Proposed Solar & Battery Energy Storage System, Land to the West of Nether Drumgley, Forfar

Technical Appendix 10.2: Framework Construction Traffic Management Plan

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Comments

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A. Project / Site Manager Checklist

1. Introduction

1.1. ECS Transport Planning Ltd (ECS) has been commissioned by Trio Power Limited (hereafter referred to as the 'Applicant') to prepare a Framework Construction Traffic Management Plan (CTMP) in support of a Section 36 application for the construction and operation of solar farm and battery energy storage system (BESS) (hereafter referred to as the 'Proposed Development') on land to the west of Nether Drumgley, west of Forfar, Angus.

1.2. It is expected that a planning condition would be attached to a planning permission providing that no development shall commence until the CTMP has been updated following the appointment of a contractor and submitted and approved in writing by the Planning Authority.

1.3. The findings of this study are based on a site visit by design team members and review of existing infrastructure. Consideration has also been given to the requirements of local and national government transport planning guidance and policies.

1.4. This CTMP has been created to manage all types of Heavy Goods Vehicles (HGV) to and from the site during construction, to improve the safety and reliability of deliveries to site, reduce congestion / delay and minimise the environmental impact. In addition, measures are proposed to ensure that parking by contactors is controlled to limit the potential impact on the public highway in the wider area.

1.5. This CTMP sets out the strategy and measures to be adopted within the Project in respect to construction traffic in order to:

- Facilitate site access points and routes for the delivery of construction materials and equipment;
- Provide temporary access routes within site working areas where necessary;
- Carry out construction activities;
- Manage the impacts arising from temporary closure of roads and public rights of way if required at times during the Project, including the provision of alternative diversion routes where possible; and
- Maintain communication with roads authorities and residents throughout construction activities and monitor the conditions of the road surfaces.

1.6. It is intended that the CTMP is a live document that will be updated and modified as agreed with the relevant stakeholders as the Project progresses and details are clarified prior to the start of works on site. The CTMP may also need modification to reflect other developments in the area whose details are currently uncertain but, which may have a cumulative effect on the public highway network at the time of construction of the Project.

1.7. The CTMP and the control measures therein are included within all contractor enquiries to ensure early understanding and acceptance/compliance with the rules that will be enforced on this Project.

Project Details

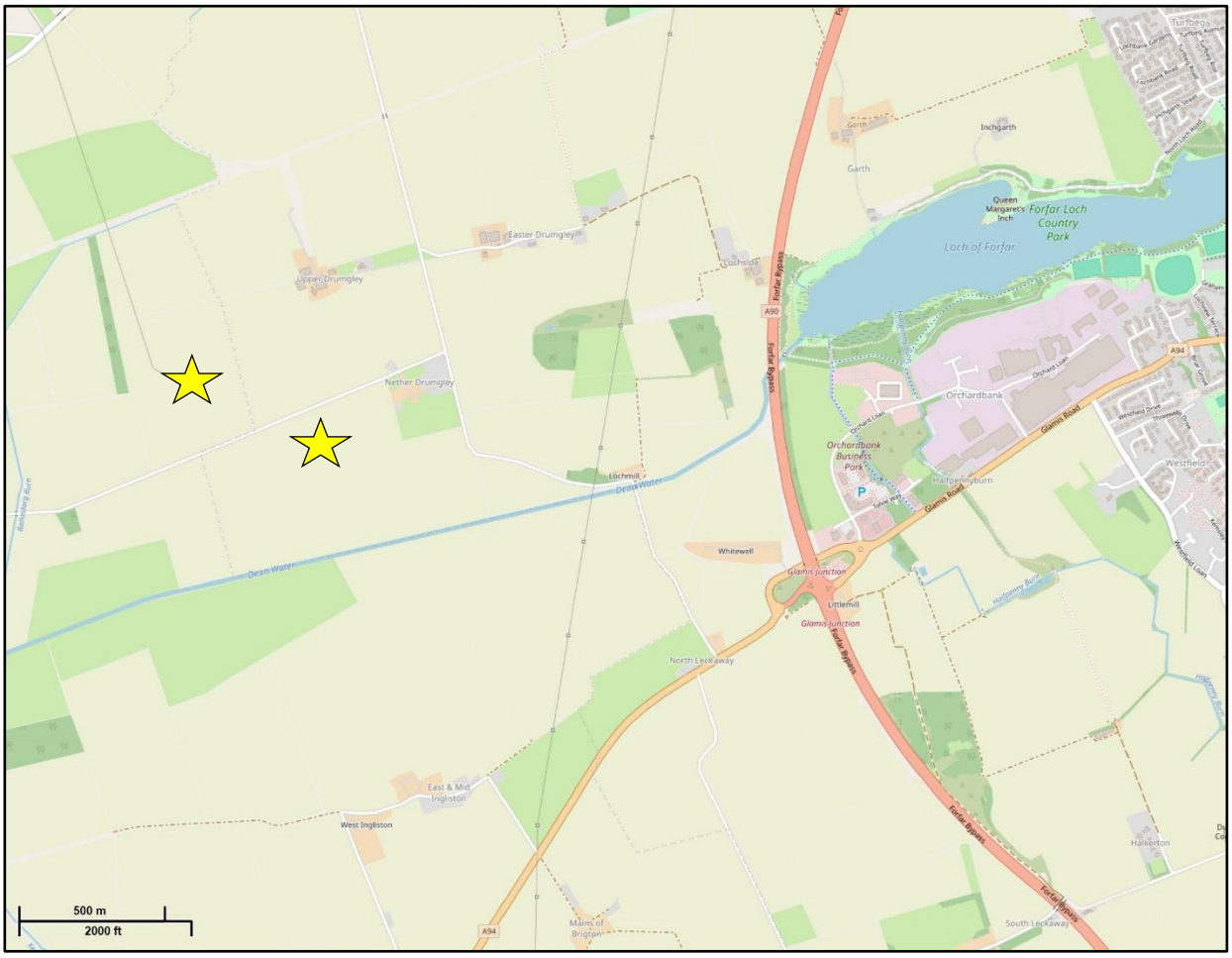
1.8. The Site is situated approximately 2.5km west of Forfar and is currently agricultural land located to the west of Nether Drumgley accessed via a private single track road which connects to the U364 public road to the east.

