

Code of Practice
Lighting and Marking for Special Order,
VR1, STGO and C&U loads

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1 Introduction

- 1.1 This code of practice is voluntary and does not prescribe hard and fast rules, but provides practical guidelines, which may be departed from in appropriate circumstances. It is not intended to be a comprehensive statement of the law's requirements.
- 1.2 This said it is an authoritative statement of best practice, which has been agreed to by the organisations listed in Appendix 2. It not only points out many of the legal obligations which need to be met, but also contains information and explanations which are designed to ensure that those moving abnormal loads¹ on the highways do so in a manner which maximises safety.
- 1.3 Legislation² requires hauliers to notify the movement of most abnormal loads to the police before moving them by road. There is also a requirement to notify heavier loads to highway and bridge authorities to ensure that bridge structures can accommodate these heavy loads. In Scotland, the term highway authority shall be deemed to be road authority. For the largest and heaviest abnormal loads, prior permission before moving is required from the National Highways abnormal loads team.
- 1.4 Hauliers involved in the movement of abnormal loads or abnormal vehicles have a responsibility to ensure that each movement is conducted in a controlled and safe manner. This shall equally apply if the load or vehicle is being self escorted. Some larger and heavier loads are required to have an attendant as defined in the relevant legislation³.
- 1.5 This code of practice, which applies throughout England, Wales and Scotland, is intended to provide a nationwide standard that is recognised by both industry and the police authorities alike. A standard lighting and marking helps the general public and, in particular, other road users by alerting them to the presence of an abnormal load so they can exercise greater caution as appropriate.
- 1.6 This code of practice covers:
 - the recommendations for marking a vehicle including details of side, front, rear and projection markings and additional markings for girder frame trailers
 - signing and lighting requirements.
- 1.7 There is an additional code of practice which offers recommendations on the lighting and marking of abnormal load self escorting vehicles. This also incorporates operating guidance.
 - Lighting and marking code of practice for abnormal load self escorting vehicles

¹ Abnormal Indivisible Load as defined in Schedule 1, paragraph 2 by The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (SI 1998) and Indivisible Load as defined by Regulation 3(2) of The Road Vehicles (Construction & Use) Regulations 1986 (SI 1078) - namely a load that cannot without undue expense or risk or damage be divided into two or more loads for the purpose of being carried on a road. STGO 2003 limits gross weight to 150 tonnes, length to 30m and width to 6.1m, above which a Special Order is required from National Highways. A National Highways VR1 permit is required if width exceeds 5m.

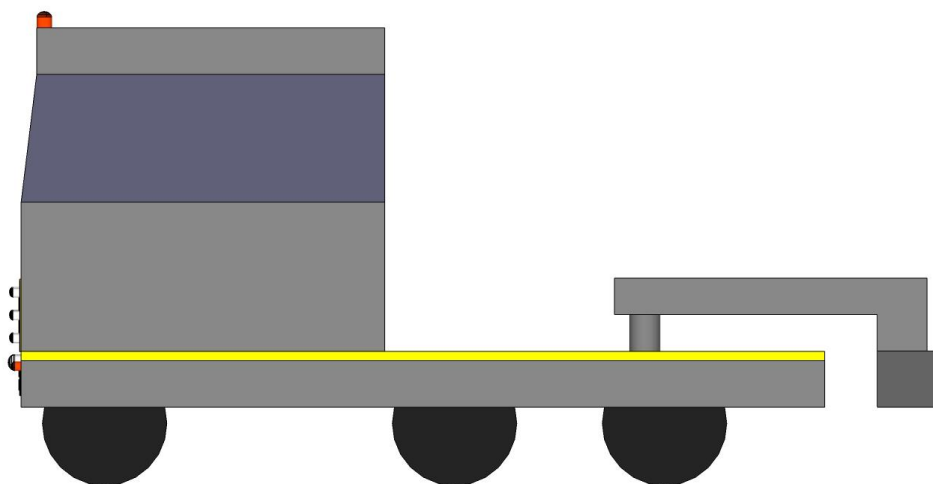
² Schedule 12 of The Road Vehicles (Construction & Use Regulations) 1986 as amended (SI 1986/1078). Part 2 of The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (SI 1998).

