Redshaw 400kV Substation

Construction and Traffic Management Plan

May 2025

Land & Planning

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1 Introduction

1.1 General

Mott MacDonald has prepared a Construction Traffic Management Plan ('**CTMP**') to support the construction of a new 400kV/132kV substation near Redshaw in South Lanarkshire, henceforth referred to as the 'Proposed Development'.

The CTMP provides preliminary details of proposed traffic management measures and associated interventions to be implemented during the construction phase of the Proposed Development to minimise disruption and improve safety.

The CTMP will be enhanced and expanded as appropriate by Scottish Power Transmission plc ('**SPT**') (hereafter referred to as the '**Applicant**') appointed contractor, prior to commencement of construction activities, and as necessary during the construction phase. The CTMP is considered a 'live' document.

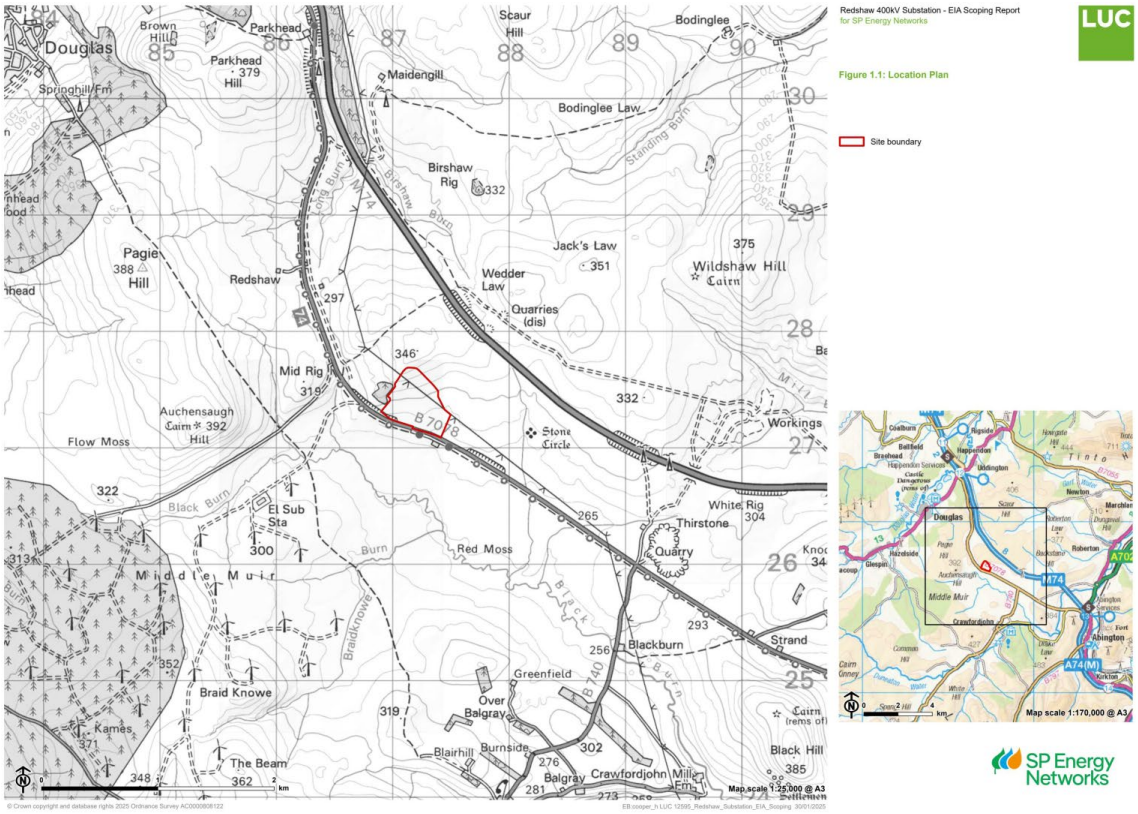
1.2 The Redshaw 400kV Substation Project

The Proposed Development is required to support the anticipated growth in renewable energy projects and potential future connections in the area, with an expected 2GW of renewable energy to be integrated into the transmission network. These improvements will enhance the resilience of local grid infrastructure and are anticipated to ensure a more reliable, fit-for-purpose, and economical transmission network for the south of Scotland.

