tealing village is considered negotiable with Police Escort, Temporary Traffic Regulation Orders (TTRO) and street furniture removals. However, Route 1 from Tealing village to site is not physically negotiable through Tealing village for either transport configuration and at Pump Cottage Crossroads due to the need for third-party land uptake in multiple locations, therefore, this section of Route 1 is not to be used for the delivery of both the 114 te split phase SGT and 170 te SGT.

Route 2, from Forth Ports (Dundee) to the A90 junction for Tealing village, is currently considered feasible in terms of structural capacity although Dundee City Council have advised that structure no. MD/039 Stannergate is to be crossed under caution with no other traffic to be on the structure at the same time as the 16-axle GFT and the vehicle must also cross the structure in the centre of the carriageway. The remainder of Route 2 until it joins Route 1 at Tealing village is considered negotiable with Police Escort, TTROs and street furniture removals although the section of the route through Tealing Village to site is again not feasible for the vehicle, therefore, Route 2 is not to be used.

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 3 of 114



Route 3, from Forth Ports (Dundee) to site via Old Glamis Road, is not currently considered structurally feasible due to the need to further assess structure no. U322-001 Balmuir, as advised by Angus Council. The span of this structure is too large for overbridging to be an option should the results of the structural assessment be negative; therefore, this structure is to be considered a risk to delivery of both the 114te split phase SGT and 170 te SGT. An additional structure over Fithie Burn on the unclassified road on approach to site has been noted that isn't shown on the ESDAL portal. It is assumed that this structure is owned/managed by Angus Council who have been approached to confirm the current capacity of this asset, however, they are yet to respond at the time of writing this report. Should this structure fail the Angus Council basic checks and further structural assessment, it is suitable for overbridging and therefore doesn't pose a high risk to delivery of the 114 te Split Phase SGT and 170 te SGT. The LH turn from Emmock Road onto an unclassified road and RH bend on the unclassified road immediately after requires minor carriageway widening to accommodate the vehicle tracks with vegetation clearance also required. The rest of Route 3 is considered negotiable with Police Escort, TTROs, additional tractor unit(s) and street furniture removals.

Route 4, from the A90 junction for Tealing village Forfar Road Junction, is not currently considered structurally feasible as at the time of writing this report Transport Scotland/Amey (North East) have not yet responded regarding the current capacity of structure no. A90 390 Newbigging, however, this structure was cleared for use by the 170 te SGT loaded onto 16-axle GFT, which has a higher axle load than the 114 te split phase SGT loaded onto the 6 bed 6 trailer so it is assumed that the structure will be cleared for the 6 bed 6 trailer as well. Route 4 then joins Route 3 at Forfar Road Junction for the final delivery of the 114 te split phase SGT to site.

Swept path assessments (SPA) of the proposed Emmock Substation site access point and layout design have been carried out and show that widening of the site access road is required at the junction from the unclassified road, around a LH bend on approach to site and also around a RH bend just prior to the external site access gate. The external site access gate is also to be widened to allow delivery of the 170 te SGT loaded onto the 16-axle GFT. The SGT2 & 3 plinth access roads are to be lengthened to allow delivery of the units in-line with the plinth centrelines. It is not possible for both units to be delivered directly onto plinth by either the 6bed6 trailer or the 16-axle GFT, therefore, it is assumed that final movement of both units be made by hydraulic jacking and skidding although this operation has not been explored as part of this report. The SGT1 plinth access road also needs to be lengthened to allow delivery in-line with the plinth centreline, however, items of auxiliary site equipment located to the north of the end of the road would need to be relocated to permit this. Therefore, a trailer interchange of SGT1 from the delivery vehicle onto Self-Propelled Modular Trailer (SPMT) is required to allow final delivery onto the plinth.

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 4 of 114



Table of Contents

1.	Executive Summary	2
2.	Introduction	8
3.	Definitions & Terminology	8
3.1.	Definition of Abnormal Indivisible Load (AIL)	8
3.2.	Legislation	8
3.3.	Abbreviations	9
4.	Cargo Summary	9
5.	Port of Delivery	9
6.	Locations	10
6.1.	Delivery Address	10
6.2.	Route Details	10
7.	Equipment	12
7.1.	Delivery Vehicle	12
8.	Structures Details	13
9.	Route Survey	14
9.1.	Route Survey Reference Sheet Notes	14
9.2.	Route Survey High Level Notes	14
9.3.	Route Survey Reference Sheets	15
10.	Conclusion	107
Арр	endix A	109
Арр	endix B	110
Арр	endix C	111
Ann	endix D	114



Together, we move it all. We believe any challenge, no matter how big or small, is better tackled as a team. We ALL have a part to play and that starts with getting to know each other better.

Allelys provides heavy lift, specialist transport, heavy haulage and logistics solutions to our diverse and innovative customers. We face together all the unique projects with a creative solution, listening from the start and communication at every opportunity.

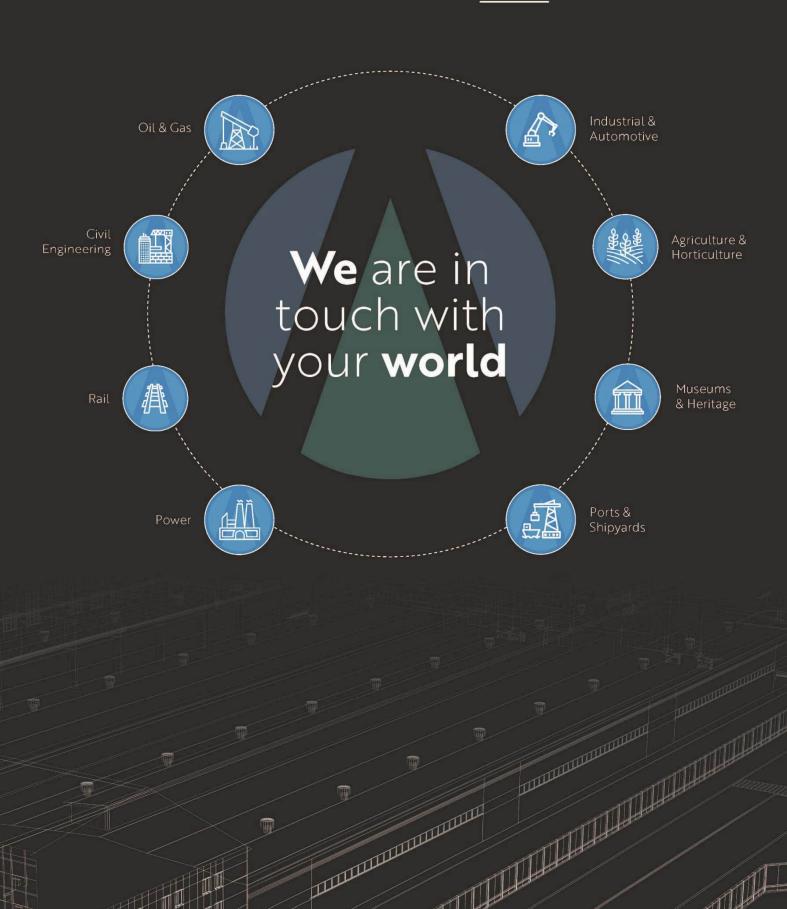
Our non-defeatist attitude and agile approach means you will be partnering with a team that never gives up. Even in the face of the toughest challenges we aim for joint success.



All the right expertise in All the right areas.



Whatever field you're in, we cover them **All.**





2. Introduction

- 2.1. Allelys have been commissioned by Cnoclee Environmental Services to provide a feasibility survey for the transport of 114 te Split Phase Super Grid Transformers (SGT) from Alyth Substation to Emmock Substation and 170 te SGT from Forth Ports (Dundee) to Emmock Substation.
- 2.2. The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.

3. Definitions & Terminology

- 3.1. Definition of Abnormal Indivisible Load (AIL)
- 3.1.1.The Department of Transport, of which the National Highways (NH) is an executive agency, state that the strict definition of an AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads which, owing to its dimensions or weight, cannot be carried on a vehicle which complies in all respect with the 'standard vehicle regulations' these are:
 - The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
 - The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
 - The Road Vehicles Lighting Regulations 1989 (as amended)
- 3.1.2.All equipment should be stripped of their ancillaries before they are transported. The NH will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within factory environments or where extremely high tolerances have to be maintained.

3.2. Legislation

- 3.2.1.Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as (AIL) covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under Construction and Use (C&U) Regulations. Items which, when loaded on the load carrying vehicle exceed the weights encompassed by the C&U Regulations, but do not exceed Special Order Permission Limits are governed by Special Types General Order (STGO) categories 1 to 3 depending on size.
- 3.2.2. Where dimensions exceed 6,100 mm in width, 30,000 mm in rigid length or 150 tonnes gross weight, Special Order from NH, is required.
- 3.2.3. Special Order category AIL movements are authorised by the NH Abnormal Loads team, an executive agency of the Department for Transport (DfT, based in Birmingham).



3.3. Abbreviations

AIL Abnormal Indivisible Load C&U Construction and Use GBP **Ground Bearing Pressure** GFT Girder Frame Trailer LHA Local Highway Authority NH National Highways POD Port Of Delivery SGT Super Grid Transformer STGO Special Types General Order SPA Swept Path Assessment SPMT Self-Propelled Modular Trailer TTRO Temporary Traffic Regulation Order

4. Cargo Summary

4.1. The below information has been supplied by Cnoclee Environmental Services.

Table 1 Cargo Details

Description	Qty	Dimensions [mm]	Weight [kg]
Split Phase SGT	1	L 4,800 x W 3,800 x H 5,160	114,000
Generic 400/275/33 kV SGT	1	L 8,500 x W 4,500 x H 4,700	170,000

5. Port of Delivery

- 5.1. As the transport is classified as Special Order, in accordance with the Water Preferred Policy, Forth Ports (Dundee) has been considered as Port Of Delivery (POD) for the 170 te SGT as it is the closest marine facility to site capable of dealing with this size of cargo.
- 5.2. It is expected that Prince Charles Wharf be the nominated quay for use as it has a minimum low water depth of 9 m and is therefore suitable for use by deep sea vessels. Offload of the SGT from the delivery vessel by crane is available due to a maximum Ground Bearing Pressure (GBP) of 80te/m². There is also sufficient quayside area to mobilise the 16-axle GFT ready for loading and onward movement of the SGT to site.

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 10 of 114



6. Locations

6.1. Delivery Address

- 6.1.1.Emmock Substation is located 17.4 miles south of Alyth Substation.
- 6.1.2. Emmock Substation is located 6.2 miles north of Forth Ports (Dundee).
- 6.1.3. The general condition of the local roads is good; however, some junctions require further assessment. See Section 9 for more detail.

6.2. Route Details

6.2.1. Route 1 is as follows, as shown in Figure 1:

Alyth Substation (collection point)

LH turn onto unclassified road

LH turn from unclassified road onto B954

LH turn from B954 onto A94

RH turn from A94 onto A928

RH turn from A928 onto A90

RH turn from A90 onto unclassified road

LH turn from unclassified road onto unclassified road

RH turn from unclassified road onto proposed site access road

Emmock Substation (delivery point)

6.2.2. Route 2 is as follows, as shown in Figure 1:

Forth Ports (Dundee) (POD)

Straight on from Prince Charles Wharf access gate onto Broughty Ferry Rd

Straight on from Broughty Ferry Rd onto Strips of Craigie Rd at Broughty Ferry Rd/A930

/Strips of Craigie Rd rbt

Straight on from Strips of Craigie Rd onto A972 at Scott Fyffe Roundabout

Straight on at A972/Moffat Rd rbt continuing on A972

Straight on at A972/Pitkerro Rd rbt continuing on A972

RH turn from A972 onto A90 at Forfar Road Junction

Straight on at Claverhouse Roundabout continuing on A90

Straight on at Emmock Roundabout continuing on A90

LH turn from A90 onto unclassified road (Route 2 joins Route 1)

6.2.3. Route 3 is as follows, as shown in Figure 1:

(Route 3 departs Route 2)

Straight on from A972 onto A90 at Forfar Road Junction

RH turn from A90 onto Old Glamis Rd at Old Glamis Road Junction

Straight on at Old Glamis Rd/Forres Ave rbt continuing on Old Glamis Rd

Straight on at Old Glamis Rd/Balgowan Ave rbt continuing on Old Glamis Rd

RH turn from Old Glamis Rd onto Emmock Road

LH turn from Emmock Rd onto unclassified road

LH turn from unclassified road onto proposed site access road

Emmock Substation (delivery point)



6.2.4. Route 4 is as follows, as shown in Figure 1:

(Route 4 departs Route 1)

Straight on at A90/unclassified road junction continuing on A90

Straight on at Emmock Roundabout continuing on A90

Straight on at Claverhouse Roundabout continuing on A90

RH turn at Forfar Road Junction continuing on A90 (Route 4 joins Route 3)

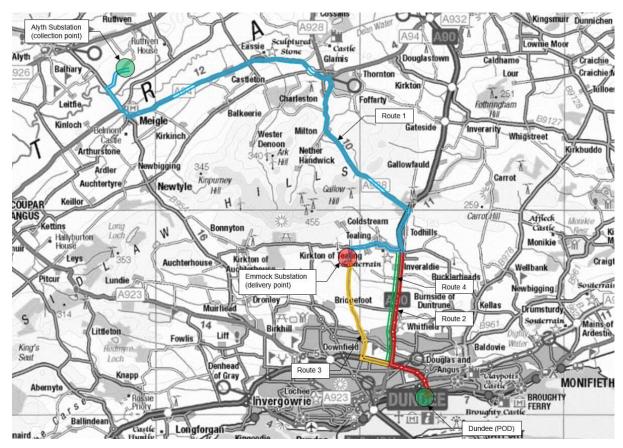


Figure 1 Emmock Substation delivery routes

- 6.2.5. Full maps of the route are included under Appendix B.
- 6.2.6. Police Scotland would be required to provide full escort for the duration of the movement.



7. Equipment

7.1. Delivery Vehicle

- 7.1.1.For this assessment, it is proposed that the 114 te Split Phase SGT be transported on a 6-axle bed 6-axle trailer, as seen in Figure 2.
- 7.1.2.This transport arrangement has a gross weight 167.6 te, width 4.16 m, height 5.36 m and axle line load 13.97 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A242453-TA-01 is included under Appendix A.

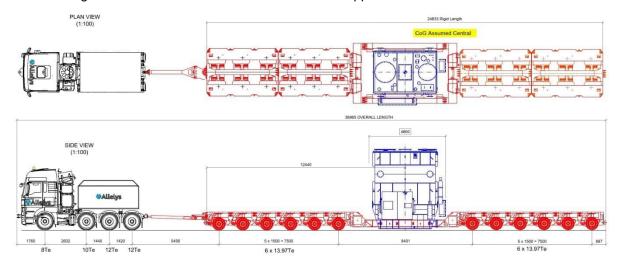


Figure 2 114 te Split Phase SGT loaded onto 6bed6 trailer

- 7.1.3. For this assessment, it is proposed that the 170 te SGT be transported on a 16-axle GFT, as seen in Figure 3.
- 7.1.4.This transport arrangement has a gross weight 263.4 te, width 5.16 m, height 4.9 m and axle line load 16.46 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A242453-TA-02 is included under Appendix A.

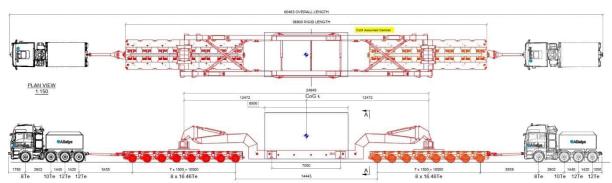


Figure 3 170 te SGT loaded onto 16-axle GFT



8. Structures Details

- 8.1. Perth & Kinross Council, Angus Council, Transport Scotland/Amey (North East Scotland) and Dundee City Council have been consulted as Local Highway Authorities (LHA) to advise on the current structural capacity of the routes.
- 8.2. Route 1, from Alyth Substation to Emmock Substation, is not currently considered feasible in terms of structural capacity, as Perth & Kinross Council and Angus Council have advised that seven structures require further structural assessment.
- 8.3. Route 2, from Forth Ports (Dundee) to the A90 junction for Tealing village, is currently considered feasible in terms of structural capacity although Dundee City Council have advised that structure no. MD/039 Stannergate is to be crossed under caution with no other traffic to be on the structure at the same time as the 16-axle GFT and the vehicle must also cross the structure in the centre of the carriageway.
- 8.4. Route 3, from Forth Ports (Dundee) to site via Old Glamis Road, is not currently considered structurally feasible due to the need to further assess structure no. U322-001 Balmuir, as advised by Angus Council. The span of this structure is too large for overbridging to be an option should the results of the structural assessment be negative; therefore, this structure is to be considered a risk to delivery of both the 114te split phase SGT and 170 te SGT.
- 8.5. An additional structure over Fithie Burn on the unclassified road on approach to site has been noted that isn't shown on the ESDAL portal. It is assumed that this structure is owned/managed by Angus Council who have been approached to confirm the current capacity of this asset, however, they are yet to respond at the time of writing this report. Should this structure fail the Angus Council basic checks and further structural assessment, it is suitable for overbridging and therefore doesn't pose a high risk to delivery of the 114 te Split Phase SGT and 170 te SGT.
- 8.6. Route 4, from the A90 junction for Tealing village Forfar Road Junction, is not currently considered structurally feasible as at the time of writing this report Transport Scotland/Amey (North East) have not yet responded regarding the current capacity of structure no. A90 390 Newbigging, however, this structure was cleared for use by the 170 te SGT loaded onto 16-axle GFT, which has a higher axle load than the 114 te split phase SGT loaded onto the 6 bed 6 trailer so it is assumed that the structure will be cleared for the 6 bed 6 trailer as well.
- 8.7. Full details of all structures on both routes are included in Tables 2, 3, 4 & 5 in Appendix C.

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 14 of 114



9. Route Survey

- 9.1. Route Survey Reference Sheet Notes
- 9.1.1.Route feasibility recommendations have been identified in Section 9.3 and classified in terms of risk to delivery as follows:

High risk

- Third party land owner(s) permission
- PRI works
- Structure replacement

Medium risk

- Street furniture removals
- Vegetation pruning
- Independent structural assessment
- Structural overbridging
- Shunt/contraflow manoeuvre

Low risk

- Swept path analysis
- Temporary surfacing
- Parking restrictions
- Additional tractor unit
- Oversail of low-level street furniture and verges
- 9.1.2. Risk has been assessed in terms of enabling works time and complexity.
- 9.1.3.It should be noted that where route survey photos are of insufficient quality, Google Streetview images have been used.
- 9.2. Route Survey High Level Notes
- 9.2.1.Route 1 from Alyth Substation to A90 is single carriageway, therefore, roads to be closed under TTRO or Police to hold opposing traffic once the vehicle has joined from Alyth Substation and exited onto the A90. The route is then single carriageway from the A90/unclassified road junction to site, therefore, roads to be closed under TTRO or Police to hold opposing traffic once the vehicle has joined from A90 and exited onto the proposed site access road.
- 9.2.2.Route 2 from Forth Ports (Dundee) to Scott Fyffe Roundabout is single carriageway, therefore, roads to be closed under TTRO or Police to hold opposing traffic once the vehicle has joined from Prince Charles Wharf and exited onto the A972.
- 9.2.3. Route 3 from Old Glamis Road Junction to site is single carriageway, therefore, roads to be closed under TTRO or Police to hold opposing traffic once the vehicle has joined from Old Glamis Road Junction and exited onto the proposed site access road.