1.9. The developable area comprises two land parcels on either side of the private access road, surrounded by agricultural fields and woodland. The total area of the Site is approximately 87 hectares.

1.10. The site is located within a predominantly rural area, characterised by a mix of agricultural land and natural landscapes. The existing land use is mainly agricultural, with small sections of woodland. The site is bordered by trees to the west, while the other boundaries are more open.

1.11. The location of the site is indicated by the yellow stars within *Figure 1* below.

Figure 1: Site Location



1.12. The land is accessed directly from the private access road at present as there is generally no boundary fencing.

1.13. The Proposed Development will comprise a ground-mounted solar photovoltaic (PV) array and associated infrastructure with an installed capacity of 49.9 MW. The array will comprise PV modules arranged in rows with a maximum height of 2.87m above ground level (AGL).

1.14. The Proposed Development also includes a Battery Energy Storage System (BESS) with a capacity of 35 MW. The BESS will store excess energy generated by the solar PV array and release it during periods of high demand or low generation.

1.15. The infrastructure associated with the Proposed Development will include:

- PV module mounting frames;
- battery units housed in containers;
- inverters;
- transformers;
- high voltage (HV) switchgear and control equipment;
- cabling and interconnectors;
- on-site substation and control building;
- customer station compound;
- spares container;
- site access and tracks;
- security fencing and CCTV; and
- temporary construction compound.

1.16. Access to the site will be via simple priority junctions with the private road that serves the wider site and area. Each of the land parcels in the Proposed Development will have two access points from the local road, one for each of the PV array sections.

1.17. Once operational, the development will be monitored remotely and will only require infrequent maintenance visits which are unlikely to be any more common than once a week.

1.18. The subsequent chapters of this report are structured as follows:-

- Construction Traffic Routing;
- Site Layout;
- Mitigation Measures; and
- Summary

2. Construction Traffic Routing

Haulage Route

2.1. The nearest access to the strategic road network is Glamis Junction of the A90(T), to the east of the proposed site. The Glamis Junction is a full diamond grade separated interchange which provides access to both north and south carriageways on the A90.

2.2. Traffic would exit the A90(T) and follow the A94 west for approximately 260m where the route connects to the U364 via a simple priority junction. The A94 is a high standard single carriageway subject to national speed limit restrictions at the junction but the speed limit does reduce to 40mph some 80m to the east which influences speeds. The route is appropriate to accommodate construction vehicles with no recognised issues with geometry for HGV's.

2.3. The first 100m of the U364 is single carriageway and then it reduces to single lane with passing places. The passing places are generally informal in nature and larger than a standard passing place to accommodate the movement of agricultural traffic.