³ The Road Vehicles (Construction & Use Regulations) 1986 (SI 1078), Schedule 12 paragraph 2. Part 2 of The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (SI 1998)

2 Markings

Side markings

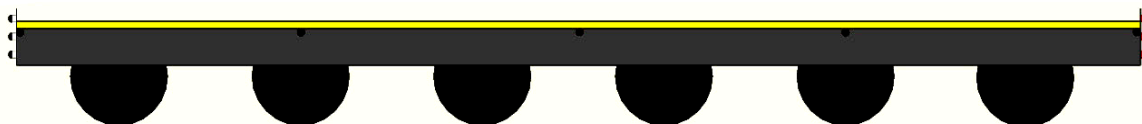
- 2.1 The following suggested guidance on side markings of the loads exceeds the requirements set out in UNECE 48 and must be taken together to ensure the whole combination is conspicuous. This is to avoid an oncoming driver seeing markings on a load but not the tractor, or on the tractor but not the trailer for an unladen vehicle.
- 2.2 The side of the tractor may be marked with a yellow retroreflective conspicuity marking as shown below.



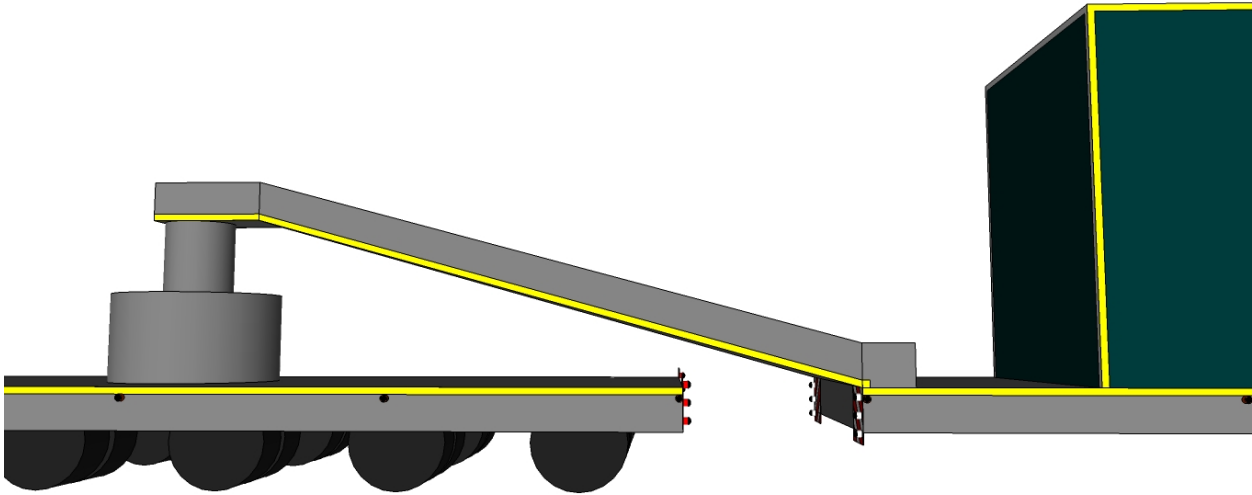
- 2.3 The trailer may be marked along its full length by a yellow retroreflective conspicuity marking as shown below.



- 2.4 The side of rear bogies may be marked along its full length by a yellow retroreflective conspicuity marking and the frame may be contour marked as shown below.



- 2.5 The side of girder frame trailers and their bogies may be marked along their full length by a yellow retroreflective marking and the frame may be contour marked as shown below.



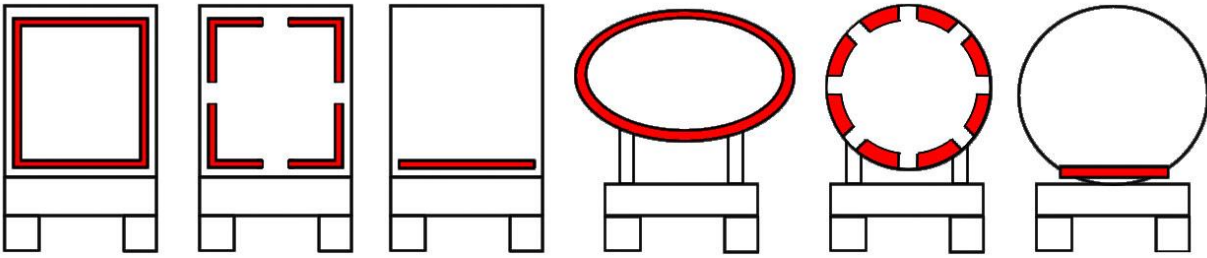
- 2.6 On trailer units, rear bogies and girder frame trailers amber side reflectors are to be positioned so that one reflector is within 4 metres of the front of the vehicle, one red reflector within 1 metre of the rear of the vehicle and so that there are no gaps of more than 3 metres (4 metres if this is not practicable) between any two adjacent reflectors.
- 2.7 The side of the load or a fixed trailer unit may be marked along its full length by yellow retroreflective marking.
- 2.8 Retroreflective distinctive markings and/or retroreflective graphics may only be placed within the contour marking on the side of a vehicle provided they do not impair the effectiveness of the contour marking and the mandatory lighting and light signalling devices. The following guidance should be followed for the distinctive markings and/or graphics:
- the number of the letters/characters is less than 15
 - the height of the letters/characters is between 300mm and 1,000mm
 - the whole retroreflective area is not larger than 2.0m²
 - no long designs are used eg addresses and phone numbers.