9.3. Route Survey Reference Sheets

9.3.1. Route 1 Alyth Substation to Emmock Substation

Ref. ALL-A242453-RS-01

Alyth Substation site access gate





Note: - vehicle approaches camera

Direction of Travel Location:	Coordinates:
Westbound on Alyth Substation site access road	56.609417, -3.166139
Enghling Works Deguired	Enghling Work Crode
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Alyth Substation access road/UC road LH turn





Direction of Travel Location:	Coordinates:
LH turn from Alyth Substation access road onto	56.609417, -3.166778
unclassified road	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete

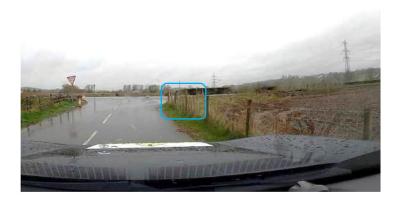
ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 17 of 114



Ref. ALL-A242453-RS-03

UC road/B954 shunt manoeuvre





Direction of Travel Location:	Coordinates:
Shunt manoeuvre from unclassified road onto B954	56.598944, -3.181556
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works to inside of RH turn	High
Relocation of post and wire fence line to suit PRI works	High
Third-party land owner(s) permission for PRI works	High
Shunt manoeuvre	Medium
Assessment Works Required:	Assessment Work Grade :
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-SPA-17	Complete
included in Appendix D	



Ref. ALL-A242453-RS-03 cont'd

UC road/B954 shunt manoeuvre





Direction of Travel Location:	Coordinates:
Shunt manoeuvre from unclassified road onto B954	56.598944, -3.181556
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works to inside of RH turn	High
Relocation of post and wire fence line to suit PRI works	High
Third-party land owner(s) permission for PRI works	High
Shunt manoeuvre	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-SPA-17	Complete
included in Appendix D	



Ref. ALL-A242453-RS-03 cont'd

UC road/B954 shunt manoeuvre





Direction of Travel Location:	Coordinates:
Southbound on B954 past UC road junction following	56.598944, -3.181556
shunt manoeuvre	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-SPA-17	Complete
included in Appendix D	



B954/04 Crathies





Direction of Travel Location:	Coordinates:
Southbound on B954 over structure no. B954/04	56.595194, -3.175278
Crathies	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Perth and Kinross Council checks	Complete
Further structural assessment	Medium
Unsuitable for overbridging should assessment fail	High



B954/A94 LH turn





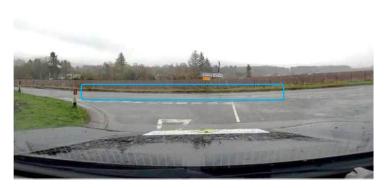
Direction of Travel Location:	Coordinates:
LH turn from B954 onto A94	56.590194, -3.168250
Enabling Works Required:	Enabling Work Grade:
Removal of 2 no. plastic bollard	Medium
Temporary steel plating of verges to	Low
accommodate overrun	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-05 cont'd

B954/A94 LH turn





Direction of Travel Location:	Coordinates:
LH turn from B954 onto A94	56.590194, -3.168250
Enabling Works Required:	Enabling Work Grade:
Temporary steel plating of verges to	Low
accommodate overrun	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



A94/A928 RH turn





Direction of Travel Location:	Coordinates:
RH turn from A94 onto A928	56.605111, -3.003000
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-06 cont'd

A94/A928 RH turn





Direction of Travel Location:	Coordinates:	
RH turn from A94 onto A928	56.605111, -3.003000	
Frankling Works Degrained	Frankling Work Crade	
Enabling Works Required:	Enabling Work Grade:	
N/A	N/A	
Assessment Works Required:	Assessment Work Grade:	
Route survey carried out - negotiable	Complete	



A928-385458 Lera Culvert





Direction of Travel Location:	Coordinates:
Southbound on A928 over structure no. A928-385458	56.600361, -3.002111
Lera Culvert	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Suitable for overbridging should assessment fail	Medium



A982 gradient





Direction of Travel Location:	Coordinates:
Southbound on A982	56.598639, -3.003972
Enabling Works Required:	Enabling Work Grade:
Additional tractor unit(s) to produce necessary	Low
tractive and braking effort along length of A982	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



A928/3 Milton of Ogilvie Bridge





Direction of Travel Location:	Coordinates:
Southbound on A928 over structure no. A928/3 Milton	56.581889, -3.005306
of Ogilvie Bridge	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Suitable for overbridging should assessment fail	Medium



A928-389431 Kilmundie Bridge





Coordinates:
56.576361, -2.995528
Enabling Work Grade:
TBC
Assessment Work Grade:
Complete
Medium
Medium



A928-404415 Lumleyden Culvert





Direction of Travel Location:	Coordinates:
Southbound on A928 over structure no. A928-404415	56.561694, -2.970944
Lumleyden Culvert	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Suitable for overbridging should assessment fail	Medium



A928/A90 RH turn





Direction of Travel Location:	Coordinates:
RH turn from A928 onto A90	56.548278, -2.939667
Fuelding Medic Descriped	Fushing Warls Orada
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A928/A90 RH turn





Direction of Travel Location:	Coordinates:
RH turn from A928 onto A90	56.548278, -2.939667
Fuchling Works Dominad	Frakling Wart Orada
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-12 cont'd

A928/A90 RH turn





Direction of Travel Location:	Coordinates:
RH turn from A928 onto A90	56.548278, -2.939667
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90/UC road RH turn





Direction of Travel Location:	Coordinates:
RH turn from A90 onto unclassified road	56.531000, -2.945583
	5 11: W 10 1
Enabling Works Required:	Enabling Work Grade:
Removal of 1 no. illuminated road sign and 2 no. keep left	Medium
bollard from UC road central splitter island	
Temporary steel plating of UC road central splitter island	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-13 cont'd

A90/UC road RH turn



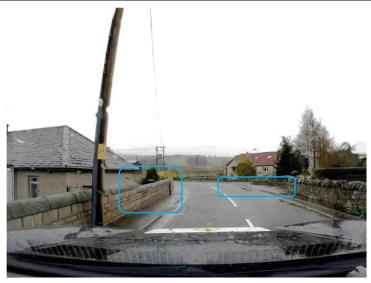


Direction of Travel Location:	Coordinates:
RH turn from A90 onto unclassified road	56.531000, -2.945583
Enabling Works Required:	Enabling Work Grade:
Removal of 1 no. illuminated road sign and 2 no. keep left	Medium
bollard from UC road central splitter island	
Temporary steel plating of UC road central splitter island	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



UC road Tealing Burn LH bend





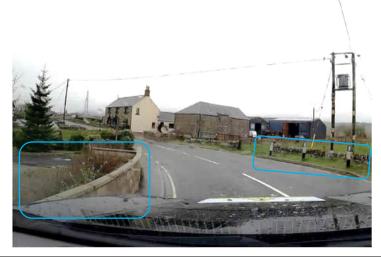
Direction of Travel Location:	Coordinates:
Westbound on unclassified road around LH bend over	56.533278, -2.955778
Tealing Burn	
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of wall/fencing	High
Third-party land owner(s) permission for PRI works	High
Temporary steel plating off offside pavement for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-SPA-01	Complete
included in Appendix D	



Ref. ALL-A242453-RS-14 cont'd

UC road Tealing Burn LH bend





Direction of Travel Location:	Coordinates:
Westbound on unclassified road around LH bend over Tealing Burn	56.533278, -2.955778
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of wall/fencing	High
Third-party land owner(s) permission for PRI works	High
Removal of 3 no. plastic bollard	Medium
Temporary steel plating off offside pavement for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-SPA-01 included in	Complete
Appendix D	



C6-413383 Mill of Tealing Bridge



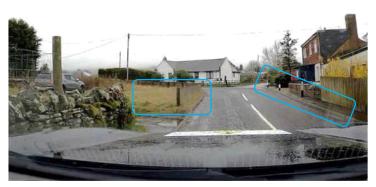


Direction of Travel Location:	Coordinates:
Westbound on unclassified road over structure no. C6-	56.533333, -2.956194
413383 Mill of Tealing Bridge	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Suitable for overbridging should assessment fail	Medium



UC road Tealing LH bend





Direction of Travel Location:	Coordinates:
Westbound on unclassified road around LH bend past	56.533556, -2.963083
Huntingfaulds Rd	
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of fencing	High
Third-party land owner(s) permission for PRI works	High
Removal of 3 no. plastic bollard	Medium
Temporary steel plating off offside pavement for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-02 & -10	Complete
included in Appendix D	



Ref. ALL-A242453-RS-16 cont'd

UC road Tealing LH bend





Direction of Travel Location:	Coordinates:
Westbound on unclassified road around LH bend past	56.533556, -2.963083
Huntingfaulds Rd	
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of fencing	High
Third-party land owner(s) permission for PRI works	High
Temporary steel plating off offside pavement for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-02 & -	Complete
10 included in Appendix D	



C6-406383 Coralden Bridge





Direction of Travel Location:	Coordinates:
Westbound on unclassified road over structure no. C6-	56.533194, -2.965944
406383 Coralden Bridge	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Suitable for overbridging should assessment fail	Medium



UC road/UC road shunt manoeuvre





Direction of Travel Location:	Coordinates:
Westbound on unclassified road past Pump Cross Roads	56.531583, -2.984833
Enabling Works Required:	Enabling Work Grade:
Shunt manoeuvre	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-03 & -11	Complete
included in Appendix D	



Ref. ALL-A242453-RS-18 cont'd

UC road/UC road shunt manoeuvre





Direction of Travel Location:	Coordinates:
RH turn onto unclassified road at Pump Cross Roads	56.531583, -2.984833
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of fencing and wall; 1 no. gate, 2 no. gate	High
post and 1 no. illuminated road sign	
Third-party land owner(s) permission for PRI works	High
Temporary steel plating off nearside verge for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-03 & -11	Complete
included in Appendix D	



Ref. ALL-A242453-RS-18 cont'd

UC road/UC road shunt manoeuvre





Direction of Travel Location:	Coordinates:
RH turn onto unclassified road at Pump Cross Roads	56.531583, -2.984833
Enabling Works Required:	Enabling Work Grade:
Carriageway widening PRI works beyond highway limits	High
Removal of sections of fencing and wall; 1 no. gate, 2 no. gate	High
post and 1 no. illuminated road sign	
Third-party land owner(s) permission for PRI works	High
Temporary steel plating off nearside verge for overrun	Low
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-03 & -11	Complete
included in Appendix D	



UC road/Emmock Substation access road RH turn





Direction of Travel Location:	Coordinates:
RH turn from unclassified road onto proposed	56.528111, -2.985167
Emmock Substation access road	
Enabling Works Required:	Enabling Work Grade:
Bellmouth design to be widened to	High
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-	Complete
SPA-04 & -13 included in Appendix D	



Emmock Substation access road LH bend



Direction of Travel Location:	Coordinates:
LH bend on proposed access road	56.527944, -2.987556
Enabling Works Required:	Enabling Work Grade:
Access road design to be widened to	High
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-	Complete
SPA-05 & -14 included in Appendix D	



Emmock Substation access road RH bend & external access gate



Direction of Travel Location:	Coordinates:
RH bend on proposed access road	56.526917, -2.989139
Enabling Works Required:	Enabling Work Grade:
Access road design to be widened to accommodate	High
vehicle track	
Gate opening widened to accommodate girder frame	High
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no's ALL-A242453-SPA-06	Complete
& -15 included in Appendix D	



Emmock Substation access road/SGT2 plinth access road RH turn



Direction of Travel Location:	Coordinates:
RH turn from site access road onto SGT2 plinth	56.526540, -2.9920417
access road	
Enabling Works Required:	Enabling Work Grade:
Oversail required to inside of turn, no items of site	Medium
equipment to be located within this area	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-07	Complete
& -16 included in Appendix D	



SGT2 plinth access road



Direction of Travel Location:	Coordinates:
Northbound on SGT2 plinth access road in-line with	56.527223, -2.9919085
plinth centreline	
Enabling Works Required:	Enabling Work Grade:
Plinth access road design to be lengthened to	High
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-07	Complete
& -16 included in Appendix D	



Emmock Substation access road/SGT1 plinth access road shunt manoeuvre



Direction of Travel Location:	Coordinates:
Shunt manoeuvre from site access road onto SGT1	56.526258, -2.9940478
plinth access road	
Enabling Works Required:	Enabling Work Grade:
Shunt manoeuvre	Medium
Oversail required to inside of LH turn, no items of site	Medium
equipment to be located within this area	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-08	Complete
& -18 included in Appendix D	



SGT1 plinth access road



Direction of Travel Location:	Coordinates:
Northbound on SGT1 plinth access road in-line with	56.527223, -2.9919085
plinth centreline	
Enabling Works Required:	Enabling Work Grade:
Plinth access road design to be lengthened to	High
accommodate vehicle track	
Auxiliary site equipment to be relocated to avoid	High
conflict with vehicles	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-08	Complete
& -18 included in Appendix D	



Emmock Substation access road/SGT3 plinth access road RH turn



Direction of Travel Location:	Coordinates:
RH turn from site access road onto SGT3 plinth	56.525760, -2.9978600
access road	
Enabling Works Required:	Enabling Work Grade:
Oversail required to inside of turn, no items of site	Medium
equipment to be located within this area	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-09	Complete
& -19 included in Appendix D	



SGT3 plinth access road



Direction of Travel Location:	Coordinates:
Northbound on SGT3 plinth access road in-line with	56.526449, -2.9977233
plinth centreline	
Enabling Works Required:	Enabling Work Grade:
Plinth access road design to be lengthened to	High
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
SPA carried out, drawing no's ALL-A242453-SPA-09	Complete
& -19 included in Appendix D	



9.3.2. Route 2 Dundee to A90/UC road junction

Ref. ALL-A242453-RS-28

Dundee Port Stannergate Rd access gate





Note: - vehicle approaches camera

Direction of Travel Location:	Coordinates:
Northbound through Dundee Port Stannergate	56.466917, -2.919861
Rd access gate	
Enabling Works Required:	Enabling Work Grade:
Dundee Port access permission	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Stannergate Rd/Broughty Ferry Rd junction





Direction of Travel Location:	Coordinates:
Straight on from Dundee Port access gate across	56.467000, -2.919944
Stannergate Rd onto Broughty Ferry Rd	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



MD/039 Stannergate





Direction of Travel Location:	Coordinates:
Northbound on Broughty Ferry Rd across structure no.	56.468139, -2.920972
MD/039 Stannergate	
Enabling Works Required:	Enabling Work Grade:
N other vehicles to cross structure at same time	Low
Vehicle to cross in centre of carriageway	Low
Assessment Works Required:	Assessment Work Grade:
Passed Dundee City Council checks with above cautions	Complete



Broughty Ferry/A930 Dundee Rd W/Strips of Craigie Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at Broughty Ferry Rd/A930 Dundee	56.468491, -2.921281
Rd W/Strips of Craigie Rd roundabout	
Enabling Works Required:	Enabling Work Grade:
Removal of 8 no. bollards	Medium
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-31 cont'd

Broughty Ferry/A930 Dundee Rd W/Strips of Craigie Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at Broughty Ferry Rd/A930 Dundee	56.468491, -2.921281
Rd W/Strips of Craigie Rd roundabout	
Enabling Works Required:	Enabling Work Grade:
Removal of 8 no. bollards	Medium
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-31 cont'd

Broughty Ferry/A930 Dundee Rd W/Strips of Craigie Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at Broughty Ferry Rd/A930 Dundee	56.468491, -2.921281
Rd W/Strips of Craigie Rd roundabout	
Enabling Works Required:	Enabling Work Grade:
Contraflow of Strips of Craigie Rd on exit from	Medium
roundabout	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Strips of Craigie Rd central splitter island no.1

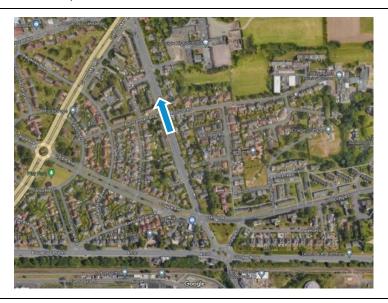




Direction of Travel Location:	Coordinates:	
Northbound on Strips of Craigie Rd	56.469056, -2.921917	
Enabling Works Required:	Enabling Work Grade:	
Removal of 1 no. keep left bollard	Medium	
Assessment Works Required:	Assessment Work Grade:	
Route survey carried out	Complete	



Strips of Craigie Rd central splitter island no.2





Direction of Travel Location:	Coordinates:
Northbound on Strips of Craigie Rd	56.470222, -2.922750
Fuchling Works Degrees	Frabling Work Crade
Enabling Works Required:	Enabling Work Grade:
Removal of 2 no. keep left bollard	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete





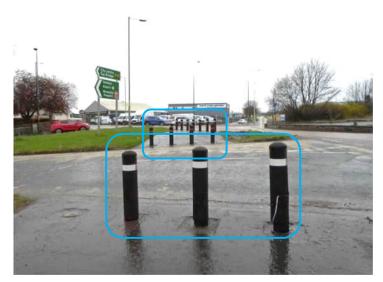


Direction of Travel Location:	Coordinates:
Straight on at Scott Fyffe Roundabout from	56.474000, -2.924944
Strips of Craigie Rd onto A972	
Enabling Works Required:	Enabling Work Grade:
Removal of 15 no. bollards	Medium
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-34 cont'd





Direction of Travel Location:	Coordinates:
Straight on at Scott Fyffe Roundabout from	56.474000, -2.924944
Strips of Craigie Rd onto A972	
Enabling Works Required:	Enabling Work Grade:
Removal of 15 no. bollards	Medium
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-34 cont'd





Direction of Travel Location:	Coordinates:
Straight on at Scott Fyffe Roundabout from	56.474000, -2.924944
Strips of Craigie Rd onto A972	
Enabling Works Required:	Enabling Work Grade:
Removal of 15 no. bollards	Medium
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-34 cont'd





Direction of Travel Location:	Coordinates:
Straight on at Scott Fyffe Roundabout from	56.474000, -2.924944
Strips of Craigie Rd onto A972	
Enabling Works Required:	Enabling Work Grade:
Use of abnormal load roundabout crossing	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



A972/Moffat Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at A972/Moffat Rd rbt continuing on	56.476694, -2.930167
A972	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-35 cont'd

A972/Moffat Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at A972/Moffat Rd rbt continuing on	56.476694, -2.930167
A972	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A972/Pitkerro Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at A972/Pitkerro Rd rbt continuing	56.478944, -2.943639
on A972	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-36 cont'd

A972/Pitkerro Rd rbt





Direction of Travel Location:	Coordinates:
Straight on at A972/Pitkerro Rd rbt continuing	56.478944, -2.943639
on A972	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A972/A90 Forfar Road Junction RH turn





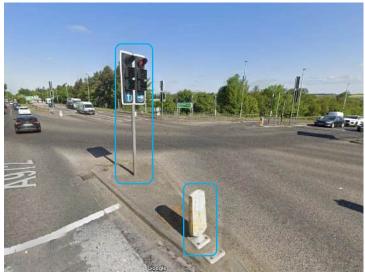
Direction of Travel Location: RH turn from A972 onto A90 at Forfar Road Junction	Coordinates: 56.480278, -2.952889
Enabling Works Required: Removal of 1. no traffic signal and 1 no. keep left bollard from entry central splitter island Full use of junction	Enabling Work Grade: Medium Medium
Assessment Works Required: Route survey carried out	Assessment Work Grade: Complete



Ref. ALL-A242453-RS-37 cont'd

A972/A90 Forfar Road Junction RH turn





Direction of Travel Location: RH turn from A972 onto A90 at Forfar Road Junction	Coordinates: 56.480278, -2.952889
Enabling Works Required: Removal of 1. no traffic signal and 1 no. keep left bollard from entry central splitter island Full use of junction	Enabling Work Grade: Medium Medium
Assessment Works Required: Route survey carried out	Assessment Work Grade: Complete



Ref. ALL-A242453-RS-37 cont'd

A972/A90 Forfar Road Junction RH turn





Direction of Travel Location:	Coordinates:
RH turn from A972 onto A90 at Forfar Road Junction	56.480278, -2.952889
Enabling Works Deguired	Enghling Work Crade
Enabling Works Required:	Enabling Work Grade:
Removal of 2. no traffic signal, section of steel railing and 1 no.	Medium
keep left bollard from exit central splitter island	
Full use of junction	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



A90 Claverhouse Roundabout (northbound)





Direction of Travel Location:	Coordinates:
Straight on at Claverhouse Roundabou	56.491556, -2.950528
continuing on A90 northbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-38 cont'd

A90 Claverhouse Roundabout (northbound)





Direction of Travel Location:	Coordinates:
Straight on at Claverhouse Roundabout	56.491556, -2.950528
continuing on A90 northbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90 Emmock Roundabout (northbound)





Direction of Travel Location:	Coordinates:
Straight on at Emmock Roundabout continuing	56.494722, -2.949889
on A90 northbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-39 cont'd

A90 Emmock Roundabout (northbound)





Direction of Travel Location:	Coordinates:
Straight on at Emmock Roundabout continuing	56.494722, -2.949889
on A90 northbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90/UC road LH turn





Direction of Travel Location:	Coordinates:
LH turn from A90 onto unclassified road	56.531000, -2.945583
Enabling Works Required:	Enabling Work Grade:
Enabiling Works Required.	Lilabiling Work Grade.
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-40 cont'd

A90/UC road LH turn





Direction of Travel Location:	Coordinates:
LH turn from A90 onto unclassified road	56.531000, -2.945583
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete

Note: - Route 2 joins Route 1 for remaining section to site (refer to route reference sheets ALL-A242453-RS-14 to -27 for remainder of route).



9.3.3. Route 3 Forfar Road Junction to Emmock Substation

Note: - Route 3 departs Route 2 at Forfar Road Junction (refer to route reference sheets -28 to -36 for preceding section).