2.4. The private access road which currently provides access to the site connects to the U364 via a simple priority junction. The private access road provides access to a limited number of residential properties as well as the farm adjacent to the site. The private access road has limited formal passing places as the fields are at a similar level to the road and do not have boundary treatment.

2.5. The route is shown in *Figure 2, overleaf*.

Construction Vehicle Management

2.6. Immediately upon commencement of construction, all deliveries, operatives and visitors to the construction site will report to the site office. This will be communicated to all works contractors at their pre-start meeting. They will be informed by site staff of emergency procedures, assembly points, first aid, site rules, etc.

2.7. Staff and visitor parking will be clearly signposted and located opposite to the site office. Signage will be erected at the entrance of the site to clearly direct construction traffic and visitors.

2.8. Delivery vehicles will proceed to the material laydown area where the vehicle will be unloaded, goods immediately moved within the wider construction site to ensure the delivery area is clear at all times.

2.9. A laydown area will be provided adjacent to the main entrance to the site to facilitate easy access for deliveries, visitors and staff. Delivery / construction vehicles will be accommodated within the site during all phases with no requirement for reversing manoeuvres on to the road network. Vehicle swept paths will be provided once the internal arrangements for construction have been finalised.

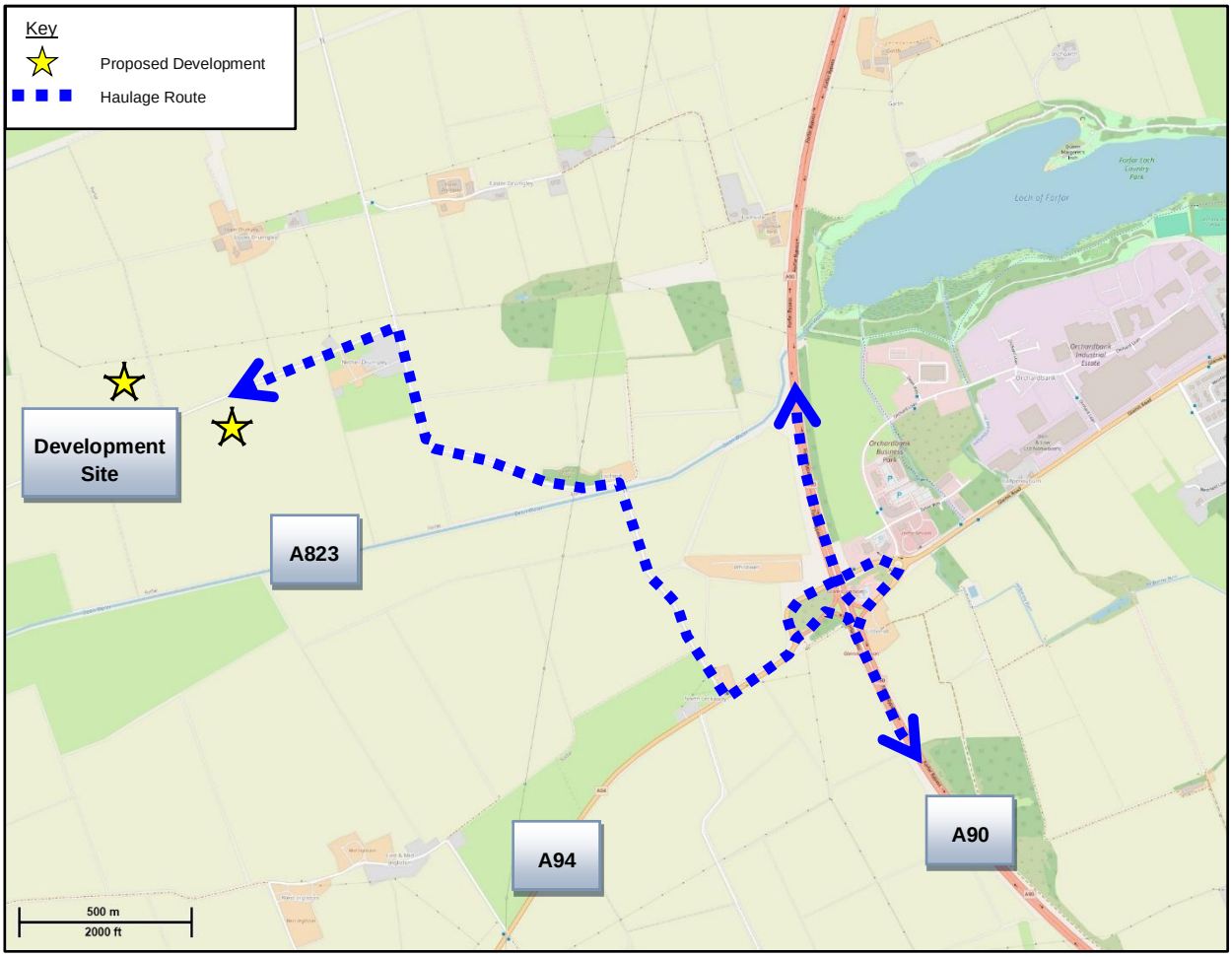
2.10. Deliveries will only be permitted between 8am - 7pm Monday – Friday and 8am – 1:00pm Saturday and must be pre-arranged giving 24 hours' notice to the Site Manager. On arrival at site drivers must report to the Site Manager wearing appropriate PPE.