The Proposed Development will comprise the construction and installation of a new 400kV Gas Insulated Switchgear ('**GIS'**) substation building, a new 132kV GIS substation building, a new small distribution substation, and 15 new associated transformers. The works will also necessitate the construction of a new permanent access track and purpose built access (utilising an existing field access) adjoining the B7078 which will be used to accommodate construction and operational traffic movements.

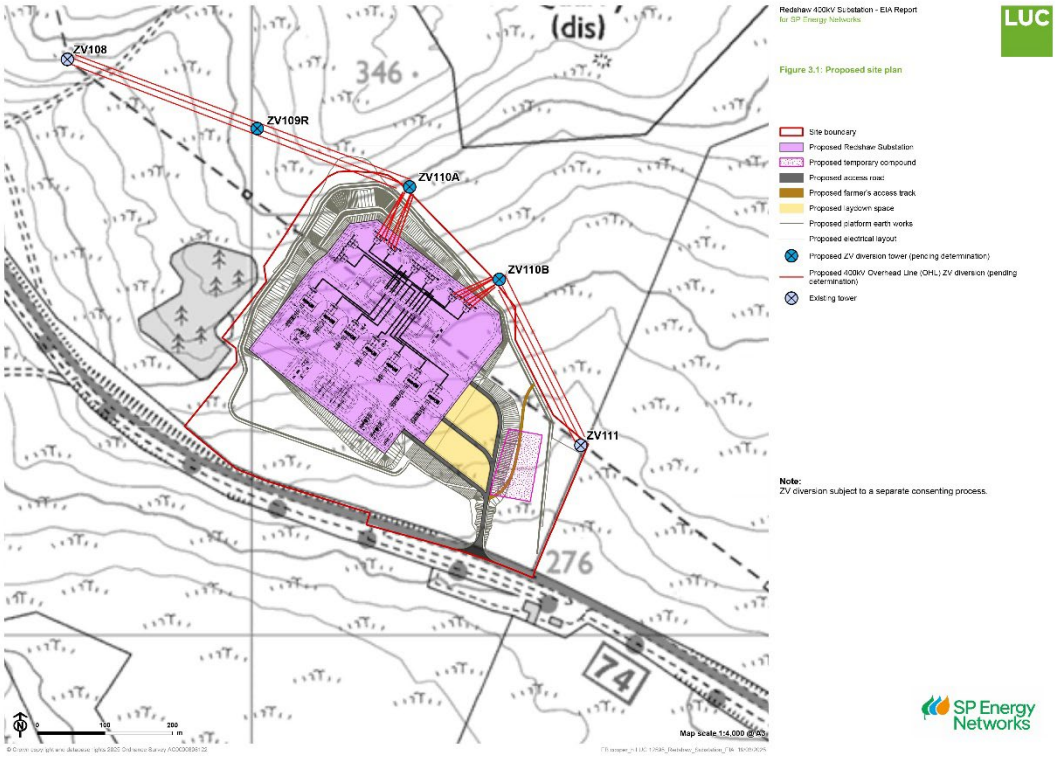
The Proposed Development location and proposed layout are shown in **Figure 1.1** and **Figure 1.2**, respectively.

Figure 1.1: Site Context Map



Source: Mott MacDonald, LUC

Figure 1.2: Proposed Development Configuration



Source: LUC, SPEN

Further details are provided in the Transport Statement[1] submitted with the application for approval of the Proposed Development.

1.3 Traffic and Transport

Traffic affecting local communities is a key concern for Local Authorities whose responsibilities lie within the vicinity of the Proposed Development. The Proposed Development will generate the following types of traffic:

- Heavy Goods Vehicles (**'HGVs')** and Large Goods Vehicles ('**LGVs')** transporting construction materials, plant and equipment to/from site.
- Other vehicles (cars and light vans) used by construction personnel and authorised site visitors.
- There will be a requirement for the movement of approximately 20 abnormal loads (associated with the movement of transformer and control building components) during the construction phase.