Ref. ALL-A242453-RS-41

A972/A90 Forfar Road Junction





Direction of Travel Location:	Coordinates:
Straight on from A972 onto A90 at Forfar Road	56.480167, -2.953028
Junction	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90 Old Glamis Road Junction





Direction of Travel Location:	Coordinates:
RH turn from A90 onto Old Glamis Rd at Old	56.483056, -2.975361
Glamis Road Junction	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-42 cont'd

A90 Old Glamis Road Junction





Direction of Travel Location:	Coordinates:
RH turn from A90 onto Old Glamis Rd at Old	56.483056, -2.975361
Glamis Road Junction	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Old Glamis Rd pedestrian crossing





Direction of Travel Location:	Coordinates:
Northbound on Old Glamis Rd	56.483972, -2.975000
Enabling Works Required:	Enabling Work Grade:
Removal of 2 no. traffic signal and 2 no. keep	Medium
left bollard	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Old Glamis Rd/Forres Ave rbt





Direction of Travel Location:	Coordinates:
Straight on at Old Glamis Rd/Forres Ave rbt	56.487222, -2.973917
continuing on Old Glamis Rd	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-44 cont'd

Old Glamis Rd/Forres Ave rbt





Direction of Travel Location:	Coordinates:
Straight on at Old Glamis Rd/Forres Ave rbt	56.487222, -2.973917
continuing on Old Glamis Rd	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Old Glamis Rd gradient





Direction of Travel Location:	Coordinates:
Northbound on Old Glamis Rd	56.490944, -2.972750
Enabling Works Required:	Enabling Work Grade:
Additional tractor unit(s) to produce necessary	Low
braking effort	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Old Glamis Rd/Balgowan Ave rbt





Direction of Travel Location:	Coordinates:
Straight on at Old Glamis Rd/Balgowan Ave rbt	56.491583, -2.973056
continuing on Old Glamis Rd	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-46 cont'd

Old Glamis Rd/Balgowan Ave rbt





Direction of Travel Location:	Coordinates:
Straight on at Old Glamis Rd/Balgowan Ave rbt	56.491583, -2.973056
continuing on Old Glamis Rd	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Old Glamis Rd/Emmock Rd RH turn





Direction of Travel Location:	Coordinates:
RH turn from Old Glamis Rd onto Emmock Rd	56.494694, -2.975278
Enabling Works Required:	Enabling Work Grade:
Removal of 1 no. street light	Medium
Temporary steel plating of verge to inside of turn to	Low
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-47 cont'd

Old Glamis Rd/Emmock Rd RH turn





Direction of Travel Location:	Coordinates:
RH turn from Old Glamis Rd onto Emmock Rd	56.491583, -2.973056
Enabling Works Required:	Enabling Work Grade:
Removal of 1 no. street light	Medium
Temporary steel plating of verge to inside of turn to	Low
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-47 cont'd

Old Glamis Rd/Emmock Rd RH turn





Direction of Travel Location:	Coordinates:
RH turn from Old Glamis Rd onto Emmock Rd	56.491583, -2.973056
Enabling Works Required:	Enabling Work Grade:
Removal of 1 no. street light	Medium
Temporary steel plating of verge to inside of turn to	Low
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



U322-001 Balmuir





Direction of Travel Location:	Coordinates:
Northbound on Emmock Rd over structure no. U322-	56.495306, -2.976056
001 Balmuir	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Failed Angus Council checks	Complete
Further structural assessment	Medium
Unsuitable for overbridging should assessment fail	High



Emmock Rd gradient

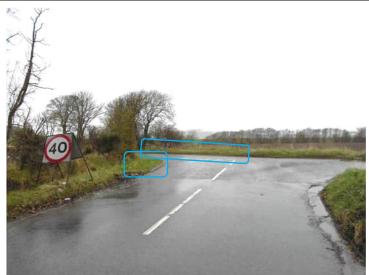




Direction of Travel Location:	Coordinates:
Northbound on Emmock Rd	56.496611, -2.977694
Enabling Works Required:	Enabling Work Grade:
Additional tractor unit(s) to produce necessary	Low
tractive effort	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete





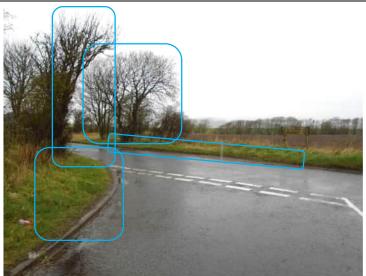


Direction of Travel Location:	Coordinates:
LH turn from Emmock Rd onto unclassified road	56.507556, -2.984306
Enghling Works Deguired	Enghling Work Crade
Enabling Works Required:	Enabling Work Grade:
PRI carriageway widening works within highway limits to	High
accommodate vehicle track	
Vegetation clearance/pruning	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-50 cont'd



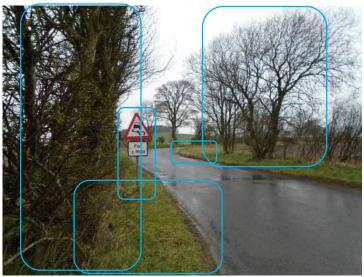


Direction of Travel Location:	Coordinates:
LH turn from Emmock Rd onto unclassified road	56.507556, -2.984306
Enabling Works Required:	Enabling Work Grade:
PRI carriageway widening works within highway	High
limits to accommodate vehicle track	
Vegetation clearance/pruning	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-50 cont'd





Direction of Travel Location:	Coordinates:
LH turn from Emmock Rd onto unclassified road	56.507556, -2.984306
Enabling Works Required:	Enabling Work Grade:
PRI carriageway widening works within highway	High
limits to accommodate vehicle track	
Vegetation clearance/pruning	Medium
Removal of 1 no. non-illuminated road sign	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Ref. ALL-A242453-RS-50 cont'd





Direction of Travel Location:	Coordinates:
LH turn from Emmock Rd onto unclassified road and	56.507556, -2.984306
around RH bend	
Enabling Works Required:	Enabling Work Grade:
PRI carriageway widening works within highway	High
limits to accommodate vehicle track	
Vegetation clearance/pruning	Medium
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete



Unknown Fithie Burn structure





Direction of Travel Location:	Coordinates:
Northbound on unclassified road over structure no.	56.522139, -2.985667
Unknown Fithie Burn structure	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
Awaiting Angus Council approval	Medium



UC road/Emmock Substation access road LH turn





Direction of Travel Location:	Coordinates:
LH turn from unclassified road onto proposed	56.528111, -2.985167
Emmock Substation access road	
Enabling Works Required:	Enabling Work Grade:
Bellmouth design to be widened to	High
accommodate vehicle track	
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
SPA carried out, drawing no. ALL-A242453-	Complete
SPA-12 included in Appendix D	

Note: - Route 3 joins Route 2 for remaining section to plinth (refer to route reference sheets ALL-A242453-RS-20 to -27 for remainder of route).



9.3.4. Route 4 A90/UC road junction to Forfar Road Junction

Note: - Route 4 departs Route 1 at A90/UC road junction (refer to route reference sheets ALL-A242453-RS-01 to -12 for preceding section).

Ref. ALL-A242453-RS-53

A90/UC road junction





Direction of Travel Location:	Coordinates:
Straight on past A90/unclassified road junction	56.531000, -2.945583
continuing on A90	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90 390 Newbigging





Direction of Travel Location:	Coordinates:
Southbound on A90 over structure no. A90 390	56.514250, -2.945222
Newbigging	
Enabling Works Required:	Enabling Work Grade:
TBC	TBC
Assessment Works Required:	Assessment Work Grade:
Route survey carried out	Complete
Awaiting Transport Scotland/Amey approval	Medium



A90 Emmock Roundabout (southbound)





Direction of Travel Location:	Coordinates:
Straight on at Emmock Roundabout continuing	56.494722, -2.949889
on A90 southbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-55 cont'd

A90 Emmock Roundabout (southbound)





Direction of Travel Location:	Coordinates:
Straight on at Emmock Roundabout continuing	56.494722, -2.949889
on A90 southbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90 Claverhouse Roundabout (southbound)





Direction of Travel Location:	Coordinates:
Straight on at Claverhouse Roundabout	56.491556, -2.950528
continuing on A90 southbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-56 cont'd

A90 Claverhouse Roundabout (southbound)





Direction of Travel Location:	Coordinates:
Straight on at Claverhouse Roundabout	56.491556, -2.950528
continuing on A90 southbound	
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



A90 Forfar Road Junction RH turn





Direction of Travel Location:	Coordinates:
RH turn at Forfar Road Junction continuing on A90	56.480278, -2.952889
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete



Ref. ALL-A242453-RS-57 cont'd

A90 Forfar Road Junction RH turn





Direction of Travel Location:	Coordinates:
RH turn at Forfar Road Junction continuing on A90	56.480278, -2.952889
Enabling Works Required:	Enabling Work Grade:
N/A	N/A
Assessment Works Required:	Assessment Work Grade:
Route survey carried out - negotiable	Complete

Note: - Route 4 joins Route 3 for remaining section to site (refer to route reference sheets ALL-A242453-RS-42 to -52 and ALL-A242453-RS -20 to -27 to remainder of route).

HSEQ

We put health and safety first.

Health, safety, environment and quality are paramount to Allelys and are at the heart of our business.

Allelys are committed to providing a safe and healthy working environment for our employees and every person that interacts with the organisation. We recognise that the services we provide and the sectors we work in present challenges in terms of managing risk, but we are committed to protecting our people, environment and assets on every project we undertake.

Our safety performance is critical to the success of our business and our projects and therefore it's essential that we continuously identify, assess and act upon any areas that can be improved. Any areas

that are identified are reported, recorded, investigated, analysed and then lessons learnt published within safety bulletins and toolbox talks.

Quality is a key component of our management system and customer care is paramount to us. We strive for 100% satisfaction and encourage our customers to get in touch with any feedback they would like to provide. If there are any instances where it's believed that a good quality service has not been delivered, we have procedures in place to investigate and act upon any necessary changes.





10. Conclusion

- 10.1. Allelys have been commissioned by Cnoclee Environmental Services to provide a feasibility survey for the transport of 114 te Split Phase Super Grid Transformers (SGT) from Alyth Substation to Emmock Substation and 170 te SGT from Forth Ports (Dundee) to Emmock Substation.
- 10.2. The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.
- 10.3. The nominated transport configuration for delivery of the 114 te split phase SGT is a 6-axle bed 6-axle trailer and for the 170 te SGT is a 16-axle Girder Frame Trailer (GFT), subject to structural assessments. Both transport configurations are classified as Special Order due to gross weights of 168 te and 263 te respectively.
- 10.4. As the transport is classified as Special Order, in accordance with the Water Preferred Policy, Forth Ports (Dundee) has been considered as Port Of Delivery (POD) for the 170 te SGT as it is the closest marine facility to site capable of dealing with this size of cargo.
- 10.5. It is expected that Prince Charles Wharf be the nominated quay for use as it has a minimum low water depth of 9 m and is therefore suitable for use by deep sea vessels. Offload of the SGT from the delivery vessel by crane is available due to a maximum Ground Bearing Pressure (GBP) of 80 te/m². There is also sufficient quayside area to mobilise the 16-axle GFT ready for loading and onward movement of the SGT to site.
- 10.6. Route 1, from Alyth Substation to Emmock Substation, is not currently considered feasible in terms of structural capacity, as Perth & Kinross Council and Angus Council have advised that seven structures require further structural assessment. The LH turn from the unclassified road onto B954 is not physically negotiable due to the presence of a culvert on the B954, therefore, the 6 bed 6 trailer is to perform a shunt manoeuvre at this junction. In order for the vehicle to turn right onto the B954 northbound before travelling southbound and on to site, third-party land uptake is required to the inside of the turn with carriageway widening works required to accommodate the vehicle track. The remainder of the route to the A90 junction with the unclassified road into Tealing village is considered negotiable with Police Escort, Temporary Traffic Regulation Orders (TTRO) and street furniture removals. However, Route 1 from Tealing village to site is not physically negotiable through Tealing village for either transport configuration and at Pump Cottage Crossroads due to the need for third-party land uptake in multiple locations, therefore, this section of Route 1 is not to be used for the delivery of both the 114 te split phase SGT and 170 te SGT.
- 10.7. Route 2, from Forth Ports (Dundee) to the A90 junction for Tealing village, is currently considered feasible in terms of structural capacity although Dundee City Council have advised that structure no. MD/039 Stannergate is to be crossed under caution with no other traffic to be on the structure at the same time as the 16-axle GFT and the vehicle must also cross the structure in the centre of the carriageway. The remainder of Route 2 until it joins Route 1 at Tealing village is considered negotiable with Police Escort, TTROs and street furniture removals although the section of the route through Tealing Village to site is again not feasible for the vehicle, therefore, Route 2 is not to be used.

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 108 of 114

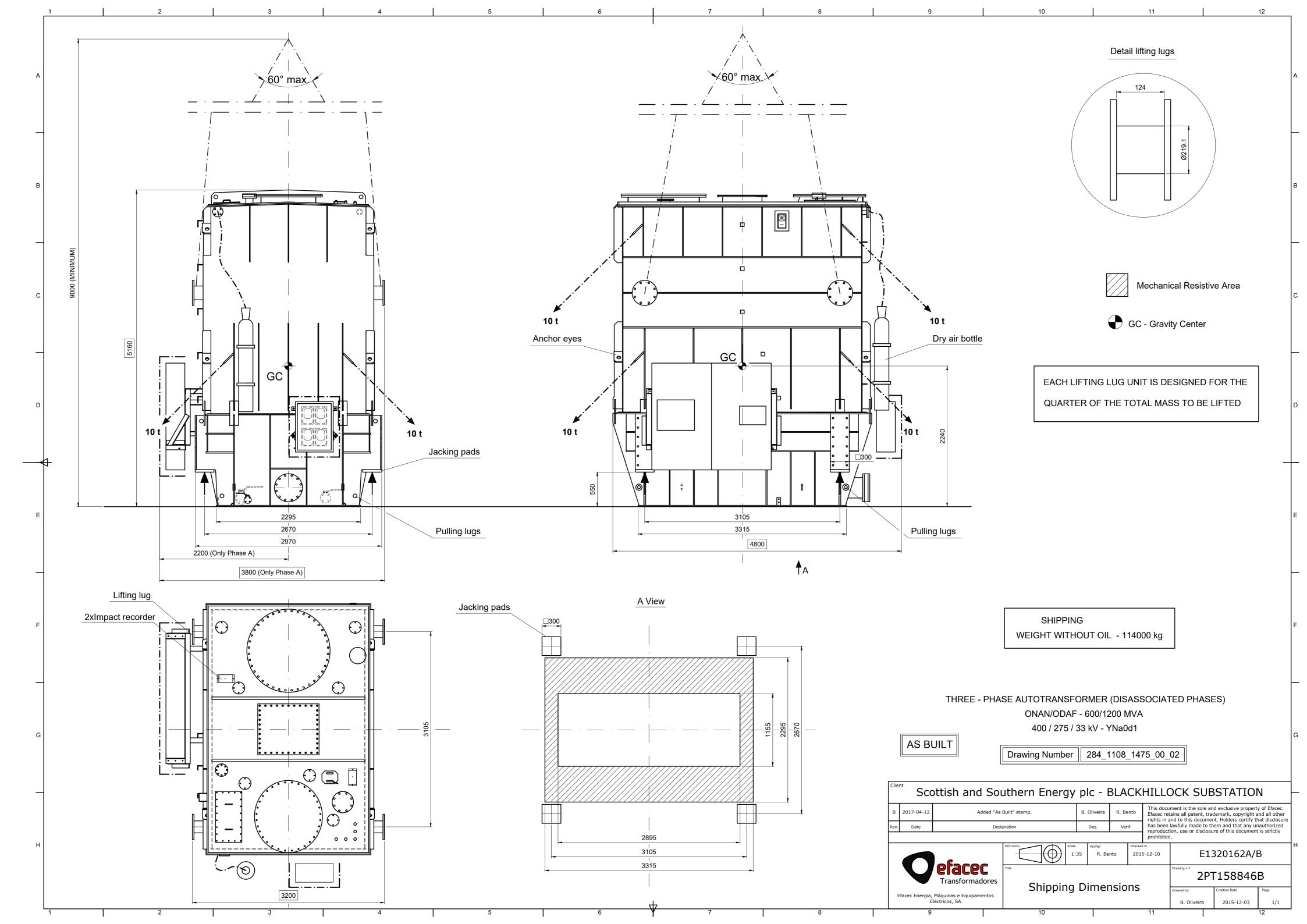


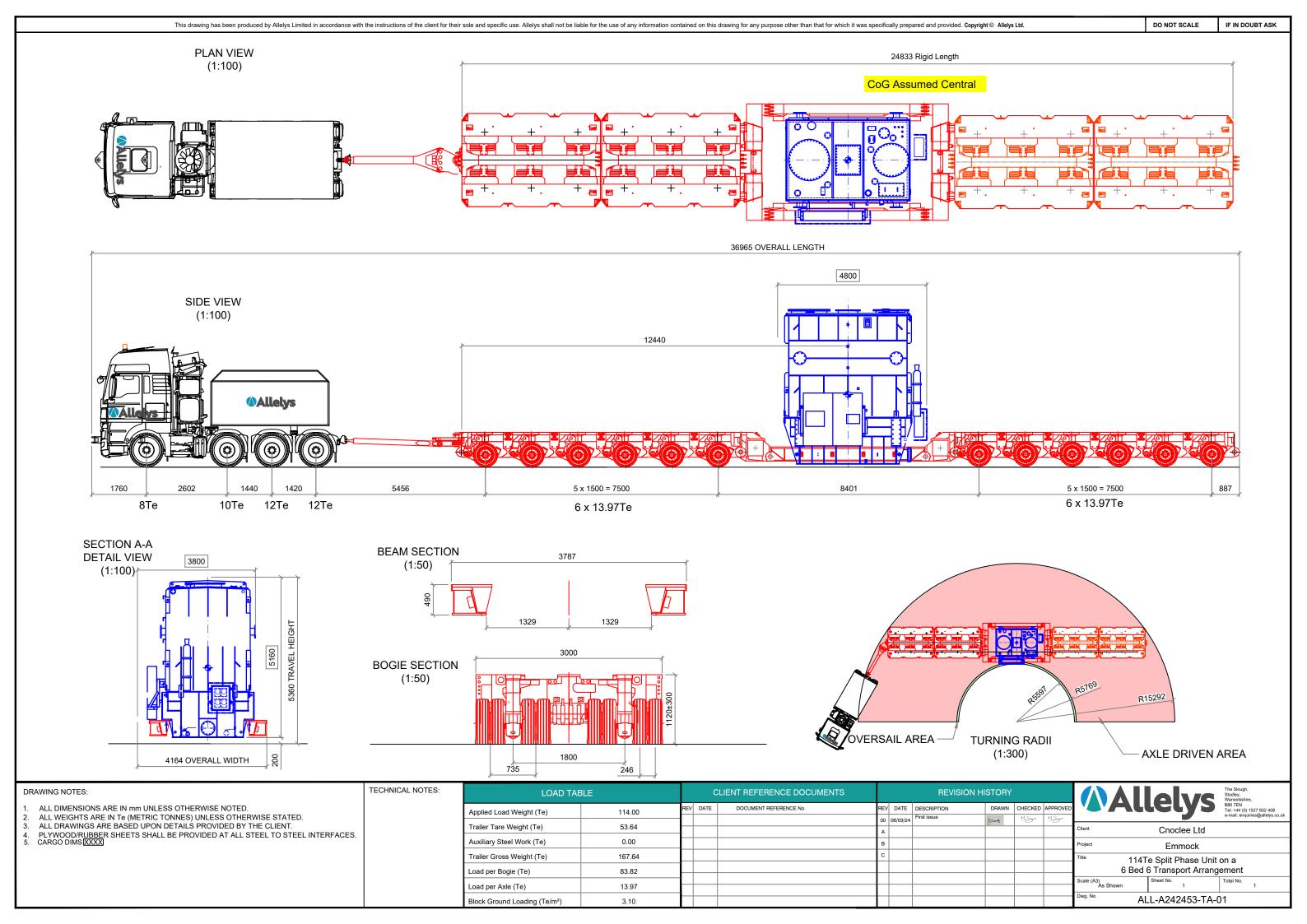
- 10.8. Route 3, from Forth Ports (Dundee) to site via Old Glamis Road, is not currently considered structurally feasible due to the need to further assess structure no. U322-001 Balmuir, as advised by Angus Council. The span of this structure is too large for overbridging to be an option should the results of the structural assessment be negative; therefore, this structure is to be considered a risk to delivery of both the 114te split phase SGT and 170 te SGT. An additional structure over Fithie Burn on the unclassified road on approach to site has been noted that isn't shown on the ESDAL portal. It is assumed that this structure is owned/managed by Angus Council who have been approached to confirm the current capacity of this asset, however, they are yet to respond at the time of writing this report. Should this structure fail the Angus Council basic checks and further structural assessment, it is suitable for overbridging and therefore doesn't pose a high risk to delivery of the 114 te Split Phase SGT and 170 te SGT. The LH turn from Emmock Road onto an unclassified road and RH bend on the unclassified road immediately after requires minor carriageway widening to accommodate the vehicle tracks with vegetation clearance also required. The rest of Route 3 is considered negotiable with Police Escort, TTROs, additional tractor unit(s) and street furniture removals.
- 10.9. Route 4, from the A90 junction for Tealing village Forfar Road Junction, is not currently considered structurally feasible as at the time of writing this report Transport Scotland/Amey (North East) have not yet responded regarding the current capacity of structure no. A90 390 Newbigging, however, this structure was cleared for use by the 170 te SGT loaded onto 16-axle GFT, which has a higher axle load than the 114 te split phase SGT loaded onto the 6 bed 6 trailer so it is assumed that the structure will be cleared for the 6 bed 6 trailer as well. Route 4 then joins Route 3 at Forfar Road Junction for the final delivery of the 114 te split phase SGT to site.
- 10.10. Swept path assessments (SPA) of the proposed Emmock Substation site access point and layout design have been carried out and show that widening of the site access road is required at the junction from the unclassified road, around a LH bend on approach to site and also around a RH bend just prior to the external site access gate. The external site access gate is also to be widened to allow delivery of the 170 te SGT loaded onto the 16-axle GFT. The SGT2 & 3 plinth access roads are to be lengthened to allow delivery of the units in-line with the plinth centrelines. It is not possible for both units to be delivered directly onto plinth by either the 6bed6 trailer or the 16-axle GFT, therefore, it is assumed that final movement of both units be made by hydraulic jacking and skidding although this operation has not been explored as part of this report. The SGT1 plinth access road also needs to be lengthened to allow delivery in-line with the plinth centreline, however, items of auxiliary site equipment located to the north of the end of the road would need to be relocated to permit this. Therefore, a trailer interchange of SGT1 from the delivery vehicle onto Self-Propelled Modular Trailer (SPMT) is required to allow final delivery onto the plinth.