Front markings

- 2.9 The front of the tractor vehicle may be marked with a chevron design as is currently applied to the rear of escort vehicles except the red shall be non retroreflective and the yellow shall be retroreflective.
- 2.10 To increase conspicuity of a wide load from the front, white retroreflective markings may be applied to the front in an unbroken contour design, where possible.

Rear markings

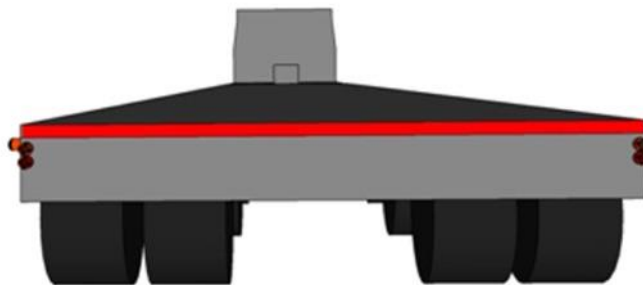
- 2.11 Contour marking offers the most information about the size and shape of the load thereby enabling an oncoming driver to comprehend what action to take. Examples of retroreflective contour markings are below.



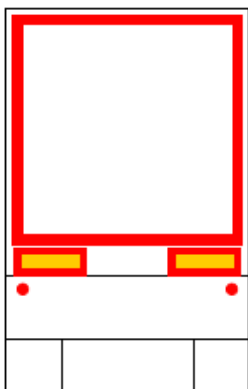
2.12 Wherever possible the rear outline of the load may be marked by continuous red retroreflective material marking the full shape of the load, as shown below.



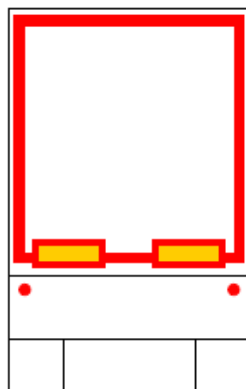
2.13 The rear edge of the trailer unit may be marked along its full length by red retroreflective conspicuity marking. This ensures that the rear of both girder frame and unladen trailers will be visible, as shown below.



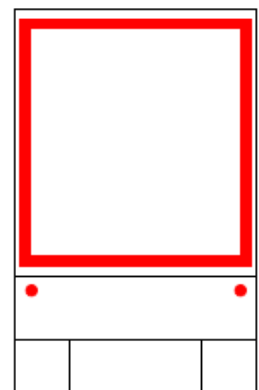
2.14 UNECE70 marking plates are optional if UNECE104 conspicuity markings are correctly fitted. There are three options for the design of these as shown below.



a) full contour + rear marker plates



b) full contour + rear marker plates contributing to contour



c) full contour. No rear Marker plates

2.16 If a piece of equipment is fitted or attached to the rear of the pushing tractor and obscures the markings, for example a crash cushion in the upright position, the markings will be replicated on the equipment so the design continues to be visible.

Projection markings

2.17 Although not specified in legislation, projection markers on wide loads and the end of loads that project in front and behind the vehicle should be retroreflective to be effective at night.

2.18 Applying red retroreflective material to the rear markers and white retroreflective to the front will significantly improve visibility.

2.19 Any markers to the side must remain non-retroreflective. However, additional yellow retroreflective tape along the length of any projection over 2m to the front or rear would improve conspicuity.