2.11. A booking system will be adopted to minimise multiple vehicular arrival at the same time, so as to minimise the impact on the local surrounding area and ensure no conflicts with sensitive receptors.

2.12. Prior to arriving, suppliers or drivers will notify the site manager to indicate their anticipated time of arrival. If in the rare event a problem with access to the site is identified whilst the delivery is in transit, the supplier

or driver will be advised to wait until such time as access becomes available. An area will be made available to delivery vehicles, within the site, off the public road network.

Figure 2: Haulage Routes



2.13. The peak months for construction is expected to occur in Month 5. During this period there are 1,751 two-way vehicle movements per month, made up of 1,404 car movements and 347 HGV movements. Assuming a 26-day working month, this would equate to a maximum of 67 two-way vehicle movements per day which would consist of 54 car movements and 13 HGV movements on average. In other months, the daily average HGV movements are between 2 and 13.

2.14. The construction works would be temporary, therefore, effects associated with HGV traffic on the local road network would only occur over the duration of operations. It is estimated that construction will be complete within 12 months.

2.15. Following commissioning of a contractor, the vehicle volumes and types detailed above will be confirmed and finalised together with a construction programme. Nevertheless, daily generation will be negligible and easily accommodated on the network.

2.16. The delivery of crushed rock for access tracks will be the most intensive operation throughout the construction period. As is common place with construction in rural areas, the delivery of these materials will be programmed over a longer period to ensure that the impact is managed and disruption is limited on any specific day. This will assist with limiting the deterioration of the road surface as a result of larger vehicle activity.

2.17. All subcontractors will stipulate to the site manager their vehicle size, times for deliveries, access route and site access arrangement prior to delivery.

2.18. Any deliveries to be made out with typical operating hours will be reviewed on a case by case basis taking into account a number of factors including, time and impact on local community, noise and traffic disruption. Contractors will be required to give details of proposed timings of material deliveries to the site. At this stage they will be given a specific area for delivery with key maps and access routes including direction of travel, turning points and any site specific hazards.

2.19. Construction vehicles will be managed by the Project Manager overseeing direction of the Project and by the Site Supervisor responsible for on-site activities. Contact details for both the Project Manager and Site Supervisor will be provided to Angus Council on appointment.

2.20. Security hoarding around access points will be periodically inspected for damage by the site manager and remedial maintenance will be carried out if necessary.

3. Site Layout

Site Setup

3.1. The site will be enclosed by boundary fencing which secures the site and prevents unauthorised access onto the construction area.

3.2. The site set up will be of sufficient size to cater for the anticipated construction staff as well as construction vehicle holding and turning areas. Such facilities will be in accordance with the requirements of the relevant CDM regulations and will be subject to regular maintenance and cleaning.

3.3. Site cabins will be located near to the private access road during the formation of the access track and site enabling works ensuring they are easily accessible from the road network. The area will have the ability to accommodate all parking requirements to ensure that no parking is undertaken outwith the site area or on the public road.

3.4. As detailed previously, site contact details will be presented to ensure that neighbours can contact the Site Manager should an issue with parking or any other matter remain unaddressed.

Site Vehicular Access

3.5. The site access / egress will be secured through hoarded gates. During working hours, the gates will remain under control of an appointed person – who will physically control entry through the gate at all times. The scheme shall include a monitoring regime to repair or replace any damaged or lost fencing or signs as necessary. Furthermore, a layby / set down area will be made available for any vehicles outwith their designated time slot.