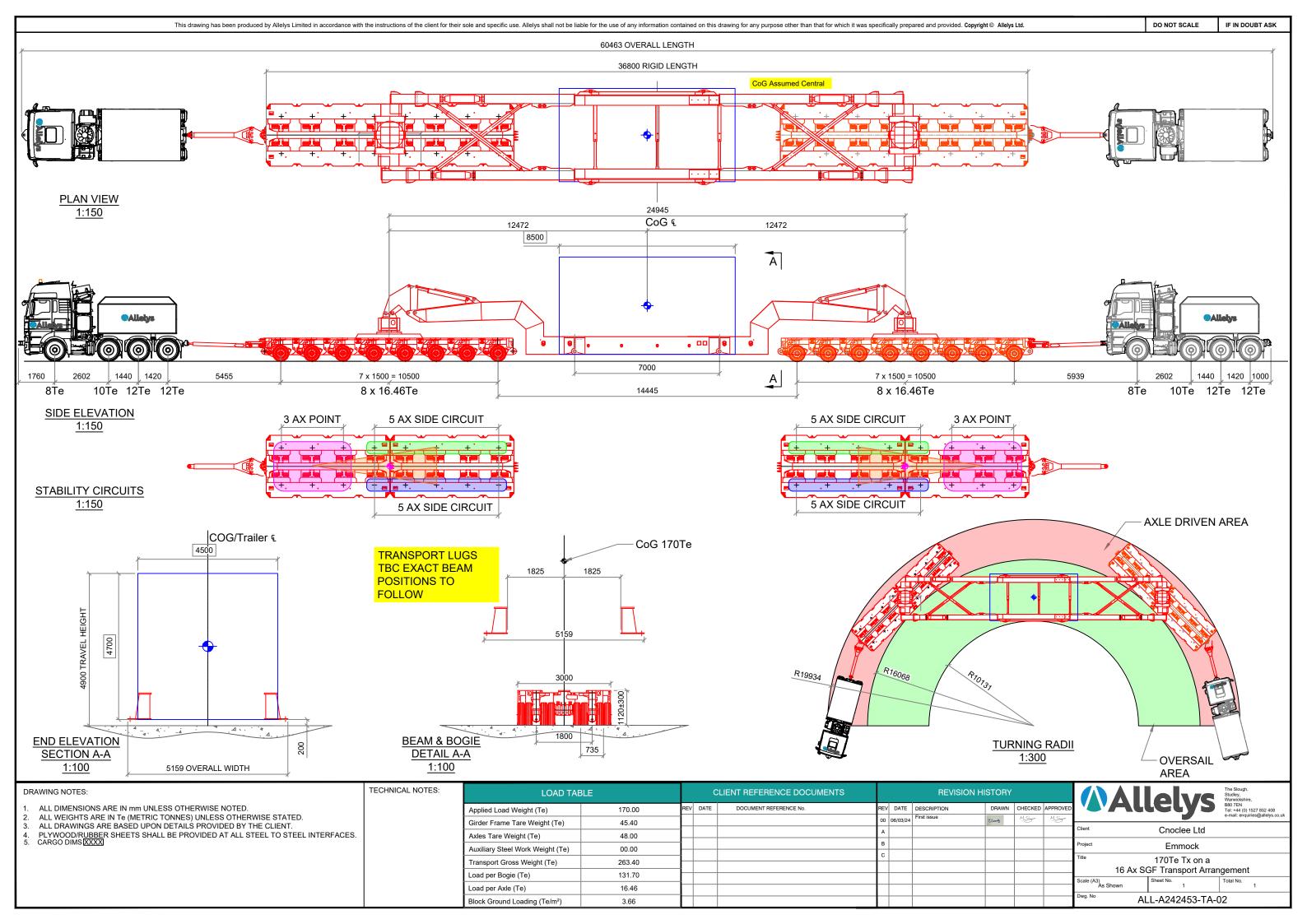


Appendix A

Cargo & Trailer Arrangement Drawings





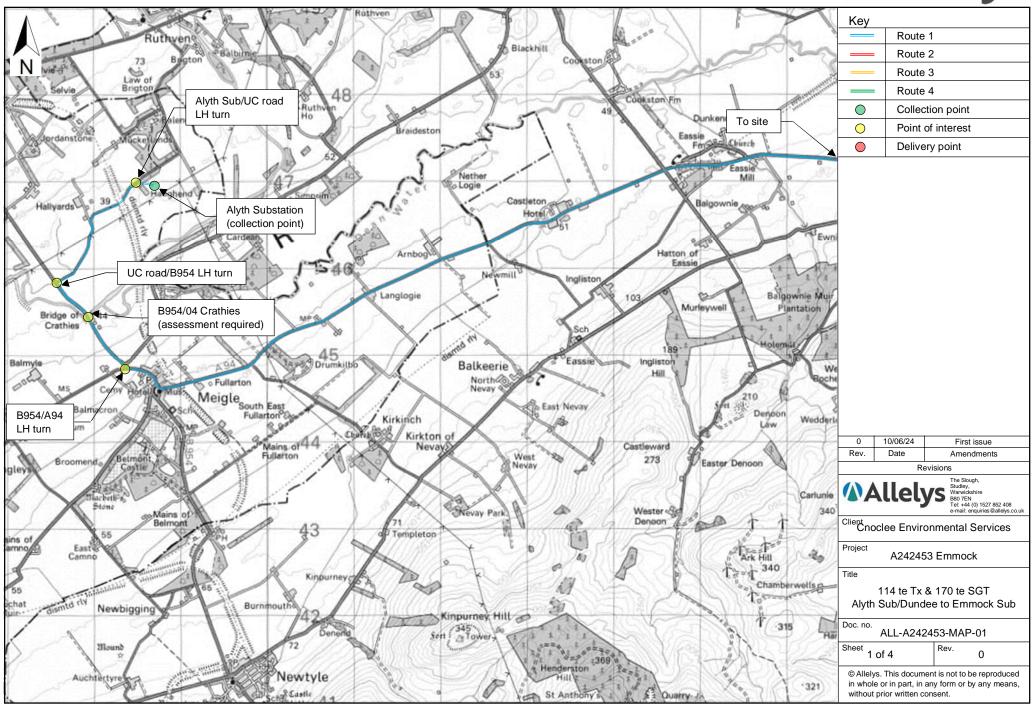




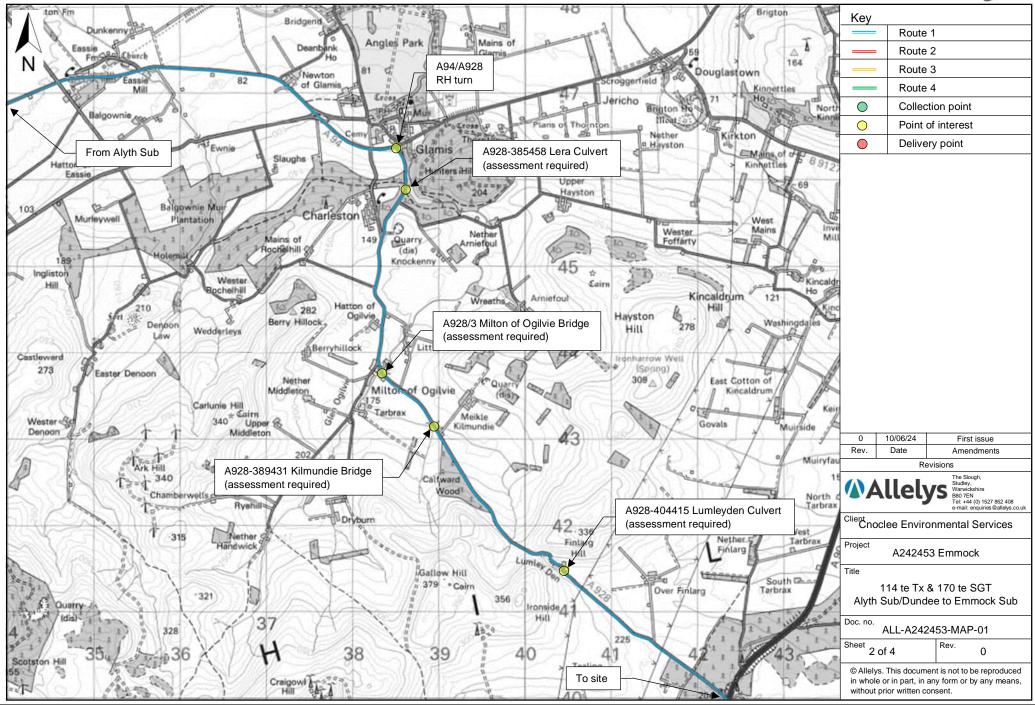
Appendix B

Maps

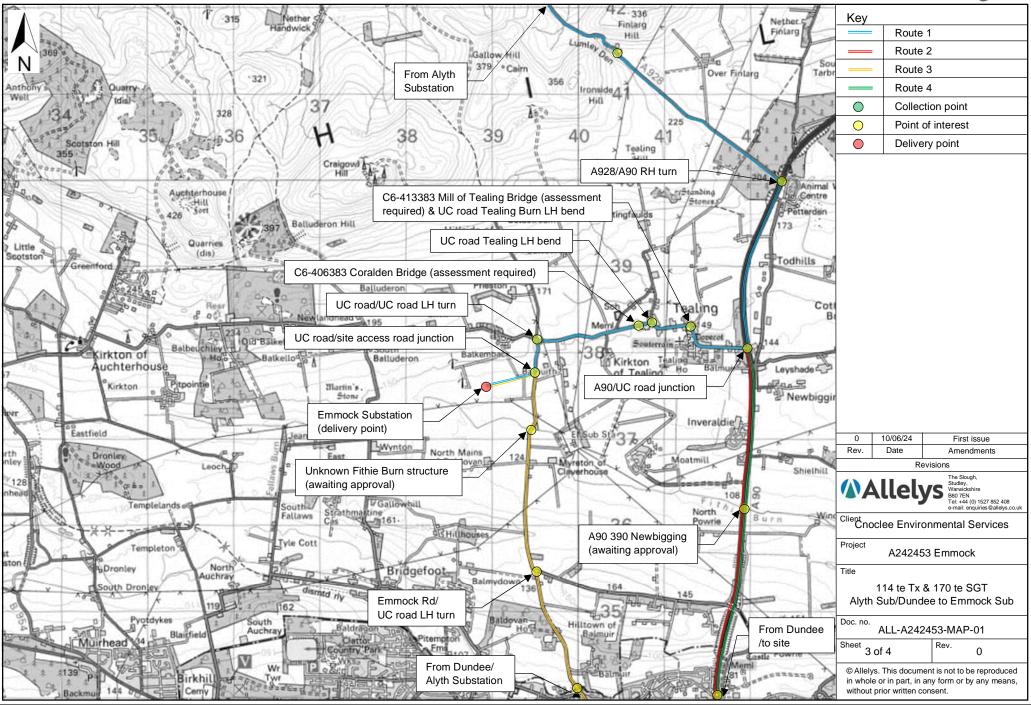




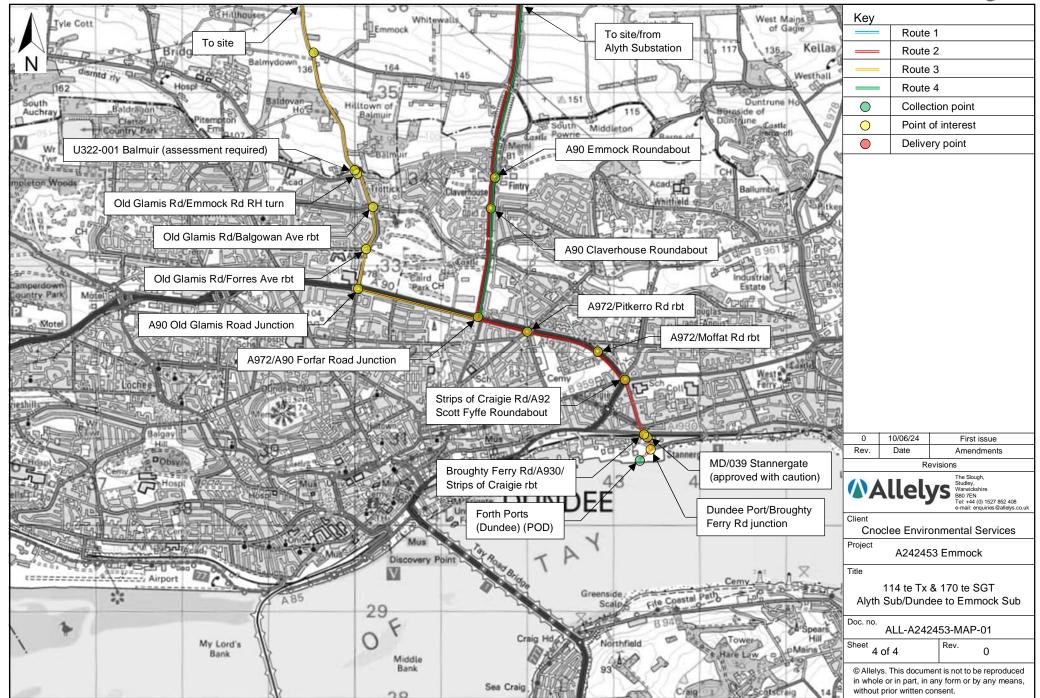














Appendix C

Structures Details

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT | Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 112 of 114



Table 2 Route 1 structures

Structure no.	Structure name	Structural authority	Check result	Easting	Northing	Category	Туре	Class	Length [m]
		PERTH AND KINROSS							
U100/00 C05	HALLYARDS	COUNCIL	Approved	327757	745952	CULVERT	-	UNDERBRIDGE	1.40
		PERTH AND KINROSS							
-	UNNAMED	COUNCIL	Approved	327552	745847	CULVERT	-	UNDERBRIDGE	3.50
		PERTH AND KINROSS				ROAD			
B954/04	CRATHIES	COUNCIL	Assessment required	327929	745429	BRIDGE	-	UNDERBRIDGE	-
		PERTH AND KINROSS				ROAD			
A94/07	MEIGLE	COUNCIL	Approved	328685	744759	BRIDGE	-	UNDERBRIDGE	-
4.0.4/0	CASTLETON OF					ROAD			
A94/6	EASSIE BRIDGE	ANGUS COUNCIL	Approved	333202	746515	BRIDGE	-	UNDERBRIDGE	-
A O 4/7	EASSIE RAILWAY	4 N O L O O O L N O II		005000	7.171.00	ROAD			
A94/7	BRIDGE	ANGUS COUNCIL	Approved	335032	747190	BRIDGE	-	UNDERBRIDGE	-
A O 4 /O	EASSIE MILL	ANGUO COUNCII	A 1	005470	7.470.47	ROAD		LINDEDDDDDD	
A94/8	BRIDGE	ANGUS COUNCIL	Approved	335478	747247	BRIDGE	-	UNDERBRIDGE	-
A000 00E4E0	LERA CULVERT	ANCHE COUNCIL	A a a a a a ma a material and	220574	745000	ROAD		LINDEDDDDOCE	
A928-385458	MILTON OF	ANGUS COUNCIL	Assessment required	338571	745832	BRIDGE ROAD	-	UNDERBRIDGE	-
A928/3	OGILVIE BRIDGE	ANGUS COUNCIL	Assessment required	338346	743784	BRIDGE	_	UNDERBRIDGE	
A920/3	KILMUNDIE	ANGUS COUNCIL	Assessment required	330340	143104	ROAD	-	UNDERDRIDGE	-
A928-389431	BRIDGE	ANGUS COUNCIL	Assessment required	338936	743163	BRIDGE	_	UNDERBRIDGE	_
A320-303431	LUMLEYDEN	ANGUS COUNCIL	Assessment required	330930	743103	ROAD	_	UNDLINDINIDGE	-
A928-404415	CULVERT	ANGUS COUNCIL	Assessment required	340429	741500	BRIDGE	_	UNDERBRIDGE	_
71320 404410	OOLVLIKI	TRANSPORT SCOTLAND	7 to 3 co 3 i i chi i c qui c u	040420	7+1000	DINIDOL		ONDENDINDOL	
		/AMEY (NORTH EAST							
A90 390 C50	PETTERDEN	SCOTLAND)	Approved	342290	739865	CULVERT	-	UNDERBRIDGE	-
	MILL OF TEALING	,		0.2200	. 55566	ROAD		5.15E11511150E	
C6-413383	BRIDGE	ANGUS COUNCIL	Assessment required	341289	738337	BRIDGE	-	UNDERBRIDGE	-
	CORALDEN			5 5 6		ROAD			
C6-406383	BRIDGE	ANGUS COUNCIL	Assessment required	340689	738330	BRIDGE	-	UNDERBRIDGE	-

ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT | Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 113 of 114



Table 3 Route 2 structures

Structure no.	Structure name	Structural authority	Check result	Easting	Northing	Category	Туре	Class	Length [m]
		DUNDEE CITY	Approved with						
MD/039	STANNERGATE	COUNCIL	caution	343353	731048	ROAD BRIDGE	-	UNDERBRIDGE	-
		TRANSPORT							
4070 40 F	PITKERRO	SCOTLAND/ AMEY	N1/A	0.40040	700040	DEDECTRIAN DRIBOE	SIMPLY	OVEDBBIBOE	00.05
A972 10 F	ROAD R/B	(NE)	N/A - overbridge	342012	732249	PEDESTRIAN BRIDGE	SUPPORTED SPAN	OVERBRIDGE	30.85
		TRANSPORT				A CCONMACD A TION			
A90 350	LINLATHEN U/P	SCOTLAND/ AMEY (NE)	Approved	341499	732895	ACCOMMODATION ACCESS UNDER	FIXED	UNDERBRIDGE	3.60
A30 330	LINEATTIEN O/I	TRANSPORT	Approved	341433	132093	ACCESS UNDER	TIALD	UNDERDRIDGE	3.00
		SCOTLAND/ AMEY							
A90 360	FORFAR ROAD	(NE)	Approved	341550	733182	ROAD BRIDGE	FIXED	UNDERBRIDGE	7.60
		TRANSPORT							
		SCOTLAND/ AMEY					SIMPLY		
A90 360 F	FINTRY F/B	(NE)	N/A - overbridge	341563	733331	PEDESTRIAN BRIDGE	SUPPORTED SPAN	OVERBRIDGE	50.70
		TRANSPORT							
		SCOTLAND/ AMEY						UNDER AND	
A90 380	EMMOCK O/B	(NE)	N/A - overbridge	341795	735064	ROAD BRIDGE	CONTINUOUS SPAN	OVERBRIDGE	43.50
		TRANSPORT							
		SCOTLAND/ AMEY							
A90 380 C50	EMMOCK	(NE)	Approved	341889	735680	CULVERT	-	UNDERBRIDGE	-
		TRANSPORT							
100 000	NEWDIOOINO	SCOTLAND/ AMEY	A	0.44.000	700400	DOAD DDIDOE	FIVED	LINDEDDDDD	4.50
A90 390	NEWBIGGING	(NE)	Approved	341922	736198	ROAD BRIDGE	FIXED	UNDERBRIDGE	4.50

Table 4 Route 3 structures

Structure no.	Structure name	Structural authority	Check result	Easting	Northing	Category	Type	Class	Length [m]
MD/039	STANNERGATE	DUNDEE CITY COUNCIL	Approved with caution	343353	731048	ROAD BRIDGE	-	UNDERBRIDGE	-
A972 10 F	PITKERRO ROAD F/B	TRANSPORT SCOTLAND /AMEY (NE)	N/A - overbridge	342012	732249	PEDESTRIAN BRIDGE	SIMPLY SUPPORTED SPAN	OVERBRIDGE	30.85
U322-001	BALMUIR	ANGUS COUNCIL & DUNDEE CITY COUNCIL	Assessment required	340003	734127	ROAD BRIDGE	-	UNDERBRIDGE	-
TBC	UNKNOWN FITHIE BURN BRIDGE	ASSUME ANGUS COUNCIL	Awaiting approval			ROAD BRIDGE	-	UNDERBRIDGE	-

Table 5 Route 4 structures

Structure no.	Structure name	Structural authority	Check result	Easting	Northing	Category	Туре	Class	Length [m]
		TRANSPORT SCOTLAND/							
A90 390	NEWBIGGING	AMEY (NE)	Awaiting approval	341922	736198	ROAD BRIDGE	FIXED	UNDERBRIDGE	4.50

From: Andrew Brown < BrownA@angus.gov.uk>

 Sent:
 29 May 2024 15:54

 To:
 Sally Weston

 Cc:
 NRSWA

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility

request

Attachments: ALL-A242453-TA-01 - 114Te Split Phase Unit on a 6Bed6.IFC.pdf; A242453

Emmock structures list.xlsx; 405.00660.00059.211 rev P0 - A94-6 Castleton of Eassie Certificate.pdf; 405.00660.00059.209 rev P0 - A94-7 Eassie Mill Railway

Bridge Certificate.pdf; 405.00660.00059.207 rev PO - A94-8 Eassie Mill

Certificate.pdf

Importance: High

Dear Sally,

Please accept my sincere apologies for the delay in my response.

In relation to the Angus Council Structures listed in your attached;

- A94/6 Castleton of Eassie Has previously taken abnormal loadings in excess of proposed (see attached)
- A94/7 Eassie Railway Bridge Has previously taken abnormal loadings in excess of proposed (see attached)
- A94/8 Eassie Mill Bridge Has previously taken abnormal loadings in excess of proposed (see attached)
- A928-385458 Lera Culvert Largest previous abnormal load recorded on route is 62T over 7 axles – Assessment would be required
- A928/3 Milton of Ogilvie Bridge (45 units HB) Largest previous abnormal load recorded on route is 62T over 7 axles - Assessment would be required
- A928-389431 Kilmundie Bridge Largest previous abnormal load recorded on route is 62T over 7 axles – Assessment would be required
- A928-404415 Lumleyden Culvert no record of previous abnormal loading Assessment would be required
- C6-413383- Mill of Tealing Bridge no record of previous abnormal loading Assessment would be required
- C6-406383 Coralden Bridge no record of previous abnormal loading Assessment would be required

I believe Allelys were the haulier for the abnormal loads in the attached check certificates for the A94 bridges on your proposed route.

Kind regards,

Andrew

Andrew Brown | Team Leader - Coastal, Flood Risk and Structures | Angus Council | Tel: 01307 491824 | Browna@angus.gov.uk | www.angus.gov.uk |



From: Sally Weston <sally.weston@allelys.co.uk>

Sent: Tuesday, May 28, 2024 10:31 AM

To: Andrew Brown <BrownA@angus.gov.uk>; NRSWA <NRSWA@angus.gov.uk>

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Importance: High

Good morning All,

Tried calling but didn't get any answer, please could I have an update on the below feasibility request? Its just the Angus Council structures that I'm outstanding a response for now.

Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Sally Weston Sent: 14 May 2024 12:14

To: abnormalloads@pkc.gov.uk; Andrew Brown BrownA@angus.gov.uk; NRSWA@angus.gov.uk; OSD Abnormal

Loads Scotland <OSDAbnormalLoadsScotland@scotland.police.uk>

Subject: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Good afternoon All,

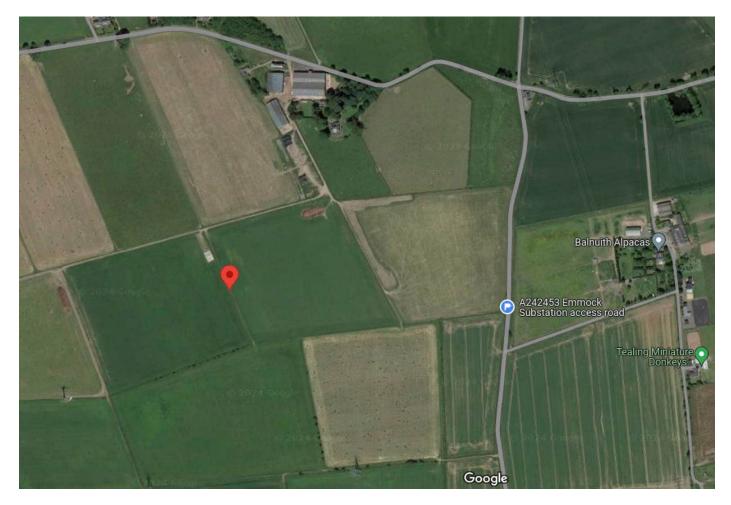
Have we any update on the attached structural feasibility request please?

