SYSTRA

TECHNICAL NOTE

Client	Elements Green Trent Limited ("Elements Green")
Project	Great North Road Solar Park
Study	Construction Traffic Summary (South Muskham)
Date	21/06/2024
Reference number	SYS_GNR_CTMPLite_SM

GNR Solar Park

Introduction

Elements Green are bringing forward proposals to construct and operate Great North Road Solar Park (GNR), a proposed solar photovoltaic (PV) electricity generating facility within the district of Newark and Sherwood and the county of Nottinghamshire.

The project is defined as a Nationally Significant Infrastructure Project (NSIP) and requires a Development Consent Order (DCO) to give the required permission. To support the application, an Environmental Statement (ES) will be produced to assess the environmental impacts of the proposals. From a transport perspective, the ES will include consideration of the forecast traffic generation and distribution on the road network during the construction and operational phases, along with setting out the measures to be implemented to mitigate the development.

The key mitigation measures for transport will include highway improvements, including new passing places where necessary, and a Construction Traffic Management Plan (CTMP).

This note has been produced to provide an initial summary of the early assessments undertaken in relation to the above and set out some of the key measures of the CTMP.

Construction Traffic Routes

The overarching construction access route strategy for the GNR uses a preference hierarchy, this being:

1. Trunk Roads
2. 'A' Roads
3. 'B' Roads
4. Classified and unclassified road

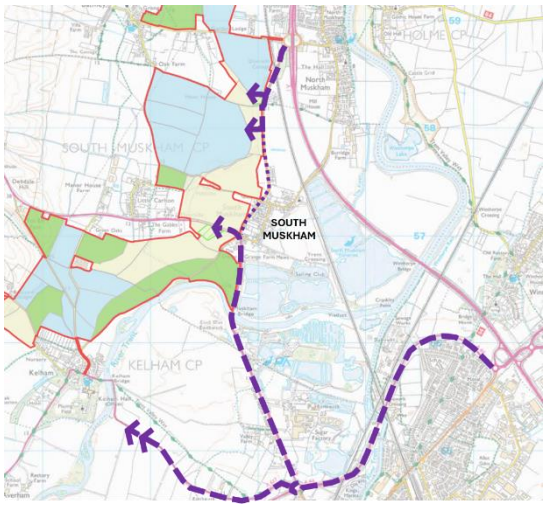
For determining the most appropriate construction route, the land parcels that form the proposed solar farm have been grouped into distinct areas that will each be served by a designated site access. The most appropriate route to that site access from the A1 trunk road has then been considered. Using the above hierarchy as the guiding principle, the route to each site access also considers:

- The shortest route
- Seeks to avoid sensitive areas so far as possible, such as schools and villages
- Uses roads of appropriate width and alignment.

When it is not viable to achieve the above, additional mitigation measures will be implemented and these are discussed later.

Current Route Strategy for South-East – South Muskham Impact

The south-eastern part of the GNR includes areas to the north and south of the hamlet of Little Carlton and is bounded to the immediate east by the B6325 (Great North Road) and A616 (Great North Road). The village of South Muskham is located to the east on the other side of the B6325 / A616.



Site access routes to this area for construction traffic is broadly split into two routes. For the northern-most parcel of this area, vehicles are expected to leave the A1 at North Muskham and travel south of the B6325 for approximately 0.9km (3,000 ft) – these vehicles will not pass through South Muskham. For the south and western parcels of the GNR area, vehicles are expected to leave the A1 at Newark and travel west on the A46, before turning north and then west on the A616 – these vehicles will use the roundabout at the south of South Muskham.

Depending on their onward destination, vehicles would leave the site and follow the same routes.

Notwithstanding the above, there may be occasions when construction traffic will also use the section of the B6325 to the immediate west of South Muskham. Crow Lane is not being proposed as a construction route.

Traffic Volumes and Operations

Traffic Volumes during Construction

The design of GNR is still being refined and as such, the forecasting of construction traffic volumes has taken a robust approach for assessment purposes and uses typical parameters for calculations based on previous experience on other solar farms. For our initial calculation, the following broad assumptions are made for each solar area:

Construction days:	2.25 per ha
HGVs for Modules & Mounting Structures (16.5m Artic):	5 per ha
HGVs for Conversion Units (16.5m Artic):	0.1 per ha
HGVs for Access Tracks (10m Rigid):	2 per ha
Other General Purpose HGVs (10m Rigid):	4.5 per ha
Other General LGVs and Cars:	10 per ha
Working hours per day:	8 hours

In relation to the village of South Muskham, the greatest exposure to construction traffic would be at the A616 / B6325 Roundabout at the south of the village.

Under a worst case scenario, whereby all parcels of development using this route are constructed simultaneously and using the above vehicle volume assumptions, it could be expected that this roundabout would be subject to an average of:

- 90 HGV movements per day (45 arrivals, 45 departures); and
- 40 LGV / Car movements per day (20 arrivals , 20 departures).

Allowing for a 50% uplift factor to account for periods of higher intensity over a short period of time, this would equate to a peak hourly flow of:

- 26 HGV movements per hour (13 arrivals, 13 departures); and
- 16 LGV / Car movements per day (8 arrivals , 8 departures).

