

TECHNICAL NOTE

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

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.

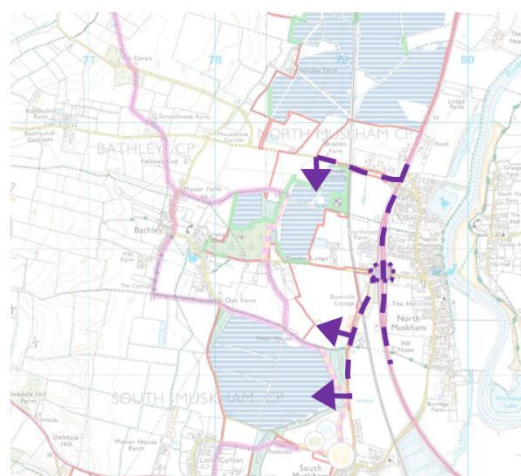
When it is not viable to achieve the above, additional mitigation measures will be implemented and these are discussed later.

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Current Route Strategy for South-East – North Muskham Impact

The eastern part of the GNR includes areas to the east and south of the village of Bathley and is bounded to the immediate east by the East Coast Main Line (ECML). The village of North Muskham is located further east on the other side of the A1.

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 the North Muskham grade-separated junction and head north again before taking the next exit junction off the A1 onto Vicarage Road and travelling west for approximately 600m (1,975 ft). For the southern parcel of this area, vehicles are expected to leave the A1 at North Muskham and travel south on the B6325 (Great North Road), before turning off into the site. An additional access is also located along this section for works associated with cabling.



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

Bathley Lane and across the ECML 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 North Muskham, the exposure to construction traffic would be split broadly evenly between the northern A1 junction (Vicarage Road) and southern A1 / B6325 Roundabout.

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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 the combined impact (northern and southern routes) would be subject to an average of:

- 10 HGV movements per day (5 arrivals, 5 departures); and
- 8 LGV / Car movements per day (4 arrivals , 4 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 combined peak hourly flow at North Muskham of:

- 6 HGV movements per hour (3 arrivals, 3 departures); and
- 4 LGV / Car movements per day (2 arrivals , 2 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.

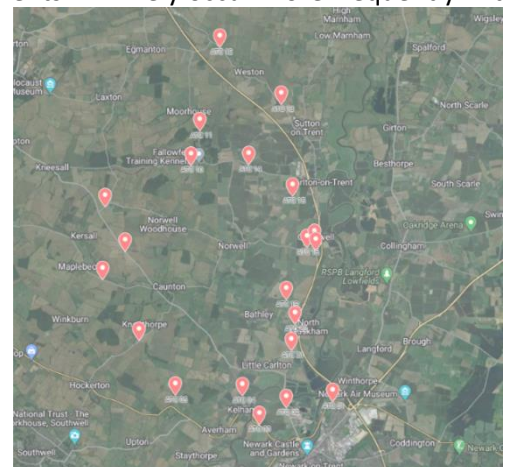
The volume of traffic and the type of vehicles being used during construction will vary over the duration of activities. It is currently forecast that traffic movements near North Muskham could occur over an 8-month period. However, typically, larger HGV traffic movements will occur at the beginning 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 and a survey on Vicarage Lane.

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, with 2% of traffic on Vicarage Lane being HGVs.

Mitigation Measures

Management Overview

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The B6325 is a good standard single carriageway road with a road width considered suitable to accommodate HGV movements. The route benefits from generally straight alignments and good forward visibility.

Vicarage Lane is a more rural road of approx. 5 metres in width, which whilst able to accommodate HGV movements, will require management to limit instances of two-way movements over this short section and interaction with pedestrians and cyclists. These measures will likely include warning signage and reduced vehicle speeds.

The road layout suggests that HGVs (such as a Low Loader and Large Tipper Truck) are able to negotiate the route within the available carriageway, without the need to over-run. As the larger vehicles perform turning movements at junctions 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 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).

It should be noted that Vicarage Lane has been identified as a possible route for the delivery of a Transformer to site, which would require an Abnormal Load Vehicle (AIL). An assessment of AIL exiting the A1 North Muskham shows over-sail of road and conflict with some street signs and vegetation, which will require removal prior to movements taking place. All AIL movements will be accompanied by an escort and management measures put in place to ensure safe delivery.

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 main roads, 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.

Road Surfacing Improvements

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.

Prior Arrival Approval

In order that specific control measures can be deployed when and where necessary regular movements will be 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.

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Banksman 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

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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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