3.6. Traffic accessing and egressing the site will give way to all road traffic although this will be minimal given the site is located in a rural location. Vehicles will enter and exit the site in forward gear (which if required will be managed by onsite traffic marshals). There will be adequate areas for vehicle manoeuvring within the site, storage of materials and loading / unloading.

3.7. Warning and location signs will be established and maintained (Caution; Construction Traffic or similar) at and on approach to the U364 at the earliest opportunity.

Pedestrian and Cycle Access

3.8. The private road to the Site is designated as a core path by Angus Council known as the Drumgley to Glamis Station route linking the U364 in the east with the A928 in the west. Despite the core path designation, there is generally very limited pedestrian or cycle activity directly adjacent to the site given the rural nature of the surroundings.

3.9. The applicant will ensure that the core path is accessible during construction. Walkers and other users could utilise the core path while construction traffic was either temporarily halted (by personnel positioned at the ends of the core path or controlled so that there would be no need for temporary closures, or they could put in place a barriered and segregated walkway or any other form of alternate provision. This system would be in place during working hours and supervised by a Banksman or another site operative. This will be put in place via the Construction Traffic Management Plan and agreed with ACRD.

3.10. The access road will be signposted as a 5mph speed limit and warning signs advising that pedestrian could be on the road will be erected on approach to the substation from both directions.

3.11. No element of the development area will be open to the public, as such, there will be no interaction between pedestrian / cyclists visitors and construction vehicles within or adjacent to the site.

Hours of Work

3.12. Working hours would be agreed with Angus Council, but are expected to be:

- 08:00 to 19:00 hours Monday to Friday;
- Saturday working will be at the discretion of the site management team but will be limited to 08:00 to 13:00 hours; and
- No working on Sundays or Bank Holidays.

3.13. All work which is intended to take place outside of these hours, excluding emergencies, would be subject to prior agreement, and / or reasonable notice to Angus Council.

Enforcement

3.14. All contractors associated with these works will be required to abide by the CTMP as a condition of contract. The Project Manager will monitor the compliance of contractors and the PM's details will be made available to Angus Council.

3.15. Daily compliance will be monitored by the Project Manager to ensure that vehicles follow the measures set out in the CTMP.

4. Mitigation Measures

4.1. A package of mitigation measures has been proposed to reduce the safety risks and minimise any effects on local residents and the local road network as a result of construction traffic activities including:

Restricted Delivery Hours

4.2. Deliveries will be restricted to site working hours as set out above or otherwise agreed with Angus Council to reduce disruption to local residents and businesses.

Booked Delivery Times

4.3. Construction deliveries will be planned with half hour booking slots and will not be allowed on site outside of these time slots.

4.4. If a vehicle arrives outside its booking time the driver will be advised to wait within a dedicated area outwith the public road until a slot is available on site. Remedial action will be taken to prevent this being repeated.

4.5. It is understood that vehicles will not be permitted to wait on the public road.

Key Events

4.6. Key events in the area during the duration of the Project will be considered to ensure that the impact on local roads is minimised.

Convoys

4.7. Convoy of construction vehicles is to be avoided wherever possible to minimise the impact to other road users. Drivers should allow road users to overtake at regular intervals where safe to do so to reduce traffic congestion.

Speed Limit

4.8. The developer will ensure that all deliveries abide by local speed limits and a site speed limit will be established and enforced at 5mph, with signage indicating such and all persons made aware of this requirement at the site induction.

Traffic Management

4.9. Advance warning signage will be introduced on the U364 to advise all motorists that construction vehicles are turning on the road and works are being undertaken adjacent to the road. The exact nature of the signage will be agreed between Angus Council and the contractor but will include relevant signage which accords with the Traffic Signs Regulations and General Directions (TSRDG) manual.

4.10. The contractor will explore opportunities to source materials locally. Vehicle sharing will be encouraged for staff. Local shops and food outlets will be approached to determine whether they would be willing to deliver to the site to avoid staff having to travel extended distances at breaktime.

Wear and Tear

4.11. The applicant will commit to a “Wear and Tear” agreement with Transport Scotland as the Roads Authority in accordance with Section 96 of the Roads (Scotland) Act 1984. This would cover the U364, in the vicinity of the site, being used for construction access purposes and include a pre-commencement condition survey.

4.12. This section of road should be jointly inspected before and after that operation. The delivery of the other materials, and the ready-mix concrete in particular, should not be regarded as exceptional, as such, inspection of the entire length of the U364 is not considered necessary.