Unlike wind farms that require mass concrete pours for their foundations and require a high intensity of HGV movements to deliver concrete to site, solar farms do not and are instead driven into the ground on frames.

Construction Days and Times

Site working hours will likely be 08:00hrs to 19:00hrs Monday to Saturday, with occasional working on Sundays if necessary. Any deliveries to the site will be scheduled to take place outside of the traditional weekday peak hours.

The volume of traffic and the type of vehicles being used during construction will vary over the duration of activities. It is currently forecast that traffic movements past Weston could occur over a 5 month period. However, typically, larger HGV traffic movements will occur at the beginning during the site set-up, establishing of a site compound and the delivery of materials – these will movements will likely occur more frequently in the first 8 – 10 weeks.

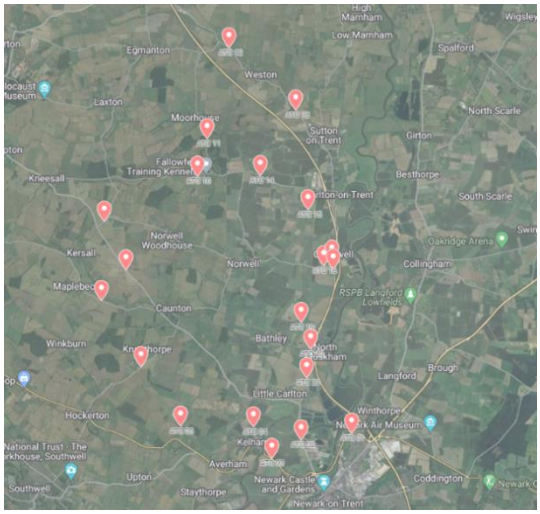
Traffic Surveys and Assessment

To inform the assessment of the traffic impact that may be experienced during the construction period, traffic surveys were undertaken in April 2024 to obtain baseline levels. The data collection locations included a survey on the B632 to the north of the village of South Muskham.

Data was collected at the locations shown on the adjacent map and collected continuously over a 7-day period, recording information that included:

- Volume of traffic per hour
- Direction of travel
- Vehicle classification (HGV, LGC, Car, Bus etc)
- Vehicle speeds

The traffic data collected from the location on the B6325 to the north of South Muskham revealed that 5% of the existing vehicles using this road are HGVs.



Mitigation Measures

Management Overview

The B6325 and A616 are good standard single carriageway roads with road widths considered suitable to accommodate HGV movements. The route benefits from generally straight alignments and good forward visibility.

The road layout suggests that HGVs (including the largest likely vehicles - Low Loader and Large Tipper Truck) are able to negotiate the route within the available carriageway, without the need to over-run kerbs. As the larger vehicles perform turning movements at junctions into the site however, over-sail of the opposing lane may be required for which specific management will be required.

Such instances of construction related HGV traffic requiring additional road space to manoeuvre is not uncommon. The frequency of these larger vehicles undertaking such movements occurring is low and will be carefully managed to ensure the safety of all road users.

Potential measures that are available to mitigate where conflict locations may occur include:

- Short-term temporary traffic signals or Stop/Go boards - *Temporary traffic signals would require to only be operational between 09:30-14:30hrs to avoid school traffic*.
- Use of banksmen.
- Further restriction on delivery times

It is however anticipated that the largest envisaged HGVs will be able to negotiate junctions along the route within the available road space, although vehicles may require space within the opposing lane in some instances.

The approaches to most junctions benefit from good forward visibility on all arms and as such, can be self-managed on these infrequent occasions (as would currently take place for large vehicles undertaking such movements).

Options for Mitigation Measures

Given the nature of the route from the A1 being favourable, as outlined above, road widening and passing places along this section are not envisaged - There will however be a need for such mitigation measures along routes to other parcels of land. As vehicles turn off the B6325 and A616, it will be necessary to make minor improvements to the site access junctions to ensure that HGV manoeuvres can be undertaken in a safe manner.

Other options available to mitigate the construction traffic impact, which will be detailed further within the detailed Construction Traffic Management Plan are outlined below.

<u>Road Surfacing Improvements</u>

In instances where the condition of the road surface along the route to site is not to an acceptable standard, measures will be introduced to improve this section – this may include resurfacing or patch repair.

<u>Prior Arrival Approval</u>

In order that specific control measures can be deployed when and where necessary regular movements will arranged to specific times. In respect of deliveries, larger HGVs could be required to phone the site ahead of their arrival to confirm that their movement will not conflict with others and such, the arrival of larger HGVs will be expected. Ahead of their expected arrival at the site, banksmen could be deployed to the junctions in anticipation. Banksmen will not direct traffic, but will ensure that HGVs are able to negotiate the junction without conflicting with other road users.

Delivery Times

To minimise disruption to the immediate surrounding area, deliveries to the site will only occur during the construction operating times specified in the detailed Construction Traffic Management Plan.