1.4 Guiding Principles

Acknowledging the above types of traffic likely to be generated, the following overall principles guide the CTMP:

[1] Mott MacDonald (2025) 'Redshaw 400kV Substation Transport Statement, 100329005 | 001 | E'

- **Vehicle Routing Considerations**: Prior to and during construction, thorough consideration will be given to identifying and selecting routes which minimise disruption to local towns and villages as far as possible.
- **Operational Procedures**: During the construction period, consideration shall be given to the operational impact of construction works, including hours of operation, traffic movements for construction and delivery traffic to minimise their impacts.
- **Road Condition**: Prior to and during construction works, access-related works likely to affect existing public road infrastructure will be identified and maintained during construction as required, in consultation with the Local Authority.
- **Environmental Considerations**: Prior to and during construction, measures will be taken to minimise environmental impacts and ensure the sustainability of the Proposed Development. This includes minimising the emission of dust and pollutants, along with other measures implemented as part of a Construction Environmental Management Plan ('**CEMP**').

1.5 Structure of this Construction Traffic Management Plan

Further to this introductory section, the CTMP is structured as follows:

- **Section 2** outlines the Proposed Development including details of the construction phase.
- **Section 3** presents the traffic management mitigation measures proposed during the construction phase of the Proposed Development.
- **Section 4** presents the traffic management operational procedures proposed for the construction phase of the Proposed Development.
- **Section 5** provides a summary statement for the CTMP.

2 Development Proposals

2.1 Construction Programme

Construction of the Proposed Development is expected to commence in November 2025 and finish in December 2031, with earthworks and civil works for the substations to be completed by 2026.

2.2 Construction Traffic

2.2.1 Working Hours

It is expected that traffic will be generated throughout a 48-week working year, and construction over a six-day working week. On weekdays, construction activities will be undertaken between 07:00-19:00 during summer months (April – September) and between 08:00-17:00 (or as daylight allows) during winter months (October – November[2]). Working hours on Saturday will be limited to between 09:00-12:00, and there will be no working on Sundays or public holidays.

2.2.2 Construction Personnel

The Applicant anticipates that on a typical day during construction, the Proposed Development will require 50 personnel on site. A vehicle occupancy rate of 1.25 is assumed and is considered a robust and realistic measure of potential car-sharing undertaken by personnel as they travel to and from work. This requirement would result in 40 vehicles travelling to and from the site on a daily basis, generating 80 two-way car movements per day.

2.2.3 HGVs and LGVs

Standard HGVs and LGVs will be used to transport construction materials and equipment to site. The Applicant has advised that a maximum of 20 HGV trips per day will be required during construction, generating 40 two-way HGV movements. In addition, a peak of 30 LGV trips per day will be required during construction, generating a 60 two-way LGV movements.

2.2.4 Total Vehicles

The predicted peak daily number of traffic movements generated by construction activity are summarised in **Table 2.1**. Note: one trip = two movements; i.e. one delivery and one return journey.

In total, the Proposed Development is expected to generate an additional 180 daily vehicle movements on the local transport network during the peak construction period.

Table 2.1: Peak Daily Traffic Movements

Vehicle Type	Peak Daily Movements
Cars	80
LGVs	60
HGVs	40
Total	**180**

Source: Mott MacDonald, SPEN

[2] Winter months will extend through to March if there are construction delays

2.2.5 Abnormal Loads

Under The Road Vehicles (Construction and Use) Regulations 1986[3] and The Road Vehicles (Authorisation of Special Types) (General) Order 2003 ("**the STGO**") [4] abnormal loads are characterised by one or more of the following:

- A width of more than 2.9m, including lateral projection[5];
- A weight of more than 44,000 kilograms[6];
- An axle load of more than 10,000kg for a single non-driving axle or 11,500kg for a single driving axle[7]; and
- An 18.65m rigid length or 25.9m overall length (including forwards and rearwards projections) [8].

On this basis, there will be a requirement for the delivery of approximately 20 abnormal loads (transformers and control buildings) during the construction phase.

At the time of writing, details regarding the transportation of any abnormal loads to site – including delivery schedules and routes – are still to be established and will likely only be confirmed once a contractor is in place.