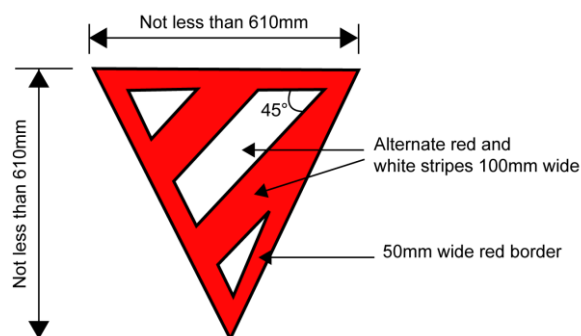
2.20 All projection markers must be kept clean and lit by a lamp during the hours of darkness or poor visibility. The lamp must be shielded so that its light (except the light reflected from the projection marker) is not visible to other road users.

2.21 When it is not practical to fit markers, extremities of the load must be marked with tape, preferably retroreflective. The position and design of the tape should comply as closely as feasible with the requirements for the markers it is replacing. If tape is used then no retroreflective material capable of showing red light can be fitted to the front of the vehicle and only red light can be fitted to the rear.

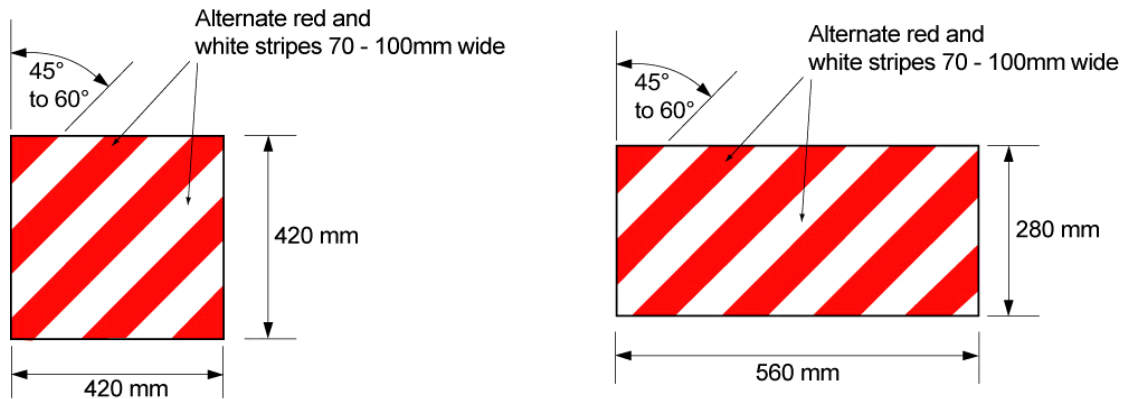
2.22 Loads projecting between 1 and 2 metres to the front and rear of the vehicle or trailer should be clearly marked. This shall be done with material, preferably retroreflective that is white to the front and red to the rear.

2.23 Loads projecting over 2m to the front and rear shall have red and white striped markers mounted on both ends of the projection, and marker lights (red to the rear, white to the front, not flashing) mounted on the corners of the projection. The size of end markers is not limited but must be at least the minimum specified below. The regulations do not stipulate the orientation of triangular markers. However, rotating the marker so that the large side is aligned with the edge would clearly indicate the edge of the projection and therefore may be more appropriate.

DIAGRAM OF END MARKER SURFACE



2.24 STGO loads may be marked using the European style rectangular red/white striped markers.



European Style Board Markers (Note: These are minimum dimensions)

2.25 Front and rear projection markers must:

- be as near as is practicable in a transverse plane
- not more than 0.5m from the extreme end of the projecting load
- not be more than 2.5m from the road surface
- not impede the view of the driver
- be clearly visible, within a reasonable distance, to a person using the road
- be retroreflective material, white to the front and red to the rear.

2.26 Loads projecting over 2m to the front or over 3m from the rear must, in addition to end markers, have side markers fitted on either side of the projection.

2.27 Side projection markers must:

- be as near as is practicable in a longitudinal plane
- not extend beyond the end of the projection
- not be more than 2.5m from the road surface
- not be more than 1m from the marker at the rear
- be clearly visible, within a reasonable distance, to a person using the road.

2.28 Loads projecting over 4.5m to the front or 5m from the rear must fit additional side markers no more than 2.5m from the front of the vehicle or 3.5m from the rear. This distance does not include any specialist part of the vehicle which protrudes such as crane jibs.

2.29 Load projections greater than 6m in length shall have amber side marker lamps at least every 3m and shall be in compliance with the RVLR. For loads longer than 18.3m, marker plates with attached lights shall be installed at the front and back of the load to give oncoming drivers an idea of the total length.