4.13. At this stage, abnormal load access is not considered necessary. Nevertheless, any exceptional or abnormal loads would be the subject of a separate consent application to which the relevant roads authority could attach conditions.

Project / Site Managers Checklist

4.14. Both the Project Manager and Site Manager will utilise the checklists contained within *Appendix A* to ensure the safest methods are applied throughout the construction phase.

Banksman

4.15. Banksman will be provided for all larger vehicle movements into and out of the site to minimise the potential impact on the public highway.

Road Cleansing

4.16. The developer will ensure that the roads surrounding the site are swept as regularly as required. This process is to ensure that any debris or dirt from the construction vehicles avoids getting transferred around the road network.

Dust and Noise suppression

4.17. The Site Manager will take reasonable steps to minimise noise and supress dust, dirt and debris generated by the scheme, working to the relevant British Standards and best working practices.

4.18. ‘Silenced’ plant and equipment will be used on-site wherever possible.

Considerate Contractors Scheme

4.19. The main contractor and sub-contractors will subscribe to the “Considerate Contractors Scheme” and adhere to the guidelines set out by the scheme.

Mobile Phones

4.20. No plant or delivery drivers will be permitted to use mobile phones or similar whilst driving vehicles or plant.

Project / Site Managers Checklist

4.21. Both the Project Manager and Site Manager will utilise the checklists contained within *Appendix A* to ensure the safest methods are applied throughout the construction phase.

5. Summary

5.1. This Framework Construction Traffic Management Plan (CTMP) considers the traffic impacts that could arise during construction of the Proposed Development and outlines the principles to manage site operations with the view to minimising any transport and traffic-related issues during the construction period.

5.2. Consideration of the construction related traffic likely to be generated by the Proposed Development and the route available to/from site has been undertaken in detail. The proposed route is detailed within this CTMP (*Figure 2*).

5.3. This CTMP sets out a variety of mitigation measures during construction which may be implemented to minimise the impact of the construction traffic on the environment and local communities, including best practice techniques.

5.4. In order for the CMTP to be most effective, it is proposed that it is promoted to all employees and subcontractors coordinated by the Project Manager / Site Manager.

APPENDICES

A. Project / Site Manager Checklist

Project/Site Managers Checklist

Both the Project Manager and Site Manager will utilise the following checklists to ensure the safest method:

Checklist 1 - Site/Project Managers – Vehicle Routes Checklist

		YES	No	N/A
Q1	**Are vehicle routes clearly separated from pedestrian routes? If 'No' see Action 1**			
Q2	**Do routes allow easy access to delivery areas? If 'No' see Action 2**			
Q3	**Are routes kept free of obstructions? If 'No' see Action 3**			
Q4	**Are routes clearly & suitably signed? If 'No' see Action 4**			
Q5	**Do routes reduce need to reverse? If 'No' see Action 5**			
Q6	**Will parking areas be required? If 'Yes' see Action 6**			

Vehicle Routes – Actions to be Taken

		Action
1	**Ensure routes are clearly designated and pedestrians protected**	**Routes clearly signed and segregated**
2	**Plan routes to allow safe access/egress**	**Assessed**
3	**Keep access routes clear**	**Check daily**
4	**Ensure sufficient signage is maintained**	**Check daily**
5	**Plan deliveries to reduce need for vehicles to reverse**	**Check during ordering process**

Checklist 2 - Site/Project Managers – Vehicle Movements Checklist

		YES	No	N/A
Q1	**Are highway routes planned to reduce need for excessive vehicle movement? If 'No' see Action 1**			
Q2	**Are vehicles fitted with audible reversing aid? If 'No' see Action 2**			
Q3	**May some vehicles reverse without audible aid? If 'Yes' see Action 3**			
Q4	**Can pedestrians have a clear view of traffic movements at crossings and at main access? If 'No' see Action 4**			
Q5	**Will vehicles run the risk of depositing mud on the highway? If 'Yes' see Action 5**			
Q6	**Will vehicles require sheeting? If 'Yes' see Action 6**			

Vehicle Movements – Actions to be Taken

		Action
1	Ensure highway routing is suitable	Review daily
2	Request aids are fitted	Where available
3	Vehicles without aids must be banked when reversing	Appoint banksman
4	Ensure drivers are aware of pedestrians and give way – pedestrian signing where necessary	Contractor briefing of staff
5	Provide on-site wheel wash facilities	Contractor to arrange
6	Ensure provision of sheeting gantry if required	Vehicles to be sheeted.