The appointed contractor will identify specific traffic management requirements and localised arrangements for these deliveries, which will be formalised following standard protocols and approvals processes.

2.2.6 Access Routes

The Proposed Development will require access for construction via public roads in South Lanarkshire. All vehicular access to the site will be via the B7078 (drawing reference: BT3423-2-1100-DO-AECOEC-1026 rev. 0G), a local road administered by South Lanarkshire Council ('**SLC**'), which runs parallel to the nearby M74. The construction traffic routes expected to be used to access the Proposed Development will vary depending on the journey's origin, however the most probable transport access routes likely to be utilised by construction vehicles are summarised in **Table 2.2** and indicated in **Figure 2.1**.

Table 2.2: Probable Transport Access Routes

Direction of Travel	Access Route
To/from the north and west	B7078 via A70 / M74 Junction 12
To/from the south	B7078 via M74 Junction 13

Source: Mott MacDonald

[3] The Road Vehicles (Construction and Use) Regulations 1986

[4] The Road Vehicles (Authorisation of Special Types) (General) Order 2003

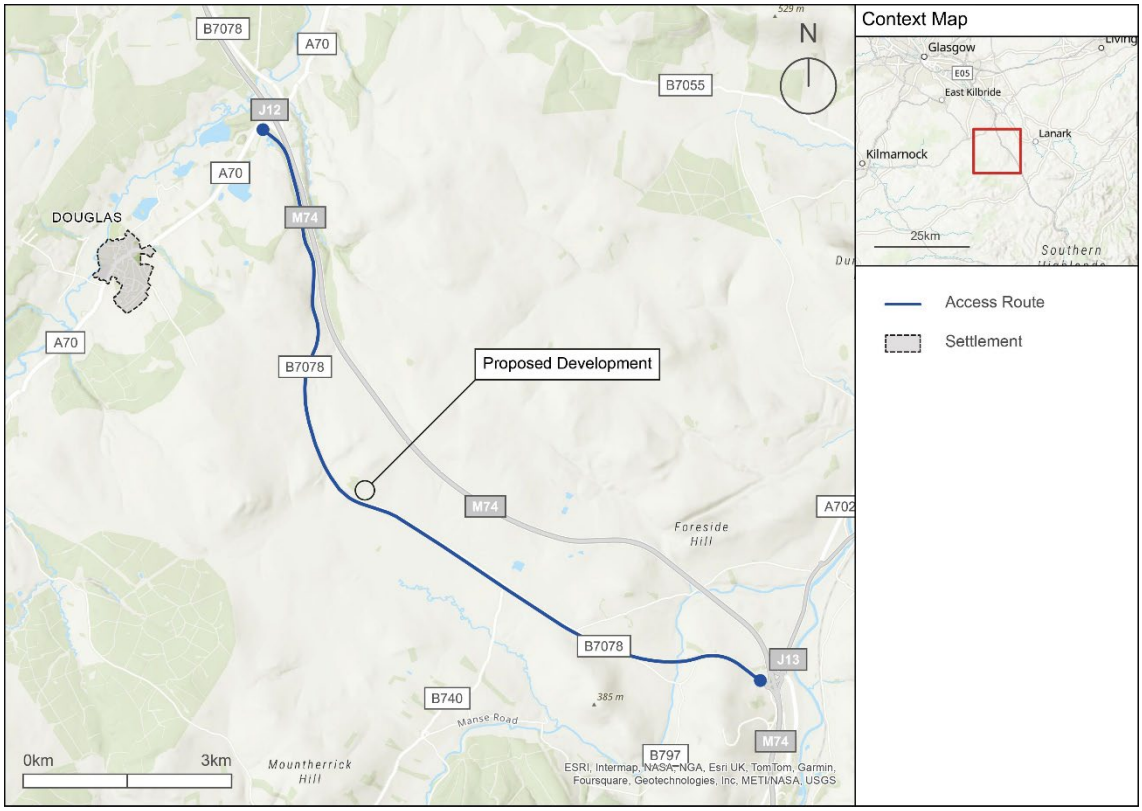
[5] The UK Government 'The Road Vehicles (Construction and Use) Regulations 1986', regulation 82. Available [online] at: https://www.legislation.gov.uk [accessed 06/05/2025]