Use of side marker lamps for long loads

- 2.30 Motor vehicles first used on or after 1 April 1991 with width exceeding 2.10m, and trailers with width exceeding 2.10m manufactured on or after 1 October 1990, must have two front facing and two rear facing end outline marker lamps.
- 2.31 The front lamps of the vehicle must be mounted not more than 0.4m from the side of the vehicle and not lower than the upper edge of the windscreen. The rear lamp on a vehicle and the front and rear lamp on a trailer must be mounted at a maximum height whilst maintaining the use for which the vehicle is constructed and allowing both lamps to be mounted as a matched pair.
- 2.32 Approved lamps must show white light to the front and red light to the rear. These lamps must be used under conditions as applied to front and rear position lamps. Lamps must be mounted as a matched pair, however, the front and rear lamp on one side of the vehicle may be combined in a single lamp with a single light source.
- 2.33 For loads that overhang by more than 305mm on either side of the vehicle, a width projection marker must be fitted. The marker must be within 50mm of the widest points at the front and rear of the load. If loads overhang on one side then the markers only need to be applied to the overhanging side.
- 2.34 Regulations do not stipulate the orientation of the triangular projection marker. However, rotating the marker so that the large side is aligned with the edge would clearly indicate the edge of the projection.
- 2.35 For high loads it may also be appropriate to indicate the height of the vehicle with another set of markers. This will improve the overall conspicuity of the load and so provide more information to oncoming drivers.

Additional markings for girder frame trailers

- 2.36 When manoeuvring, parts of girder frame trailers can present corners of the trailer to traffic. To ensure that these do not present unmarked hazards to oncoming drivers it is recommended that the marking for the front and rear of the tractors and trailers be applied to these parts of the girder frame trailer. This requirement would include

markings and markers for the front and rear of the tractor and trailer using red retroreflective conspicuity marking along the rear of the trailer and a marker for wide loads.

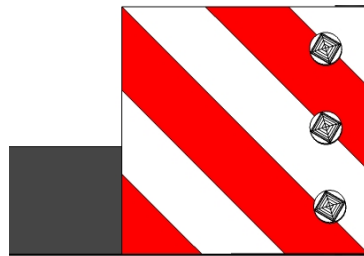
3 Signing

- 3.1 The abnormal load vehicle may have a sign fitted to the front. The wording on this sign can be ABNORMAL LOAD or WIDE LOAD as standard with LONG LOAD as an option if appropriate. Alternatively, to increase conformity with Europe the sign Convoi Exceptionnel may be used. The sign shall be mounted such that the sign face is perpendicular to the road surface and the text is horizontal. The sign shall be mounted either on the roof of the tractor unit or preferably below the front grille, ensuring that the front number plate is still legible and its position does not affect the operation of the vehicle. If the sign is roof mounted, it must not obscure the roof mounted flashing amber warning beacon. The width of the complete sign plate, including the end plate, shall be the same as the width of the vehicle.
- 3.2 If a front sign is fitted a fixed rear sign plate showing the same legend as the front sign shall also be fitted. This sign shall have uppercase black lettering on a yellow retroreflective background and shall be attached to the rear of the trailer. The complete sign shall be made of retroreflective material of at least Class RA1, as specified in BS EN 12899-1:2007. This retroreflective sign shall be mounted in an appropriate position on the trailer ensuring that the rear number plate is still visible.
- 3.3 In addition, rectangular diagonal striped red retroreflective/white non-retroreflective plates shall be fitted to both ends of the rear mounted sign. The width of this complete sign plate shall be the same as the width of the trailer unit.

4 Lighting

- 4.1 The abnormal load is required to comply with the obligatory vehicle lighting requirements as specified in the Road Vehicles Lighting Regulations (RVLR) (1989).
- 4.2 To ensure the vehicle lights and warning beacons do not conflict with the marking materials a gap of 200mm must be left between any retroreflective material and any non warning light source such as indicators or rear lights. All beacons should be amber.
- 4.3 Any vehicle travelling slower than 25mph, on an unrestricted dual carriageway requires amber warning beacons capable of emitting a flashing or rotating light. At least one beacon must be visible from any point at a reasonable distance from the vehicle or trailer.
- 4.4 Flash rates over 10Hz have been shown to increase glare and can also increase the risk of an epileptic response. Alternating beacons (right and then left) at 1-3Hz increases the conspicuity of the vehicle without an increase in glare or increasing the risk of an epileptic response.
- 4.5 Beam cut-off has an effect on glare; it is recommended that the intensity at night with beam cut-off is 325-425cd and without beam cut-off it is 150-200cd. To minimise the safety risk from glare, beacons shall not be placed at the eye level of drivers.