Route 1 – Alyth substation to site

The delivery of 114 te split phase transformer loaded onto 6bed6 trailer (drawing no. ALL-A242453-TA-01 attached) from the existing Alyth Substation to site, route link is below: https://maps.app.goo.gl/DcGx5dqmNKNbXCej8

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Derek Davidson < DTDavidson@pkc.gov.uk>

Sent: 21 May 2024 09:19 To: Sally Weston

Cc: Communities Abnormal Loads; Communities Structure ALR; Lachlan MacLean;

Jake Eadie; James Escott

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility

request

Attachments: Abnormal Load Response - Emmock Substation.xlsx

Hi Sally,

See attached response as requested, also copied to my colleagues in Transportation Planning and Roads Maintenance teams for their information / comment.

Best regards, Derek

Derek Davidson C.Eng M.I.C.E Acting Depute Structures Manager Structures Team, Environment and Infrastructure, Economy, Place and Learning, Perth & Kinross Council, Pullar House, 35 Kinoull Street, PERTH. PH1 5GD

Tel: 01738 477236 (Direct Dial) E-mail: <u>DTDavidson@pkc.gov.uk</u>

Report a Perth & Kinross Council road bridge, culvert or road retaining wall fault online here.

Information regarding Abnormal Load Enquiries can be found here.

From: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk >

Sent: Tuesday, May 14, 2024 12:14 PM

To: Communities Structure ALR < StructureALR@pkc.gov.uk>

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility request

From: Sally Weston < sally.weston@allelys.co.uk >

Sent: Tuesday, May 14, 2024 12:13:44 PM (UTC+00:00) Dublin, Edinburgh, Lisbon, London

To: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk >; Andrew Brown < Brown A@angus.gov.uk >;

NRSWA@angus.gov.uk < NRSWA@angus.gov.uk >; OSD Abnormal Loads Scotland

< OSDAbnormalLoadsScotland@scotland.police.uk >

Subject: A242453 Emmock Substation 114 te split phase unit structural feasibility request

CAUTION: This email originated from an external organisation. Do not follow guidance, click links, or open attachments unless you have verified the sender and know the content is safe.

Good afternoon All,

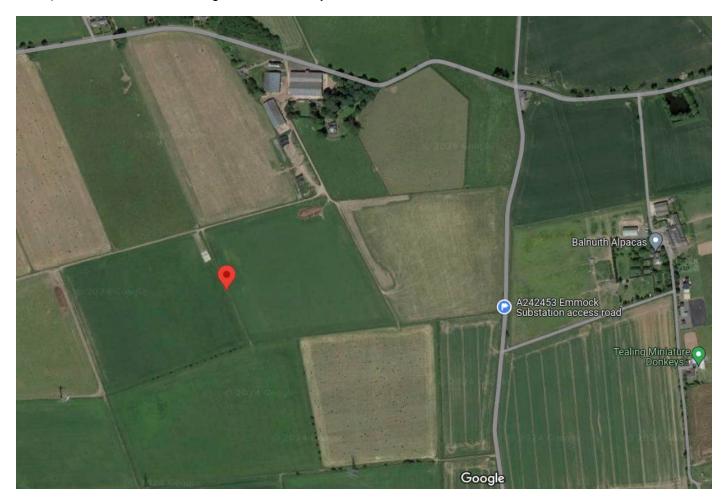
Have we any update on the attached structural feasibility request please?

Route 1 – Alyth substation to site

The delivery of 114 te split phase transformer loaded onto 6bed6 trailer (drawing no. ALL-A242453-TA-01 attached) from the existing Alyth Substation to site, route link is below: https://maps.app.goo.gl/DcGx5dqmNKNbXCej8

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3)

Mob: +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

The information in this email is solely for the intended recipients.

If you are not an intended recipient, you must not disclose, copy, or distribute its contents or use them in any way: please advise the sender immediately and delete this email.

Perth & Kinross Council does not warrant that this email or any attachments are virus-free and does not accept any liability for any loss or damage resulting from any virus infection. Perth & Kinross Council may monitor or examine any emails received by its email system.

The information contained in this email may not be the views of Perth & Kinross Council. It is possible for email to be falsified and the sender cannot be held responsible for the integrity of the information contained in it.

General enquiries to Perth & Kinross Council should be made to enquiries@pkc.gov.uk or 01738 475000.

Abnormal Load Route: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Gross Vehicle Weight (Tonnes): 167

List of Structures Affected with Comments:

Structure Code	Structure Name	Easting	Northing	Construction	No. of Spans	Span Length	HA Capacity	HB Capacity	Comments
U100/00 C05	Hallyards	327,757	745,952	Box (constructed 2020)	1	1.40	Full	N/A	5. Approved for load ref. above
B954/04	Bridge of Crathies	327,929	745,428	Concrete Arch	3	15, 16.9, 15	Full	45	4. NOT APPROVED
A94/07	Meigle	328,686	,	Stone Arch with insitu concrete slab extensions both US and DS	2	3.47; 3.49	Full	N/A	5. Approved for load ref. above

Notes:

1.* HA Capacity
2.**HB Loading
3. NOT OWNED
4. NOT APPROVED
5. Approved for load ref. above

- NWL: indicates no weight limit in place.
- N/A: indicates information not available
- the structure is not owned by Perth and Kinross Council, please obtain approval from the owner prior to load movement.
- this structure will require inspection, assessment and potential strengthening by the haulier's client to the satisfaction of Perth and Kinross Council Structures Section prior to movement.
- this structure is confirmed as having sufficient structural capacity to support the proposed load.

From: Jake Eadie < JTEadie@pkc.gov.uk>

Sent: 29 May 2024 15:41 To: Sally Weston

Cc: Communities Abnormal Loads; Communities Structure ALR; Lachlan MacLean;

Derek Davidson; James Escott; Willie Mahoney

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility

request

Hi Sally,

I have confirmed with Willie Mahoney, senior engineer in this area.

Willie has confirmed the structure at the location on the B954 is structurally fine to carry your loads. There is a little bit of existing damage to the wing wall adjacent to the unclassified road however this may be repaired before your movements.

Kind Regards

Jake Eadie, Eng Tech FIHE, MIAT

Roads Maintenance Officer
Perth and Kinross Council
Roads Maintenance Partnership
Ruthvenfield Depot
Ruthvenfield Road
Inveralmond Industrial Estate

the Cooles

Perth PH1 3EE







From: Sally Weston <sally.weston@allelys.co.uk>

Sent: Tuesday, May 28, 2024 9:24 AM To: Jake Eadie <JTEadie@pkc.gov.uk>

Cc: Communities Abnormal Loads AbnormalLoads@pkc.gov.uk; Communities Structure ALR StructureALR@pkc.gov.uk; Derek Davidson

<DTDavidson@pkc.gov.uk>; James Escott <JEscott@pkc.gov.uk>

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Good morning Jake,

Have we any update on the small culvert query below please?

Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Derek Davidson < DTDavidson@pkc.gov.uk>

Sent: 21 May 2024 13:13

To: Sally Weston < sally.weston@allelys.co.uk>

Cc: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk >; Communities Structure ALR

< <u>StructureALR@pkc.gov.uk</u>>; Lachlan MacLean < <u>LMacLean@pkc.gov.uk</u>>; Jake Eadie < <u>JTEadie@pkc.gov.uk</u>>; James

Escott < <u>JEscott@pkc.qov.uk</u>>

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Hi Sally,

We don't have that one on record in this team so I can only assume that is a small culvert <1.5m span, my colleague Jake can hopefully confirm from a road maintenance perspective.

Kind regards,

Derek.

From: Sally Weston <<u>sally.weston@allelys.co.uk</u>>

Sent: Tuesday, May 21, 2024 12:17 PM

To: Derek Davidson < DTDavidson@pkc.gov.uk >

Cc: Communities Abnormal Loads AbnormalLoads@pkc.gov.uk; Communities Structure ALR

<StructureALR@pkc.gov.uk>; Lachlan MacLean <LMacLean@pkc.gov.uk>; Jake Eadie <JTEadie@pkc.gov.uk>; James

Escott < JEscott@pkc.gov.uk>

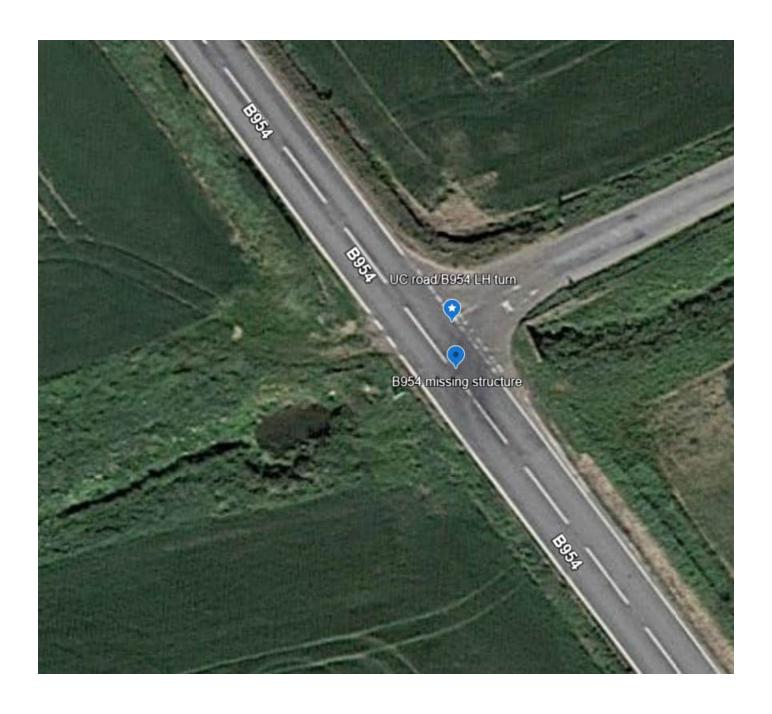
Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Hi Derek,

I've been updating my structures info and have noticed a structure that isn't shown on ESDAL or on either of our lists, and am wondering if it's one of yours?

It appears to be a short span culvert on the B954 at the junction with the unclassified road from Alyth Substation. Lat/long 56.598897, -3.1815472.

Please see below satellite and street view screenshots.





Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN





















Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Derek Davidson < DTDavidson@pkc.gov.uk>

Sent: 21 May 2024 09:19

To: Sally Weston <sally.weston@allelys.co.uk>

Cc: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk >; Communities Structure ALR

< <u>StructureALR@pkc.gov.uk</u>>; Lachlan MacLean < <u>LMacLean@pkc.gov.uk</u>>; Jake Eadie < <u>JTEadie@pkc.gov.uk</u>>; James

Escott < JEscott@pkc.gov.uk >

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Hi Sally,

See attached response as requested, also copied to my colleagues in Transportation Planning and Roads Maintenance teams for their information / comment.

Best regards, Derek

Derek Davidson C.Eng M.I.C.E Acting Depute Structures Manager Structures Team, Environment and Infrastructure, Economy, Place and Learning, Perth & Kinross Council, Pullar House, 35 Kinoull Street, PERTH. PH1 5GD

Tel: 01738 477236 (Direct Dial) E-mail: <u>DTDavidson@pkc.gov.uk</u>

Report a Perth & Kinross Council road bridge, culvert or road retaining wall fault online here.

Information regarding Abnormal Load Enquiries can be found here.

From: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk >

Sent: Tuesday, May 14, 2024 12:14 PM

To: Communities Structure ALR <StructureALR@pkc.gov.uk>

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility request

From: Sally Weston < sally.weston@allelys.co.uk >

Sent: Tuesday, May 14, 2024 12:13:44 PM (UTC+00:00) Dublin, Edinburgh, Lisbon, London

To: Communities Abnormal Loads < AbnormalLoads@pkc.gov.uk; Andrew Brown < BrownA@angus.gov.uk;

NRSWA@angus.gov.uk < NRSWA@angus.gov.uk>; OSD Abnormal Loads Scotland

<OSDAbnormalLoadsScotland@scotland.police.uk>

Subject: A242453 Emmock Substation 114 te split phase unit structural feasibility request

CAUTION: This email originated from an external organisation. Do not follow guidance, click links, or open attachments unless you have verified the sender and know the content is safe.

Good afternoon All,

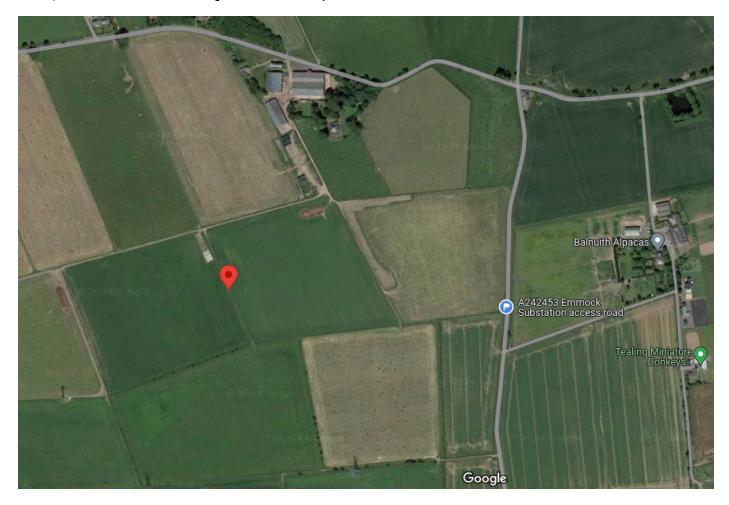
Have we any update on the attached structural feasibility request please?

Route 1 – Alyth substation to site

The delivery of 114 te split phase transformer loaded onto 6bed6 trailer (drawing no. ALL-A242453-TA-01 attached) from the existing Alyth Substation to site, route link is below: https://maps.app.goo.gl/DcGx5dqmNKNbXCej8

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

The information in this email is solely for the intended recipients.

If you are not an intended recipient, you must not disclose, copy, or distribute its contents or use them in any way: please advise the sender immediately and delete this email.

Perth & Kinross Council does not warrant that this email or any attachments are virus-free and does not accept any liability for any loss or damage resulting from any virus infection. Perth & Kinross Council may monitor or examine any emails received by its email system.

The information contained in this email may not be the views of Perth & Kinross Council. It is possible for email to be falsified and the sender cannot be held responsible for the integrity of the information contained in it.

General enquiries to Perth & Kinross Council should be made to enquiries@pkc.gov.uk or 01738 475000.

The information in this email is solely for the intended recipients.

If you are not an intended recipient, you must not disclose, copy, or distribute its contents or use them in any way: please advise the sender immediately and delete this email.

Perth & Kinross Council does not warrant that this email or any attachments are virus-free and does not accept any liability for any loss or damage resulting from any virus infection. Perth & Kinross Council may monitor or examine any emails received by its email system.

The information contained in this email may not be the views of Perth & Kinross Council. It is possible for email to be falsified and the sender cannot be held responsible for the integrity of the information contained in it.

General enquiries to Perth & Kinross Council should be made to enquiries@pkc.gov.uk or 01738 475000.

The information in this email is solely for the intended recipients.

If you are not an intended recipient, you must not disclose, copy, or distribute its contents or use them in any way: please advise the sender immediately and delete this email.

Perth & Kinross Council does not warrant that this email or any attachments are virus-free and does not accept any liability for any loss or damage resulting from any virus infection. Perth & Kinross Council may monitor or examine any emails received by its email system.

The information contained in this email may not be the views of Perth & Kinross Council. It is possible for email to be falsified and the sender cannot be held responsible for the integrity of the information contained in it.

General enquiries to Perth & Kinross Council should be ma	ade to enquiries@pkc.gov.uk or 01738 475000.
	8

From: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >

Sent: 22 May 2024 15:08 To: Sally Weston

Subject: Fw: A242453 Emmock Substation 170 te SGT structural feasibility request

Attachments: ALL-A242453-TA-02 170Te Tx 16Ax SGF.pdf

Hi Sally,

See attached response from our Bridges team regarding the Stannergate Bridge.

Regards



Mark Cobb

Assistant Engineer (Network Management) at Dundee City Council

E mark.cobb@dundeecity.gov.uk

M 07939 282884

W www.dundeecity.gov.uk

A Contracts House, 1 Soutar Street, Dundee, DD3 8SS









From: Graeme Boyd <graeme.boyd@dundeecity.gov.uk>

Sent: 22 May 2024 10:13

To: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >

Subject: FW: A242453 Emmock Substation 170 te SGT structural feasibility request

Morning Mark,

We have reviewed this Abnormal load vehicle and can confirm that the Stannergate Bridge is suitable for the vehicle loading. This is assuming that there are no other vehicles on the bridge at the time of crossing and that the abnormal load vehicle drives down the middle of the bridge.

Regards,





Graeme Boyd CEng MICE

Principal Engineer (Design & Property Services) at Dundee City Council

E graeme.boyd@dundeecity.gov.uk

P 0138<u>2 433036</u>

M 07776668446

w www.dundeecity.gov.uk

A Dundee House, 50 North Lindsay Street, DUNDEE, DD1 1QE









From: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >

Sent: Tuesday, May 21, 2024 4:19 PM

To: Graeme Boyd <graeme.boyd@dundeecity.gov.uk>

Subject: Fw: A242453 Emmock Substation 170 te SGT structural feasibility request

Hi Graeme.

Can you have a look at the attached abnormal load and let me know if the Stannergate Bridge is suitable?

Thanks



Mark Cobb

Assistant Engineer (Network Management) at Dundee City Council

E mark.cobb@dundeecity.gov.uk

M 07939 282884

W www.dundeecity.gov.uk

A Contracts House, 1 Soutar Street, Dundee, DD3 8SS









From: Sally Weston < sally.weston@allelys.co.uk>

Sent: 21 May 2024 16:10

To: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >

Subject: RE: A242453 Emmock Substation 170 te SGT structural feasibility request

Hi Mark,

Just wondering whether our 16-axle girder frame can cross structure no. MD/039 Stannergate?

Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 Web: www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >

Sent: 21 May 2024 15:50

To: Sally Weston <<u>sally.weston@allelys.co.uk</u>>

Subject: Re: A242453 Emmock Substation 170 te SGT structural feasibility request

Hi Sally,

What information do you need regarding these routes? Previous movements have used Strips of Craigie Road directly onto the trunk road.

Regards



Mark Cobb

Assistant Engineer (Network Management) at Dundee City Council

E mark.cobb@dundeecity.gov.uk

M 07939 282884

W www.dundeecity.gov.uk

A Contracts House, 1 Soutar Street, Dundee, DD3 8SS









From: Sally Weston <<u>sally.weston@allelys.co.uk</u>>

Sent: 14 May 2024 12:07

To: Mark Cobb < Mark.Cobb@dundeecity.gov.uk >; OSD Abnormal Loads Scotland

<OSDAbnormalLoadsScotland@scotland.police.uk>; NRSWA@angus.gov.uk <NRSWA@angus.gov.uk>; Andrew

Brown < Brown A@angus.gov.uk >

Subject: A242453 Emmock Substation 170 te SGT structural feasibility request

Good afternoon All,

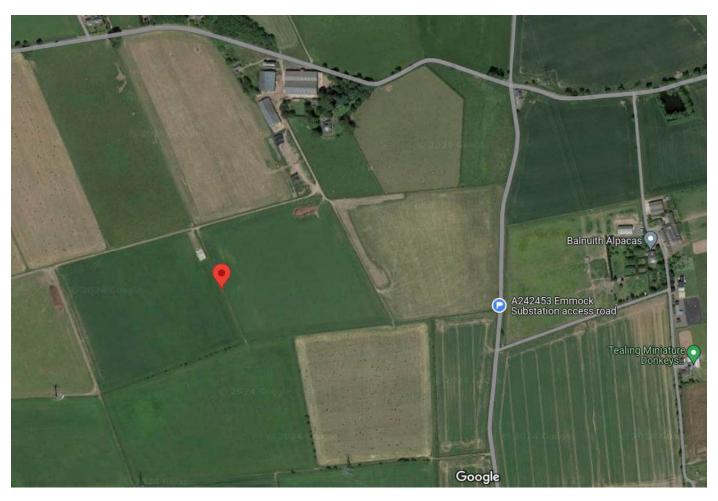
Have we any update on the attached structural feasibility request please? Summary of the routes shown below.

Route 2: https://maps.app.goo.gl/fhg1UJZ7X2wia4fz6 with the use of the AIL crossings at Broughty Ferry Rd/A930/Strips of Craigie Rd roundabout and Scott Fyffe Roundabout.

Route 3: https://maps.app.goo.gl/U4oLQvnYhuCoAhhp9 also using the AIL crossings in Dundee.

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN















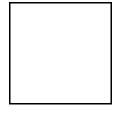








Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA





From: James Bryce < James.Bryce1@amey.co.uk>

Sent: 08 May 2024 11:48
To: Sally Weston
Cc: Abnormal-loadNE

Subject: RE: A242453 Emmock Substation 114 te split phase unit and 170 te SGT structural

feasibility request

Good Morning Sally,

Apologies in the delay in reply, however we have now run both route options and can confirm that both would be suitable in regards to structure capacities that we oversee. Despite this confirmation of the feasibility of your movements, we require that prior to any movement taking place an official final movement order is submitted either directly or through ESDAL which contains all info on routes, vehicles and your indemnity.

If you require anything further please get in touch,

All the best.

Jamie Bryce MEng (he/him/his)
Graduate Engineer | Structures | NE NMC



© 07508 321 328

☑ james.bryce1@amey.co.uk Caledonian House, West Kinfauns, Perth, PH2 7XZ amey.co.uk

From: Sally Weston <sally.weston@allelys.co.uk>

Sent: Tuesday, March 12, 2024 11:14 PM

To: NRSWA@angus.gov.uk; Andrew Brown <BrownA@angus.gov.uk>; mortonp@angus.co.uk; Mark Cobb

<Mark.Cobb@dundeecity.gov.uk>; OSD Abnormal Loads Scotland

<OSDAbnormalLoadsScotland@scotland.police.uk>; Irene.Young@transport.gov.scot; Abnormal-loadNE <Abnormal-

loadNE@amey.co.uk>

Subject: A242453 Emmock Substation 114 te split phase unit and 170 te SGT structural feasibility request

You don't often get email from sally.weston@allelys.co.uk. Learn why this is important

WARNING: This email originated from outside of Amey Limited. Exercise caution when opening attachments or clicking links, especially from unknown senders. If you suspect this message is not legitimate, report it to the Phishing mailbox.