[6] The UK Government 'The Road Vehicles (Construction and Use) Regulations 1986', regulation 75. Available [online] at: https://www.legislation.gov.uk [accessed 06/05/2025]

[7] The UK Government 'The Road Vehicles (Construction and Use) Regulations 1986', regulation 30. Available [online] at: https://www.legislation.gov.uk [accessed 06/05/2025]

[8] The UK Government 'The Road Vehicles (Construction and Use) Regulations 1986', regulation 7. Available [online] at: https://www.legislation.gov.uk [accessed 06/05/2025]

Figure 2.1: Access Route Plan



Source: Mott MacDonald

Confirmation of the selected routes will be agreed upon with relevant Roads Authority when a contractor has been appointed as an integral part of the CTMP. The approved CTMP will then be adopted by the relevant contractor (including any sub-contractors).

3 Mitigation Measures

3.1 General

Local vehicle routes have been reviewed with the principal aim of minimising potential disruption to local communities, local traffic routes, and routes situated either on or in the vicinity of the Proposed Development. Several traffic management measures are proposed to minimise potentially disruptive impacts associated with construction traffic. General measures are described as follows:

- The contractor will use reasonable endeavours to keep roads and accesses free from mud and other loose materials arising from construction traffic to and from the Proposed Development.
- Bowsers will be used on site to wash the wheels of vehicles and prevent debris from being carried onto the public road network.
- Where reasonable and practicable, vehicles related to the Proposed Development will avoid travelling in convoys on public roads.
- Any damage to the public road(s) proven to be a result of construction activities will be repaired, with the repairs implemented and/or funded by the Applicant in consultation with the relevant Roads Authority.
- Staff using private vehicles to travel to work will park their vehicles in designated site car parks and not on public roads.
- The contractor will use reasonable efforts to mitigate potential impacts on the local community and keep delays and disruptions to traffic to a reasonably practicable minimum.
- The contractor will discuss and agree on traffic management measures required with the relevant Roads Authority.
- The contractor will coordinate and manage the delivery of approximately 20 abnormal loads, liaising with the relevant organisations (Local Authorities, Transport Scotland, Police Scotland as appropriate) and ensuring that all relevant approvals are in place.
- The contractor will liaise with developers of any overlapping projects (which will generate construction traffic on road sections likely to be used by proposed development traffic) to coordinate and schedule traffic and transport movements, aiming to minimize the potential effects of combined construction activities.

3.2 Temporary Signage

Temporary construction site signage will be erected on the local road network within local communities and in the vicinity of the new construction access points to warn people of construction activities and associated construction vehicles.

The purpose of such signage is to provide driver information and to maintain road safety along the construction vehicle route. The exact details and location of the signage will be agreed with the appropriate Roads Authority prior to the commencement of construction.

Indicative signage for use on these routes is illustrated in **Figure 3.1**.

Figure 3.1: Example Warning Signs

Source: Mott MacDonald / TSRGD 2016

3.3 Public Transport, Pedestrian, Equestrian or Cycle Routes

The A70 Ayr Road is served by bus routes including services 8A, 9, 39, and 256. The contractor will consult with the appropriate Roads Authority and local bus operators regarding traffic management measures that may affect the flow of buses and will implement measures as appropriate to mitigate potential inconvenience for bus users. Measures might include providing information to passengers (on the bus, on bus stop flags, or on websites) relating to locations where works are planned that have the potential to cause minor delays to scheduled services.

During the construction phase, signage will be installed to warn drivers to the presence of public paths and cycling routes in advance of crossing points.

The National Cycle Network ('**NCN**') 74, an established active travel route, traverses the study area near the Proposed Development on the B7078 and A70 Ayr Road. The majority of NCN 74 within the vicinity of the Proposed Development is segregated from the B7078 and A70 Ayr Road, however, there is a 2.2 km on-road section on the B7078 from the A70/B7078 priority junction to the south. Appropriate signage advising of dates and hours of working will be installed along the NCN 74 in advance of road crossing points to warn users of construction traffic.