- 4.6 To help alert other road users approaching the abnormal load from the front, during the day the vehicle shall use continuously illuminated dipped beam headlamps or daytime running lamps, if fitted.
- 4.7 A full width light bar with amber LED banks at each end shall be fitted to the tractor. The beacons shall flash each end alternately and shall conform to the current RVLR i.e. above 1200mm, constant 1-4Hz flash rate.
- 4.8 A flashing beacon shall be fixed to the rear of the trailer or on the extremities of the load. Ideally, it shall be mounted high up at the top of the load above the eye line of oncoming drivers. If this is not possible it may be mounted to the trailer. This beacon shall conform to the current RVLR as above.
- 4.9 The conspicuity of end markers can be improved by adding non-flashing lights. If added the lights facing towards the front must be white and the lights towards the rear must be red. The lights may be attached to the plates as shown below.



Marker plates with integrated lights (front)

- 4.10 Flashing amber beacons may also be fitted to the rear marker board arrangement. It is advised that these do not project light onto the actual board as this may reduce its conspicuity. The lights must be above 1200mm with a constant flash rate of 1-4Hz.
- 4.11 A load may be illuminated by floodlighting to show its dimensions to oncoming drivers. This is particularly suitable for loads that are not a regular shape and are, therefore, difficult to make conspicuous by any other means. If lamps are used for this purpose they must not be directly visible to any oncoming drivers.
- 4.12 The shape of a load may be marked using rope lighting. If used, yellow lighting shall be used on the side, red lighting on the rear and white lighting on the front of the load.

Appendix 1: Abnormal load classifications and notifications

Gross vehicle weight	Axle weight	Width ≤2.9m Length ≤18.65m	W>2.9m L>18.65m	W>3m L>18.75m Vehicle combination L>25.9m	W>5m, VR1	W>6.1m L>30m, SO
≤18,000kgs (2-axle) ≤26,000kgs (3-axle) ≤32,000kgs (4-axle rigid) ≤36,000kgs (2+2 axle artic) ≤40,000kgs (5-axle) ≤44,000kgs (others)	C&U AWR limits	N/A	Police: 2 days	Police: 2 days	HE AIL team: 2 weeks Police: 2 days	HE AIL team: 10 weeks Police: 5 days RBA: 5 days
Exceeding above limits or ≤ 50,000kgs, STGO Cat 1	AWR limits	Road and Bridge Authorities (RBA): 2 days	RBA: 2 days		HE AIL team: 2 weeks Police: 2 days RBA: 2 days	
>50,000kgs, STGO Cat 2	≤12,000kgs			HE AIL team: 2 weeks Police: 2 days RBA: 5 days		
>80,000kgs, STGO Cat 3	≤16,500kgs	Police: 2 days RBA: 5 days	Police: 2 days RBA: 5 days			
>150,000kgs, Special Order (SO)	>16,500kgs	HE AIL team: 10 weeks Police: 5 days RBA: 5 days				

Abnormal indivisible load categories and notifications

C&U <ul style="list-style-type: none"> Loads in excess of 2.9m wide or 18.65m long: 2 clear days notice to Police 	STGO <ul style="list-style-type: none"> Loads greater than 50,000kgs or C&U limits and less than 80,000kgs: 2 clear days notice and indemnity to RBA Loads over 80,000kgs: 2 clear days notice to Police and 5 clear days RBA notification with indemnity
STGO VR1 <ul style="list-style-type: none"> Application to HE 2 weeks prior to proposed date of movement Loads greater than 44,000kgs or C&U limits and less than 80,000kgs: 2 clear days notice to Police and RBA notification with indemnity Loads over 80,000kgs: 2 clear days notice to Police and 5 clear days RBA notification with indemnity 	Special Order (SO) <ul style="list-style-type: none"> Application to HE 10 weeks prior to move 5 clear days notice to Police and RBA notification with indemnity

Key to classifications

Note: There are other factors, eg rigid length and overhangs that also affect the notification requirements. There are also Authorised Weight Regulations that may apply.

Appendix 2: Organisational endorsement

This document is endorsed by the following organisations:

Association of Chief Police Officers



Association of Chief Police Officers in Scotland



Construction Plant-hire Association



Department for Transport



Freight Transport Association



Heavy Transport Association



Road Haulage Association



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