To avoid unnecessary interaction with school users, deliveries utilising large vehicles will be timed as such that they do not arrive between 08:00 – 09:30hrs and 14:30 – 15:30hrs if they pass schools. During the time periods of 08:00 – 09:30hrs and 14:30 – 15:30hrs large delivery vehicles will not be allowed to leave the site.

For the delivery of specific elements of equipment, any necessary large construction vehicles will be required to adhere to an allocated delivery time slot/period.

Plant & Materials

All plant and materials will where possible be delivered to the site in as few vehicle movements as possible. Materials should generally be delivered in bulk and stored on site to minimise deliveries.

Plant and equipment should be retained on site for the duration of its requirement, or for as long as possible so as to avoid unnecessary repeated deliveries.

Maintaining Access to Properties

Vehicles will not impede driveways or rights of way. The timing of deliveries will generally not be at peak periods, which will also reduce disruption to residents.

Wheel Washing

The site entrances will be stoned up at the commencement of the development and kept clear of mud, debris and materials at all times. In addition, it is anticipated that any excavated material from the development will be recycled on site so far as practicable. All loads leaving the site will be appropriately covered with sheeting. This will minimise any mud or debris transferring onto the local road network.

Wheel wash facilities will be available for all vehicles leaving the site. Roads will be inspected on a daily basis and if required, a road sweeper will be implemented.

Parking on Site

It is anticipated that the daily movement of construction staff is likely to take place via multi-occupancy trips by car sharing. By the nature of the working patterns in the construction industry, these trips will predominately take place outside of the typical peak commuting periods.

No cars, vans or lorries associated with the construction of the development will be permitted to park on the public highway surrounding the site. All vehicles will be parked and/or managed within the site.

Site Security & Contact Details

Access to the site will be restricted to authorised vehicles only and will be controlled by security at the site entrance. Adequate turning provision will be available within the site to ensure that vehicles are able to enter and exit the site in a forward gear.

Condition Survey

Prior to construction activities commencing, carriageway condition surveys will be undertaken to identify any pre-existing highway defects on the local road network surrounding the site.

Following the completion of the works and subsequent condition survey will be conducted and any defects directly attributable to the GNR construction activities, will be rectified.

Both surveys would be undertaken in conjunction and in agreement with the Local Highway Authority.

Contact Details

Throughout the construction phase, the site contact name and mobile phone number will also be made publicly available to enable the local community to liaise directly with the site of any other issues which may arise.

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BIRMINGHAM, EDMUND ST
Innovation Court
121 Edmund Street
Birmingham
United Kingdom
B3 2HJ
Tel: +44 (0)121 230 6010

BIRMINGHAM, NEWALL ST
5th Floor
Lancaster House
67 Newhall Street
Birmingham
United Kingdom
B3 1NQ
Tel: +44 (0)121 233 7680

BRISTOL
10 Victoria Street
Bristol
United Kingdom
BS1 6BN
Tel: +44 (0)117 922 9040

DUBLIN
2nd Floor
Riverview House
21-23 City Quay
Republic of Ireland
Dublin 2
Tel: +353 (0)1 905 3961

EDINBURGH, MANOR PLACE
37 Manor Place
Edinburgh
United Kingdom
EH3 7EB
Tel: +44 (0)131 225 7900

EDINBURGH, THISTLE ST
Prospect House
5 Thistle Street
Edinburgh
United Kingdom
EH2 1DF
Tel: +44 (0)131 344 4950
Tel: +44 (0)131 220 6966

GLASGOW, ST VINCENT ST
124 St Vincent Street
Glasgow
United Kingdom
G2 5HF
Tel: +44 (0)141 225 4400

GLASGOW, WEST GEORGE ST
250 West George Street
Glasgow
United Kingdom
G2 4QY
Tel: +44 (0)141 221 4030

LEEDS
100 Wellington Street
Leeds
United Kingdom
LS1 1BA
Tel: +44 (0)113 397 9740

LIVERPOOL
Cotton Exchange
Bixteth Street
Liverpool
United Kingdom
L3 9LQ
Tel: +44 (0)151 230 1930

LONDON, 15 OLD BAILEY
Seventh Floor
15 Old Bailey
London
United Kingdom
EC4M 7EF
Tel: +44 (0)20 7529 6500

LONDON, 5 OLD BAILEY
Prospect Business Centre
5 Old Bailey
London
United Kingdom
EC4M 7BA
Tel: +44 (0)203 714 4400

MANCHESTER
25th Floor
City Tower
Piccadilly Plaza
Manchester
United Kingdom
M1 4BT
Tel: +44 (0)161 236 0282
Tel: +44 (0)161 831 5600

NEWCASTLE
Block C First Floor
Portland House,
Newbridge Street
Newcastle.
United Kingdom
NE1 8AL
Tel: + 44 (0)191 260 0135

PERTH
13 Rose Terrace
Perth
United Kingdom
PH1 5HA
Tel: +44 (0)173 862 1377

READING
Soane Point
Market Place
Reading
Berkshire
United Kingdom
RG1 2EG
Tel: +44 (0)118 334 5510

WOKING
Dukes Court
Duke Street
Woking
Surrey
United Kingdom
GU21 5BH
Tel: +44 (0)483 728051

SYSTRA