Indicative signage for use at these locations is illustrated in **Figure 3.2**. The exact details and location of the signage will be agreed with the relevant Roads Authority.

Figure 3.2: Recreational Routes Warning Signage

Source: Mott MacDonald

4 Operational Procedure

4.1 General

When implementing the CTMP, the contractor will comply with the following requirements (listed below in this chapter) on or adjacent to public roads as necessary.

Traffic management will comply with the provisions of the Traffic Signs Manual Chapter 8 Part 1: Design[9], and Traffic Signs Manual Chapter 8 Part 2: Operations [10].

Traffic signs will comply with the Traffic Signs Regulations and General Directions 2016.

4.2 Time Controls

Construction activities will occur over a 12-hour working day from Monday to Friday, 07:00 to 19:00, during summer months (April to September), and over a nine-hour working day from Monday to Friday, 08:00 to 17:00 (or as daylight allows), during winter months (October to November[2]). Working hours on Saturdays will be limited to three hours, from 09:00 to 12:00. Some activities may occasionally occur outside of these hours, however, such activities should be limited to inspection, testing, and, if necessary, emergency works.

The contractor will plan and manage deliveries and collections to and from the site to minimise potential disruption to the surrounding road network, and to minimise the impact on the local community's day-to-day life, particularly during network peak traffic hours.

The contractor will liaise with the relevant Roads Authority regarding local event days and seek to avoid traversing the affected route sections at agreed times.

4.3 Speed Restrictions

Speed limits on public roads must be strictly adhered to and the need for compliance with speed limits on all roads will be emphasised to all staff during induction training / 'toolbox talks', particularly near settlements.

4.4 On Site Traffic Management

The contractor will maintain a log of all HGVs entering and leaving site, identifying those involved in construction.

All construction related traffic including Abnormal Indivisible Loads ('**AI**L') will access the construction site through a purpose built access directly from the B7078 (drawing reference: BT3423-2-1100-DO-AECOEC-1026 rev. 0G). Access to the site will be marshalled with each vehicle checked prior to entry being granted. Vehicle movements within the site will be controlled with traffic marshals directing the movement of vehicles from the access point into the construction site for the new substation. Within the site, vehicles will turn inside the site boundary before exiting in forward gear via the B7078 access.

[9] Department of Transport (2009) 'Traffic Signs Manual ,Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations, Part 1:Design' Available [online] at: https://www.gov.uk [accessed 06/05/2025]

[10] Department of Transport (2009) 'Traffic Signs Manual ,Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations, Part 2: Operations Available [online] at: https://www.gov.uk [accessed 06/05/2025]

Speed limits on the site access roads/tracks will be complied with.

4.5 Temporary Signage

The contractor will comply with the requirements of SLC regarding the signing of site access locations. All signing will also be provided in accordance with the Traffic Signs Regulations and General Directions 2016 and associated Traffic Signs Manuals 3, 5 and 8.

Signing will be provided by the contractor, and it will be their responsibility to seek any necessary approvals.

4.6 Road Cleaning / Sweeping

To reduce the potential for mud and other debris being deposited onto the local road network in the vicinity of the Proposed Development, the contractor will ensure that a truck wash is provided.

The contractor will ensure the truck wash will be placed in a remote location away from watercourses to reduce the potential for any contamination. This cleansing regime will minimise the amount of deleterious material deposited on the road surface and the contractor will ensure that the nearest public road will be kept clear of debris by monitoring and then using a road sweeper where necessary.

4.7 Transportation Protocol

The contractor (including any sub-contractors) must adhere to the agreed CTMP and any conditions imposed by the relevant Roads Authority as appropriate.

Prior to leaving the Proposed Development site, all vehicles must:

- Display a unique identification number shown on a plate clearly visible.
- Be securely sealed.
- Record the origin, destination, and route of the vehicle.
- Display and ensure vehicle identifications including registration plates are clearly visible.

On route to and from their destinations all vehicles must:

- Use only approved routes as specified by the CTMP.
- Strictly observe speed limits.
- Be driven in a safe and courteous manner with due care and consideration for other road users both vehicular and pedestrian.
- Be aware and alert whilst driving through towns and villages particularly at school times.
- Strictly adhere to the hours of operation detailed by the CTMP.
- Not wait or ‘stack’ on any public road.