Good evening All,

We're currently undertaking a route feasibility study for delivery of transformers to a new site close to the existing Tealing Substation. There are two cargoes and two routes being considered, as follows.

Route 1 – Alyth substation to site

The first is the delivery of 114 te transformer loaded onto 6bed6 trailer (drawing no. ALL-A242453-TA-01 attached) from the existing Alyth Substation to site, route link is below: https://maps.app.goo.gl/pimgjWJ1SEpFM82XA

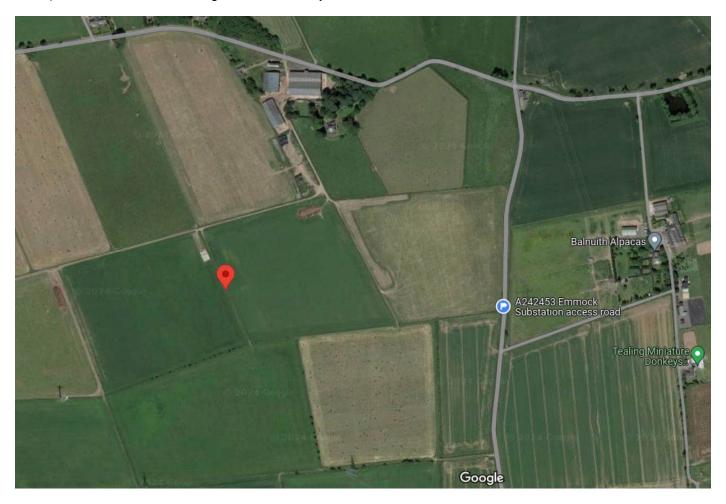
Route 2 - Port of Dundee to site

The second is the delivery of 170 te SGT loaded onto 16-axle girder frame trailer (drawing no. ALL-A242453-TA-02 attached) from Dundee to site, route link is below:

Route 2 - https://maps.app.goo.gl/fhg1UJZ7X2wia4fz6 although we will be using the AIL crossings at the Broughty Ferry Rd/A930/Strips of Craigie Rd roundabout and Scott Fyffe Roundabout.

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Please could you give your thoughts on the feasibility of moving the transformers on the respective routes?

National Highways have asked us to contact stakeholders outside of ESDAL as this is currently only a feasibility study.

I've attached a list of structures on both routes taken from ESDAL, for assistance.

Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

Amey Limited is a company registered in England and Wales. Registered Office: Chancery Exchange, 10 Furnival Street, London, EC4A 1AB. Registered Number: 4736639. For particulars of companies within the Amey Group, please visit http://www.amey.co.uk/Home/Companyparticulars/tabid/182/Default.aspx.

This email and accompanying attachments may contain confidential or privileged information and are for the sole use of the intended recipient(s). If you are not the intended recipient, you are notified that any use, dissemination, distribution or copying of this email or accompanying attachments is prohibited. If you received this email in error, please notify us immediately and delete all copies of this email and accompanying attachments.

Email does not guarantee the confidentiality, completeness or proper receipt of the messages sent and is susceptible to alteration.

Please note that Amey monitors incoming and outgoing emails for compliance with its Security Policies. This includes scanning emails for computer viruses.

From: Andrew Brown < BrownA@angus.gov.uk>

Sent: 29 May 2024 18:12
To: Sally Weston
Cc: NRSWA

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility

request

Hi Sally,

Yes U322-001 Balmuir is jointly owned by Angus Council and Dundee City Council. I unfortunately do not have abnormal loading history in relation to this bridge and therefore it would require an assessment to be undertaken.

Kind regards,

Andrew

Andrew Brown | Team Leader - Coastal, Flood Risk and Structures | Angus Council | Tel: 01307 491824 | Browna@angus.gov.uk | www.angus.gov.uk



Think green - please do not print this email

From: Sally Weston <sally.weston@allelys.co.uk>

Sent: Wednesday, May 29, 2024 4:41 PM To: Andrew Brown <BrownA@angus.gov.uk>

Cc: NRSWA < NRSWA@angus.gov.uk>

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Hi Andrew,

Thanks very much, that's great. And yes, I expect our vehicles were used for the previous assessments as we've been delivering to National Grid's Tealing Substation recently.

I see that U322-001 Balmuir is missing from your list below, please could you confirm the status of this one? I see that ESDAL shows Angus Council and Dundee City Council having joint ownership, is this correct? We've done some physical negotiability checks coming through Tealing village itself and have major concerns so I'm now looking at using a different route to approach the site from the south, meaning that both the 6bed6 trailer and the 16-axle girder frame would need to cross Balmuir. The span appears to be quite long, which makes it more of a risk to our deliveries.



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Andrew Brown < BrownA@angus.gov.uk >

Sent: 29 May 2024 15:54

To: Sally Weston < sally.weston@allelys.co.uk >

Cc: NRSWA < NRSWA@angus.gov.uk >

Subject: FW: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Importance: High

Dear Sally,

Please accept my sincere apologies for the delay in my response.

In relation to the Angus Council Structures listed in your attached;

- A94/6 Castleton of Eassie Has previously taken abnormal loadings in excess of proposed (see attached)
- A94/7 Eassie Railway Bridge Has previously taken abnormal loadings in excess of proposed (see attached)
- A94/8 Eassie Mill Bridge Has previously taken abnormal loadings in excess of proposed (see attached)
- A928-385458 Lera Culvert Largest previous abnormal load recorded on route is 62T over 7 axles – Assessment would be required
- A928/3 Milton of Ogilvie Bridge (45 units HB) Largest previous abnormal load recorded on route is 62T over 7 axles - Assessment would be required
- A928-389431 Kilmundie Bridge Largest previous abnormal load recorded on route is 62T over 7 axles – Assessment would be required
- A928-404415 Lumleyden Culvert no record of previous abnormal loading Assessment would be required
- C6-413383- Mill of Tealing Bridge no record of previous abnormal loading Assessment would be required
- C6-406383 Coralden Bridge no record of previous abnormal loading Assessment would be required

I believe Allelys were the haulier for the abnormal loads in the attached check certificates for the A94 bridges on your proposed route.

Kind regards,

Andrew

Andrew Brown | Team Leader - Coastal, Flood Risk and Structures | Angus Council | Tel: 01307 491824 | Browna@angus.gov.uk | www.angus.gov.uk

Follow us on Twitter
Visit our Facebook page

Think green – please do not print this email

From: Sally Weston <sally.weston@allelys.co.uk>

Sent: Tuesday, May 28, 2024 10:31 AM

To: Andrew Brown < BrownA@angus.gov.uk>; NRSWA < NRSWA@angus.gov.uk>

Subject: RE: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Importance: High

Good morning All,

Tried calling but didn't get any answer, please could I have an update on the below feasibility request? Its just the Angus Council structures that I'm outstanding a response for now.

Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelvs

Tel: 01527 852 408 (Option 3)

Mob: +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

From: Sally Weston Sent: 14 May 2024 12:14

To: abnormalloads@pkc.gov.uk; Andrew Brown < BrownA@angus.gov.uk >; NRSWA@angus.gov.uk; OSD Abnormal

Loads Scotland < OSDAbnormalLoads Scotland@scotland.police.uk >

Subject: A242453 Emmock Substation 114 te split phase unit structural feasibility request

Good afternoon All,

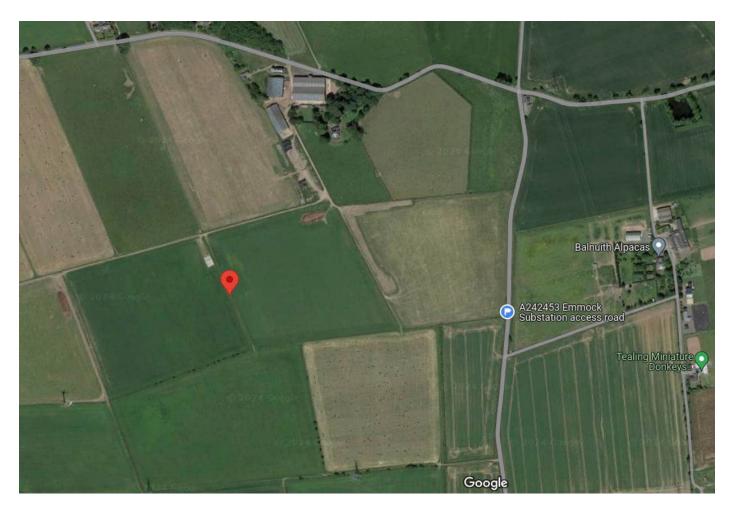
Have we any update on the attached structural feasibility request please?

Route 1 – Alyth substation to site

The delivery of 114 te split phase transformer loaded onto 6bed6 trailer (drawing no. ALL-A242453-TA-01 attached) from the existing Alyth Substation to site, route link is below: https://maps.app.goo.gl/DcGx5dgmNKNbXCej8

Site location

The proposed site entrance is at lat/long 56.527944, -2.985167 (and approx. site location shown by the red pin below), but I've had to use Tealing Miniature Donkeys to make sure that the route links work!



Many thanks,

Sally

Sally Weston CEng MRINA

Specialist Transport Route Planner Allelys

Tel: 01527 852 408 (Option 3) **Mob:** +44(0)7985 899 046 **Web:** www.allelys.co.uk

Email: sally.weston@allelys.co.uk

Address: The Slough, Studley, Warwickshire, B80 7EN























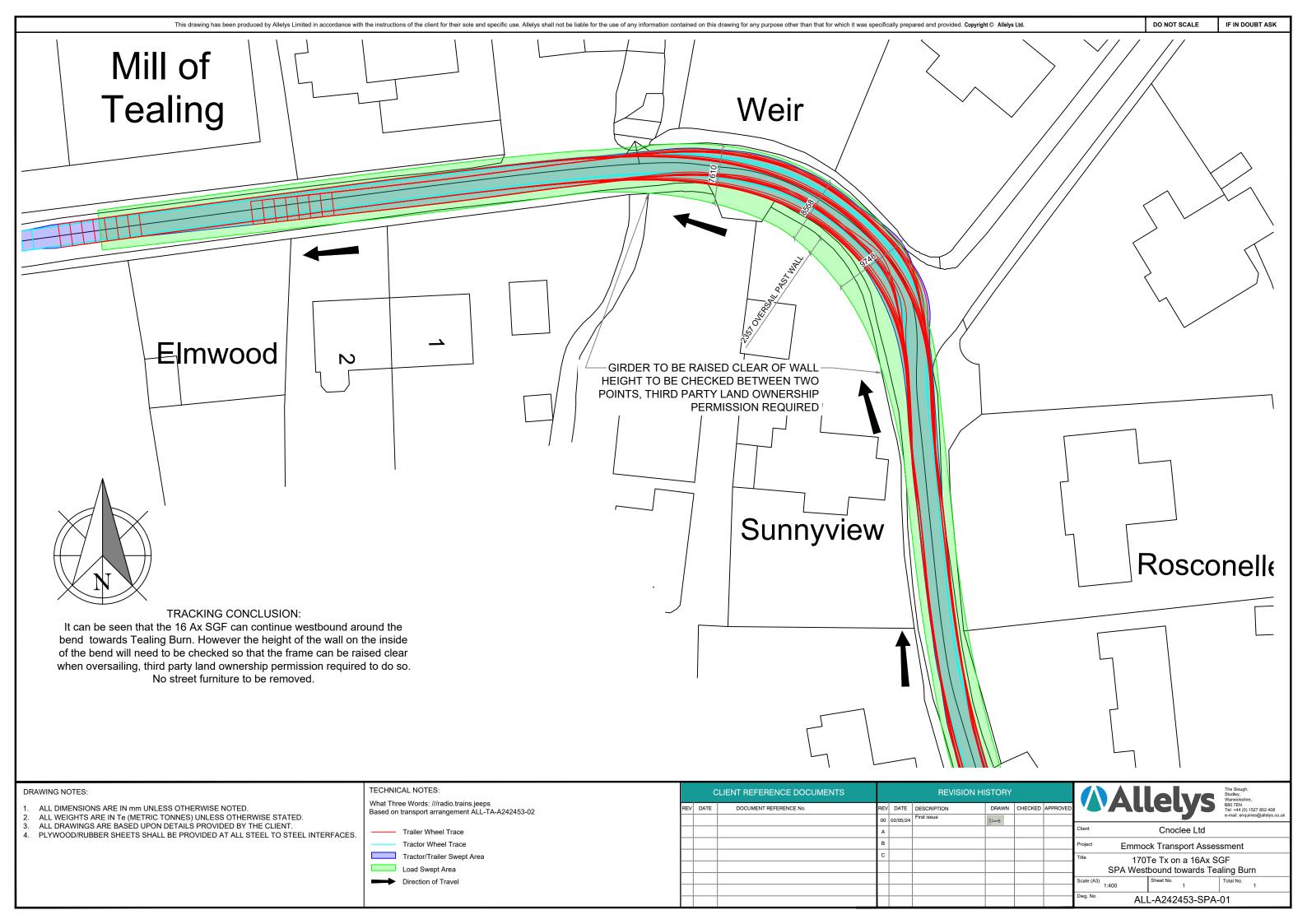
Incorporating: Allelys Heavy Haulage Ltd (inc Projects Division), Allelys General Haulage Ltd, Allelys Installations Ltd, Allelys Holdings Ltd Nothing in this email shall constitute an offer. RHA Conditions of Carriage 2020, RHA Conditions of Storage 2021 and/or RHA Special Conditions for Carriage of Abnormal Indivisible Loads 2013 apply (as applicable) to the exclusion of, and shall prevail over, any other terms and conditions that may at any time be proposed by the customer. Terms are available on request.

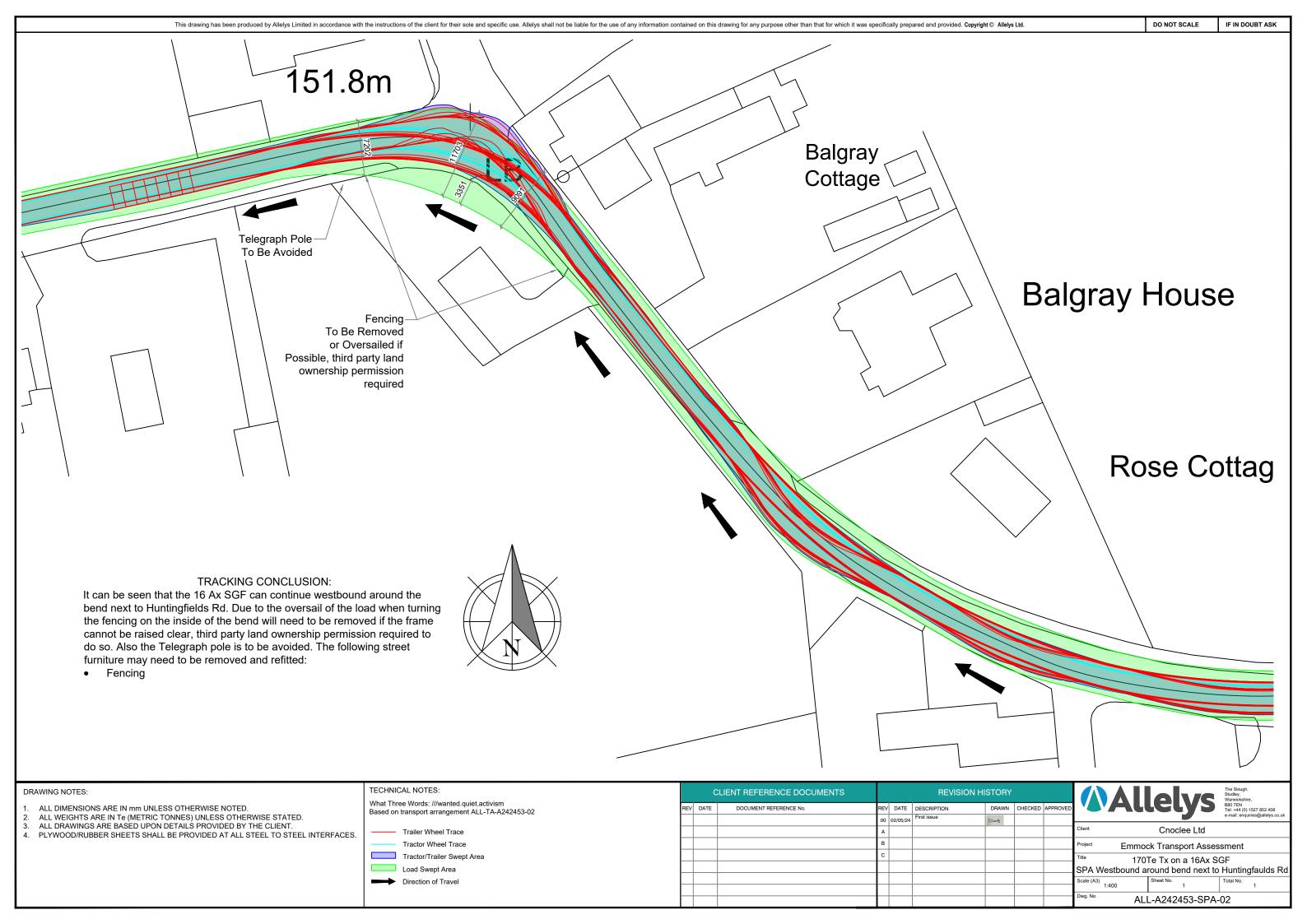
ALL-A242453-RR-01 | 114 te Split Phase & 170 te SGT Emmock 400 kV Substation | Rev 0 | 17/06/24 | Page 114 of 114

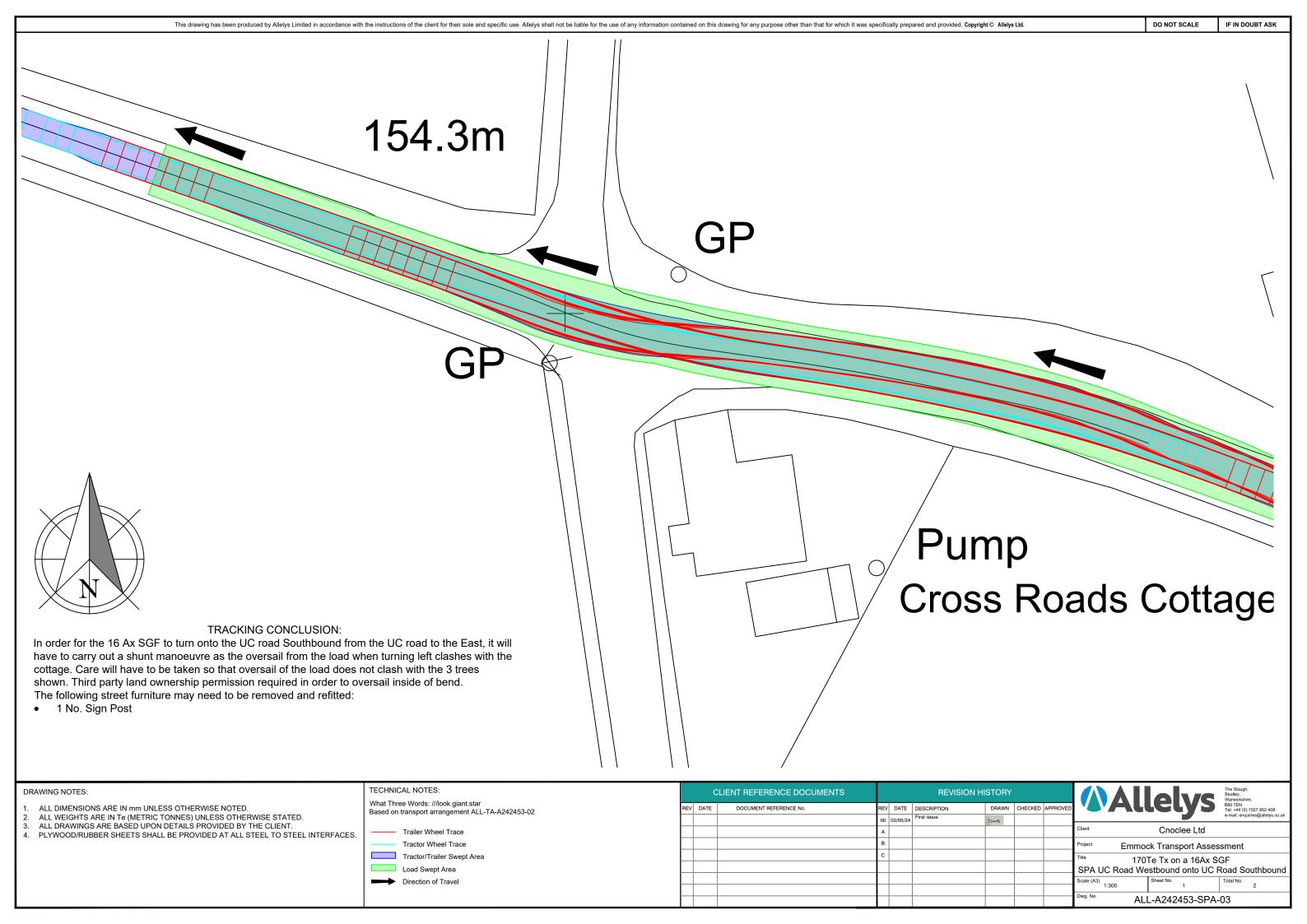


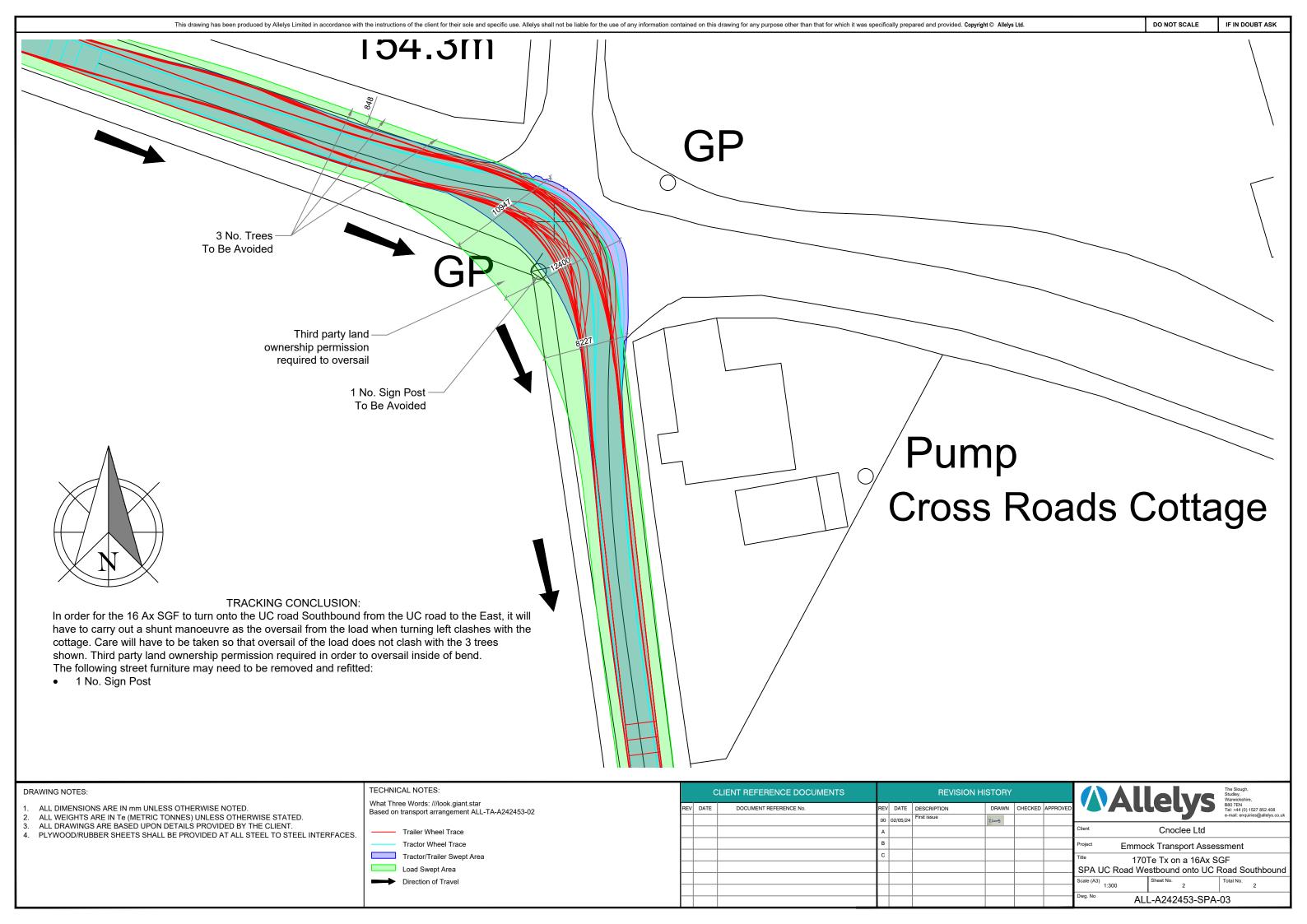
Appendix D

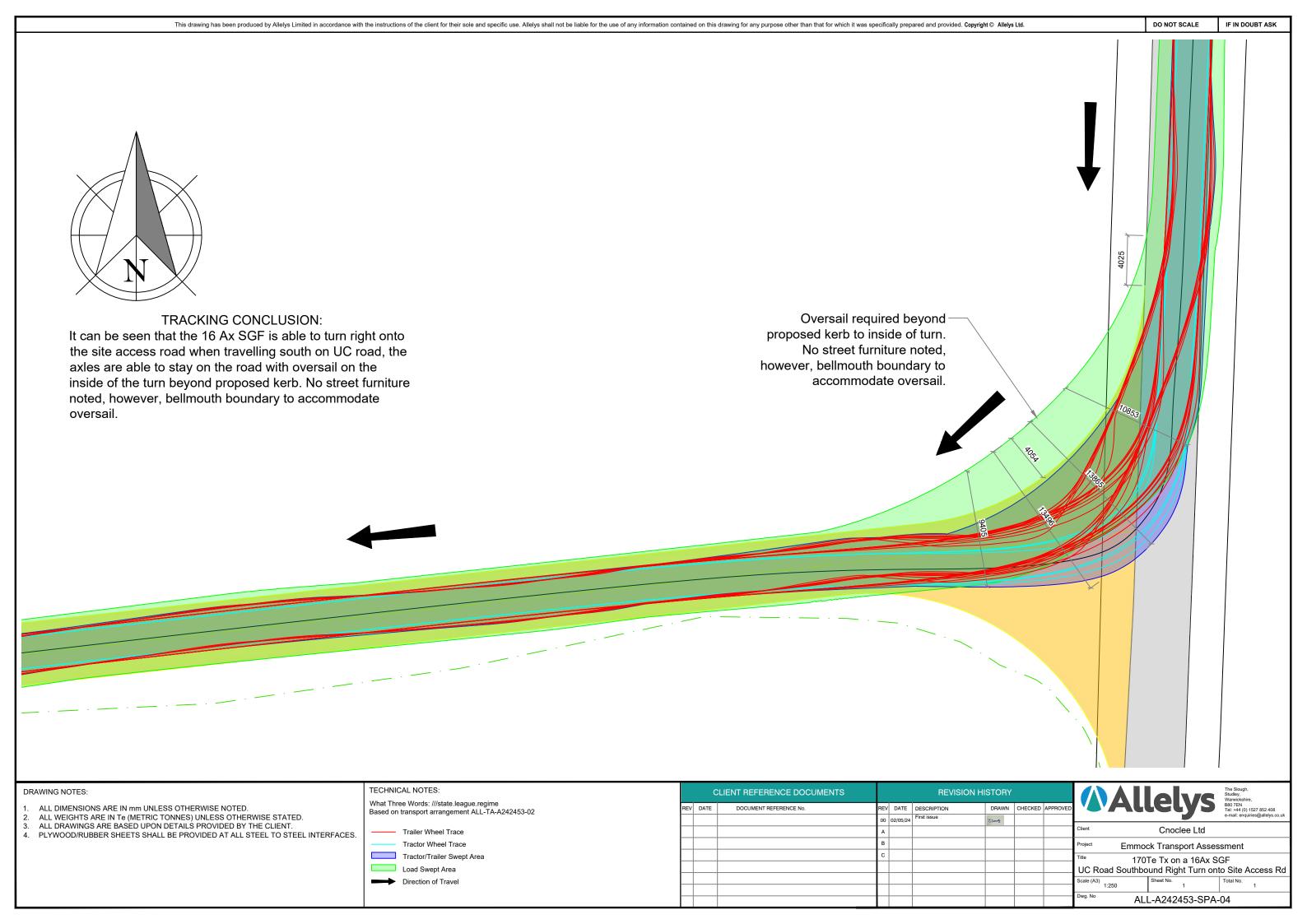
Swept Path Assessments

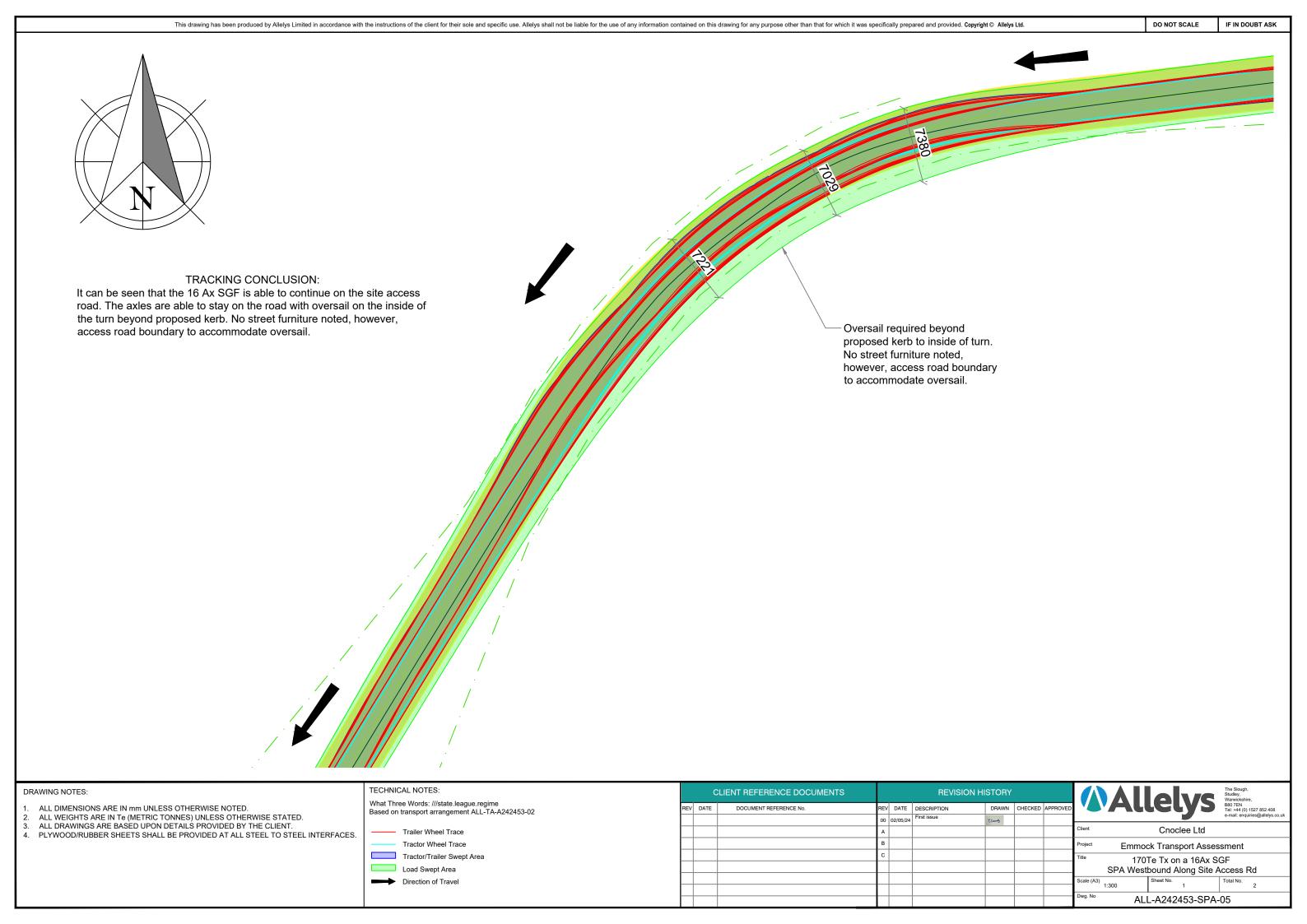


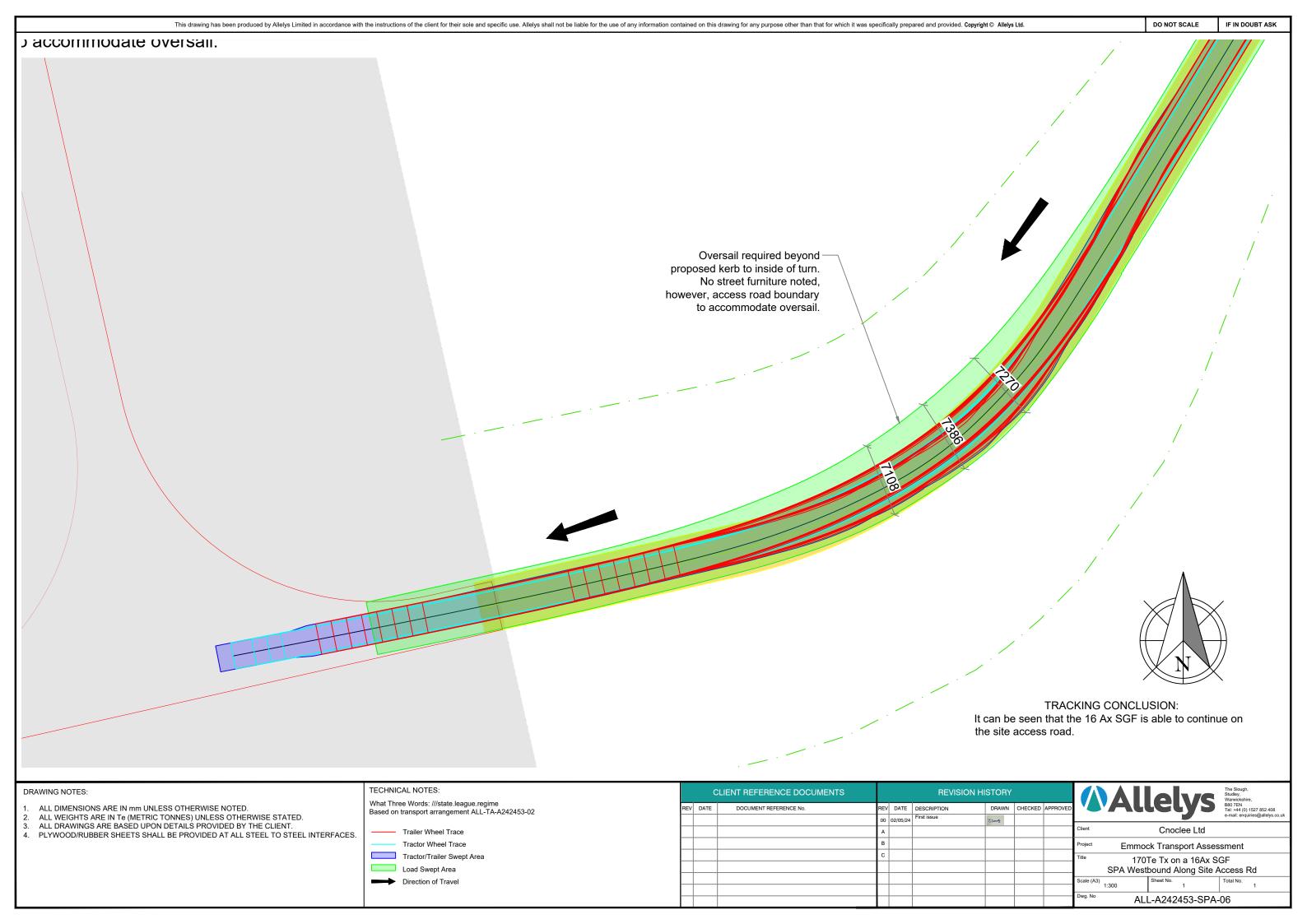


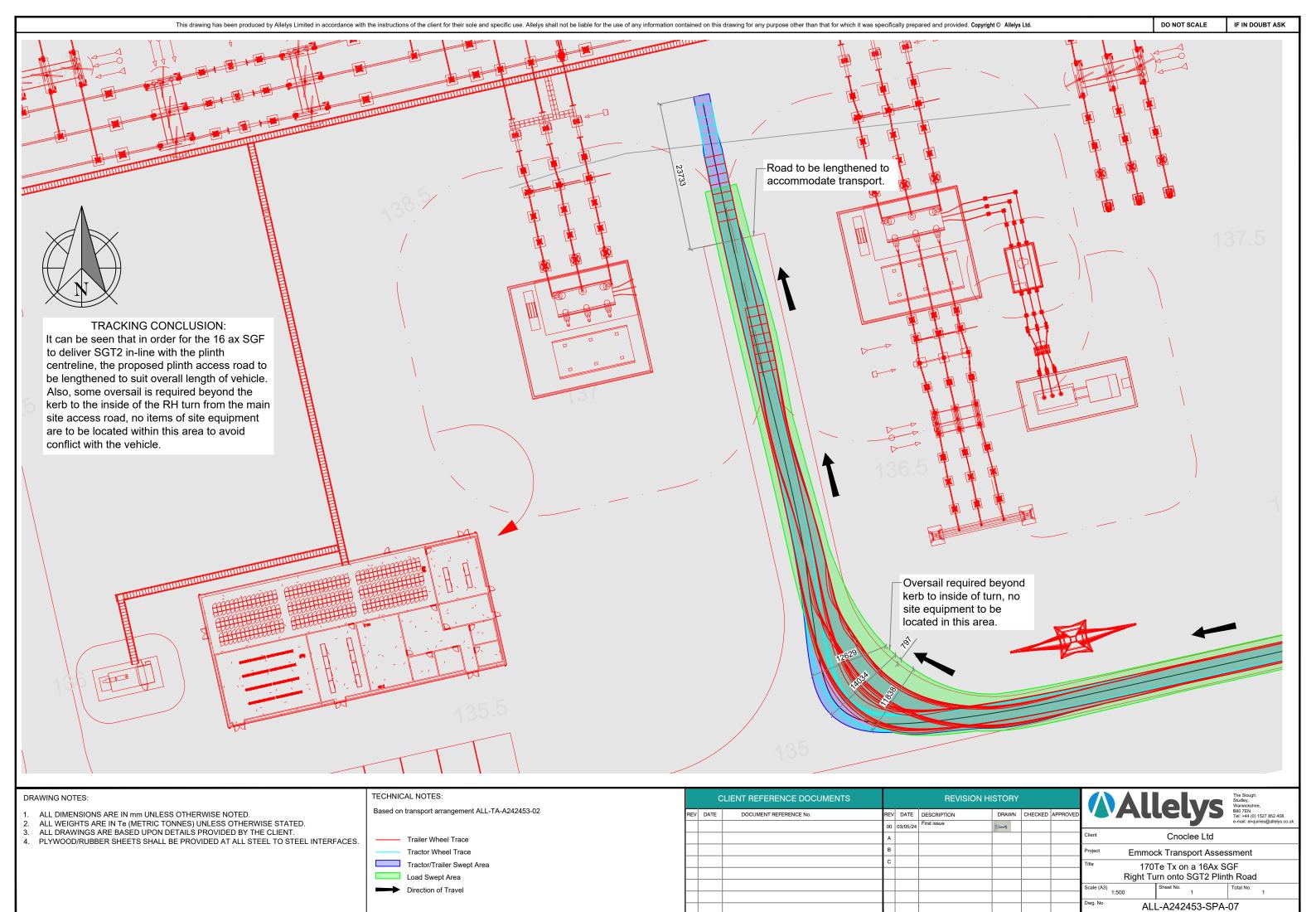


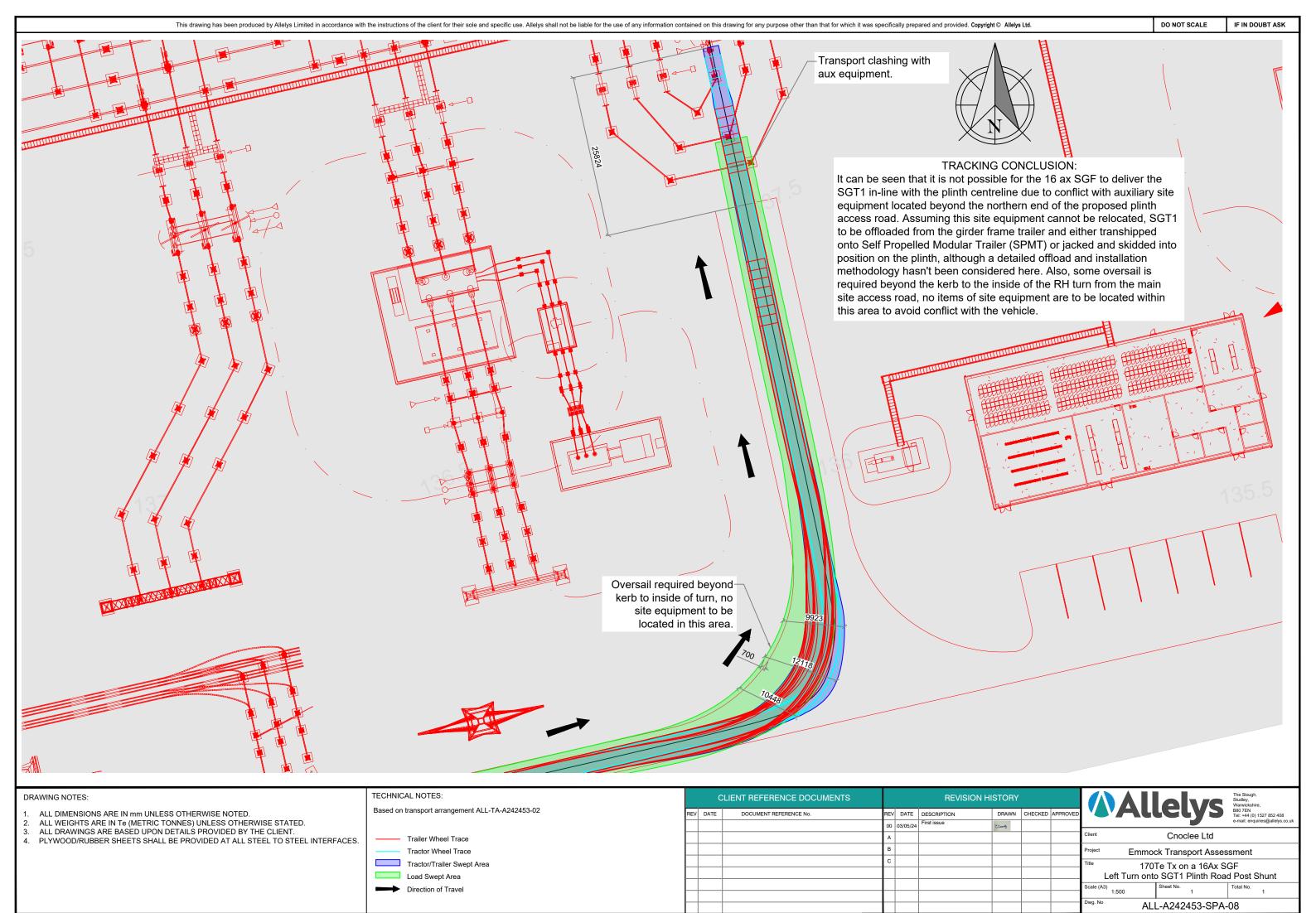