The contractor must maintain a management system whereby the following records are kept and are available to the relevant Roads Authority as appropriate:

- The number of vehicles leaving and their destination.
- All complaints received regarding transport and action taken.
- All instances where protocol has been breached and action taken.

The contractor will supply the following information to the relevant Roads Authority as appropriate, which will be treated in confidence:

- Action to be taken when protocol is breached.
- A log of vehicle movements.

4.8 Traffic Management

The contractor will include a programme of traffic management measures to be implemented and details of traffic management proposals for the works on or adjacent to public roads. The contractor will appoint a Traffic Safety and Control Officer (or similarly named person) who will be responsible for the implementation of the CTMP.

4.9 Monitoring of Traffic Management

The contractor will monitor traffic management schemes to maintain their effectiveness and condition, ensuring the safety of traffic, the public, and staff during traffic management works and temporary traffic control measures. The contractor will provide information regarding any delays to traffic due to construction works to the relevant Roads Authority.

4.10 Enforcement

The contractor (including any sub-contractors) will be required to adhere to the CTMP. Details of access routes will form part of the site induction and training will be held for site operatives through 'toolbox talks'.

Compliance will be monitored by the contractor on behalf of the Applicant via spot checks to ensure that vehicles follow the measures set out in the CTMP including the recording of any complaints. The Applicant will stipulate that all contractors disseminate these rules to their sub-contractors.

Non-compliance with the CTMP will constitute a breach of contract, and action will be taken against the contractor or supplier should repeated non-compliance be verified. Details of the proposed monitoring and enforcement regime will be supplied to the relevant Roads Authority as appropriate on request.

4.11 Environmental Considerations

Best practicable means will be employed to avoid the creation of a statutory nuisance and risks to human health and to avoid unnecessary impacts on sensitive habitats. The contractor will follow environmental requirements and guidance set out in a CEMP developed for the Proposed Development and liaise with the Environmental Clerk of Works as required.

The CEMP will be based on consent conditions and serves as a basis for delivering good practice and to ensure a consistently high level of environmental management and mitigation measures. The contractor will include a Dust and Air Pollution Management Plan which will describe the dust and air pollution control measures to be used during the construction works.

4.12 Liaison with Other Projects

A review of nearby committed developments has *not* identified any other projects which, at the time of writing, are considered likely to coincide with the construction of the Proposed Development, either in terms of timescales or associated construction-related traffic using the same public roads as that of the Proposed Development.

Should these circumstances change, and the construction phase of any notably sized development(s) appear likely to overlap with the Proposed Development, the contractor will liaise with the appropriate developer organisation regarding the coordination and scheduling of

deliveries to identify potential means of reducing the effects of combined construction-related activity.

4.13 Communication and Consultation

The Applicant maintains a dedicated website for the Proposed Development[11]. This website will be updated with information on the expected construction programme and contact numbers for relevant staff.

Signs will be erected on fences surrounding the construction compound to provide contact details of the Applicant's Project Manager. These contact details will also be provided directly to the emergency services and SLC's Roads Department.

4.14 CTMP Review

The CTMP is a 'live document' and will be regularly reviewed by the Applicant (as appropriate, in conjunction with the contractor) prior to and during the Proposed Development construction phase. The CTMP will accordingly be subject to amendment, as the Proposed Development evolves, to ensure that the most appropriate and effective measures are implemented and approved by SLC as necessary.

[11] SP Energy Networks 'Redshaw 400kV Substation'. Available [online] at: https://www.spenergynetworks.co.uk [accessed 02/05/2025]

5 Summary

5.1 Summary

This CTMP represents a commitment to satisfy reviewing authority requirements and sets out proposed traffic management and contingency planning measures to enhance road safety and limit potential of disruption associated with construction traffic on the existing road network and the communities it serves.

It is anticipated that once the contractor is appointed, further useful information will become available, including a finalised construction programme, and such details will be submitted to the relevant Roads Authority for information and/or approval as appropriate.