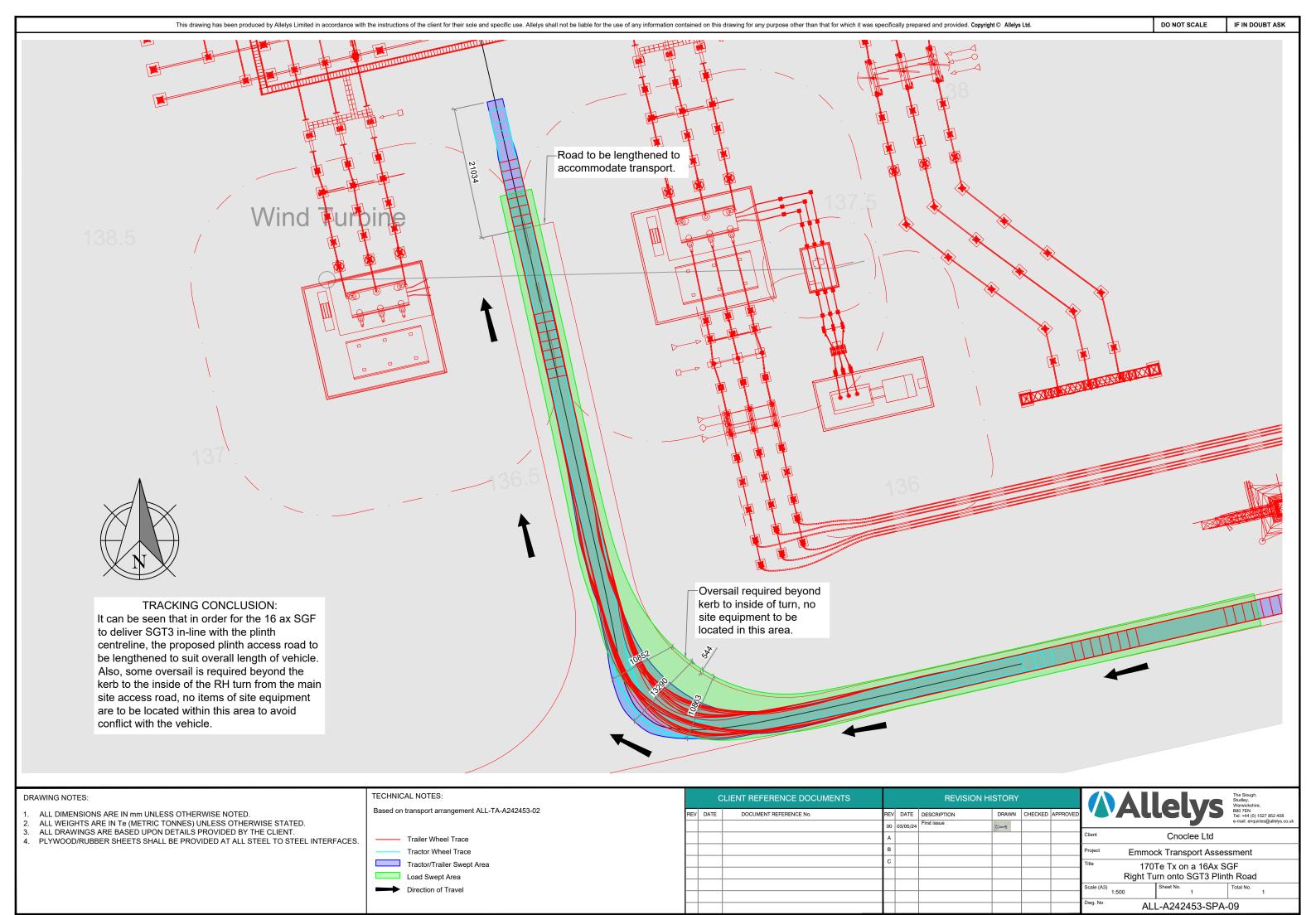


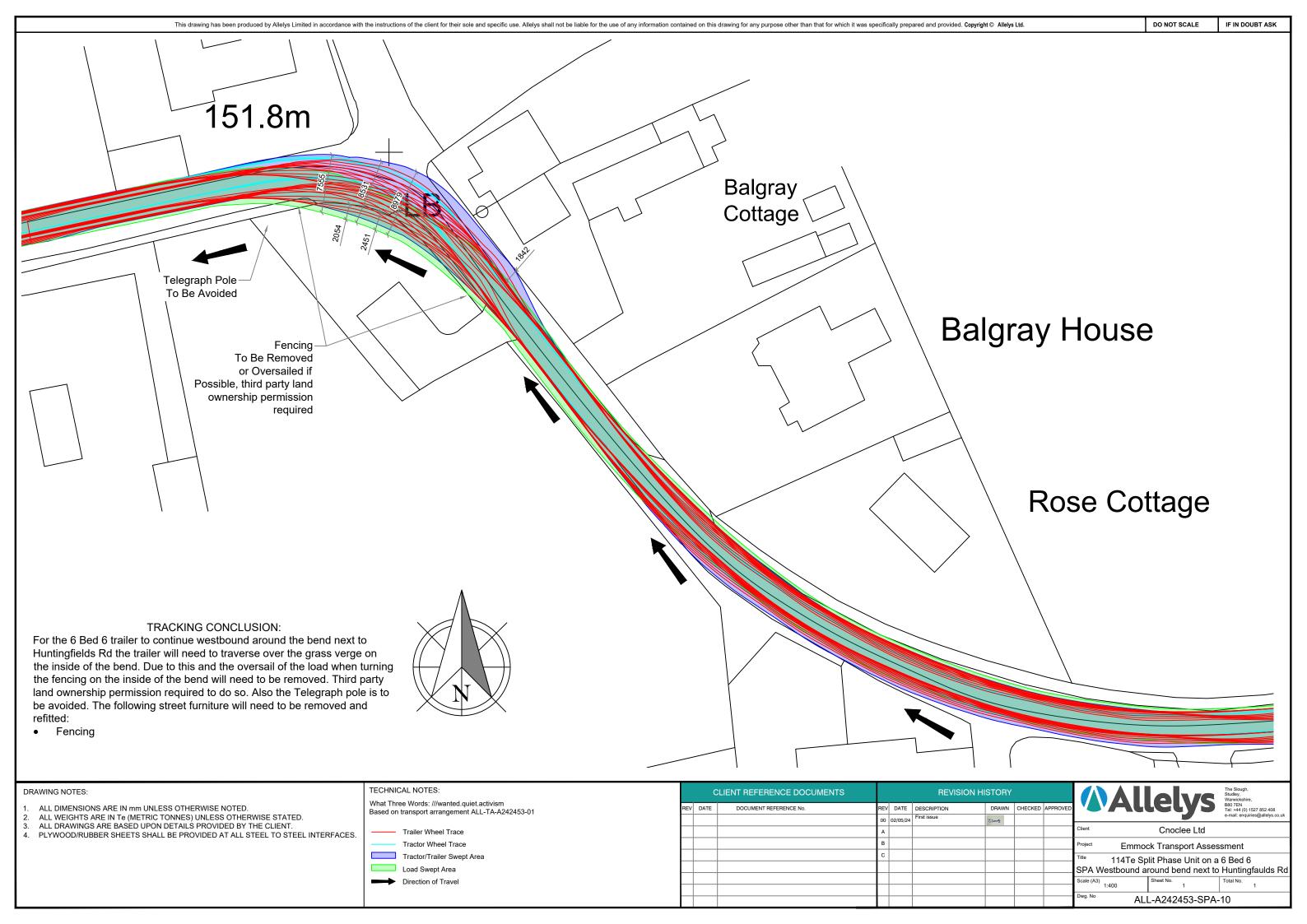


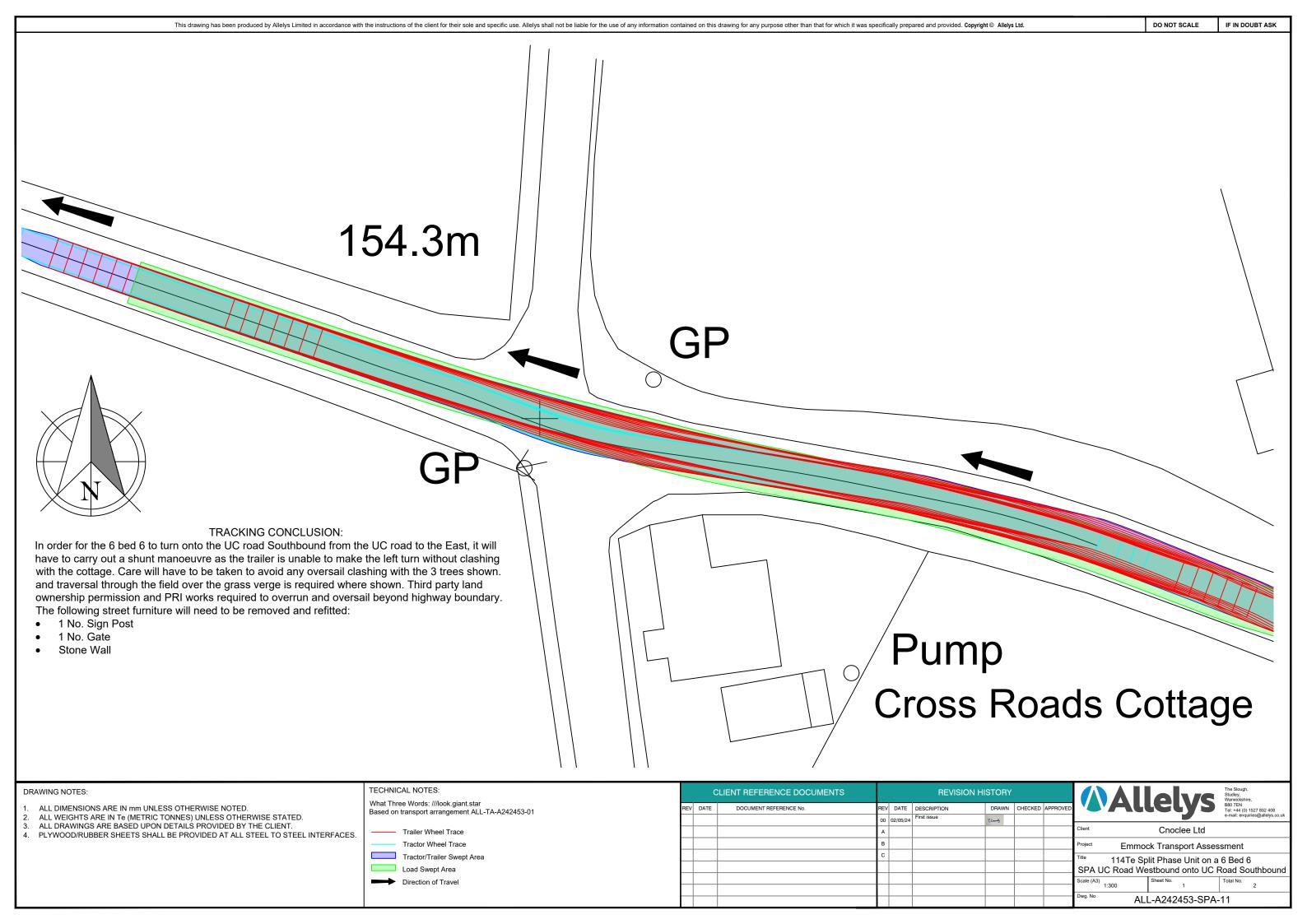


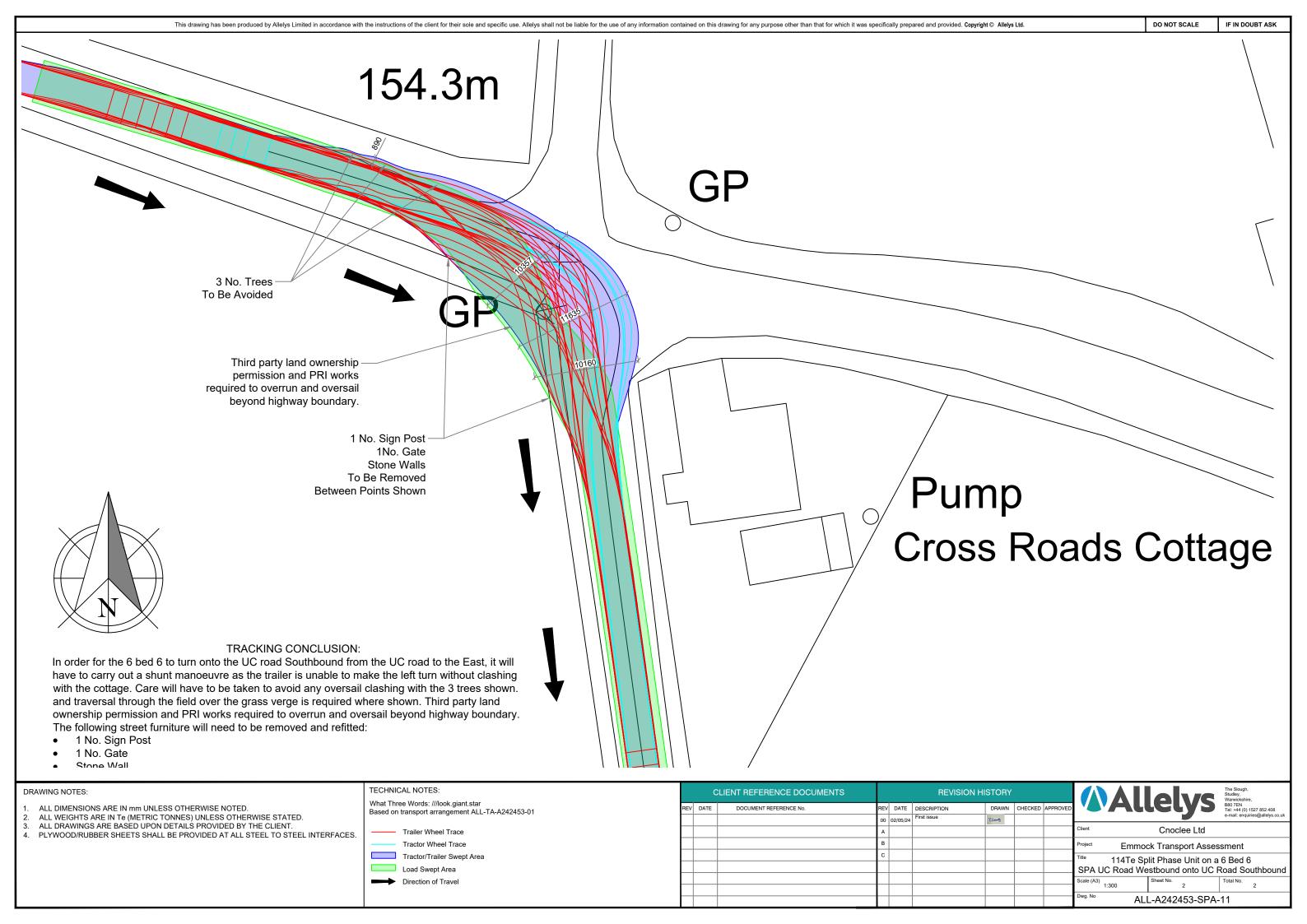


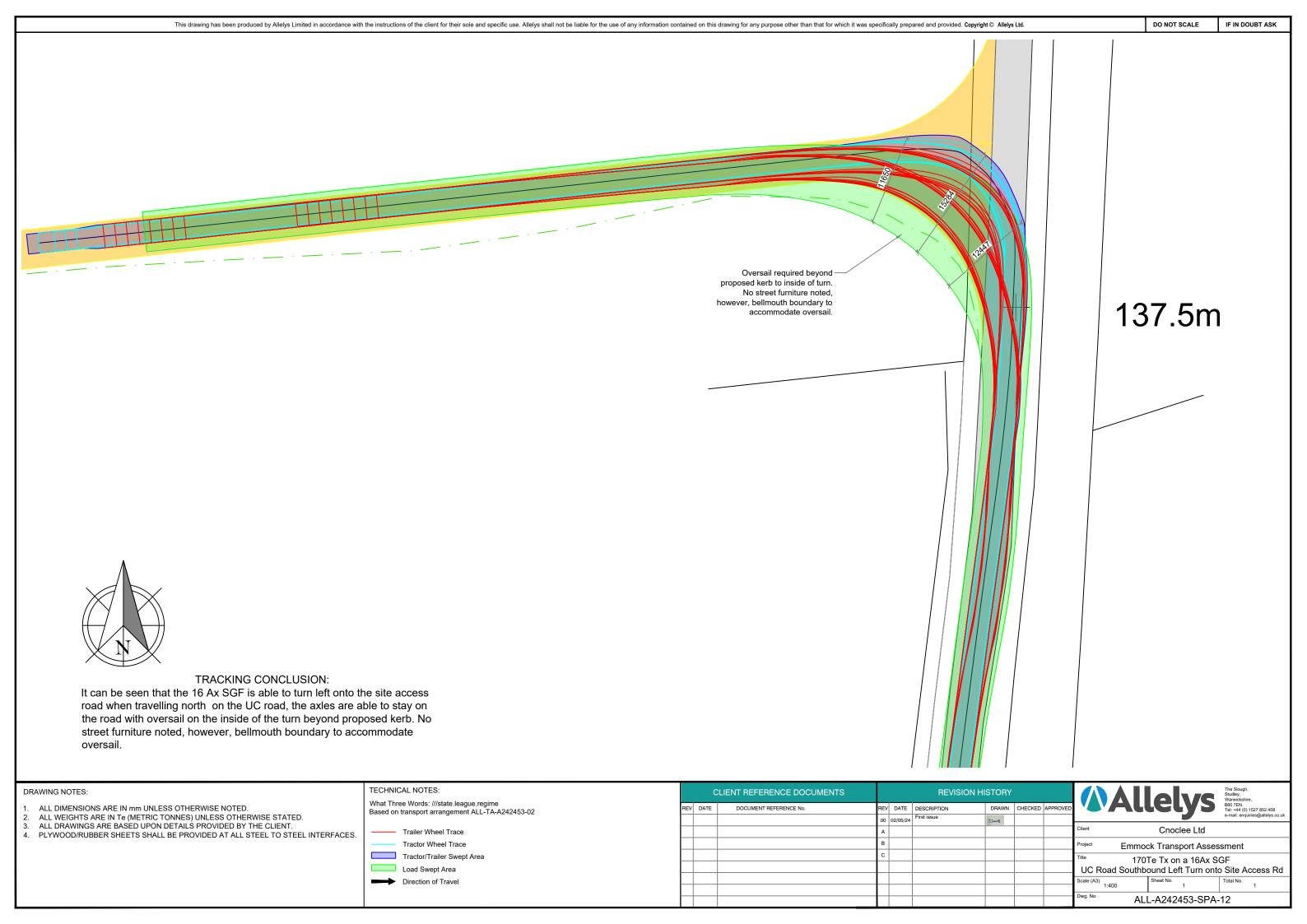


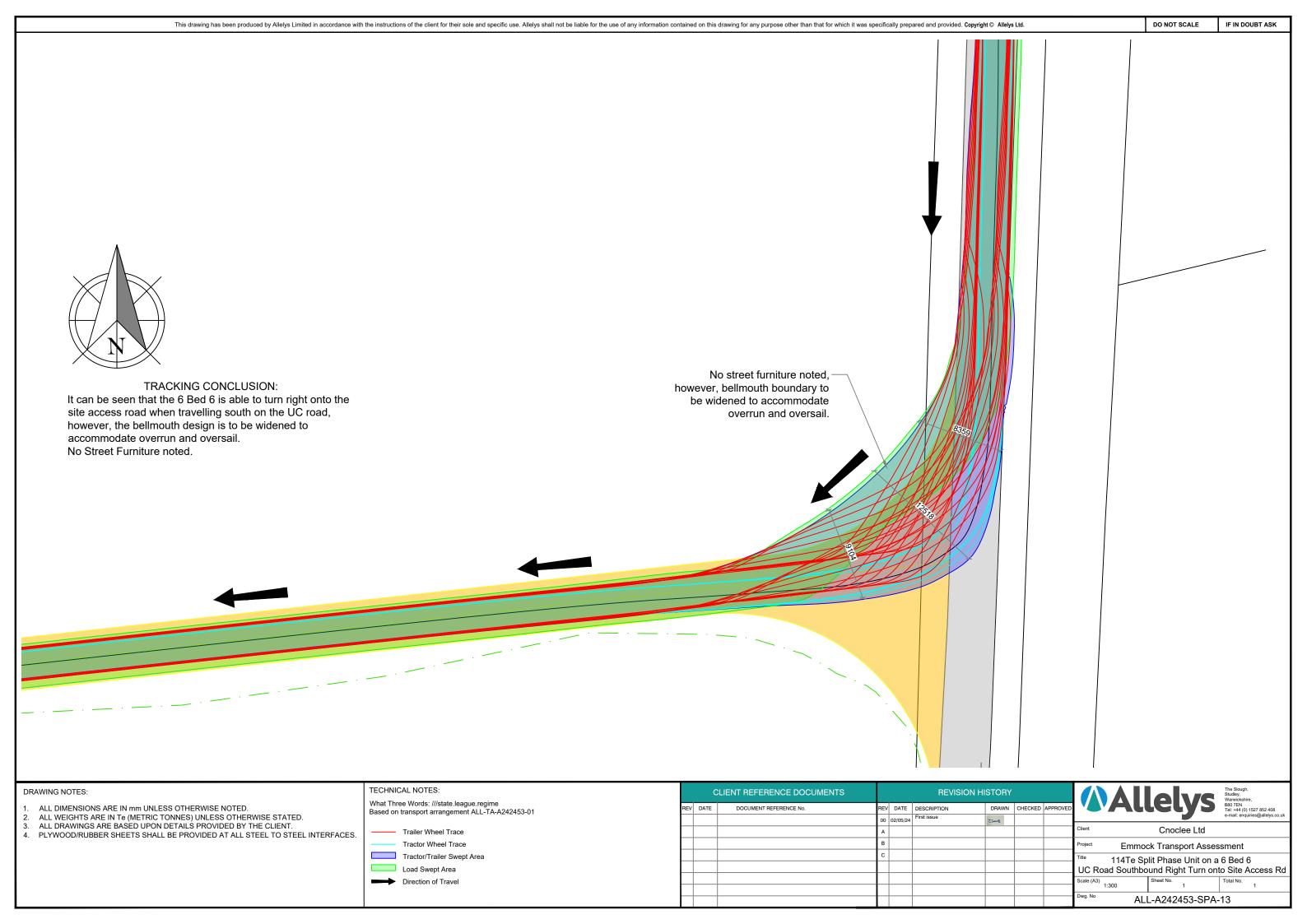












SPA Westbound Along Site Access Rd

ALL-A242453-SPA-14

Load Swept Area

Direction of Travel

